

(No Model.)

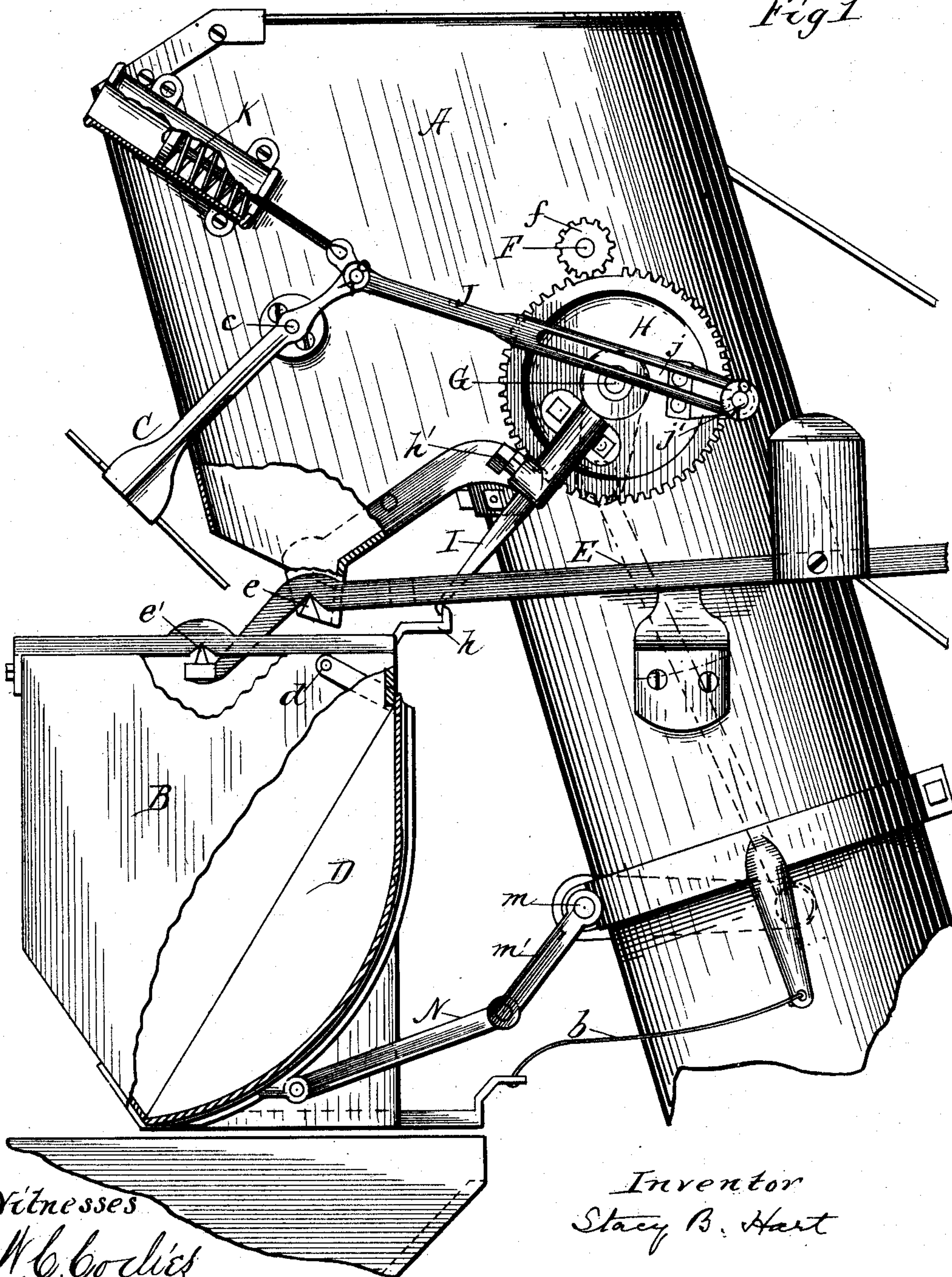
2 Sheets—Sheet 1.

S. B. HART.  
GRAIN WEIGHER.

No. 420,789.

Patented Feb. 4, 1890.

