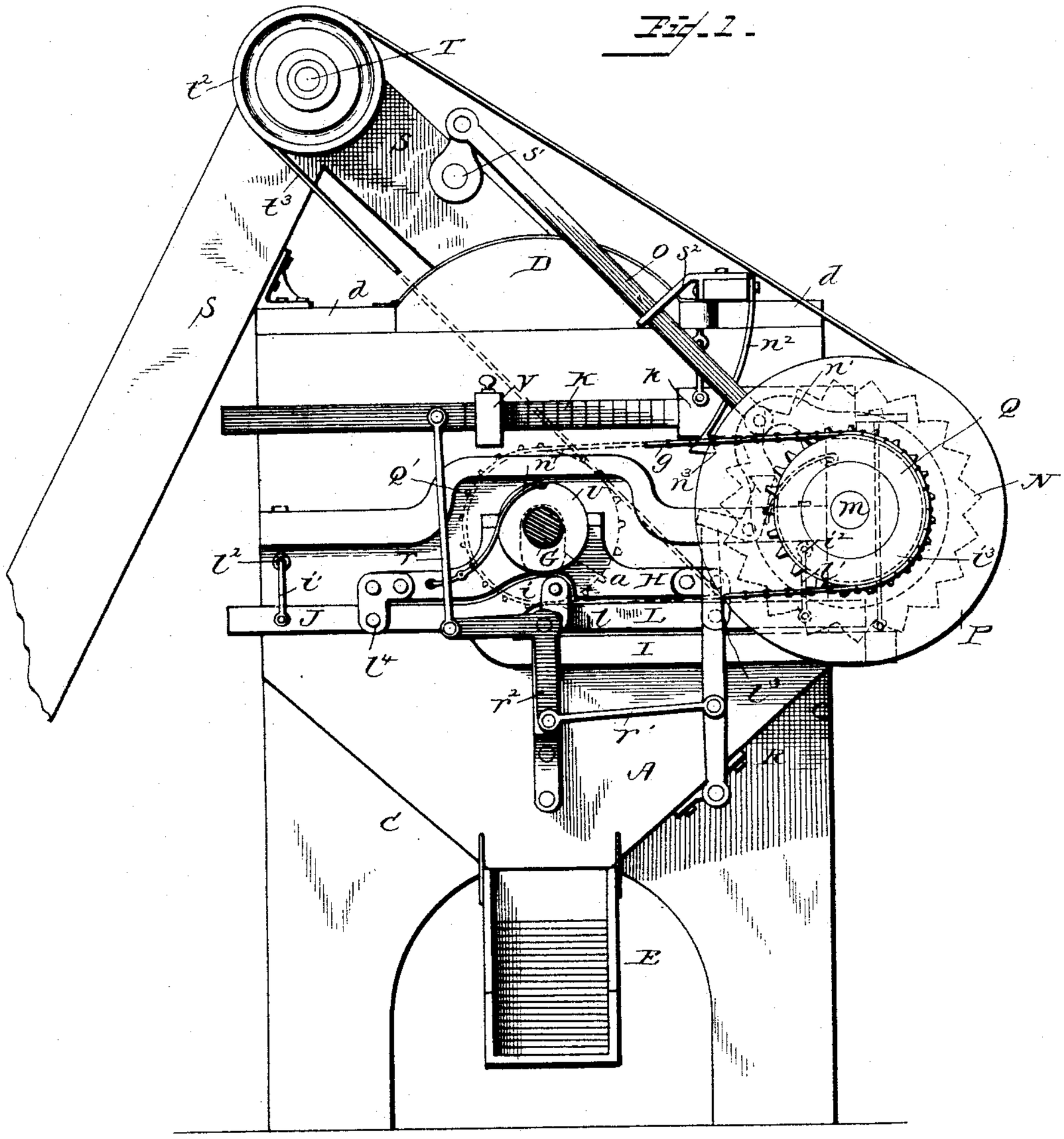
(No Model.) 3 Sheets—Sheet 1.

J. S. CHASE.

GRAIN METER.

