No. 625,940. Patented May 30, 1899.

G. SCHOBERT.

GRAIN MEASURING DEVICE.

(Application filed Mar. 13, 1899.)

(No Model.) 2 Sheets—Sheet 1.

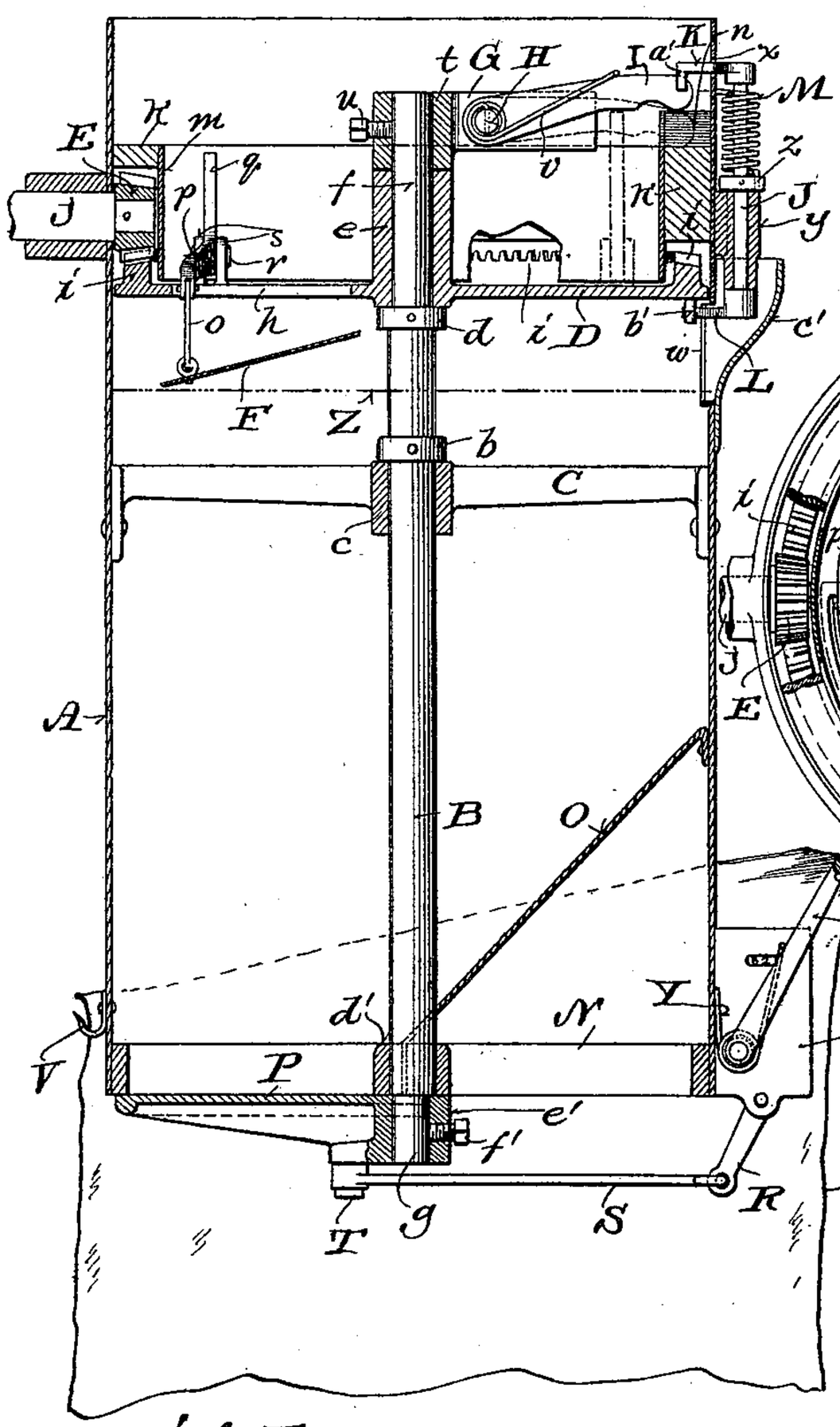


Fig. 1.

