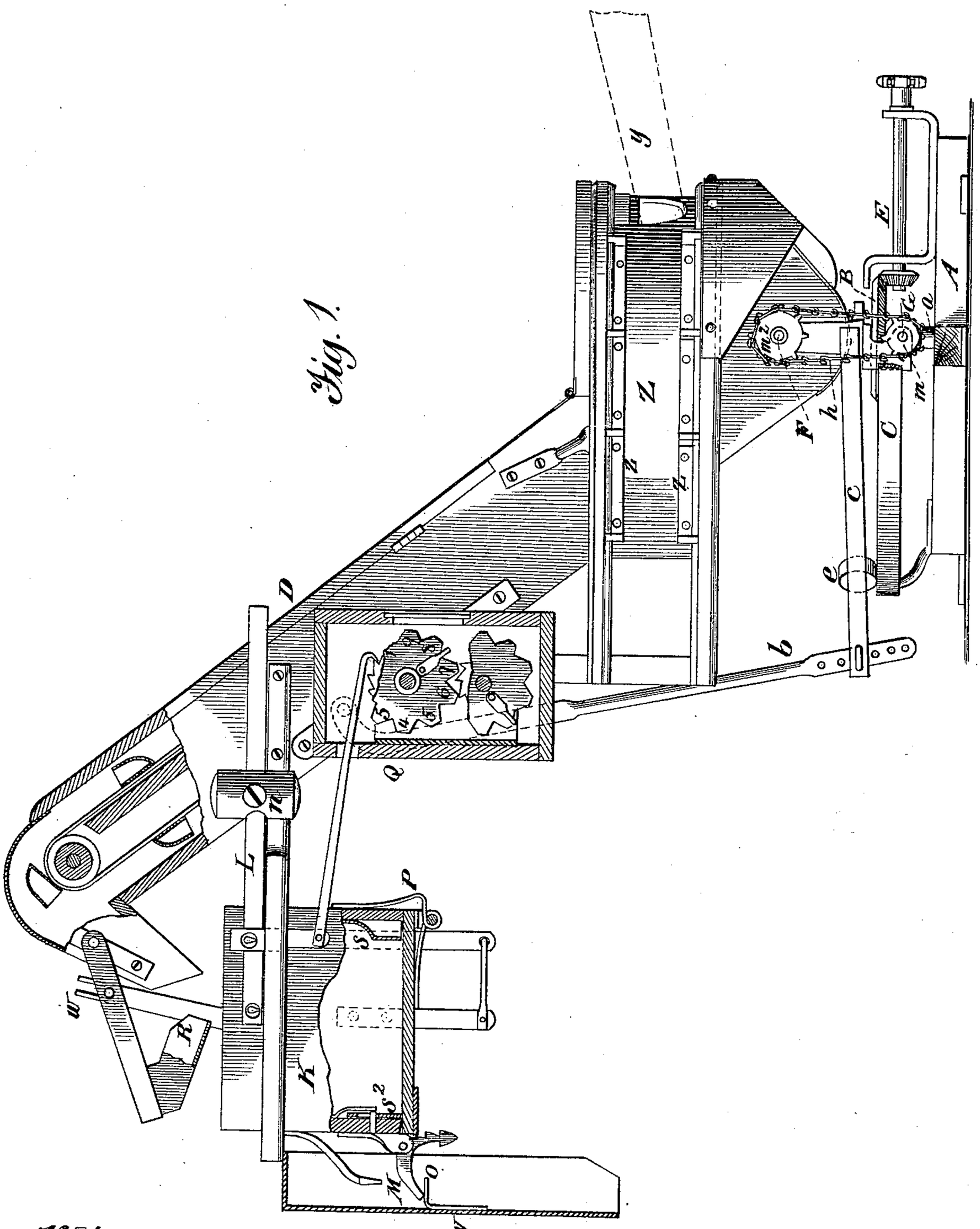
(No Model.) 3 Sheets—Sheet 1.

# H. HODGES.

## GRAIN WEIGHING AND DELIVERING APPARATUS.

No. 338,638. Patented Mar. 23, 1886.

Fig. 1.




Witnesses.
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Alfred. T. Gage.

Inventor:
Harlan Hodges
by
Chas. A. Mye
his Atty

(No Model.) 3 Sheets—Sheet 2.

