(No Model.) 2 Sheets—Sheet 1.

# F. M. SOMMER & R. A. McGIRR.

## AUTOMATIC GRAIN MEASURER.

No. 467,691. Patented Jan. 26, 1892.

Fig. 1.

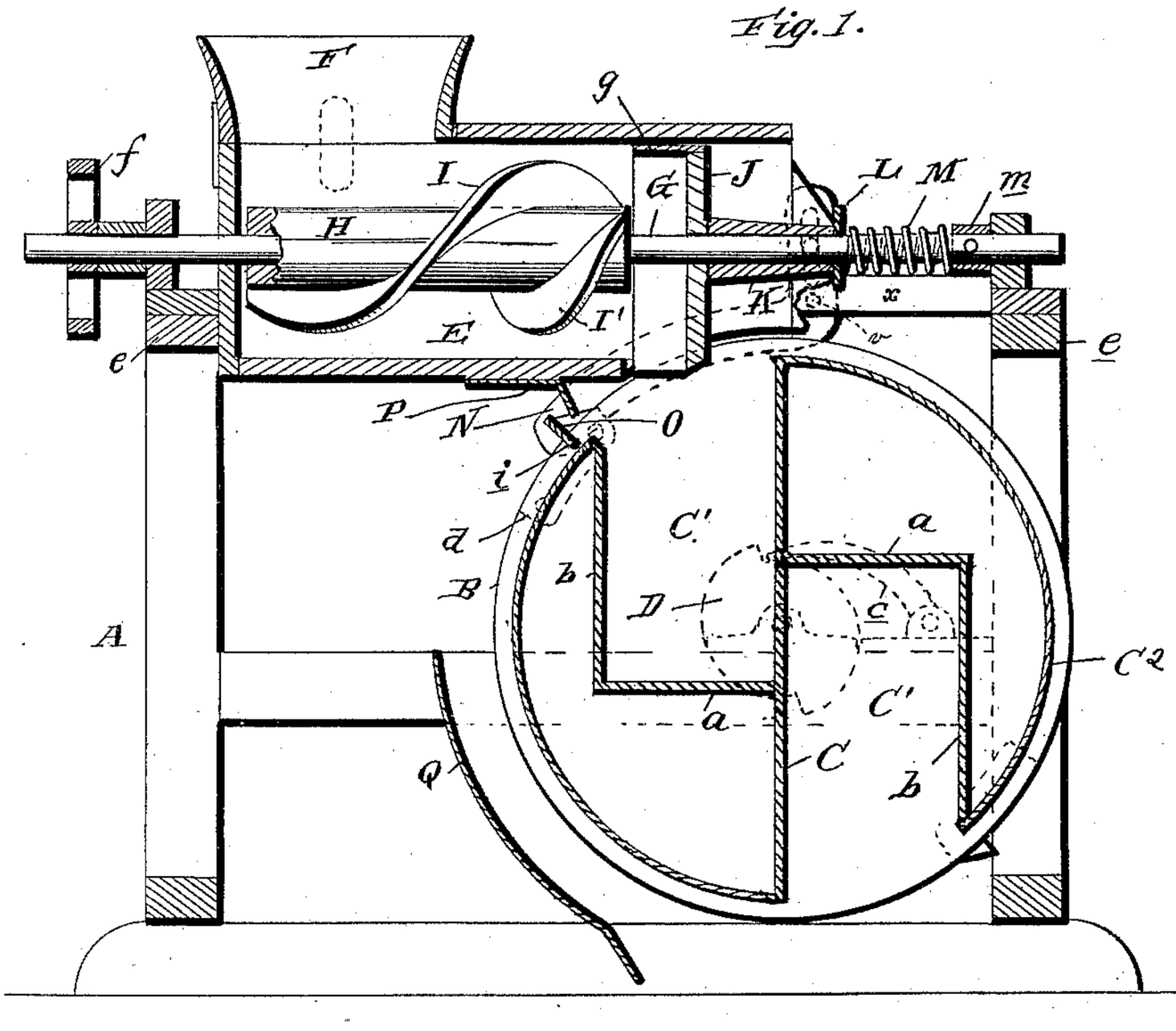
