

new products bulletin

Bulletin 294, July 1980

bulletin de produits nouveaux

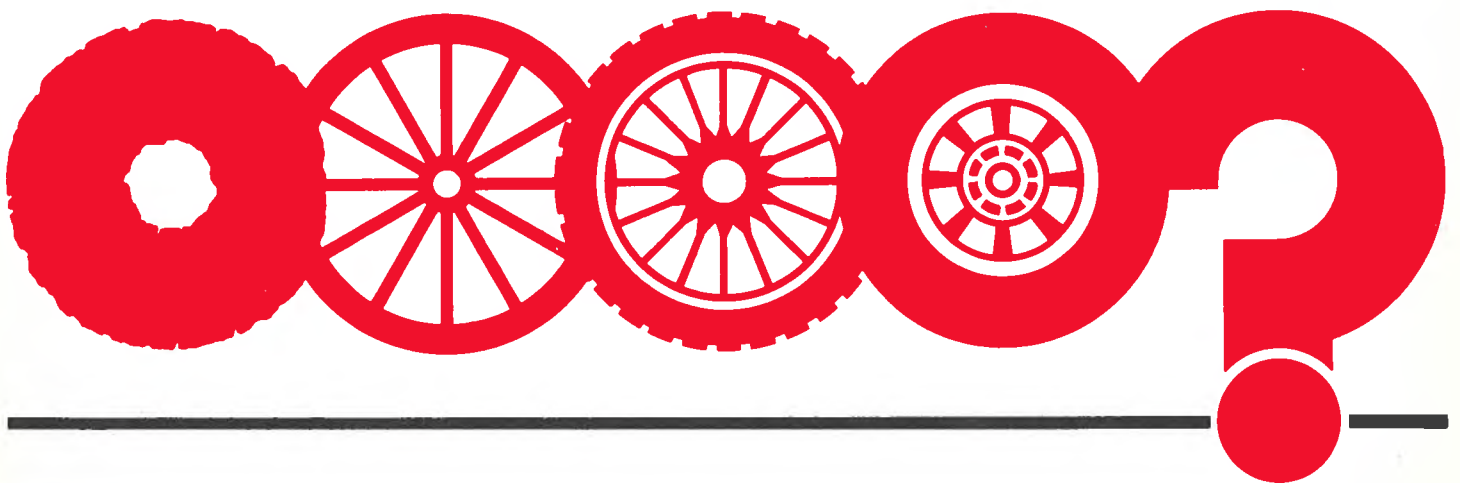
Bulletin 294, juillet 1980



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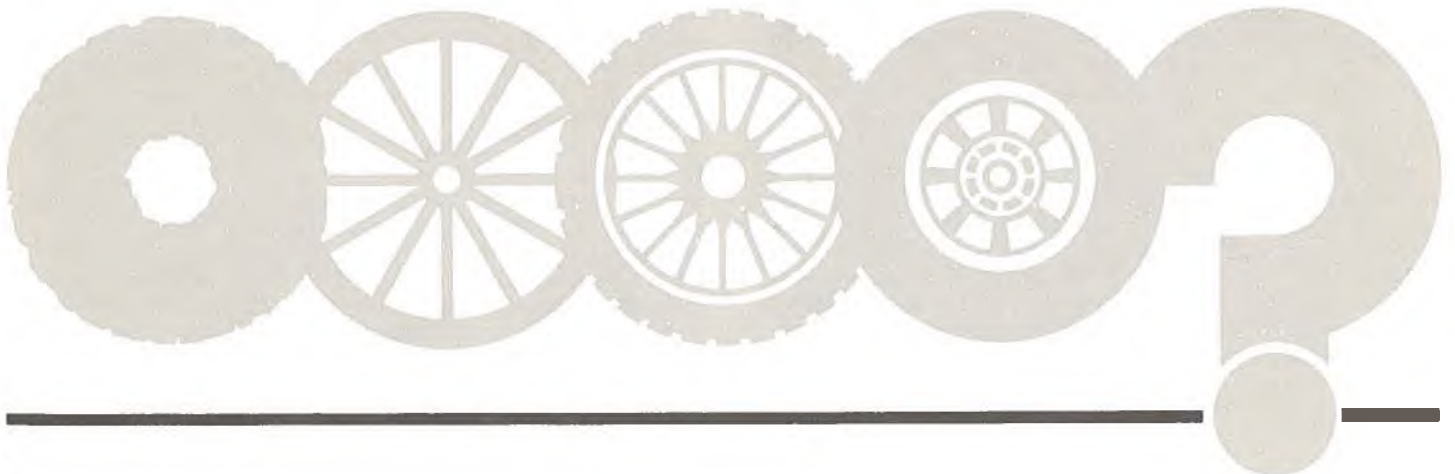
bulletin de produits nouveaux

This monthly bulletin is published to inform Canadian industry of licensing and joint venture opportunities that may be investigated for the purpose of forming manufacturing affiliations. The Department cannot assume any responsibility for claims made or for transactions which ensue from the publication of any items in this bulletin. If you are interested in any of the proposals you should contact the correspondent identified with the item and send a copy of your initial correspondence to the Canadian Government Trade Commissioner responsible for the area at the address indicated, in order that he can provide appropriate assistance or commercial information.

The Licensing Opportunities Section (34/3) of the BUSINESS CENTRE of the Department of Industry, Trade and Commerce, Ottawa, Ontario K1A 0H5 (Telephone: (613) 995-5771) should be advised of any agreements concluded as a result of this publicity.

Publié tous les mois, le présent bulletin a pour objet d'informer l'industrie canadienne des occasions de fabrication sous licence et d'entreprises en participation qu'il est possible d'étudier aux fins de constituer des affiliations manufacturières. Le Ministère ne peut assumer aucune responsabilité à l'égard des réclamations ou transactions découlant de la publication d'articles dans le présent bulletin. Si l'une ou l'autre des propositions vous intéresse, auriez-vous l'obligeance de communiquer avec le correspondant et transmettre copie de votre premier échange de correspondance au délégué commercial du Gouvernement du Canada qui s'occupe de la région en cause, à l'adresse indiquée, afin qu'il puisse vous fournir l'aide ou les renseignements commerciaux pertinents.

Prière d'informer la Section des possibilités de licences (34/3), du CENTRE DES ENTREPRISES, ministère de l'Industrie et du Commerce, Ottawa (Ontario) K1A 0H5 (tél. (613) 995-5771), de toute entente intervenue à la suite de la présente publicité.



Instant Cleaner-Degreaser/294

Canadian company is seeking a licensing partner for its cleaning compound called "FX-9" and will grant licences on the basis of a combination of geographical and market considerations, for example, the marine industry on the East Coast, the oil industry in Central and Western Canada, etc. This product is described as an instant cleaner-degreaser which is petroleum free, water soluble and which emulsifies, disperses and rinses freely. The product is described as nonflammable, noncorrosive, noncaustic, nontoxic and totally biodegradable. Applications for the product are varied and its uses include floor, rug, and general household and industrial cleaners, germicidal type cleaners, automotive cleaners, degreasers, etc. It is claimed that the Canadian Navy is writing specifications for "FX-9" for use onboard its vessels, that the Canadian Coast Guard has used it for cleaning lighthouses and buoys, that numerous shipping firms have expressed interest and that a major retailer is considering distribution for its use as a driveway and garage cleaner as it does not erode asphalt surfaces. Write: Athans Chemicals, 1649 Kilborn Avenue, Ottawa, Ontario K1H 6M7 and send a copy of your initial correspondence to the Licensing Opportunities Section (34/3), Business Centre, Department of Industry, Trade and Commerce, Ottawa, Ontario K1A 0H5.

Construction Reinforcement Elements/294

Swiss manufacturer offers a Canadian company the manufacturing and marketing rights under its Canadian patent number 1,023,929 for EBEA iron elements for reinforcing concrete walls and ceilings. The company will also make available manufacturing tools, technical and marketing know-how and documentation. The foam sheets can be supplied in the following widths: D = 12, 15, 18, 20, 25, 30, 35 and 40 cm with irons every 10, 15, 20 and 25 cm. The standard length is: E = 125 cm, but lengths of up to 330 cm can be obtained on request. Diameter of the steel — type A = 8-14 mm; type K = 8-12 mm and type E = 8-20 mm. The folding portions of the iron are sunk in foam to protect them from the concrete and to allow them to straighten out perfectly. These elements permit stable construction economically by a simple method of concreting iron concrete walls and ceilings with no complicated separation of works; no piercing of forms; by carrying out reinforcement and filling in one operation; by simplification of elements' measurements; and, by doubling irons, to increase the standard lengths for main reinforcement. Also, progress is made in the prevention of accidents by eliminating expensive and complicated separation works and piercing of forms; by the rational use of wooden formwork and the considerable reduction in its possibility of collapsing. (See illustration page 77.) Write: Gebr. Zehntner AG, Eigerstrasse 60, Postfach 15, 3000 Berne 23, Switzerland and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, Kirchenfeldstrasse 88, 3005 Berne, Switzerland.

Dégraissage-nettoyage instantané/294

Une société canadienne cherche un associé pour la commercialisation de sa poudre de nettoyage "FX-9". Les licences seront accordées en fonction de considérations géographiques et commerciales, par exemple: l'industrie maritime de la côte est, l'industrie du pétrole dans le centre et l'Ouest du Canada, etc. Ce produit est annoncé comme un dégraissage-nettoyage à action instantanée. Il est exempt de pétrole, soluble dans l'eau, émulsifiable et se disperse et se rince facilement. D'après le fabricant, il est également ininflammable, non corrosif, non caustique, non toxique et entièrement biodégradable. Ce produit peut avoir des utilisations variées: nettoyage des planchers et des tapis, travaux de nettoyage ménager et industriel, désinfection, nettoyage des automobiles, dégraissage, etc. Il semble que la marine canadienne soit en train de rédiger des spécifications d'achat pour utiliser le "FX-9" à bord des navires, que la garde côtière canadienne l'ait utilisé pour le nettoyage des phares et des bouées, que de nombreuses compagnies de navigation aient exprimé de l'intérêt pour ce produit et qu'un important détaillant envisage de le lancer sur le marché comme nettoyant pour garages et allées car il n'attaque pas les surfaces asphaltées. Écrire à: Athans Chemicals, 1649, avenue Kilborn, Ottawa (Ontario) K1H 6M7 et envoyer une copie de votre correspondance initiale à la Section des possibilités de licences (34/3), Centre des entreprises, Ministère de l'Industrie et du Commerce, Ottawa (Ontario) K1A 0H5.

Fers d'armature/294

Un fabricant suisse offre à une société canadienne les droits de fabrication et de commercialisation, sous le numéro de brevet canadien 1,023,929, de fers d'armature EBEA pour les murs et les plafonds en béton. Il mettra à la disposition de la société les outils de fabrication, une aide technique et commerciale, ainsi que la documentation. Les plaques de mousse sont livrables dans les largeurs suivantes = D = 12, 15, 18, 20, 25, 30, 35 et 40 cm, avec des fers chaque 10, 15, 20 et 25 cm. La longueur standard est de: E = 125 cm, mais des longueurs jusqu'à 330 cm peuvent être obtenues sur demande. Diamètre de l'acier type A: 8-14 mm, type K: 8-12 mm, type E: 8-20 mm. Les portions pliables des fers sont noyées dans de la mousse pour les protéger du béton et leur permettre de se redresser parfaitement. Ces fers permettent de réaliser des constructions stables de façon économique par une méthode de mise en oeuvre du béton des murs et des plafonds. Cette méthode n'exige pas une séparation compliquée des ouvrages. Il n'y a pas besoin de percer les coffrages; les travaux d'armature et de garniture s'effectuent en une seule opération. Les métrés sont simplifiés et, en doublant les fers, les longueurs standards des armatures principales peuvent être augmentées. Ce système constitue également un progrès du point de vue de la prévention des accidents en éliminant le problème compliqué et coûteux de la séparation des tranches et du perçage des coffrages et en réduisant considérablement le risque d'effondrement des banches en bois grâce à une utilisation plus rationnelle de celles-ci. (Voir l'illustration page 77.) Écrire à: Gebr. Zehntner AG, Eigerstrasse 60, Postfach 15, 3000 Berne 23, Suisse et faire parvenir une copie de votre correspondance initiale à la Division commerciale, Ambassade du Canada, Kirchenfeldstrasse 88, 3005 Berne, Suisse.

Turf Dressing Equipment/294

American manufacturer, established in 1948, offers the manufacturing and marketing rights for the production in Canada, of its turf maintenance equipment claimed to cut lawn maintenance for most applications from one half to one third the time. These turf dressing machines mulch, float, overseed, spread commercial fertilizers, top dress and spike aerate. The spiker-aerators, graders for loose dirt, hopper extensions, spreaders and turf renovator accessories are made of 16 gauge (1.6 mm) steel, have 3-point tractor hook-up, no power take off and are self contained. The hoppers have a sturdy screen mesh to keep rocks or large chunks out of the machine. The spike aerator accessory has full depth attachment adjustment to two and one half inches (63 mm) and can be adjusted 1) to allow its ten inch (254 mm) diameter, eight gauge (4 mm) heat treated high quality steel blades to cut into the toughest turf; 2) to lift the roller from touching the grass; and, 3) to spike aerate while spreading top dressing materials. (See illustration page 77.) Write: Dobbins Inc., P.O. Box 1870 A, Garden Grove, California 92642 and send a copy of your initial correspondence to Canadian Consulate General, 510 West Sixth Street, Los Angeles, California 90014.

Scouring and Milling of Natural Fibre Knitwear/294

British manufacturer offers a Canadian company the manufacturing and marketing rights to its composite liquid formulation "LEVALAINE'S" for the scouring and milling of all types of knitwear produced from natural fibres — mohair, botany, cashmere, lambswool and Shetland yarns. The liquid is a combination of nonionic and anionic surfactants, balanced by the addition of sodium based soap and controlled with a minimum and maximum range of between pH 7.8 and pH 8.8 irrespective of the type of yarn or dyestuffs used. This particular pH range ensures the safest region to obtain controlled consolidation and surface development. LEVALAINE'S minimizes loss of colour, eliminates cross staining if dyes of an acceptable standard are used, and is effective with a wide variety of water supplies. Optimum cleansing is achieved by the combined saponification and emulsification of added lubricants whether oleine based or emulsifiable oils. Effective removal of residues to give dichloromethane soxhlet extraction of below 0.5 percent are necessary to ensure clean garments free from odor. The formulation may be used in both automated and manual systems. The firm will supply technical assistance, sales advertising and technical literature and will assist with technical selling. Write: Mr. T.R. Bentley, Stephenson Bros. Ltd., P.O. Box 305, Listerhills Road, Bradford, West Yorkshire, BD7 1HY, England and send a copy of your initial correspondence to Commercial Division, Canadian High Commission, One Grosvenor Square, London, W1X 0AB, England.

Machines d'entretien des gazons/294

Une entreprise des États-Unis, fondée en 1948, offre les droits de fabrication et de commercialisation, au Canada, de ses machines d'entretien des gazons, lesquelles sont présentées comme devant réduire le temps d'entretien des pelouses, dans la plupart des cas, à la moitié ou au tiers du temps généralement requis. Ces "gazonneuses" paillent, nivellent, sèment, répandent les engrais courants, amendent la surface et piquent pour aérer. Les piqueurs-aérateurs, les niveleurs de surface, les trémies complémentaires, les épandeurs et les accessoires de rénovation des gazons sont fabriqués en acier de calibre 16 (1,6 mm), se fixent en trois points sur les tracteurs, se passent de prise de force et sont autonomes. Les trémies ont un grillage solide pour empêcher l'entrée de pierres et de gros morceaux de bois. La hauteur de fixation du piqueur-aérateur est réglable sur 2½ pouces (63 mm), ce qui permet 1) à ses molettes en acier trempé de haute qualité, de calibre 8 (4 mm) et de 10 pouces (254 mm) de diamètre de mordre dans le gazon le plus rude; 2) de lever le rouleau pour qu'il ne touche pas l'herbe; 3) de piquer pour aérer pendant l'épandage de produits d'amendement. (Voir l'illustration page 77.) Écrire à: Dobbins Inc., P.O. Box 1870 A, Garden Grove, California 92642 et envoyer une copie de votre correspondance initiale au Consulat général du Canada, 510 West Sixth Street, Los Angeles, California 90014.

Lavage et foulage des tricots en fibres naturelles/294

Un fabricant britannique offre à une entreprise canadienne les droits de fabrication et de commercialisation de son liquide composite "LEVALAINE'S" pour le lavage et le foulage de tous les types de tricots en fibres naturelles — mohair, laine de botany, cachemire, laine d'agneau et laine de Shetland. Cette formule est un mélange de surfactifs non ioniques et anioniques équilibrés par l'addition de savon à base de sodium et dont le pH varie entre 7,8 et 8,8, quel que soit le type de fil ou de colorant utilisé. Cette gamme particulière de pH est la plus sûre pour assurer la consolidation et la structure superficielle correctes. LEVALAINE'S réduit au minimum les pertes de couleur, élimine le tachage lorsque des colorants de qualité acceptable sont utilisés et est efficace dans une grande variété de types d'eau. Un nettoyage maximal est obtenu grâce à la saponification et à l'émulsification combinées des lubrifiants ajoutés, qu'il s'agisse de lubrifiants à base d'oléine ou d'huiles émulsionnables. L'élimination des résidus de manière à obtenir une extraction par dichlorométhane en Soxhlet de moins de 0,5 % est nécessaire pour assurer des vêtements propres exempts d'odeur. Cette formule peut être utilisée pour le lavage à la main ou à la machine. L'entreprise britannique fournira de la documentation et de l'aide technique et assurera les services de publicité. S'adresser à M. T.R. Bentley, Stephenson Bros. Ltd., P.O. Box 305, Listerhills Road, Bradford, West Yorkshire, BD7 1HY, England et faire parvenir une copie de votre correspondance initiale à la Division commerciale, Haut Commissariat du Canada, 1 Grosvenor Square, London, W1X 0AB, Angleterre.

Truck Mounted Loaders, Drilling Augers and Tools/294

French company offers the manufacturing and marketing rights in Canada for its truck mounted hydraulic loading machines having cactus or timber grabs for handling all types of loads (bulk, high, bundled, palletised, etc.); drilling machines for installing telephone and electricity poles; and core-type drilling tools. The loaders fold up completely behind the cab and are fully hydraulic. The folding forestry loaders have built in grabs. The drilling augers use the full power of the truck. Extra fuel is carried for this purpose. General manufacturing drawings, detailed drawings and patents will be provided to a company experienced in the field and capable of mass production, distribution and sales. (See illustrations page 77.) Write: Monsieur A. Causse, Directeur, SO. MA. CO. MONDA, B.P. 2024, 31017 Toulouse, France and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, 35 Avenue Montaigne, 75008 Paris, France.

Water Level Measuring System/294

Norwegian company offers the manufacturing and North American marketing rights for a high precision water level measuring system to a Canadian company supplying water level measuring equipment. The "LEHMSOR" system uses microprocessors to compare the air pressure within intake tube transducers submerged in water, with the atmospheric pressure to determine the water level in a reservoir of water. The system can consist of one or more monitoring stations (containing the intake tube transducers), connected to a network of control stations. There are also provisions for interfacing to telephone lines linked to a mini-computer or large main-frame computer, to provide further data analysis, warning, monitoring or supervisory remote control of valves or process controls. The measuring system provides an accuracy of 1 cm within a range of 0 to 11.5 meters. Up to eleven intake tubes may be connected to increase the measuring range from 0 - 101.5 meters. The Norwegian firm will supply a brief form describing equipment to companies interested in a preliminary assessment. Write: Mr. Ragnar Otterstad, Marketing Manager, Lehmkuhl Elektronikk A/S, P.O. Box 188, Hovfaret 11, Skoyen, Oslo 2, Norway and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, Postuttak, Oslo 1, Norway.

Computer Controlled Laboratory Distillation System/294

French manufacturer offers an exclusive know-how licence to a Canadian company to manufacture and market a line of microprocessor based process control systems. One product line is a console containing microprocessor, keyboard, digital display, and printer, which is used to control and monitor a fractional distillation unit. The process consists of: a packed column reflux divider, head condenser, light hydrocarbon trays and thermosiphon type reboiler.

Grues montées sur camion, foreuses et outils de forage/294

Une société française offre les droits de fabrication et de commercialisation au Canada de ses grues hydrauliques sur camion à grappin polype ou à grumes pour manutentions diverses (vrac, hauteur, fagots, palettes, etc.), de ses foreuses pour l'implantation de poteaux téléphoniques et électriques et de ses outils de forage type carottier. Les grues se replient au complet derrière la cabine et sont entièrement hydrauliques. Les grues forestières repliables ont un grappin incorporé. Les foreuses utilisent la pleine puissance du véhicule porteur. Une quantité supplémentaire de combustible est emportée à cette fin. Les plans de fabrication, ensemble et détail, de même que les brevets, seront mis à la disposition d'un industriel averti, capable de produire en grande série et d'effectuer la distribution et la vente. (Voir les illustrations page 77.) Écrire à: M. Antoine Causse, Directeur de la SO. MA. CO. MONDA, B.P. 2024, 31017 Toulouse (France) et envoyer une copie de votre correspondance initiale à l'Ambassade du Canada, Division commerciale, 35, avenue Montaigne, 75008 Paris (France)

Système de mesure de niveau d'eau/294

Une société norvégienne offre à un fournisseur canadien oeuvrant dans le même domaine, les droits de fabrication et de commercialisation sur le marché nord-américain d'un système de haute précision servant aux mesures de niveau d'eau. Le système "LEHMSOR" emploie des microprocesseurs pour comparer avec la pression atmosphérique la pression de l'air présent dans des tubes de transducteurs submergés, afin de déterminer le niveau de l'eau dans un réservoir. Le système peut être constitué d'un ou de plusieurs postes de monitoring (comprenant les transducteurs à tubes d'air) branchés à un réseau de postes de commande. Il est aussi possible d'établir une interface entre le système et des lignes téléphoniques reliées à un mini-ordinateur ou à un gros ordinateur central pour l'analyse des données, la fourniture d'avertissements ainsi que le monitoring ou la télécommande surveillée de vannes et de diverses opérations. Le système de mesure est précis à 1 cm près sur une plage de 0 à 11,5 mètres. Jusqu'à 11 tubes d'air peuvent être branchés pour porter la plage de mesure à 0 - 101,5 mètres. La société norvégienne fournira une brève description de l'équipement aux sociétés intéressées à effectuer une évaluation préliminaire. S'informer auprès de M. Ragnar Otterstad, Directeur de la commercialisation, Lehmkuhl Elektronikk A/S, C.P. 188, Hovfaret 11, Skoyen, Oslo 2, Norvège et faire parvenir une copie de votre correspondance initiale à la Division commerciale, Ambassade du Canada, Postuttak, Oslo 1, Norvège.

Ensemble de distillation de laboratoire microprocesseurisé/294

Un fabricant français offre à une société canadienne une licence exclusive de fabrication et de commercialisation d'ensembles microprocesseurisés de contrôle de procédés. Un de ces produits est une console comprenant un microprocesseur, un clavier, un indicateur numérique et une imprimante. Cette console sert à commander et à contrôler un ensemble de distillation fractionnée composé d'une colonne à garnissage, d'un diviseur de reflux, d'un

The operator uses the console to key in the temperature, pressure and percent volume. The operating conditions are displayed on digital readouts or from the software controlled paper printer. This system is especially suited for laboratory quality and analytical evaluation of crude oil blends or petroleum cuts. The terms are 400,000 F down payment plus ten percent royalty on sales. (See illustration page 78.) Write: GECIL Electronique et Informatique, 14, Route de St. Romain, 69450 Saint-Cyr au Mont d'Or (France) and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, 35 Avenue Montaigne, 75008 Paris, France.

Information Board/294

French manufacturer offers exclusive manufacturing and distributing rights in Canada with possible marketing rights in all of North and Central America, to a Canadian company having a distribution network connected to the building and public works sector and good contacts with architects, decorators, engineering firms, etc. Product consists of anodized aluminum and transparent plexi-glass sections with characters composed of silkscreened ABS plastic. Characters are modular in form and composition is based on typographical formulations. Product can be used as glass-covered notice boards in administrative buildings, industrial and commercial premises, information for the railways, post offices, airlines, museums, real estate agencies, hospitals, clinics, rates for bars, hotels and businesses, employment agencies, builder-promoters, exchange and interest rate tables for banks and financial organizations, directional indicator panels, stock-shelve indicators, name-plates for conference rooms, etc. Interchangeable lettering system consists of both upper and lower case, figures, symbols and punctuation in sizes 10, 15, 20, 30, or 40 mm. Write: Mr. Jacques Margouillat, 47 Allée Montaigne, 94170 Le Perreux, France and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, 35 Avenue Montaigne, 75008 Paris, France.

Unit Head for Turning, Drilling and Milling/294

Dutch scientific development organization offers a manufacturing licence for a metalworking unit head capable of turning, drilling and milling operations. The hollow, motor driven main spindle is fitted with heavy-duty bearings in the chrome faced spindle head. The traversing sequence is controlled by strip switches set in slides, and the heads are controlled by pneumatic — hydraulic feed units. Several units in different routines can be built into one transfer type line. Mechanization can be developed to a high degree of standardization with the advantage that many "tailor-made" jobs can be carried out quickly and economically. (See illustration page 78.) Write: LO 9059, Centre for Industrial Services TNO, P.O. Box 94, 2600 AB Delft, The Netherlands and send a copy of your initial correspondence to

condenseur de tête, d'un piège à hydrocarbures légers et d'un brouilleur de type thermosiphon. L'opérateur précise les consignes opératoires (température, pression, pourcentage distillé en volume). Les conditions opératoires réelles sont affichées sur des indicateurs numériques ou peuvent être imprimées. L'ensemble convient tout spécialement pour les évaluations analytiques et les analyses de qualité de pétroles bruts et de coupes pétrolières. Les conditions d'obtention de la licence sont un versement initial de 400 000 F et des royalties de 10 % sur les ventes. (Voir l'illustration page 78.) Faire parvenir sa demande à: GECIL Électronique et Informatique, 14, Route de St-Romain, 69450 Saint-Cyr au Mont d'Or (France) et expédier copie de votre correspondance initiale à la Division commerciale, Ambassade du Canada, 35, avenue Montaigne, 75008 Paris, France.

Tableaux d'affichage/294

Un fabricant français offre, à une société canadienne ayant un réseau de distribution dans le domaine du bâtiment et des travaux publics et une bonne clientèle d'architectes, de décorateurs, d'ingénieurs, etc., les droits exclusifs de fabrication et de distribution au Canada de ses produits ainsi que les droits de commercialisation éventuels sur l'ensemble des marchés d'Amérique du Nord et d'Amérique centrale. Il s'agit de tableaux composés de profilés en aluminium anodisé et de plaques transparentes en plexiglas avec caractères modulaires en plastique ABS et à composition typographique. Les tableaux peuvent servir à l'affichage dans les immeubles à bureaux, les établissements industriels et commerciaux, les gares, les bureaux de poste, les aéroports, les musées, les agences immobilières, les hôpitaux, les cliniques, les bars, les hôtels et les commerces, les bureaux de placement, les banques et sociétés financières (affichage des taux de change et d'intérêt), et peuvent être utilisés comme panneaux de direction, indicateurs pour étagères, plaques d'affichage pour salles de réunion, etc. Le lettrage interchangeable se compose de majuscules et de minuscules, de chiffres, de symboles et de signes de ponctuation de 10, 15, 20, 30 ou 40 mm. Écrire à M. Jacques Margouillat, 47 Allée Montaigne, 94170 Le Perreux, France et faire parvenir une copie de votre correspondance initiale à la Division commerciale, Ambassade du Canada, 35, avenue Montaigne, 75008 Paris, France.

Bloc d'entraînement pour tournage, perçage et fraissage/294

Un organisme hollandais de développement scientifique offre les droits de fabrication d'un bloc d'entraînement destiné à l'usinage du métal et conçu pour des travaux de tournage, de perçage et de fraissage. La broche principale creuse est entraînée par le moteur et sa tête à surface chromée comporte des roulements ultra-robustes. Le déplacement est commandé par des interrupteurs bandes placés dans les glissières tandis que les têtes sont commandées par des dispositifs d'avance pneumatiques hydrauliques. Plusieurs blocs peuvent être groupés pour former un ensemble de travail. La mécanisation peut alors atteindre un haut degré de normalisation et il devient possible d'effectuer rapidement et économiquement de nombreux travaux "sur mesure". (Voir l'illustration page 78.)

Commercial Division, Canadian Embassy, Sophialaan 7, The Hague, Netherlands.

Écrire à: LO 9059, Center for Industrial Services TNO, C.P. 94, 2600 AB Delft, Pays-Bas et faire parvenir une copie de votre correspondance initiale à la Division commerciale, Ambassade du Canada, Sophialaan 7, La Haye, Pays-Bas.

Fluidized Bed Grinding Dryer/294

Hungarian state licensing organization offers a manufacturing licence in Canada for a fluidized bed grinding dryer on behalf of the Richter Gedeon Works for Pharmaceutical Products, Budapest and the Research Institute for Technical Chemistry of the Hungarian Academy of Sciences, Veszprém, Hungary, with marketing rights in North America. Other markets are negotiable. The dryer is patented in Canada (1,039,054) and the U.S. (3,938,259) and twenty-five other countries. Besides the patents, documentation, design, consultation on adaptation and a demonstration will be provided to the licensee. The principal application is in the continuous, intensive drying of microcrystalline materials of high moisture content in the chemical industry. The new single continuous process unit makes possible the one-step production of dried materials of fine particle size from paste-like wet solids. The essence of the fluidized bed dryer is that the wet solids to be dried are fed into the bed of particles of an inert charge/carrier fluidized by gas. The apparatus has the following advantages: one-step, continuous operation, regulatable moisture content of the end-product, variable production rate, dynamically stable running, simple feed-in and, homogeneous product. Write: Novex 5103, Novex Foreign Trade Co. Ltd. for Development and Commercialization of Inventions, Március 15. tér 1., Budapest, H-1056, Hungary and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, Budakeszi ut 55/dP/8, 1021 Budapest, Hungary.

Pilger Mill/294

Russian state licensing organization offers the licensing rights to a Canadian manufacturer for a pilger mill for the production of tubes from zirconium and other hard-to-work materials. Developed at the Institute of Steel and Alloys in Moscow, the mill's distinguishing feature is its stationary working stand which permits a reduction in the weight of the moving parts by 85 to 90 percent, substantially increases the dimensional accuracy of the tubes and increases production efficiency two to two and one half times over conventional machines. For instance, in the course of rolling, a blank undergoes ten to sixty percent reduction in diameter and ten to ninety percent reduction in wall thickness in a single pass and the rate of operation is up to 120 double passes per minute. In the new mill only the blank, with the rod, mandrel and chuck, as well as the carriage that holds the tube, are permitted to reciprocate. The advantage has been attained by equipping the stationary stand with variable-in-profile grooved rolls. Write: V/O Licensintorg, 31, rue Kakhovka, 113461 Moscow, U.S.S.R. and send a copy of your initial correspondence to: Commercial Division, Canadian Embassy, 23 Starokonijushenny, Perculok, Moscow, U.S.S.R.

Sécheur-broyeur à lit fluidisé/294

L'organisme hongrois d'attribution des licences offre une licence de fabrication au Canada d'un sécheur-broyeur à lit fluidisé, au nom de la société Richter Gedeon de Budapest et de l'Institut de recherche en chimie industrielle de l'Académie hongroise des Sciences à Veszprém. La licence comprend les droits de commercialisation en Amérique du Nord et d'autres marchés peuvent également être négociés. Le sécheur est breveté au Canada (1 039 054) et aux États-Unis (3,938,259), ainsi que dans 25 autres pays. En plus des brevets, on fournira de la documentation, la conception, des conseils sur l'adaptation et une démonstration. La principale application est le séchage intensif en continu des produits microcristallins de l'industrie chimique, qui ont une forte teneur en humidité. Ce nouveau procédé en continu rend possible la production en une seule étape, de produits secs très fins à partir de solides humides en pâte. Le principe du système est l'introduction des solides humides dans un lit de particules inertes, fluidisées par un gaz. L'appareil a les avantages suivants: une seule opération; fonctionnement en continu; régulation possible de la teneur en humidité du produit fini; vitesse de production variable; fonctionnement dynamique stable; alimentation simple; produit fini homogène. Écrire à Novex 5103, Société Novex pour le développement et la commercialisation des inventions, Március 15. tér. 1, Budapest, H-1056 (Hongrie) et envoyer une copie de votre correspondance initiale à la Division commerciale, Ambassade du Canada, Budakeszi ut 55/dP/8, 1021 Budapest (Hongrie).

Laminoir à pas de pélerin/294

Un organisme russe d'octroi de permis offre à un fabricant canadien les droits d'exploitation d'un laminoir à pas de pélerin pour la production de tubes de zirconium et autres matériaux difficiles à travailler. Mis au point à l'Institut de l'acier et des alliages de Moscou, le laminoir se caractérise par sa cage de travail fixe qui réduit de 85 à 90 % la masse des pièces mobiles, augmente de façon appréciable la précision des dimensions des tubes et augmente de deux fois à deux fois et demie le rendement productif par rapport aux machines classiques. Par exemple, au cours du laminage, en une seule passe, le diamètre d'une pièce brute est réduit de 10 à 60 % et l'épaisseur des parois est réduite de 10 à 90 %; la cadence des opérations atteint 120 doubles passes à la minute. Dans ce nouveau laminoir, seuls l'ébauche, la tige, le mandrin, ainsi que le chariot porte-tube ont un mouvement de va-et-vient. L'avantage du laminoir a été d'équiper sa cage fixe de cylindres de laminage avec cannelures à profil variable. Écrire à: V/O Licensintorg, 31, rue Kakhovka, 113461 Moscou, URSS et faire parvenir une copie de votre correspondance initiale à: Ambassade du Canada, Division commerciale, 23 Starokonijushenny, Perculok, Moscou, URSS.

Bond Flux for Submerged Arc Welding with Great Heat Input/294

Japanese scientific organization offers patent and know-how licensing of Kobe Steel Ltd. technology relating to a sintered flux that permits butt joint welding with stable high-impact quality even in case of great welding heat input in submerged arc welding of soft steel or 50 kg/mm² high tensile strength steel. With this sintered flux, it is possible to obtain a weld having stable high-impact quality even when the chemical components of the steel plate change due to addition of titanium, boron or molybdenum or when the steel plate contains niobium, vanadium, etc., that are recognized as causing reduced toughness of the weld metal. This sintered flux is characterized by its excellent welding workability with great heat input and current, small hydrogen content in the weld metal, and fine and uniform microstructure free from micro defects. Furthermore, it contains iron powder in the flux and features high deposition rate and efficiency. Advantages: the impact performance of the weld metal at -20°C is 3.5 kg-m or more when the welding heat input is 70.0 to 100.0 KJ/cm; and the deposition rate is approximately 1.4 times that of the conventional flux with the same current. Write: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japan and send a copy of your initial correspondence to Commercial Division, Embassy of Canada, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japan.

