

(Model.)

2 Sheets—Sheet 1.

C. E. BURCHARD.

AUTOMATIC GRAIN WEIGHER.

No. 333,444.

Patented Dec. 29, 1885.

Fig. 1.

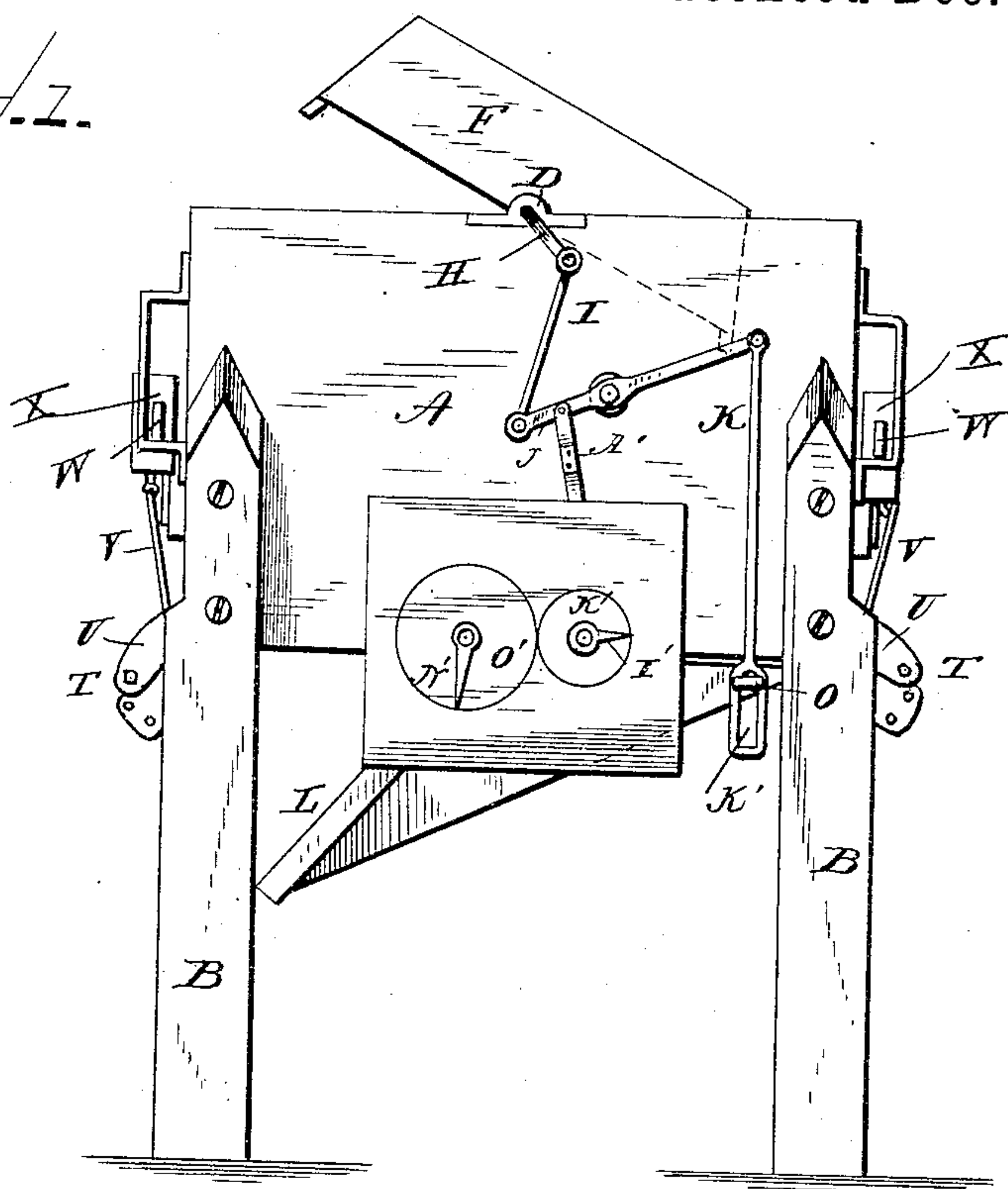
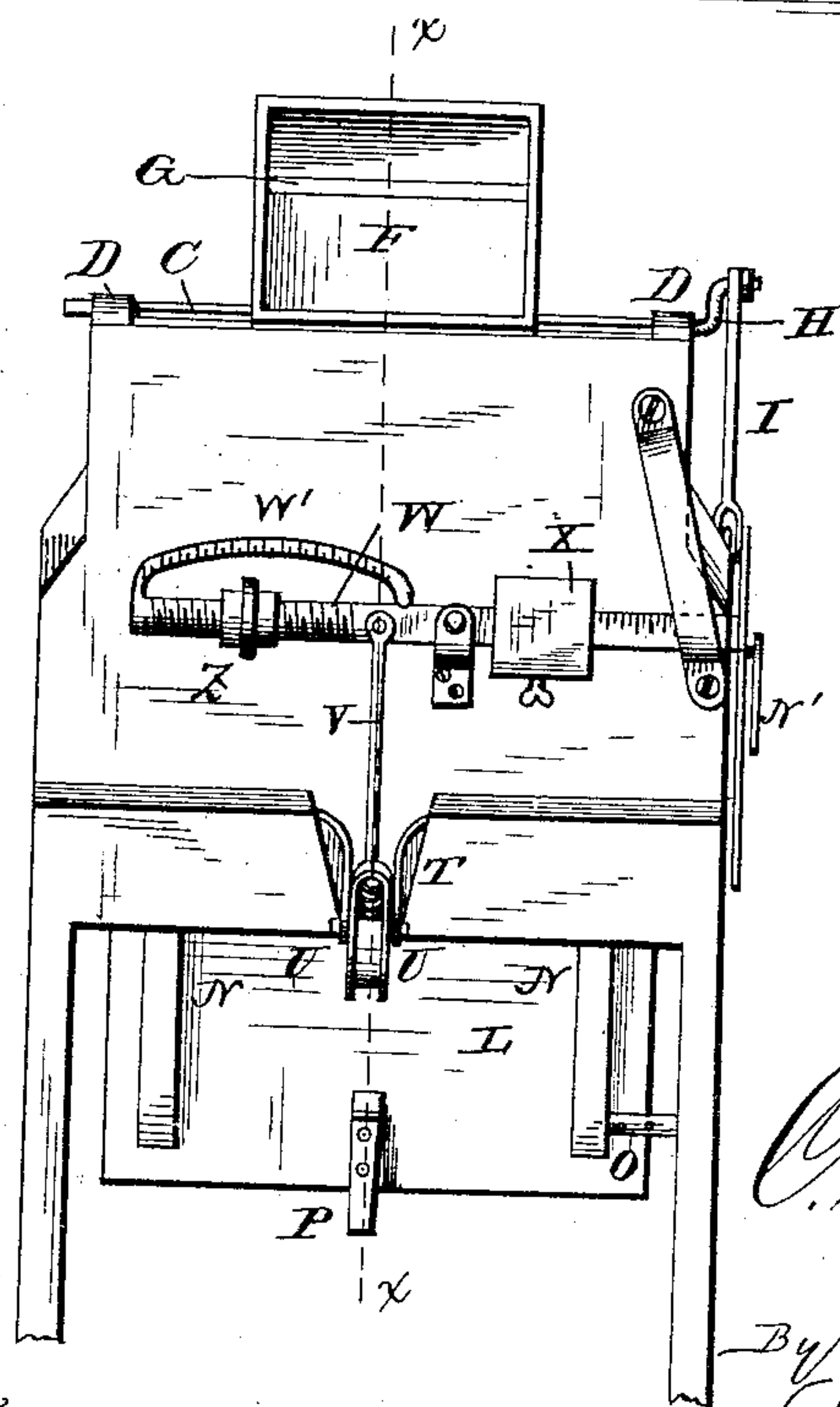


Fig. 2.