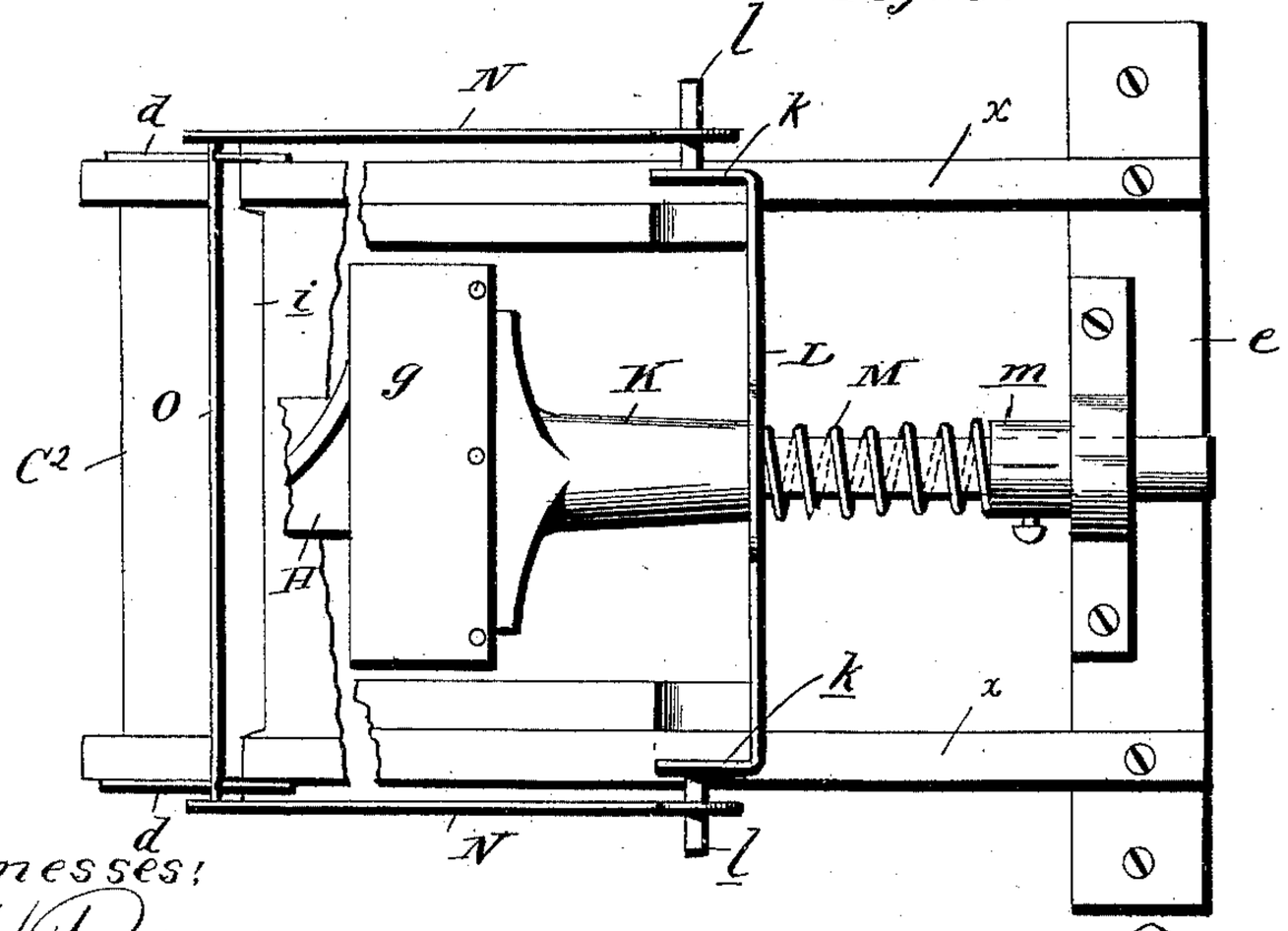



Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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## AUTOMATIC GRAIN MEASURER.

