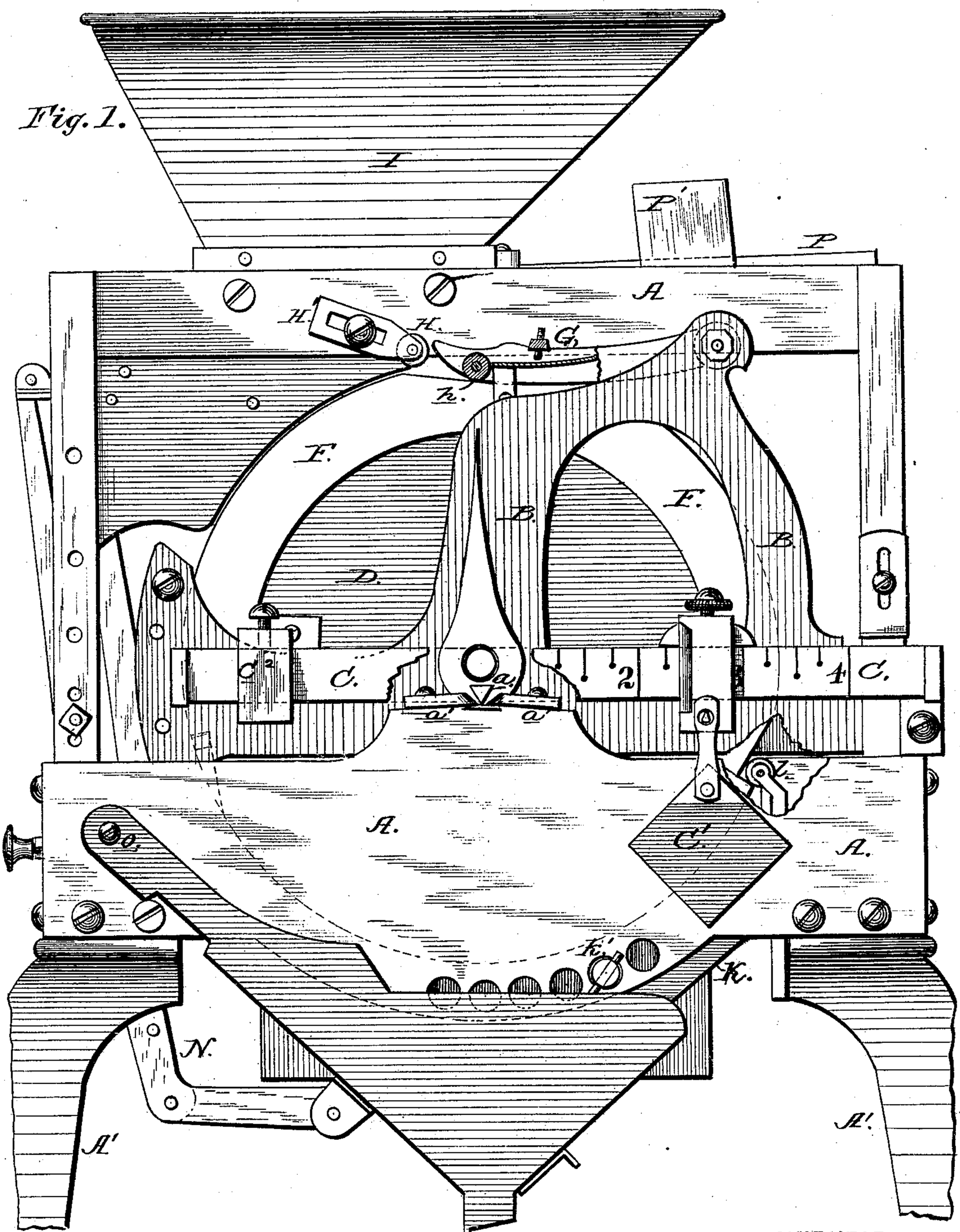
(No Model.) 4 Sheets—Sheet 1.

