(No Model.)

2 Sheets—Sheet 1.

J. DABLE.

SCALE FOR WEIGHING GRAIN.

No. 377,292. Patented Jan. 31, 1888.

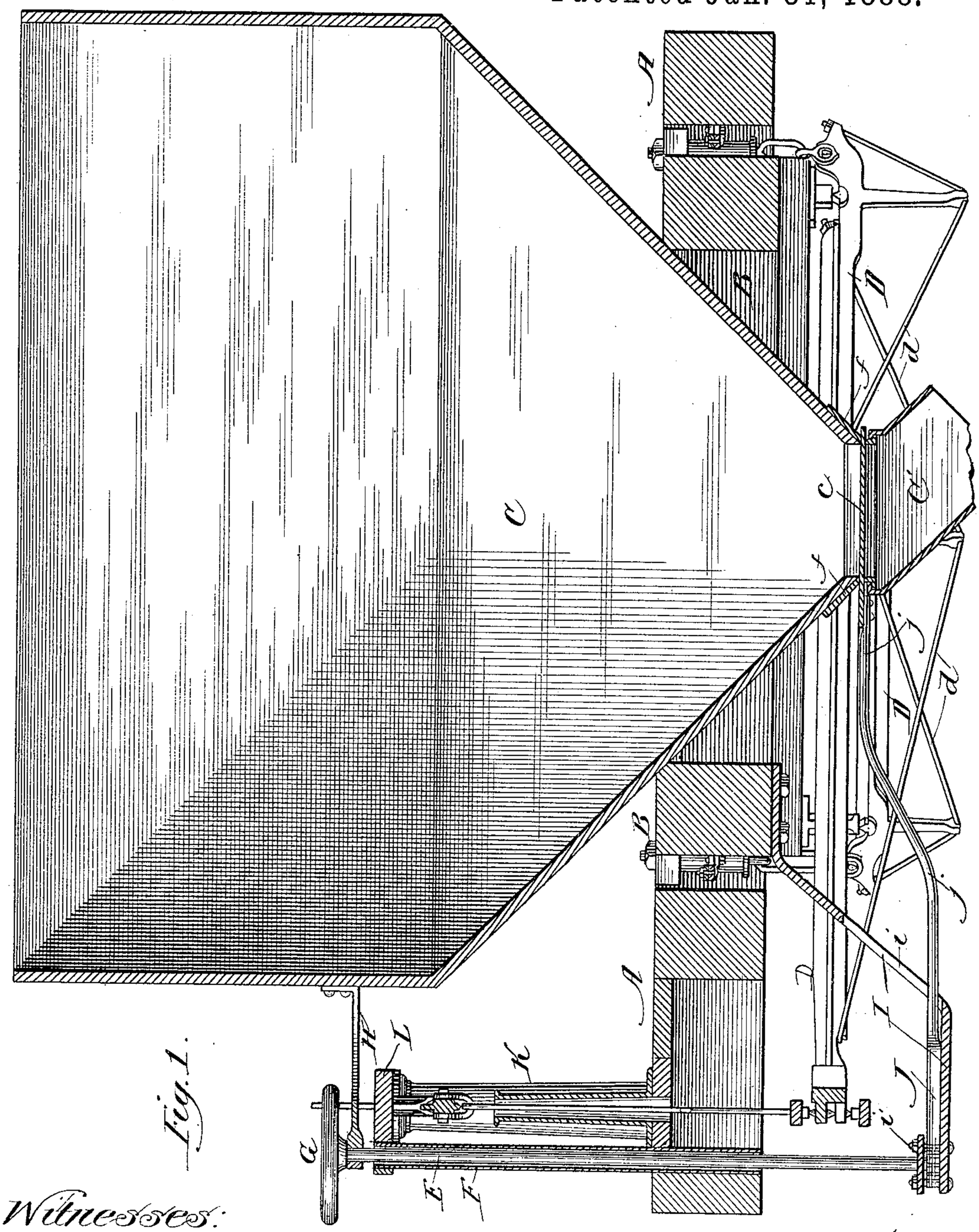

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

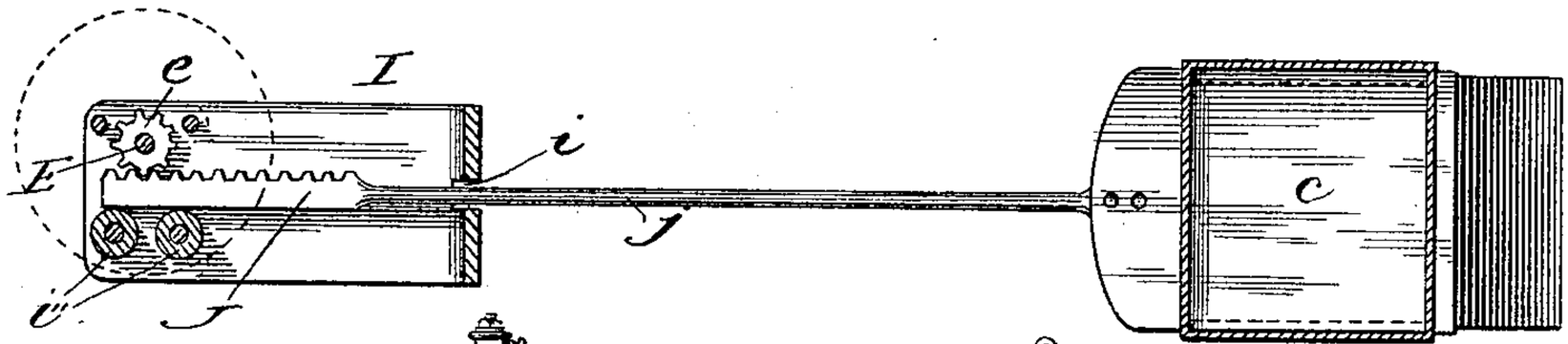


Fig. 3.