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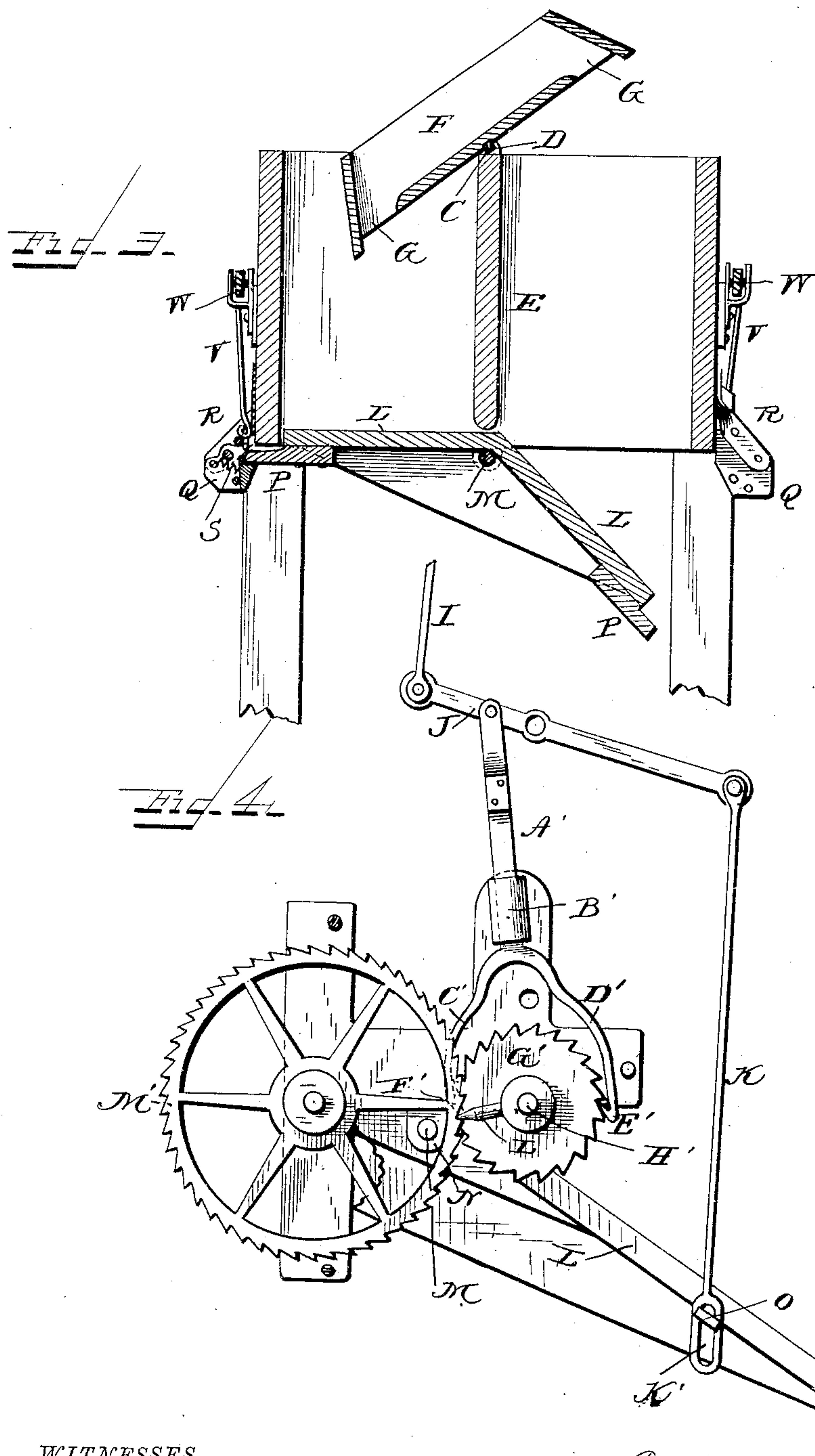
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# UNITED STATES PATENT OFFICE.