*Fig 1*



Witnesses  
W. C. Corlies  
Harry Bitner

Inventor  
Stacy B. Hart

By Hill & Duncan  
Attorneys



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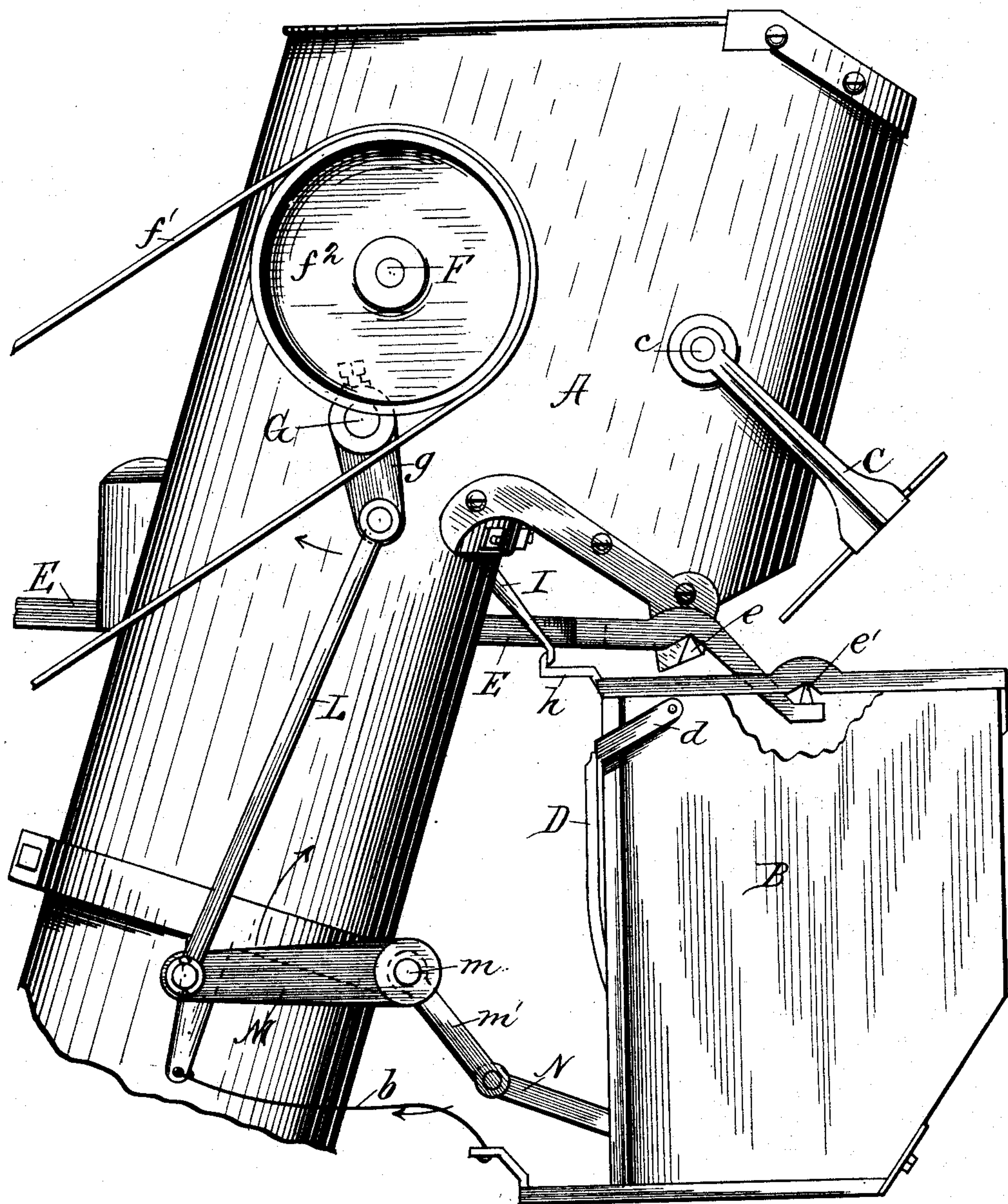


Fig 2

Witnesses

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His Attys



# UNITED STATES PATENT OFFICE.

STACY B. HART, OF PEORIA, ILLINOIS.

## GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 420,789, dated February 4, 1890.

Application filed July 6, 1889. Serial No. 316,673. (No model.)

*To all whom it may concern:*

Be it known that I, STACY B. HART, a citizen of the United States of America, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain Improvements in Weighing Attachments for Grain-Separators, of which the following is a specification.

In the accompanying drawings, Figures 1 and 2 are opposite side elevations of the upper end of the elevator-tube, showing the weighing mechanism thereto attached, and like parts are denoted by similar reference-letters. In Fig. 1 a portion of the grain-hopper is broken away to reveal the discharge-gate.

In said drawings, A is the elevator-tube; B, the grain-hopper; C, the charging-gate, pivoted to the elevator-tube at *c*; D, the discharge-gate, pivoted to the hopper at *d*, and E the side beam, fulcrumed to the elevator-tube at *e* and supporting the hopper at *e'*. The grain-hopper, when charged to the predetermined weight, tilts the scale-beam, drops slightly, discharges the grain, and is raised again by the scale-weight, being guided in its up and down movements by the scale-beam at its upper end and a guide-rod *b* at its lower end.

As in many previously-known weighing attachments, the vertical movements of the grain-hopper control the gates which act to charge and discharge it; and my invention consists in certain improvements in the means whereby such control is effected, its object being to simplify the operating mechanism and render the action prompt, certain, and effective.

My improved operating mechanism is constructed substantially as follows:

F is the power-applying shaft, actuated by a belt and pulley *f*<sup>1</sup> *f*<sup>2</sup> or other suitable device at one end and carrying a small pinion *f* at the other end.