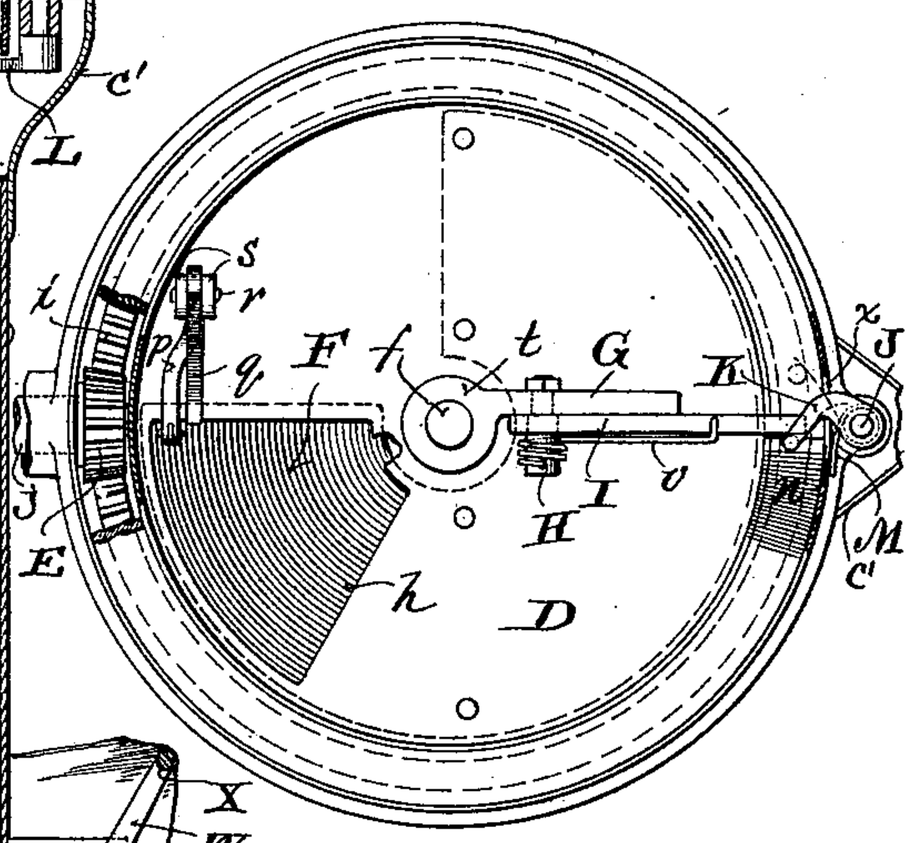


Fig. 3.