A. GLEASON.

ROTARY GRAIN METER.

No. 246,750. Patented Sept. 6, 1881.

Fig. 1.



WITNESSES

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(No Model.)

4 Sheets—Sheet 2.

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ROTARY GRAIN METER.

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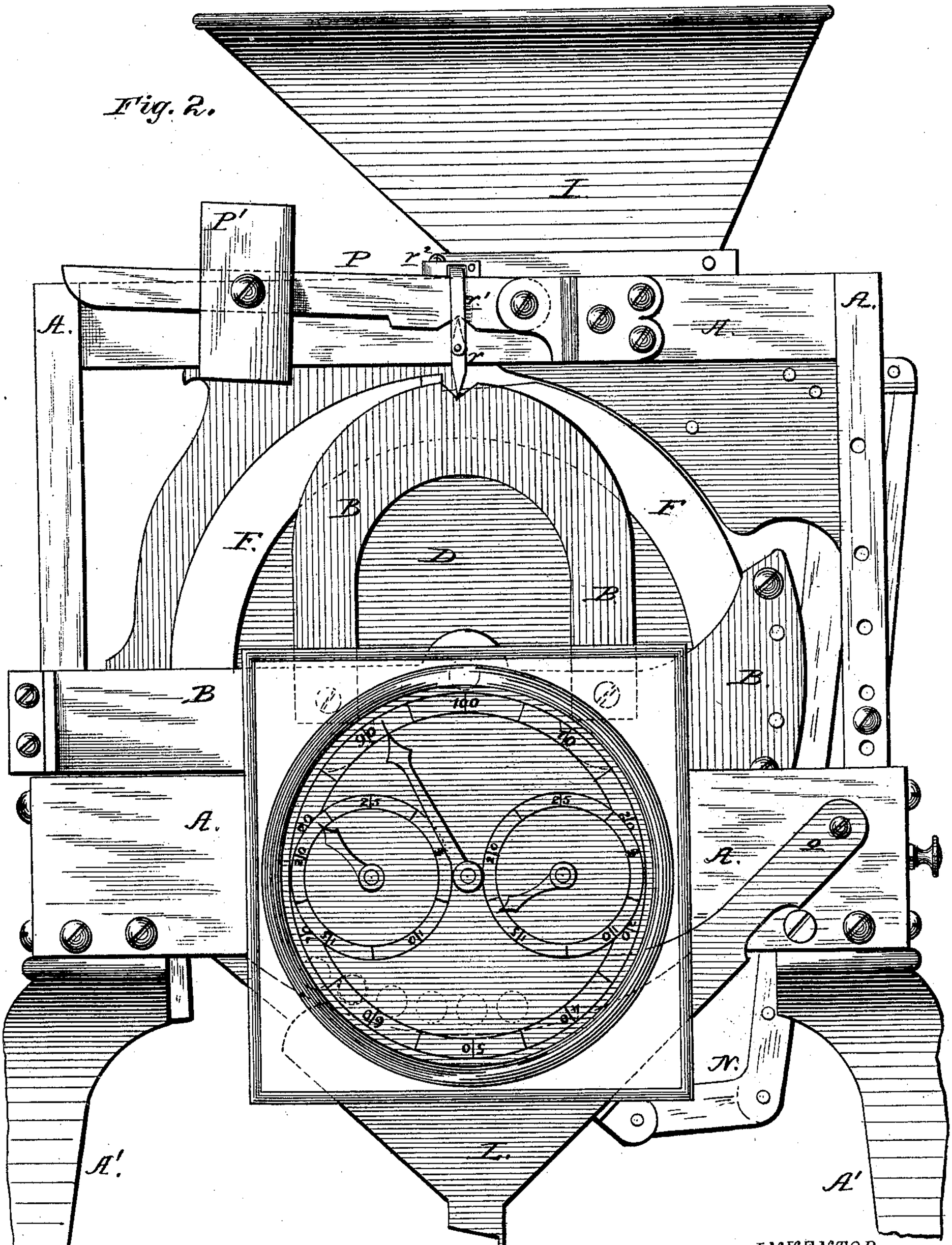
Fig. 2.