One-Side Welding with Resin Flux Backing/294

Japanese scientific organization offers patent and know-how licensing of Kobe Steel Ltd. technology relating to a one-side automatic welding method for improving the efficiency of steel plate welding, particularly of plate-joining work. In this technology, a powder backing flux containing thermosetting resin is disseminated on the upper layer of the under layer flux in a belt- or trough-type backing apparatus, and the backing flux is pushed against the reverse side of the groove line by swelling an air hose in the bottom, thereby enabling the simultaneous formation of both the surface and reverse beads, while completing the welding operation. Since the backing flux is a powder form before initiating welding, it is easily adaptable to distortion, misalignment, and difference in plate thickness of the reverse side of the steel plate, and thereby preventing adhesion failures between the reverse side of the thin steel plate, which is about 6 mm thick, and the backing flux. With the start of welding, the backing flux solidifies by arc heat in close contact with the reverse side of the steel plate right ahead the arc point. Thus the formation of the reverse beads can be performed smoothly, and satisfactory beads, free from defects such as undercut or overlap, can be obtained. Advantages: the plate overturning process is eliminated; compared with both-sides arc welding, the process is reduced approximately 45 percent; permits three-electrode welding — a single layer finish welding of a plate approximately 35 mm thick can be done at high speed, or a 25 mm thick plate of 50 cm/min.; because of small angular distortion, structural members can be easily fired. Write: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japan and send a copy of your initial cor-

Flux de liaison pour soudage à l'arc avec grand apport de chaleur/294

Un organisme scientifique japonais offre les droits d'exploitation des brevets et des procédés techniques de la Kobe Steel Ltd relativement à un flux fritté qui permet des soudures bout à bout stables de grande résistance aux chocs, même dans le cas de soudage à l'arc sous flux des aciers doux ou des aciers à haute résistance (50 kg/mm²) avec grand apport de chaleur. Grâce à ce flux fritté, il est possible d'obtenir une soudure stable et très résistante aux chocs, même si la composition de la plaque d'acier est modifiée par addition de titane, de bore ou de molybdène ou bien si cette plaque renferme du niobium, du vanadium, etc., reconnus pour affaiblir le métal fondu. Le flux fritté offre une excellente soudabilité avec un grand apport de chaleur et de courant, le métal fondu a une faible teneur en hydrogène et la microstructure est fine, uniforme et exempte de défautuosité. En outre, le flux renferme de la poudre de fer et permet un rendement élevé à la fusion. Avantages: la résilience du métal fondu à -20°C est de 3,5 kgm ou plus lorsque l'apport de chaleur au soudage est de 70 à 100 kJ/cm et le rendement à la fusion est d'environ 1,4 fois celui du flux ordinaire pour un même courant. Écrire à: The Foundation of Osaka Science and Technology Center, 1-8-4 Utsubo Hommachi, Nishi-ku, Osaka, Japon, et faire parvenir une copie de votre correspondance initiale à: Ambassade du Canada, Division commerciale, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japon.

Soudage d'un seul côté avec flux à la résine à l'envers/294

Un organisme scientifique japonais offre les droits d'exploitation des brevets et des procédés techniques de la Kobe Steel Ltd relativement à une méthode de soudage automatique d'un seul côté permettant d'améliorer le rendement du soudage des plaques d'acier et, particulièrement, du travail d'assemblage des plaques. Cette technique consiste à étendre un flux en poudre renfermant une résine thermodurcissable sur la couche supérieure de la sous-couche de flux dans un applicateur à bande ou de type traversée, puis à appliquer le flux à l'envers au verso de la ligne du chanfrein en gonflant un boudin à la partie inférieure, de façon à former simultanément un cordon des deux côtés, pendant que s'effectue l'opération de soudage. Cette technique présente les caractéristiques suivantes: étant donné qu'il se présente sous forme de poudre avant le soudage, le flux s'accommode facilement de toute distorsion, défaut d'alignement ou différence d'épaisseur au verso de la plaque d'acier, ce qui prévient les défauts d'adhésion entre le verso de la plaque mince (environ 6 mm d'épaisseur) et le flux à l'envers. Au début de l'opération, le flux à l'envers se solidifie sous l'effet de la chaleur de l'arc en contact avec le verso de la plaque d'acier, juste en avant de la pointe de l'arc. On peut ainsi réaliser un cordon à l'envers uniforme et exempt de caniveau et de bavure. Avantages: le retournement de la plaque est supprimé; par rapport au soudage à l'arc des deux côtés, la durée de l'opération est réduite de 45 %; cette technique permet le soudage à trois électrodes; on peut réaliser très rapidement une soudure de finition en une couche sur une plaque d'environ 35 mm d'épaisseur ou, dans le cas d'une plaque de 25 mm d'épaisseur, à une vitesse de 50 cm/mn; en raison de la faible distorsion angulaire, il est facile de fixer les

respondence to Commercial Division, Embassy of Canada, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japan.

pièces de charpente. Écrire à: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japon, et faire parvenir une copie de votre correspondance initiale à: Ambassade du Canada, Division commerciale, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japon.

Composite Electrode for Consumable Electrode Arc Welding/294

Japanese scientific organization offers patent and know-how licensing of Kobe Steel Ltd. technology relating to flux-cored wire to be used in open-type automatic arc welding of steel without externally supplying shield gas or flux. The composite is characterized by the fact that the core portion of the wire is filled with flux powder, mainly composed of metal fluoride and denitrifying metal powder, within the range from 10 to 40 wt% of the wire, and flux powder contains denitrifying Al-Mg alloy powder in 20 wt% of the flux powder which contains 0.006 to 0.6 wt% of Na and K in the form of chlorides. Thus, by co-existence of Na and K, which have a powerful arc stabilizing effect when Mg becomes metal vapor by arc heat, molten metal drops can be smoothly transferred at the wire melting portion so that the absorption of N from the atmosphere is reduced to improve the performance of deposited steel, and particularly its notch-toughness. Na and K are added to the Al-Mg alloy in the form of chlorides because it is technically difficult to add them as elements. Advantages: the quantity of Al-Mg alloy to be mixed can be reduced; the decrease of Al and N makes it possible to obtain deposited steel of high notch-toughness; high arc stability. Write: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japan and send a copy of your initial correspondence to Commercial Division, Embassy of Canada, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japan.

Électrode composite pour soudage à l'arc avec électrode fusible/294

Un organisme scientifique japonais offre les droits d'exploitation des brevets et des procédés techniques de la Kobe Steel Ltd relativement à un fil fourré à utiliser dans le soudage automatique à l'arc et à l'air libre de l'acier, en l'absence de gaz inerte et de flux séparés. L'âme du fil se présente sous forme d'un flux en poudre constituant entre 10 et 40 % du poids du fil et surtout composé de fluorure métallique et de poudre métallique aux propriétés dénitrifiantes; ce flux renferme un alliage Al-Mg dénitrifiant représentant 20 % de son poids et entre 0,006 et 0,6 % de sodium et de potassium sous forme de chlorures. La co-existence de sodium et de potassium stabilise fortement l'arc lorsque le magnésium se transforme en vapeur sous l'effet de la chaleur et, ainsi, les gouttes de métal fondu sont transférées uniformément, à la partie fondante du fil, d'où une absorption réduite de l'azote de l'atmosphère et une amélioration du rendement de l'acier déposé et particulièrement de sa résistance à l'effet d'entaille. Le sodium et le potassium sont ajoutés à l'alliage Al-Mg sous forme de chlorures parce qu'il est très difficile de les ajouter sous forme de corps simples. Avantages: la quantité d'alliage Al-Mg peut être diminuée; la quantité réduite d'aluminium et d'azote permet d'obtenir un acier déposé d'une grande résistance à l'effet d'entaille; la stabilité de l'arc est très grande. Écrire à: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japon, et faire parvenir une copie de votre correspondance initiale à l'Ambassade du Canada, Division commerciale, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japon.

One-Side Welding with Flux and Copper Plate Backing/294

Japanese scientific organization offers patent and know-how licensing of Kobe Steel Ltd. technology relating to a backing flux containing a thermosetting resin. It is disseminated on a thin copper plate and when the plate is pushed against the steel plate to be welded it solidifies right ahead of the arc. As a result, there is no outflow of molten metal between the copper and steel plates and roundish reverse beads, free from undercut or overlap, can be obtained. Advantages: overturning the plate is eliminated, the welding operation can be reduced by about 45 percent as compared with both sides submerged arc welding, permits high speed three electrode arc welding and because of small angular distortion, structural members can be fixed. Write: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japan and send a copy of your initial correspondence to Commercial Division, Embassy of Canada, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japan.

Soudage d'un côté avec flux et feuillard de cuivre à l'envers/294

Un organisme scientifique japonais offre les droits d'exploitation des brevets et des procédés techniques de la Kobe Steel Ltd relativement à un flux à l'envers contenant une résine thermodurcissable. Le flux est étalé sur un mince feuillard de cuivre. Lorsque ce feuillard est appliqué contre la plaque d'acier à souder, le flux se solidifie juste en avant de l'arc. Ainsi, il ne se produit aucun débordement de métal fondu entre le feuillard et la plaque d'acier et on peut obtenir des cordons à l'envers arrondis, exempts de caniveaux et de bavures. Avantages: le retournement de la plaque est éliminé et la durée de l'opération est réduite de 45 % par rapport au soudage à l'arc sous flux des deux côtés; le soudage à l'arc à trois électrodes est possible; en raison de la faible distortion angulaire, on peut fixer les pièces de charpente. Écrire à: The Foundation of Osaka Science and Technology Center, 1-8-4 Utsubo Hommachi, Nishi-ku, Osaka, Japon, et faire parvenir une copie de votre correspondance initiale à l'Ambassade du Canada, Division commerciale, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japon.

One-Side Welding with Double-Layer Flux Backing/294

Japanese scientific organization offers patent and know-how licensing of Kobe Steel Ltd. technology relating to a high efficiency welding process by eliminating back gouging and overhead position welding. Back beads are formed from the surface by pushing "Kataflux" material to the back side of the groove by means of an L piece, a wedge, etc. The material is available in three types: for submerged arc welding; non-gas shielded arc welding; and CO₂ (gas shielded) arc welding. The process features easy and simple fixing and handling of the "Kataflux" and is suited for butt joint welding. Since the "Kataflux" produces very little odor and smoke during welding, it can be used even in poorly ventilated locations. Moreover, the range of welding conditions is wide and stable back beads can be obtained even with relatively large groove variations. Write: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japan and send a copy of your initial correspondence to Commercial Division, Embassy of Canada, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japan.

One-Side Welding with Solid Flux Backing/294

Japanese scientific organization offers patent and know-how licensing of Kobe Steel Ltd. technology relating to a fire resistant, ancillary, solid backing flux BB-1 for one side welding using covered arc welding electrodes. It has suitable apparent porosity; because of slag pockets, satisfactory back beads free from undercut and excellent deposit metal can be obtained even where different groove conditions exist (allowable range at a 50°V groove: root gap 3-10 mm, unevenness 0-3 mm); permits formation of back beads featuring excellent appearance and profile; is easy to handle; suitable for welding in narrow or at high places; the root position can be easily and accurately inspected and the welding efficiency is improved by approximately 25 percent because back gouging and back welding are not necessary. This technology requires no copper plate; allows the material to be cut to any length without tools and joined together; and produces fewer flaws at the joint because the crater is cooled slowly. Write: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japan and send a copy of your initial correspondence to Commercial Division, Embassy of Canada, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japan.

Cross-and-Taper Rolling Mill/294

Russian State licensing organization offers the licensing rights to a Canadian manufacturer for a method, developed at the Physics and Technology Institute under the Byelorussian Academy of Sciences in Minsk, which permits finished products rolled from bar stock to be made to equally exact dimensions as those obtainable on auto-

Soudage d'un côté avec double couche de flux à l'envers/294

Un organisme scientifique japonais offre les droits d'exploitation des brevets et des procédés techniques de la Kobe Steel Ltd relativement à un procédé de soudage à haut rendement permettant de supprimer le gougeage à l'envers et le soudage au plafond. Les cordons à l'envers sont formés à partir de la surface en repoussant le matériau "Kataflux" à l'envers du chanfrein au moyen d'une pièce en L, d'un coin, etc. Le matériau est offert pour trois types de soudage: le soudage à arc sous flux, le soudage à l'arc sans protection gazeuse et le soudage à l'arc sous CO₂. Le procédé permet de fixer et de manipuler facilement et simplement le matériau "Kataflux" et convient au soudage bout à bout. Comme le "Kataflux" est presque inodore et très peu fumigène au cours du soudage, il peut être utilisé dans des endroits mal aérés. De plus, la gamme de conditions de soudage est très vaste et on peut obtenir des cordons à l'envers stables, même si les chanfreins sont assez grands. Écrire à: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japon, et faire parvenir une copie de votre correspondance initiale à l'Ambassade du Canada, Division commerciale, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japon.

Soudage d'un côté avec flux solide à l'envers/294

Un organisme scientifique japonais offre les droits d'exploitation des brevets et des procédés techniques de la Kobe Steel Ltd relativement à un flux auxiliaire, solide et ignifuge, appelé BB-1 et destiné au soudage à l'arc d'un seul côté avec électrodes enrobées. Ce flux a une porosité apparente convenable. En raison des soufflures du laitier, on peut obtenir des cordons à l'envers satisfaisants, exempts de caniveaux, et un excellent dépôt de métal, même si les chanfreins sont différents (tolérances pour un chanfrein en V de 50°: écartement des bords, 3 à 10 mm; inégalité, 0 à 3 mm). Il permet la formation de cordons à l'envers d'une belle apparence et d'un beau profil. Il est facile à manipuler. Il convient au soudage dans les endroits exigus ou élevés. Le contrôle de la racine peut se faire facilement et de façon précise; le rendement de la soudure est amélioré d'environ 25 %, étant donné que le gougeage et le soudage à l'envers ne sont pas nécessaires. Cette technique élimine l'utilisation du feuillard de cuivre; elle permet de couper le matériau à la longueur voulue sans outil et de joindre les pièces; elle produit moins de défauts au joint parce que le cratère est refroidi lentement. Écrire à: The Foundation of Osaka Science and Technology Center, 1-8-4, Utsubo Hommachi, Nishi-ku, Osaka, Japon, et faire parvenir une copie de votre correspondance initiale à: Ambassade du Canada, Division commerciale, 3-38 Akasaka 7, Chome, Minato-ku, Tokyo 107, Japon.

Laminoir en travers et en coin/294

Un organisme russe d'octroi de permis offre à un fabricant canadien les droits d'exploitation d'un procédé mis au point à l'Institut de physique et de technologie parrainé par l'Académie des sciences de Biélorussie, à Minsk, et permettant d'obtenir, à partir du laminage de barres, des produits finis de mêmes dimensions que ceux que l'on peut

matic lathes. This improved plastic deformation of metal technique is 90 percent less labour consuming, the metal utilization coefficient is increased to 80-90 percent and it takes only three to four seconds to work a blank on this mill. Practically all structural steels, a number of tool steels and refractory materials, as well as copper and aluminum-based non ferrous alloys are amenable to working into axisymmetrical articles formed as a combination of cylindrical, conical or spherical surfaces with all kinds of recesses and projections, i.e., steering arm pins, shafts, axles, teeth for harrows and earth moving machinery, screws, refractory alloys, spindles, valves used in hydraulic equipment, plungers and diesel engines, atomizing cones, nipples of high pressure hoses, punches, drills, etc. Tool size calculation has been developed in the FORTRAN language and the mill is easily readjusted for the production of articles in varying types and sizes. (See illustration page 78.) Write: V/O Licensintorg, 31, rue Kakhovka, 113461 Moscow, U.S.S.R. and send a copy of your initial correspondence to: Commercial Division, Canadian Embassy, 23 Starokonijushenny, Perculok, Moscow, U.S.S.R.

Cutting Device/294

American inventor offers the manufacturing and North American marketing rights to a Canadian company for a cutting method and machine employing heated reciprocating wire. Combustible materials, including plastic sheets, plates, and blocks, also leather and all varieties of wood, may be cut along predetermined lines by engaging same with a heated reciprocating wire at temperatures which vaporizes the material rather than melting same. The machine provides a reciprocating wire which is heated by electrical resistance. A system of air quenching of the wire above and below the cutting zone is employed in order to attain incandescent temperatures at the point of cutting. Write: Mr. Paul S. Patterson, 160 Third Court, Chuluota, Florida 32766 and send a copy of your initial correspondence to Canadian Consulate General, 900 Coastal States Building, 260 Peachtree Street, Atlanta, Georgia 30303.

Solar Collector/294

American inventor offers a Canadian company a know-how licence and the manufacturing and marketing rights under his U.S. patent number 4,137,901 for solar collectors for home heating or cooling of the "greenhouse" type. This solar energy collecting and trapping apparatus includes a pan with upstanding reflecting side walls and a black bottom, the pan being covered by a reflecting panel and a transparent front panel, whereby the sun energy incident in the apparatus is trapped by multiple internal reflections in the body of fluid in the pan. Advantages: maximum energy may be extracted and used within the collector rather than allowing it to reflect back outside again; "greenhouse" shape overcomes chilling effect of the wind which effects systems operating with flat collectors and to some extent, those systems using spherical collectors around tubes. Write: Henry B. Maier, 6 Sealey Avenue, Hempstead, Long Island, New York 11550 and send a copy of your initial

obtenir à l'aide d'un tour automatique. Cette technique perfectionnée du travail du métal par déformation plastique réduit la main-d'oeuvre de 90 %; le coefficient d'utilisation du métal atteint de 80 à 90 % et il ne suffit que de trois à quatre secondes pour travailler une ébauche au moyen de ce laminoir. Presque tous les profilés d'acier, un bon nombre d'aciers à outils et de matériaux réfractaires, ainsi que les alliages non ferreux à base d'aluminium et de cuivre sont susceptibles d'être transformés en pièces axisymétriques, c-à-d. en pièces présentant des surfaces cylindriques, coniques ou rondes, avec toutes sortes d'aspérités et d'évidements: axes de levier de direction, arbres, essieux, dents de herbes et d'engins de terrassement, vis, alliages réfractaires, pivots, soupapes utilisées dans le matériel hydraulique, plongeurs et moteurs diesel, pulvérisateurs, raccords de tuyaux à haute pression, poinçons, forêts, etc. Le calibre des outils a été traduit en langage FORTRAN et le laminoir peut être facilement réglé pour produire des pièces de différents types et calibres. (Voir l'illustration page 78.) Écrire à: V/O Licensintorg, 31, rue Kakhovka, 113461, Moscou, URSS, et faire parvenir une copie de votre correspondance initiale à l'Ambassade du Canada, Division commerciale, 23 Starokonijushenny, Perculok, Moscou, URSS.

Machine à découper/294

Un inventeur américain offre à une compagnie canadienne les droits de fabrication et de commercialisation en Amérique du Nord sur une méthode et une machine à découper alternative à fil chauffant. Cette machine permet de couper suivant un tracé précis, des matériaux combustibles (notamment des feuilles, plaques ou blocs de plastique, le cuir et toutes les essences de bois) en y passant un fil animé d'un mouvement de va-et-vient et chauffé à une température telle que le matériau, mieux que de fondre, se vaporise au contact. Le fil est chauffé à l'électricité. Un dispositif souffle de l'air au-dessus et au-dessous de la zone de coupe de façon que le fil puisse être porté à incandescence au point de coupe. Écrire à Mr. Paul S. Patterson, 160 Third Court, Chuluota, Florida 32766, et envoyer une copie de votre correspondance initiale au Consulat général du Canada, 900 Coastal States Building, 260 Peachtree Street, Atlanta, Georgia 30303.

Capteur solaire/294

Un inventeur américain offre aux sociétés canadiennes son savoir-faire et les droits de fabrication et de commercialisation, brevet U.S. numéro 4 137 901, de capteurs solaires à "effet de serre" pour le chauffage ou la climatisation domestique. Ce dispositif de captation et de piégeage de l'énergie solaire comprend un bac, avec des parois latérales réfléchissantes et un fond noir, recouvert d'un panneau réfléchissant et d'un panneau frontal transparent; l'énergie solaire incidente est confinée dans le fluide du bac par réflexions multiples internes. Les avantages sont: extraction et utilisation maximales de l'énergie dans le capteur, car l'énergie n'est pas réfléchie; la forme en "serre" compense le refroidissement éolien qui a un effet négatif sur les systèmes à capteurs plans et, dans une certaine mesure, sur ceux à capteurs sphériques autour de tubes. Écrire à: Henry B. Maier, 6 Sealey Avenue, Hempstead, Long Island, New York 11550 et faire parvenir

correspondence to Canadian Consulate General, 1251 Avenue of the Americas, New York, N.Y. 10020.

Solar Cells Coating/294

American inventor offers a Canadian company a know-how licence and the manufacturing and marketing rights under his U.S. patent number 4,137,096 for a low cost system for developing coatings for use in solar and thermal cells. The cells are made by electrodeposition of a metallic coating on a conductive substrate, followed by cathodic conversion of the coating in a thiosulfate containing bath to form metallic sulphides. Electrical contacts are made to portions of the sulphide layer and the coated substrate is dried to a point sufficient to yield a photoresponsive device. As development work is required proprietary information will be supplied to accelerate production development. Write: Henry B. Maier, 6 Sealey Avenue, Hempstead, Long Island, New York 11550 and send a copy of your initial correspondence to Canadian Consulate General, 1251 Avenue of the Americas, New York, N.Y. 10020.

Pick-Up Apparatus/294

American inventor offers the manufacturing and marketing rights in Canada under his Canadian Patent Number 1,065,364 covering a unique, all purpose, maintenance free tool for picking up many articles. The tool is constructed of aluminum alloy, is 82.5 cm (33 inches) in length with a trigger operated plastic hand grip and having specially designed jaws to grip and hold small objects such as litter, cigarette butts, rags, nails, pine cones outdoors, and books, laundry, shoes, toys, etc., from floor behind and under furniture. It is ideal for moving fabrics from hot or cold water, for turning grilled steaks, picking up corn on the cob, potatoes, etc., or for rearranging charcoal briquettes. Users are homeowners, hospitals, the handicapped, road commissioners and caretakers in playgrounds, camps or parks, etc. (See illustrations page 79.) Write: Mr. Robert M. Baker, R. No. 1, Morley, Michigan 49336 and send a copy of your initial correspondence to Canadian Consulate, 1920 First Federal Building, 1001 Woodward Avenue, Detroit, Michigan 48226.

Adjustable Clamp/294

American inventor offers his Canadian (1,070,722) and American (4,087,548) patent rights to a Canadian company interested in manufacturing and selling, in all countries, his apparatus for improved clamping of workpieces that vary in size. The clamp is simple to operate, is capable of rapid and secure engagement with a workpiece and has a quick release mechanism. Write: Mr. Dale J. Hackbarth, 4062 Citrus Circle, Yorba Linda, California and send a copy of your initial correspondence to Canadian Consulate General, 510 West Sixth Street, Los Angeles, California 90014.

une copie de votre correspondance initiale au Consulat général du Canada, 1251 Avenue of the Americas, New York, N.Y. 10020.

Revêtement pour piles solaires/294

Un inventeur américain propose à une compagnie canadienne le savoir-faire ainsi que les droits de fabrication et de commercialisation, couverts par le brevet U.S. n° 4,137,096, d'un système à bas coût destiné à la production de revêtement de piles solaires et thermiques. Celles-ci sont formées par dépôt électrolytique d'un revêtement métallique sur une couche conductrice, suivi de la conversion cathodique du revêtement dans un bain de thiosulfate pour l'obtention de sulfures métalliques. Des contacts électriques sont constitués avec certaines parties de la couche de sulfure et la couche revêtue est séchée jusqu'à obtention d'un dispositif photo-sensible. Au fur et à mesure de la mise au point, on fournira des renseignements brevetés pour accélérer le développement de la production. Écrire à: Henry B. Maier, 6 Sealey Avenue, Hempstead, Long Island, New York 11550 et faire parvenir une copie de votre correspondance initiale au Consulat général du Canada, 1251 Avenue of the Americas, New York, N.Y. 10020.

Dispositif de ramassage/294

Un inventeur américain offre les droits de fabrication et de mise en marché au Canada d'un outil nouveau, tout usage et sans entretien, qui permet de ramasser toutes sortes d'articles (n° de brevet canadien: 1 065 364). D'une longueur de 82,5 cm (33 po), cet outil en alliage d'aluminium a poignée en plastique et à détente porte des mâchoires qui peuvent saisir et tenir de petits objets, comme des déchets, des mégots, des chiffons, des clous, des pommes de pin, des livres, du linge, des souliers, des jouets, etc., traînant par terre, sous le mobilier ou derrière celui-ci. Il permet de retirer du linge de l'eau chaude ou de l'eau froide, de tourner des biftecks sur charbon de bois, de retirer des pommes de terre ou des épis de maïs chauds ou de redresser les briquettes en toute sécurité. Les propriétaires de maison, les handicapés, les employés d'hôpital, de la voirie, de terrain de jeu, de parc, etc., utilisent cet outil. (Voir les illustrations page 79.) Écrire à: Mr. Robert M. Baker, R. no. 1, Morley, Michigan 49336 et faire parvenir une copie de votre correspondance initiale au Consulat du Canada, 1920 First Federal Building, 1001 Woodward Avenue, Detroit, Michigan 48226.

Pince réglable/294

Un inventeur américain offre de vendre les droits qu'il détient sur des brevets canadien (1,070,722) et américain (4,087,548) à une société canadienne intéressée à fabriquer le nouveau dispositif et à le vendre dans le monde entier. L'invention en cause est une pince qui permet de mieux serrer les pièces à travailler, de diverses dimensions. La pince est facile à utiliser, permet de fixer les pièces rapidement et solidement et est munie d'un mécanisme de déclenchement rapide. Écrire à l'adresse suivante: Mr. Dale J. Hackbarth, 4062 Citrus Circle, Yorba Linda, California et

faire parvenir une copie de votre correspondance initiale au Consulat général du Canada, 510 West Sixth Street, Los Angeles, California 90014.

Leverbicycle/294

Dutch inventor offers a Canadian company the manufacturing and North American marketing rights, and possibly the European market, under his Canadian Patent 1,030,997 and U.S. Patent 3,998,469, for a lever driven bicycle. The bicycle pedals move up and down, there is no chain drive and chain, and the driving mechanism, wheel, lever arms and pedals are constructed in one unit and fixed to the frame by two rearshaft nuts. This bicycle is claimed to provide 35 percent more driving efficiency; the frame is shorter, lighter, and therefore cheaper; can be folded; and manufactured for the handicapped for instance, from normal production. Driving power is in the higher and lower positions of the pedals; the pedal stroke can be made shorter or longer as desired during riding; one pedal can be fixed while the other moves by adding a ball bearing and spring; the wheel hub can be constructed gear changeable and adjusted by shifting the pedal upon the lever arm, also two pedals upon the arm for different ratios are possible. (See illustration page 79.) Write: Mr. Frans Willem Ruys, Utrechtseweg 19, 3732 HA De Bilt, Netherlands and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, Sophialaan 7, The Hague, Netherlands.

Collapsible Rocking Chair/294

Swedish designer offers registered design to a Canadian company to manufacture a collapsible rocking chair under licence and to market it in North America and Europe. The chair is made with moulded wooden arm rests and frame, special brass or steel fittings and fabric, canvas or leather seats and backs. Its total weight is 7.5 kilograms and in spite of its low weight, has excellent stability and is so balanced that it cannot overturn. Its volume in collapsed state is 0.15 cubic metres. (See illustrations page 79.) Write: Karl Hakan Birger Lindqvist, Valhallavagen 130, 114 41 Stockholm, Sweden and send a copy of your initial correspondence to Commercial Division, Canadian Embassy, P.O. Box 16, 129, S-103 23 Stockholm 16, Sweden.

Bicyclette à leviers/294

Un inventeur hollandais offre à une compagnie canadienne les droits de fabrication et de mise en marché en Amérique du Nord (et éventuellement en Europe) d'une bicyclette à leviers, en vertu du brevet canadien 1 030 997 et du brevet américain 3 998 469. Les leviers se déplacent de haut en bas et il n'y a ni chaîne ni roues dentées; la roue motrice, les leviers et les pédales forment un bloc solidaire fixé au châssis par les deux écrous de l'arbre arrière. On annonce que la bicyclette est 35% plus efficace qu'une bicyclette ordinaire: le châssis est plus court, plus léger et donc plus économique; on peut même replier la bicyclette. Les chaînes de montage normales peuvent servir à la fabrication de bicyclettes pour handicapés. Le temps moteur survient quand les leviers sont au haut et au bas de leur course. On peut allonger ou raccourcir cette course sans devoir s'arrêter. L'ajout d'un roulement à billes et d'un ressort permet d'immobiliser un des leviers. On peut obtenir un moyeu de roue dont les rapports d'engrenages peuvent être modifiés; le réglage se fait en glissant la pédale le long du levier. Deux pédales peuvent être posées sur un même levier, ce qui permet de changer de rapport. (Voir l'illustration page 79.) Écrire à: M. Frans Willem Ruys, Utrechtseweg 19, 3732 HA De Bilt, Pays-Bas, et faire parvenir une copie de votre correspondance initiale à l'Ambassade du Canada, Division commerciale, Sophialaan 7, La Haye, Pays-Bas.

Berceuse pliante/294

Le créateur suédois d'un modèle déposé propose à une entreprise canadienne de fabriquer sous licence une berceuse pliante et de la commercialiser en Amérique du Nord et en Europe. La berceuse est constituée par des accoudoirs et une armature en bois moulé, des garnitures spéciales en laiton ou en acier, un siège et un dossier en tissu, en toile ou en cuir. Son poids total est de 7,5 kg et, malgré sa légèreté, elle a une stabilité excellente et est équilibrée de façon à ne pas se renverser. Son volume, pliée, est de 0,15 m³. (Voir les illustrations page 79.) Écrire à: Karl Hakan Birger Lindqvist, Valhallavagen 130, 114 41 Stockholm (Suède) et envoyer une copie de votre correspondance initiale à: Ambassade du Canada, Division commerciale, Boîte postale 16 129, S-103 23 Stockholm 16 (Suède).

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Patent 1,076,769

Base Construction for Grain Bins and the Like Including Moisture Sealing Means/294

One embodiment of the present device includes a perimetrical shield or flashing secured between the lower edge of the wall and the conventional outwardly facing angle iron base secured to the floor. Shield is bolted or riveted between the wall and the angle iron and extends over and preferably slightly below the lower perimetrical edge of the floor of the bin. Another embodiment includes the shield situated between the wall and an inwardly facing perimetri-

Base pour trémie à grains en récipients analogues, imperméable à l'humidité/294

cal angle iron which is easy to manufacture and is less likely to provide moisture ingress. A further embodiment includes the shield being formed as an extension of the wall and being shaped to extend over and slightly below the perimetrical edge of the floor and to be bolted either to the floor or to the angle iron. Write: Bernard Guenther, 117-6th Avenue N., Yorkton, Saskatchewan S3N 0X9.

Patent 1,076,782

Multi-Purpose Puller/294

Three jaws are pivoted to a head carrying the pressure screw or bolt. One jaw is pivotally secured to one side of the head and the other two jaws are normally situated at 120° one upon each side of the first jaw and are also pivotally secured to the head. Means are provided to move these two jaws to a position in spaced and parallel relationship opposite to said first jaw and also to swing the first jaw between these two jaws so that the puller can be used as an

Extracteur à usages multiples/294

internal puller. This movement can be achieved either by unbolting the two jaws and re-positioning same or using a U-bolt attachment which permits the two jaws to be slid from one position to another thus enabling the puller to be used as a two or three-jaw puller and upon external or internal objects to be pulled. Write: Michael Brodie, P.O. Box 64, Vilna, Alberta T0A 3L0

Patent 1,076,907

Solar Concentrator with Restricted Exit Angles/294

A device is provided for the collection and concentration of radiant energy and includes at least one reflective side wall. The wall directs incident radiant energy to the exit aperture thereof or onto the surface of energy absorber positioned at the exit aperture so that the angle of inci-

Concentrateur solaire à angles de sortie restreints/294

dence of radiant energy at the exit aperture or on the surface of the energy absorber is restricted to desired values. Write: James E. Denny, Assistant General Counsel for Patents, Office of the General Council, U.S. Department of Energy, Washington, D.C. 20545, U.S.A.

Patent 1,076,932

Folding Sawhorse Frame/294

A pair of triangular supports are provided with cross member sockets on the upper ends thereof. A cross bar extends between the end supports and is pivoted to each so that they can be folded downwardly upon the cross bar for storage. Braces are pivoted by the lower ends thereof to the

Chevalet pliant/294

cross bar and are pinned to the end supports when same are erected. A wooden beam or the like then engages the sockets to form the complete sawhorse. Write: Lawrence J. Plamondon, via Rose Valley, Site 2, Box 16, St. Front, Saskatchewan SOE 1M0

Patent 1,076,961**Skid-Steering Apparatus/294**

A skid-steerable self-propelled vehicle has a simple differential connected to the engine, and a variable speed drive connected direct across differential-speed elements of the differential. The vehicle can be steered using a device for

Mécanisme de virage pour chenillés/294

adjusting the drive ratio of the variable speed ratio. Write: Johannes L. Gaasenbeek, 127 Glen Road, Ottawa, Ontario M4W 7W1

Patent 1,077,088**Roundslings/294**

A lifting sling comprising a core consisting of first and second spaced longitudinally extending sections interconnected by a section of lesser dimension in the transverse direction. The core is formed from preliminarily extending segments. A protective cover encloses the core and defines an overlapping section. The overlapping section is juxtaposed to the interconnecting section of the core. A seam extends in the transverse direction, diametrically

Élingue souple/294

through the overlapping portion of the cover and the interconnecting section of the seam to secure the cover and the core together. The transverse extent of the seam is substantially less than the corresponding dimension of the first and second core sections so that the seam will not engage a load when the sling bears against the load. Write: Svensk Lasthantering Lindahl (Bengt) AB, Östergårde Industriområde, S-423 00 Torshälla, Sweden

Patent 1,077,589**Borne à vis à serrage sous tête/294**

Borne à vis, disposée entre deux flasques, caractérisée en ce qu'elle est maintenue prisonnière par une gorge dans une lumière d'une lampe support du fait que la tête de la

Binding Screw with Underhead Tightening/294

vis reste tenue entre les deux flasques. Écrire: CGEE Alsthom S.A., 13 rue Antonin Raynaud, 92309 Levallois-Perret, France

Patent 1,077,597**Détecteur d'inclinaison d'une surface/294**

Dispositif pour la détection automatique d'une déviation ou inclinaison d'une surface par rapport à un plan horizontal. Ce dispositif comporte un détecteur d'horizontalité placé sur la surface à surveiller et qui permet de déceler tout déplacement angulaire de cette surface. Le signal du détecteur est ensuite comparé à un signal de référence prédéterminé et, comme résultat de cette comparaison, un signal binaire est émis et traité de sorte à déclencher des

Surface Deflection Sensor/294

circuits d'alarmes incorporés ou extérieurs au dispositif de détection chaque fois qu'une déviation angulaire est signalée. Ce dispositif s'applique notamment à la détection d'un glissement de terrain, la fonte des neiges, le dégel, ou les secousses sismiques. Écrire: Gouvernement du Québec (Ministère des Richesses naturelles), 1620 boul. de l'Entente, Québec (Québec) G1S 4N6, Canada

Patent 1,077,657**Wiper Wash Attachment/294**

A spray of wash water is delivered to the central area of a windshield wiper blade by an attachment incorporating a pump which is operated by movement of the wiper back and forth about a pivot in the window frame. Air is also

Accessoire laveur pour essuie-glace/294

delivered to such area by a fitting having a Y-valve for air and/or wash water under the control of the wiper wash button of the auto. Write: Tony Capaldi, 508 Sutherland Avenue, Welland, Ontario L3B 5A1

Patent 1,077,672**Base of Poles/294**

A base for poles comprises a first block of concrete of pre-determined shape, having lateral walls covered with a layer of asbestos cement or plastic, a second smaller shape, having lateral walls covered with a layer of asbestos cement or plastic and partly submerged into the first block of concrete, and a tubular sleeve embedded vertically in

Socles de poteaux/294

the first concrete block and extending into a hole of pre-determined diameter in the first block. The second block and the portion of the tubular sleeve located within the second block serve as a socket for receiving a pole. Write: Raymond Bressani, 137, rue Deschênes, Domaine Langlois, Rawdon (Québec) J0K 1S0

Patent 1,077,697**Sheathed Hand Tool/294**

A hand tool of the kind comprising a pointed edge or blade, and a cover protecting the latter in the non-operative position thereof but intended to be swung away to expose the point in the operative position of the tool. Means are arranged to lock the cover to prevent it from being inadvertently

Outil à main gainé/294

ently moved to the point-exposing position but to allow the cover to be swung away readily to expose the point by using one hand only, when the point is to be used. Write: Karl G.E. Lungqvist, c/o Mrs. Elin Lundqvist, Storangsvagen 15D, S-184 00, Akersberga, Sweden

Patent 1,077,703**Process to Minimize Cracking of Pyrolytic Carbon Coatings/294**

Carbon-coated microspheroids useful as fuels in nuclear reactors are produced with a low percentage of cracked coatings and are imparted increased strength and mechanical stability characteristics by annealing immediately

Procédé empêchant au maximum le fendillement des revêtements de charbon dans un réacteur nucléaire/294

after the carbon coating processes. Write: James E. Denny, Assistant General Counsel for Patents, Office of the General Counsel, U.S. Department of Energy, Washington, D.C. 20545, U.S.A.