# H. HODGES.

## GRAIN WEIGHING AND DELIVERING APPARATUS.

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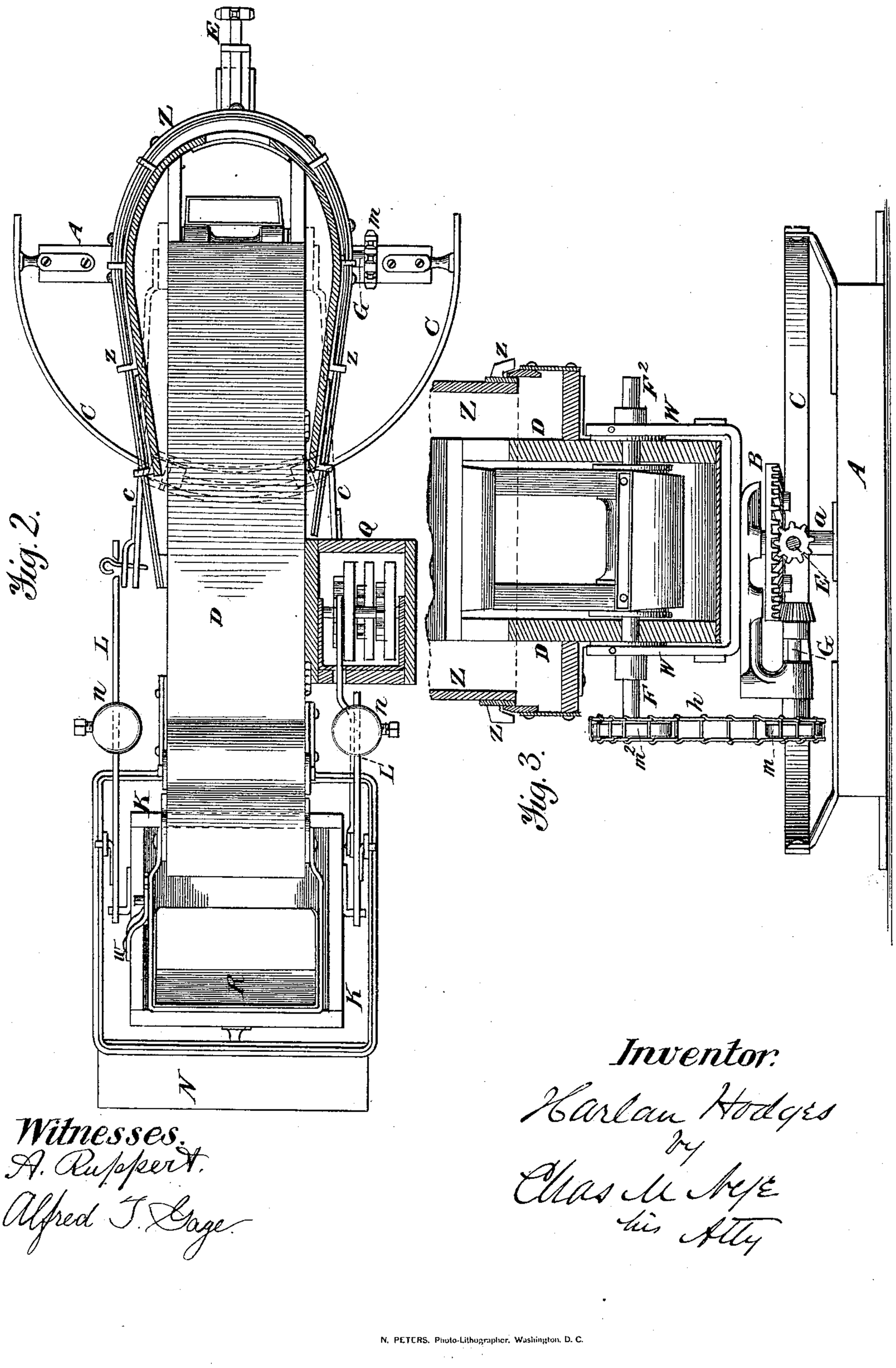


**Witnesses.**
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(No Model.) 3 Sheets—Sheet 3.

# H. HODGES.

## GRAIN WEIGHING AND DELIVERING APPARATUS.

No. 338,638. Patented Mar. 23, 1886.