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ROTARY GRAIN METER.

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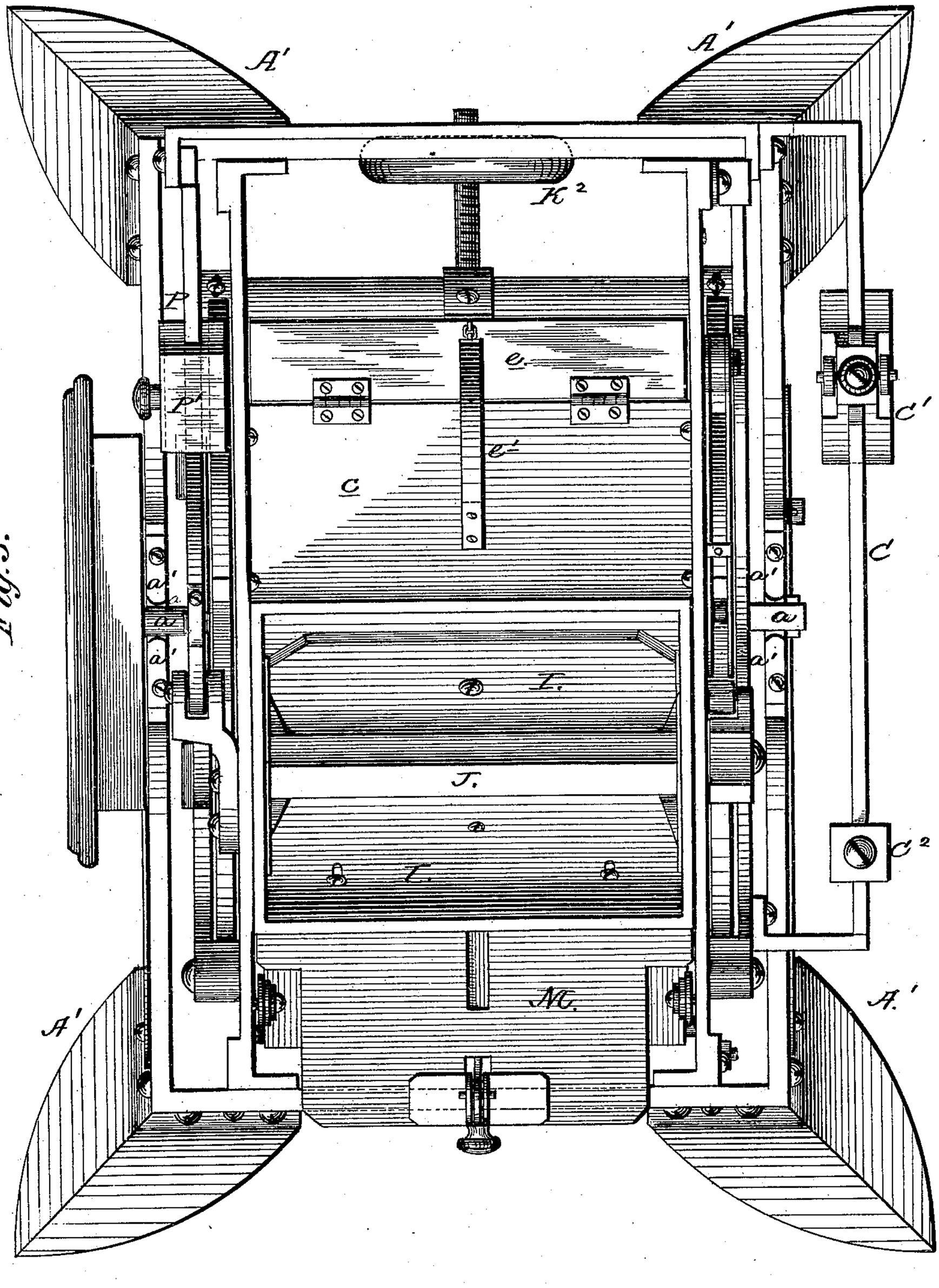

Fig. 3.