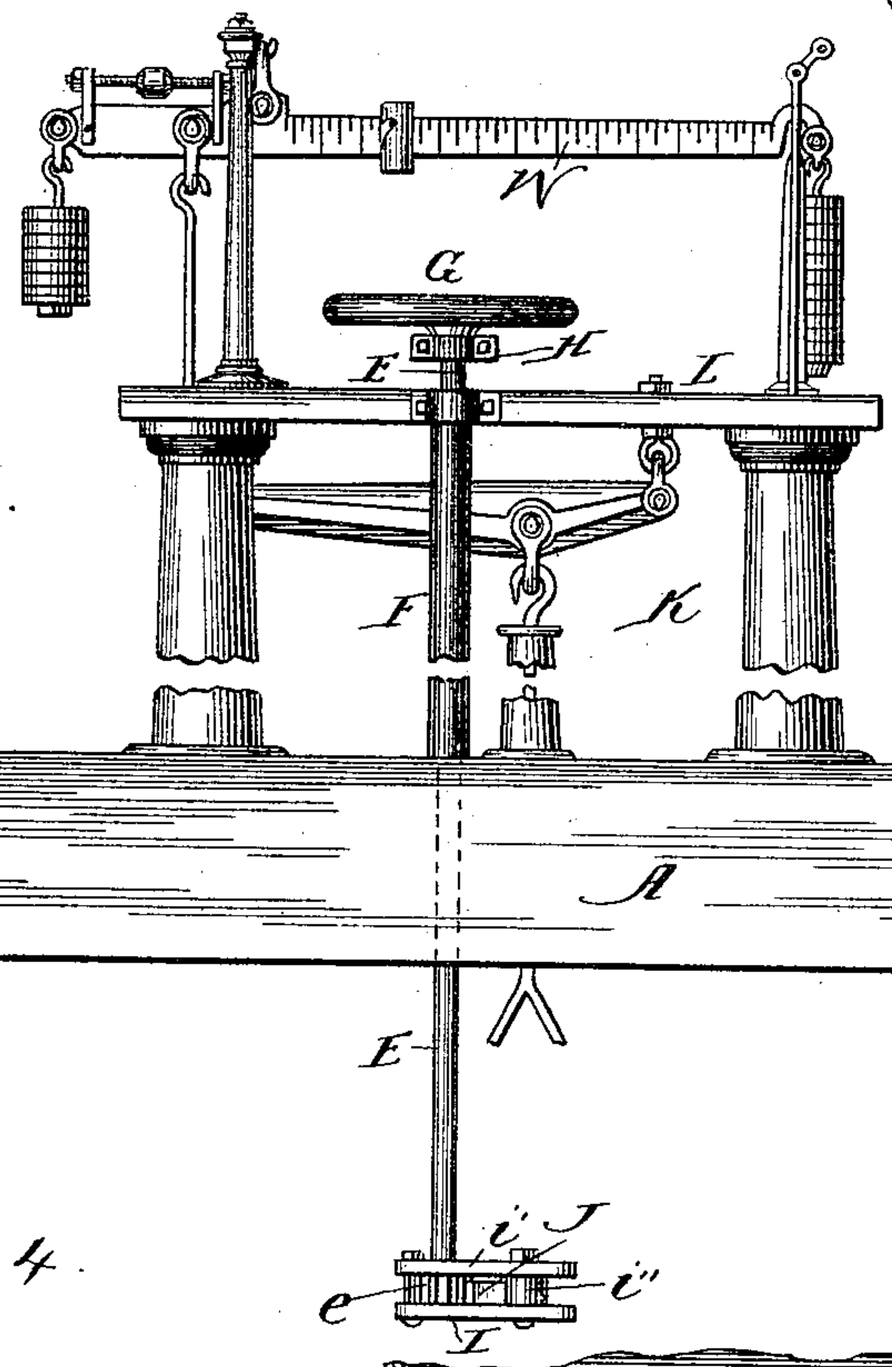
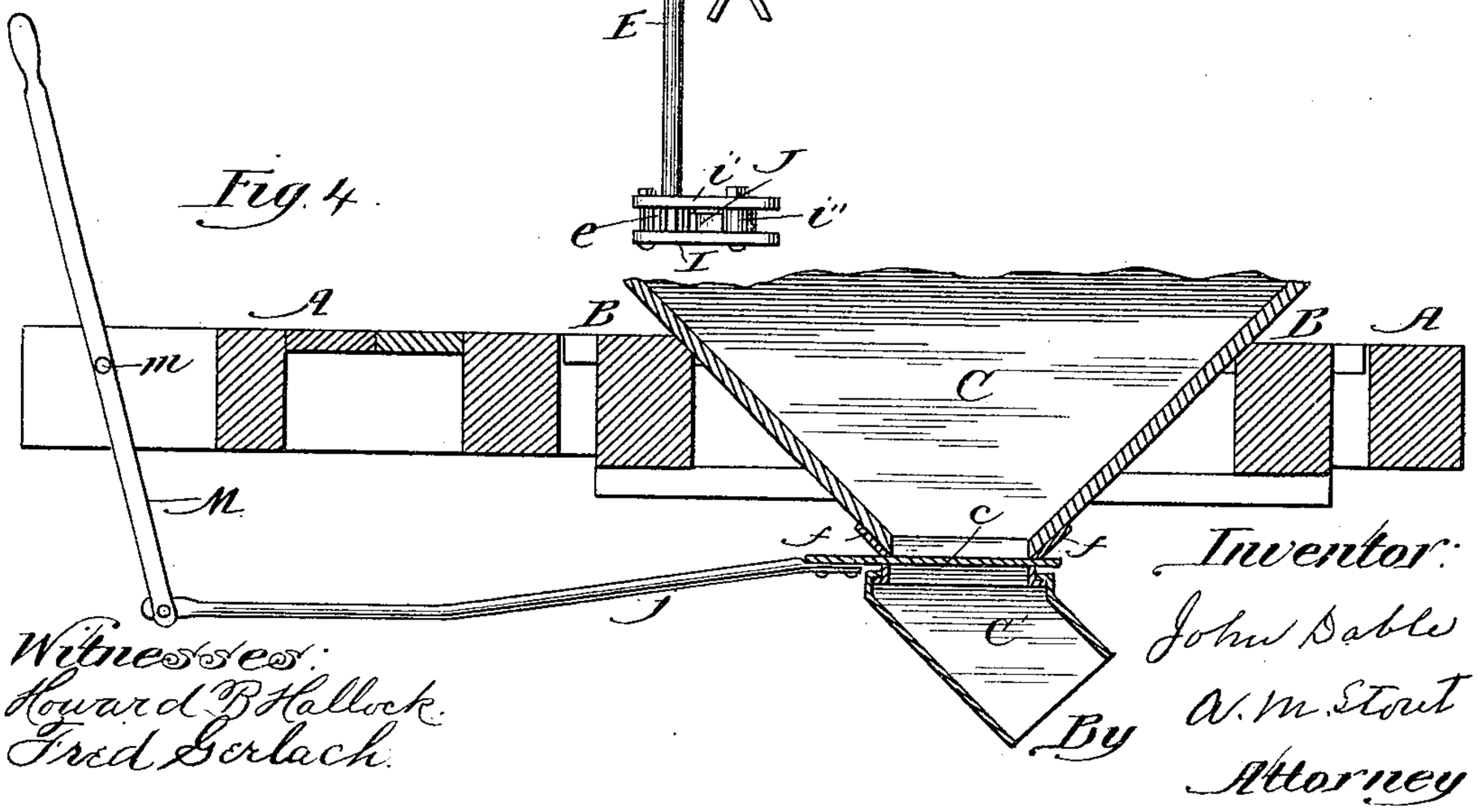


Fig. 4.



Witnesses:
Howard B Hallock.
Fred Gerlach.

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UNITED STATES PATENT OFFICE.