No. 467,691. Patented Jan. 26, 1892.

Fig. 3.

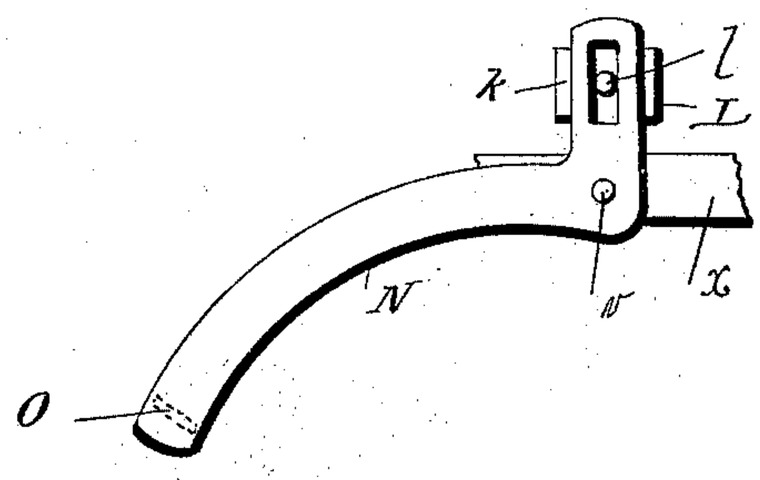
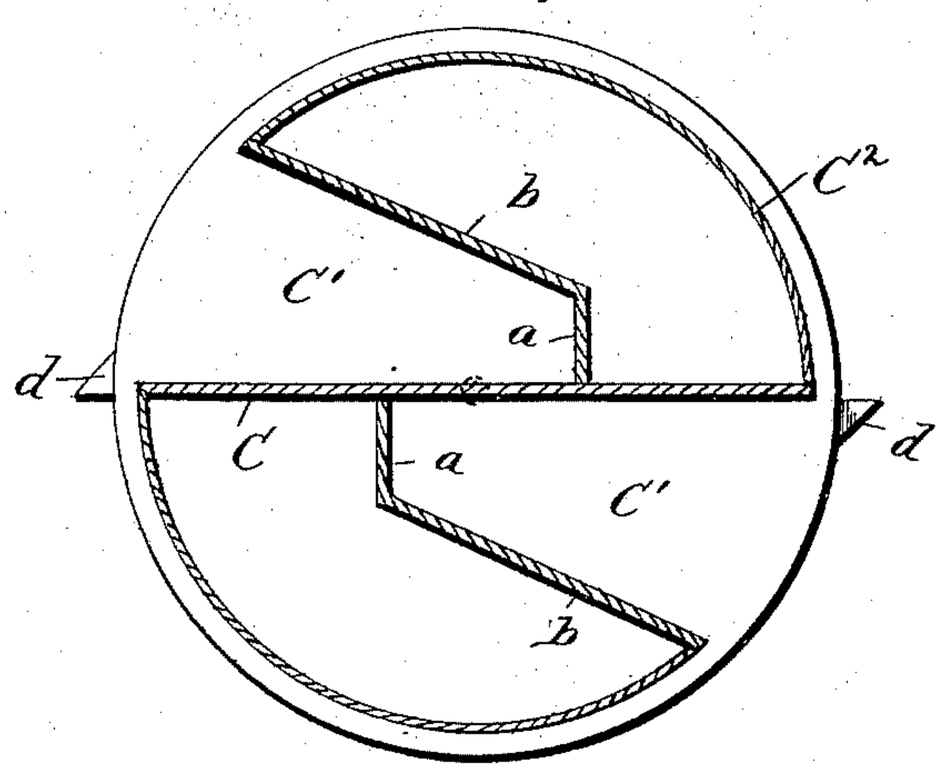



Fig. 4.