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(No Model.) 4 Sheets—Sheet 4.

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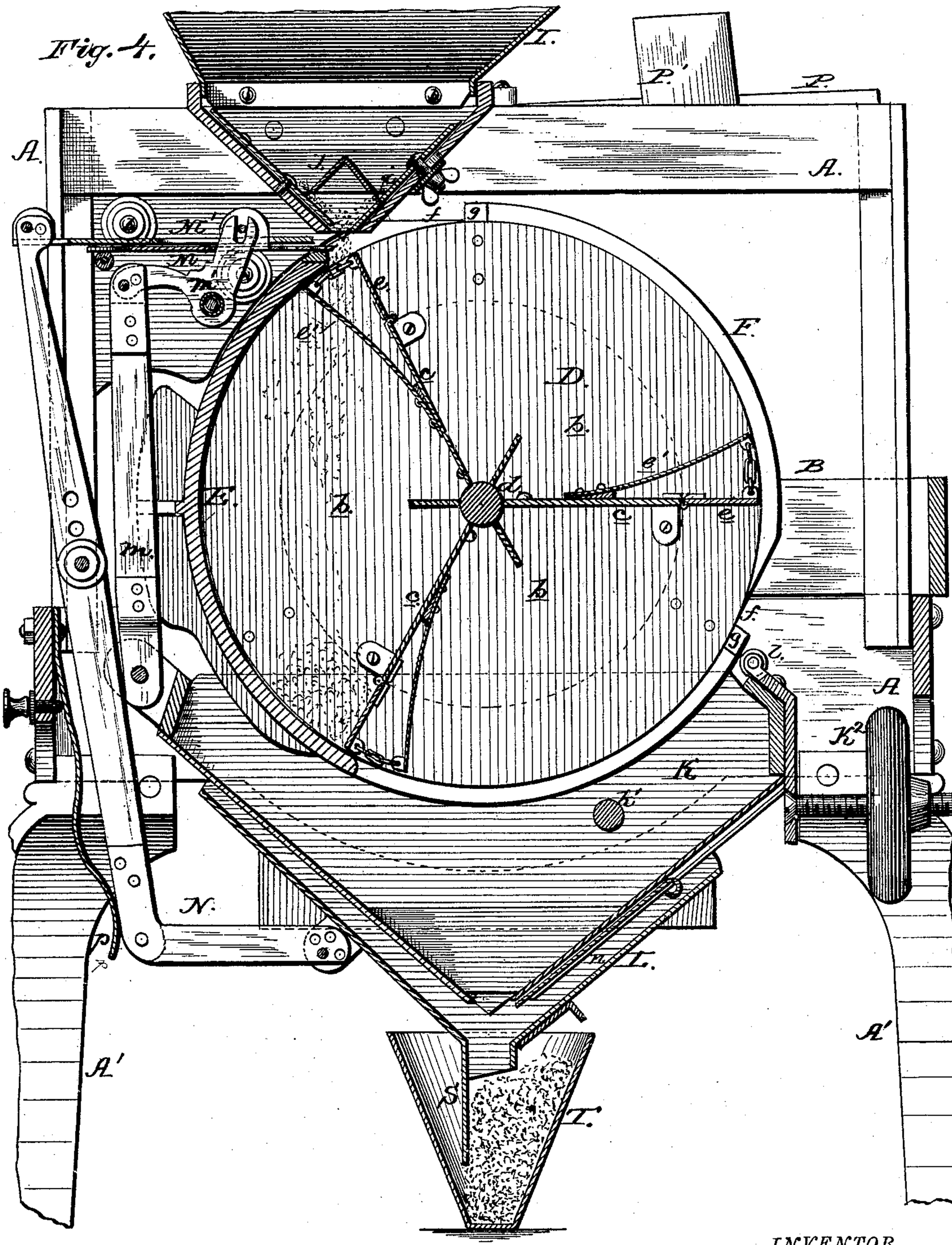
ROTARY GRAIN METER.

