(No Model.)

W. T. BLACK.

AUTOMATIC GRAIN WEIGHING MACHINE.

No. 441,225. Patented Nov. 25, 1890.

Fig. 3.

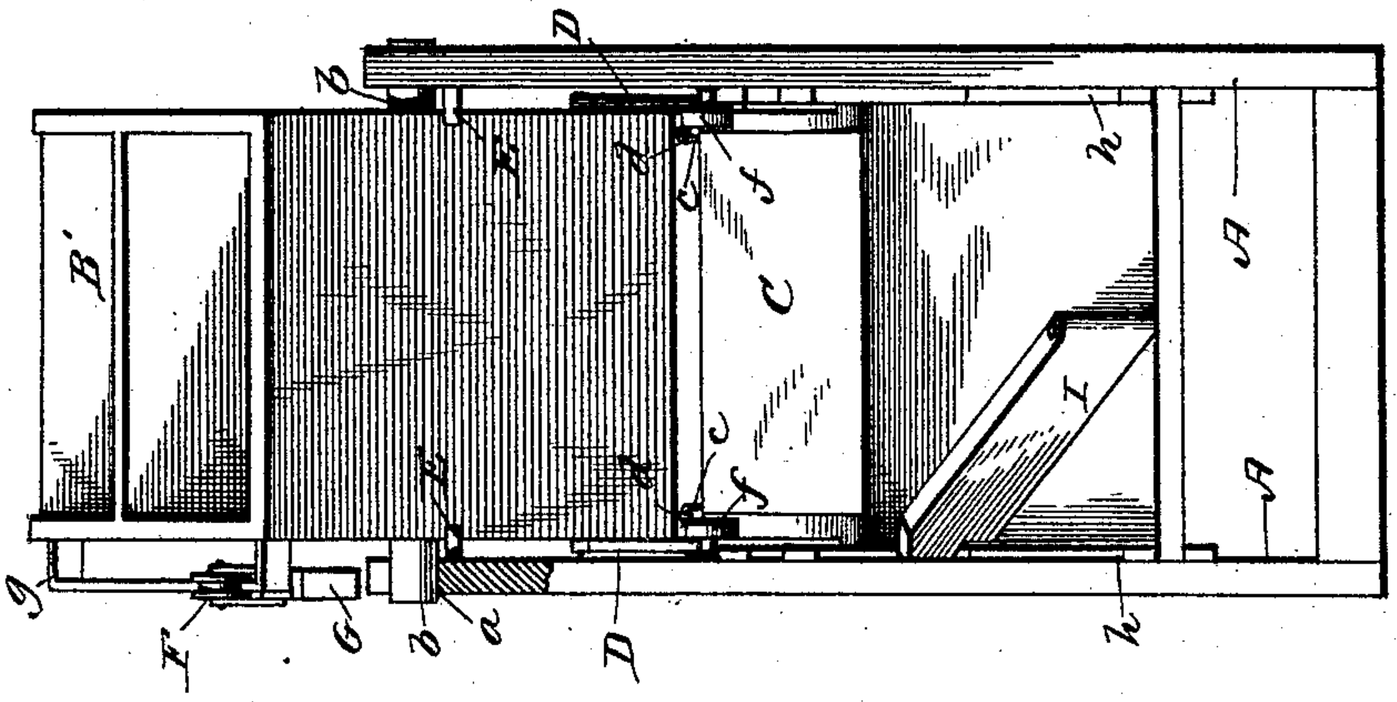

Fig. 2.