Fig. 4.

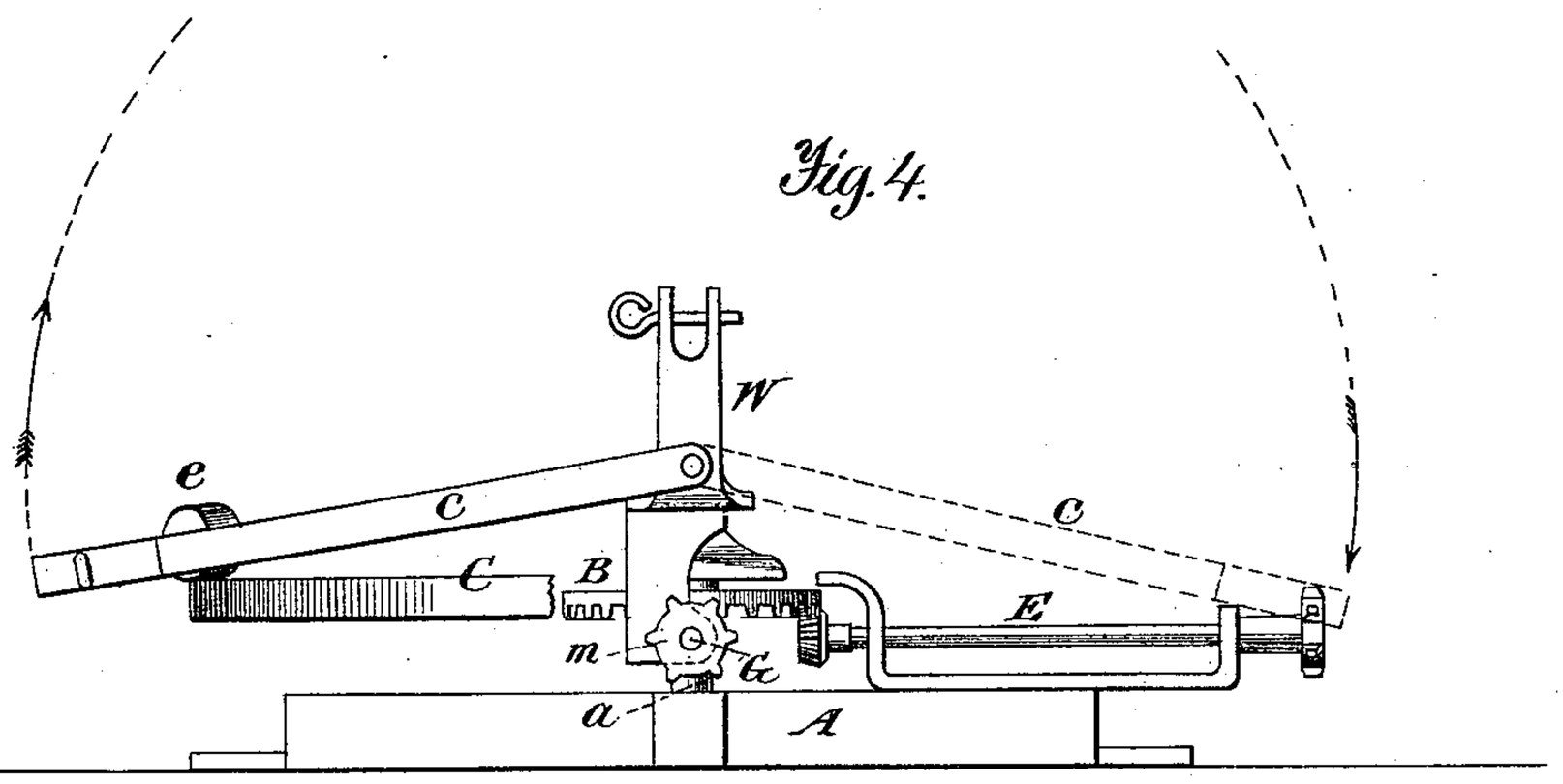



Fig. 5.