Patent 1,077,704**Adhesive Plasters/294**

Adhesive plaster compositions are provided by treating particles of Y_2O_3 , Eu_2O_3 , Gd_2O_3 or Nd_2O_3 with dilute acid solutions. The resulting compositions have been found to spontaneously harden into rigid reticulated masses resembling plaster of Paris. Upon heating, the hardened

Plâtres adhésifs/294

material is decomposed into the oxide, yet retains the reticulated rigid structure. Write: James E. Denny, Assistant General Counsel for Patents, Office of the General Counsel, U.S. Department of Energy, Washington, D.C. 20545, U.S.A.

Patent 1,077,726**Self-Propelled Swather/294**

A self-propelled swather includes a front drive wheel at one end thereof and a rear drive wheel at the other end with a castoring support wheel on the rear side between the two drive wheels. The drive wheels are each driven by a variable speed hydraulic motor so that side draft or drag of one end is eliminated. Steering from a cab at one end of the

Lieuse automotrice/294

swather is by hydrostatic means and the rear drive wheel assembly can be turned 90° for transport. When in the transport position, all of the power can be directed to the front drive wheel thus increasing the drive speed of the swather under these conditions. Write: Oriville Linn, Box 197, Lang, Saskatchewan S0G 2W0

Patent 1,077,768**Locking Strap for Manual Damper Control/294**

This invention is a locking strap for the manual control in a warm air register wherein the manual control, through a gear or linkage system, opens and closes the flow control dampers of the warm air register. It has been found that the manual control can be inadvertently moved from its

Bride de verrouillage pour commande manuelle de registre/294

desired setting. The locking strap, through its engagement with the manual control, prevents this. It is adaptable to all types of manual controls found in warm air registers. Write: Richard C. Jones, 369 Maywell Place, Victoria, B.C. V9C 1Z3

Patent 1,077,784**Quick-Release Man Overboard Gear/294**

A device fastened near the stern of a pleasure or work boat, on either side or at the transom, which holds firmly one or more safety and/or life saving aids already in existence. The release of such aids is accomplished either by pulling of a handle or by the activation of a button or switch by the

Dispositif de sécurité à déclenchement rapide pour embarcations de plaisance ou de travail/294

helmsman at his station, which immediately drops the equipment into the water upon the unfortunate accident of a person falling overboard. Write: David A. Plaunt, General Delivery, Manotick, Ontario K0A 2N0

Patent 1,077,836

Therapeutical Composition for the Treatment of Dermatoses/294

A therapeutic composition for local application to the skin in the prevention and treatment of dermatoses. The composition comprises about 40 to 50 cc of an oily product obtained by condensing fumes resulting from the combustion of newspaper, about 25 to 35 g of petroleum jelly, about 15 to 35 g of sulfur and about 1 to 2 cc of cade oil.

Composé thérapeutique pour le traitement des dermatoses/294

Such composition of matter has been found to possess valuable therapeutic properties which render it particularly suitable for the treatment of psoriasis, alopecia aerata, scabies and acne. Write: Mr. Michel Abi-Youssef, 1425 Jules-Poitras Boulevard, Apt. 101, Ville St-Laurent, Quebec H4N 1Z1

Patent 1,078,026

Deicing Apparatus and Method/294

The present invention resides in aircraft deicing apparatus, and a related method for its use, in which microwave electromagnetic energy is transmitted into a surface layer of ice, and is dissipated in the ice as heat, melting the ice layer in a very efficient manner. The apparatus of the invention includes means for generating microwave electromagnetic energy, distribution means for transmitting the

Dégivreur pour aéronefs/294

energy to a surface of the aircraft on which ice can form, and coupling means, for coupling the microwave energy for transmission into the surface layer of ice in such a manner as to propagate the energy through the ice layer acting as a surface waveguide. Write: System Development Corporation, 2500 Colorado Avenue, Santa Monica, California, U.S.A.

Patent 1,078,051

Data Processing Equipment/294

Data processing equipment suitable for recording details of manually connected telephone calls has a plurality of operator stations with keyboards and VDU's connected in groups to operator's control units which respond to keyed instructions to obtain data from peripheral units storing such data and for recording on magnetic tape cartridge the details of the calls. The magnetic tape cartridge recording units are duplicated and the data recorded in the two units,

Équipement informatique/294

which would be the same, is compared and their validity checked. If both signals are valid, whether they differ or not, they are recorded. If only one set of signals is valid only the valid signals are recorded by both recorders. A marker signal may be recorded to indicate that the data signals recorded may be incorrect. Write: The Post Office, 23 Howland Street, London, W1P 6HQ, England.

Patent 1,078,164

Conversion of Radioactive Ferrocyanide Compounds to Immobile Glasses/294

Complex radioactive ferrocyanide compounds result from the scavenging of cesium from waste products produced in the chemical reprocessing of nuclear fuel. These ferrocyanides, in accordance with this process, are converted to an immobile glass, resistant to leaching by water, by

Procédé de conversion des ferrocyanures radioactifs en verre stable/294

fusion together with sodium carbonate and mixture of (a) basalt and boron trioxide (B_2O_3) or (b) silica (SiO_2) and lime (CaO). Write: James E. Denny, Assistant General Counsel for Patents, Office of the General Counsel, U.S. Department of Energy, Washington, D.C. 20545, U.S.A.

Patent 1,078,180

Display Assembly and Component Parts Therefore/294

Movable partitioning, e.g., for display booths at exhibitions and the like, comprises partition members having generally rectangular frames, the side members of which are fitted with cylindrical collars. The cylindrical collars form the broadest part of the exterior surface of the side frame members. The partition members are assembled by placing them, at any desired relative angle, with their cylindrical collars touching, and binding them around their cylindrical

Dispositif d'affichage et éléments connexes/294

collars with releasable binding straps. Two, three, four or more panels can be secured into a single joint in this manner. The display is simply and quickly dismantled into individual partition members by removing the binding straps. The display provides great versatility in the formations into which it can be assembled. Write: Timothy P. Stanley Corporation, 70 Glenforest Road, Brampton, Ontario L6S 1M2

Patent 1,078,190

Process for the Refining of a Metal Sulfide Melt/294

A process for removing the impurities, such as arsenic, antimony, bismuth, and/or lead, from a metal sulfide melt, such as copper sulfide melt, in which there is a melt solubility gap between the metal to be refined and its sulfide, in which the metal sulfide melt is first sulfidized in order to shift the composition of the melt away from the range of the solubility gap and the sulfidized metal sulfide melt is

Procédé de raffinage d'une coulée de sulfure de métal/294

thereafter exposed to a selective chlorination to remove the impurities as vaporizable chlorides from the metal sulfide melt by a technique known *per se*, while the sulfur concentration in the melt is simultaneously controlled in such a manner that the composition of the melt remains outside the said melt solubility gap. Write: Outokumpu Oy, Outokumpu, Finland

Patent 1,078,284

Variable Ratio Crank Assembly for Internal Combustion Engines/294

The lower end of a crank from an internal combustion engine is pivoted on one side of the center of a small gear which in turn is mounted for rotation to one side of the center of a relatively large drive gear. A stationary gear is concentric with the drive gear and an idler gear is mounted for rotation to the drive gear and engages the small gear and the stationary gear. The drive gear engages a take-off gear to transmit power from the piston via the crank and gears. The gear ratio of the small connecting rod gear and fixed gear is such that the small gear rotates at twice the speed of the large gear. The connecting pin of the small

Vilbrequin à rapport variable pour moteurs à combustion interne/294

gear is furthest from the center of the drive gear at top dead center and bottom dead center and nearest to the center at 90° from top dead center and bottom dead center so that when at top dead center, the crank has the highest mechanical advantage and at 90° therefrom, the lowest mechanical advantage. This means that the piston is slowed down at the center of its stroke thus giving a change of ratio within the engine at each power stroke as well as during the other three strokes. Write: Leslie C. Matthews, 204-9710 82nd Avenue, Edmonton, Alberta T6E 1Y5

Patent 1,078,417

Linear Cutting Rotary Head Continuous Mining Machine/294

The triangular-shaped rotary head mounted on an eccentrically driven shaft rotates at a low speed in a path determined by a ring/pinion gear ratio, such that cutting tools mounted on the apices of the triangular-shaped rotary head follow a square path entering the face of the coal seam to be cut at a top corner and making a long linear vertical cut

Trépan de haveuse/294

at a constant depth of approximately one and one-half times the diameter of the rotary head greatly reducing dust generation and methane ignition potential while increasing productivity. Write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, U.S.A.

Patent 1,078,430

Pick-Up Truck Edge Protector and Anchor Member/294

An edge protector and anchor member for the upper edge portion of the side wall of a pick-up truck box is formed as a generally U-shaped channel member. One leg of the member extends into the interior of the box to protect the upper inside portion of the side wall. The other leg extends downwardly on the outside of the side wall and has a plurality of spaced apart anchor means along the marginal

Bordure de protection et élément de fixation pour caisse de pick-up/294

edge thereof. Each anchor means comprises a tab flanked by notches struck from the leg with the tab being bent inwardly of the channel member. A rope or other tie-down device may be connected to the tabs for securing a load in the box. Write: Benjamin Bronstein, Clearwater, B.C. VOE 1N0

Patent 1,078,497

Automatic Inspection Device for Steam Generator/294

In a control method wherein an automatic inspection device is installed in a field of alignment holes, and the

Dispositif d'inspection automatique pour générateur de vapeur/294

location of the device is shifted by making use of the holes, a method of controlling the automatic inspection device

characterized in that addresses are assigned to the respective alignment holes; that the location of said device is indicated on an objective counter in terms of the address, while a preset counter for instructing the shifting direction of said device in terms of the address is comprised; that when instructions are given to said preset counter, they are compared with the contents of said objective counter,

whereupon said device is shifted in the direction of reducing a difference resultant from the comparison; and that said device is provided with a detector for detection of an obstacle so as to shift said device while avoiding the obstacle. Write: Mitsubishi Jukogyo Kabushiki Kaisha, 5-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan.

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PAT-APPL-6-076 706

Rope Wick Applicator/294

Applicateur à mèche/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 18 September, 1979, by the Department of Agriculture. The invention describes a new apparatus and system for the systematic application of liquid chemicals to plants. A soft woven nylon rope wick is used to convey chemical solution from a reservoir by means of capillary action. The rope apparatus, which is physically supported, is leveled and positioned to selectively contact certain plants as the

wick is moved across an agricultural field. Thus chemical solution is deposited selectively only on contact with the wick. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-080 733

Flocculation of Coals with Water-Soluble Starch Xanthates/294

Floculation des charbons au moyen de xanthates d'amidon hydrosolubles/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 1 October, 1979, by the Department of Agriculture. Powdered coals are rapidly flocculated from aqueous suspensions by the simple addition of water-soluble starch xanthate, thereby producing a readily recoverable sediment phase and a substantially clear aqueous phase. For

negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-080 734

Stickless Burley Tobacco Curing Frames/294

Cadre de séchage de tabac Burley sans pointes/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 1 October 1979, by the Department of Agriculture. The invention is an apparatus development to suspend burley tobacco on a curing frame without the use of sticks. A plurality of individual retainer members are affixed to a rigid base member. Each retainer member comprises a base slab of resilient material with two perpendicular cross cuts in the center thereof. A hole is centered on the intersection of the two perpendicular cross cuts giving four lips which will bear on a tobacco stalk when the tobacco stalk is

inserted through the center of each cross cut. This deforming resilient material will then assert pressure around the circumference of the stalk of sufficient force to hold the tobacco stalk in a vertical position throughout the tobacco curing process. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-080 735**Control of Winged Waterprimrose and Northern Jointvetch with Fungal Pathogens/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 1 October 1979, by the Department of Agriculture. The invention relates to a method for biological control of winged waterprimrose with a host-specific strain of the endemic anthracnose fungus *colletotrichum gloeosporioides* (Penz). The instant invention is a method for the control of undesirable plants by the use of plant pathogens. For

Lutte à la jussée ailée et à l'eschinomène du Nord par des champignons pathogènes/294

negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-081 245**Precooked Potato Products/294**

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 2 October, 1979, by the Department of Agriculture. This invention relates to and has among its objects the provision of novel potato products and novel processes for making them. It is a particular object of the invention to provide a precooked, non-par-fried potato piece, such as a French-fried potato, shoestring potato, and the like, which subsequently can be finish-cooked prior to consumption. The so-prepared potatoes are cooked at a temperature below the temperature at which sloughing of the potato surface would occur if the whole potato were cooked to its

Produits précuits de la pomme de terre/294

center at that temperature. Then, the potatoes are heated in air and cooked again at a temperature of about 50 to 100C. Following the last cooking procedure, the potatoes are frozen, chilled, or retorted to preserved them in the absence of starch suspensions. To prepare them for consumption the potatoes can be fried or boiled. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-083 697**Process for Producing Transfer Printed Cotton and Cotton Blends/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 11 October, 1979, by the Department of Agriculture. A process is disclosed for the heat transfer printing of cellulose-containing fabrics in garment form with disperse dye-stuffs, wherein the fabric is treated only on one side by a printing or spraying technique with a formulation containing highly methylated melamine-formaldehyde cross-linking agent, acid catalyst, and other necessary additives.

Procédé de production de cotonnades imprimées par transfert/294

Fabrics with prints that are durable to washing are produced by simultaneously heat transfer printing and curing at about 190C to 220C for 20-30 seconds. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-085 440**Automatic Hatchery Tray Dumper/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 October 1979, by the Department of Agriculture. This invention relates to automatic handling equipment for the chicken layer industry. An apparatus for automatically dumping a hatchery tray is disclosed. The apparatus consists of a lifting platform suitably fitted with a tray sensing limit switch to control a double acting air cylinder which lifts the hatchery tray on the platform up and through a 100 degree arc past vertical onto the open top of a hopper

Videur automatique de plateau de couvoir/294

which receives the waste from the tray. Initial spring loaded starting and stopping devices are included as well as kick-off-arms to remove the hatchery tray from the hopper after dumping. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-088 673**Mechanical Buncher for Leafy Vegetables/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 26 October 1979, by the Department of Agriculture. The invention describes an automatic vegetable buncher for use in combination with a mechanical harvester of leafy green vegetables. It conveys the greens to a packing station where a pair of packer fingers driven by a novel rectangular motion generator incrementally feeds the greens into one of a plurality of pockets mounted on a rotatable wheel. When a predetermined bunch size is accrued, the wheel

Gerbeur mécanique de légumes feuillus/294

rotates to position an empty pocket at the packing station and to advance the vegetable bunch to a device which ties it into a marketable bundle. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-094 539**Carcass Cleaning Unit/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 15 November, by the Department of Agriculture. This invention relates to a system for effectively cleaning meat animal carcasses prior to refrigeration. Animal carcasses are thoroughly cleaned by a single pass through a cleaning unit having a pair of oscillating spray bar assemblies, each equipped with a plurality of nozzles arranged to collec-

Appareil de nettoyage des carcasses/294

tively contact all exposed surfaces of the carcass. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-098 460**Soda Crackers/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 29 November 1979, by the Department of Agriculture. This invention relates to and has among its objects the provision of novel methods and products for preparation of soda crackers. It is a particular object of the invention to substantially reduce the fermentation time of the dough or sponge in the process of preparing soda crackers. For

Craquelins/294

negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-964 870**Copper (II) Chloride-Tetrachloroaluminate Battery/294**

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 29 November 1979, by the Department of the Air Force. A pelletized, light weight, thermal battery having copper (II) chloride and an alkali tetrachloroaluminate as electrolytic components. For negotiations write: Mr.

Accumulateur chlorure cuivrique-tétrachloroaluminate/294

George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-061 557**Helical Periodic Magnet/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 27 July, 1979, by the Department of the Air Force. Improved gain and the elimination of beam insertion and extraction compensation in free electron lasers is realized by means of a helical periodic magnet. The magnet comprises one or more layers of coaxial bifilar helical conductors each being 180 deg displaced and conducting current in opposite directions. The end portions of the magnet are

Aimant périodique hélicoïdal/294

tapered by extending successive layers one or more turns to provide a field gradient that uniformly decreases to zero. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-062 591

**Closed Cycle Annular-Return Gas Flow
Electrical Discharge Laser/294**

**Laser à décharge électrique à retour
annulaire du gaz en circuit fermé/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 31 July, 1979, by the Department of the Air Force. According to this invention a high repetition rate pulsed and fast-transverse flow laser is provided in a closed cycle system. An extremely compact closed cycle system is achieved by utilizing an annular flow-return surrounding the laser flow channel. The laser is constructed of ultra high vacuum components and low outgassing materials to ensure minimum contamination of the laser gas. Contamination by the mechanical drive required for gas recirculation is avoided by employing an axial flow fan externally

driven through a rotary vacuum seal. A pulsed transverse discharge is established between profiled electrodes by means of a thyatron switched low-inductance energy storage capacitor. A laser optical cavity is established perpendicular to the discharge and gas flow axes. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-062 592

Mechanical Heat Transfer Device/294

**Dispositif mécanique de transfert de
chaleur/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 31 July, 1979, by the Department of the Air Force. A unidirectional heat transfer device for use between an electronic assembly on an aircraft and the skin and/or pod on the aircraft. The device includes a thermal decoupler mechanism which operates to disengage a retractable interface heat transfer surface when the skin on the aircraft reaches a predetermined elevated temperature caused by the high speed of the aircraft. In the decoupled mode, the heat from

the electronic equipment passes to a phase change material heat absorber to provide a limited capability cooling function during extended high speed aircraft operation. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-069 476

**Articulated Para-Ordered Aromatic
Heterocyclic Polymers Containing
Diphenoxybenzene Structures/294**

**Polymères aromatiques hétérocycliques,
articulés, à liaisons para-para, contenant
des structures diphenoxybenzènes/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 August 1979, by the Department of the Air Force. As described in the literature, p-benzobisoxazole polymers, e.g., poly(benzo(1,2-d:5,4d') bisoxazole-2,6-diyl)-1,4-phenylene, can be synthesized with inherent viscosities of up to 3.7 dl/g. These polymers possess high thermooxidative stability and, because of their all-para, rod-like character, they are capable of forming liquid crystalline phases in concentrated solutions of methanesulfonic acid. Ultra-high strength, high modulus fibers possessing a high degree of

oriented, crystalline character can be obtained from these solutions. However, attempts to cast strong films from the methanesulfonic acid solutions have been unsuccessful. It has been possible to obtain only very brittle films. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-072 734

Laser Resistant Ceramic Composite/294

**Composé céramique résistant au
laser/294**

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 30 August 1979, by the Department of the Air Force. A hot pressed, biaxially oriented, alumina fiber reinforced, ceramic composite having alternate layers of parallel running alumina fibers within a glass matrix such that the fibers of one layer are positioned at right angles to the

fibers of any adjoining layer. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-074 263

**Method for Controlling the Resonance
Frequency of Yttrium Iron Garnet
Films/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 11 September 1979, by the Department of the Air Force. A method for controlling the resonance frequency of single crystal yttrium iron garnet (YIG) films by incorporating lead as a partial substituent for the yttrium component of the YIG film. This invention relates to yttrium iron garnet films and to a method for their preparation. More particularly, this invention concerns itself with a method for controlling the resonance frequency of single crystal yttrium iron garnet (YIG) films grown by liquid phase epitaxy (LPE). Single crystal yttrium iron garnet, having the formula $Y_3Fe_5O_{12}$ are being hereinafter referred to as YIG, is an important crystalline material finding wide application for use in a variety of electronic devices. The material

**Méthode de commande de la fréquence
de résonance de films de grenats fer
yttrium/294**

can be utilized in either its single crystal bulk form or as a single crystal film grown on a suitable substrate. In bulk form, the material is often used as an optical modulator, a magnetic flux sensor and in magneto-optical memory devices because of its faraday effect. The major interest in the film form is for applications in magnetic bubble domain devices and in microwave signal processing devices. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-076 720

**Self-Stressed Mode 1 Fracture
Mechanics Test Piece/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 19 September 1979, by the Department of the Air Force. Two radial cuts are made in a disc-shaped solid, the wedge (or sector) thereby produced is removed, and the exposed faces of the radial cuts are forced into contact with each other. By bonding (or welding) together the faces of the radial cuts, a self-stressed disc, capable of propagat-

**Pièce auto-contrainte pour les essais en
mécanique des fractures de mode 1/294**

ing a pure mode 1 crack is created. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-077 235

Hole Angularity Gage/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 19 September 1979, by the Department of the Air Force. This patent application covers a gage for measuring the angularity of the centerline of straight and/or tapered holes with respect to a flat surface. A tapered pin is inserted into the tapered hole and the gage is placed over the pin and pushed against the surface of the material with the hole in it. A dial indicator provides a direct reading of the angle that the centerline of the hole varies from being perpendicular to the surface. For straight holes, an expanding

Rapporteur d'angle de trou/294

collet is first inserted into the hole and then the tapered pin is inserted into the collet causing the collet to expand against the sides of the hole and provide an accurate reading on the indicator. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-082 354

Hot Spike Mixer/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 5 October 1979, by the Department of the Air Force. A mixer at the exit opening of a high performance jet engine to prevent premature migration of the core flow into the duct stream thereby operating to eliminate hot streaks in the augmentor and nozzle areas during augmentation is described. the mixer consists of a concave fillet positioned

Suppresseur de crêtes de chaleur/294

on the pressure side of the turbine exit guide vane and exhaust case at the trailing edge. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-085 453

**Windscreen Angular Deviation
Measurement Device/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 October 1979, by the Department of the Air Force. An apparatus for detecting the angular deviation from an axis imparted to a ray when passing through a transparent medium, for resolving the angular deviation into its components, and for generating electrical signals accurately representing the magnitudes of such components is described. A laser beam is projected along an optical axis through the medium and focussed by a displacement compensation lens. The beam is divided into channels with a beam splitter, each channel being incident upon a transmission diffraction grating. Each grating, characterized by

**Dispositif de mesurage de l'écart
angulaire provoqué par une verrière/294**

fine parallel lines of substantially random size and spacing generates a fan line of luminous energy. At a distance equal to the focal length of the lens, the fan lines cross detector arrays aligned parallel to the grating lines. A change in the angular deviation proportionally translates the crossing point along the detector array. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-085 663

Near Millimeter Bistable Device/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 17 October 1979, by the Department of the Air Force. The invention concerns a near millimeter bistable device having a source of electromagnetic radiation in optical alignment with a variable reflecting means in the form of a Schottky barrier diode corner cube assembly. Interposed between the radiation source and the variable reflecting means is a beam splitter which reflects a beam of energy from the variable reflecting means through another beam splitter to a detector. The voltage produced by the detector is fed through a feedback circuit back to the variable

**Dispositif bistable quasi
millimétrique/294**

reflecting means in order to vary the reflectivity thereof. In this manner the output of the device emanating from the other beam splitter has two stable conditions, one of relatively high output power and one of relatively low output power. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-088 503

**Broad Spectrum Vibration Damper
Assembly Fixed Stator Vanes of Axial
Flow Compressor/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 26 October 1979, by the Department of the Air Force. Undesirable vibrations of stator airfoil vanes circumferentially disposed in annular rows, and fixed at their ends by a sectored outer shroud and a sectored inner shroud, in an axial flow compressor of gas turbine engine are damped by a damper assembly that is fitted into, and is frictionally engaged, in the sectored inner shroud which, in turn, is segmented to assist in this damping. The damper assembly includes: A metal seal strip member having indentations; a metal sine wave-shaped damper and spring member that is complementary to, and is engaged with, the seal

**Amortisseur de vibrations à spectre
étendu fixé aux aubes fixes d'un
compresseur axial/294**

strip member; and, a honeycomb member affixed to the bottom surface of the seal strip member. The vibrations cause movement of the shroud segments which, in turn, cause rubbing contact; and, the resulting friction heat energy is conducted through the metal components of the damper assembly to the thermal sink that is the through-flowing air in the compressor. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-090 383

**Measurement of Windscreen Distortion
Using Optical Diffraction/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 1 November 1979, by the Department of the Air Force. An apparatus and method for detecting, resolving and quantifying the distortion caused by a relatively large region of a distorting optically transparent medium is de-

**Mesurage de la distorsion provoquée par
une verrière par diffraction optique/294**

scribed. A precisely defined pattern is viewed through the transparent medium to introduce the distortion effects. The altered pattern is photographically recorded in thin film transparency format. A beam of coherent luminous energy projected through the transparency, one focused,

produces a Fraunhofer diffraction pattern which is the Fourier transform of the original pattern. Conventional distortion characteristics in the Fourier domain appear in a form more amenable to quantification and analysis. The character and magnitude of the distortion is readily ascertained by the comparing the transforms of distorted and undistorted patterns, yielding quantitative data compara-

ble to conventional distortion effects in terms of grid line slope and lens factor. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-090 384

Waveguide Line Spread Function Analyzing Apparatus/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 1 November 1979, by the Department of the Air Force. This invention relates to a waveguide line spread function analyzing apparatus utilizing a scanning optical slab waveguide that is sandwiched between two opposing x-ray fluorescent screens to provide access to the fluorescent light

Appareil d'analyse de fonction linéaire étalée pour guide d'ondes/294

which is trapped between the two screens. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-096 720

Containment and Release Device for Fluids/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 21 November 1979, by the Department of the Air Force. This report describes a dispenser retains a hermetically sealed metal canister which holds a pyrophoric fluid, radar chaff, other electronic countermeasure materials or a combination thereof for ejection from an aircraft. Several openings in the canister are sealed with Pyrofuze foil material closures and a Pyrofuze wire braid is interconnected between each of the closures and the canister in having one end thereof fixedly attached to the canister. A safety tab on one corner of the canister extends downward between the delay braid and the wire braid to prevent cross ignition until the canister is fully ejected from the dis-

Dispositif de retenue et de libération de fluides/294

penser. When a gas producing squib on the dispenser is fired, the Pyrofuze delay braid is ignited by the flame front from the squib and the canister is forced from the dispenser causing the safety tab to be automatically removed from the canister. This allows the delay braid to ignite the Pyrofuze wire braid which burns to each of the closures causing them to burn away thereby releasing and igniting the pyrophoric material from the canister. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-097 594

Laser Autoalignment System/294

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 26 November 1979, by the Department of the Air Force. This report describes an autoalignment system for a laser having a pair of reflector assemblies capable of providing six degrees of freedom of movement to the reflector element formed as part of each of the reflector assemblies. Each reflector assembly is made up of a reflector unit, a gimbal knuckle joint and a translator mechanism. The interconnection between the reflector unit and the gimbal knuckle joint provides for two degrees of freedom while the translator mechanism and its interconnection with the gimbal knuckle joint provides the additional four degrees of freedom. Cooling of the reflector elements is accomplished by way of a coolant system which is incor-

Système d'autoalignement pour laser/294

porated within the autoalignment system of the laser, while motivation of the autoalignment system is in the form of a plurality of drivers operably connected to the various elements of the reflector assembly. During utilization of the system in a vibrational environment, the autoalignment system maintains the correct relationship between the reflecting elements of the laser as well as providing sufficient cooling thereof. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-100 321

Soft Landing Gear/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 5 December 1979, by the Department of the Air Force.

Train d'atterrissage amortisseur/294

This report describes a bogie type landing gear especially suitable for providing soft landing capabilities for short

take-off and landing (STOL) aircraft wherein fore and aft wheels are mounted on opposite ends of a bogie which is pivotally attached to the lowered end of a vertical shock strut. In one embodiment, a torque link pivotally connects the aft end of the bogie to the shock strut such that, under normal landing conditions, the front wheel will touch down first thereby reducing and directing the landing forces to minimize shock to the aircraft. The aft mounted torque links also act as a tension member during the initial land-

ing stroke. In another embodiment, a damper acts as a tension stop for a soft landing arrangement as well as to dampen bogie motion over bumps with the torque links being separate. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-927 324

HCl or DCI Chemical Laser Using Laser Induced Chemistry/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 July, 1978, by the Department of the Army. A chemical HCl or DCI laser is obtained by irradiating COCl₂ plus H₂/D₂ in admixture with the P sub 54 line of a CO₂ laser. The irradiation is accomplished in a laser cavity provided with appropriate Brewster windows, mirrors, and coupling means. The COCl₂ is mixed with H₂ or D₂ in a properly conditioned system without reacting. The irradiating by the P sub 54 line of a CO₂ laser dissociates the COCl₂ to form

Laser chimique HCL ou DCL à réaction chimique induite par laser/294

CO plus 2Cl* (Cl*-atom in an excited state). The Cl* atom then reacts with H₂/D₂ present to produce HCl or DCI in an excited vibrational state. The halogen containing molecule then lases. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-927 327

HF or DF Chemical Laser Using Laser Induced Chemistry/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 July, 1978, by the Department of the Army. A chemical HF or DF laser is obtained by irradiating COF₂ plus H₂/D₂ in admixture with the R sub 12 line of a CO₂ laser. The irradiation is accomplished in a laser cavity provided with appropriate Brewster windows, mirrors, and coupling means. The COF₂ is mixed with H₂ or D₂ in a properly conditioned system without reacting. The irradiating by the R sub 12 line of a CO₂ laser dissociates the COF₂ to form CO

Laser chimique HF ou DF à réaction chimique induite par laser/294

plus 2F* (F*-atom in an excited state). The F* atom then reacts with H₂/D₂ present to produce HF or DF in an excited vibrational state. The halogen containing molecule then lases. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-928 219

Tactical Nuclear Slide Rule/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 26 July, 1978, by the Department of the Army. A calculational aid is provided, in the form of a slide rule, to facilitate calculation of damages inflicted by a nuclear detonation. The particular apparatus permits calculation of the effects of an air blast, due to static overpressure, resulting from such a detonation. Appropriate scales, properly spaced in particular relationships, are provided on a slide rule, thus providing a means for performing the calcu-

Règle à calcul nucléaire tactique/294

lational functions described above. The calculations utilize five parameters, and the present invention provides an apparatus for determining any one of the five parameters once the other four are known. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-931 235

Variable Angle of Incidence Reflectometer with a Continuous Read Out/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 7 August 1978, by the Department of the Army. An instrument (reflectometer) for continuously measuring the

Réfectomètre à angle d'incidence variable et à lecture continue/294

reflectance properties of materials as a function of the angle of incidence in which a sample and a mirror are mounted on a rotating platform in such a manner that, as

the angle of incidence of the sample is varied, the reflected radiation is always incident on a detector which is fixed with respect to the rotating platform. The angle of incidence on the sample is measured and used to drive an axis of X-Y recorder. The angle of incidence on the mirror is measured and used to correct the detected signal for any errors introduced by the properties of the mirror. This corrected signal is then used to drive the other axis of the X-Y recorder to produce a plot of the reflection coefficients vs angle of incidence for the sample. For fixed angles of incidence on the sample the detector can be moved to produce a plot of the diffused reflections as a function of the

angular deviation from the specular angle. For this purpose the position of the detector is measured and used to drive the x-axis of the X-Y recorder. The input radiation is generally obtained from a laser and the instrument is supplied with polarizers or a polarization rotator as desired. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-938 560

Tactical Nuclear Slide Rule for a Plurality of Environments/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 31 August, 1978, by the Department of the Army. A calculational aid is provided, in the form of a slide rule, to facilitate calculation of probable damage inflicted by a nuclear detonation. The particular apparatus permits calculation of any one or more of several damage-causing environments induced by nuclear detonations, and the consequential probability of damage resulting from such a detonation caused by the particularly calculated environment. Appropriate scales, properly spaced in particular relationships, are provided on a slide rule, thus providing a means

Règle à calcul nucléaire tactique pour une pluralité d'environnements/294

for performing the calculational functions described above. Each of the possible environment-related damage calculations utilizes five parameters, and the present invention provides an apparatus for determining any one of the five parameters once the other four are known. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-941 531

Rate Sensor/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 11 September, 1978, by the Department of the Army. An angular rate sensor is conceived which operates by utilizing electrically conducting fluid flowing in a transverse magnetic field. The electric field induced in the flow direction due to rotation will produce a signal that is propor-

Capteur de vitesse/294

tional to angular rate. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-943 071

Expendable Line of Sight Transceiver/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 18 September, 1978, by the Department of the Army. An inexpensive and therefore expendable transceiver/repeater which is adapted to be launched by a hand-held flare-type of gun in order to establish a line of sight communication link in an emergency or other appropriate environment. The transceiver unit includes a break-away projectile casing for housing the transceiver electronics, a

Répéteur à portée optique non récupérable/294

parachute, and a weight or battery. The transceiver is preferably connected to the parachute and weight by a pair of wires which can form the antenna for the unit. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-949 325

Coherent Optical Correlator/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 6 October, 1978, by the Department of the Army. The real time coherent optical processor will operate using realistic, low resolution input imagery. The system incor-

Corrélateur optique cohérent/294

porates a bank of reference images to provide the capacity for handling variations in aspect, rotation, and scale. This bank is scanned in time so that it can be determined which reference images are providing correlation signals. The

input device is an optically addressed image forming light modulator which can be operated by imaging on it an object or scene illuminated with bright artificial light or sunlight or by imaging a television monitor on cathode ray tube image of an object or scene. An array of laser diode light sources is used to interrogate an array of stored reference image transforms by selectively turning on diodes in

the array. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-951 925

Liquid Nitrogen Level Indicator/294

Indicateur de niveau pour azote liquide/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 October, 1978, by the Department of the Army. Sensing elements are located at various required levels in a vacuum dewar. Resistance changes are detected external to the container and used to indicate the presence of a liquid at a particular level. This invention is utilized at present as part of an infrared aircraft detection system. This system has 28 IR detectors arranged in a vertical line and located in a glass dewar. These detectors have to be cooled to 77 K by liquid nitrogen LN2 for proper operation.

The detector-dewar assembly is located in the focal plane of a Schmidt optical system. This optical unit is rotated at a 1 revolution/second rate and becomes the scanning head of the infrared aircraft detection system. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-961 334

Matrix Nozzle for Mixing Lasers/294

Buse matricielle pour mélanges lasers/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 November, 1978, by the Department of the Army. The matrix nozzle for mixing lasers in which an inner tube forms a path for the primary flow and a chamber around the inner tube opens around the outer periphery of the inner tube to form a flow path for the secondary gas flow. The exiting of the primary and secondary gases rapidly mix and cause lasing to take place. With this arrangement, the

primary gas flow adds turbulence to the secondary gas flow as it exists and causes better mixing of the gases. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-962 273

Smokeless Propellant Compositions Having Polyester or Polybutadiene Binder System Crosslinked with Nitrocellulose and Method of Preparing the Same/294

Poudres sans fumée ayant un liant polyester ou polybutadiène réticulé avec de la nitrocellulose; méthode de préparation de ces poudres/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 20 November, 1978, by the Department of the Army. The propellant compositions of this invention are cross-linked with from about 0.1 to about 1.0 weight percent of nitrocellulose which improves the physical properties and the thermal stabilities of these propellants thereby permitting their storing and testing up to 165 F. These propellants employ additional ingredients which include one or more binder ingredients selected from the group consisting of polyglycol adipate (PGA), polyethylene glycol (PEG), polycaprolactone (PCL or PCP), and hydroxy-terminated polybutadiene (HTPB); plasticizer ingredients selected from the nitrate ester plasticizers consisting of nitroglycerin (NG), trimethylol ethane trinitrate (TMETN), triethylene glycol dinitrate (TEGDN), and butane trioltrinitrate (BTTN);

oxidizer ingredient selected from the group consisting of cyclotetramethylenetetranitramine (HMX), cyclotrimethylenetrinitramine (RDX), triaminoguanidine nitrate (TAGN), and oxamide; thermal stabilizers selected from the group consisting of 2-nitrodiphenylamine, 4-nitrodiphenylamine, n-methyl-p-nitroaniline, and resorcinol; isocyanate curing agent; carbon black additive; and a modifying additive selected from ballistic additives and curing catalyst additives. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-964 115

Power Transition Circuit/294

Circuit de commutation à grande puissance/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 27 November, 1978, by the Department of the Army. A multivibrator controlled, transistor switching circuit having a controllable pulse period and variable voltage output for providing low voltage switching of a high operating voltage, high power output circuit. For negotiations write: Mr.

