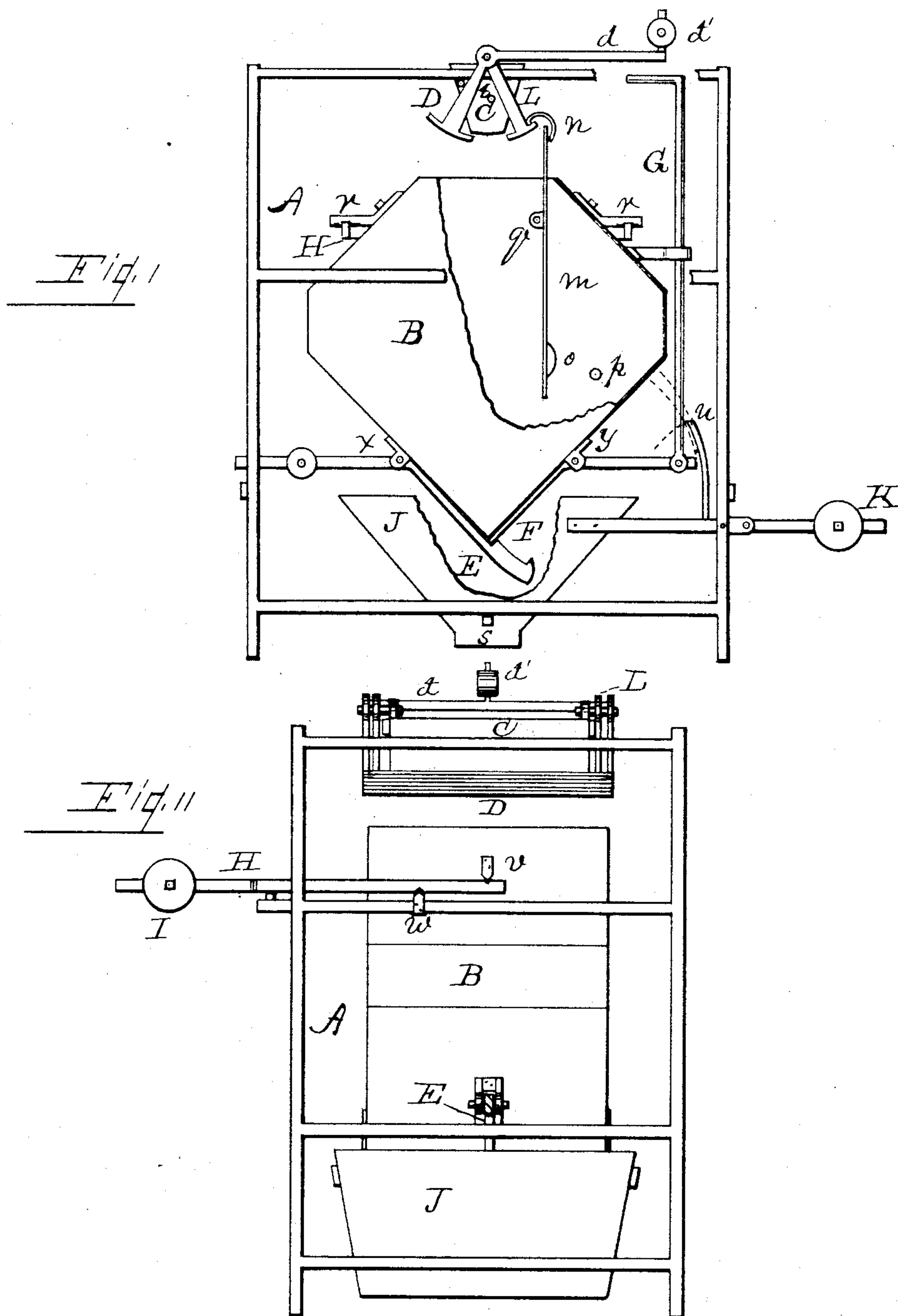


(No Model.)

E. A. HOOVER.  
AUTOMATIC GRAIN WEIGHER.

No. 409,326.

Patented Aug. 20, 1889.



Witnesses

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Inventor

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# UNITED STATES PATENT OFFICE.

ELLIS A. HOOVER, OF WEST MILTON, ASSIGNOR OF ONE-HALF TO JOHN B. FOUTS, OF TROY, OHIO.

## AUTOMATIC GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 409,326, dated August 20, 1889.

Application filed November 26, 1888. Serial No. 291,852. (No model.)

*To all whom it may concern:*

Be it known that I, ELLIS A. HOOVER, a citizen of the United States, residing at West Milton, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Automatic Grain-Weighers; 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, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in the invention set forth in Letters Patent No. 389,513, bearing date September 11, 1888, for improvement in automatic grain-weighers, the several features of which will be fully hereinafter set forth.

The objects of my invention are, first, to partially shut off the flow through the chute by a supplementary cut-off operated by the grain as it accumulates in the receptacle; second, to so arrange the arresting-lug of the lower or supplementary vessel as to prevent its being engaged by the arm of the effluent valve only at the proper point to arrest its movement in closing the receptacle. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end view of the automatic weigher with parts cut away. Fig. 2 is a side view of the same with some of the parts omitted.