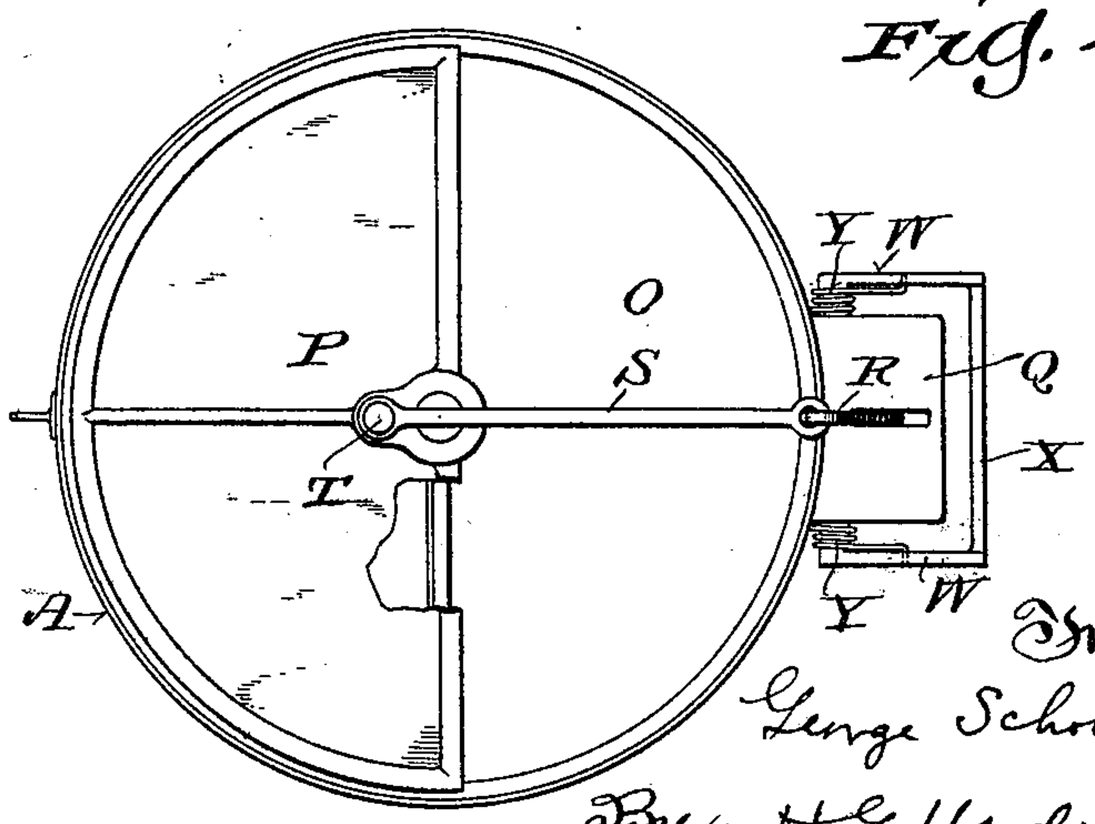


Fig. 2.

Witnesses:
Geo. W. Young.
B. C. Ridgely.

Inventor
George Schobert
By H. G. Underwood
Attorney

No. 625,940. Patented May 30, 1899.

G. SCHOBERT.

GRAIN MEASURING DEVICE.

(Application filed Mar. 13, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

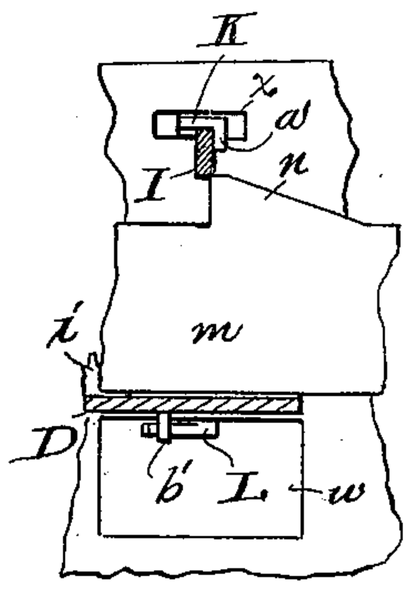


Fig. 6.

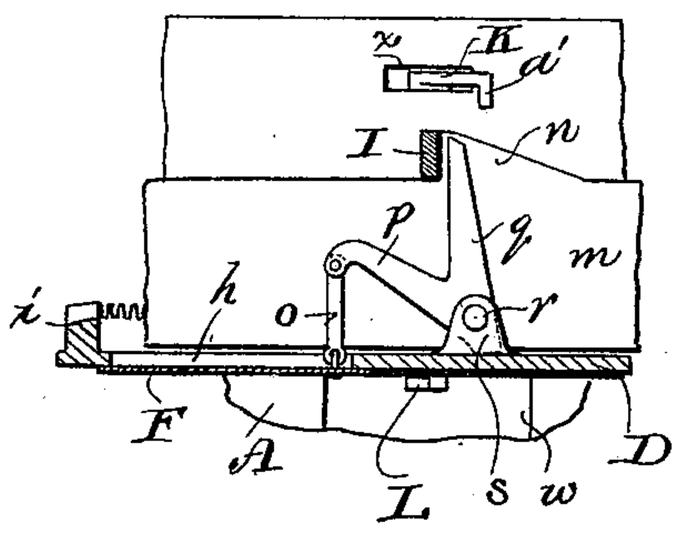


Fig. 4.