George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-973 367

Light Operated Measuring System/294

Système de mesurage à principe lumineux/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 26 December 1978, by the Department of the Army. Replace the electrical conductors that interconnect the test measuring points with the display and signal conditioning equipment by glass or plastic fiber optic light guides for transmission of light through a light modulator. The light modulator's light conductive or reflective characteristics are changed proportional to the type of measurement being made at the measurement point. The light in-

tensity and/or phase is altered in the modulator proportional to the parameter being measured. A reference light can be compared with the light passing through the modulator to simplify system operation. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-000 324

Electronic Correction of Optical Aberrations in a Laser Seeker/294

Correction électronique des aberrations optiques dans un chercheur laser/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 2 January 1979, by the Department of the Army. Apparatus which corrects optical aberrations produced by an ogive shaped window on a laser seeker system. A holographic optical element is provided which breaks the received radiation, at the proper wavelength, into four components and focuses each component into a separate detector. The gain of each detector amplifier is adjusted according to the direction the gimbed seeker is pointed

thus allowing the guidance control system to operate without offset even though the received radiation is aberrated by the ogive shaped window. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-000 325

Holographic Stepwise Zoom Lens for Beamrider Missiles/294

Lentille holographique à focale variable pas à pas pour missiles à autoguidage laser/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 2 January 1979, by the Department of the Army. The report describes a holographic optical element that performs a zoom operation in a stepwise fashion while undergoing a simple rotation. Each of four holographic plates is produced by a different optical arrangement. Each plate contains a number of exposures arranged in a ring. The four plates are paired with the exposures in the ring of one plate in proper register with the exposures in the second

plate. The resulting pair of holograms form on-axis holographic lenses. The two pair are combined to produce the holographic zoom lens. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-000 326

A Holographic Corrector Plate for Laser Designators/294

Plaque correctrice holographique pour désignateurs lasers/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 2 January 1979, by the Department of the Army. A

holographic optical element structure which corrects the aberrated waveform that has passed through an ogive

shaped sensor window. The corrected waveform will have the same structure as if it had passed through a hemispherical window. Such structure allows one to replace the nose of a laser designator, (hemispherical) with an ogive shaped nose without the loss of optical performance. For negotiations write: Mr. George Kudravetz, Product Man-

ager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-008 464

Semi-Active Laser Seeker Gyroscope/294

Gyroscope pour chercheur laser semi-actif/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 1 February 1979, by the Department of the Army. A gyro in which an elastomeric material is used as a spherical bearing surface in an air bearing type gyro to sustain 12,5000 g set back acceleration level during gun launch and have the capability of surviving the launch phase in a non-functioning mode and then being operative in post-launch lower-g environments as a stabilized/torquing

seeker capable of tracking laser illuminated moving target so as to enable the gyro to be used for guided projectile systems. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-013 947

Optical Beam Scanner/294

Explorateur de faisceau optique/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 22 February 1979, by the Department of the Army. The optical beam scanner employs novel utilization of the well known Stark effect. By means of an external applied voltage, a change in the index of refraction of an optical medium is produced. This produces a bending effect on light transmitted through the medium. Varying the applied voltage can be used to vary the refractive index, or a

refractive index gradient may be produced by providing a gradient in the applied field, to produce no moving parts scanning of the optical beam. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-019 539

Minimum Length Diffuser for Chemical Lasers/294

Diffuseur de longueur minimale pour lasers chimiques/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 12 March 1979, by the Department of the Army. The invention concerns a minimum length diffuser for transforming low pressure, supersonic laser exhaust gas flow to a subsonic flow at an elevated static pressure using structures which produce a single, near normal shock, or a single pair of normal shocks due to flow symmetry and also incorporating structures which induce a strong, stable

cellular subsonic flow to allow rapid diffusion of the subsonic flow. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-021 742

A System for Ripple and Noise Reduction in a Multiple Power Supply/294

Filtre réducteur d'ondulation et de bruit pour alimentation multiple/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 19 March 1979, by the Department of the Army. In an electronic device such as a traveling-wave tube amplifier or Klystron oscillator which requires three interconnected dc power supplies, a filter arrangement is provided for isolating the common-mode ripple voltage. An inductor serves to provide isolation of the common lead of the three power supplies by providing a high impedance in this lead.

A capacitor provides a low-impedance path to ground at the common interconnection point. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-027 542

Regulating Means for D-C Battery System/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 5 April 1979, by the Department of the Army. A three phase full-wave bridge is used with a three phase alternator for coupling output voltage from the alternator in series with a high voltage battery, and thereby regulating battery output voltage to a load circuit. The alternator output supplements the battery voltage as battery voltage begins to

Régulateur d'alimentation par batterie/294

droop. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-075 565

Electrolysis of Lead Azide/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 14 September 1979, by the Department of the Army. This invention relates to a method of disposing of lead azide by subjecting the lead azide to electrolysis and recovering the lead which plates out on the cathode. More particularly, this invention relates to a method of subjecting lead azide to electrolysis using a basic electrolysis solution and stainless steel or lead electrodes. Nitrogen is evolved at the anodes. The preferred electrolysis solution (electrolyte) is sodium hydroxide having a concentration of from 10% to 20%. The physical form of the lead recovered can be spongy or dense. The dense lead is preferred because it adheres well to the cathode. The use of from about 0.2% to about 0.6% by weight rosin powder and about 5% by weight sodium-potassium tartrate in the electrolyte, in addition to the sodium hydroxide, is preferred since it inhibits the formation of lead oxide and aids in the plating of

Électrolyse de l'azoture de plomb/294

dense lead. The preferred temperature of operation is about 180 F. Voltages of from about 2 to 8.5 can be used. The preferred current density is about 0.085 amperes per square inch, using from about 2.3 to 3.0 volts and about 1000 to 3000 amperes. In order to insure that the lead deposited on the cathode adheres well, the cathode can be etched. The process of this invention can accomplish the destruction of about 10 to 30 pounds of lead azide per hour with the preferred conditions resulting in the destruction of about 25 to 30 pounds of lead azide per hour. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-934 768

Process for Producing Hydrogen from Water Using Cobalt and Barium Compounds and Compositions Useful Therein/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 17 August 1978, by the Department of Energy. A thermochemical process for producing hydrogen comprises the step of reacting CoO with BaO or Ba(OH)_2 in the presence of steam to produce H_2 and novel double oxides of Ba and Co having the empirical formulas $\text{BaCoO}_{2.33}$ and $\text{Ba}_2\text{CoO}_{3.33}$. The double oxide can be reacted with H_2O to form Co_3O_4 and Ba(OH)_2 which can be recycled to the original reaction. The Co_3O_4 is converted to CoO by either of two procedures. In one embodiment Co_3O_4 is heated, preferably in steam, to form CoO . In

Procédé de production d'hydrogène à partir de l'eau au moyen de composés de cobalt et de baryum; compositions utiles dans ce procédé/294

another embodiment Co_3O_4 is reacted with aqueous HCl solution to produce CoCl_2 and Cl_2 . The CoCl_2 is reacted with H_2O to form CoO and HCl and the CoO is recycled to the initial reaction step. The Cl_2 can be reacted with H_2O to produce HCl . HCl can be recycled for reaction with Co_3O_4 . (ERA citation 04:049591). For negotiations write: James E. Denny, Assistant General Counsel for Patents, Office of the General Counsel, U.S. Department of Energy, Washington, D.C. 20545 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-936 459

Method for Exploring and Discovering Uranium Deposits within a Petrofluid System/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 August 1978, by the Department of Energy. This invention relates to a method for exploring and discovering a

Méthode d'exploration et de prospection des gîtes uranifères situés à l'intérieur de terrains renfermant des fluides/294

uranium ore deposit located within a petrofluid system, comprising assaying the fluids and solids at a multiplicity of sites throughout the system with respect to at least four

uranium daughter products, polonium-210, lead-210, bismuth-214, and radon-222 and thereby determining distances from the ore deposit to the assay point. (ERA citation 04:048170). For negotiations write: James E. Denny, Assistant General Counsel for Patents, Office of

the General Counsel, U.S. Department of Energy, Washington, D.C. 20545 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-936 460

Preparation of U sub 3 O sub 8/294

Préparation de U₃O₈/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 August 1978, by the Department of Energy. A method is described for the preparation of U sub 3 O sub 8 nuclear fuel material by direct precipitation of uranyl formate monohydrate from uranyl nitrate solution. The uranyl formate monohydrate precipitate is removed, dried and calcined to produce U sub 3 O sub 8 having a controlled par-

ticle size distribution. (ERA citation 04:048172). For negotiations write: James E. Denny, Assistant General Counsel for Patents, Office of the General Counsel, U.S. Department of Energy, Washington, D.C. 20545 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-966 522

Method for Immobilizing Radioactive Iodine/294

Méthode d'immobilisation de l'iode radioactif/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 4 December 1978, by the Department of Energy. Radioactive iodine, present as alkali metal iodides or iodates in an aqueous solution, is incorporated into an inert solid material for long-term storage by adding to the solution a stoichiometric amount with respect to the formation of a sodalite (3M sub 2 O, 3A1 sub 2 O sub 3.6SiO sub 2 .2MX, where M = alkali metal; X = 1 exp - or IO sub 3-) of an alkali metal, alumina and silica, stirring the solution to form a homogeneous mixture, drying the mixture to

form a powder, compacting and sintering the compacted powder at 1073 to 1373 K (800 to 1100 exp O C) for a time sufficient to form sodalite. (ERA citation 04:056100). For negotiations write: James E. Denny, Assistant General Counsel for Patents, Office of the General Counsel, U.S. Department of Energy, Washington, D.C. 20545 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-970 842

Gaseous Trace Impurity Analyzer and Method/294

Analyseur d'impuretés gazeuses à l'état de trace et méthode d'utilisation/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 18 December 1978, by the Department of Energy. Simple apparatus for analyzing trace impurities in a gas, such as helium or hydrogen, comprises means for drawing a measured volume of the gas as sample into a heated zone. A segregable portion of the zone is then chilled to condense trace impurities in the gas in the chilled portion. The gas sample is evacuated from the heated zone including the chilled portion. Finally, the chilled portion is warmed to vaporize the condensed impurities in the order of their boiling points. As the temperature of the chilled portion rises, pressure will develop in the evacuated, heated zone by the

vaporization of an impurity. The temperature at which the pressure increase occurs identifies that impurity and the pressure increase attained until the vaporization of the next impurity causes a further pressure increase is a measure of the quantity of the preceding impurity. (ERA citation 04:056964). For negotiations write: James E. Denny, Assistant General Counsel for Patents, Office of the General Counsel, U.S. Department of Energy, Washington, D.C. 20545 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-054 926

A Cobalt-Catalyzed One-Step Synthesis of Annulated Pyridines and Novel Products/294

Synthèse en une seule étape de pyridines condensées et de nouveaux produits avec un catalyseur au cobalt/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 5 July 1979, by the Department of Health. A method is given for synthesizing fused ring pyridines (annulated) by co-oligomerization of alpha, omega-diyne with about molar equivalents of nitriles, using a Co(+ 1) catalyst, preferably cyclopentadienyl cobalt dicarbonyl. For negotia-

tions write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-083 829**Gear Drive for Seal-Less Counter Current Chromatography/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 11 October 1979, by the Department of Health. This invention relates to centrifugal liquid processing apparatus, and, more particularly, to a coil centrifuge apparatus of the flow-through type having a variable rotation/revolution ratio and not employing rotating seals. For negotiations

Entraînement pour la chromatographie à contre-courant sans joints/294

write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-047 541**Recovery of Metal Values from Lead Smelter Matte/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 11 June 1979, by the Department of the Interior. It is an object of the present invention to provide a process for the recovery of metal values from lead smelter matte. It is a further object to provide such a process for the recovery of copper, nickel and cobalt values therefrom. It is yet a further object to provide such a process which includes an

Récupération de métaux de la matte de fonderie de plomb/294

acid leaching step which can be carried out at atmospheric pressure in relatively inexpensive equipment. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-048 408**Capacitance Probe Sensor Device/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 14 June 1979, by the Department of the Interior. A capacitance probe sensor device is disclosed which has a probe formed of a KYNAR insulated wire spaced from an uninsulated metallic ground electrode. An oscillator and associated capacitance-resistance network connected to the probe serve to provide a linear output voltage proportional to the change of capacitance between the insulated wire and the ground electrode. The capacitance probe sen-

Dispositif capteur à sonde capacitive/294

sor device can be used in a number of applications, including the measurement of water level, soil moisture content and displacements. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-055 216**Mine Face Ventilation System/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 6 July 1979, by the Department of the Interior. A mine face ventilating method and apparatus are disclosed which serve to supply fresh air from a ventilated crosscut. A duct system containing a blower draws air from the crosscut and expels a jet of air out of a duct in the tunnel. Arcurately shaped troughs located at the end of the duct in the tunnel channel the air to the face of the tunnel. The troughs define

Système de ventilation des fronts de taille/294

an arc of between about 90 degrees and 180 degrees and provide substantially improved air throw as compared with conventional tabular ventilation piping. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-060 101**Method of In Situ Mining/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 July 1979, by the Department of the Interior. An improved method of in situ mining of a mineral bearing stratum is presented. The method comprises drilling alter-

Méthode d'exploitation minière in situ/294

nating rows of vertical injection and recovery wells to the depth of an aquiferous mineral bearing stratum. Two horizontal branches are drilled at the bottom of each injection and recovery well. The horizontal branches are substan-

tially parallel to one another and lie within the mineral bearing stratum. Leachant fluid is pumped under pressure into the injection wells to dissolve the minerals contained in the stratum. Leachant fluid containing the dissolved minerals is pumped out through the recovery wells. The method of the present invention requires substantially less drilling and pipe for extracting minerals from a given volume of a mineral bearing stratum and results in more

constant mineral extraction rates than conventional techniques. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-066 998

In-Situ Leach Mining Method and Apparatus/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 August 1979, by the Department of the Interior. The invention is a method with its associated apparatus of in situ leach mining in which a single well head is used to inject the leaching solution and also to recover the minerals contained in the recoverable leaching solution. The well head has a main generally vertical well and a plurality of interacting branch wells that are drilled to extend outwardly therefrom at an angle of say 2 to 60 degrees to the main well. Extending down the main well is a central conduit which receives the recoverable leaching solution and minerals. A submersible pump at the lower end of the conduit may be placed within the conduit near the mineral ore zone. A packer is placed between the pump and the branch wells around and outside of the main conduit to prevent

Méthode et appareil de lixiviation en place/294

the flow of solution passed it. The outer ends of each of the branch wells extend into the ore zone and provide for the injection of the leaching solution thereto from the surface down the main well outside of its conduit. After the solution has been forced into the ore zone, a negative pressure is built up by the pump to cause the recoverable solution and minerals to be forced to the vertical well, and finally the solution is pumped to the surface via the conduit (drop pipe). For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-066 999

Extensometer Anchor/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 August 1979, by the Department of the Interior. The patent application relates to an extensometer anchor for use in a mine borehole. The anchor has an anchor body that, when in an operative mode, is placed in the borehole. Extending at least partially around the outer surface of the body are one or more grooves whose major plane is generally perpendicular to the length of the borehole. Seated within each groove is a compressible resilient anchor member, like a ring, which remains loaded by a retaining device, such as a cotter pin, extending through it. Upon

Ancre d'extensomètre/294

being pulled from outside of the borehole, the retaining device unloads the compressed anchor which then moves to expand outwardly in the borehole and firmly anchor the anchor body and attached extensometer within the mine borehole. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-072 955

Electrodeposition of Lead/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 6 September 1979, by the Department of the Interior. Electrowinning or electrorefining of lead is accomplished by electrodeposition of the lead on a copper cathode. Recovery of the deposited lead from the cathode is accomplished by immersion in molten lead. For negotiations

Dépôt galvanoplastique du plomb/294

write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-072 956

Electrolytic Stripping Cell/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 6 September 1979, by the Department of the Interior.

Cellule de détachage électrolytique/294

An electrolytic stripping cell is provided which is particularly adapted for use in processing shredded, silver brazed,

stainless steel honeycomb scrap. The cell comprises a mesh anode basket which rotates within a cathode cylinder to provide partial stirring of the cell electrolyte. The anode basket includes a central hollow shaft having holes therein through which the electrolyte continually circulates. The basket includes wiper blades for dislodging silver dendrites which grow between the anode and cathode and which, as they fall, are collected in a mesh

basket located at the bottom of the cell housing. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-072 957

Removal of Impurities from Clay/294

Extraction des impuretés de l'argile/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 6 September 1979, by the Department of the Interior. A method is described for producing substantially pure alumina from kaolin clay by removing in a soluble form impurities which contaminate the alumina while the aluminum is maintained in an insoluble form. This is accomplished by leaching calcined kaolin clay with at least 36 weight per cent hydrochloric acid to dissolve the impurities and convert the aluminum to insoluble aluminum chloride and maintaining the hydrochloric acid concentration in the leach liquor at at least 36 weight per cent by the injection of hydrochloric acid gas. The insoluble aluminum chloride is then separated from the dissolved impurities and subjected to a second leaching step to solubilize and separate

it from the silica gangue. Substantially pure $AlCl_3 \cdot 6H_2O$ crystals are recovered from solution and converted to alumina by conventional means. In an alternate embodiment, the process may be practiced on uncalcined clay and includes the addition of a source of fluoride ions, such as H_2SiF_6 , to the at least 36 weight per cent hydrochloric acid leach liquor. An optional preleaching step using 2N to 6N mineral acid is also disclosed. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-078 358

Automated Satellite Mapping System (MAPSAT)/294

Système de cartographie automatique par satellite (MAPSAT)/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 September 1979, by the Department of the Interior. This patent application describes a system for automatically mapping the surface of a celestial body, such as the earth. A relatively stable satellite is placed into a near polar, sun-synchronous orbit about the body. The satellite includes two or three solid-state linear sensing photo-detector array sets mounted transversely to the satellite heading. Data are acquired by sensing elemental areas of strips from a first position in space with a first array set, and then when the satellite has moved to a second position, imaging the same elemental areas of each strip with a second array set. Sensing of strip by the first array set

produces a first one-dimensional flow of data. Sensing of the strip by the second array set produces a second one-dimensional flow of data which, when correlated with the data from the first array set, results in data representative of elevational information for each incremental area of each strip. The system allows near real-time mapping of a surface. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-080 824

Recovery of Alumina from Clay/294

Extraction de l'alumine de l'argile/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 1 October 1979, by the Department of the Interior. Off-gases from thermal decomposition of hydrated aluminum salts are used in leaching of clays to recover alumina. For negotiations write: Mr. George Kudravetz, Product Man-

ager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-081 505

Passive Explosion Barrier for Mines/294

Barrière passive antiexplosions pour usage dans les mines/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 3 October 1979, by the Department of the Interior. A

passive explosion barrier is provided for use in mining operations in suppressing mine explosions. The barrier

basically comprises a receptacle or tub which contains an explosion suppressing substance, such as water, and is mounted on a frame adjacent to the roof of the mine. The tub includes a pair of integral support lips at the front and rear edges thereof which are beveled at the sides and which constitute the sole support for the tub. In operation, wind from an explosion will cause the lip disposed toward the explosion to distort and curve inwards and disengage from the frame so that the tub falls, pivoting about the

other lip. In an alternative embodiment, the sides of the tub are more flexible than the lips of the tub, and distortion of the sides in response to wind forces causes disengagement of the lip facing the explosion. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-081 506

Dust Controlling Method Using a Coal Cutter Bit/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 3 October 1979, by the Department of the Interior. The patent application relates to a method of augmenting the cutting operation of a cutter bit to reduce the cutting energy required and to reduce the respirable dust generated during the cutting operation. During the cutting operation of coal with a continuous mining machine, greater than 90 percent of the primary respirable dust generated occurs in the crushing zone around the tip of bit. By applying a high pressure (2,500 to 5,000 psi) spray of water at or near the center of the cutting tip, as the tip touches

Pic spécial de havage de charbon permettant de réduire la production de poussière/294

the coal, tests have shown very substantial reductions in the airborne respirable dust generated and that there is lubrication and cooling at the cutter tip/mineral interface to provide for reduced sumping forces and lowered methane ignition potential. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-082 383

Improved Discriminating Circuit Breaker Protection System for Direct Current Power Distribution Systems/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 5 October 1979, by the Department of the Interior. The invention relates in general to protection of direct current power distribution systems and in particular to electronic discriminating circuit breaker protection systems for mine power distribution systems. The discriminating circuit breaker system for direct current power distribution comprises an electrically controlled circuit breaker connected between each power supply and the associated transmis-

Système amélioré de protection par disjoncteur à circuit discriminateur pour systèmes de distribution d'énergie électrique à courant continu/294

sion line comprising a DC power distribution system, and a control circuit for controlling the operation of the circuit breakers. For negotiations write: Mr. George Kudravetz, Product Manager, NTIS, United States Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-092 145

Modified Face Seal for Positive Film Stiffness/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 7 November 1979, by NASA. An invention to improve the film stiffness of a face seal without increasing the sealing and dam area is described. The improved sealing apparatus has a primary seal ring in the form of a nose piece. A spring forces a sealing surface on the seal ring into sealing contact with a seal to form a face seal. A circumferential clearance seal is formed in series with this face by a lip on the nose piece. The width of the surface of the lip is substantially the same as the width of the sealing surface on the face seal. Also, the clearance between the surface on the lip and the shaft is substantially the same

Joint étanche modifié pour assurer la résistance d'une pellicule/294

as the spacing between the face sealing surfaces on the face seal when the shaft is rotating. The circumferential clearance seal restricts the flow of fluid from a main cavity to an intermediate cavity with a resulting pressure drop. The hydrostatic opening is strongly dependent on the face seal clearance, and the desired axial stiffness is achieved. For negotiations write: NASA, Lewis Research Center, 21000 Brookpark Road, Cleveland, Ohio 44135 and send a copy of your initial correspondence to Canadian Consulate, Illuminating Building, 55 Public Square, Cleveland, Ohio 44113.

PAT-APPL-6-102 003**Improved Refractory Coatings and Method of Producing the Same/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 12 July 1979, by NASA. A thin sputtered film that exhibits improved adherence to a substrate and has improved friction and wear characteristics is described. These improvements are achieved by coating the substrate by rf sputtering with a film of titanium carbide using an argon sputtering plasma. A small nitrogen partial pressure from about 0.5% to 2.5% is added in the initial stages of the deposition during which the interface is formed. The im-

Revêtements réfractaires améliorés et méthode de fabrication de ces derniers/294

provements in adhesion of the titanium carbide coating to the substrate results from the presence of both titanium nitride and a nitride of the substrate in the interfacial region. For negotiations write: NASA, Lewis Research Center, 21000 Brookpark Road, Cleveland, Ohio 44135 and send a copy of your initial correspondence to Canadian Consulate, Illuminating Building, 55 Public Square, Cleveland, Ohio 44113.

PAT-APPL-6-072 727**Method of Making V-MOS Field Effect Transistors/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 5 September 1979, by NASA. A method of making V-MOS field effect transistors is disclosed. A masking layer is first formed over a surface of a crystalline substrate. An aperture is formed in the masking layer to expose the surface of the substrate. An anisotropic etchant is applied to the exposed surface so that a groove having a decreasing width with increasing depth is formed. The etch is not allowed to go to completion, with the result that a partially formed V-shaped groove is formed, ions are

Méthode de fabrication de transistors à effet de champ V-MOS/294

accelerated through the aperture for implantation in the crystalline substrate in the lower portion of the partially formed V-shaped groove. An anisotropic etchant is reapplied to the partially formed V-shaped groove, and the etch is allowed to go to completion. For negotiations write: NASA, Goddard Space Flight Center, Mail Code: 204, Greenbelt, Maryland 20771 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-067 595**A Hydraulic Actuator Mechanism to Control Aircraft Spoiler Movements Through Dual Input Commands/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 17 August 1979, by NASA. A conventional, primary spoiler control system retains its operational characteristics while accommodating a secondary input controlled by a conventional computer system to supplement the settings made by the primary input. This is achieved by interposing springs between the primary input and the spoiler control unit. The springs are selected to have a stiffness intermediate to the greater force applied by the primary control linkage and the lesser resistance offered

Actionneur hydraulique permettant de commander les mouvements des déporteurs d'un aéronef grâce à des commandes doubles/294

by the spoiler control unit. Thus, operation of the primary input causes the control unit to yield before the springs, yet, operation of the secondary input, acting directly on the control unit, causes the springs to yield and absorb adjustments before they are transmitted into the primary control system. For negotiations write: NASA, Langley Research Center, Mail Code: 279, Hampton, Virginia 23665 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-070 366**Small Conductive Particle Sensor/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 28 August 1979, by NASA. This invention is an electrostatic conductive fiber detector for use in detecting, counting and measuring the length of fibers down to 0.1 mm and below with increased accuracy and reliability over prior art devices. It can be used for detection of fibers suspending in a flowing gas, in a nonflowing gas, or in a vacuum and its

Capteur de petites particules conductrices/294

accumulated counts over a period of time is essentially unaffected by velocity of the fibers being detected. For negotiations write: NASA, Langley Research Center, Mail Code: 279, Hampton, Virginia 23665 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-072 857

Multiwall Thermal Protection System/294

Bouclier thermique à parois multiples/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 5 September 1979, by NASA. Multiwall insulating sandwich panels are provided for thermal protection of hypervelocity vehicles and other enclosures. In one version of the invention, the multiwall panels are formed of alternate layers of dimpled and flat metal (titanium alloy) foil sheets and beaded scarfed edge seals to provide enclosure thermal protection up to 1000 F. Another version employs an intermediate fibrous insulation for the sandwich panel to provide thermal protection up to 2000 F, and a third

version employs a silicide coated columbium waffle as the outer panel skin and fibrous layered intermediate protection for thermal environment protection up to 2500 F. The use of multiple panels on an enclosure facilitates repair of the thermal protection system. For negotiations write: NASA, Langley Research Center, Mail Code: 279, Hampton, Virginia 23665 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-073 477

Scanning Afocal Laser Velocimeter Projection Lens System/294

Système de projection pour vélocimètre à laser à lentilles afocale et d'exploration/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 7 September 1979, by NASA. A method and apparatus for projecting and focusing parallel laser light beams from a laser Doppler velocimeter on a target area is presented. The system which includes three lenses is described. Two lenses work together as a fixed afocal lens combination. The third lens is a movable scanning lens. Parallel laser beams travel from the velocimeter through the scanning

lens and through the afocal lens combination and converge. The constant focal volume and crossbeam angle which are maintained during the scan are discussed. For negotiations write: NASA, Langley Research Center, Mail Code: 279, Hampton, Virginia 23665 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-098 568

Low Temperature Latching Solenoid/294

Solénoïde à verrouillage pour fonctionnement à basse température/294

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 29 November 1979, by NASA. A magnetically latching solenoid is disclosed which includes a pull-in coil and a delatching coil. Each of the coils is constructed with a combination of wire materials, including materials of low temperature coefficient of resistivity, to enable the solenoid to be operated at cryogenic temperatures while maintaining sufficient coil resistance. An armature is spring-biased toward a first position that may extend beyond the field of force of a permanent magnet. When voltage is temporarily applied across the pull-in magnet, the induced electromagnetic forces overcome the spring force and pull

the armature to a second position within the field of the permanent magnet, which latches the armature in the pulled-in position. Application of voltage across the delatching coil includes electromagnetic force which at least partially temporarily nullifies the field of the permanent magnet at the armature, thereby delatching the armature and allowing the spring to move the armature to the first position. For negotiations write: NASA, Lyndon B. Johnson Space Center, Mail Code: AM, Houston, Texas 77058 and send a copy of your initial correspondence to Canadian Consulate, 2001 Bryan Tower, Suite 1600, Dallas, Texas 75201.

PAT-APPL-6-102 593

Surface Conforming Thermal/Pressure Seal/294

Joint étanche résistant à la chaleur et à la pression et s'adaptant aux surfaces/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 12 December 1979, by NASA. A sealing apparatus is described which serves both pressure and thermal sealing functions between adjacent and relatively movable elements of relatively large surfaces. The sealing apparatus has the flexibility required for large movable surfaces, and can accommodate moderate variations in the gap between such surfaces which may be affected by thermal distor-

tion. Sealing is accomplished with a nonabrasive, low frictional material, creating as little resistance as possible to movement of control members and minimal wear and damage to surface coatings. For negotiations write: NASA, Lyndon B. Johnson Space Center, Mail Code: AM, Houston, Texas 77058 and send a copy of your initial correspondence to Canadian Consulate, 2001 Bryan Tower, Suite 1600, Dallas Texas 75201.

PAT-APPL-940 970

Miniature Cyclotron Resonance Ion Source Using Small Permanent Magnet/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 11 September 1978, by NASA. An ion source using the cyclotron resonance principle is presented. A miniaturized ion source device in an air gap of a small permanent magnet with a substantially uniform field in the air gap of about 0.5 inches is described. The device and permanent magnet are placed in an enclosure which is maintained at a high vacuum into which a sample gas is introduced. A discus-

Source d'ions miniature à résonance cyclotron faisant appel à un petit aimant permanent/294

sion of how the invention avoids the problem of getting the ion beam coupled into the utilization system is presented. For negotiations write: Monte F. Mott, Patent Counsel, NASA Resident Legal Office, Mail Code: 180-601, 4800 Oak Grove Drive, Pasadena, California 91103 and send a copy of your initial correspondence to Canadian Consulate General, 510 West Sixth Street, Los Angeles, California 90014.

PAT-APPL-6-092 143

Method for Shaping and Aiming Narrow Beams/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 7 November 1979, by NASA. A method and apparatus is disclosed for use of a linear frequency chirp in a transmitter/receiver having a correlator to synthesize a narrow beamwidth pattern from otherwise broad beam transducers when there is relative velocity between the transmitter/receiver and the target. The chirp is so produced in a generator in bandwidth, B, and time, T, as to produce a time-bandwidth product, TB, that is increased for a narrower angle. A replica of the chirp produced in a generator

Méthode de mise en forme et de pointage de faisceaux étroits/294

is time delayed and Doppler shifted for use as a reference in receiver for correlation of received chirps from targets. This reference is Doppler shifted to select targets preferentially, thereby to not only synthesize a narrow beam but also aim the beam in azimuth and elevation. For negotiations write: Monte F. Mott, Patent Counsel, NASA Resident Legal Office, Mail Code: 180-601, 4800 Oak Grove Drive, Pasadena, California 91103 and send a copy of your initial correspondence to Canadian Consulate General, 510 West Sixth Street, Los Angeles, California 90014.

PAT-APPL-6-093 714

Schottky Barrier Solar Cell and Method of Fabrication/294

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 13 November 1979, by NASA. A Schottky barrier solar cell is described which consists of a thin substrate of low cost material with at least the top surface of the substrate being electrically conductive. A thin layer of heavily doped n-type polycrystalline germanium, with crystalline sizes in the submicron range, is deposited on the substrate after a passivation layer is deposited on the substrate to prevent migration of impurities into the polycrystalline germanium on a substrate of low-cost conductive material. Then, the polycrystalline germanium is recrystallized to increase the

Pile solaire à barrière de Schottky et méthode de fabrication/294

crystal sizes in the germanium layer to not less than 5 microns, and preferably considerably more. It serves as a base layer on which a thin layer of gallium arsenide is vapor-epitaxially grown to a selected thickness. Then, a thermally-grown oxide layer of a thickness of several tens of angstroms is formed on the gallium arsenide layer. For negotiations write: Monte F. Mott, Patent Counsel, NASA Resident Legal Office, Mail Code: 180-601, 4800 Oak Grove Drive, Pasadena, California 91103 and send a copy of your initial correspondence to Canadian Consulate General, 510 West Sixth Street, Los Angeles, California 90014.

PAT-APPL-6-023 043

Processor-Aided Fire Detector/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 22 March 1979, by the Department of the Navy. The invention concerns a fire detection system which includes an environmental sampling assembly coupled to a programmable digital processor for detecting a threat of fire and reducing the occurrences of false alarms in a changing environment. The sampling assembly comprises a network of air ducts, a chamber, two sensors, and an exhaust fan. The processor includes two analog-to-digital (A/D) converters, a multiplexed digital summer, short and long-term storage mediums, a signal magnitude comparator, logic

Détecteur d'incendie commandé par processeur/294

circuitry, and a timing generator. The fan continuously draws ambient air through the air ducts and the chamber. Sensors within the chamber sample the air. If the sensors detect particulates of combustion in the air, the sensors provide electrical signals of varying amplitudes, which amplitudes depend on the number and sizes of the particulates being sampled, to the A/D converters of the processor. One of the sensors also feeds its signals to the fan motor for increasing the speed of the fan, thereby clearing the chamber and drawing air through the chamber at a faster rate for a more vigorous sampling of the environ-

ment. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a

copy of your initial correspondence to Canadian Consulate 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-024 135

Neutral-Beam-Sustained Astron Reactor/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 26 March 1979, by the Department of the Navy. The disclosure is directed to a method and device for containing a high temperature plasma and generating neutrons. A tritium plasma is confined in a closed magnetic field configuration produced by the combination of an externally applied magnetic field and the self magnetic field of a fast rotating deuterium ion layer and heated by coulomb collisions within the deuterium ion layer. The system is maintained at a steady state by the continuous injection of energetic neutral deuterium beams of energy from 50-300 keV. The neutral deuterium beam penetrates freely

Réacteur de fusion entretenu par faisceaux neutres/294

through the vacuum magnetic field and, upon ionization in the plasma region, forms an ion layer. The use of neutral beams to sustain a closed magnetic field configuration for plasma confinement and thereby achieve continuous operation is an important feature of the present invention. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-046 066

Limb Retention System/294

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 6 June 1979, by the Department of the Navy. The present invention relates to systems for protection from injury, and more particularly to systems for restraining the limbs of an occupant of a seat. For negotiations write: U.S.

