

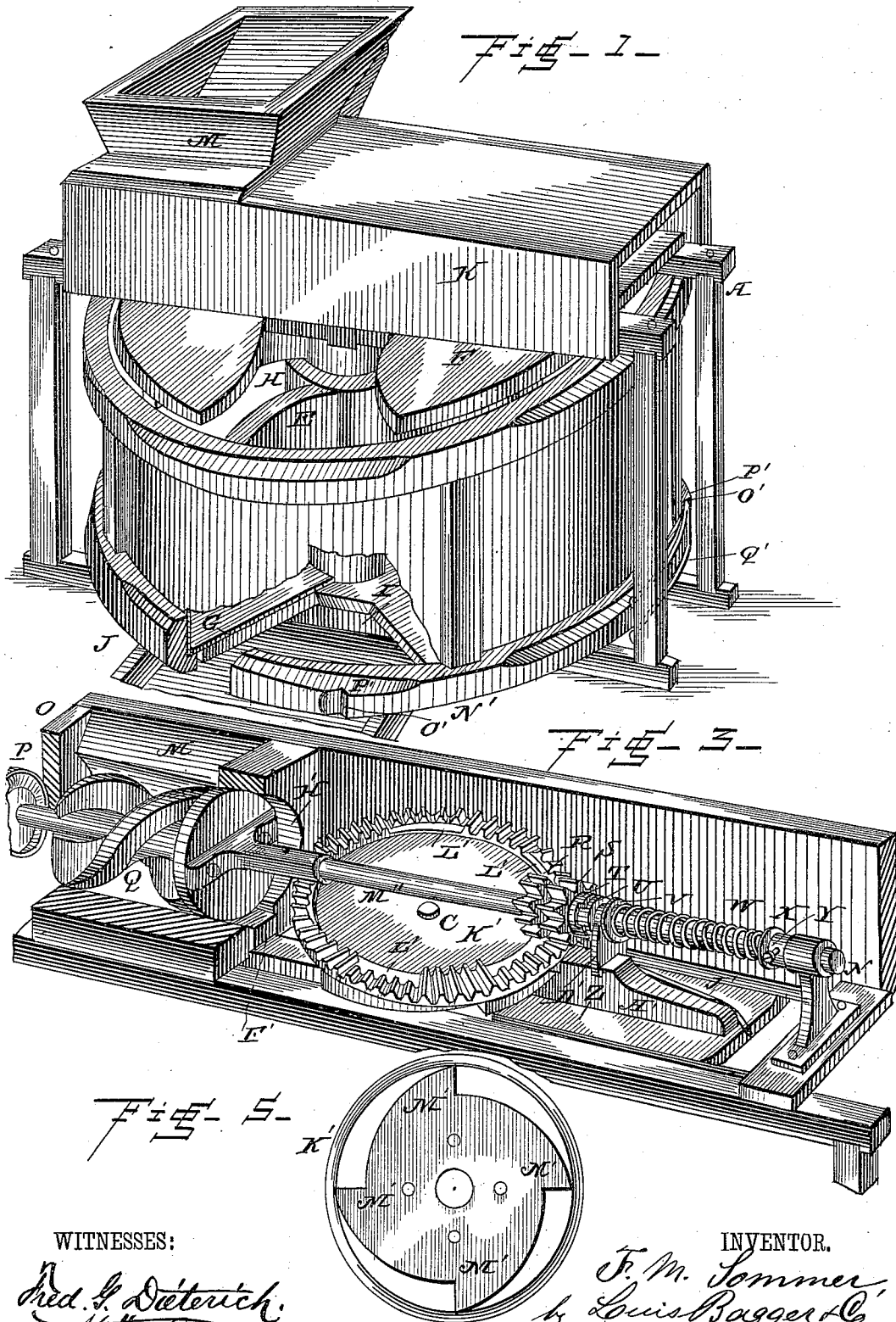
(No Model.)

2 Sheets—Sheet 1.

F. M. SOMMER.
AUTOMATIC GRAIN MEASURE.

No. 308,001.

Patented Nov. 11, 1884.



WITNESSES:

Ned. S. Dieterich
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INVENTOR.

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ATTORNEYS.