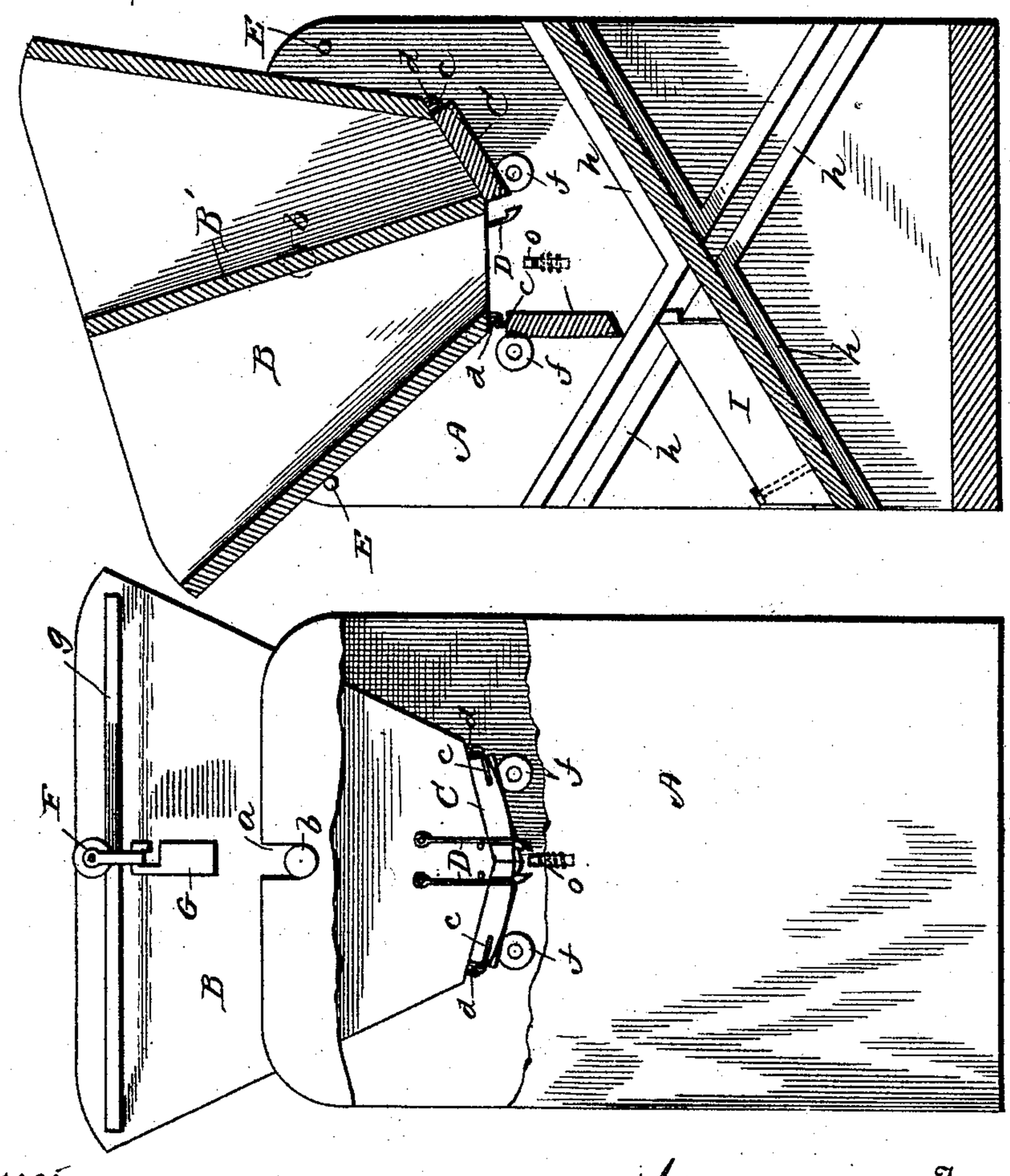

Fig. 1.

Witnesses
W. F. Dudley.
W. G. Stone.

Inventor
William T. Black,
By his Attorney
Franklin H. Hough

UNITED STATES PATENT OFFICE.

WILLIAM THOMAS BLACK, OF CRITTENDEN, ILLINOIS.

AUTOMATIC GRAIN-WEIGHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 441,225, dated November 25, 1890.

Application filed June 6, 1890. Serial No. 354,426. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS BLACK, a citizen of the United States, residing at Crittenden, in the county of Champaign and State of Illinois, have invented certain new and useful Improvements in Grain-Weighers; and I do declare the following to be a full, clear, and exact description of the invention, such as 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.

This invention relates to certain new and useful improvements in automatic grain-weighers; and it has for its object to provide an improved device of this character which shall be easily operated, and which shall have provisions for holding the tilting hopper in its tilted position until all of the material therein has been emptied. It aims, also, to provide for the ready changing of the direction-board, so that the grain or other material may be readily delivered to either side, as desired.