No. 438,370. Patented Oct. 14, 1890.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

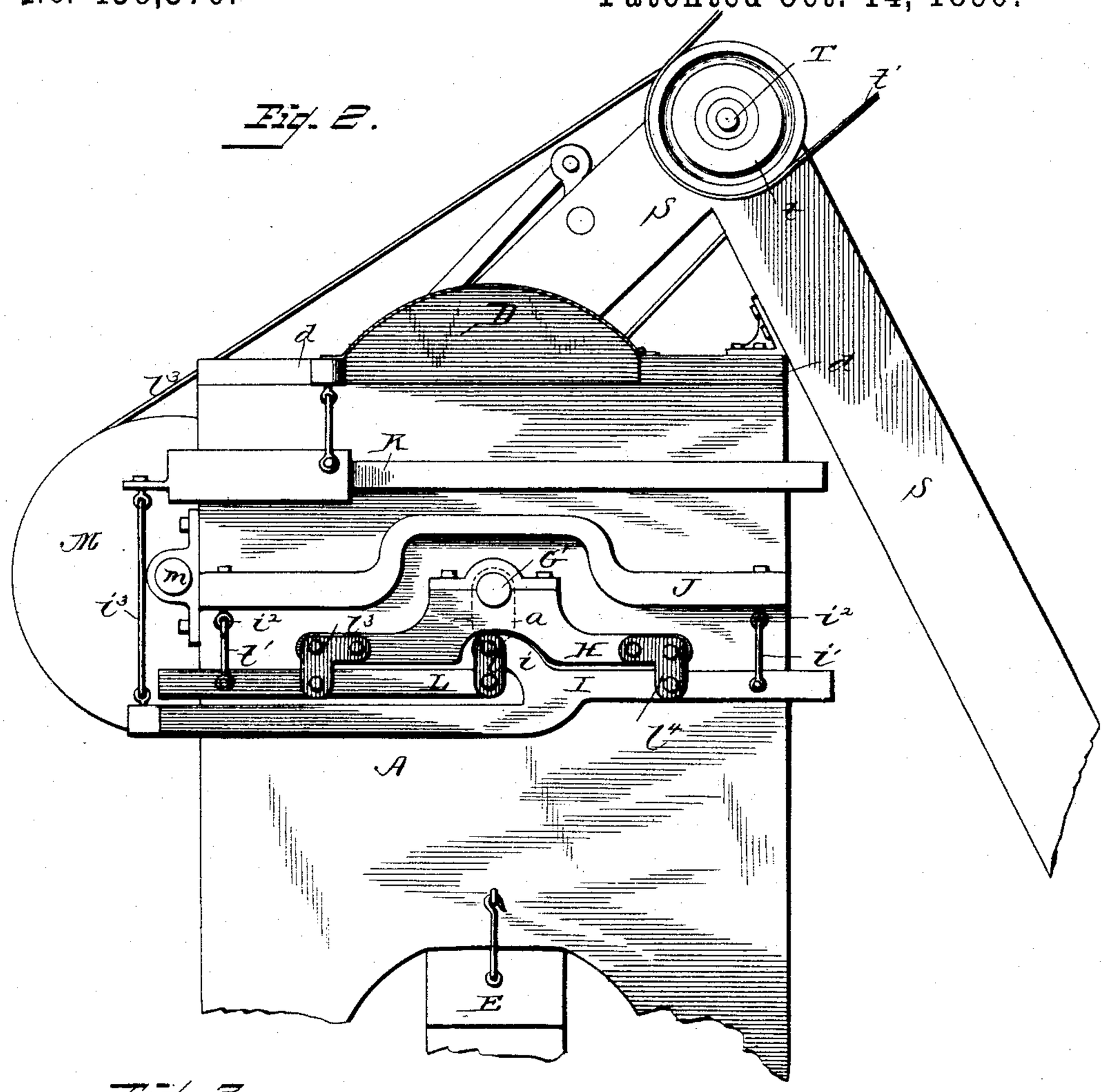


Fig. 3.