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# UNITED STATES PATENT OFFICE.

FRANK M. SOMMER AND ROBERT A. McGIRR, OF CLAYTON, ILLINOIS.

## AUTOMATIC GRAIN-MEASURER.

SPECIFICATION forming part of Letters Patent No. 467,691, dated January 26, 1892.

Application filed April 4, 1891. Serial No. 387,632. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK M. SOMMER and ROBERT A. McGIRR, citizens of the United States, residing at Clayton, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Automatic Grain-Measures; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to improvements in machines for automatically measuring grain and the like; and it has for its general object to provide a machine of the character stated, embodying a simple and durable construction, whereby the grain is quickly and accurately measured in an automatic manner.

To the attainment of this and other objects, the invention consists in the construction, novel combination, and adaptation of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of our improved machine. Fig. 2 is a detail top plan view of the devices adapted to be operated by the pressure of the grain to release the measuring-cylinder and allow the same to revolve. Fig. 3 is a side view of one of the angular levers, to which the transverse keeper-bar is connected. Fig. 4 is a vertical longitudinal section of the measuring-cylinder disclosing a modified form of bin or measure.

In said drawings, A indicates the main supporting-frame of our improved machine, which is preferably of a rectangular form, as shown.

Journaled in suitable bearings upon longitudinal beams of the main frame is the measuring cylinder or wheel B, which is of a width in proportion to the grain-feeding trough, and is preferably of a proportional diameter approximately, as illustrated. As better illustrated in Fig. 1 of the drawings, the measuring-cylinder B is provided with a diametrical partition-wall C, which serves to separate the respective grain-receiving measures C′, and also forms one of the walls of said receptacles. The end walls *a* of the respective measures extend at right angles in opposite directions from the diametrical partition C on either side of the pivotal point of the cylinder, and the outer walls *b* of the measures extend in opposite directions from the outer ends of the end walls to the periphery $C^2$ of the cylinder, which is cut away at diametrically-opposite points to form the rectangular mouths of the respective measures. By the peculiar construction and arrangement of the measures C′ it will be seen that the space within the cylinder is economized and that a comparatively small cylinder may be employed without reducing the size of the measures.

Suitably attached to one of the sides of the cylinder B and surrounding the shaft or trunnion thereof is a cam-ratchet D, which is provided with two shoulders arranged at diametrically-opposite points with respect to the mouths of the two measures, and is adapted, in conjunction with a pawl, to prevent the cylinder from turning backward while being filled. The pawl *c*, designed to engage the cam-ratchet D, is pivotally mounted on one of the longitudinal beams of the supporting-frame and preferably in rear of the bearing of the cylinder B, and the said pawl may be of any approved form adapted to perform the desired function.

Suitably attached to the sides of the cylinder B, adjacent to the periphery $C^2$ thereof, and at diametrically opposite points, are catches *d*, which extend beyond the periphery of said cylinder. These catches *d*, of which two are employed on each side of the cylinder, are arranged in line with the forward transverse side of the mouths of the measures and are adapted to be engaged by a transverse keeper-bar, presently to be described, whereby the cylinder is locked while being filled.

E indicates the feed trough or box of our improved machine, which is of a rectangular form, as shown, and is provided adjacent to its forward end with a hopper F, in which the grain to be measured is fed in any approved manner. This feed trough or box E is mounted in a suitable manner upon longitudinal beams, which are in turn mounted upon transverse cap-beams *e*, as shown.

Journaled in suitable bearings upon the transverse cap-beams at the ends of the frame, and occupying a position in the longitudinal center of said frame, is a rotatable shaft G,

which is provided at its forward end with a fixed band-pulley *f*, whereby the shaft is rotated for a purpose hereinafter described.