No. 246,750. Patented Sept. 6, 1881.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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ROTARY GRAIN-METER.

SPECIFICATION forming part of Letters Patent No. 246,750, dated September 6, 1881.

Application filed March 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER GLEASON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Grain-Meters; and I do hereby 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, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification,

My invention relates to improvements in grain-meters wherein the grain is automatically weighed and registered; and it consists of a cylindrical bucket-wheel divided into three equal divisions by means of radial partitions, terminating with narrow end wings hinged thereto, said wheel being journaled in the frame which carries the scale-beam, which, in its turn, is pivoted upon the main frame of the machine by knife-edge pivots, one on each side, at or near the center of the main frame, and upon which the scale-beam balances.

It also consists of a feeding device at the top of the machine, whereby the weight of the column of descending grain is prevented from bearing down upon the grain in the buckets or divisions.

It also consists of an automatic cut-off, whereby the supply of grain is cut off at the top of the machine when it is being discharged too freely at the bottom, and of an automatic partial cut-off to regulate and control the flow of the grain when the bucket is nearly filled.

It further consists of other details of construction and general arrangement of parts, all as will be hereinafter more fully described, and pointed out in the claims.

In the drawings, Figure 1 represents a rear elevation of a grain-meter embodying my invention; Fig. 2, a front elevation of the same; Fig. 3, a top-plan view, and Fig. 4 a vertical longitudinal section thereof.

Similar letters of reference occurring on the several figures indicate corresponding parts.

Referring to the drawings, A represents the main frame of the machine, which is supported on four legs, A′, as shown in Fig. 3.

B represents the frame carrying the scale-beam C, said frame being pivoted at or about the center of the main frame A by knife-edge or triangular-shaped pivots *a*, one on each side, said pivots being held in place by means of the adjustable steel blocks *a′* upon the frame A, as shown.

D represents the cylindrical bucket-wheel, which is journaled in the sides of the frame B directly over the pivots *a*, said bucket-wheel being divided into three equal divisions or compartments, *b*, by means of three radial partitions, *c*, running from the central shaft, *d*, of the wheel to the outer circumference of the wheel, the ends thereof terminating in narrow end wings, *e*, which are hinged thereto, as fully shown at Fig. 4.

To the rear of the frame B is secured a curved plate or shield, E, which extends one-third of the distance around the bucket-wheel, the curve of the said plate being the same as that of the periphery of the bucket-wheel, the object of which is such that when the compartments come around in position to be filled with the descending grain this curved plate E acts as an inclosing-wall to retain the grain in the compartments as they are filled, as fully shown in Fig. 4.

The ends of the bucket-wheel D are provided with a circular rim or flange, F, the periphery of which is provided with three tapering recesses, *f*, arranged at equal distances apart, and having inserted at their deepest points square blocks of steel *g*, as shown. Upon the top of this rim F rests the locking device G, which is provided with a steel roller, *h*, journaled in the forks forming the front end of said device, the rear end thereof being pivoted to the frame B, as shown in Fig. 1. This roller *h* rests in said recesses *f* while the compartments *b* are being filled with grain, to hold said compartments in place; but when they become filled with sufficient grain to overbalance the weight upon the scale-beam C the roller *h*, owing to the tilting of the said beam, is lifted out of said recesses by the curved ends of the fork, which carries said roller, coming in contact with the friction-roller H, which is journaled in the adjustable bracket H′, secured by a suitable set-screw to the upper part of the frame A, whereby the roller *h* is lifted, and allows the cylindrical bucket-wheel to

make a one-third turn upon its axis and discharge the contents of the compartment which is full of grain, the roller again dropping into the next succeeding recess to hold the next succeeding compartment in place until it in turn becomes filled with grain.