CHARLES EVARISTUS BURCHARD, OF MARTINSBURG, MISSOURI.

## AUTOMATIC GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 333,444, dated December 29, 1885.

Application filed September 12, 1885. Serial No. 176,944. (Model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. BURCHARD, of Martinsburg, in the county of Audrain and State of Missouri, 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, which form a part of this specification, and in which—

Figure 1 is a front view of my improved grain-weighing device. Fig. 2 is a side view of the same. Fig. 3 is a longitudinal vertical section of the same on line *x x*, Fig. 2; and Fig. 4 is a detail view, on an enlarged scale, of the registering mechanism.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to devices for weighing grain and similar material, in which a shifting or tilting chute will alternately convey the grain, which strikes the cut-off from a spout or chute, to compartments the bottoms of which will open when a sufficient quantity of grain has entered them, the tilting bottom of each compartment alternately shifting the chute; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the frame or casing of the weigher, which casing is preferably rectangular and mounted upon legs B, although the casing may be so placed within a chute or spout that it will be supported within the same. A rock-shaft, C, is journaled in transverse bearings D upon the top of the casing above the partition E, which divides the casing into two equally large compartments. The chute F is secured at its middle upon the rock-shaft, and the said cut-off consists of a casing having its end pieces converging upward, and having the ends of its bottom cut out to form apertures G G at the converging end pieces. A crank, H, is formed at the forward end of the rock-shaft, and a connecting-rod, I, is pivoted to this crank at its upper end, while its lower end is pivoted to the end of the short arm of a lever, J, which has its fulcrum upon the

front of the casing, and which has a rod, K, pivoted to the end of its long arm, the lower end of which arm has a longitudinal slot, K'. The bottoms L L of the compartments are connected at their inner ends, so as to stand at an obtuse angle to each other, and a rock-shaft, M, is secured to the united edges of the bottoms, and is journaled to rock in bearings N N at the middles of the lower edges of the front and rear sides of the casing, the united edges of the bottoms bearing tightly against the lower edge of the partition in the casing. One of the bottoms is provided with a forwardly-projecting bolt, O, the outer end of which projects into and slides in the longitudinal slot at the lower end of the rod pivoted to the end of the lever upon the front of the casing. It will be seen that when the bottom is tilted from covering the open lower end of one compartment to the position covering the open lower end of the other compartment the forwardly-projecting pin upon the one bottom will first slide in the longitudinal slot of the downwardly-projecting rod, whereupon it will strike one end of the said slot, and through the rod, the lever, the connecting-rod, and the crank and rock shaft, the chute will be tilted so as to incline into the compartment having its bottom closed, conveying the material which may be carried down upon the chute through a spout or chute over the inclined bottom of the cut-off and into the compartment. The free edges of the bottoms are provided each with an outwardly-projecting bolt, P, at its middle, having its end beveled upon its upper side; and this bolt may be engaged and held by means of a latch, Q, pivoted at one end in a casing, R, and having a spring, S, which forces its upper free end outward, so that it may engage the bolt when the latter has passed upward, forcing it inward, after which the pivoted spring-latch will spring out and engage the under side of the end of the bolt and hold it. The casing R is pivoted at its outer edge upon a transverse bolt, T, between two outwardly-projecting lips or arms, U U, projecting from the lower edge of the end piece of the casing, and a connecting-rod, V, is pivoted to the upper end of the casing R with its lower end, while its upper end is pivoted to the short arm of a scale-beam, W, fulcrumed upon the end piece of the casing. This scale-