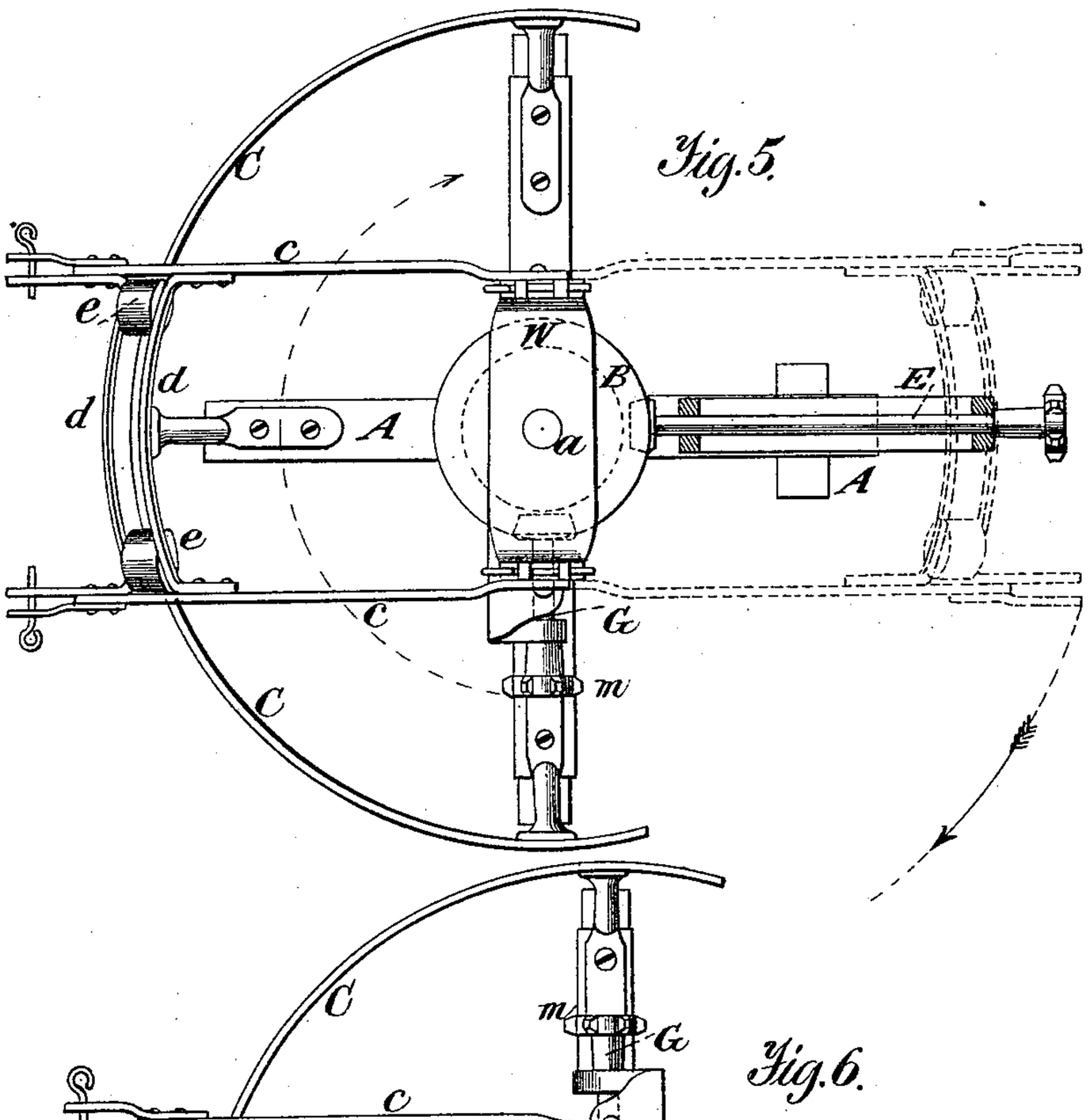
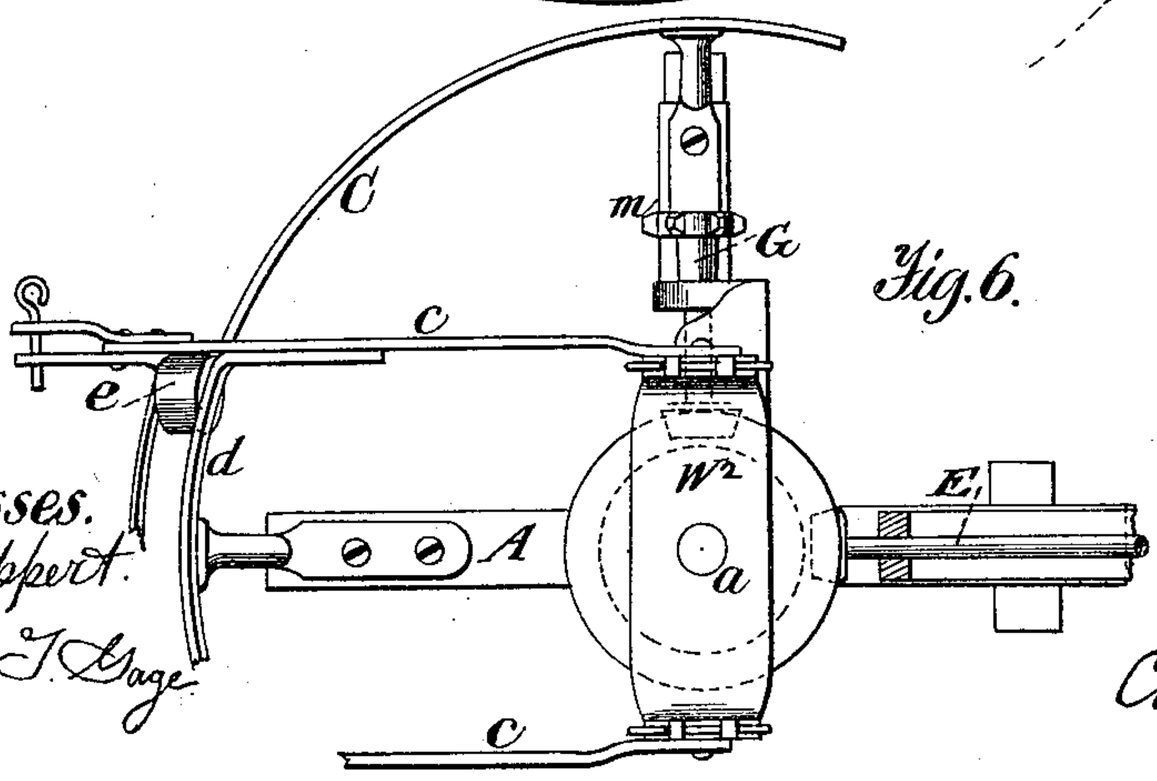