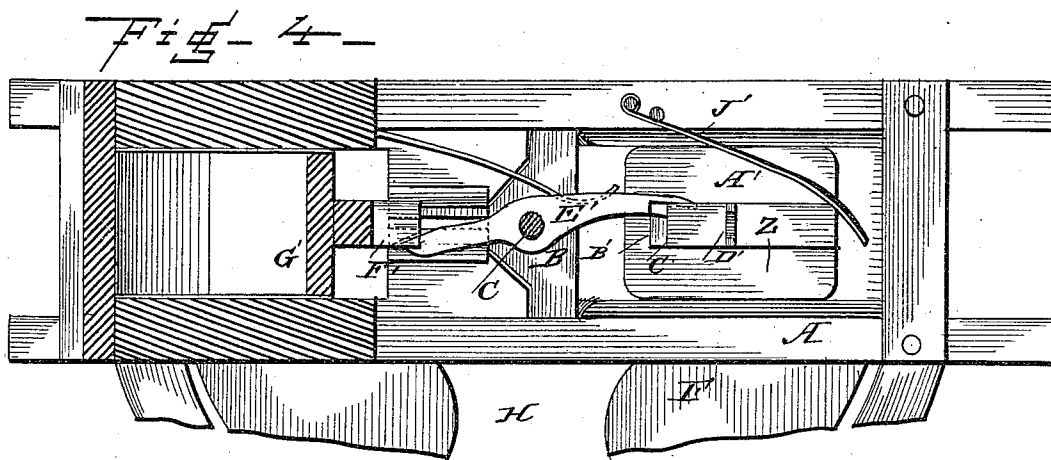
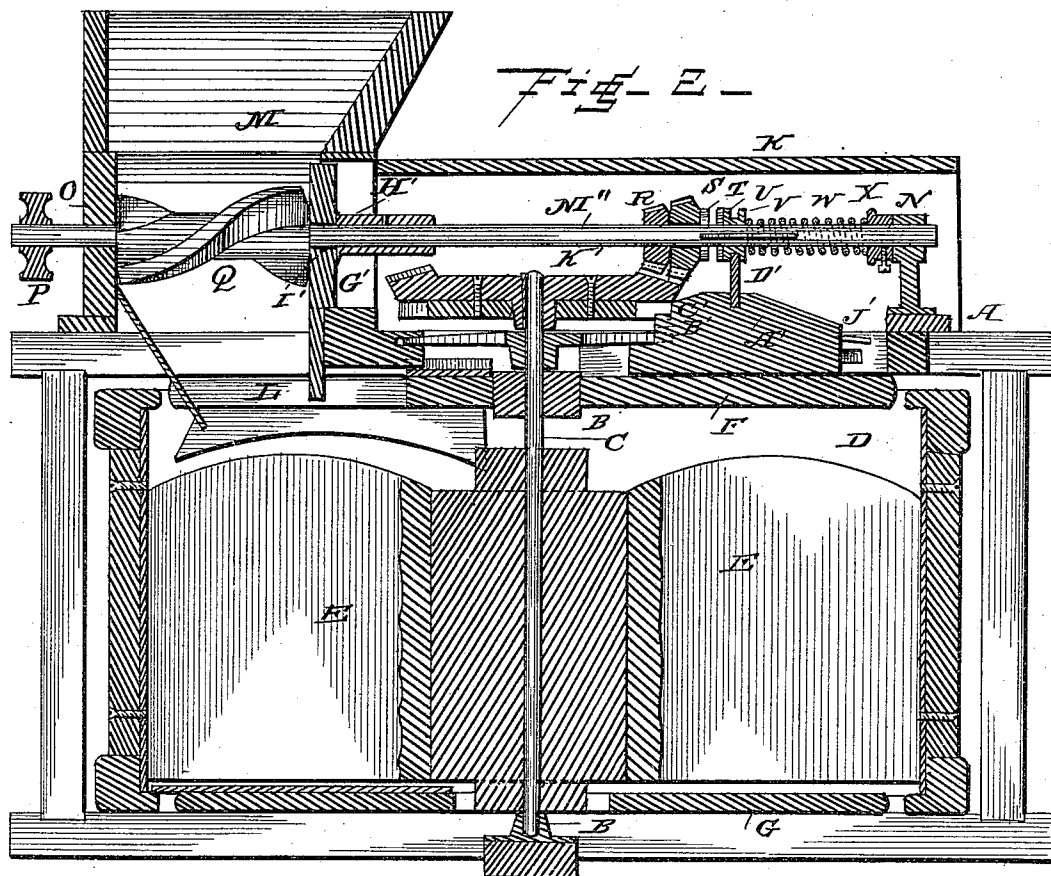
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UNITED STATES PATENT OFFICE.

FRANK M. SOMMER, OF PHILO, ILLINOIS.

AUTOMATIC GRAIN-MEASURE.

SPECIFICATION forming part of Letters Patent No. 308,001, dated November 11, 1884.