It has for a further object to provide improved means for operating the doors or bottoms of the hopper or measure.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims, the invention residing in the novel combinations and the construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then specifically pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation of my improved device with parts broken away. Fig. 2 is a vertical longitudinal section through the same. Fig. 3 is an end view.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the vertical portions or sides, which at opposite points at the upper end are formed or provided with bearings *a* for the pintles *b* of the hopper or measure B, which is designed to work between the said sides. This hopper or measure is formed with a central vertical partition B′ and inclined sides and ends. The under side of the bottom is substantially on the arc of a circle and is provided with hinged or pivoted doors C, which are hinged at their outer corners to the under side of the hopper or measure in any suitable manner, so that the doors will alternately open and close as the hopper or measure is tilted. The lower edges of the ends of the hopper or measure are beveled off, so as to allow the doors to swing back past the perpendicular as they are opened. The preferable manner of attaching these doors is by means of wires *c*, one end of each of which is secured to the edge of the door, and after passing through an eye or staple *d* on the bottom edge of the end of the hopper or measure is seated in a groove or recess in the end of the door and has its end firmly held therein, as shown. This forms a cheap, durable, and easily-operated means of hinging the door. The lower faces of the doors are on a curve, as shown by dotted lines in Fig. 2, and the edges thereof farthest from the hinges are designed to be held up by means of springs D, which are attached to the sides of the hopper or measure, with their free ends engaging beneath the inner edges of the doors, as shown. These springs are released as the hopper or measure is tilted by engagement with pins or pegs O on the inner sides of the vertical portions of the case. Suitable pins or rollers *f* are provided to engage the doors and close them as the hopper or measure is tilted in the opposite direction, when the free ends of the spring snaps or catches are forced under the doors and hold them until the hopper or measure is again tilted. Stops E are provided upon the inner faces of the sides A, near opposite ends thereof, to engage the hopper or measure and limit its movement.

Along the upper face of one of the sides of the hopper or measure there is arranged a track or guideway *g*, on which is adapted to travel the pulley F, which carries an adjustable and detachable weight G. This pulley, with its attached weight, automatically shifts itself from side to side, or from end to end of the track or guide as the hopper or measure

is tilted. When the hopper or measure is tilted when one compartment becomes filled, the pulley travels down the incline thus formed and remains at the lower side until it becomes empty, and as the other side becomes filled and the weight becomes sufficient to overcome the weight of the empty side and the weight of the pulley, the hopper or measure tilts and the weighted pulley then travels to the opposite side, which will now be the one that is the lower of the two. This is repeated at each tilting of the hopper or measure. It serves to keep the tilted side down until all the contents thereof have been discharged. The weight can be adjusted or changed to suit the varying density of the various articles being measured.

The hopper or measure is operated and tilted by the weight of the material being measured and no other power is required. All the parts are automatic in their action, and the doors are automatically opened and closed, and the springs automatically actuated to engage and release the doors.

Beneath the bottom of the hopper or measure there is arranged an inclined slide or way, onto which the contents of the same are discharged, and this inclined slide is removably held in suitable guides *h*, secured to the inner faces of the sides A of the case, and there are arranged two sets extending in opposite directions, so that the inclined way can be readily removed and placed from one position to the other whenever it is desired to change the direction of the same—as, for instance, when the bins on one side of the storage-house are filled and it is desired to fill the bins on the other side. The upper face of this inclined way is also provided with a swiveled gate I, connected at its lower end in any suitable way to the inclined way H, and may be provided with any suitable means for operating the same. The inclined guides for the inclined way H are so arranged as to cross each other, and the portion of what serves as a guide in one direction also serves as a part of the guide for the inclined way in the other direction.

The device constructed and arranged as above set forth is simple, cheap, and very efficient in operation, requiring but little, if any, attention, and all the parts are practically automatic in their action.

Various modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing the advantages thereof.

What I claim as new is—

1. The combination, with the sides and the tilting measure, of the hinged doors, the springs engaging the same, and the pegs for disengaging the springs, and the rollers for closing the doors, substantially as specified.

2. The improved grain-weigher herein described, consisting of the sides A, the tilting measure, the hinged doors, the springs engaging the same, the pegs for disengaging the springs, the rollers for closing the doors, the stops E upon the sides A, the inclined way beneath the measure, the pivoted direction-board, all combined, arranged, and operating substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM THOMAS BLACK.

Witnesses:

JOHN COLVIN,

CHARLES ALBRECHT.