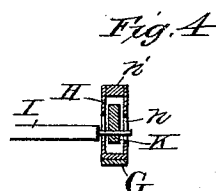
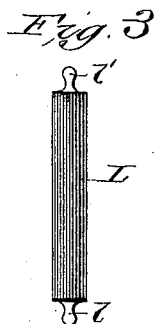
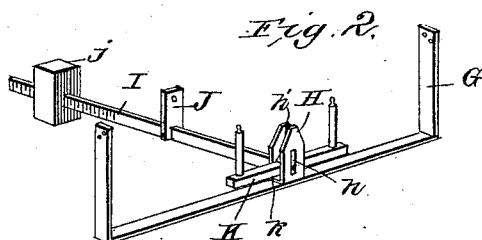
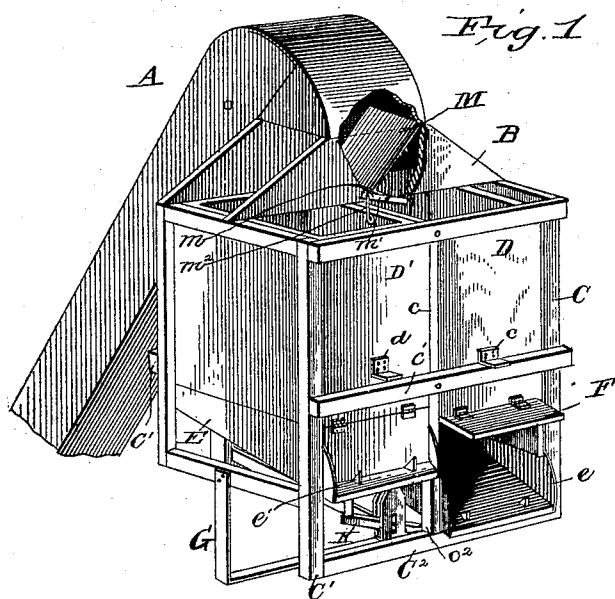


(No Model.)

J. A. & D. JAMES.
GRAIN WEIGHER.

No. 485,632.

Patented Nov. 8, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN A. JAMES AND DAVID JAMES, OF COFFEYVILLE, KANSAS.

GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 485,632, dated November 8, 1892.

Application filed May 2, 1891. Renewed April 19, 1892. Serial No. 429,797. (No model.)

To all whom it may concern:

Be it known that we, JOHN A. JAMES and DAVID JAMES, citizens of the United States, residing at Coffeyville, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Grain-Weighers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improvement in grain-weighers; and it consists in the peculiar features of construction and combination of parts more fully described hereinafter, and definitely pointed out in the claims.

15 The object of our invention is to provide a simple, convenient, and accurate device for automatically weighing or measuring grain as it is delivered from the thrashing-machine. This object we attain by the construction 20 illustrated in the accompanying drawings, in which like letters of reference indicate like parts in the several views, and in which—

Figure 1 is a perspective view of our improvement, showing it applied to the delivery-spout of a thrashing-machine. Fig. 2 is 25 perspective view of the scale-beam and supporting-levers. Fig. 3 is a detail view of one of the carrying-pins; and Fig. 4 is a section taken through the end of the scale-beam, 30 slotted guides, and the lever.

In the drawings, A represents a portion of an elevator-spout, such as usually attached to thrashing-machines, the discharge end of which is constructed with supporting-lips B, 35 arranged, respectively, at the outer and inner edge thereof.

Secured to the outer end of the lip B is a rectangular frame C, having a central partition *c* and a front and rear cross-bar *c'*, located about midway of its vertical length. 40 The front of the frame C is extended down below the bottom, as at *C'*, and has a uniting cross-bar *C²*, which has a central upright *c²*, extending upward to the base of the partition.

45 D and D' represent two hoppers constructed of the same diameter throughout and are closely fitted in the upper part of the frame on opposite sides of the central partition and allowed a vertical movement only, which 50 movement is limited by stops *d*, extending out from the front and rear thereof above the

bars *c'*, so that as the hopper or hoppers descend their movement is limited by the stops engaging with the bars.