Application filed June 23, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. SOMMER, a citizen of the United States, and a resident of Philo, in the county of Champaign and State of Illinois, have invented certain new and useful Improvements in Automatic Grain-Measures; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved automatic grain-measure. Fig. 2 is a vertical section of the same. Fig. 3 is a perspective detail view of the operating mechanism, showing portions of the frame broken away. Fig. 4 is a top view of a portion of the operating mechanism with the drive-shaft and the large beveled wheel removed, and Fig. 5 is a view from the under side of the beveled wheel.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to automatic grain-measuring devices; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates an upright low rectangular frame, which forms bearings B B in its upper and lower side pieces, in which bearings the central shaft, C, of the cylindrical measuring-vessel D turns, which vessel is open at its top and bottom and has a number of partitions, E, which divide the vessel into equal compartments, and the top and bottom of the open measuring-vessel are covered by two circular top and bottom plates, F and G, secured to the upper and lower side pieces of the frame, and which top and bottom plates have each a sector-shaped aperture, H and I, not registering with each other, the lower one, I, of which apertures opens into the discharge chute or spout J. A rectangular casing, K, is secured upon the upper side piece of the frame, at one end of the same, and surrounds an aperture, L, in the top plate, and a hopper, M, is secured to the top of this casing, into which hopper the grain

passes from the elevator or discharge spout of the thrashing-machine, elevator, or other machine or building to which it may be attached. A horizontal shaft, M', is journaled in a bearing, N, in the outer end of the casing K, and in a bearing, O, upon the other end of the top piece of the rectangular frame, and is provided at one end with a pulley, P, by which pulley the shaft may be rotated by means of a belt passing over a pulley connected with the machinery of the elevator, thrashing-machine, or with other suitable machinery, and the portion of the shaft which revolves within the rectangular casing K is provided with a spirally-flanged sleeve, Q. A pinion, R, is secured upon the shaft near its middle, and a loose pinion, S, turns freely upon the shaft immediately behind the rigid pinion, and is provided upon its outer face with a half-clutch, T, which may engage a half-clutch, U upon one end of a grooved sleeve, V, which revolves with and slides upon the shaft, bearing with its outer end against one end of a spiral spring, W, wrapped around the shaft, and bearing with its other end against a sleeve, X, secured adjustably by means of a set-screw, Y, upon the shaft. A slide, Z, slides in ways in the upper side piece of the frame, and has a rib, A', upon its upper side, the inner end of which forms two steps or shoulders, B' C', and which is provided with an upwardly-projecting bifurcated lip, D', which engages the groove in the sleeve sliding upon the horizontal shaft, and a lever or trigger, E', is pivoted upon the vertical shaft of the measuring-vessel above the top plate, adapted to bear with one end against the lower step of the rib, and bearing with the side of its other end, which side is cut off obliquely, against the oblique side of a slide, F', sliding parallel with the horizontal shaft below the same in ways in the top piece of the frame, and provided with an upwardly-projecting plate, G', fitting in an aperture, H', in the inner side of the rectangular casing K, and having a perforation, I', through which the horizontal shaft passes. A spring, J', is secured with its inner end to one side of the top piece of the frame, and bears with its free end against the outer end of the rib upon the slide Z, forcing it inward. A beveled crown-wheel, K', is secured upon the upper end of the vertical

shaft of the measuring-vessel, and has the inner halves of its teeth or cogs cut away at intervals, forming spaces L', corresponding to the compartments in the measuring-vessel and registering with them, the outer halves of the cogs meshing with the loose pinion, and the inner halves meshing with the rigid pinion; and the under side of this crown-wheel is provided with a number of ratchet-teeth, M', registering with the compartments of the measuring-vessels, and having their shoulders registering with the partitions in the same, the said ratchet-teeth bearing against the upper step upon the inner end of the rib upon slide Z. The ring N', surrounding the lower end of the measuring-vessel, has a number of notches, O', registering with the compartments of the measuring-vessel, and forming shoulders P', facing from the direction in which the vessel revolves, and the said notches are engaged by a spring-bail, Q', secured to one end of the frame, which prevents the vessel from being revolved in the wrong direction.

