A METHOD FOR TESTING THE BREAKING STRENGTH OF STRAW.

B. C. HELMICK.

CORNELL UNIVERSITY, ITHACA, N. Y.

In breeding work with small grains it may be desirable to select, among other characters, for strength of straw. To do this, it is necessary to have some apparatus with which one can obtain a fairly accurate test of relative strength. The method used in the Plant Breeding Department at Cornell University has been as follows:

"The method employed was to cut the pieces of straw to a length of eight centimeters, using the part nearest the root. This piece was then placed across an augur hole in a board, the hole being 5.5 centimeters in diameter. A tiny bucket was then suspended from the middle point of the piece of straw by means of a hook made from wire about one millimeter in diameter. Shot was then poured into the bucket at an uniform rate until the straw broke. A very fine shot, about No. 12, was used. The combined weight of the bucket and the shot required in order to break the straw was considered as the breaking strength of the straw."²

This of course was only an arbitrary standard, but since the same part of the culm was used each time, it gave results which expressed satisfactorily the relative strength of straw. To obtain good results with this apparatus, however, the operator must be able to pour the shot at the same rate for all tests, and to stop the instant the straw breaks. The fact that the shot cannot always be poured at the same rate introduces certain errors when this method is used.

In order to obtain an apparatus to obviate such errors, a machine was made which works on the same principle but which is automatic in its action. The shot falls into the bucket from a funnel at a uniform rate and the flow is automatically stopped when the straw breaks. This apparatus is shown in Plate I, Fig. 1.

This machine consists of a stand 14 inches long by 8 inches wide by 12 inches high with a flat board top. Through this top a hole is cut 4 3/4 inches long by 2 inches wide. One inch from the bottom of the stand and parallel to the top is placed a platform hinged at one end.

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