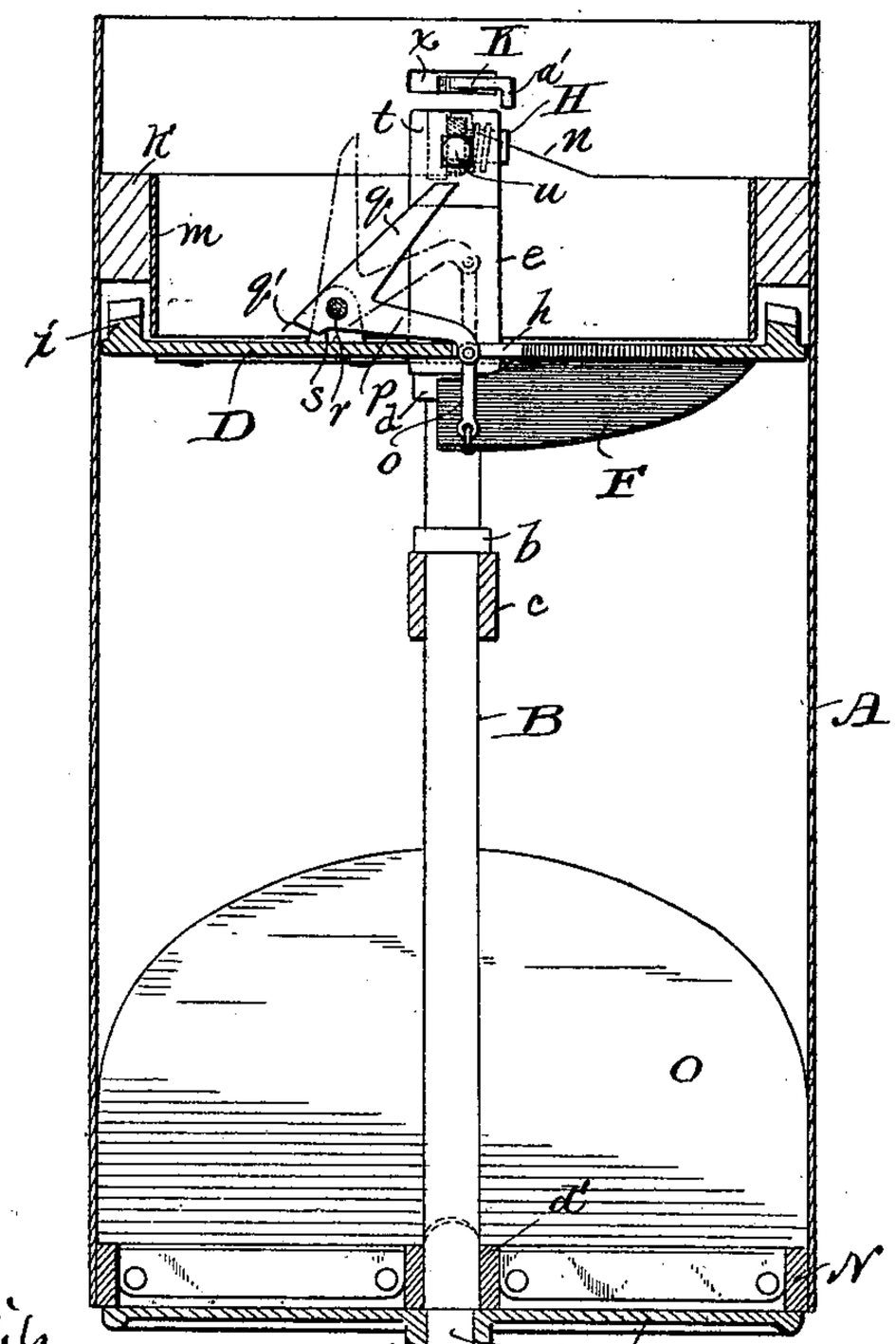
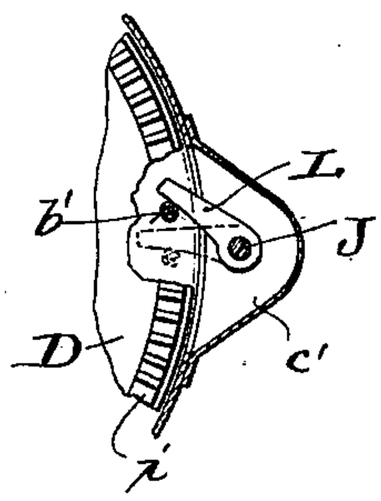


Fig. 7.