JOHN DABLE, OF CHICAGO, ILLINOIS.

SCALE FOR WEIGHING GRAIN.

SPECIFICATION forming part of Letters Patent No. 377,292, dated January 31, 1888.

Application filed November 3, 1887. Serial No. 254,227. (No model.)

To all whom it may concern:

Be it known that I, JOHN DABLE, of Chicago, county of Cook, and State of Illinois, have invented certain Improvements in Scales for Weighing Grain, of which the following is a specification.

My said invention will be more fully described hereinafter with reference to the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of a receiving-hopper and a square frame extending around the lower portion of said hopper and attached to the same and a foundation-frame for the same standing upon supports with my improvement attached; Fig. 2, a detail view, it being a plan of the slide *c*, rack J, and rod *j*, connecting these two parts and a part of the support I for the rack-and-pinion shaft; Fig. 3, a front elevation of the vertical shaft E in sleeve F, pinion *e*, and other parts; and Fig. 4, a vertical longitudinal section of the frame A and hopper C, with a lever, M, substituted for the vertical shaft and pinion shown in the other figures.

A indicates the main frame, which sustains all the other parts.

B is a square frame, which is attached to the receiving-hopper C, which extends down through that frame and is provided with an opening for the grain to pass down through, said opening being opened and closed by the reciprocating slide *c*.

The receiving-hopper C and the square frame B are sustained from below by the four scale-beams D, which are braced by the iron rods *d*. The long scale-beams D are pivoted together at their forward ends, where a rod or chain connects them with the weight-beam W, as shown, or in any other suitable manner; but for these devices I make no claim herein. The outer lower end of the hopper is provided with a metal covering, *f*, which extends down and terminates in a spout, C′, for the discharge of the grain into any suitable receptacle after it shall have been weighed in the hopper C. The spout on its front and rear sides is provided with suitable apertures, through which back and forth the closing slide *c* is forced, as may be required to open and close the bottom of the grain-hopper.

The object of my said invention is to furnish devices for the more efficient and certain operation of the said slide *c*. Heretofore a similar slide has been operated by means of a rod, the back of which was connected with a vertical lever which was fulcrumed upon some suitable support and used to operate the slide. That device was seriously objectionable, because by it the slide was not held and confined to true action in the operation of opening and closing the lower end of the hopper C, the slide being liable to be jammed with grain in the apertures, which would destroy accuracy in the operation of weighing, which defective action will be prevented by the use of my devices, which will secure correct action under all circumstances. The lever would be liable to be impeded by the friction of the parts in various ways. Besides this consideration, the operation of such lever would require space that could be better occupied.

Fig. 4 of the drawings is introduced for the mere purpose of illustrating that defective device for opening and closing the grain-hopper C. My said device claimed herein consists of the vertical shaft E, inclosed for protection merely in the sleeve F, is furnished at the upper end with hand-wheel G and a support, H, attached to the hopper, to hold it against both vertical and lateral motion, and at the lower end with a pinion, *e*, and a rack, J, which is itself connected to the slide *c* by means of the rod *j*. The lower end of the shaft E and the pinion are sustained by the support I, which may be a flat bar of iron, and has the form shown in Fig. 1, and is provided with a slot, *i*, through which the rod *j* works freely back and forth. It is sufficiently stiff and strong to hold the rack and pinion steadily upon its outer end, and its inner end is fastened to the square frame B, which contains the lower part of the hopper. The outer end is provided with a box for the rack and pinion by means of the metal plate *i′*, which is held parallel to the support and up from it by headed bolts and nuts, as shown in Fig. 1.

It is manifest that as both supports for the vertical shaft—namely, that from the hopper C and that from the frame B, respectively—are securely fastened together, any motion of one of them will be imparted to the other, and thus any action either irregular or injurious is not

likely to take place in the operation of the slide *c*. The turning of the vertical shaft to the right or left will result in the operation of the slide through the pinion rack and rod in an even and regular manner for the opening and closing of the lower end of the hopper without impairing the accuracy of the weighing.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the vertical shaft E, provided on its lower end with pinion *e*, with the support I, rigidly attached to the square frame B below, and the support H, in like manner attached to the hopper C above, and with the rack J, gearing with said pinion and with the slide *c*, the said slide and rack being rigidly connected together, the whole adapted to operate the slide, substantially as described.

2. In combination with the square frame B and rigidly attached thereto, the support I, provided with the longitudinal slot *i*, to serve as a guide for the rack *j*, and at its outer end with the described box adapted to sustain the lower end of the vertical rod E, the pinion *e*, and rack J, and guide the motion of the rack, substantially as described.

JOHN DABLE.

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