Fixed upon the shaft G, within the feed trough or box, is a sleeve H, which is provided with a spiral flange I and an auxiliary flange I′, as shown, so arranged or disposed with respect to the sleeve of the shaft that when grain or the like is fed into the trough it will be conveyed by the screw or flanged sleeve toward the rear of the trough, where it will exert a pressure upon a plate in certain instances, as will be presently pointed out.

J indicates a vertically-disposed rectangular plate, which is provided upon its upper and vertical edges with forwardly-extending angular flanges *g*, to prevent the grain from escaping past it during operation. Attached to the rear side of the plate J is a lateral branch of a sleeve-casting K, through which the shaft G takes, as illustrated in Fig. 1. Preferably formed integral with the sleeve K and extending laterally therefrom is a vertically-disposed flat bar L, which is provided at its ends with forwardly-extending angular branches *k*, which occupy a position outside the feed-trough and are provided with lateral lugs or gudgeons *l* for a purpose hereinafter pointed out.

Surrounding the shaft G and bearing at one end against the rear side of the bar L and at its opposite end against an adjustable collar *m* is a coiled spring M, which serves to normally keep the plate J in its forward position and the transverse keeper in a position to engage the catches *d* upon the cylinder, as will be presently described.

Pivotally connected at *v* to the sides of the longitudinal beams *x*, which support the trough or box E, and at a suitable point with respect to the transverse bar L, are angular levers N, the vertical branches of which are slotted longitudinally to receive the lugs *l* of the bar L, through the medium of which said levers are actuated. The forwardly-extending curved branches of the levers N are connected at their forward ends by a transverse keeper-bar O, which engages the catches *d* upon the cylinder and prevents said cylinder from turning while being filled. This bar O is provided with a depending flange *i*, of a width corresponding to the width of the periphery of the cylinder, against which it rests during the filling of a bin and prevents any grain from escaping, as will be presently described.

Adjustably connected to the bottom of the trough or feed-box E is a transverse plate P, which is provided at its rear transverse edge with an angular portion, as shown, which acts in conjunction with the flange upon the transverse bar O, to prevent an escape of grain during the filling of a measure.

At suitable points in advance and in rear of the lower portion of the cylinder B, we arrange curvilinear shields Q, upon which the grain is dumped from the measures, and it is obvious that if desirable the adjacent lower edges of said shields might discharge into a conveyer or the like. The periphery $C^2$ of the measuring-cylinder B is set at a slight distance within the peripheries of the side walls thereof, and the cylinder is so mounted with respect to the discharge-opening of the feed-trough, as illustrated in Fig. 1, that its periphery will close said opening while the cylinder is revolving, and thus prevent an escape of grain. It is obvious that in practice the pawl *a*, engaging the cam-ratchet D, instead of being mounted on the frame, might be pivotally connected to a branch depending from one of the angular levers N, whereby the said pawl and the transverse keeper-bar O might be simultaneously actuated for the purpose described.

In Fig. 4 of the drawings we have illustrated a slightly modified form of measure, which differs from the form shown in Fig. 1 in that the outer side wall *b* is inclined outwardly from the end wall *a* to the periphery of the cylinder. The measures C′ may be of any suitable specific capacity, and it is obvious that any ordinary or approved tally may be suitably connected with the measure-cylinder to indicate the number of bushels, pecks, &c., measured thereby.

In Fig. 1 of the drawings the parts are illustrated in the position they occupy during the filling of a measure.

In operation grain or the like is fed into the box or trough E and is conveyed by the spiral flanges on the rotatable shaft toward the rear of the box, where it descends through the discharge-opening into the bin in the cylinder, which is held in position by the devices before described. When the bin is full, it will be seen that the grain will clog up the discharge-opening of the trough or box and the grain being continuously fed by the spiral flanges will exert a pressure upon the plate J, and overcoming the spring M will press said plate J back, together with the transverse bar L, the lugs *l* of which, being connected with the upper vertical branches of the levers N, will raise the lower forward portion of said levers and the transverse bar O, and thereby release the catches on the cylinder from engagement, when the cylinder, by reason of the weight of grain in the bin, will revolve and discharge the grain. As soon as the cylinder is released all the parts resume their normal position, and by the revolution of the cylinder the other measure is brought into position to be filled and is locked in such position by the devices described.