Witnesses:
Geo. W. Young.
B. C. Roloff.

Inventor
George Schobert
By H. G. Underwood
Attorney

UNITED STATES PATENT OFFICE.

GEORGE SCHOBERT, OF RACINE, WISCONSIN.

GRAIN-MEASURING DEVICE.

SPECIFICATION forming part of Letters Patent No. 625,940, dated May 30, 1899.

Application filed March 13, 1899. Serial No. 708,839. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SCHOBERT, a citizen of the United States, and a resident of Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Grain-Measuring Devices; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to devices for measuring grain as it is transferred from a place of storage in bulk to bags or other suitable receptacles; and it consists in certain peculiarities of construction and combination of parts, as will be fully set forth hereinafter and subsequently claimed.

In the drawings, Figure 1 is a central vertical sectional view of my improved device. Fig. 2 is a bottom plan view. Fig. 3 is a plan view, partly in section. Fig. 4 is a central vertical sectional view taken at right angles to the view shown in Fig. 1. Figs. 5, 6, and 7 are detail partly-sectional views illustrating the construction and operation of my device.

Referring to the drawings, A represents the outer cylindrical casing of my device.

B is a central vertical shaft normally stationary, but capable of being revolved at the proper time.

C is a brace extending across the interior of the casing and having a central vertical hub or bearing *c* for the shaft B, which latter is provided with a collar *b*, resting on the hub *c*. At a point some little distance above the collar *b* the said shaft B is provided with another collar *d*, which serves as a support for the central vertical sleeve or hub *e* of a revoluble disk D, the upper part *f* of said shaft B extending up through and above the said sleeve or hub *e*, the said upper part of the shaft B being preferably of a less diameter than that of the main portion thereof and the lower end *g* of the said shaft B being likewise preferably of a reduced diameter. The disk D has an opening therethrough of a substantially sector shape, but not extending quite to its center or circumference, and an upward-extending annular toothed flange or circumferential rack *i* for engagement with a pinion E on the inner end of a horizontal shaft *j*, which projects through the casing A, this rack *i* being concealed and protected by a ring *k*, provided with an annular vertical band *m*, the said ring rising to form an inclined guide *n* at one point for a purpose to be presently described.

F is a closing-plate preferably formed of a sheet of spring metal, such as sheet-brass, secured to the under side of the disk D and projecting downward and outward below the described opening *h*, the lowest point of this suspended plate being connected by a link *o* to an arm *p* of a driving-dog *q*, having a pivotal bearing, as shown at *r*, between ears *s s*, rising from the disk D, adjacent to the opening *h*, said dog *q* having a squared lower end *q'*.

G is an arm whose inner end is rigidly secured to the upper end *f* of the shaft B in any suitable manner, as by making said inner end in the form of a sleeve *t*, surrounding the said shaft above the sleeve *e* and secured to the shaft by a set-bolt *u*, as shown.

H is a pin or bolt projecting from the arm G, and I is another arm pivotally mounted on the said pin or bolt H and projecting over the described ring *k*, the free end of the arm I being kept in contact with said ring by means of a spring *v*, one end of which is secured to the said pin or bolt H and the other end of which bears down on the said arm I.

The casing A is provided with a slot *w* just below the plane of the disk D and with another slot *x*, in line therewith, above the plane of the ring *k* and with an external bearing *y* intermediate of said slots, said bearing having a vertical bore therethrough for the reception of a vertical tripping-shaft J, to which is secured a collar *z*, resting on top of the bearing *y*. To the upper end of the shaft J there is rigidly secured an arm K, projecting inwardly through the slot *x* in the casing A and terminating in a downward-extending pin *a'* for engagement at the proper time with the end of the arm I, and to the lower end of said shaft J there is rigidly secured an arm L, projecting inwardly through the slot *w* of the casing A for engagement at the proper time with a pin *b'*, which projects downwardly from the under side of the disk D.