beam has a sliding poise, X, upon its long graduated arm, and the short lever-arm is provided with a screw-threaded continuation, W, upon which turns a counterpoise, Z, which may be adjusted upon the threaded continuation W, a graduated arm, W', above the threaded continuation, serving to aid in locating the counterpoise; and as the counterpoise is on the opposite side of the pivotal point of the scale-beam with reference to the main weight or poise X, it will be seen that moving the said counterpoise on the threaded continuation toward or from the pivotal point of the scale-beam will regulate the weight, which must be imposed on the rod V before the scale-beam will be tilted. A vertically-sliding bar, A', is pivoted at its upper end to the short arm of the lever J, upon the front of the casing, sliding in a bearing, B', upon the said front, and the lower end of this sliding bar is bifurcated, formed into two arms, C' and D', one of which is provided with an upwardly and inwardly bent pawl end, E', while the other arm is provided with an inwardly and downwardly pointing pawl end, F'. These pawl ends engage alternately the teeth upon both sides of a ratchet-wheel, G', which is secured upon the main shaft H' of the register, the said main shaft having an index, I', which indicates each time the bottoms of the casing are tilted, the index pointing upon a dial, K', and the main shaft is provided outside of the ratchet-wheel with a laterally-projecting tooth or arm, L', which meshes with the ratchet-teeth of a wheel, M', having an index, N', pointing upon a dial, O', which will indicate the number of revolutions of the former ratchet-wheel. It will thus be seen that as the grain passes from the spout or chute down upon the chute it will fall into the compartment into which the chute is inclined, and when a sufficient quantity of grain has been filled into the compartment to overcome the weight of the poise upon the scale-beam, which has been adjusted to be overbalanced by the weight of grain desired to be weighed, the bolt will force the latch-casing outward and the bottom of that compartment will drop. At the same time the bottom of the other compartment will rise and its bolt will pass by the latch and be engaged and held by the same, and the tilting bottoms will tilt the chute, so that it will be inclined into the compartment now having its bottom closed, filling the grain into that compartment until the desired weight has been filled into that, when the same process will take place as in the other compartment, and this will be continued as long as the grain passes down upon the chute, the grain furnishing all the motive power for operating the apparatus.

The registering device will register the number of times the bottoms are tilted, and consequently the number of times a certain weight of grain has passed through the weigher.

Having thus described my invention, I claim

and desire to secure by Letters Patent of the United States—

1. The combination of the casing having the transverse partition at its middle and the transverse bearings at the upper and lower edges of the said partition, the rock-shaft journaled in the upper transverse bearings and provided with the oscillating chute having outwardly-diverging end pieces and apertures in its bottom at the ends of the same, and provided with a crank at its end, the downwardly projecting connecting-rod, the lever pivoted upon the front of the casing and having the said rod pivoted to its short arm, the downwardly-projecting rod having the longitudinal slot at its lower end and pivoted to the lever at its long arm, and the bottoms having a rock-shaft at their united inner ends, secured together at an obtuse angle, and provided with a laterally-projecting bolt at the side of one of the united bottoms, sliding in the longitudinal slot in the lower end of the rod, as and for the purpose shown and set forth.

2. The combination of the bottoms secured together at their inner meeting edges and journaled to rock at the said edges, the bolts projecting from the middles of their outer edges, the latch-casings pivoted between lips projecting from the casing and having the spring-actuated latches, the scale-beams having sliding poises, and the connecting-rods pivoted to the upper ends of the latch-casings and to the short arms of the scale-beams, as and for the purpose shown and set forth.

3. The combination of the rocking bottoms secured together at an obtuse angle, the bolts projecting from their free edges, the latch-casings having latches engaging the bolts, the scale-beams having sliding poises and having screw-threaded extensions upon their short arms provided with poises fitting upon the same, and the connecting-rods pivoted to the latch-casings and to the short arms of the scale-beams.

4. The combination of the lever tilting each time the chute is shifted, the vertically-sliding bar pivoted to the short arm of the said lever and formed with a bifurcated lower end having an upwardly and inwardly hooked arm and a downwardly and inwardly bent arm, a ratchet-wheel journaled between the said arms and engaged alternately at alternating sides by the said arms, and having an index upon its shaft and a laterally-projecting tooth, and a ratchet-wheel having an index upon its shaft and meshing with the laterally-projecting tooth, as and for the purpose shown and set forth.

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

CHARLES EVARISTUS BURCHARD.

Witnesses:

E. R. DOUGLASS,  
A. W. TAPSCOTT.