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Apparatus for Application of Slurry Treatments to Seed

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Apparatus for Application of Slurry Treatments to Seed

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The apparatus described here is used for applying fungicide slurry to experimental batches of seed. The capacity of the unit is 0.3 cubic ft., giving a batch size of 10 lb. for oats, 12 lbs. for barley and 15 lbs. for wheat. The principal of operation is a spouted bed where high velocity air in a confined spout is applied to a column of grain. An air channel is established at the centre of the column and seed continuously falls into this column and is carried to the top of the column by the spout. This action gives continuous mixing and drying effect. The slurry is poured over the grain in the column before the spout is established. Efforts were made to eject the slurry at the base of the spout, but problems of settling of mixtures in the holding tank and build-up of residues in valves and tubes resulted in discontinuance of the system in favour of pouring a measured amount in the top. The apparatus as constructed is shown in Fig. 1.

The basic parts of the apparatus (Fig. 2) are two six inch diameter by 30 inch tall acrylic tubes with conical bottoms (C), a mating holder (B) and a blower (A). A suitable blower for this purpose is a Tornado 860 (Burrows Equipment, Evanston, Ill. 60201). The acrylic tube has a conical bottom section made by forming light gauge brass to a 60° cone. A 1-1/2 inch diameter hole is left at the bottom and is screened with the largest practical screen mesh possible to prevent loss of the

smallest seeds likely to be treated. The tubes have a mesh lid to stop loss of seed should the spout run too high. The lid is locked by a slot and pin arrangement. The mating tube holder was made of hardwood with a metal ring surrounding it and extending above the convex shape. Two pins in the tube and slots in the ring mounted at 180° allow the column to be locked in place.

The apparatus was mounted on a stand and had provision for holding the space tube upright for loading while the other was being processed. The treater must be operated under a fume extractor for safety reasons. Seed can be packaged immediately after treating as the air movement in the spouted bed dries the slurry sufficiently that the product is dry and flows freely.