I represents the supply hopper or chute, having a narrow opening at the bottom extending across the face of the compartments *b*, the mouth of said opening being provided with a slide, *i*, to increase or diminish the size of said opening, as the nature of the case may require. Directly above this opening, and extending across the hopper I, is arranged a triangular sheet-metal frame, J, which not only distributes the grain on each of its sloping sides to the mouth of the opening, but it serves in addition to keep the weight of the descending column of grain from off that portion of the grain which fills the compartments *b*, thereby preventing the overbalancing of the weight on the scale-beam until the required amount of grain is in the compartments. In case of the descending grain containing sticks, straw, or other foreign substance, which would be likely to clog the machine by catching between the partitions *c* and the upper part of the curved plate E, the narrow end wings, *e*, which are hinged to the radial partitions *c*, and provided with springs *e'*, as shown, open outwardly and allow said obstructions to pass down with the grain into the hopper below as the bucket-wheel revolves upon its axis.

To the lower part of the frame A is journaled the receiving-hopper K, as shown at K', which is provided at the upper end, on one side, with an adjustable weight, K², and with a roller, *l*, which is adapted to act, in connection with the locking device G, by engagement with the recesses *f* in the rim F. At the opposite end of the hopper is provided a vertical rod, *m*, which is pivoted at the top to the forked crank *m'*, which operates the slide M in the mouth of the supply-hopper J, to control and diminish the supply of grain as the compartment *b* fills up, the mouth of the lower or receiving hopper, K, being also provided with a slide, *n*, to increase or diminish the size of its discharge-opening. Beneath this hopper is arranged a second hopper, L, which is pivoted at *o* to the main frame A, and is provided with a crank-rod, N, which is automatically operated by the weight or pressure of the grain in the millstone-hopper T piling up against the flange S, thereby operating the slide M' in the mouth of the supply-hopper I to shut off the supply of grain from the top of the bucket-wheel when it is discharged too freely at the bottom of the machine. A spring, *p*, arranged upon the frame A, serves to keep the said hopper in place when not required for use.

To the front of the machine, and at the upper part of the frame A, is pivoted a lever-bar, P, which is provided with a sliding weight, P', adapted to be clamped at any desired point upon the said lever-bar by a set-screw, *q*. Connected to the lever-bar P is a small diamond-shaped block, *r*, which is pivoted at its center to the lower ends of an overlapping band, *r'*, which is held in place on the lever-bar by a recessed block or saddle, *r*², the upper sharp end of said diamond-shaped block resting in a V-shaped notch on the under side of the lever P, and the lower sharp end of the said block resting in a V-shaped notch in the top of the frame B, as fully shown in Fig. 2, the said diamond-shaped block *r* having its bearings in a true vertical line with the center of the knife-edged pivots *a*, upon which the scale-beam C is balanced, the object of which is such that when the desired amount of grain (represented by the position of the weight C' upon the scale-beam C) is in the compartment *b* and the scale-beam tilted forward the least particle the lower end of said diamond-shaped block *r* is thrown forward in the direction of the filled compartment, when the weight P' on the lever-bar P serves to give the required down weight to said compartment without the supply of any more grain than just what is called for by the weight C' upon the scale-beam C.

The machine is provided with a suitable registering device, secured to the outer end of the axle of the bucket-wheel D on the side opposite that of the scale-beam.

