

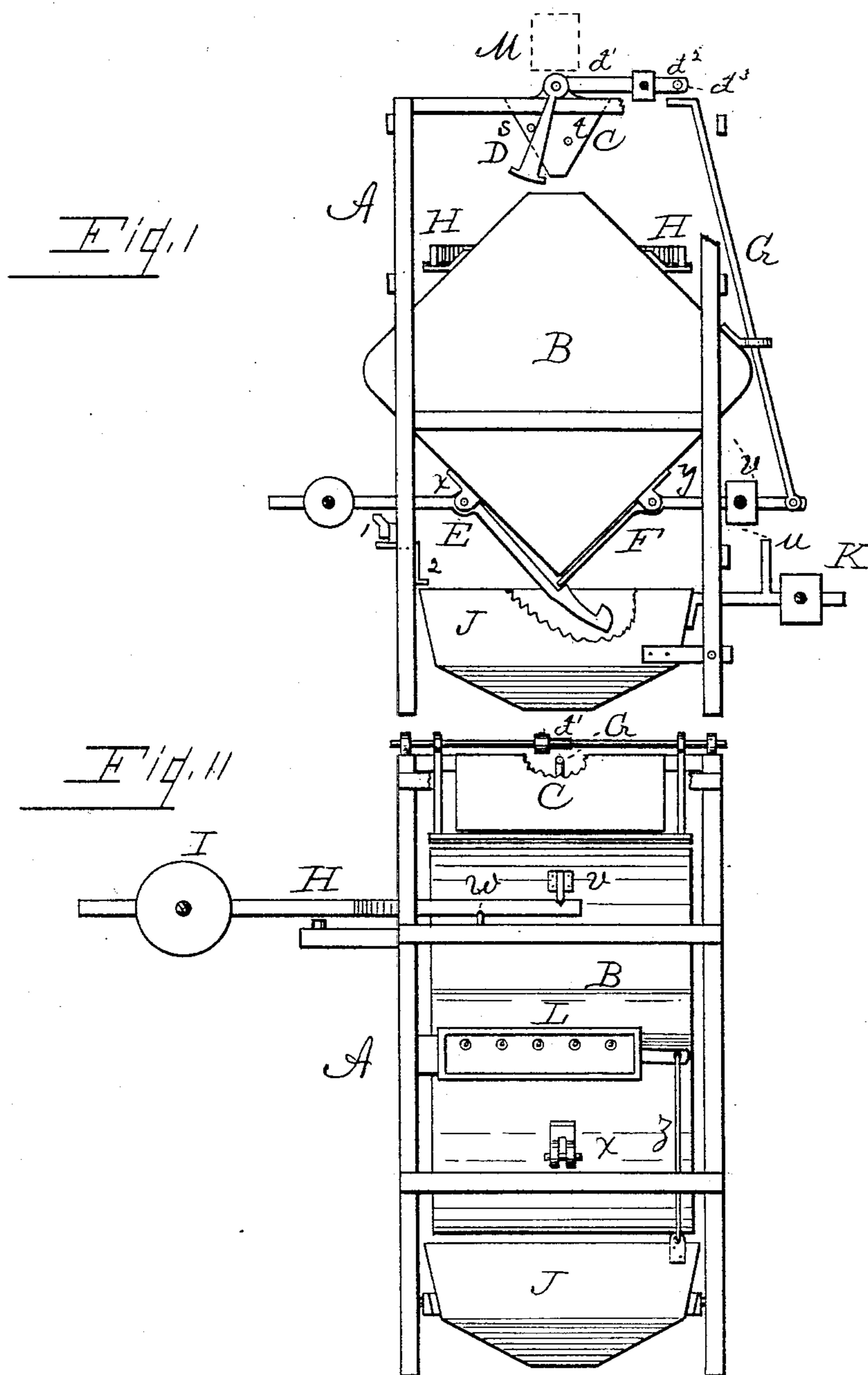
(No Model.)

E. A. HOOVER.

# AUTOMATIC GRAIN WEIGHER.

No. 389,513.

Patented Sept. 11, 1888.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 389,513, dated September 11, 1888.

Application filed March 19, 1888. Serial No. 267,606. (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 automatic grain-weighers, the features of which will be fully hereinafter set forth.

