Since the scarifier is operated in an upright position and movement of the cup or nozzle during the scarification period is not necessary, the operator is free to use this scarification time to complete the storage operations on the previous seed lot and to prepare the next lot for scarification. With a scarification time of 60 seconds, one can easily maintain a pace of 1½ minutes per lot.

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A RUBBING-TYPE THRESHER FOR SMALL-SEEDED GRASSES AND LEGUMES

THRESHING small amounts of material of small-seeded grasses and legumes, and recovering the seed without undue loss or mechanical mixtures is generally time-consuming. Most conventional head threshers possess several serious mechanical objections. Principal among these are: (1) Their large and cumbersome size (for small-scale operations); (2) the difficulty of cleaning after each individual head lot; and (3) the loss of an unnecessarily large amount of seed. Conversely, a head thresher for small-seeded grasses and legumes should preferably: (1) Remove the seeds from the heads by a gentle rubbing action to prevent injury rather than by speed, teeth and concaves; and, (2) produce a minimum of agitation to prevent loss of seed because of mechanical propulsion and air currents.

Threshing action is accomplished by friction of a sandpaper belt being pressed against a corrugated rubber floor matting under which a half-inch thickness of sponge rubber was placed to give resiliency. The outer shell supporting the corrugated mat is of 16-gauge galvanized sheet metal (figure 1-a). Clamps, holding the rubber mat in place, are readily for the replacement of worn surfaces between the rolling and rubbing surfaces. Clearance between the rolling and rubbing surfaces is controlled by wing-nuts (b) on the hinged pivots (c) at the discharge end. Jammed set-screws (d), tapped into the casting, control the clearance at the intake. The machine is easily cleaned with an air-blaster at the end of each sample by simply releasing the spring clamp near the intake and opening the rubbing surface to allow ready access. A cleaner brush on an eccentric pivot (e) cleans the moving sandpaper belt.

Seed heads are fed into the hopper which is held in place by a spring tension clamp. The threshed material falls into a pan under the discharge end of the thresher. Small fragments, trash, and other debris are removed with a Bates Aspirator. Larger culm portions are removed by running the cleaned sample over an appropriate screen. Samples of ten heads each of timothy were threshed at a rate of approximately two minutes each. Some experience is necessary in learning to feed the machine in such a manner that the heads will concentrate near the mid-portion of the belt; careless feeding will cause inflorescences to lodge between the belt and the rubber mat, and feeding causes “balling” and incomplete threshing could be circumvented readily by employing a feed screw to furnish a greater rubbing surface.