Dispositif d'immobilisation des membres d'un passager/294

Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-054 048

Dismountable Inductively-Coupled Plasma Torch Apparatus/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 2 July 1979, by the Department of the Navy. Precise concentric alignment of the coolant, plasma and sample gas tubes used in conventional ICPs is an operationally important factor often achieved by fused arrangements which effectively preclude dismountability for maintenance and repair. Spacer rings slip-fitted into the coolant and plasma passages provide support for the concentric arrangement and also permit dismountability. Each ring is slotted to direct coolant and plasma gases and improve their intended functions. One ring spans the plasma tube

Appareil démontable à torche plasmique à couplage inductif/294

and has a number of vertically-directed peripheral slots producing a laminar plasma gas flow. The other ring spans the coolant passage and has a pair of threads cut at spaced intervals to spiral the coolant gas and improve its heat transfer function. A separable base member supports the concentric lower ends of the tubes. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-055 923

Breakaway Pin Release/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 6 July 1979, by the Department of the Navy. A pin release assembly in which a release pin and a pull pin have mating portions which interlock within a fixed collar. The interlocking surfaces of the mating portions are oriented parallel to or normal to the longitudinal axis of the pins so that no frictional side loads are produced when the interlocked pins are pulled in a direction parallel to the longitudinal axis. The release is actuated by sliding the interlocked pins within the collar. The length of travel of the release pin necessary to accomplish the desired release is

Goupilles à dégagement rapide/294

coordinated with the length of travel of the mating portions within the collar so that the interlocking surfaces are pulled from the confinement of the collar at the same time as the release is accomplished, thereby permitting the pull pin and the release pin to freely separate. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-061 350

**A Laser/Ultrasonic Welding
Technique/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 23 July 1979, by the Department of the Navy. The present invention provides a non-contact laser/ultrasonic welding technique for strengthening the common laser weld by the addition of the ultrasonic cavitation and cleaning. A high powered laser applies heat to a weld joint to produce a melt. The output of the laser, or a second laser, is amplitude modulated to generate acoustic waves in the melt. The improved interdiffusion of the melt and the

**Technique de soudage au laser et aux
ultrasons/294**

homogeneity of the weld joint result in an improved quality laser weld. Therefore, it is an object of the present invention to provide an improved quality laser weld joint with a non-contact welding technique. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-061 534

**Quick Releasing High Strength
Connector/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 24 July 1979, by the Department of the Navy. A device for rapidly securing and releasing a helicopter is provided. The device effects positive haul down of an aircraft from a landing attitude above a landing pad aboard ship to a predetermined landing position on the pad, among other uses, through a plurality of rotatable spring-loaded over-center dogs clamped onto the free end of a haul-down cable and a sliding, cylindrical spring-loaded latching device which

**Dispositif d'accrochage de câble à haute
résistance et action rapide/294**

maintains the dogs in clamped relationship with the haul-down cable. The haul-down cable is instantly released upon freeing of the dogs. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-063 605

Universal Cargo Restraint System/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 3 August 1979, by the Department of the Navy. It is an object of the present invention to provide a universal cargo restraint system which can be easily and quickly installed in, or removed from, a large variety of shipping containers, regardless of shape or size, to positively secure cargo, particularly in less-than-containerload shipments. Another object is to provide a cargo restraint system which will minimize container and restraint system inventories, and reduce loading and unloading time. Still another object is to provide a cargo restraint system which can be economically installed in a container and removed after only one usage, which reduces dunnage and the time necessary to position and trim the cargo in the container. A still further object is to provide a restraint system which is capable of

**Dispositif d'immobilisation du contenu
d'un container/294**

uniformly distributing high dynamic forces imparted within the container, and which improves safety to both the handling personnel and cargo. Briefly, these and other objects and aspects of the present invention are achieved by a novel and improved universal cargo restraint system in which four cables are respectively anchored to the corners of the shipping container forward wall and extend rearwardly to threaded rods passing through the corners of a movable rear bulkhead which is formed to engage the rearward surfaces of cargo modules. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-064 688

**A Terrain Correlation Updating
System/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 3 August 1979, by the Department of the Navy. This invention relates to a terrain correlation updating system for determining navigation updates for an inertial navigation system operating at low altitudes or on board a terrain following vehicle. The inertial navigation system provides data for flight path control during the fixtaking process, and provides lateral longitudinal and vertical position data

**Système de mise à jour par corrélation
de données prises sur le terrain/294**

used in the correlation process. Measured inertial altitude and Coriolis correction factors together with a barometric altitude are input to a baro-damped inertial loop to produce an averaged corrected inertial altitude for a given reference map cell size. The average radar altitude for each cell is subtracted from the corrected inertial altitude to give a terrain altitude estimate. The terrain altitude samples are normalized and stored until the completion of the flight

path. At the conclusion of sampling, a correlation algorithm compares the sampled normalized terrain altitudes with the reference map normalized altitudes. This process is repeated for a plurality of reference maps which may overlap. At the completion of the sampling and correlation phase, the fixes from each map are input to a majority voting logic to determine optimal estimates of true position. These data are input to a delayed-observable Kalman

filter which generates the error correction signals to update the inertial navigation system. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-066 200

Supercorrodng Galvanic Cell Alloys for Generation of Heat and Gas/294

Price per copy from NTIS: PC U.S. \$6.00/MF U.S. \$3.50, filed 13 August 1979, by the Department of the Navy. This report describes supercorrodng magnesium alloys that operate like galvanic cells and react rapidly and predictably with seawater to produce heat and hydrogen gas. The alloys are formed by a mechanical process that bonds magnesium and noble metal powder particles together in a strong electrical and mechanical bond. The alloy powders

Alliages supercorrosifs pour cellules galvaniques pour la production de chaleur et de gaz/294

can be compacted and sintered to form barstock, etc., suitable for making self-destructing links. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-066 201

Portable Diver Heat Generating System/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 13 August 1979, by the Department of the Navy. Supercorrodng magnesium alloys that react rapidly and predictably with seawater to produce heat and hydrogen gas. The alloys are formed by a mechanical process that bonds magnesium and noble metal powder particles together. The alloy powders can be sintered to form barstock, etc., suit-

Système portable de production de chaleur pour plongeur/294

able for self-contained corrodng links. This is a division of Application Serial No. 855,035 filed 25 Nov 1977. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-066 944

Simulated Oxygen Breathing Apparatus/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 August 1979, by the Department of the Navy. A filter replaces the oxygen canister of an oxygen breathing apparatus and the air flow path is modified to provide a realistic simulation for training personnel, in the use of closed circuit breathing units. For negotiations write: U.S.

Simulateur de respirateur d'oxygène/294

Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-067 089

Electro-Optical Projectile Analyzer/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 16 August 1979, by the Department of the Navy. A device for determining the velocity, trajectory and attitude of a projectile. Light beams from two perpendicular linear arrays of light emitters are incident upon corresponding linear photodetector arrays. Each light beam in the linear arrays includes an individualized characteristic to permit unique identification of each beam. Trajectory and velocity

Analyseur balistique électro-optique/294

parameters are determined by identifying which detectors have an interrupted light beam and from the time interval between actuation of the arrays. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-068 789**Safety Selector Switch/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 22 August 1979, by the Department of the Navy. A safety selector switch for preventing accidental energization of an electrical circuit is described. A plurality of annular discs, each having a cut-out portion in its periphery, are mounted on a shaft of an electrical component, such as a rotary switch. A second shaft is provided which is translatable in a direction parallel to the longitudinal axis of the shaft of the electrical component, and an arm is provided on said second shaft and is selectively positionable in each cut-out portion of said annular discs to

Sélecteur de sécurité/294

limit rotation of the shaft of the electrical component. Continued rotation of the shaft of the electrical component can only be made by alternately rotating said shaft of said electrical component and translating said second shaft to move said arm to a cut-out portion of an adjacent annular disc. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-072 820**Frustrated Total Internal Reflection Fiber-Optic Small-Motion Sensor for Hydrophone Use/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 4 September 1979, by the Department of the Navy. A method and apparatus for sensing motion relies upon the total light transmitted by an optical fiber. The fiber is wound in a coil and cemented to a rigid base and a portion of the fiber's cladding is removed exposing its core. A highly refractive plate is placed closely adjacent the exposed core. When the plate is displaced, it intercepts at least a portion of the evanescent field that is adjacent to the core. The intercepted portion reduces the total amount of light otherwise projected through the coiled optic fiber so that a detector can provide representations of the ampli-

Capteur de faibles mouvements à fibres optiques à réflexion interne totale entrée pour hydrophone/294

tude and frequency of the plate motion. The plate only penetrates the fiber's evanescent optical field which is associated with the total internal reflection at the glass-to-air interface at the fiber's surface. Adjusting devices and pressure compensation optionally are employed making this device suitable for use has a hydrophone. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-074 844**Heat Exchanger for Contaminated Water/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 7 September 1979, by the Department of the Navy. A heat exchanger for cooling contaminated liquids causing precipitation of solid matter on cold walls. Waste water at high temperature containing contaminants in the form of sludge and in solution is pumped through the annular space between two concentric cylindrical tanks. Cooling water is circulated through the tanks on either side of the

Échangeur de chaleur pour eau contaminée/294

annular space while scraping devices rotate about the annular space preventing buildup of precipitate on the annular space walls. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-075 630**Multi-Arrayed Micro-Patch Emitter with Integral Control Grid/294**

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 14 September 1979, by the Department of the Navy. A multi-arrayed electron emitter for microwave tubes in which the emitting surface is an array of continually replenished low-work function regions, (micro-patches), whose boundaries include a control grid which is integral with the cathode surface and which controls emission from the low-work-function micro-patches. The continually replenished

Émetteur d'électrons à réseaux multiples et grille de commande incorporée/294

low-work-function regions are uniformly positioned relative to a matrix of uniformly spaced openings through which the low-work-function material is released. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-075 631

Polyphthalocyanine/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 14 September 1979, by the Department of the Navy. The present invention pertains generally to high-temperature resins and in particular to cyano-addition resins from oxyaryl bisorthodinitriles. Certain bisorthodinitriles polymerize to form strong, high-temperature thermosetting resins. The structure of these resins is not completely known. For the following reasons, the principal mechanism of formation is theorized to be phthalocyanine nucleation. As the bisorthodinitriles polymerize, the color becomes progressively darker green in the manner similar to phthalocyanines. The polymerization is difficult to ini-

Polyphthalocyanine/294

tiate and promote which indicates the formation of a large and complex nucleus such as the phthalocyanine nucleus by a large end group such as the phthalonitrile group. The resins have properties that make them exceptionally suitable for structural resins. They have a structural strength comparable to that of epoxy and polyimide resins and have many advantages over these resins. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-078 266

Optically Tunable Resonant Structure/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 9 September 1979, by the Department of the Navy. A resonant structure, for supporting electromagnetic (EM) oscillations within a frequency range of approximately 10 GHz to 1000 GHz, and whose resonant properties are controlled by light. The structure includes an interaction material for absorbing light and forming a plasma of electron-hole pairs within the material. Kinetic and potential energy, which are stored in the EM oscillations within the resonant structure, change as a result of the plasma and shift frequency of the oscillations. This invention relates to tunable resonant structures and especially to an optically tunable resonant structure which can support electromagnetic (EM) oscillations within a frequency range of about 10

Structure résonante à accord optique/294

GHz to 1000 GHz. Conventionally tunable resonant devices are used in many applications, such as directional filters, channel-dropping filters, directional couplers, and traveling-wave modulators. Such resonant devices are mechanically or electrically tunable. For example, mechanical tuning includes the insertion of a flat dielectric material into a ring resonator, and a series of slits across a circular resonator. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-084 274

A Flexure Mounted Gimbal Support Assembly/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 10 October 1979, by the Department of the Navy. The present invention relates to gimbal support assemblies, and more particularly to a flexure mounted gimbal support assembly which provides a low rotational stiffness over limited angles. For negotiations write: U.S. Department of

Support gyroscopique à suspension/294

the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-086 188

Underwater Audio Intercommunication System/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 17 October 1979, by the Department of the Navy. Audio communications between divers or between a diver and a surface craft are made without unduly burdening the divers. Diver carried throat microphones pass vocal signals to a preamplifier-amplifier package. The package drives a transducer which projects amplified vocal signals that are capable of being heard by the other diver or feeds signals to a surface power supply pack and a speaker while a sur-

Système d'intercommunication audio sous-marine/294

face microphone enables communications from the surface to the divers. The divers don't carry any additional electronics instrumentations and, since there is no signal heterodyning, distortion is reduced. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-086 977

Fire Fighting Simulator/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 22 October 1979, by the Department of the Navy. A training device that is a simulator of oil bilge, oil spray, and Class A fires is discussed. The device is fully controllable and imitates the appearance of a machine or engine room. Propane burners are used to provide flames, and flame and water sensors are used to monitor trainee performance. A switch controlled by a dummy valve is also included to be

Simulateur pour lutte contre les incendies/294

operated by the trainee in its proper sequence of applied procedures. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-086 978

Deep Fat Fryer Fire Fighting Simulator/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 22 October 1979, by the Department of the Navy. Apparatus that imitates the appearance of a commercial deep fat fryer and simulates grease fires. A first burner extends into the bin of the fryer which would be occupied by cooking oil in the operational fryer, and a second burner occupies an area under the hood near the exhaust vent. Also included, out of sight, are a switch controlled by the lid on the bin, an extinguishment sensor in the bin, and a

Simulateur de lutte contre l'incendie d'une friteuse/294

thermostat, which act together to disable the burners and deactivate the simulator when proper fire fighting procedures have been employed by the trainee. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-087 270

Apparatus and Process for Determining the Composition of Fluid-Filled Cavities/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 22 October 1979, by the Department of the Navy. This report describes an apparatus and method for determining the material properties characterizing a fluid contained in a cavity inside a solid comprises analyzing the resonances in the amplitude of elastic waves scattered by the cavity. Specifically, the resonance positions and their widths are used to determine the sound speed and the density of the cavity filler. The sound speed is found from the spacing between two consecutive overtones of any mode, which asymptotically becomes uniform for the higher-index over-

Appareil et méthode pour déterminer la composition d'un fluide contenu dans une cavité/294

tones. The density is obtained from the width of any high order resonance and accordingly, all the information about the material composition of the filler is contained, and can be extracted, from the high-frequency asymptotic region. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

PAT-APPL-6-950 944

Process for Generating Gas for Telescoping Cartridge Operation/294

Price per copy from NTIS: PC U.S. \$5.00/MF U.S. \$3.50, filed 13 October 1979, by the Department of the Navy. A gas generating propellant for use in combination with sealed volume telescoping cartridges yields high pressure for cartridge operation and low residual pressure after cool down. The propellant formulation comprises a high percentage of condensable materials including a binder and an oxidizer and an optional fuel such as light metals and light metal

Méthode de génération de gaz pour cartouche télescopique/294

compounds represented by boron, lithium, and lithium aluminum hydride. For negotiations write: U.S. Department of the Navy, Assistant Chief for Patents, The Office of Naval Research, Mailing Code: 302, Arlington, Virginia 22217 and send a copy of your initial correspondence to Canadian Consulate, 3 Parkway Building, Suite 1310, Philadelphia, Pennsylvania 19102.

The following inventions are offered for licensing by the Electric Power Research Institute of the United States. All are patent pending or patented in the U.S. and some have Canadian patent protection. For additional information and/or negotiations write: Mr. John P. Taylor, Manager, Patent Administration and Licensing, EPRI, 3412 Hillview Avenue, P.O. Box 10412, Palo Alto, California 94303 and send a copy of your initial correspondence to Canadian Consulate General, One Maritime Plaza, Alcoa Building, Suite 1100, Golden Gateway Center, San Francisco, California 94111, U.S.A.

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Electrical Systems Division

Division des systèmes électriques

Tiered Convoluted Shielded Insulators/294

Isolateurs ondulés, blindés et superposés/294

Optimized shielding configurations for longitudinally extended tiered insulators for electric power equipment is described. An insulator comprises a central core with a plurality of annular tiers and shields defining convoluted paths between the environment and the surface of the central core. An optimizing relationship of core diameter, tier separation, free path length and total path length between the outer surface and the inner core is disclosed

for constructing insulators with maximum lifetime in contaminated environments. Selected generalized insulator configurations are disclosed which embody the invention. Also embodied in the invention is the addition of molecular sieve, insulating grease, or adhesives on the outer edges or lips to sorb out contaminants before they can reach the inner insulating surfaces. U.S. PATENT NO. 4125742 (ED1203-75-16)

Filled Polymer Electrical Insulator/294

Isolateur à polymère/294

An electrical insulation body formed of a polymer binder highly filled with electrically non-conductive inorganic inert filler particles, including in excess of 85% of such particles. Such high loading is facilitated by grading the

particles in nonhomogeneous sizes including relatively large ones and by use of polymer binders of relatively low viscosity. U.S. PATENT PENDING (ED1203-76-55)

High Strength Alumina Ceramic Product and Method of Forming/294

Céramique alumine à haute résistance — Méthode de formage/294

A high strength ceramic product especially adapted for electrical porcelain insulators and including alumina, clay, and flux (nepheline syenite or potassium feldspar). The alumina content is from 45 to 60% by weight of the ceramic body. The product is formed by conventional wet

processing. By controlling the size of alumina and flux, a high modulus of rupture (in excess of 30,000 psi) is imparted to the fired ceramic product. U.S. PATENT PENDING (KD0424-01-01)

High Voltage Overhead Electrical Transmission Cable Protected from Wet Environment Corona Losses/294

Câble aérien haute tension protégé contre l'effet de couronne en milieu humide/294

A high voltage overhead electrical transmission cable in which an electrical conductor is eccentrically disposed in a water permeable electrically conductive jacket in electrical contact with the jacket to create a chamber therebetween. A layer of high water-sorbing material, preferably

water swellable and insoluble gel-forming polymer, is disposed in the chamber. In this system, water falling on the surface of the jacket permeates through it for absorption by the sorbing material to reduce corona losses. U.S. PATENT PENDING (ED0068-76-47)

High Voltage High Current Cable Terminal with Dual Grading Capacitor Stack/294

Connecteur haute tension, haute intensité avec condensateur double/294

A high voltage terminal or connection to a high voltage conductor includes internal and external grading capacitor stacks which form a closed dielectric filled chamber. All of

the foregoing provides uniform voltage distributions between various interfaces. U.S. PATENT PENDING (ED7814-76-52)

Cutter for Corrugated Pipe for Flexible Gas Insulated Transmission Line/294

A cutter for corrugated aluminum flexible pipe having a plurality of successive circumferential corrugations. The cutter frame is formed of two members hinged at one end and releasably closed at the other end to form a ring, a guide wheel or wheels ride the crest of one corrugation and a resiliently flanged wheel or wheel opposed to the first guide wheel or wheels ride the trough on either side. The blade is connected adjacent to one or between a pair of

Coupe-tuyau ondulé pour câbles de transport à isolant gazeux/294

resiliently flanged wheels which permit the blade to be driven into the pipe. The C members are resiliently compressed toward each other by an adjustable spring controlling bolt which sets the pressure on the blade and allows for proper cutting even when the pipe varies in diameter. A handle recess or recesses on the ring receives a handle to rotate the ring for cutting. U.S. PATENT NO. 4078304 (KD7837-01-01)

Cutter for Helically Corrugated Tube for Flexible Gas Insulated Cable/294

A cutter for a helically corrugated tube in which a pair of rings are connected by a blade carrier to form a track around the tube. Each of the rings comprises a pair of "C" members hingedly connected at one end and releasably connectable at the other end to form the ring. Each "C" member has a pair of rails supporting a circumferentially movable carrier having rollers at each end engaging the

Coupe-tuyau hélicoïdal pour câbles flexibles à isolant gazeux/294

rails of the adjacent pair of rings. A holder on the carrier projects outwardly between the rails. A yoke in the holder carries the cutting blade; a compression spring in the holder drives the yoke and blade toward the tube. A threaded cap on the holder adjusts the compression spring and also provides a handle recess. U.S. PATENT NO. 4063355 (KD7837-01-03)

Evaporation-Cooled Transmission Line System/294

A system having one or more tubular conductors disposed within shield means containing a dielectric surrounding the conductors is used to transmit electrical power. Liquid coolant is directed along a supply line from a source and into the conductors. Each conductor has a plurality of tubular insulators at spaced locations along its length to

Ligne de transport refroidie par évaporation/294

remove coolant vapor from within the conductor to maintain single phase flow while at the same time operating under two-phase cooling. Another line receives the vapor and returns it to the source of liquification. Several embodiments of the system are disclosed. U.S. PATENT NO. 4091230 (ED7834-75-12)

Extruded Sheath Section for Compressed Gas-Insulated Transmission Lines/294

A compressed gas-insulated transmission line (CGIT) system, apparatus and techniques are disclosed in which extruded grooves along the inner surface of an encasing sheath are provided for simplified alignment and mounting of insulative spacers. The spacers, mounted to the alignment grooves, support current-carrying conductors within the sheath assembly in either a sliding or fixed relationship to the groove. Spacers in a sliding configuration may be provided with bearings to further simplify alignment. The

Section de gaine extrudée pour câble de transport à isolant gazeux/294

spacers can be aligned longitudinally to permit the optimization of the mechanical and electrical characteristics of the system. Traps for unwanted particular matter at large within the system may be provided by arcuately mounted perforate plates across the grooves, by radially mounted perforate fixtures, or by lips at the junction of the arcuate segments comprising the encasing sheath. Spacer and trap configurations can be combined in a single assembly. U.S. PATENT NO. 4110551 (KD7840-01-02)

Improved Transmission Line Breakdown Voltage/294

Improved transmission line voltage breakdown strength is achieved by applying magnetic fields in transmission lines. In colinear transmission lines, particularly coaxial cables, one means of magnetic field introduction is accomplished by applying an axial magnetic field about the transmission line, which together with the self-induced power current magnetic field creates a net helical magnetic field whose pitch is dependent upon the relative magnitudes of the azimuthal component of the self-induced magnetic field and the axial component of the applied magnetic field. The

Tension de claquage amélioré (ligne de transport)/294

applied magnetic field may be achieved by a permanent field or by directing either an alternating current or direct current through a helical winding defining a solenoid coaxial with the transmit-transmission cable. Alternatively, the applied field may be achieved by surrounding the grounded sheath with oriented ferrite or other magnetic material in a suitable support medium such as a pliable plastic bond form to produce a multipole magnetic field. U.S. PATENT NO. 4119783 (ED7835-75-08)

Method of Fabricating Compressed Insulated Cable/294

A method of fabricating a compressed gas insulated cable which includes the steps of securing an electrical conductor to an insulating spacer; securing the spacer to a sheath section which forms a portion of circumference of

Méthode de fabrication des câbles à isolant gazeux comprimé/294

the outer sheath of the gas insulated cable; and then sealingly securing the sheath sector together to form the outer shell. U.S. PATENT NO. 4053338 (KD7840-01-04)

Multiple Part Insulator for Flexible Gas-Insulated Transmission Line Cable/294

A support insulator disk for a flexible high voltage transmission line supports a flexible central conductor along the central axis of a conductive outer housing which is transversely corrugated for flexibility. A plurality of such axially spaced disks are provided along the axis of the transmission line. Each disk consists of identical halves which are snapped together over the central conductor by identical snap latch pairs on the opposite sides of the

Isolateur à plusieurs éléments pour câble de transport flexible à isolant gazeux/294

halves. Each latch pair consists of an extending flexible member centrally located on the outer rim of the disk, and which overlies the other half and snaps into a depression in the other half. A direct line-of-sight is prevented from the central conductor to the outer conductive enclosure at the joint between the two halves of the insulator. U.S. PATENT NO. 4100367 (KD7837-01-06)

Offset Constant Thickness Web for Insulator Support Disc/294

The support insulator for a flexible gas-insulated transmission line is formed in two halves which can be snapped together and over the central conductor of the transmission line. The insulator halves each contain a central hub region and an outer rim region which are connected to one another by a thin connecting web of uniform thickness.

Treillis décalé à épaisseur constante pour disque de support d'isolateur/294

The thin connecting web has axially offset regions which are connected to one another by axially extending side regions. Each of the axially offset regions has a generally pie shape and substantially increase the stiffness modulus of the insulator structure. U.S. PATENT NO. 4122298 (KD7837-01-07)

Sodium Filled Flexible Transmission Cable/294

A corrugated flexible thin copper tube filled with sodium has a resilient flexible core along the axis thereof so arranged that it will contract and expand to take up the force of thermal expansion and contraction of the sodium. Since the coefficient of expansion of the sodium and

Câble de transport flexible isolé au sodium/294

copper are different, the absorption of this differential in force by the core prevents rupture of the copper tube and the formation of voids and hot spots within the copper tube. U.S. PATENT NO. 4056679 (KD7837-01-02)

Termination for Stranded Cable/294

A termination for the stranded cable used in a gas-insulated bus is disclosed, where the termination consists of an expander structure which wedges into a central area of the stranded cable and presses the stranded cable against an outer conductive retainer cylinder. The expander structure consists of a cylindrical double-ended body which

Connecteur pour câble torsadé/294

receives sliding wedges at its opposite ends which are drawn together by the operation of an externally accessible bolt. The sliding wedges are keyed to the cylindrical member to prevent relative rotation of the sliding wedges relative to the cylindrical member as the wedges are drawn together. U.S. PATENT NO. 4101730 (KD7837-01-05)

Insulation Spacer for Flexible Gas-Insulated Transmission Line/294

An insulation spacer is provided for a flexible high-voltage transmission line to support a flexible central conductor along the axis of a conductive outer housing which is transversely corrugated for flexibility. A plurality of such spacers are provided along the axis of the transmission line. Each spacer consists of two identical lateral halves which are snapped together over the central conductor by identical snap latches on the opposite sides of the identi-

Isolateur d'écartement pour câble de transport à isolant gazeux/294

cal halves. The outer housing is then formed around the outer periphery of the two halves. The two halves form an inner and outer cylinder of small radial thicknesses which are connected to the inner and outer conductors, and the inner and outer cylinders are joined together by a thin integral radial web. The spacer halves may be injection-molded of a phenylene oxide and coated with a polyurethane varnish. U.S. PATENT PENDING (KD7837-01-04)

**Self-Contained Flexible Bus Reel
Assembly/294**

An elongated flexible gas-insulated transmission line cable is fitted with pressure-tight termination assemblies at its opposite ends before it is placed on a reel for shipment. The cable is then filled with dry gas, such as nitrogen, at a relatively low positive pressure and the cable is then reeled and shipped. The cable terminal ends are

Bobine de câble flexible (autonome)/294

adapted for easy connection to other circuit components without requiring access to the interior of the cable and the terminals permit the purging of the nitrogen gas and the installation of sulfur hexafluoride or some other electro-negative gas before the cable is placed into operation. U.S. PATENT PENDING (KD7837-01-08)

**Welded Joint in Segmented Sheath for
Compressed Gas Insulated Transmission
Lines/294**

A weld-joint in a segmented sheath of a large diameter, high voltage, compressed gas insulated transmission line includes longitudinal, radially aligned outer margins forming a longitudinal seam of joined sheath sections, an internally disposed recess offset from the joined margins, a longitudinal tongue overlapping the joined outer margins and mating with the recess, and a longitudinal sealing gasket, preferably an elastomeric tube, disposed in the region between the tongue and the tongue-receiving recess. A hollowed cutaway section is provided within the

**Joint soudé pour segments de gaine
(câble de transport à isolant gazeux
comprimé)/294**

joint and aligned with the radial margins to form an enclosed cavity. A longitudinal ridge is provided along the sealing gasket for spacing and protecting the gasket. The end of the tongue and the adjacent walls of the internally disposed recess form together a Vee groove for trapping loose particles internal of the tubular enclosure formed by the joined sheath sections. The enclosed cavity and sealing gasket promote a strong, full penetration weld along the seam. U.S. PATENT PENDING (KD7840-01-03)

**Method of Forming Dielectric Material for
Electrical Cable and Resulting
Structure/294**

A cable such as used in cryogenic and superconductive applications includes an inner conductor, an outer conductor or shield, and a solid dielectric between the inner and outer conductors. The dielectric is introduced into the space between conductors in liquid or gaseous form, preferably under pressure, and the temperature of the dielec-

**Méthode de formage de matériau
diélectrique pour câble électrique —
structure/294**

tric is lowered to or below the freezing point for the material. Pressure relief should the solid dielectric suddenly vaporize by rapid heat rise is provided by holes in the outer conductor or by scoring the inner surface of the outer conductor to provide rupture points in the conductor. U.S. PATENT PENDING (ED7855-78-12)

**Means for Protecting Underground
Electrical Equipment from Thermal-
Runaway/294**

Underground electrical equipment such as a transformer or cable is prevented from thermal runaway by backfilling the trench in which it is laid with a soil which includes water entrapped in highly water-absorbent hydrophilic polymeric gel particles soaked with water. The water-soaked particles preferably are coated with a water-

**Protection de l'équipement électrique
sous-terrain contre les emballements
thermiques/294**

impermeable film. The water may also be entrapped in liquid form in small balloon-like containers. Also, a water impermeable sheath may be formed around the back-fill soil to minimize evaporation from the particles. U.S. PATENT NO. 4097682 (ED7841-76-33)

**Backfilling Material and Method of
Preparation Thereof/294**

A backfilling material and method of preparation for use with buried electrical cables. The material comprises a mixture of soil and wax in a proportion which achieves relatively low thermal resistivity to dissipate heat from the buried cable. In one embodiment the material is formed by mixing melted wax with soil. In another embodiment the material is formed by mixing soil with an emulsion of wax

**Matériau de remblayage — méthode de
préparation/294**

dispersed in an emulsifier. In another embodiment the material is formed by mixing soil with wax powdered to small particles. The mixture of soil and powdered wax is backfilled about the cable, heat from which causes self-curing as the wax melts in situ. U.S. PATENT PENDING (KD7841-01-01)

Hermetic Quick Connection and Seal for Coupling Low Pressure Systems/294

In making a quick connection and hermetic seal for coupling low pressure systems of a type such as heat pipes and the like, a pre-installed fitting forming the sealing portion of a quick connection assembly is disposed in a depression formed in the sidewall of the low pressure chamber so that the chamber and the sealing portion of the connecting assembly can be fully processed together. The open end of a second system is coupled into the inserted sealing fitting by means of threads formed about a pipe

Connecteur et joint hermétique — couplage de systèmes basse pression/294

plug device and carried by the tubular end portion of the second system. Sealant applied between the threads of the plug and fitting so that as the plug advances along the fitting a gas-tight seal will be obtained. The fitting includes a sealing membrane disposed across the inserted end thereof to be upset by advancing movement of the tubular end portion carried by the plug. U.S. PATENT NO. 4140337 (KD0565-01)

High Voltage Two Stage Triggered Vacuum Gap/294

A triggered vacuum gap tube includes an evacuated envelope with high voltage terminals at opposite ends of the envelope. The envelope is divided into two chambers by a mid-plate therein having a centrally located aperture through. The first of the two chambers has an end plate mounting one of the high voltage terminals and also mounting an array of rods or electrodes which extend inwardly toward the mid-plate. The second of the two chambers also has an end plate mounting the other high voltage terminal and also having an array of rods or electrodes extending therefrom toward the mid-plate. The mid-plate

Éclateur haute tension à vide, à deux étages/294

has mounted therein an array of through rods or electrodes which extend in one direction into the first chamber and in the opposite direction into the second chamber. The through mid-plate mounted electrodes lie in side-by-side spaced relation with the end plate mounted electrodes in both the first and second chambers. The end plate mounted arrays of electrodes have a centrally disposed electrode with a tip which is proximate to the centrally located aperture in the mid-plate. A plasma trigger is mounted in the tip of one of the centrally disposed electrodes. U.S. PATENT NO. 4126808 (KD0754-01-01)

Repulsion Coil Actuator for High Speed High Power Circuits/294

A pair of pancake-like coils have a coil axis substantially colinear with one coil mounted to a framework and the other coil mounted on a movable member. The coils are wound such that when electrically energized simultaneously the resulting magnetic fields are in opposition, thereby producing a repelling force therebetween. A spring is disposed between the framework and the movable member to urge the movable member in a sense opposite to the repelling force. A power supply is connected to the coil

Actionneur rapide à bobine à répulsion pour circuits haute puissance/294

pair providing for a high initial energy transfer and a lower sustaining energy transfer. A shock absorber is mounted on the framework to arrest the moving member which is set in motion by the repelling force. An armature is attached to the moving member which enters the field of a holding coil as the moving member is displaced by the repelling force. When the holding coil is energized with the armature situated therein, the moving member is held against the spring force. U.S. PATENT NO. 4086645 (KD0564-01-09)

Vacuum Arc Current Switching Device/294

A vacuum arc current switching device disposed within the magnetic field of a modulating magnet includes annular shielding disposed in a manner to prevent the vapor deposition of conductive paths within the interior of the vacuum enclosure. In a DC embodiment a cathode lies on the axis of the enclosure. In an AC embodiment a wall subdivides

Commutateur de courant à vide/294

an enclosure into two portions and an aperture simulates a cathode functioning alternately for each portion. Electrodes respectively in each portion form a bi-directional arc current via the aperture when coupled to an AC source. U.S. PATENT PENDING (ED0476-77-22)

AC Fault Current Limited Circuit/294

Circuitry for limiting the instantaneous peak current, under fault conditions, of an AC power line, includes a high speed circuit breaker in series with a first capacitor in a main current-carrying branch, which branch is paralleled by two additional branches. According to various embodiments these branches contain various combinations of resistance, capacitance and spark gap elements whereby upon occurrence of the excess fault condition, the high

Limiteur de courant de défaut (c.a.)/294

speed circuit breaker opens. Thereafter the voltage buildup across the first series capacitor is sequentially commutated to a second branch having a capacitor and spark gap, with a predetermined arc-over voltage, and subsequently to a third resistive branch. The third branch effectively provides the peak current limiting impedance. U.S. PATENT PENDING (ED0281-76-58)

Chemically Activated Switch/294

A switch is provided for use in controlling currents associated with power line faults. The switch includes a housing with a pair of relatively movable electrodes opened and closed by means of chemical propellants. In the preferred form, one electrode comprises a movable contact slidably disposed in a support cylinder within the housing and the other electrode is fixed. The sliding contact is movable into a closed position in which the electrodes are in mutual contact. A first chemical propellant charge disposed in the support cylinder drives the contact

Contact à actionneur chimique/294

into the closed position. A chamber for holding dielectric fluid is disposed in the housing and extends through an opening in the fixed electrode. A second propellant charge is located behind a piston in the chamber. When in the closed position, the contact blocks and closes the opening in the electrode, thus closing the chamber. Upon detonation of the second propellant charge, the piston is driven against the fluid in the tube, driving the contact into the open position. U.S. PATENT PENDING (KD0281-02-09)

Circuit Interrupter Using a Minimum of Dielectric Liquid/294

A minimum liquid circuit interrupter provides a relatively remote cooled storage unit for the dielectric liquid and fills a cylinder which is in close proximity to the insulating nozzle of the interrupter, the cylinder being driven at one

Éclateur à faible volume de liquide diélectrique/294

end by a piston and closed at the other by the moving contact of the interrupter. U.S. PATENT PENDING (KD0478-01-02)

Circuit Interrupter Using Dielectric Liquid with Energy Storage/294

A circuit interrupter uses a dielectric liquid such as sulphur hexachloride to extinguish arcs in an interrupter. The liquid is injected at a relatively high pressure by a pump piston with a relatively high mass and an accumulator acts as a pressure fly wheel to effectively reduce high pressure

Éclateur à diélectrique liquide et accumulation d'énergie/294

maximums and increase low pressure minimums because of the much lower mass of the accumulator piston. In addition, a double fluid flow interrupter is provided. U.S. PATENT PENDING (KD0478-01-03)

Current Interrupter Electrode Configuration/294

A current interrupter of the vacuum type in which a pair of electrodes are movable into electrical contact for carrying large currents associated with power lines. A third electrode is positioned in the vacuum envelope in opposing relation to one and adjacent the other of the separable electrodes. In the preferred embodiment only the smaller of the separable electrodes is movable and the third electrode is adjacent the movable electrode and opposite the

Disposition des électrodes — éclateur/294

immovable electrode. When the separable electrodes are separated an arc will appear between their contact surfaces. The third electrode is conductively connected to the movable electrode so that the arc will spread from the latter to the relatively larger surface of the third electrode, to reduce local overheating of the electrodes during arcing. U.S. PATENT PENDING (KD0564-01-03)

Current Interrupter for Fault Current Limiter and Method/294

A current interrupter is provided for use in controlling currents associated with power line faults. The interrupter is of the type having a housing filled with a dielectric fluid such as pressurized sulfur hexafluoride liquid and having electrodes extending through the walls of the housing. Associated with the electrodes is a movable contact member which when closed provides a path for current flow and which is movable to break a circuit. The housing includes a fluid chamber having a passage for fluid communication with the remaining interior of the housing. The movable

Éclateur pour limiteur de courant de défaut — méthode/294

contact member closes the passage when in its closed position. The method of the invention includes rapidly increasing the pressure in the chamber to move the contact from its closed position. A chemical propellant drives a piston against the fluid in the chamber. The fluid drives the movable contact member to open the passage and to break the current path, causing an arc. The fluid escaping from the chamber flows transverse to the arc thereby increasing the voltage drop of the interrupter. U.S. PATENT PENDING (KD0281-02-10)