The object of my invention is to simplify the construction of the weigher by using a single receptacle without compartment, and to secure uniformity of action in the matter of discharge I use a supplementary vessel mounted on pivots held in a horizontal plane by a counter-weight, and which when weighted by the grain locks the cut-off valve, so that no grain can enter the said receptacle until there is a full discharge from said supplementary vessel, when almost simultaneously the effluent valve is closed and the influent valve is opened. I attain the object by the mechanism illustrated in the accompanying drawings, in which—

Figure I is an end view of the automatic weigher. Fig. II is a side view of the same with some parts omitted and others partially cut away.

Like letters designate like parts throughout the several views.

The quadrangular frame A is adapted to support the operative parts, and may be constructed of iron or wood, or both combined. To cross-pieces 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 in the latter. The dotted lines at M, Fig. I, show the position of the spout through which grain might flow into the said chute. In bearings on the frame over the chute is supported the cut-off valve D. This valve when in vertical position covers the opening in the bottom of the chute. To the center of the shaft is attached the arm  $d'$ , and on this is secured the

counter-weight  $d^2$ , and on the side of this arm is the pin  $d^3$ . Stops  $s$  and  $t$  are attached to the end of the chute to arrest the movements of the cut-off valve. The use of the said weight is to hold the valve to one side, so as not to obstruct the flow of grain through the chute, and the aforesaid pin is to engage the rod G when the same is carried upward, and the effect of which is to bring the valve over the mouth of the chute, and thereby arrest any flow of grain through the same.

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  $n$ , riveted to the sides, and which rest in notches of the lever H. This lever or beam is forked and is supported on the fulcrums  $w$ , attached to the frame, and on the outer end is attached a 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 side of the receptacle, and to the outer end is jointed the rod G, and on this end is also attached the counter-weight  $v$ , to cause the valve to close rapidly when released.

E is a catch to hold the effluent valve, 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 said valve. On a cross-piece of the frame are the lugs 1 and 2. The former serves to detach the catch from the valve as the discharging grain carries it outward, and the latter arrests the upward movement of the lower receptacle, J. This receptacle is supported on pivots attached to 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 a lug,  $u$ . The use of this lug is to hold the effluent valve open when the dropping down of the lower receptacle throws this lug beneath the weight  $v$  of the effluent valve. If the weight of the

arm with the rod is sufficient as a counter-weight to carry the valve, then a lug would take the place of the said weight and it be dispensed with. The illustration exhibits the parts in their normal positions before commencing the operation of weighing.

At L, Fig. 2, is shown attached to the frame an ordinary register, the lever of which is attached by the rod *z* to the outer end of the lower receptacle. Thus the amount which passes through the weigher is registered.

The operation is thus: The grain flowing through the chute C fills up the receptacle B until the load is greater than the weight I. 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. 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 above 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 at the same instant, and the operation is repeated automatically.

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

1. The combination, in an automatic grain-weigher, of a main frame, a weighing-receptacle without partition, a chute for conveying the grain thereto, a downwardly-swinging effluent valve journaled on said receptacle and provided with a weighted arm to close said valve as relieved from the weight of the discharging grain, a weighted catch to lock said valve in normal position, a weighted forked beam fulcrumed near its ends on the main frame, with a counter-weight to maintain a horizontal position of said receptacle, a rising and falling secondary receptacle fulcrumed on the sides of the main frame, an arm of said

secondary receptacle to engage said effluent valve and hold the same open until freed from the discharging grain and raised by the counter-weight, the rod of the effluent valve closing the chute by means of the influent valve during said discharge, and said valve opening by a weight when freed from the operation of said arm, substantially as described.

2. The combination, in a grain-weigher, of the secondary receptacle fulcrumed on the frame and in balance by counter-weight, the arm of said receptacle rising to engage the arm of the effluent valve by the accumulated grain in said secondary receptacle, and said effluent valve, the same being pivoted to the outside of the weighing-receptacle and closing the same when unloaded, and locked by the catch pivoted on the opposite side of the receptacle, and held open by the arm or lug of said secondary receptacle until there is a full discharge of the grain, substantially as described.

3. The combination, in a grain-weigher, of the influent or cut-off valve pivoted on the frame and held from closing said chute by a counter-weight on the arm thereof, the effluent valve having a rod hinged to it to engage the aforesaid arm, said effluent valve being pivoted to the outside of the weighing-receptacle and closing the same, said rod rising to throw said cut-off valve over the mouth of said chute as said valve is opened by the discharge of the grain, the release of said effluent valve being effected by the descent of said weighing-receptacle, which disengages the locking-catch as the load overcomes the counter-weight of the supporting-beam, 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:

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