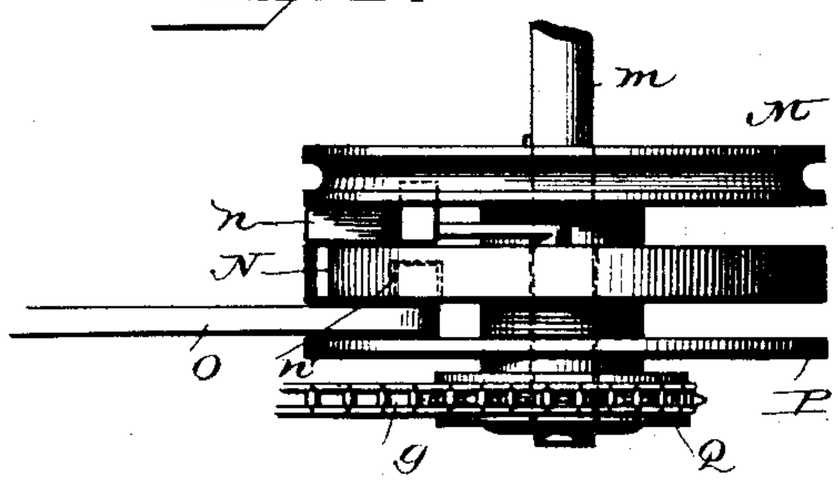
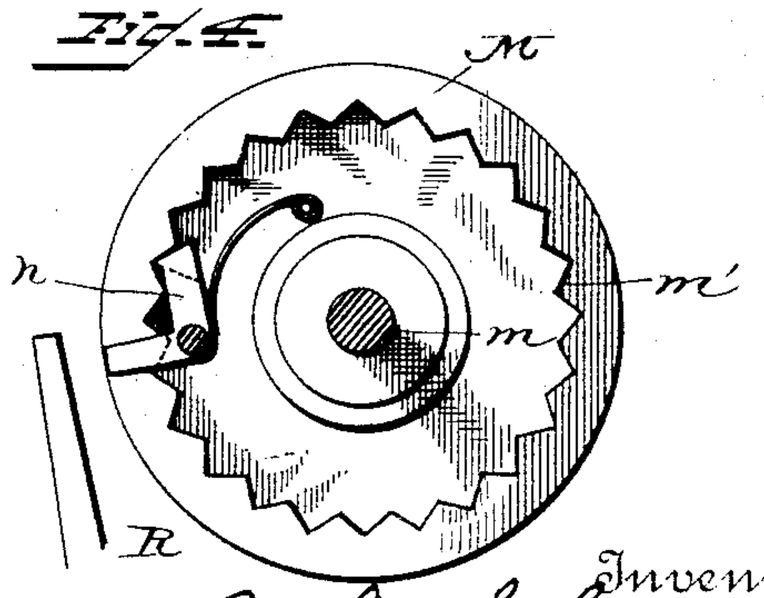


Fig. 4.



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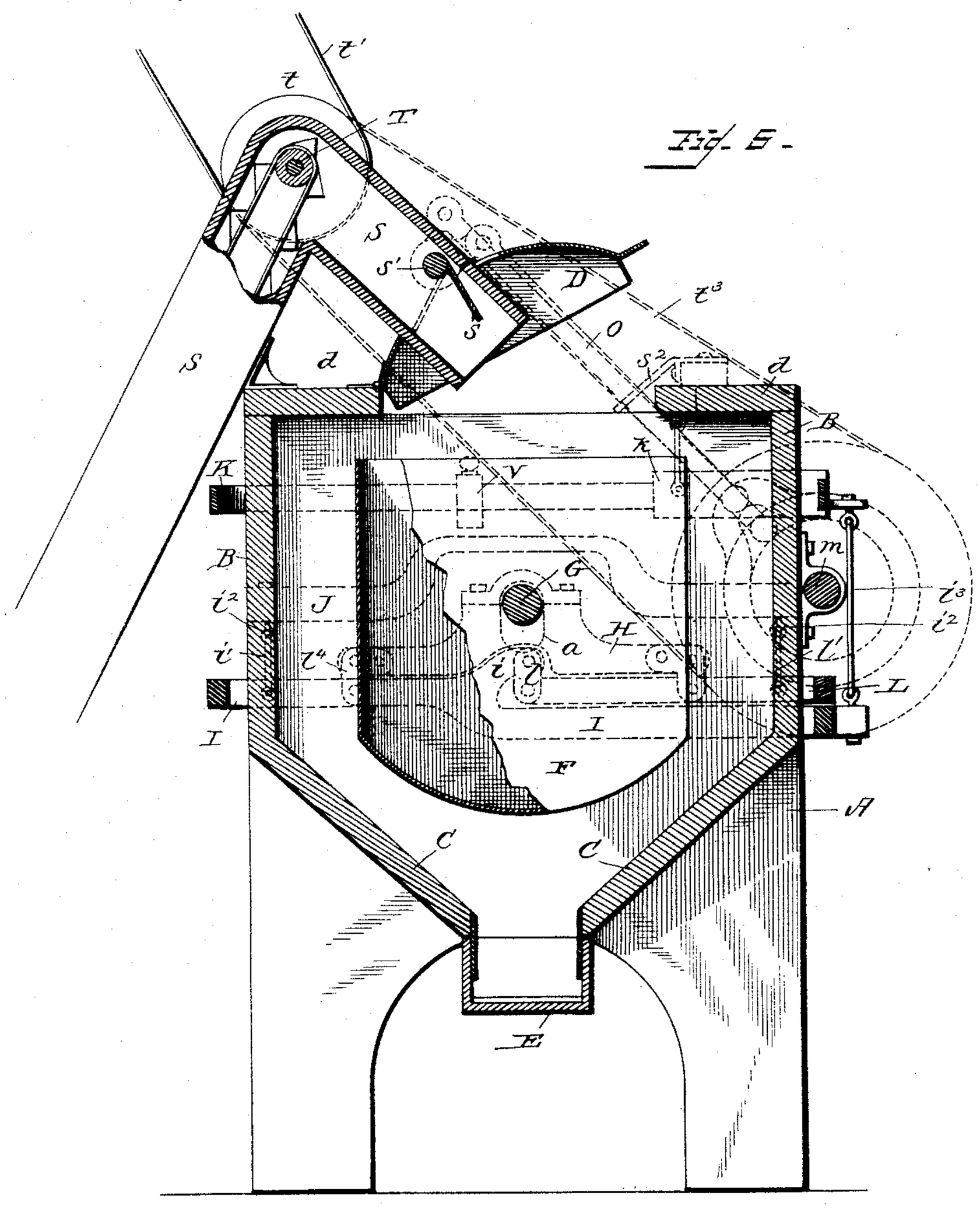
(No Model.) 3 Sheets—Sheet 3.