G is a shaft, carrying at one end a crank *g* and at the other end a mutilated pinion H, which meshes with and is driven by the pinion *f*.

I is an arm attached to the pinion H and engaging at its outer end with a stop *h*, attached to the grain-hopper. This arm may be made adjustable in length by construct-

ing it in two parts, one of which slides with relation to the other, and employing a set-screw *h'* or other clamping device to lock the movable part in position.

J is a rod, articulated at one end to the charging-gate C, and having at the other end a slot *j*, in which plays a wrist-pin *j'*, carried by the pinion H. A spring K is so connected to the rod J or gate C as to tend to close the gate unless prevented by a superior opposing force.

From the crank *g* a pitman L extends to a crank or lever M, pivoted at *m* to the elevator-tube and provided with an arm *m'*, which is connected by a pitman N to the discharge-gate D. The parts are intended to be arranged substantially as shown, so that, when arm I is in contact with stop *h*, the charging-gate will be held open by the action of pin *j'* against the end of slot *j*, the discharge-gate will be held closed by the action of crank *g*, pitman L, lever M, and pitman N, and the mutilated portion of pinion H will be at the pinion *f*, leaving the latter free from engagement. When in this position, the parts *g* L M N are designed to substantially lock the discharge-gate in its closed position by reason of the parts *m'* N being in line, or nearly in line, with each other, and also by reason of the parts *g* L being in a similar position with relation to each other.

The operation is as follows: When the hopper has received its full charge, it depresses the scale-beam and releases stop *h* from arm I. Thereupon spring K, being now relieved from restraint, suddenly draws pinion H around until its teeth mesh with those of pinion *f*, and by the same movement the spring closes the charging-gate. Pinion *f*, which is constantly in rotation, now turns pinion H, shaft G, and crank *g*, and by the connecting devices between crank *g* and gate D draws the discharge-gate open, discharging the grain-hopper, and then, continuing its movement, it closes the discharge-gate again. The grain-hopper, relieved of its charge, rises meanwhile, bringing stop *h* again into the path of arm I, and at about the same time that the discharge-gate is fully closed the arm I strikes the stop, arresting the movement of wheel H, with the pinion *f* disengaged, as before.



The advantages are that the mechanical parts are simple in construction, positive, accurate, and certain in their action, and not liable to get out of order. To a great extent, these superior advantages result from the employment of the mutilated gear-wheel II in place of the old loosely-mounted cam-plate, and therefore I consider this wheel as the most important and controlling element of my combination. There is also a material advantage in so hanging the discharge-gate that the weight of the grain tends to open it, and arranging the controlling levers and cranks so as to lock it closed, because by this means not only is the gate held securely closed, but the weight of the grain assists both in opening it and in rotating the shaft G during at least a portion of its revolution.

I do not herein claim any invention described and shown in my pending application, filed December 21, 1888, Serial No. 294,347; but

I claim as new and desire to secure by Letters Patent—

1. In a grain-weighing mechanism, the combination of the pinion *f* and mutilated gear-wheel II with the charging-gate, the spring, and the slotted rod J, substantially as described.

2. In a grain-weighing mechanism, the combination of the pinion *f* and mutilated gear-wheel II with the spring K, the arm I, and the stop *h*, substantially as described.

3. In a grain-weighing mechanism, the combination of the pinion *f* and mutilated gear-wheel II with the hopper B, scale-beam E, stop *h*, arm I, charging-gate C, spring K, and slotted rod J, substantially as described.

4. In a grain-weighing mechanism, the combination of the following elements, viz: a grain-hopper suspended on a scale-beam and

provided with the inclined swinging discharge-gate D, a continuously-rotating driving-pinion *f*, a shaft G, having affixed to one end a mutilated gear-wheel II, by which it is intermittently driven from pinion *f* and to the other end of a crank *g*, connected to the gate D by a locking toggle-lever connection, and mechanism connected with the mutilated gear-wheel II for operating the charging-gate and locking the shaft G intermittently out of action, substantially as described.

5. In a grain-weighing mechanism, the combination of the pinion *f* and mutilated gear-wheel II with the hopper B, the stop *h*, and an adjustable arm I, attached to wheel II, substantially as described.

6. In an automatic grain-weigher, a constantly-rotating pinion F, meshing with a mutilated gear-wheel II, a grain-box supported upon a scale-beam, charging and discharging gates operated by the gear-wheel II through suitable connections therewith and arranged so that the charging-gate shall be open and the discharging-gate closed when the mutilated portion of the gear reaches the pinion F, a stop governed by the movement of the grain-box, so as to engage with the gear-wheel II or an attachment thereof when said box is empty and the mutilated portion of said gear reaches the pinion F, but to be disengaged therefrom by the dropping of the grain-box, and means for automatically rotating the gear-wheel II upon the disengagement of said stop until the whole portion of said wheel is brought into gear with the pinion F, as and for the purpose stated.

STACY B. HART.

Witnesses:

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