M is a spring surrounding the shaft J, one end of the spring being secured to said shaft and the other end bearing against the outer side of the casing A. As the slot *w* is below the plane of the disk D, it is protected by a

casing c', and the upper slot x and shaft J may be similarly protected, if desired.

N is a brace extending across the lower end of the cylindrical casing A and having a central vertical hub or bearing d' for the shaft B.

O is an inclined inner floor extending down to the bottom of the casing, and thus covering one-half of the bottom and forming a chute or guide for the contents.

P is a half-floor having a hub or vertical bearing e', which receives the lower end g of the shaft B, to which it is rigidly secured, as by the set-bolt f'.

Q represents the casing of a register, of any preferred construction, (and whose mechanism forms no part of my present invention,) said register being connected by means of an arm R and links S to a crank-pin T, projecting from the under side of the half-floor P, so that each revolution of said half-floor may actuate the said register. The casing A is intended to be properly suspended, so that its lower end may be encircled by the mouth of a bag or sack U, said bag being held by a hook V, while arms W W are pivotally secured to the register-casing Q, said arms being united by a cross-bar X, and springs Y Y are applied, as shown in Figs. 1 and 2, to press said arms outwardly, and thus take up the slack of and firmly support the said bag or sack while it is being filled.

The operation of my device will be understood from the foregoing description of its construction taken in connection with the accompanying drawings. The cubic space inside the casing above the half-floor P and inclined floor O and below the disk D is equal to some standard unit of measurement or a multiple thereof, as may be preferred in any given instance. The casing A is properly supported and power is applied to the shaft j, which, through pinion E, meshing with the circumferential rack i on the disk D, revolves the latter while grain is entering the casing A through the open top thereof and passing through the opening h in the disk D into the interior, the half-floor P being closed and the shaft B stationary. As the disk D revolves it carries the driving-dog q around with it, said dog q passing under the arms G I until the grain within the casing A rises above the dotted line Z. (Shown in Fig. 1.) When this occurs, the rising grain begins to elevate the suspended plate F, and when said plate is fully raised, so as to close the opening h in the disk, the dog q is raised by means of said plate F and link o and arm p from the position shown in full lines in Fig. 4 to the position shown in dotted lines in said figure and shown in full lines in Fig. 6. The normal position of the arm I when the half-floor P is closed is that shown in Figs. 3 and 6—that is, resting on the ring k just beyond the end of the rise or incline n—and as the dog q reaches this point after it has been raised by the closing of the plate F the said dog engages with the arm I, and as the lower end q' of the dog q now rests firmly and squarely upon the disk D the said dog begins to drive the said arm I around the ring k, and thus, through the arm G, revolves the shaft B, (which until now was stationary,) thereby opening the half-floor P, rigidly secured to the lower end of said shaft B, as described, and allowing the grain in the casing to flow out in the receptacle beneath. The grain is emptied at a half-revolution of the shaft; but as the end of the arm I remains on the ring k, with the dog q against and driving said arm, the said dog cannot drop down to its former position, and hence the plate F must remain closed until said dog begins to force the arm I up the incline n, leaving it at the highest point thereof, when the dog q passes under it, and then the pin b' on the under side of the disk D engages the lower arm L of the tripping-shaft J, and this causes the pin a' on the upper arm K of said shaft J to engage with the said arm I and drive it beyond the end of the incline n, as indicated in Fig. 5, when the spring v will force the arm I down to its normal position, (shown in Fig. 6,) while the spring M will perform the like service to shaft J and force its arms K L back to their former positions, as also shown in said Fig. 6, the revolution of the shaft B having meanwhile been completed and the opening in the bottom of the casing having been again closed by the half-floor P and the plate F having dropped down when the dog q was released from contact with the arm I, so that now the casing A is again being filled with grain, the revolution of the shaft B, just described, having actuated the register Q, so as to indicate the passage of the amount of grain sufficient to once fill the casing. Of course in place of the bag or sack shown there may be any other receptacle or conveyer for the grain as measured and emptied from the casing, that being an immaterial detail.