Although we have specifically described the construction and arrangement of the several elements of our improved machine, it is obvious that in practice such modifications may be made as fairly fall within the scope of our invention.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an automatic grain-measuring machine, the combination, with a feed box or trough and a rotatable measure-cylinder arranged adjacent to said trough and provided with catches upon its sides at diametrically-opposite points, of the longitudinal rotatable shaft taking through the feed box or trough, spiral flanges fixed upon said shaft within the box or trough, a rectangular plate also mounted upon the shaft in rear of the spiral flanges, the transverse bar connected with the rectangular plate and provided with lateral lugs at its ends, the coiled spring surrounding the shaft and bearing at one end against the transverse bar and at its other end against an adjustable collar, the angular levers pivotally mounted upon the frame and having their vertical branches slotted to receive the lugs of the transverse bar, and the transverse bar or rod connecting the forward ends of the angular levers and adapted to engage the catches upon the cylinder, substantially as and for the purpose described.

2. In a machine for automatically measuring grain, the combination, with a feed box or trough and a rotatable measuring-cylinder arranged adjacent to said trough and provided with catches upon its sides at diametrically-opposite points, of the longitudinal rotatable shaft taking through the feed box or trough, the spiral flange fixed on said shaft within the box or trough, the plate mounted upon the shaft in rear of the spiral flange and backed by a spring, and suitable devices intermediate of the plate and the measure-cylinder adapted to release said cylinder and allow the same to revolve when the plate has been pressed back, substantially as specified.

3. In a measuring-cylinder for grain-measuring machines, the combination, with a diametrical partition-wall, of the measures formed on each side of said partition-wall, the end walls of the respective measures extending at right angles from the partition-wall in opposite directions on each side of the pivotal point of the cylinder, and the outer walls of said measures extending from the outer edge of the end walls to the periphery of the cylinder, substantially as and for the purpose described.

4. In a grain-measuring machine, a measuring-cylinder comprising a diametrical partition-wall, the measures formed on each side of said wall and extending from opposite sides of the pivotal point of the cylinder to diametrically opposite points of the periphery thereof, and the said periphery extending between the mouths of the respective measures and set within the periphery of the side walls of the cylinder, substantially as and for the purpose specified.

5. In a grain-measuring machine, the combination, with a feed-trough, substantially as described, having a transverse discharge-opening in its bottom, of a revolving cylinder comprising the side walls, the measures, and the periphery between the mouths of the measures set within the periphery of the side walls, the said cylinder being so mounted with respect to the discharge-opening of the trough that its periphery will close said opening during the revolution of the cylinder, substantially as specified.

6. In a grain-measuring machine, the combination, with a feed-trough and a revolving cylinder arranged adjacent thereto and provided with measures and catches arranged with respect to said measures, of angular levers pivotally connected to the sides of the feed-trough, a transverse bar connecting the ends of the depending branches of said levers and adapted to engage the catches upon the cylinder, and a transverse bar connecting the upright branches of said angular levers and adapted to be actuated through the medium of intermediate devices by the grain in the feed-trough, substantially as and for the purpose described.

7. In an automatic grain-measuring machine, the combination, with a feed box or trough and a revolving measuring-cylinder arranged adjacent thereto, of the longitudinal rotatable shaft taking through the feed-trough, spiral flanges fixed on said shaft, the plate mounted on the shaft, the sleeve attached to said plate and back by a spring, and the transverse bar connected to the sleeves and having its ends bent and provided with lugs and suitable devices intermediate of the transverse bar and the measuring-cylinder adapted to hold said cylinder while being filled and to automatically release the same, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK M. SOMMER.
ROBERT A. McGIRR.

Witnesses:
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JOHN R. WALLACE.