The construction of my invention being as described, it will be observed that in the operation of the same the grain is fed from the bin into the hopper I in a constant stream, the triangular sheet-metal frame J in the central part of the said hopper over the mouth serving to distribute the grain evenly on each side to the throat below as it enters the compartments *b* beneath, and at the same time keeps the weight of the descending column of grain from off the grain which is filling the said compartments. When the compartment beneath the hopper I receives the desired amount of grain it descends, causing the scale-beam frame B to be tilted forward and to operate the lever-bar P, whereby the locking device G is disengaged from the recesses *f* in the rim F of the bucket-wheel D by reason of the curved ends of the said locking device coming in contact with the friction-roller H on the frame A, sufficient leverage power being supplied by the weight P' on the lever-bar P to disengage said locking device independent of the falling stream of grain. As the grain discharges from the compartment *b* into the receiving pan or hopper K below, the weight of the grain overbalances the weight K² on the end of said pan and operates the slide M in the throat of the supply-hopper I, the friction-roller *l*, coming in contact with the rim F, acting as a brake to allow the next succeeding compartment to move easily into position to be filled in its turn.

It will also be observed that the weight of the grain in the receiving pan or hopper K holds the slide M from out of the throat of the hopper I by means of the connecting-rod *m*

until just before the compartment *b* beneath is nearly filled, when (as the throat of the receiving-pan is larger than that of the supply-hopper I) the grain runs entirely out of said receiving pan or hopper K, and allowing it to tilt back into its former position by means of the weight K^2, thereby causing the slide M to partially close the throat of the supply-hopper I to a uniform gage, and reducing the amount of grain feeding into the compartment *b* to a few falling kernels necessary to overbalance the weight C′ on the scale-beam C, the balance of said beam being controlled by the adjustable weight C^2, as shown. Beneath the receiving pan or hopper K is arranged the second or distributing hopper, L, which conforms in shape to and overlaps the hopper K, and is pivoted to the main frame A on each side, as shown at *o*, the bottom of said hopper L being provided with a downwardly-projecting flange, S, which projects into the funnel-shaped hopper T of the millstones, as shown.

The operation is such that when the grain becomes piled up in said hopper T against the said flange S the crank-rod N, by the pressure of the grain against the said flange, closes the throat of the supply-hopper I by means of the slide M′. As the grain is fed into the burrs and the pressure withdrawn from against the flange S the spring *p* forces back the crank-rod N, thereby withdrawing the slide M′ from the throat of the hopper I and again admitting the grain to the compartments.

Having thus described my invention, what I claim as new and useful is—

1. In a grain-meter, the supply-hopper I, provided with the triangular sheet-metal frame J, arranged above the throat of said hopper, whereby the weight of the column of descending grain is kept off the grain which has passed through the throat of said hopper, substantially as specified.

2. In a grain-meter provided with a cylindrical bucket-wheel divided into compartments by radial partitions, the narrow wings *e*, hinged to said partitions and provided with springs *e′*, substantially as and for the purpose specified.

3. In a grain-meter, the scale-beam frame B, the rear portion whereof forms an inclosing-wall, E, for the open face of the compartments *b* as they revolve in position to be filled, said frame B and its inclosing-wall E being pivoted upon the frame A, substantially as specified.

4. In a grain-meter, the pivoted lever-arm P, having adjustable weight P′, and provided with the diamond-shaped block *r*, secured to said arm by the band *r′*, in which it is pivoted, the upper end of the block *r* resting in the V-shaped notch on lower part of lever P, and the lower part of said block in V-shaped notch on upper part of frame B, substantially as and for the purpose specified.

5. In a grain-meter, the receiving pan or hopper K, provided with the adjustable weight K^2 and friction-roller *l* at one end, and with rod *m* at the opposite end for operating the slide M in the throat of the hopper I, whereby the supply of grain is reduced, substantially as and for the purpose specified.

6. In a grain-meter, the lower hopper, L, pivoted at *o* to the main frame A, and having crank-rod N, which operates the slide M′ in the throat of the hopper, and flange S at the bottom, which projects into the millstone-hopper T, to regulate the supply of grain to the burrs, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER GLEASON.

Witnesses:
PARKER H. SWEET, Jr.,
J. W. HAMILTON JOHNSON.