When the device is to be used, the hopper is placed under the discharge-spout of the thrashing-machine, grain-elevator, or whatever machine or receptacle from which the grain passes, and the pulley upon the end of the horizontal shaft is connected by a belt either to the machinery of the thrashing-machine or elevator, or to any other continually-operating motor, and the spirally-flanged sleeve will serve to distribute the grain evenly in the bottom of the hopper, feeding it into the compartment, which is under the opening in the rectangular casing, and it will be seen that the spiral flange will force the grain against the sliding perforated plate in the side of the casing when the compartment is full, which again will force the plate inward, causing it to bear with the oblique side of its slide against the oblique side of the trigger, which will release the shoulder of the rib upon the slide, allowing the slide to be forced inward, which will draw the clutch-sleeve inward, causing it to engage the half-clutch of the loose pinion, which, when revolved with the shaft, will revolve the crown-wheel, the rigid pinion fitting in one of the blank spaces, until it arrives to the portion where the teeth or cogs are of their full length. When the pinion arrives to the place where the cogs are cut off, the ratchet-tooth upon the under side of the crown-wheel will force the slide back, bearing against the shoulder of its rib, which will force the clutch-sleeve out of engagement with the loose pinion, when the horizontal shaft may again revolve, without revolving the crown-wheel, until the compartment which was brought under the aperture of the rectangular casing is full, when the grain will again throw the clutch into engagement with the pinion, causing the crown-wheel and the measuring-vessel to revolve until another compartment is brought under the hopper and casing, the full compartments being emptied out through the aperture and spout in the bottom plate.

Any suitable registering device may be connected to the device which will register the number of compartments filled, the capacity of which compartments is preferably a known and used quantity—as, for instance, one bushel, or one-half of a bushel, or other known or used measure.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of a revolving measuring-vessel divided into compartments, a crown-wheel secured upon the shaft of the vessel, and having the inner halves of its cogs cut away to form spaces registering with the compartments, a shaft journaled at right angles to the shaft of the measuring-vessel, and having means for revolving it, a pinion secured upon the said shaft registering with and meshing with the inner halves of the cogs and blank spaces of the crown-wheel, a pinion turning loose upon the shaft, and means, substantially as described, for revolving the loose pinion with the shaft when a compartment is full, as and for the purpose shown and set forth.

2. The combination of a revolving measuring-vessel divided into compartments, a crown-wheel secured upon the shaft of the vessel, and having the inner halves of its cogs cut away to form spaces registering with the compartments, a shaft journaled at right angles to the shaft of the measuring-vessel, and having means for revolving it, a pinion secured upon the shaft and meshing with the inner halves of the cogs and blank spaces of the crown-wheel, a pinion meshing with the outer halves of the cogs of the crown-wheel, turning freely upon the shaft, and having a half-clutch upon its outer face, a sleeve sliding upon and turning with the shaft, and having a half-clutch upon its inner end, and means for forcing the said sleeve toward the clutch of the pinion when a compartment is full, and for drawing it back when another compartment has been presented, as and for the purpose shown and set forth.

3. The combination of a frame having circular top and bottom plate, respectively provided with an inlet and an outlet opening not registering with each other, a cylindrical revolving measuring-vessel divided by radial partitions into equal compartments, a rectangular casing and a hopper secured over the inlet-opening in the top plate, a drive-shaft journaled longitudinally in the said rectangular casing, and provided with a spirally-flanged sleeve, a plate sliding upon the said shaft in one end of the rectangular casing, and means, substantially as described, for revolving the measuring-vessel to the extent of one compartment when the sliding plate is forced outward from the casing, as and for the purpose shown and set forth.

4. The combination of a measuring-vessel journaled to revolve in a horizontal plane and divided into equal compartments, a rectangular casing and a hopper secured above the

measuring-vessel, a shaft journaled to pass longitudinally through the rectangular casing and diametrically across the top of the measuring-vessel, a crown-wheel secured upon the upper end of the axle or shaft of the measuring-vessel, provided upon its upper side with cogs having the inner halves cut away at intervals registering with the compartments in the measuring-vessel, and provided upon its under side with ratchet-teeth registering with the said compartments, a pinion secured rigidly upon the horizontal shaft, and registering and meshing with the inner halves of the cogs and with the spaces, a loose pinion turning upon the shaft outside of the fast pinion, and provided with a half-clutch upon its outer side, a grooved sleeve sliding upon the shaft, and having a half-clutch upon its inner end engaging the clutch of the pinion, a spring wrapped around the shaft bearing against the sleeve and against an adjustable sleeve upon

the shaft, a slide having an upright perforated plate sliding upon the shaft in the inner end of the rectangular casing, sliding in ways diametrical to the measuring-vessel, and having its inner end cut off oblique, a trigger pivoted upon the shaft of the measuring-vessel, having one oblique end bearing against the oblique end of the slide, and a slide provided with a longitudinal rib formed with two steps upon its inner end, provided with an upright bifurcated plate or lip engaging the grooved sleeve, and sliding in ways diametrical to the measuring-vessel, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

FRANK M. SOMMER.

Witnesses:

PHILIP JAMES,
MICHAEL DILLON.