Hinged at the rear to the respective hoppers are inclined chutes E, having flanges *e* 55 on their sides which project up past the lower ends of the hoppers on the sides, their front ends being curved to form guides for the discharging grain. On the bottom of the chutes 60 near the front edge thereof are placed inclined teeth *e'*, projecting upwardly and engaging the lower edge of the hinged flaps F, which latter are secured by suitable hinges to the lower front edge of the hoppers. 65

G represents a hanger-frame having vertical end bars and a horizontal connecting-bar, the end bars being secured permanently to the lower side bars of the frame at or near 70 their centers and extend down to a point below the plane of the lower portion of the front of the frame. On the upper face of the horizontal connecting-bar of the hanger are secured two upright guides H, having vertical 75 slots *h* formed therein, through which a pivotal or cylindrical end *i* of the scale-beam I projects, the scale-beam I being fulcrumed on a hanger J, secured to the bottom of the partition or to the frame, its rear end carrying a weight *j*. 80

Between the upright H is a balance-lever K, having a central opening therein through which the cylindrical end of the scale-beam passes. Above the opening in the lever is a tongue *k*, which engages with a cross-bar *h'*, 85 connecting the tops of the upright H, thereby limiting the movement of the scale-beam by the tongue engaging the part *h'*. In the outer ends of the lever K are formed suitable sockets, in which the spherical ends *l* of 90 supporting-pins L are placed, whereby the pins are permitted an oscillating movement or may be tilted from the vertical. The tops of these pins are constructed in a manner similar to the lower ends, the spherical upper ends *l'* engaging in suitable sockets 95 formed in the centers of the bottom portion of the chutes.

Located at the discharge-mouth of the elevator is a cut-off M, which is secured on a 100 cross-shaft *m*, centrally pivoted in the lower portion of the lips B, the ends of the shaft

extending outside of the lips and provided with actuating-arms m' , which have secured to their outer ends links m^2 , which are secured at their lower ends to the respective
 5 hoppers, so that as either hopper descends the cut-off is thrown from one side to the other and directs the grain into the hopper that is elevated.

In operation the grain is discharged into
 10 one of the hoppers, the weight on the scale-beam being placed to indicate the amount of grain to be weighed, retaining the hopper in its elevated position, closing the chute by forcing the teeth thereon up in front of the
 15 flap. As the grain is deposited and overcomes the weight on the end of the scale-beam the hopper descends until the stops strike the cross-bars, thereby transferring the weight to the chute, which is forced down
 20 until the edge of the flap escapes the teeth, when the grain forces its way out. This movement of the hopper forces the other hopper and chute up through the lever K, pivoted on the end of the scale-beam. The construction of the supporting-pin allows the lever to move freely while the pins are held in a vertical position.

A suitable registering device may be attached to the cut-off, if desired, to register the
 30 amount of grain that has been deposited in the hoppers.

We are aware that many minor changes in the construction and arrangement of the parts of our device can be made without in the least
 35 departing from the nature and principle of our invention.

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

40 1. In an automatic grain-weigher, the combination, with the grain-elevator, of a rectangular frame supported thereon, two hoppers within the frame, hinged chutes on the bottoms of the hopper, a hanger below the frame,
 45 slotted uprights on the hanger, a scale-beam

fulcrumed on the frame having a cylindrical end located within the slots of the upright, a lever pivoted on the cylindrical end of the beam, supporting-pins on the ends of the lever engaging the bottoms of the chutes, and
 50 a cut-off at the spout of the elevator, substantially as described.

2. In an automatic grain-weigher, the combination, with two vertically-movable hoppers, of chutes hinged to the hoppers and forming
 55 the bottoms thereof, a scale-beam, a lever pivoted on the end of the beam, and supporting-pins on the ends of the lever engaging the under side of the chutes, substantially as described.

3. In an automatic grain-weigher, the combination, with a frame, of two vertically-movable hoppers, chutes hinged to and forming
 60 the bottoms of the hoppers, teeth on the chutes, flaps on the hoppers with which the teeth engage, a scale-beam, a lever pivoted on the end thereof, and supporting-pins on the end of the lever engaging the bottoms of the chutes
 65 at or about the center thereof, substantially as described.

4. In an automatic grain-weigher, the combination, with an elevator-spout having projecting lips at its discharge end, of a frame supported by the lips, vertically-movable hoppers within the frame, a scale-beam pivoted
 75 to the frame, a cross-lever pivoted on the end of the scale-beam, supporting-pins on the ends of the lever engaging the under sides of the hoppers, a shaft journaled in the lips, a cut-off on the shaft between the lips, and actuating-arms connected to the shaft and the hoppers, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN A. JAMES.
 DAVID JAMES.

Witnesses:

W. H. WELLS,
 H. W. READ.