Fig. 6.




Witnesses.
A. Ruppert.
Alfred. T. Gage.

Inventor.
Harlan Hodges
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Chas. M. Frye
his Atty

# UNITED STATES PATENT OFFICE.

HARLAN HODGES, OF KEOTA, IOWA.

## GRAIN WEIGHING AND DELIVERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 338,638, dated March 23, 1886.

Application filed June 13, 1885. Serial No. 168,619. (No model.)

*To all whom it may concern:*

Be it known that I, HARLAN HODGES, a citizen of the United States, residing at Keota, in the county of Keokuk, in the State of Iowa, have invented certain new and useful Improvements in Grain-Delivering Apparatus, of which the following specification is sufficient in law.

This machine is an auxiliary to a grain-elevator, to transfer grain to different bins in the same building or from one elevator to another, and it is also an auxiliary to a thrashing-machine, for weighing and delivering grain into bags or wagons.

The invention consists in mounting an elevator upon a pivot and circular railway-track, for the easy swinging around of the elevator and for the delivery of grain at different points concentric to the pivotal support, the weighing, delivering, and registering apparatus connected therewith being automatic.

In the drawings, Figure 1 represents a side elevation of the machine, partly in section; Fig. 2, a plan view, and Fig. 3 a front end elevation. Fig. 4 is a side elevation of the frame that supports the gearing and elevator, and shows in dotted lines the manner of reversing the gearing. Fig. 5 is a plan view of the same. Fig. 6 is a plan view after the gearing has been reversed.

The jack or foundation-frame is made of two timbers, A A, which cross each other at right angles. The axis *a* of the bevel-wheel B serves as a pivot for turning the machine into different positions for the delivery of grain at different places. Quite surrounding the foundation-frame is a railway, C, which at all points is equally distant from the pivotal support. The inclined elevator D rests upon two adjustable braces, *b b*, each being attached to horizontal bars *c c*, which are secured upon each side of the bottom of the elevator. Two cross-bars, *d d*, unite the horizontal bars and support the friction-wheels *e e*, that travel over the railway, by means of which the elevator may be swung around by hand into different positions for a portion of a circle.