In its preferred form the plate F projects downwardly like a spiral blade, as I find this will better distribute the grain within the casing, so that as the grain rises it will close the said plate F evenly.

While especially designed for grain, it will be understood that my device will measure any granular substance equally as well.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a grain-measuring device, the combination of a cylindrical casing, with a normally stationary but movable central vertical shaft; a disk closing the top of the casing but provided with a feed-opening, said disk being supported by said shaft but free to rotate thereon; means for rotating said disk while said vertical shaft remains stationary; and a movable distributing-plate suspended beneath said opening and adapted to be raised up by the contact and pressure of the grain beneath it and thereby close the said feed-opening.

2. In a grain-measuring device, the combi-

nation of a cylindrical casing, with a normally stationary but movable central vertical shaft; a disk closing the top of the casing but provided with a feed-opening, said disk being supported by said shaft but free to rotate thereon; means for rotating said disk while said vertical shaft remains stationary; and a movable distributing-plate suspended from said disk beneath said opening, and having a downward and outward projection like a spiral blade, whereby the grain as it falls on said plate is evenly distributed in the casing, and which grain as it rises bears against the under side of said plate and thereby closes the said feed-opening.

3. In a grain-measuring device, the combination of a cylindrical casing, with a normally stationary but movable central vertical shaft, a revoluble disk closing the top of the casing but provided with a feed-opening, said disk being supported by said shaft free to rotate thereon; a half-floor secured to the lower end of said shaft to close said casing when the shaft is stationary; a transverse arm connected to the upper end of said shaft; a closing-plate suspended beneath the disk-opening and adapted to be raised by the contact and pressure of the grain beneath it; and means actuated by the closing of said plate for engaging with said transverse arm, in the continued revolution of the disk, and thereby revolving the said shaft, and opening the half-floor to empty the casing.

4. In a grain-measuring device, the combination of a cylindrical casing; a central vertical shaft; a half-floor secured to the lower end of said shaft; a revoluble disk, supported by said shaft but free to rotate thereon, said disk closing the casing but having an opening communicating therewith; a closing-plate suspended from said disk beneath said opening, and adapted to be closed by the contact and pressure of the grain beneath; an arm extending transversely from the upper part of the said shaft; and a driving-dog pivotally supported on said disk, and connected to said closing-plate, said dog being adapted to move under said transverse arm when the closing-plate is open, but to be raised by the closing of said plate so as to engage with the said arm when the plate is closed and thereby revolve the said shaft and open the half-floor to empty the casing.

5. In a grain-measuring device, the combination of a cylindrical casing; a central vertical shaft; a stationary inclined half-floor, secured to said casing, and a movable half-floor rigidly secured to the lower end of said shaft; a revoluble disk supported by said shaft but free to rotate thereon, said disk closing the casing but having an opening communicating therewith; a circumferential rack rigid with the disk, and a pin on the under side of said disk; a pinion on a horizontal shaft, in engagement with said rack; an annular ring above said rack, having a raised incline at one point; a vertically-yielding spring-controlled transverse arm connected to the upper end of said vertical shaft and having its free end resting on said annular ring; an external tripping-shaft having upper and lower arms projecting through slots in said casing, for engagement with the transverse arm, and disk-pin, respectively; a closing-plate suspended from said disk, beneath the opening therein; and a driving-dog pivotally supported on said disk, and connected with said closing-plate, whereby when the latter is closed the said dog will be raised into position to engage with said transverse arm, and thereby rotate the vertical shaft as the disk is revolved.

In testimony that I claim the foregoing I have hereunto set my hand, at Racine, in the county of Racine and State of Wisconsin, in the presence of two witnesses.

GEORGE SCHOBERT.

Witnesses:

CHARLES SCHNEIDER,

GUSTAV GORITZ.