Current Limiting Circuit Arrangement/294

A current limiting circuit arrangement is disclosed herein and includes a pair of parallel connected circuits, prefera-

Disposition de limiteur de courant/294

bly identical circuits, each of which includes series connected conductive and capacitive reactance tuned to reso-

nate at a given frequency. The arrangement also includes means, preferably a single voltage transformer, for maintaining the voltage across the capacitive reactance in one circuit and the voltage across the capacitive reactance in

the other circuit equal and means for detuning these circuits, that is, taking them out of resonance in response to a predetermined condition. U.S. PATENT PENDING (KD0654-01-01)

Explosively Activated Fault Current Limiter/294

Limiteur de courant de défaut actionné par explosions/294

An explosively activated current interrupter is provided for use in a fault current limiting system employing a plurality of such interrupters. Each interrupter includes an automatic switching system for sequentially installing each of a plurality of the interrupters on a power line. A conductive member in the interrupter housing conducts current carried by the power line. An explosive charge in the housing breaks the conductive member into a plurality of separated portions upon detonation, thereby interrupting

the power line current. A switch opened and closed by means of explosive gas pressure alternately installs and removes the interrupter from the power line. Each interrupter is connected by a gas conduit to the next sequential interrupter to be detonated. Upon detonation of one interrupter, a portion of the explosion gases are transferred by the conduit to the next interrupter, operating the switch to install the next interrupter on the power line after an appropriate delay. U.S. PATENT PENDING (KD0281-02-07)

Fault Current Limiting Resistor/294

Résistance chutrice de courant de défaut/294

A fault current limiting resistor for high energy dissipation includes a frustoconical support structure where the resistor wire is wound on the support structure in the form

of a three dimensional spiral. This provides optimum voltage clearances even when the wire may sag due to thermal expansion. U.S. PATENT PENDING (KD0281-02-01)

High Voltage Plain Break Circuit Interrupter/294

Éclateur haute tension à coupure nette/294

An improved circuit interrupter for high voltage and low current provides reactor and capacitor switching functions with fewer serial interrupters. Improved electrical field configuration is provided by moving and stationary contact shields, surrounding the main contacts, which aid the plain

break operation of the device by elimination of critical points of dielectric stress. The plain break feature provides less mechanical complexity and consequent higher reliability. U.S. PATENT PENDING (KD0655-01-04)

Improved Current Limiter Vacuum Envelope/294

Limiteur de courant amélioré (à vide)/294

An improved envelope for a vacuum-type current interrupter of the type having a pair of relatively movable electrodes. The envelope includes end portions which support the electrodes and an intermediate insulating portion which surrounds and is spaced from the electrodes. Baf-

flés are provided along the interior surface of the insulating portion to break up continuous metallic vapor deposits on the interior of the envelope. U.S. PATENT PENDING (KD0564-01-08)

Improved Fault Current Limiter/294

Limiteur de courant de défaut amélioré/294

A current limiting network is connected in a power line between an AC power supply and a load, and has a pair of series connected resonant branch circuits, each of which include a capacitance and an inductance tuned to the power supply frequency. Under normal operation virtually no impedance is offered by the network. Each branch circuit has a circuit node between the capacitor and inductor contained therein. A switch, having a resistance in series therewith, is connected between the circuit nodes in the branch circuits. The branch circuits are connected in parallel, and a resistance is connected in parallel with the

branch circuits. The switch is responsive to a fault current in the power system and when actuated, detunes the series resonant branch circuits to thereby present a high impedance to the power line. The parallel resistance reduces the level of any transient surges and the time of any oscillation appearing on the capacitors when the switch is actuated by a fault current. Another embodiment selectively suppresses transients and reduces oscillation on the branch circuit capacitors. U.S. PATENT PENDING (ED0654-76-36)

Method and Apparatus for Sensing the Clearance of Fault Current on an AC Transmission Line/294

A method and apparatus for sensing the clearance of a fault current on an ac transmission line and providing a fault cleared signal for closing a current limiter bypass switch includes the technique of successively sensing half cycles of current magnitudes of the system after establishing a predetermined fault current threshold and producing

Méthode et appareil de détection d'absence de courant de défaut sur les lignes de transport (c.a.)/294

a fault clear signal only when a signal indicating the threshold has been exceeded is followed by two subsequent signals indicating that the threshold has not been exceeded by the two half cycles of current. U.S. PATENT PENDING (KD0281-02-02)

Structurally Improved Rod Array Vacuum Interrupter/294

A high current interrupter is enclosed in a sealed enclosure having a pair of axially disposed contacts therein, one stationary and one movable relative thereto. An array of rods or electrodes is mounted near each end of the enclosure, the rods extending toward the opposite end of the enclosure and terminating at a free end short of the opposite end. The arrays are similar in pattern and thus each rod lies between and is spaced from rods extending from the oppo-

Éclateur à vide avec disposition amélioré des électrodes/294

site enclosure end. Each array of rods is mounted in a pair of thin spaced mounting plates, which are connected together near the centers thereof. The plates engage the rods near the end opposite the free end, both plates being electrically conductive and being connected electrically to one of the two electrical contacts within the enclosure. U.S. PATENT PENDING (KD0754-01-03)

Vacuum Arc Switching Device with Internal Shielding/294

A vacuum arc current switching device employs a shielding arrangement including a plurality of coaxially disposed cylindrical non-conducting members for minimizing exposure of the interior wall surfaces of the enclosure to vapor deposition of cathode material so as to prevent the formation of secondary arc terminals on the interior surfaces of the enclosure. The shielding being non-conducting pre-

Dispositif de commutations à vide avec blindage interne/294

vents secondary arc formation which would otherwise permit arcing from the cathode to the shield and then back to the anode. The shielding further comprises annular transverse members disposed at the ends of the enclosure so as to protect the end wall surfaces as well. U.S. PATENT PENDING (KD0564-01-02)

Vacuum Envelope for Current Limiter/294

An improved envelope for a vacuum device circuit interrupter of the type having a pair of relatively movable electrodes within a vacuum envelope and including magnetic field arc suppression. The envelope includes end portions which support the electrodes and an intermediate insulating portion which surrounds and is spaced from the electrodes. Means for producing a magnetic field is outside the envelope. The insulating portion is of a shape which pro-

Tube à vide pour limiteur de courant/294

vides a greater distance between the electrodes and the surrounding insulating portion in the direction in which an interelectrode arc is deflected by the magnetic field. In the preferred embodiment the insulating portion is substantially cylindrical in shape with a pair of protruding side tubes. The interrupter envelope is oriented so the arc is deflected down the inside of the side tubes. U.S. PATENT PENDING (KD0564-01-04)

Vacuum Interrupter Configuration/294

A vacuum-type current interrupter for use in controlling currents associated with power line faults. The interrupter has an evacuated envelope with a generally cylindrical body. A plurality of electrodes are disposed within the envelope. At least two of the electrodes are elongated and have elongated faces which are oriented parallel to the axis of the cylindrical body of the envelope. The faces are in opposed parallel planes. At least one of the electrodes in the envelope is movable along an axis of movement per-

Disposition d'éclateur à vide/294

pendicular to the axis of the cylindrical body to establish conductive contact between two of the electrodes to complete an electrical path. The electrodes are also separable, thereby causing an arc between the faces of at least two of the elongated electrodes. Means are provided for producing a magnetic field within the envelope having lines of magnetic force parallel to the axis of the cylindrical body to rapidly extinguish the arc. U.S. PATENT PENDING (ED0564-76-43)

Vacuum-Type Circuit Interrupter/294

A vacuum-type circuit interrupter having a pair of relatively separable electrodes and means for producing transverse

Éclateur à vide/294

lines of magnetic force to suppress arcing between the electrodes after separation. The electrodes have elongated

contact surfaces oriented in the direction of the transverse lines of magnetic force. If the lines of magnetic force are circular, rather than straight, the electrode configuration is

preferably ring-shaped to provide a greater length of surface along the lines of magnetic force. U.S. PATENT PENDING (KD0564-01-06)

Combustible Gas-In-Oil Detector/294

Détecteur de gaz combustible dans l'huile/294

Method and apparatus is disclosed for extracting and analyzing gas from a body of liquid such as oil in an electrical transformer. The oil is continuously moved by thermosiphonic action through a conduit in which a gas permeation cell is mounted. Oil within the conduit is air cooled to create a temperature gradient relative to the body of liquid for establishing the thermosiphonic movement. The permeation cell comprises a semi-permeable membrane sup-

ported about an elongate porous tube mounted concentric within the conduit so that gas contained within the liquid permeates through the membrane and into a chamber within the cell. An inert carrier gas is injected into and out of the chamber for carrying the permeating gas to a gas detector-analyzer unit. U.S. PATENT NO. 4058373 (KD0748-01-01)

A Method for Forming Zinc Oxide-Containing Ceramics by Hot Pressing and Annealing/294

Méthode de formage de l'oxyde de zinc contenant de la céramique — pressé à chaud et recuit/294

Zinc oxide powder and a single phase mixed oxide glass powder including bismuth oxide are mixed and then simultaneously heated and pressed to form a consolidated cera-

mic body of linear electrical characteristics. Subsequent annealing transforms the body to one of non-linear characteristics. U.S. PATENT PENDING (KD0657-01-02)

A Setter for a Ceramic Body and Method of Formation and Use/294

Méthode de formage et d'emploi d'un moule pour céramique/294

A setter for firing a zinc oxide-based ceramic body is formed by (a) prefiring zinc oxide pellets for shrinkage, (b) comminuting the pellets into independent granules, (c) forming the granules into a continuous layer on a support surface, and (d) heating the layer to fuse the granules to

each other. A setter is formed comprising a porous monolithic aggregate structure of the granules interconnected by fused portions of adjacent granular surfaces. U.S. PATENT PENDING (KD0657-01-06)

A Voltage Limiting Composition and Method of Fabricating the Same/294

Limiteur de tension et méthode de fabrication/294

A voltage limiting composition, actually a nonlinear resistor, especially suitable for use in a gapless surge arrester is disclosed herein. This composition includes a predetermined amount of zinc oxide as its primary ingredient and one or more specifically selected additives. All of these constituents are combined and sintered so that the compo-

sition displays a nonlinear exponent α at least equal to about 35 over the current range of 1 ma to 5000 amps and such that its energy absorption capability is at least equal to about 50 joules/cm³. U.S. PATENT PENDING (KD0657-01-04)

Gapless Surge Arrester/294

Éclateur à écartement nul/294

A gapless surge arrester is disclosed herein and includes a porcelain outer casing and a stack of zinc oxide discs located within the casing for passing surge currents there-through. Silicon dioxide, preferably sand, is provided between this stack in the casing for transferring heat from

the discs to the porcelain outer casing as a result of the surge current and for absorbing fault energy where necessary by changing states. U.S. PATENT PENDING (KD0657-01-07)

Method for the Nondestructive Testing of Voltage Limiting Blocks/294

Méthode d'essai non destructif des limiteurs de tension/294

A method for the nondestructive testing of voltage limiting blocks includes the steps of providing several discrete electrical contacts across the block, sequentially applying to each of the contacts a voltage to determine the corresponding current and utilizing the current and voltage

values to determine constants related to the microstructure of that particular location. The constants can then be utilized to derive a contour map which will be indicative of a hot spot in such block as determined by a maxima of the contour map. U.S. PATENT PENDING (KD0657-01-01)

Current Based Power Supply/294

An electrical device for protecting an alternating current network in which a static inverse time-overcurrent relay obtains network current information and relay circuit operating power from a current transformer having two secondary windings. Low transformer burden and accurate network information signals that are linearly responsive to a wide range of network current magnitudes are achieved through the use of a switching circuit that prevents the

Bloc d'alimentation (base courant)/294

simultaneous operation of both secondary windings. The relay circuit employs an RC network with a short, precision time constant for curve shaping and employs digital counting techniques to provide time delay multiplication, precision time scale selection and a variable delay time variable in accordance with the magnitude of system current. U.S. PATENT PENDING (KD0560-01-01)

Voltage Regulator Utilizing a Static VAR Generator/294

A voltage regulator is taught for maintaining the terminal voltage of a three phase transmission line at a fixed reference value. The voltage regulator system utilizes the inductive reactance of the transmission line in conjunction with reactive current from a VAR generator to compensate for the voltage effect of line current as it flows through the inductive reactance. The VAR generator is of the parallel capacitor-inductor type where the inductor is controlled by

Régulateur de tension à générateur VAR statique/294

a thyristor switch. The firing angle for the thyristor switch is determined by a fast acting static control system which utilizes line-to-line voltage and line-to-ground voltage as an input. A signal related to the latter voltages is processed and compared against a reference. The integrated difference thereof is utilized to determine the firing angle for the thyristor switch. U.S. PATENT PENDING (KD0750-01-01)

Voltage Regulator Utilizing a Static VAR Generator with Half Period Averaging and Saturating Type Firing Angle Control/294

A voltage regulator is taught for maintaining the terminal voltage of a three phase transmission line at a fixed reference value. The voltage regulator system utilizes the reactance of the transmission line in conjunction with reactive current from a VAR generator to compensate for the voltage effect of line current as it flows through the line reactance. The VAR generator is of the parallel capacitor-inductor type where the inductor is controlled by a thy-

Régulateur de tension à générateur VAR statique à une alternance et commande d'amorçage à saturation/294

ristor switch. The conduction of the thyristor is controlled by utilizing a control system which generates an error signal based on the half period average of line voltage. The error signal is converted to a signal which is proportional to flux linkages by an integrator and then compared with the integral of the voltage signal for determining the conduction angle of the thyristor switches. U.S. PATENT PENDING (KD0750-01-02)

Thyristor Device with Self-Protection against Breakover Turn-On Failure/294

Self-protection against breakover turn-on failure is achieved for a thyristor by providing for adjustment of the curvature of the planar junction termination in the gate region. In addition, breakdown of the outer edge of the

Dispositif de thyristor, à protection autonome contre les recouvrements à l'amorçage/294

device at the junctions is maintained at a relatively higher breakdown voltage by the techniques of beveling, floating field rings or by etching around the cathode emitter region. U.S. PATENT NO. 4079403 (KD0669-01-03)

Thyristor with Segmented Turn-On Line/294

A thyristor with a segmented turn-on line is provided in which portions of the turn-on line are covered by boundary shorts formed by the emitter electrode extending over the emitter-base junction into contact with the thyristor base zone. The portions of the emitter-base junction between the boundary shorts constitute turn-on segments along which gated thyristor turn-on can occur. A gate current source is provided for supplying carriers to the base zone. The thyristor includes means for directing carriers supplied by the gate current source to the turn-on segments. In operation, initial thyristor turn-on occurs only along the turn-on segments, thereby shortening the length

Thyristor à gachette segmentée/294

of the thyristor turn-on line and increasing gate sensitivity. Preferably, the turn-on segments are spaced regularly along the emitter-base junction to permit adjacent "on" areas to rapidly merge. In the preferred embodiment, the means for directing carriers to the turn-on segments includes a gate barrier region adjacent the base zone and of opposite conductivity type. The gate barrier region establishes isolated areas of contact between a gate electrode and the base, the areas of contact being generally aligned with the turn-on segments. U.S. PATENT PENDING (KD0669-02-01)

**Light-Activated Semiconductor Device
Package Unit/294**

Optoelectronic devices perform functions under control of light energy striking a light-sensitive area of the device. A flexible light pipe with a connector matching a counterpart at the optoelectronic device guides light energy from a

**Dispositif à semi-conducteur déclenché
par la lumière/294**

light source to the optoelectronic device, avoiding the requirement for a fixed arrangement of light source and optoelectronic device. U.S. PATENT PENDING (KD0669-01-01)

**Multigate Light Fired Thyristor and
Method/294**

A light-fired thyristor is provided with a plurality of discrete light-receiving regions widely separated over the top surface of a semiconductor body. Each light-receiving region serves as a separate source of gate current for turning on

**Photothyristor à gachettes multiples —
méthode/294**

the thyristor. The method of firing includes simultaneously illuminating the light-receiving regions preferably by means of multiple light fibers. U.S. PATENT PENDING (KD0669-01-07)

**Multiple Gated Light Fired Thyristor with
Non-Critical Light Pipe Coupling/294**

A radiation responsive thyristor device is provided with a relatively large radiation receiving region in which numerous interconnected emitter shorts are provided. A metalization pattern overlies the radiation receiving region. Openings in the metalization pattern admit incident radiation to the underlying semiconductor surface. The metalization pattern connects with an adjacent contact which may be either a main emitter electrode or an amplifying

**Photothyristor à gachettes multiples,
avec couplage optique non critique/294**

stage gate electrode. Light fibers carrying radiation of sufficient intensity to fire the thyristor are coupled at non-specific locations adjacent the radiation receiving region. At least some of the light fibers will supply incident radiation to the thyristor through the openings in the metalization patterns, producing substantially simultaneous thyristor turn-on at a plurality of separate locations. U.S. PATENT PENDING (KD0669-01-08)

**Self-Protection against Breakover Turn-on
Failure in Thyristors Through Selective
Base Lifetime Control/294**

A thyristor is protected against voltage breakover turn-on failure by selective control of the minority charge carrier lifetime in the base region and in the gate region to establish a predictable location of the voltage breakover turn-on in the gate region. Carrier lifetime modification in the selected gate region is achieved by shielding the gate region during electron irradiation of the high-lifetime silicon substrate to protect against lifetime-killing radiation defect centers, by heat annealing the gate region after electron irradiation to a temperature threshold known to

**Protection autonome des thyristors
contre les recouvrements à l'amorçage,
par durée de vie sélective/294**

eliminate the radiation-induced defects, or by introducing lifetime killing defects, such as gold or platinum, external to the gate region, typically by selective diffusion or localized ion implantation. As a result, a locally higher gate sub-transistor gain thyristor is attained, so that the turn-on criterion, the unity product of the base transport factor and the avalanche multiplication factor, is established at a lower voltage in the gate region than elsewhere in the thyristor device. U.S. PATENT PENDING (KD0669-01-02)

**Thyristor with Even Turn-on Line
Potential and Method/294**

A thyristor having an emitter on the top surface of a semiconductor body and also having metalized areas on the top surface forming electrodes is provided with an alignment region extending beneath the edge of the gate electrode. The alignment region is formed in the thyristor base zone and is of the same conductivity type as the thyristor emitter. Precise spacing between the alignment region and the emitter is readily achieved because both are formed in

**Thyristor à tension d'amorçage uniforme
— méthode/294**

a single masking step. Slight misalignment of the gate metalization on the top surface is corrected for because the alignment region precisely defines the line closest to the emitter at which the gate electrode contacts the base. The turn-on potential at the emitter-based junction is therefore uniform along its entire length. U.S. PATENT PENDING (KD0669-01-05)

**Thyristor with Voltage Breakover Current
Control and Method/294**

A thyristor of the type having a localized voltage breakover region is provided with current limiting means for con-

**Thyristor avec commande de tension de
recouvrement/294**

trolling the current through the device during initial voltage breakover. The thyristor base zone is divided into two at

least partially separated base portions, one of which is in the vicinity of the localized breakover region. The other base portion is in the main current-carrying part of the thyristor in contact with the main emitter. The two base portions are electrically connected by current limiting

means. When breakover occurs by way of a forward anode-cathode voltage which exceeds the thyristor forward break-over voltage, the rise in current is limited by the current limiting means. U.S. PATENT PENDING (KD0669-01-06)

Package for Light-Triggered Thyristor/294

Boîtier de photothyristor/294

A hermetically sealed package for a light-triggered thyristor. The thyristor is mounted within the cavity of an insulating body. Cathode and anode pole pieces are mounted on opposite sides of and electrically coupled with the thyristor. Annular flanges are provided to form hermetical seals between the body and pole pieces. A light pipe is mounted in a radially extending slot formed through a face of one pole piece. An inner end of the light pipe is optically coupled with a light-sensitive region of the thyristor. The outer end of the light pipe is mounted within a metal sleeve which radially projects through an opening formed

in a side of the body. A hermetical seal is formed between the light pipe and inner end of the sleeve by means of a glass frit in one embodiment, or by means of solder bonded between the sleeve and a metallized region formed about the light pipe in another embodiment. Another hermetical seal is formed by solder which bonds between the metal sleeve and a metallized region formed in the body about the opening. A connector fitting is mounted on an outer end of the sleeve for seating the end of a fiber optic cable which extends from a triggering light source. U.S. PATENT PENDING (KD0567-01-03-1)

Electronic Current Transducer for High Voltage Transmission Lines/294

Transducteur de courant électronique pour ligne de transport haute tension/294

An electronic transformer for high voltage transmission lines including a fast analog data channel for providing effective relaying information which is stabilized by a slow digital channel. In addition for DC transmission lines

where polarity may reverse, offsetting or biasing allows for bipolar measurements. U.S. PATENT NO. 4126825 (KD0668-01-02)

Transformer Cascade for Powering Electronics on High Voltage Transmission Lines/294

Transformateurs abaisseurs multiples pour l'alimentation des appareils électroniques, à partir d'une ligne de transport haute tension/294

Power for electronic instrumentation on high voltage transmission lines is provided through a high efficiency cascade of ferrite core transformers operating in the super-audio range. An array of tuning capacitors is provided to neutralize the leakage inductance in each transformer primary and thus present a resistive input impedance throughout the cascade. Unequal turns ratios in the trans-

formers may also be utilized to provide constant resistance, and therefore nearly constant voltage and current along the cascade. The transformers in a voltage grading network are optically enclosed within a cylindrical insulator and a dielectric medium, for example, oil or SF₆. U.S. PATENT NO. 4087701 (KD0668-01-01)

Data Transmission System and Method/294

Système et méthode de transmission des données/294

A data transmission system and method is provided for transferring digital information which has been converted to a multiframe format of serial bits over a single optical cable. The multiframe format used by the system includes sequential data frames each containing a sequence of bits at a bit frequency, of which a certain number are data bits containing the digital information. The data frames are transferred by way of the optical cable to a receiver. In the receiver a clock signal is generated by a variable oscillator which operates at a frequency substantially equal to the bit frequency. Circuitry responsive to the bits maintains a predetermined phase relationship between the clock signal from the oscillator and the bits. Decoder circuitry receives

the transmitted bits and decodes the bits to retrieve the digital information using the clock signal from the oscillator. The method of retrieving the digital information from the above-described multiframe format, after having been transferred over the single optical cable, includes the following steps. A clock signal is generated having a frequency substantially equal to the bit frequency. A predetermined phase relationship is maintained between the clock signal and the bits. The clock signal is then used to select the data bits from the sequence of bits in the data frames and to retrieve the digital information from the data bits. U.S. PATENT PENDING (KD0668-01-06)

Method and Means for Trapping Particles in Enclosed High Voltage Electric Bus Apparatus/294

Enclosed gas-insulated electric bus apparatus especially designed for use in horizontal disposition with high unidirectional system voltage including deep trench-like electrostatic particle traps and inclined ramps leading to the traps. A method for entrapping such particles prior to the

Méthode et dispositif de filtrage des particules dans les isolants gazeux haute tension/294

application of system voltage comprises preliminary imposition of an alternating conditioning voltage of relatively low magnitude from a low power source, preferably in steps of increasing magnitude. U.S. PATENT NO. 4029892 (KD0213-01-06)

Particle Trapping Elbow Joint for Enclosed High Voltage Electric Bus Apparatus/294

Gas-filled enclosed electric bus apparatus having an enlarged spherical elbow joint is provided with a joint housing having a deep particle trap directly beneath the spherical joint and at least one narrow entrance slot in the housing bottom wall. Each slot extends transversely of the

Coude de filtrage des particules dans les isolants gazeux haute tension/294

longitudinal axis of a horizontal conductor connected at the joint and the housing bottom wall is inclined in all directions toward the trap. U.S. PATENT NO. 4029890 (KD0213-01-13)

Particle Trapping Sheath Coupling for Enclosed Electric Bus Apparatus/294

A tubular metallic sheath for horizontally disposed enclosed electric bus apparatus includes a corrugated bellows section having at one end a terminal convolution forming an internal annular recess. A sheath portion axially adjacent the recess, which may be a substantially tubular end portion of the bellows, is axially flared toward the annular recess. Within the bellows in coaxial radial spaced relation is mounted a metallic sleeve fixed at one end and

Manchon de couplage, filtre pour particules dans les isolants gazeux/294

axially flared toward a free end which is disposed in radial spaced relation within the oppositely flared adjacent sheath portion. The sleeve serves to shield the corrugated portion electrostatically so that the terminal convolution constitutes an effective particle trap. The bottom surfaces of the sleeve and the sheath portion adjacent its free end provide a stepped passageway for leading loose particles into the trap. U.S. PATENT NO. 4029891 (KD0213-01-08)

Rapid-Response Generating Voltmeter/294

A rapid-response generating voltmeter for measuring a high dc voltage between a high voltage electrode and ground comprises two sets of stator segments, the segments of each set being electrically interconnected and each set being connected through its own capacitor to ground. Each set of stator segments has a time-varying capacitance with respect to the high voltage electrode, but the sum of these time-varying capacitances is maintained substantially constant with time. First and second circuit

Voltmètre tournant à réponse rapide/294

means respectively sense the voltages e_1 and e_2 present across said two capacitors and develop first and second intermediate signals e_5 and e_6 substantially proportional to e_1 and e_2 minus, in each case, an error voltage attributable to discharge of said capacitors. Summing means develops an output signal substantially proportional to the instantaneous sum of e_5 and e_6 , and this output signal is substantially proportional to the high dc voltage being measured. U.S. PATENT NO. 4054835 (KD0213-01-16)

STAB Connector for Enclosed Electric Bus Apparatus/294

A stab type isolating connector for offset joints in enclosed high voltage electric bus apparatus comprises a removable contact rod for connecting laterally offset terminal ends of linear bus conductors within an enclosing sheath. The contact rod is slidable through a transverse passage in one terminal end into and out of engagement with a contact socket in the other terminal end, making

Connecteur STAB pour câble électrique blindé/294

contact with both terminal ends in its fully engaged position. Preferably the contact rod is tubular and slides over a guide rod secured within the contact socket. The guide rod may be sectional so that after seating of the contact rod a section of the guide rod may be used to secure the contact rod in engaging position. U.S. PATENT NO. 4082933 (KD0213-01-12)

Electrical Apparatus/294

Electrical apparatus having certain portions thereof insulated with solid insulating structures. The solid insulating structures include a predetermined thickness of polyethylene terephthalate film which is surrounded on each of its

Appareils électriques/294

major outer surfaces by a layer of paper having a fibrous web formed of wholly aromatic polyamide fibers. U.S. PATENT NO. 4095205 (KD0930-01-05)

Overpressure Protection for Vaporization Cooled Electrical Apparatus/294

Overpressure protection for a vaporization cooled electrical inductive apparatus. A pressure responsive device is actuated by a predetermined pressure within a sealed housing and de-energizes a pump, thereby stopping the flow of dielectric fluid to the heat producing members which prevents further pressure increases within a tank due to continued vaporization of the dielectric fluid. In one embodiment, a discharge valve is actuated by the pressure responsive device to drain the dielectric fluid from the

Protection contre la surpression pour les appareils électriques refroidis par vaporisation/294

windings to prevent further pressure increases caused by continued vaporization of the dielectric fluid. A fusible link is provided to disconnect the windings of the electrical inductive apparatus from a source of electrical potential subsequent to the de-energization of the pump. In another embodiment, the pressure responsive device actuates the circuit breaker which disconnects the windings of the electrical inductive apparatus from the source of electrical potential. U.S. PATENT NO. 4117515 (KD0930-01-12)

Vaporization Cooled and Insulated Electrical Apparatus/294

Electrical inductive apparatus cooled and electrically insulated by a vaporizable liquid dielectric having a boiling point within the normal operating temperature range of the apparatus. When the electrical inductive apparatus is at ambient temperature, the liquid dielectric completely fills the enclosure providing electrical insulation for the electrical members. As the temperature of the apparatus increases towards its normal operating range, the liquid

Appareil électrique isolé et refroidi par vaporisation/294

dielectric is gradually withdrawn into a reservoir until, at the normal operating temperature, only a quantity of liquid dielectric sufficient to completely cover the electrical inductive apparatus remains in the enclosure. In response to a temperature decrease, the liquid stored in the reservoir is gradually returned to the enclosure thereby maintaining a constant level of dielectric strength between the electrical members. U.S. PATENT NO. 4145679 (KD0930-01-14)

Vaporization Cooled Electrical Apparatus/294

A fluid distribution manifold for a vaporization cooled electrical apparatus. The manifold includes a flexible conduit of predetermined shape having a plurality of longitudinal and circumferential spaced apertures therein which dis-

Appareil électrique refroidi par vaporisation/294

tribute a vaporizable dielectric fluid uniformly and economically over the electrical apparatus. U.S. PATENT NO. 4129845 (KD0930-01-11)

Vaporization Cooled Electrical Apparatus/294

Electrical apparatus cooled by dielectric fluid which vaporizes within the normal operating temperature range of the electrical apparatus. The electrical apparatus includes a plurality of fluid flow passages extending vertically therethrough which have widths within the range of approxi-

Appareil électrique refroidi par vaporisation/294

mately 0.010 inches to approximately 0.060 inches. The small width of the fluid flow passages causes the dielectric fluid to uniformly coat or wet both wall surfaces of the passages as it flows therethrough. U.S. PATENT PENDING (KD0930-01-21)

Vaporization-Cooled Electrical Inductive Apparatus/294

Electrical inductive apparatus cooled by a two-phase dielectric fluid which vaporizes within the normal operating temperature range of the apparatus. The electrical inductive apparatus consists of a sealed enclosure surrounding a magnetic core and electrical winding assembly. A non-condensable gas fills a major portion of the enclosure at no-load conditions to provide adequate dielectric strength around the apparatus and is substantially removed to a storage tank when the apparatus reaches normal operating conditions. The required volume of the storage reservoir is

Appareil électrique inductif refroidi par vaporisation/294

proportional to the free volume of the enclosure and the volume of liquid dielectric disposed therein. The bottom surface of the enclosure includes a recessed channel portion configured to closely surround the lower yoke of the magnetic core and which serves to reduce the amount of liquid dielectric utilized and the free volume of the enclosure thereby minimizing the required volume of the storage reservoir for the non-condensable gas. U.S. PATENT PENDING (KD0930-01-17)

Vaporization-Cooled Electrical Apparatus/294

A heat storage system provides overload capacity for a vaporization-cooled electrical apparatus. An external hous-

Appareil électrique refroidi par vaporisation/294

ing, containing a heat storage fluid, is disposed around a fluid conductor connecting a non-condensable gas storage

reservoir and the radiator of a vaporization-cooled electrical apparatus. At normal loads, the non-condensable gas is contained within the fluid conductor and the storage reservoir thereby thermally isolating the storage fluid from the hot vapors contained within a radiator which keeps the storage fluid at ambient temperatures. A pressure increase, caused by an overload, compresses the non-condensable gas into the storage reservoir and allows the hot

vapors to flow into a portion of the fluid conductor surrounded by the external housing whereby heat is dissipated from the hot vapors to the storage fluid contained within the external housing. Additional heat storage capacity is provided by a pressure relief valve in the external housing which allows the storage fluid contained therein to reach its boiling point and vaporize. U.S. PATENT PENDING (KD0930-01-15)

Current Limiting Fuse Construction and Method/294

A current limiting fuse is characterized by a self-standing tubular fuse element having a high surface area-to-volume ratio to augment cooling and thus increase the steady-state current rating of the fuse and also having a plurality of axially spaced, generally diamond-shaped perforations each of which extends circumferentially somewhat less than 360°, with axially successive perforations displaced 180° apart in a circumferential direction, thereby forming a

Fusible limiteur de courant — méthode de construction/294

plurality of axially spaced, ring-shaped portions providing parallel arcuate current paths and with axially extending interconnections between successive pairs of ring-shaped portions disposed on diametrically opposed sides of said tubular element to thereby further increase the length of current path through said fuse element and develop a high arc voltage. U.S. PATENT NO. 4117441 (KD0428-01-03)

A Stored Field Superconducting Electrical Machine and Method/294

Method and apparatus are provided for a stored magnetic field in a superconducting, rotating electrical machine. The apparatus includes a cylinder of superconductive material in which a magnetic field is trapped. The trapped magnetic field forms a magnetic circuit with an armature winding in the machine. The apparatus further includes means for

Machine électrique à superconducteur à champ accumulé (méthode)/294

generating a magnetic pattern field in the superconductive cylinder and means for cooling the cylinder so that a magnetic field can be trapped therein. The apparatus has application in both motors and generators and in both rotating and stationary magnetic fields used therein. U.S. PATENT PENDING (ED0429-77-07)

An Auxiliary Field Winding for a Superconductive Alternating Current Electrical Machine and Method of Exciting Same/294

An auxiliary field winding for a superconductive AC electrical machine. The auxiliary field winding is adapted to provide a controlled and rapidly varying magnetic field to an armature winding in addition to that produced by the main field winding for improving the dynamic stability of the machine. The main field winding is superconductive

Enroulement auxiliaire pour machine électrique à superconduction à courant alternatif — mode d'excitation/294

and is adapted to provide a substantially steady-state magnetic field to the armature. The two windings permit the machine to rapidly accommodate changes in the load made on the machine during operation. U.S. PATENT PENDING (KD0429-02-03)

Apparatus for Supporting a Stator Winding in a Superconducting Generator/294

An apparatus for supporting a stator winding in a superconductive generator. The apparatus includes a plurality of integral stator bars positioned in the air-gap between the yoke and the rotor and a plurality of non-conductive supporting teeth interspaced between the stator bars. The sup-

Support d'enroulement statorique de générateur à superconducteur/294

porting teeth are rigidly attached to the yoke of the generator and are engaged by a plurality of wedge members. The wedge members and the supporting teeth rigidly secure the stator bars during operation of the superconductive generator. U.S. PATENT PENDING (KD0429-02-04)

Extra High Voltage Winding for Turbine Generator/294

A rotating electrical machine having a winding configuration and insulating system permitting very high voltage operation. The phase coils of the armature winding are arrayed in outwardly spiralling paths about the rotor.

Enroulement extra haute tension pour génératrice à turbine/294

Smooth and continuous interphase spaces are formed between the coils for containment of interphase insulating layers. Each interphase layer comprises laminated sheets of permeable material impregnated with a dielectric liquid.