Partially surrounding the bottom of the elevator, where the grain is deposited in the box through which pass the elevator-buckets, is a leather band, Z, which is slid in ways *z* whenever the position of the elevator is changed. This is to prevent any scattering of grain from the conducting-chute and to keep the chute *y* in a proper position.

Power is applied to the shaft E, (which may be the same power as runs a thrashing-machine.) Its pinion turns the bevel-wheel B, which operates through another pinion the shaft G, set at right angles to the shaft E. Directly over the shaft G is another shaft, F, revolved by the endless chain *h* upon the pulleys *m* $m^2$. This machinery runs the elevator-belt carrying the buckets, which lift the grain up the spout until it is dumped into the weighing-box K.

The drive-gearing underneath the elevator is reversible, and must necessarily be so. If the machine is set on one side of a thrasher, its gearing will run one way and carry the belt properly; but if the machine were changed to the opposite side of the thrasher, then the belt would be run backward. To overcome this difficulty the gearing is reversed. Attention is here directed to Sheet 3 of the drawings, where the manner of reversal is illustrated. To reverse the gearing the adjustable braces *b* are detached from the horizontal bars *c*, and then the entire portion of the elevator above the circular railway is lifted off the standards W and removed from the frame above the gearing.

The elevator mainly sets in the heavy vertical standards W, supported upon the heavy bottom plate, $W^2$, which is pivoted to the axis *a* of the bevel-wheel B. Secured to the bottom plate, underneath it, is the frame that carries the shaft G and the pinion through which it receives motion from the wheel B.

The elevator having been removed, the horizontal bars *c c*, pivoted at their inner ends to the standards W, are then raised vertically and swung clear over into a horizontal position directly opposite, Fig. 4. The bars are then carried around horizontally back onto the railway. But for the frame above the inner end of the shaft E, the bars might be carried around for a complete circle. By the movement just described the shaft G will have been carried around upon the opposite side of the elevator, Fig. 6. The elevator is then put back in place on the standards W and the braces *b b* on the horizontal bars, the whole being securely fastened. The pulley $m^2$ is then removed and set on the opposite end of its shaft, at $F^2$, Fig. 3,

where the endless chain belt is put on over the pulleys $m$ $m^2$, which puts the elevator machinery in condition to be set running again.

The weighing-box is suspended on scale-beams L, carrying the weight $n$, for the box to weigh any desired quantity of grain. At the proper time the scale-beam tips, the box suddenly settles, the hinged bottom is released by a spring-trigger, M, that hits the catch $o$ on the hood N in front of the box, when the grain falls out, being safely conducted into a bag or wagon-box by the hood. When the box is emptied, strong springs P quickly close the hinged bottom, throwing it up with sufficient force to lock itself with the spring-trigger. Another hood, $s$, is set inside the box to keep the falling grain from getting between the hinged bottom and the box, so that the bottom cannot shut itself. In front of the box is a follower, $S^2$, which drops of its own weight for only a short distance at the instant the spring-bottom is released, in order to prevent any outlet of the grain until the bottom is fairly open.

The descent of the weighing-box automatically operates a register, Q. Its descent also pulls down the scoop R under the elevator-spout by means of the slotted arm $w$, in order that no grain may fall into the weighing-box while it is being emptied.

This machine is self-supporting. It is not attached to the thrasher, for that would jar it and so interfere with the accurate weighing of the grain.

What I claim as new is—

1. The combination, with an elevator which swings upon a pivot, of a circular railway over which travel the wheels that partially support the weight of the machine.

2. The combination of the wheel B, shafts E G F, endless chain $h$, and the pulleys $m$ $m^2$, for operating the elevator belt and buckets.

3. The combination of the standards W, carrying the pivoted arms $c$ $c$, with the bottom plate, $W^2$, carrying the shaft G, the whole turning upon the axis $a$ of the bevel-wheel B.

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

HARLAN HODGES.

Witnesses:

A. S. FOLGER,

DANIEL WILDE.