Like letters designate like parts in the two views.

The quadrangular frame A is adapted to support the operative parts. To the cross-piece at the top of the frame is attached the chute C, which is central over the receptacle B, and the opening in the bottom of the former is directly over the opening of the latter. A spout arranged directly over the chute conveys the grain to the same. On pins in the chute is supported the cut-off valve D. This valve, when in a vertical position, covers the opening in the bottom of the chute; but the counter-weight *d'* on the forked arm *d* of said valve holds the same to one side against an arresting-lug. To the pin of the chute is sus-

pendent the supplementary cut-off valve L, which from its own weight would swing into vertical position, but is held to one side, so as not to obstruct the flow of the grain through the chute by the curved arm *n* engaging the plate *m*, which is suspended on the pivots *q* in the sides of the receptacle B, and which nearly fills the same laterally. To maintain the swinging plate *m* in a vertical position, and thereby counteract the weight of the supplementary cut-off valve, the weight *o* is attached to the back of the same. As the grain accumulates in the receptacle, the lower end of the plate is swung back against the lug *p*. This movement carries the valve forward, so as to partially close the orifice of the chute. The arresting-lug *t* on the chute may be set to cut off one half of the flow or any other portion of the same. The object is to diminish the flow just before the receptacle receives its complement of grain, and thereby produces better results than if the flow continued undiminished until the descent of the receptacle when loaded.

B is a hollow metallic vessel having a central opening in the top, an opening in the right under side which is closed by valve F, and pivots *r*, riveted to the sides, and which rest in notches of the lever II. This lever or beam is forked and is supported on the fulcrums *w*, attached to the frame, and on the outer end is attached the heavy weight I, which is a counterpoise to the receptacle and its contents. An arresting-arm is attached to the frame beneath the beam to prevent the same descending below a horizontal position. The effluent valve F is pivoted in the bearing *y* on the receptacle, and to the arm is jointed the rod G, which serves the double purpose, that of closing the cut-off valve and a counter-weight to cause the valve to close rapidly when released.

E is a catch to hold the effluent valve closed, and thereby prevent any escape of grain from the receptacle. On this catch a sufficient weight is used on its horizontal arm to keep the lower end against the effluent valve. On the face of the same are two notches. The first holds the said valve against the receptacle and the other arrests the movement of the same. The catch is disengaged by the arm striking a cross-piece of the frame as the re-



ceptacle descends. The receptacle J is supported on pivots on the side posts of the frame, and on the pivotal side is attached the arm K, to which a weight is attached to maintain the said receptacle in a horizontal position, and to the top of this arm is the curved lug *u*. On the sides of this receptacle are lugs *s*, which engage the cross-pieces, and thereby prevent said receptacle from rising above a horizontal position, and a similar lug above the cross-piece may be used to arrest its downward movement when loaded with grain. The orifice in the bottom of the lower receptacle is of smaller area than that of the upper, and consequently during the free discharge from the upper to the lower remains depressed by an accumulation within the same.

The curved lug *u* remains above the arm of the effluent valve when the same is in a horizontal position. The outer circular dotted line shows the movement of the end of the arm when disengaged, and the inner dotted line shows the same when the vessel is slightly depressed. The dotted curved line at the end of the lug shows the movement of the same when the lower receptacle is depressed, thus showing that the effluent valve-arm would pass the said lug in its ascent and would engage the same in its descent and remain so engaged, thus preventing the closing of the upper receptacle until the lower had discharged its load and was approaching a horizontal position.

The operation is thus: The grain flowing through the chute C fills the receptacle until the load is greater than the weight I, and as the same is nearly filled the pivotal plate in said receptacle is swung backward by the action of the grain, and thereby effects a partial closing of said chute and therefore lessening the flow, the receptacle drops, the catch is disengaged, and the valve F opens. This

carries the rod G upward, and, engaging the cut-off valve D, the flow through the chute is arrested. This movement of the cut-off valve carries back with it the supplementary cut-off L, and leaves the chute unobstructed for the subsequent operation, the grain falling into the receptacle J, from which it issues less rapidly than the flow from the upper receptacle. As a consequence the outer end descends and locks the effluent valve, as before specified. The flow through the chute cannot be resumed until the lower vessel is so discharged that it resumes a horizontal position, thus releasing the effluent valve that it may close, and the influent valve opens as the same instant, and the operation is repeated automatically.

I am aware that a plate suspended on pivots in a weighing-receptacle of an automatic grain-weigher has been used to operate a cut-off valve to arrest partially the flow of grain to said receptacle, and I therefore claim only the combination as herein set forth.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination, in an automatic grain-weigher, of the auxiliary or partial cut-off valve L, cut-off valve D, both of said valves being centrally pivoted to the sides of the chute, the pivotal plate *m*, suspended in the weighing-receptacle, and the curved arm *n* of said cut-off valve L to engage the top of said plate, substantially as described.

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

ELLIS A. HOOVER.

Witnesses:

B. PICKERING,  
M. J. SWADENED.