The phase coils are formed into inner and outer layers with each coil layer subdivided into a plurality of sections having series connected turns. Spaces between or within the layers contain dielectric liquid which is circulated for cooling the winding. Intracoil insulation between the coil layers is composed of laminated sheets of permeable material impregnated with a dielectric liquid. The coil sections are coupled in series in a manner to minimize the

maximum voltage differentials between the conductors and adjacent coil sections. In another embodiment the turns of each coil are arranged in adjacent layers separated by intracoil insulation material. The adjacent layers are further subdivided into pairs of sublayers formed of parallel conductors separated by a cooling duct through which a dielectric liquid circulates. U.S. PATENT PENDING (KD0429-01-05)

High Voltage DC Transmission System and Method/294

Système et méthode de transport d'énergie électrique haute tension en courant continu/294

A high-voltage dc transmission system and method is characterized by a minimum filtering requirement as to ripple as well as to surge and harmonics. Use of a superconducting generator directly coupled to rectifying means

eliminates the requirement of a stepup transformer and allows operation at high frequency for minimizing ripple (and related filtering). U.S. PATENT PENDING (ED0429-76-56)

Improved Method and Apparatus for Operating Generator in its Superconducting State/294

Méthode améliorée et appareil de commande de génératrice à superconducteur/294

A superconducting generator or alternator in which the electrical winding is disposed within a fluid impervious outer shell. Liquid coolant is introduced into the interior of the shell via a liquid coolant supply pipe that terminates in an axially extending liquid coolant intake trough. The trough separates the incoming coolant from an annular coolant bath that submerges the electrical winding of the generator during superconducting operation. Heat conducting tubes extend radially outward from the bottom of the trough and permit a flow of liquid coolant therethrough to adjacent the outer shell. Sensible heat of compression (resulting from the rotation of the generator) produced in the coolant stream in the tube is at least partially withdrawn from the stream by the tubes and transferred to the inner surface of the bath so that the coolant is discharged

from the tubes at a lesser temperature than would otherwise be the case. The discharged coolant is circulated past the electrical winding towards the inner surface of the annular coolant bath where it evaporates. The center of the generator is maintained at a vacuum and coolant vapor is withdrawn and circulated through a conventional refrigeration system for return in liquid form to a liquid coolant supply pipe which in turn flows the coolant back into the trough. A liquid coolant accumulator can be employed in the liquid coolant supply so that the coolant is maintained at a constant pressure. Variations in the coolant demand are self-regulated by corresponding variations in the depth of the coolant intake pool in the trough. U.S. PATENT PENDING (KD0429-01-03)

Method and Apparatus for Cooling a Winding in the Rotor of an Electrical Machine/294

Méthode et appareil de refroidissement des enroulements rotoriques d'une machine électrique/294

Means for cooling a winding in the rotor of an electrical machine that is cooled by a flow of liquefied gas. The winding is covered by a heat conductive sheath that transfers the heat developed in the winding to a pool of the liquefied gas. The winding and conductive sheath are insulated by a thermal shield from sources of heat exterior to the wind-

ing. The winding and the conductive sheath have a support structure that is provided with cooling channels through which the liquefied gas flows. These channels allow the other components of the rotor to be cooled independently from the winding. U.S. PATENT PENDING (KD0429-02-02)

Radiation Shield for Use in a Superconducting Generator or the Like and Method/294

Écran de rayonnement pour utilisation dans les génératrices à superconducteur ou les machines semblables — méthode/294

A method of thermal insulating a super-cooled component of a superconducting apparatus is disclosed herein and includes a thermal radiation shield which is maintained at a reduced temperature relative to its ambient surroundings

for more efficiently shielding its associated inner cooled component. The shield is cooled, preferably internally, by the direct application of a fluid refrigerant, specifically helium gas. U.S. PATENT PENDING (KD0429-01-07)

Current Limiting Fuse with Resinous Arc-Quenching Filler/294

A current limiting fuse construction including a fuse element extending between electroconductive terminals carries a body of arc-quenching filler material within a hollow casing of electric insulating material. The filler material includes loose granular insulating material, such as sand, and larger particles of material uniformly distributed

Fusible limiteur de courant rempli de résine pour l'extinction de l'arc/294

throughout the sand as a resin vaporizable in response to the heat of an arc current. According to a second embodiment a stratified filler comprises uniformly spaced layers alternately occurring between sand and a sand/resin mixture to increase arc voltage. U.S. PATENT NO. 4109228 (KD0428-01-02)

System for Detecting Foreign Particles or Voids in Plastic Material and Method/294

A system for detecting foreign particles or voids in plastic material is disclosed herein and utilizes a far-infrared laser beam of electromagnetic radiation at a given wavelength. This laser beam is directed into the plastic material such that any portion thereof passing through the material unobstructed by voids or foreign matter does so along a predictable primary beam path, and such that any portion imping-

Système et méthode de détection des trous et des corps étrangers dans les plastiques/294

ing a void or foreign particle is caused to scatter along predictable scattering paths including paths which are different than the primary beam path. In this way, at least one detector can be properly aligned in at least one of these different scattering paths for detecting a portion of the scattered radiation, thereby indicating the presence of a void or foreign particle. U.S. PATENT PENDING (KD0794-01-01)

System for Detecting Foreign Particles or Voids in Electrical Cable Insulation and Method/294

A system for detecting foreign particles or voids in the outer insulation jacket of an electrical cable is disclosed herein and utilizes a laser beam of electromagnetic radiation at a given wavelength, preferably within the far-infrared band. This laser is directed into the insulation jacket's cylindrical surface, which must be index-matched with a proper medium such that any portion thereof passing through the insulation jacket unobstructed by voids or foreign matter does so along a predictable primary beam path, and such that any portion impinging a void or

Système et méthode de détection des trous et des corps étrangers dans l'isolant des câbles électriques/294

foreign particle is caused to scatter along predictable scattering paths including paths which are different than the primary beam path. In this way, at least one detector can be properly aligned in at least one of these different scattering paths for detecting a portion of the scattered radiation, thereby indicating the presence of a void or foreign particle. This system affords a real time, in-process means of inspections of the quality of cable insulation during manufacturing. U.S. PATENT PENDING (KD0794-01-02)

Flexible Coupling for Rotor Elements of a Superconducting Generator/294

A flexible coupling for connecting pairs of concentric rotor elements in the rotor of a superconducting generator. Various combinations of flexible couplings, each of which is disposed normally to the rotor axis, are used at one or both ends of the superconducting rotor to connect the inner and outer rotors and to connect the inner rotor to a concentric insulating shield. The flexible coupling utilizes a relatively thin ring. When used to connect the inner rotor to the insulating shield the ring may be constructed of a material that retains flexibility at temperatures down to at least about 100°K. The ring may be laminated to increase flexibility and may be made up of joined segmental por-

Accouplement flexible d'éléments rotoriques pour génératrice à superconducteur/294

tions. Securing devices are annularly distributed about the ring. The securing devices are spaced apart a sufficient distance to permit deflections of the ring in an axial direction. The rings are dimensioned to provide radially and torsionally rigid connections between the rotor elements, maintaining their concentricity, while permitting relative axial movements between the rotor elements to accommodate relative thermal contractions and expansions of the rotor elements during cool-down and warm-up of the superconducting rotor. U.S. PATENT NO. 4117357 (KD0429-01-04)

Multiphase Pump for Rotating Cryogenic Machinery/294

A mixed phase pump for rapidly rotating cryogenic machinery is disclosed, preferably for installation to a superconducting generator rotor. The superconducting generator rotor includes an inner and outer rotor structure joined in a thermally insulated configuration not unlike that of a

Pompe multiphasée pour machines cryogéniques tournantes/294

Dewar flask. The inner rotor contains a support cylinder for a refrigerant, typically helium, which when refrigerated to 3.5° Kelvin at one half a standard atmosphere under the normal rapid rotation of the axially aligned support cylinder, classifies itself into a two-phase liquid gas system.

The phases include an outer cylindrical helium pool and an axially inward gaseous core separated by a cylindrical gas-liquid interface. During normal operation of the rapidly revolving rotor, a pump removes the gas for recooling to a liquid state by receiving the gas in the vicinity of the axis of the rotor at an inlet. During abnormal operation including stator short-circuit and rapid rotational vibrational acceleration and deceleration of the rotor, the normal cylindrical interface between the cylindrical helium pool and the vapor core is destroyed. The vapor core in the vicinity of the

pump inlet becomes multiphasic and the pump inlet can induct/ingest quantities of liquid. Accordingly, a pump with the liquid gas classification volume located outwardly from the gas inlet to the pump is disclosed. This liquid trap volume in the pump assures that the outward passage of gas only from the pump occurs. Stability of the two-phase gas liquid system as well as the prevention of thermal stressing of torque-transmitting members of the high speed rotating rotor is prevented. U.S. PATENT NO. 4120169 (KD0429-01-02)

Sliding Support for a Superconducting Generator Rotor/294

Support coulissant pour rotor de génératrice à superconducteur/294

In a superconducting generator rotor, the rotor includes a cylindrical outer rotor structure for resisting mechanical and electrical forces from fields in the stator and a coaxial super cooled inner rotor winding structure to provide high field intensity with no resultant current flow losses in the superconducting windings. These inner and outer rotor structures are rigidly connected against torsional and axial relative movement at one end of the rotor. At the opposite end of the rotor the sliding support connection of this invention is required. This sliding support permits relative axial movement of the inner rotor relative to the outer rotor during cool down. At the same time the sliding support resists slip and fretting corrosion during normal operating conditions all without relative torsional movement between the inner and outer rotor assemblies. The sliding support connection of the inner rotor to the rotating outer rotor and stub shaft of the generator power train is closed by a flexible diaphragm which has protruding axially there-

from a plurality of integrally attached fingers. These fingers, at an outside radial surface, bear into a complementary cylindrical cavity in the end of the stub shaft having female spline receiving concavities. The fingers on their inside dimension define a frustroconical surface which bears against a spring loaded frustroconical mandrel, preferably loaded by a Belleville spring. During thermal axial excursion incident to cool down, the fingers by sliding into and out of the spline concavities in the stub shaft accommodate relative axial movement of the inner rotor relative to the outer rotor. During on-line operation of the rotor, the fingers maintain a positive and non-sliding fit with the stub shaft so that by positive outward pressure at the fingers, slip and fretting corrosion of the fingers and stub shaft is prevented. All necessary rotational flexure of the inner rotor is taken by the flexible diaphragm closing the inner rotor. U.S. PATENT NO. 4092555 (KD0429-01-01)

Spiral Pancake Winding for Two-Pole Electrical Machine Specifically Turbine Generator/294

Enroulement spiralé plat pour machines électriques bipolaires, plus précisément pour les génératrices à turbine/294

An electrical rotating machine having winding coils with turns disposed in a pancake configuration which spirals outwardly about the axis of rotation of the machine. The coils are interleaved circumferentially about the axis with uniform and smooth inter-coil spacing for placement of

electrical insulation of the type suitable for high voltage applications. The spiral pancake coils when assembled provide a generally cylindrical winding configuration which is conducive to being well-supported by the stator shield. U.S. PATENT NO. 4151433 (KD0429-01-06)

Superconducting Generator and Method/294

Génératrice à superconducteur et méthode/294

A superconducting generator is disclosed herein and includes a super cooled rotor assembly and two interconnected torque tubes constructed of a material having a thermal coefficient of linear expansion which is negligible at and below a predetermined cryogenic temperature. During normal operation of the generator, predetermined axial sections of these torque tubes are maintained at or below this cryogenic temperature. This minimizes thermal expansion of these sections and eliminates damage there-

from should the generator operate in an abnormal way which causes the torque tube sections to drop significantly in temperature. At the same time, other axial sections of the torque tubes are maintained at temperatures above this cryogenic temperature during normal operation of the generator but are coupled to an external source of heat to minimize any drop in temperature of these sections during abnormal operation. U.S. PATENT PENDING (KD0429-01-09)

Superconducting Generator Thermal Radiation Shield having Substantially Uniform Temperature/294

Écran de rayonnement thermique à température à peu près uniforme pour génératrice à superconducteur/294

A superconducting generator having rotor including a field winding operated at superconducting temperature and a

cylindrical electromagnetic shield surrounding and shielding said winding. A cylindrical thermal radiation shield dis-

posed between said electromagnetic shield and said field winding to intercept radiation from said shield and re-radiate to the field winding at a lower temperature with means for rapid cooldown of the thermal radiation shield

and serving to maintain the thermal radiation shield at substantially uniform temperature throughout its length. U.S. PATENT PENDING (KD0429-02-01)

**Improved Superconducting Hybrid
Magnetic Flux Pump/294**

**Pompe hybride améliorée à flux
magnétique, à superconducteur/294**

A flux pump having a closed superconducting circuit including wire connecting means of relatively high critical field and a gate defining a current-carrying path through a coil, the latter being moveable relative to a magnetic field source to cause normal conduction of current in a plurality of gate modules of a relatively low critical field in the circuit at spaced locations along the same. Thus, a flux pumping action occurs in the coil as the modules are subjected to the field of the source. The modules are separated from each other by strips of insulation material and the wire means, connected to opposite ends of the gates, passes

through adjacent insulation strips in a manner such that the current flow in the circuit is always in the same direction. The speed of the flux pumping action can be increased by having several groups of modules arranged in parallel with each other and excited simultaneously with a number of modules in each group being in series with each other. A plurality of gates properly connected within a module also increases the rate of excitation or de-excitation of the flux pump. U.S. PATENT NO. 4096403 (ED0563-75-15)

**Arc Spinner Interrupter with Chromium
Copper Arcing Contact/294**

**Éclateur à chute d'arc avec contact de
coupure en chrome-cuivre/294**

A single arcing ring of a chromium copper alloy is used for an arc spinner type of circuit interrupter. U.S. PATENT

PENDING (KD0661-01-07)

**Arc Spinner Interrupter with Contact
Follower/294**

**Éclateur à chute d'arc avec contact
suiveur/294**

An arc spinner interrupter has an insulation barrier disposed between the rotating arc and the stationary main contacts. The barrier includes a movable insulation follower which is moved into place when the movable con-

tact withdraws from the center of a main stationary contact finger cluster which surrounds the movable contact. In another embodiment, the barrier is a stationary disk. U.S. PATENT PENDING (KD0661-01-06)

Hybrid Power Circuit Breaker/294

Disjoncteur de puissance hybride/294

A hybrid circuit breaker consists of a series-connected vacuum interrupter and sulfur hexafluoride interrupter wherein the contacts of each are simultaneously operated. The sulfur hexafluoride interrupter is of the type in which an arc is rapidly rotated through a relatively static volume of sulfur hexafluoride. In one embodiment of the inven-

tion, the vacuum interrupter is replaced by a second sulfur hexafluoride interrupter in which the arc gap between the electrodes receiving the final arc to be interrupted is relatively smaller than the corresponding arc gap in the other sulfur hexafluoride interrupter. U.S. PATENT PENDING (KD0661-01-01)

**Moving Contact for Localized Gas Flow
Arc Spinner Type Interrupter/294**

**Contact mobile pour éclateur avec chute
d'arc à débit de gaz localisé/294**

A moving contact structure for an arc spinner type of interrupter is provided with a flow channel which communicates with the arcing region and permits the flow of arc plasma away from the arcing region during interruption. The flow channel in one embodiment of the invention is defined by openings near the end of a hollow elongated movable contact part. In a second embodiment of the

invention, a restricted volume is provided behind the arcing contact and this volume is expanded during the interruption process to produce a negative pressure during the interruption process which will promote the flow of arc plasma away from the arc space and into the region behind the arcing contact. U.S. PATENT PENDING (KD0661-01-05)

**Thin Arc Runner for Arc Spinner
Interrupter/294**

**Chute d'arc mince pour éclateur à chute
d'arc/294**

An arc runner structure is described for an arc spinner type of interrupter wherein the arc runner is in series with an electrical coil which is closely coupled to the arc runner.

The coil current and a circulating current induced in the arc runner produce a magnetic field in an arcing space where the magnetic field interacts with the arc current to produce

a Lorentz force which rotates the arc around the arc runner and relative to a cool static dielectric gas, in order to extinguish the arc. A high Lorentz force is desired since this produces a higher arc spinning speed and thus improved interruption operation. The magnetic field strength produced, and its relative phase shift with respect to the arc runner, its mutual coupling to the coil and the resis-

tance of the arc runner. These parameters determine the induced current in the arc runner for a given configuration. The arc runner thickness is intentionally made less than that which would give the maximum induced current at arc current zero, thereby to obtain the maximum rotating force on the arc in the interval near the arc current zero. U.S. PATENT PENDING (KD0661-01-03)

Energy Management and Utilization Division

Division de la gestion et de l'exploitation de l'énergie

Construction for Solid Electrolyte in Sodium Sulfur Battery/294

Méthode de fabrication d'accumulateurs à électrolyte solide de type sodium/soufre/294

A high surface area short diffusion path sodium sulfur cell is provided having a plurality of half-cells in spaced-apart planes extending through the block in a first direction with a second group of half-cells in the planes intermediate the planes of the first group of half-cells extending through the block in a direction normal to the direction of the first group of half-cells. The construction is strong and stable, provides for large surface area contact with the cell react-

ants and avoids narrow passageways which result in high resistance. The sodium and sulfur can be circulated through the active cell volume during charging and discharging of the battery permitting large storage capacity. Current collection can be achieved employing graphite fibers twisted between aluminum wires, with the aluminum wires welded to an aluminum manifold. U.S. PATENT NO. 4049885 (KD0128-02-02)

Contact Between Metal Can and Carbon Graphite Fibers in Sodium Sulfur Cells/294

Conducteur reliant le bâti métallique et les fibres de graphite dans des accumulateurs sodium/soufre/294

In sodium/sulfur batteries, electrical contact is maintained between the sulfur which is nonconductive and an aluminum container or other external electrical conductor, by having electrical contact between the sulfur and conductive carbon fibers and/or mat which contact a molybdenum or chromium coated surface of an aluminum conductor. A terminal portion of the aluminum conductor is

uncoated and is employed for making electrical contact to the external conductor. A battery configuration of particular interest has a central β -alumina tube which may serve as the sulfur or sodium container surrounded by sodium or sulfur, respectively. U.S. PATENT NO. 4053689 (KD0128-03-01)

Efficient Sodium Sulfur Battery/294

Accumulateur sodium/soufre à rendement élevé/294

Improved sodium sulfur batteries are provided by enhancing the utilization of active positive-electrode material. In sodium-sulfur batteries, employing a liquid sodium electrode separated from a liquid sulfur electrode by a solid β -alumina electrolyte separator, where the sulfur is impregnated in an electronically conducting matrix such as porous carbon, enhanced utilization of active electrode

material is achieved during the charging-discharging cycling by enhancing the electronic resistivity adjacent the β -alumina in the sulfur electrode. This can be achieved in a variety of ways, particularly employing porous carbon of higher resistivity adjacent the β -alumina as compared to the porous carbon distant from the β -alumina. U.S. PATENT NO. 4070527 (KD0128-03-04)

Method for Producing Sodium-Beta-Alumina Solid Electrolytes/294

Méthode de préparation de sodium/bêta-alumine destinée à servir d'électrolyte solide/294

An improved method is disclosed for producing a solid sodium-beta-alumina electrolyte, characterized by the step of mixing the sodium-beta-alumina powder — prior to sintering — with a sodium-aluminum oxide additive in which the atom ratio of sodium to aluminum is 0.54. Consequently, the temperature to which the resulting mixture

must be heated to achieve sintering is greatly lowered (i.e., to between 1600° C and 1700° C) by the presence of a reactive liquid phase, and the resulting sintered product has a greater density and a lower resistivity, and undesirable abnormal grain growth is avoided. U.S. PATENT NO. 3959022 (KD0252-01-01)

Modular Electrical Energy Storage Device/294

A compact modular electrical energy storage device comprising one or more cell modules in which certain components of the device are maintained in a substantially fixed position in the device by utilizing a resilient porous body of compressed carbon fibers to resiliently urge the components into physical contact with one another. The invention further provides means for maintaining the cell components in such fixed position during cell operation at elevated temperatures for extended periods of time. A preferred compact cell module construction particularly suit-

Accumulateur électrique modulaire/294

able for use in a high-temperature, high-energy-density lithium battery includes two positive electrode assemblies positioned in opposing relationship by a U-shaped spacer member maintained in contact with a separator member of each positive electrode assembly by a resilient porous body of compressed graphite fibers, a unitary double-faced negative electrode assembly being positioned between the two positive electrode assemblies. U.S. PATENT NO. 4012562 (KD0116-02-01)

NA/S Cell Reactant Container with Metal Aluminide Coating/294

Electrically conducting components of sodium/sulfur batteries subject to the corrosive attack of the cell reactants are protected by aluminiding to provide a conductive, protective coating of a metal aluminide. The protective coating finds particular application in the metal conducting

Cuve d'accumulateur Na/S revêtu d'une couche métal-aluminium/294

container forming the sulfur compartment, where the metal aluminide reacts with the sulfur and sodium polysulfide to form a protective, doped, aluminum sulfide coating, which is conductive due to the presence of the metal from the container. U.S. PATENT NO. 4048390 (KD0128-03-09)

Positive Electrode for Electrical Energy Storage Device/294

A rechargeable electrical energy storage device including a negative electrode containing lithium, an electrolyte containing lithium ions and a positive electrode containing a selected transition metal chalcogenide, the positive electrode including a porous matrix impregnated with particles

Anode pour accumulateur électrique/294

of the selected transition metal chalcogenide, the porous matrix comprising a felt formed from resilient carbon fibers or filaments. U.S. PATENT NO. 3925098 (KD0116-02-03)

Recovery of Lead from Batteries/294

Lead is recovered from batteries by contacting comminuted batteries with a molten alkali metal salt, reducing lead compounds to lead, separating molten lead from the molten salt, and transferring the molten salt and char to a combustion zone, where the salt is reheated to the desired

Récupération du plomb contenu dans les vieux accumulateurs plomb/acide/294

temperature and recycled for contacting with the batteries. A portion of the alkali metal salt is withdrawn and purified, so as to maintain a relatively constant composition of the alkali metal salt. U.S. PATENT NO. 4058396 (ED0419-75-11)

Sodium Sulphur Cell Construction and Method/294

An improved method and means for allowing a sodium sulfur cell to become more fully charged employs a wrapping of a plain-woven natural fabric reduced in a vacuum furnace to carbon. The wrapping of woven carbon is inter-

Accumulateur sodium/soufre à charge plus élevée/294

posed between a sulfurous electrolyte and the outside surface of a sodium electrolyte container. U.S. PATENT NO. 4146683 (KD0128-04-04)

Sodium Sulfur Cell Casings/294

An improved hermetically sealed sodium-sulfur cell casing formed as a container of metal, the interior side wall of the container being characterized by an electrically conducting corrosion resistant electrolytically applied layer of material. Preferably the metal of the container comprises

Bâti pour accumulateur sodium/soufre/294

aluminum and the layer is chromium. A second embodiment includes a layer of electrolytically applied zinc to the aluminum and a layer of chromium electrolytically applied to the zinc layer. U.S. PATENT NO. 4110516 (KD0128-03-08)

Sulfur Electrode-Sulfur Electrode Container and Methods of Manufacture/294

A sulfur electrode is described which includes a sulfur-carbon plug with a central aperture extending partially therethrough, and at least one layer of an electronically insulating plain woven mesh material positioned within the central aperture and having its exterior surface in contiguous relation with the wall of the central aperture. A

Description et méthodes de fabrication d'une électrode au soufre et de son porte-électrode/294

sulfur electrode container includes the above sulfur electrode positioned within an outer metallic casing which is substantially corrosion resistant to liquid sulfur and polysulfides. Methods are also described for making sulfur electrode containers. U.S. PATENT NO. 4140841 (KD0128-04-09)

A Sodium Sulfur Cell/294

In a sodium sulfur cell including a beta-alumina separator between the sodium and sulfur compartments, high surface area gettering means, e.g., beta-alumina or beta"-alumina, for potassium and alkali earth metal ion impurities in the sodium to protect the separator. The gettering

Accumulateur sodium/soufre/294

means is disposed in the sodium container in the form of particles or a continuous porous shell or porous solid plug adjacent to the separator. U.S. PATENT PENDING (KD0128-04-11)

A Composite Sulfur Electrode Container and Method of Manufacture/294

A composite sulfur electrode container is described which comprises an outer metallic casing portion readily corroded by liquid sulfur and polysulfides, a metallic foil portion substantially corrosion resistant to liquid sulfur and polysulfides bonded to the inner surface of the outer metallic casing portion, and a layer portion of chromium

Description et méthode de fabrication d'un porte-électrode pour électrode composite au soufre/294

bonded to the opposite surface of the foil portion, the chromium layer portion containing in excess of sixty weight percent chromium. A method is described for making a composite sulfur electrode container. U.S. PATENT PENDING (KD0128-04-10)

A Method for Forming a Chromium Alloy on a Ferrous-carbon Substrate/294

A method for forming a corrosion resistant layer on steel and other similar ferroc carbon substrates. A porous layer of chromium metal is first deposited on a substrate, as by plasma spraying. This layer is then exposed to a halide vapor at elevated temperature which reacts with the deposited chromium layer to form chromium halides which sub-

Méthode de préparation d'un alliage de chrome sur un support de ferroc-carbone/294

sequently deposit chromium that diffuses into the substrate to form a continuous essentially nonporous surface layer diffusion bonded to the substrate. Such coating is particularly suitable for protection of the substrate as a sulfur container in a sodium-sulfur cell. U.S. PATENT PENDING (KD0128-04-12)

A Sodium Sulfur Cell Component Protected by a High Chromium Alloy and Method for Forming/294

A corrosion resistant contiguous duplex chromium-carbon-iron alloy layer bonded to a ferroc carbon substrate for use as a cell casing for a sodium sulfur cell. The outer layer includes in excess of 60 weight % chromium. The

Description et méthode de fabrication d'une cuve pour accumulateur sodium/soufre revêtue d'un alliage riche en chrome/294

duplex layer is formed by pack chromizing in a solid pack of chromium and ammonium halide at elevated temperatures in an inert gas atmosphere. U.S. PATENT PENDING (KD0128-04-07)

Metal-Halogen Cell Operation with Storage of Halogen Via Organic Complexation External to the Electrochemical Cell/294

A zinc-halogen cell system is provided in which the electrolyte circulates between the cell and an external storage for the halogen which provides the electrolyte with the neces-

Accumulateur métal-halogène avec stockage extérieur de l'halogène par chélation par un produit organique/294

sary halogen concentration for efficient operation, energy efficiencies of about 70% being typically achieved. U.S. PATENT PENDING (KD0635-01-01)

Metal-Halogen Battery Having Reduced Dendrite Growth and Method/294

Description et méthode de fabrication d'un accumulateur métal-halogène à faibles dépôts dendritiques/294

A metal-halogen battery, specifically a zinc-bromine battery of the rechargeable type, is disclosed herein and includes a housing, spaced positive and negative electrode plates located within the housing and an arrangement for providing continuous flow of electrolyte solution through the housing between the plates. This battery also includes

a network of electrically non-conductive projecting ribs which engage the negative electrode plate for providing a fixed spacing between the two plates but which, at the same time, are specifically designed to reduce dendrite growth. U.S. PATENT PENDING (KD0635-01-03)

Method of Making a Double Carbon Mat-Composite Sulfur Electrode for Use in Sodium Sulfur Cells/294

Méthode de fabrication d'une électrode composite au soufre, à couche double de carbone, pour accumulateurs sodium/soufre/294

An improved sodium sulfur cell having a sulfur electrode for a physically-large battery cell comprises in its pre-emplaced condition at temperatures below operating temperature at least one preformed solid composite structure defining a plug conforming to the interior shape of an electrolyte containment structure. The plug segments are constructed of fibrous electrically conductive material in a compressed elastic condition having a relatively thin layer of electrically resistive material along the face of the seg-

ment which will confront the electrolyte. The conductive material and the resistive material are permeated with a binder of molten sulfur which has been solidified. The sulfur electrode is adapted to be inserted within a battery cell container and subsequently melted so that the structure can expand and compress against the inner walls of the containment structure. U.S. PATENT PENDING (KD0128-04-19)

NA/S Reactant Container with Protective Resin Coating/294

Cuve d'accumulateur Na/S revêtue de résine/294

In a sodium-sulfur battery, surfaces of electrically conducting aluminum in contact with sulfur-polysulfide mixtures or potentially subject to contact with such mixtures are protected from the formation of a non-conductive aluminum sulfide coating by a thin coat of electrically-

conducting phenolic or poly(arylacetylene) resin which is inert to the sulfur-polysulfide mixture and adheres strongly to the aluminum surface under the conditions of use of the aluminum substrate. U.S. PATENT PENDING (KD0128-03-10)

Sodium Sulfur Battery/294

Accumulateur sodium/soufre/294

A new seal for a sodium sulfur battery is disclosed herein. The sodium-sulfur battery uses two cylindrical containers for containing sulfur and sodium in molten states and a beta-alumina electrolyte tube located primarily within the sulfur container. The battery disclosed herein includes a novel header, preferably a metal header, between the containers and through which the beta-alumina tube extends.

In order to prevent either the sulfur or sodium from passing between the header and tube, the header includes an inner circumferential surface which forms a continuous mechanical seal around and against the tube to prevent the sulfur or sodium from passing therebetween. The header is attached to, but must electrically isolate, the two containers. U.S. PATENT PENDING (KD0128-03-12)

Multiple Ring Inertial Energy Storage Wheel with Improved Inter-Ring Connector/294

Volant d'inertie à anneaux concentriques avec raccords améliorés/294

An inertial energy storage rotor defined by a plurality of independent, concentric rotor rings rotatable about a vertical axis. A spacer ring connects each outer rotor ring to its adjacent inner rotor ring and is constructed of a substantially rigid material. The spacer ring has a cylindrical configuration and a plurality of slots which alternately extend from opposing axial ends of the ring towards the opposite end of the ring. The slots terminate short of such

opposite end. The spacer ring includes first and second connecting tabs which are disposed at the respective axial ends of the ring for engaging and rotationally interlocking the rings, supporting the outer ring on the inner ring, maintaining the rings concentric with respect to each other, and permitting differential dilations in the rings during high rates of rotation of the wheel. U.S. PATENT PENDING (KD0269-01-01)

Multi-Ring Inertial Energy Storage Wheel Having Tapered Ring Mounting Members/294

An inertial energy storage wheel defined by a plurality of independent, concentric rotor ring assemblies and a center hub rotatable about a vertical axis. The hub includes a plurality of spaced-apart, radially oriented teeth having sides parallel to the axis of rotation which diverge in a radially outward direction, which lie on radii having their origin at the axis of rotation of the wheel, and which are engaged by correspondingly shaped holes of the innermost ring assembly carried by the hub. The holes have radially outwardly diverging vertically oriented side walls which snugly engage the sides of the teeth when the wheel is at

Volant d'inertie à anneaux avec raccords triangulaires tronqués/294

rest as well as during high speed operation of the wheel when the rotor ring assembly dilates and moves radially outward with respect to the teeth. Additional rotor ring assemblies are concentrically disposed about the innermost assembly and connected thereto so that the rotor ring assemblies can dilate by differential amounts. The rotor ring assemblies are constructed to a plurality of coaxial rings held together by U-shaped clamps and the tooth receiving holes of the innermost assembly are defined by opposing, aligned grooves in opposing end faces of the rings. U.S. PATENT NO. 4102220 (KD0269-01-03)

Ring Assembly for Inertial Energy Storage Rotor/294

An inertial energy storage rotor defined by a plurality of independent, concentric rotor ring assemblies rotatable about a vertical axis. Each assembly has at least two coaxial rings and a plurality of circumferentially spaced apart, U-shaped clamps which secure the rings of the assembly to each other. Opposing end faces of the rings include a plurality of circumferentially spaced apart, opposing grooves which define between them radially oriented apertures. The clamps include radially inwardly and radially outwardly extending plugs which are shaped complementarily to the configuration of the holes in the adja-

Volant d'inertie à anneaux concentriques/294

cent inner and outer ring assemblies and which concentrically interconnect adjacent ring assemblies. The plug extending radially inward and disposed in the hole of the ring assembly inward of the clamp has a tapered configuration in a radial plane of the ring assembly. The taper is chosen so that axial movements of the U-shaped connector and its plugs due to the relatively larger dilation of the outer ring assembly during high speed rotation of the rotor results in a continued engagement between side walls of the inwardly oriented plug and the corresponding sides of the hole. U.S. PATENT NO. 4112785 (KD0269-01-02)

Inertial Energy Storage Rotor with Tension-Balanced Catenary Spokes/294

A high-speed inertial energy storage rotor having improved spoke elements which connect a fiber-reinforced composite ring to a central hub. The spokes are tension-balanced by the addition of loading weights to their outer ends. These weights increase the centrifugal loading on the spokes such that their elongation at the operating speed of the rotor matches the dilation of the rotor ring. This mini-

Volant d'inertie avec rayons à tension équilibrée/294

mizes radial loading imposed on the ring by the spokes and resulting shear and flexure stresses in the rotor ring and the spoke-to-ring bond. The spokes are pre-shaped to follow a catenary curve at operating speeds so as to place the spoke in pure tension and avoid undesirable bending moments and flexure stresses which would otherwise result. U.S. PATENT PENDING (KD0269-01-05)

Method and Apparatus for Measuring the Interior Dimensions of a Hollow Body/294

An apparatus for measuring the interior dimensions of the walls of a hollow body. The apparatus is insertable into a restricted opening of the hollow body and includes means for transmitting a beam of electromagnetic energy toward an interior wall of the hollow body. When the electromagnetic energy illuminates the interior wall, acoustic waves

Méthode et appareillage pour mesurer les dimensions intérieures d'un corps creux/294

are radiated back to the apparatus. The apparatus detects the acoustic waves and measures the elapsed time between transmission of the electromagnetic energy and detection of the acoustic waves. From elapsed time measurements the dimensions of the interior walls are obtained. U.S. PATENT NO. 4161715 (KD0737-01-01)

Rotor Ring for Inertial Energy Storage Rotor/294

An improved rotor ring for use in an inertial energy storage rotor, the rotor being defined by a plurality of independent, concentric rotor rings rotatable about a vertical axis. The improved rotor ring includes a cylindrical body portion, fabricated from a fiber composite, and an unreinforced resinous face member attached to one or both of the

Volant d'inertie à anneaux concentriques/294

opposing end faces of the ring. The resinous face member includes a number of radially oriented grooves which are adapted to accept clamps and other elements used to assemble and hold together the rotor rings. U.S. PATENT NO. 4150582 (KD0269-01-04)

Naturally Commutated Voltage-Fed Converter for Linking a DC Source to an AC Source/294

A naturally-commutated, voltage-fed direct-current (DC) to alternating-current (AC) power converter employing thyristor elements couples a DC power system with an AC power system without the requirement to force commuta-

Convertisseur à commutation naturelle, alimentée en tension, pour coupler une source c.c. à une source c.a./294

tion. To effect natural commutation, the fundamental component of current flowing between the DC system and the AC system must lead the DC system switching voltage. U.S. PATENT NO. 4131937 (KD0390-01-01)

Electrolytic Cell Having a Novel Electrode Including Platinum on a Carbon Support Activated with a Phosphorus-Oxygen-Containing Compound/294

A novel electrolytic cell is described which contains an anode electrode and a cathode electrode, each being adapted for contact with an electrolyte. At least one of the electrodes includes platinum on a carbon support activated with a phosphorus-oxygen-containing compound. A

Cellule électrolytique avec un nouveau type d'électrode constituée d'un support en carbone revêtu de platine et activée avec un composé du phosphore et de l'oxygène/294

preferred electrolytic cell of the present invention comprises a fuel cell having phosphoric acid as its electrolyte. Also disclosed is a method of directly producing electrical energy using the electrolytic cell described. U.S. PATENT NO. 4131721 (KD0583-01-01)

Highly Dispersed Supported Group VIII Metal-Phosphorus Compounds and Highly Dispersed, Supported Group VIII Metal-Arsenic Compounds and a Process for Making Said Compounds/294

The instant invention relates to novel compositions comprising highly dispersed Group VIII metal-phosphorus compounds or Group VIII metal-arsenic compounds supported on a high surface area solid support selected from the group consisting of carbon, alumina, silica, silica-alumina, zeolite, kieselguhr, vermiculite, and the refractory oxides of Group IVb and Vb, transition metals, and mixtures thereof. The instant invention further relates to a method for the preparation of the above compositions. In the preparation of the supported Group VIII metal-phosphorus compounds, the support is impregnated with both a phosphorus source, e.g., elemental phosphorus or a water soluble phosphorus salt, and a Group VIII metal source. The Group VIII metal source is impregnated onto the support from a solution of a water soluble Group VIII metal salt. Reduction of the resultant impregnated composition at temperatures above about 200°C results in the formation of highly dispersed, supported Group VIII metal-phosphorus compounds. The preparation of the highly dispersed supported Group VIII metal-arsenic compounds is accomplished in a similar manner. The Group VIII metal loading of these compositions range from about 0.1% to about 30 wt. % of the total