J. S. CHASE.

GRAIN METER.

No. 438,370. Patented Oct. 14, 1890.

Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN S. CHASE, OF NEW SALEM, KANSAS.

GRAIN-METER.

SPECIFICATION forming part of Letters Patent No. 438,370, dated October 14, 1890.

Application filed May 20, 1890. Serial No. 352,493. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. CHASE, a citizen of the United States, residing at New Salem, in the county of Cowley and State of Kansas, have invented certain new and useful Improvements in Meter Attachments for Thrashing-Machines; and I 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to grain-meters, and has for its object to provide simple, efficient, and convenient means for throwing the driving mechanism in gear with the devices for effecting a tilting or rotation of the grain-measure the moment the same receives the predetermined amount of grain.

A further object of the invention is to cut off the supply of grain from the feed-spout simultaneously with the gearing of the mechanism, which causes the measure to tilt or turn when the same has received the proper amount of grain.

The improvement consists in the peculiar construction and combination of the parts, which hereinafter will be more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a side view, parts being broken away, of the grain weighing and measuring machine embodying my invention. Fig. 2 is a reverse side view of the machine. Figs. 3 and 4 are detail views showing the means for throwing the driving mechanism in gear with the measuring operating devices. Fig. 5 is a vertical section through the center of the machine, showing the operation of the grain-measure and the cut-off by dotted lines.

The frame of the machine comprises the side pieces A, the end pieces B, the oppositely-inclined bottom C, and a cover composed of the fixed portions *d d* and the hinged part D, which is placed between said fixed portions *d d*. The grain-spout E is suspended below the opening in the bottom of the frame and is designed to convey the grain to one side of the machine.

The measure F, having parallel sides and a curved bottom, is provided with journals G G′, which extend through slots *a* in the sides A and have bearings in the supports H. The lever I embraces the four sides of the frame, and is provided at diametrically-opposite sides with arms *i*, which curve upwardly and terminate about in line with the journals of the measure. This lever has its fulcrum near one end, being suspended from one end of the side bars J by the links *i′* and the eyebolts i^2. The opposite end of said lever I is connected with the scale-beam K by the rod i^3. The lever L embraces three sides of the frame, and is connected at its inner ends by the links *l* with the arms *i*, and has its fulcrum near its outer ends, being suspended from the end of the side bars J, from which the lever I is suspended by the links *l′* and the eyebolts i^2. This lever L has a pivotal connection, about midway between its connection with the side bars J and the arms *i*, with one end of the supports H by the plates l^3. The lever I is likewise pivotally connected with the opposite ends of the said supports H by the plates l^4, said pivotal connection being about midway between the arms *i* and the connections *i′* i^2. The scale-beam K embraces the four sides of the frame, and is fulcrumed near its inner end, which end is weighted, as shown at *k*. The purpose of weighting the inner end of the scale-beam is to counterbalance the measure and the levers I and L and their connections. Certain devices connected with the scale-beam, which will be more fully described hereinafter, serve to throw the measure in and out of gear with the continuously-rotated pulley M, which is fixedly mounted on the shaft *m*, so as to turn therewith. This pulley M is provided on one side with an internally-toothed rim *m′*, whose teeth are adapted to be engaged by the pawl *n*, which is pivoted on the cam-wheel N, that is loosely mounted on the said shaft *m*, so that the latter may turn freely thereon. This cam-wheel N is provided on its outer sides with the cam-grooves *n′*, in which travels one end of the lever O, said end being held in engagement with said cam-groove by the plate or disk P. The sprocket-wheel Q is likewise loosely mounted on the said shaft *m*, and with the disk P is fastened

to the cam-wheel N, whereby the sprocket-wheel and the cam-wheel will revolve together. The sprocket Q is in gear with a corresponding sprocket-wheel Q′, which is keyed on the journal G by sprocket-chain *g*. Trip-arm R, which normally engages with the pawl *n* and holds the same from engagement with the teeth *m′* on the pulley M, is connected with the scale-beam in any suitable manner, so that it will be disengaged from the said pawl when the said scale-beam tilts by the load in the measure, preferably by the links *r r′* and the bell-crank lever r^2.