Préparation et composition de composés phosphore-métaux du groupe VIII et arsenic-métaux du groupe VIII déposés à l'état très dispersé sur un support/294

catalyst. The phosphorus to Group VIII metal atomic ratio or the arsenic to Group VIII metal atomic ratio ranges from 0.3 to 3.0. The highly dispersed supported Group VIII metal-phosphorus compounds or Group VIII metal-arsenic compounds may be used to form highly dispersed, supported Group VIII metal-catalysts after low temperature air calcination or decomposition in water at room temperature. The supported Group VIII metal-phosphorus compositions of the instant invention are known to be useful in the selective hydrogenation of liquid hydrocarbons such as diolefins, resins and asphalts. The increase in dispersion of such supported Group VIII metal-phosphorus compounds increases their activity over their corresponding bulk phase catalysts. The increase in dispersion of the Group VIII metal catalysts formed from the Group VIII metal-phosphorus or Group VIII metal-arsenic intermediates also increases their activity over their corresponding bulk phase catalysts. It should be further noted that the highly dispersed supported Group VIII metal-phosphorus or Group VIII metal-arsenic compounds may be utilized as electrodes in electro-chemical fuel cells. U.S. PATENT PENDING (KD0583-01-02)

The Preparation of Highly Dispersed Supported Group VIII Metal Catalysts and the Redispersion of Sintered or Agglomerated Supported Group VIII Metal Catalysts by the Addition of Phosphorus/294

The instant invention relates to a method of preparing highly dispersed supported Group VIII metal catalysts. The instant invention further relates to the redispersion of sintered or agglomerated supported Group VIII metal cata-

Préparation de catalyseurs constitués de métaux du groupe VIII déposés à l'état très dispersé sur un support et redispersion de catalyseurs frittés ou agglomérés de métaux du groupe VIII déposés sur un support, par addition de phosphore/294

lysts. The process comprises the formation of supported Group VIII metal-phosphorus intermediate compounds followed by the treatment of these supported Group VIII metal-phosphorus compounds in an inert atmosphere at a

temperature in the range of about 400°C. to about 750°C., preferably, about 550°C. to about 700°C., most preferably from 630°–700°C. The composition resultant from the dispersion heating step will form the highly dispersed, supported Group VIII metal catalysts by decomposition when reacting with an oxygen containing atmosphere, e.g. air, or reacting with water. For the instant process the Group VIII metals and phosphorus can be deposited on the support by any method known in the art. The phosphorus can be present on the support any time before the formation of the Group VIII metal-phosphorus compound intermediate, i.e. before, during, or after the metal deposition. The Group VIII

metal can be present in said catalyst from about 0.1 to about 30 wt. % of total catalyst weight. The most preferred Group VIII metal is platinum and the most preferred Group VIII metal-phosphorus compound intermediate is PtP₂. The amount of phosphorus which may be added may range from about 0.1 to about 33 wt. % of total catalyst weight. The supports are selected from the group consisting of carbon, alumina, silica, silica-alumina, zeolite, kieselguhr, vermiculite, the refractory oxides of Group IVb and Vb transition metals and mixtures thereof. A preferred support is carbon. U.S. PATENT PENDING (KD0583-01-03)

Heating and Cooling System and Method/294

Description et méthode d'utilisation d'un système de chauffage/refroidissement/294

A vapor compression heating/cooling system and method of operation having improved coefficient of performance and capacity. Post-condenser liquid is cooled in a sub-cooler coil by a stream of air. One embodiment provides a warming machine or heat pump in which the condenser coil is within a volume to be warm and the evaporator coil is on the outside exposed to ambient air. A stream of ambient air is pumped in heat exchange relationship with the subcooler coil to recover and expel heat from the coil into the volume. Where the volume comprises the interior of a house or other building structure the stream of air from the

subcooler creates an over pressure within the volume to minimize infiltration of ambient air. In another embodiment the system is employed for refrigerating a volume such as a reefer trailer or other mobile compartment. The evaporator coil is within the compartment and the condenser coil is outside the compartment exposed to ambient air. A stream of air from the compartment is directed by a duct in heat exchange relationship with the subcooler coil and thence to ambient for expelling heat from the post-condenser liquid. U.S. PATENT PENDING (KD0544-01-06)

Two-Speed Drive Apparatus/294

Mécanisme d'entraînement à deux vitesses/294

Apparatus for rotating a driven shaft in the same direction at two different speeds upon rotation of a drive shaft in respective, opposed directions. The apparatus includes a sun gear on the drive shaft, a ring gear on the driven shaft, a planet carrier rotatably mounted on the drive shaft, adjacent to the sun gear, one or more planetary gears rotatably mounted on the planet carrier and in mesh with the sun and ring gears. An over-running clutch locks the planet carrier to the drive shaft when the latter rotates in one direction to

thereby lock the planetary gears to the sun and ring gears to cause rotation of the ring gear and the driven shaft in a first direction at a first speed. A sprag prevents rotation of the planet carrier relative to a fixed support when the drive shaft rotates in the opposite direction to thereby allow rotation of the planetary gears about fixed axes to rotate the ring gear and thereby the driven shaft in the first direction at a second speed U.S. PATENT NO. 4137798 (KD0544-01-03)

Loss Heat Suppression Apparatus and Method for Heat Pump/294

Description et méthode d'utilisation d'un appareil pour diminuer les pertes thermiques des pompes à chaleur/294

A compressor unit for use with a heat pump system wherein a motor-driven compressor is disposed within a casing which can be placed indoors or outdoors. Vapor from the suction side of the system is directed into and through the compressor, through an oil separator-muffler, and then into contact with liquid from the high side of the system, the liquid being directed onto a rotating disk to form a spray which contacts and thereby de-superheats the compressor discharge vapor. The de-superheated vapor then moves into and through the air gaps of the compressor

motor in heat exchange relationship thereto where it is re-superheated. The re-superheated vapor then leaves the fan ports of the motor and enters the open top of a vertical standpipe which also receives the excess liquid collected in a trough surrounding the upper end bell of the motor. The liquid is entrained in the re-superheated vapor and moves therewith out of the casing toward the four-way valve and the condenser coil of the system. U.S. PATENT NO. 4094165 (KD0544-01-02)

Fuel Fired Supplementary Heater for Heat Pump/294

A heat pump is disclosed which has a compressor, an indoor condenser (for winter heating), outdoor evaporator (for winter heating) and piping for flowing a refrigerant between the compressor, the condenser and the evaporator. A second refrigerant loop is formed which bypasses the compressor and communicates with the condenser outlet and intake. A liquid metering pump flows liquid refrigerant

Dispositif de chauffage d'appoint alimenté par combustible pour pompes à chaleur/294

from the outlet of the condenser via a fuel, e.g., liquid petroleum gas fired refrigerant vaporizer back to the condenser intake so that auxiliary heat from the burner for heating an indoor space by feeding to the condenser heated refrigerant vapor in addition to the refrigerant vapor supplied to the condenser by the compressor. U.S. PATENT PENDING (KD0544-01-05-1)

Heat Pump System and Improved Heat Transfer/294

A heat pump for cooling or heating a conditioned space includes an underground heat pipe laid into a hole in the ground back-filled with soil. The heat transfer of the soil is improved by dispersing highly water-absorbent hydrophilic polymeric gel particles soaked with water around the heat pipe. The water-soaked particles preferably are coated with

Système de pompes à chaleur et système amélioré de transfert thermique/294

a water-impermeable film. The water may also be entrapped in liquid form in small bags. Also, a water impermeable sheath may be formed around the back-fill soil to minimize evaporation from the particles. U.S. PATENT NO. 4142576 (ED0544-76-41-1)

Apparatus for Defrosting Low Temperature Heat Exchanger/294

An evaporator heat exchanger is disposed within a vertical, rectangular duct. A heater for defrosting the heat exchanger is disposed beneath the exchanger. During the defrost cycle heated air rises by convection vertically through the heat exchanger. The defrost cycle is initiated by sensing the pressure drop across the heat exchanger. This is done by extending a small diameter pipe through a wall of the duct downstream of the heat exchanger so that an air current is drawn through the pipe during normal operation of the system. A constant energy output heater

Dégivreur pour échangeur de chaleur basse température/294

heats the air current in the pipe so that the temperature of the heated current remains constant so long as the air volume flowing in the pipe remains constant. As the pressure drop across the heat exchanger increases as a result of an increasing frost buildup, relatively more air is drawn through the pipe. As a result the temperature of the heated air in the pipe decreases. A control switch is adjusted so that it initiates the defrost cycle whenever the air current temperature reduction in the pipe reaches a pre-determined value. U.S. PATENT PENDING (KD0544-01-04-1)

Licensing Opportunities from Japan

Contact:

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The following developments at the pilot or laboratory stage are offered for manufacture in Canada by the RESEARCH DEVELOPMENT CORPORATION OF JAPAN. Enquiries concerning the acquisition of the Canadian manufacturing rights should be addressed to MR. HIROSHI ANDO at the above address with a copy of the initial correspondence sent to: Commercial Division, Embassy of Canada, 3-38 Akasaka 7 — Chome, Minato-ku, Tokyo 107, Japan. Please quote the full title and reference number of the item you are interested in. At the same time JRDC would prefer to receive any information about you and your activities.

JRDC 931

Fermentative Production of Glutathione/294

The strain used is the ethionine sensitive strain of *Candida Utilis*. As this strain accumulates a large amount of glutathione in its cell, the productivity of the fermentation equipment increases to produce glutathione at low cost. Advantages: produces glutathione of 1.2 g/l in a fermentation broth in 35 hours fermentation; the concentration of glutathione is 7% in a dry cell; it is not necessary to add a special nutrient such as methionine in the culture medium. Degree of development — Pilot stage.

JRDC 935

Hexagonal-System Ferrite Powder/294

A production process of high performance hexagonal-system hard-ferrite powder, having a proper range of grain size, free from strain due to crushing, and having excellent coercive force. This method differs from the conventional dry process or wet process and comprises two major steps: the first step in which co-precipitates are produced in a liquid phase under controlled conditions and the second step in which the co-precipitates thus obtained are subjected to heat treatment at a relatively low temperature to carry out the ferrite-forming reaction. Advantages: this ferrite powder is almost free from impact strain due to crushing and the coercive force is higher by more than 20%; because of the good crystallizing, the product ex-

Possibilités d'obtention de licences du Japon

S'adresser à:

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JRDC 931

Production de glutathion par fermentation/294

On utilise une souche de *Candida utilis* à l'éthionine. Comme cette souche accumule de grandes quantités de glutathion dans la cellule, elle accroît la productivité de la fermentation et permet de produire la glutathion à moindres frais. Advantages: concentration de glutathion atteignant 1,2 g/L dans le bouillon de fermentation en 35 heures; concentration de glutathion dans les cellules sèches: 7%, il n'est pas nécessaire d'ajouter d'élément nutritif particulier, de la méthionine par exemple, au milieu de culture. Degré de développement: stade pilote.

JRDC 935

Poudre de ferrites à réseau hexagonal/294

Procédé de production de poudre de ferrites à réseau hexagonal de haute performance, ayant une bonne granulométrie, exempte de contraintes dues au broyage, et possédant une excellente force de cohésion. Cette méthode diffère du procédé à sec conventionnel et du procédé par voie humide et comprend deux étapes principales: (1) production de co-précipités en phase liquide dans des conditions contrôlées; (2) traitement des co-précipités par la chaleur, à température relativement basse, pour effectuer la réaction de formation des ferrites. Advantages: la poudre de ferrites est pratiquement exempte de contraintes puisqu'il n'y a pas eu de broyage et la force de cohésion est supérieure d'au moins 20%; en raison de la bonne cris-

hibits excellent pressing orientation when incorporated in rubber, plastics, etc., and the orientation improves by more than 30% over that obtained by a dry process; the ferric chloride solution, which is raw material, being a byproduct from steel pickling, the cost is low. Degree of development — Pilot stage.

JRDC 938

Partial Bright Injection Molding/294

In this process, it is possible to emboss, in one shot, the surface of a poorly-expanded injection-molded product with a figure, different in shade and lustre of the same color. Multisurface products can be molded in one metal mold and in addition any secondary processing is unnecessary, so that a sharp reduction in cost is expected. Degree of development — Pilot stage.

JRDC 9317

Lightweight, Heat-Insulating Metal Panel/294

Inorganic heat-insulating material is injected into the cavity of metal plates or poured into a molding flask of metal plate and then the metal plates are glued by pressure. Advantages: the thermal conductivity of fibrous core materials is drastically damaged when once heated, whereas, the inorganic heat-insulating material has high heat resistance and is lightweight, it exhibits performance in fire resistance and heat resistance with minimum lowering of the thermal conductivity; high mechanical strength of the core material enhances the strength of the entire metal panel — the core material is in close contact with the metal plate, protecting the metal from corrosion. Degree of development — Pilot stage.

JRDC 9321

Encapsulated Propellant Grain/294

The production of capsulated explosive composition comprising a high molecular weight compound capsule wall and an explosive core. This is obtained by capsulating explosive liquid compounds such as glycerine trinitrate, etc., with synthetic resins such as polyurethane and polyurea or capsulating and fixing glycerine trinitrate, etc., gelatinized with gun-cotton with synthetic resin. Advantages: mixing of explosive compounds such as glycerine trinitrate, etc., that always involves danger, is rendered much safer by the encapsulation method; liquid explosive compounds can be handled in solid form; used for underwater blasting and city blasting as industrial explosives; as an inexpensive high-energy firing explosive; as raw material for a propellant, gas generating reagent, and the like. Degree of development — Pilot stage.

JRDC 942

Tin Flotation/294

A process to extract high-grade tin concentrate of low iron content by using sulfurous acid or sulfite as a depressant

tallisation, le produit a une bonne orientation lorsqu'il est incorporé au caoutchouc, aux plastiques, etc. et cette orientation est supérieure de plus de 30% aux ferrites obtenues par le procédé à sec; la solution de chlorure ferrique utilisée comme matière première est un sous-produit du décapage de l'acier et son coût est faible. Degré de développement: stade pilote.

JRDC 938

Moulage par injection à surface partiellement brillante/294

Ce procédé permet, en une seule opération, d'imprimer sur la surface d'un produit moulé par injection qui s'est mal développé, un dessin de même couleur que le fond, mais de lustre différent. Les produits à plusieurs faces peuvent être moulés dans un moule métallique sans qu'aucune autre étape secondaire ne soit nécessaire, d'où une forte réduction des coûts. Degré de développement: stage pilote.

JRDC 9317

Panneau métallique isolant léger/294

Un matériau minéral isolant est injecté dans la cavité qui sépare deux plaques métalliques ou moulé, après quoi les deux plaques métalliques sont collées à la surface sous pression. Avantages: normalement, la conductivité thermique des matériaux fibreux est considérablement réduite après exposition à la chaleur, mais le matériau minéral utilisé ici a une forte résistance à la chaleur tout en étant léger; il est résistant à l'incendie et à la chaleur sans que la conductivité thermique change sensiblement; la forte résistance mécanique de l'âme augmente la résistance globale du panneau (l'âme est en contact étroit avec le métal et le protège aussi de la corrosion). Degré de développement: stade pilote.

JRDC 9321

Grains d'explosif encapsulé/294

Procédé de fabrication de capsules à parois en composé de haute masse moléculaire contenant un explosif. Le procédé permet d'encapsuler des explosifs liquides, comme la nitroglycérine, à l'intérieur de résines polyuréthane ou polyurée; ou d'encapsuler de la nitroglycérine fixée par gélatinisation avec du coton-poudre. Avantages: mélange de composés explosifs divers, maintenant possible sans dangers grâce à l'encapsulation; les explosifs liquides peuvent être présentés sous forme solide; utilisable sous l'eau ou en ville comme explosif industriel; détonateur de haute énergie peu coûteux; matière première pour les carburants de fusée, les générateurs de gaz, etc. Degré de développement: stade pilote.

JRDC 942

Flottation de l'étain/294

Procédé pour extraire des concentrés à haute teneur en étain et faible teneur en fer en utilisant de l'acide sulfureux

for oxidized iron minerals such as siderite, hematite, etc. The tin concentrate is at first upgraded to some extent by ordinary sulfide or non-sulfide flotation and then the siderite and hematite contained in the pulp are depressed by this new method. Degree of development — Pilot stage.

JRDC 9815

Artificial Pancreas/294

This technology relates to a medical instrument that allows infusion of insulin or glucose to a diabetic according to his blood glucose concentration. The instrument is made up of a blood glucose monitor, microcomputer, micropump and others and its measurements are 500 mm wide, 500 mm deep and 1,500 mm high. Advantages: manual operations of drawing blood, measuring blood glucose and infusion of insulin can be automated; the insulin infusion which has been done by doctor's skill and knack can be carried out by a computer, based on experimentally obtained equations; because of continuous insulin infusion according to the blood glucose concentration that changes every moment, it is possible to approximate the blood glucose concentration to that of healthy man; continuous insulin infusion according to the blood glucose concentration, instead of intermittent insulin infusion, reduces the amount of infusion considerably; glucose infusion circuit is self-housed for safety. Degree of development — Pilot stage.

JRDC 9314

Activated Fibrous Carbon/294

In this method, inexpensive cellulose fibers such as cotton, hemp, or others are carbonated in the presence of a certain type of inorganic salt having a catalytic performance, and then subjected to chemical activation to obtain activated fibrous carbon. Because of the remarkably improved yield, it offers activated fibrous carbon at much lower cost than by the currently commercialized method having an ion adsorption capability as well as excellent physical adsorption capability and can be used effectively for accurate adsorption for medical use, cigarette filters, gas masks and other industrial uses. The yield is equivalent to 3 to 5 times that of the method currently commercialized; the shorter time and the lower temperature required contribute to energy conservation and the production cost is 1/3 to 1/4; it is not necessary to prepare raw materials in a specific form making it possible to supply activated fibrous carbon according to the intended application, e.g., fabric. Degree of development — Laboratory stage.

JRDC 961

Composite Metal Powder by Atomization/294

This technology relates to a process for preparing a pre-mixed metal powder by atomizing, with a high speed jet stream, a molten metal simultaneously being mixed with the required powder into a powder mixture comprising of

ou du sulfite comme déprimant des minerais de fer oxydés tels que la sidérite, l'hématite, etc. Le concentré d'étain est d'abord enrichi par flottation ordinaire avec sulfite ou non, puis la sidérite et l'hématite contenues dans la pulpe sont déprimées par cette nouvelle méthode. Degré de développement: stade pilote.

JRDC 9815

Pancreas artificiel/294

Technique relative à un instrument médical qui permet l'infusion d'insuline ou de glucose à un diabétique en fonction de sa concentration de glucose dans le sang. L'instrument est constitué d'un système de surveillance du glucose du sang, d'un microordinateur, d'une micropompe, etc. Ses dimensions sont: 500 mm de large, 500 mm de profondeur et 1500 mm de haut. Avantages: automatisation du prélèvement de sang, de dosage du glucose et d'infusion de l'insuline; l'infusion d'insuline qui dépendait de l'habileté du médecin peut maintenant être faite par l'ordinateur et calculée aux moyens d'équations obtenues expérimentalement; comme l'infusion peut se faire constamment selon les mesures de la concentration en glucose, on peut se rapprocher le plus possible de la concentration normale d'une personne en bonne santé; l'infusion continue d'insuline en fonction de la concentration de glucose dans le sang permet de réduire la quantité d'insuline considérablement; le circuit d'infusion de glucose est muni d'un système de sécurité. Degré de développement: stade pilote.

JRDC 9314

Carbone fibreux activé/294

Dans cette méthode, des fibres de cellulose bon marché, comme le coton, le chanvre ou autres, sont carbonisées en présence d'un certain sel inorganique servant de catalyseur. Elles sont ensuite soumises à une activation chimique qui donne le carbone fibreux activé. Vu son rendement grandement amélioré, cette méthode produit du carbone fibreux activé à un prix beaucoup moindre que celui que l'on trouve actuellement sur le marché. Il peut adsorber les ions, en plus d'être un excellent adsorbant physique. Son efficacité en matière d'adsorption fait qu'on l'utilise pour les soins médicaux, la fabrication de filtres de cigarettes, de masques à gaz et d'autres activités industrielles. Le rendement de cette méthode est de trois à cinq fois supérieur à celui des méthodes commerciales actuelles. Elle exige moins de temps et une température plus basse, ce qui réduit la consommation d'énergie et le coût de production de 1/3 à 1/4. Il n'est pas nécessaire de préparer les matières premières d'une manière précise pour obtenir du carbone fibreux activé pour l'application voulue, par exemple sous forme de tissu. L'invention en est au stade du laboratoire.

JRDC 961

Composé de poudre métallique par atomisation/294

Cette technologie a trait à un procédé de préparation d'une poudre métallique mélangée préalablement par atomisation, à l'aide d'un jet à haute vitesse, d'un métal fondu mélangé simultanément avec la quantité de poudre néces-

the metal powder of which core is the mixed powder and the solid metal powder. Advantages: when the wettability between the core-forming powder and the molten metal is good, alloy coating is possible and the alloy formation between the alloy and core-forming powder can be controlled to some extent; process is suitable for mass production. Degree of development — Laboratory stage.

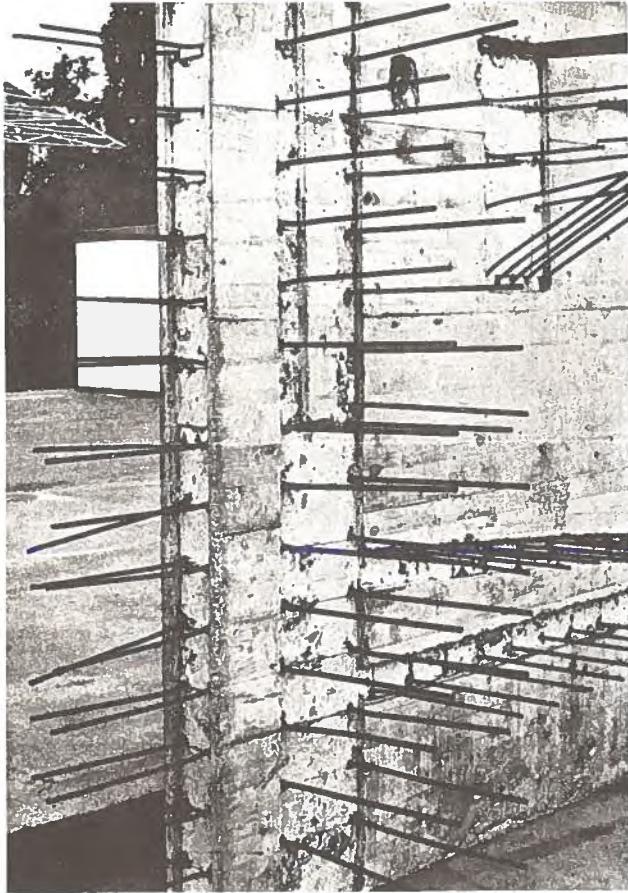
saire pour former un mélange poudreux composé d'une poudre métallique dont le noyau est constitué de la poudre mélangée et de la poudre métallique solide. Avantages: lorsque la mouillabilité est bonne entre la poudre qui se forme dans le noyau et le métal fondu, il est possible d'appliquer l'enduit allié et la formation allié comprenant l'alliage et la formation de poudre dans le noyau peut se contrôler jusqu'à un certain point. Le procédé convient à la production en grande quantité. L'invention en est au stade du laboratoire.

Canada Commerce IT&C Newsletter

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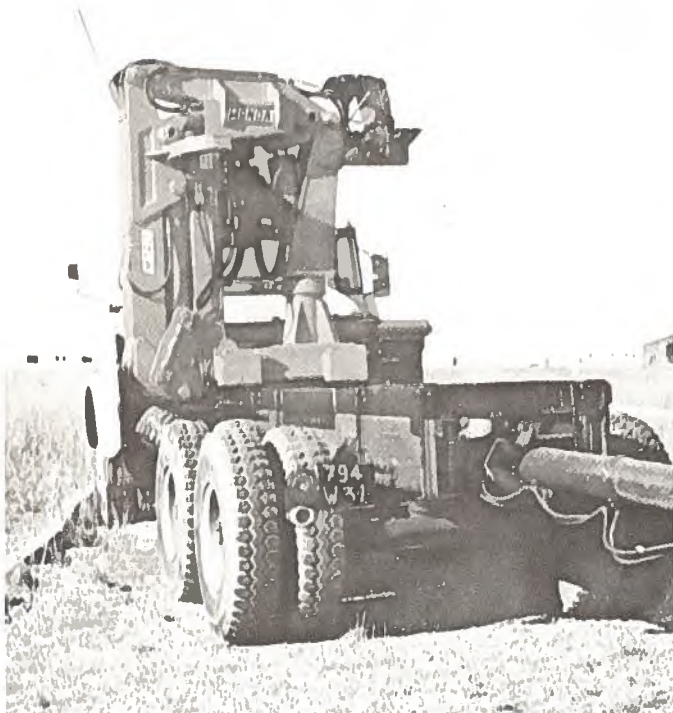


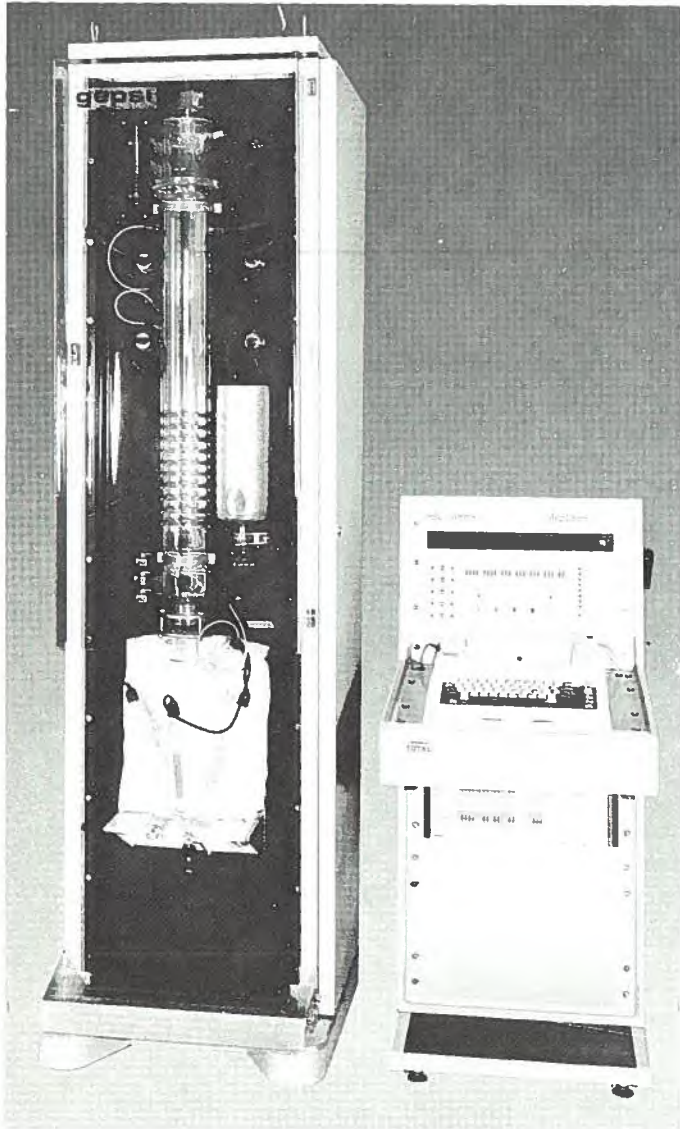
Construction reinforcement elements (see page 2).
Fers d'armature (voir page 2).

Turf dressing equipment (see page 3).
Machines d'entretien des gazons (voir page 3).



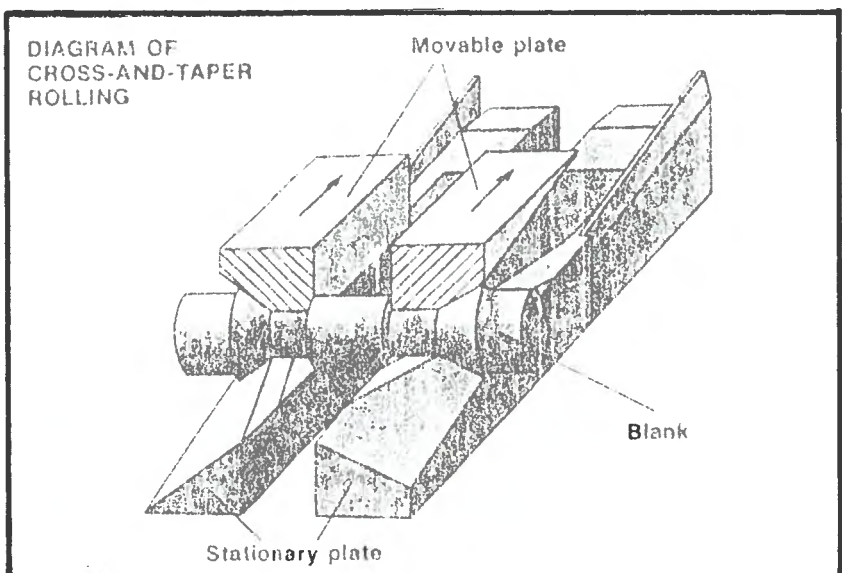
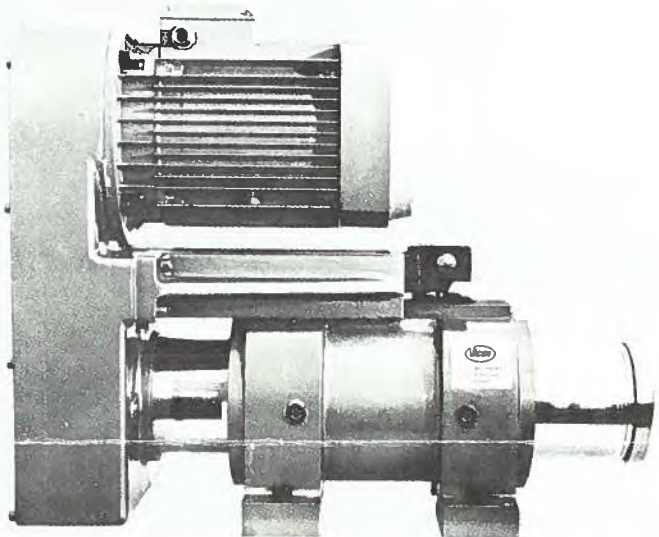
Truck mounted loaders, drilling augers and tools
(see page 4).
Grues montées sur camion, foreuses et outils de
forage (voir page 4).





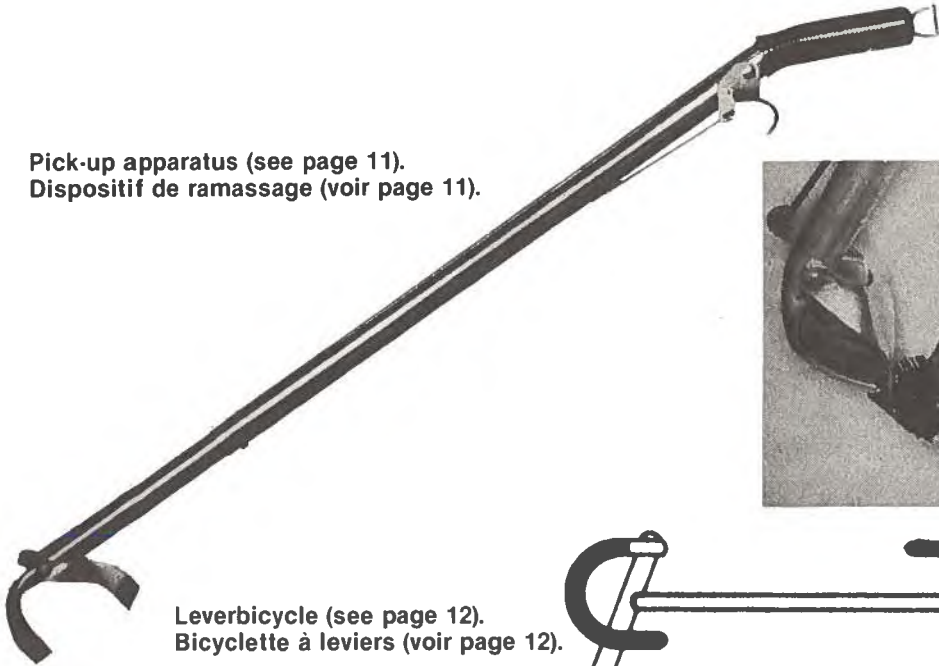
Computer controlled laboratory distillation system (see page 4).
Ensemble de distillation de laboratoire microprocesseurisé (voir page 4).

Unit head for turning, drilling and milling (see page 5).
Bloc d'entraînement pour tournage, perçage et fraisage (voir page 5).

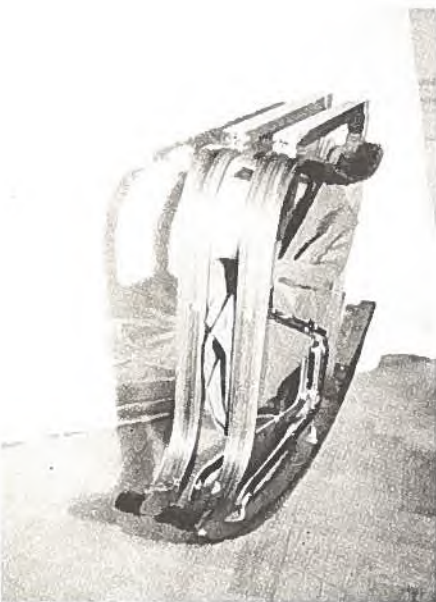
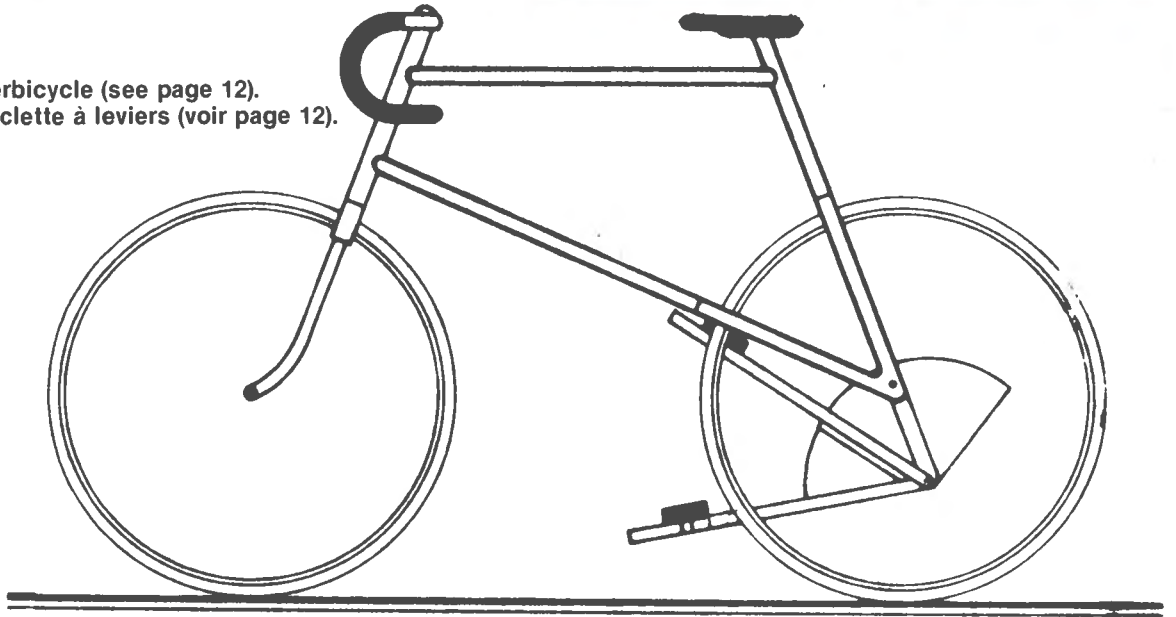


Cross-and-taper rolling mill (see page 9).
Laminoir en travers et en coin (voir page 9).

Pick-up apparatus (see page 11).
Dispositif de ramassage (voir page 11).



Leverbicycle (see page 12).
Bicyclette à leviers (voir page 12).



Collapsible rocking chair (see page 12).
Berceuse pliante (voir page 12).





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