The elevator S is provided near its discharge end with a cut-off *s*, which is secured to a shaft *s′*, which is journaled in the sides of the said elevator. The lever O has a crank-connection with the said shaft *s′*, so as to rock the same and project the cut-off *s* across the elevator at the proper time and shut off the supply of grain to the measure. This lever O is supported between its ends in the bracket s^2. The shaft T, which serves to operate the elevator, is provided at each end with a pulley. The pulley *t* at one end of the shaft T receives its motion from any convenient part of the separator or thrasher by the belt *t′*, and the pulley t^2 transmits its motion to the pulley M by the belt t^3.

The notched wheel U on the journal G is engaged by the spring n^7, the free end of which drops into the notch in the said wheel U and prevents the measure turning too far forward, and under normal condition holds the said measure in position to receive the grain. The cam-wheel N is notched in its periphery, and the spring n^7 is adapted to drop into the said notch n^2 and hold the cam-wheel against further rotation after the measure has been returned to its normal condition for receiving the grain.

The operation of the machine is as follows: The weights V on the scale-beam are adjusted the proper distance to adapt the machine for weighing the proper amount of grain, which is supplied to the measure from the elevator until the required amount is filled therein, when the measure will overbalance the weight V and descend, causing the trip-arm R to disengage from the pawl *n*, when the latter will engage with one of the teeth *m′* on the pulley M and effect a rotation of the cam-wheel N and the measure. The lever O will be actuated by the cam-wheel N to rock the shaft *s′* and project the cut-off *s* across the mouth of the elevator, thereby shutting off the supply of grain during the rotation of the measure. The measure in its rotation dumps the grain into the grain-spout E. As the measure discharges its load, it will be become lighter and will be lifted by the weighted scale-beam. This motion will throw the trip-arm R in position to engage the pawl *n* and disengage the same from the pulley M, when the cam-wheel N will become stationary and the machine in position to effect a repetition of the operation hereinbefore described.

Having described my invention, what I claim to be new is—

1. In a grain-measure, the combination, with the scale-beam and the levers connected therewith, the rotatable measure supported by said levers and pivoted at or near its center between their arms, gearing between the said measure, and a shaft, as *m*, of a continuously-rotated pulley mounted on the said shaft *m*, a clutch, as the pawl *n*, between the said pulley and the gearing on the shaft, a trip-arm for disengaging said clutch from the said pulley, and a trip mechanism between the said trip-arm and the scale-beam, substantially as set forth.

2. In a grain-measure, the combination, with a scale-beam, a rotatable measure supported by a scale-beam, and mechanism for effecting a rotation of the said measure when the proper amount of grain has been supplied thereto, of a cut-off in the supply-spout and a cam-actuated lever for operating said cut-off to shut off the feed the moment the grain-measure begins to turn, substantially as described.

3. In a grain-measure, the combination, with the scale-beam, the rotatable measure supported by the beam, the rotating pulley M, and gearing between the measure and the shaft on which the pulley M is mounted, of a clutch between pulley M and the said gearing, the trip-arm operated from the scale-beam to throw said clutch out of engagement with the said pulley M, the cut-off in the supply-spout, and a cam-actuated lever for operating said cut-off to shut off the supply of grain from the measure at the moment the measure begins to turn, substantially as set forth.

4. In a grain-measure, the combination, with the measure, the scale-beam, the cut-off in the supply-spout, the continuously-rotated pulley M, the cam-wheel, gearing between said cam-wheel and the measure, and a clutch between the cam-wheel and the pulley M, of the trip-arm for engaging with said clutch-connection between the scale-beam and the trip-arm and a lever between said cam-wheel and the cut-off to operate said cut-off the moment the measure begins to turn, substantially as set forth.

5. In a grain-measure, the combination of the supports H, the measure having its journals mounted on the said supports, the lever I, having arm *i*, pivotally connected with one end of the supports H, the lever L, connected with the arms *i* and with the opposite end of the supports H, and the scale-beam connected with the said lever I, substantially as described.

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

JOHN S. CHASE.

Witnesses:
GEO. HUTCHISON,
H. S. ARCHER.