

(No Model.)

A. J. BUIE.
GRAIN SCALE.

No. 321,481.

Patented July 7, 1885.

Fig. 1.

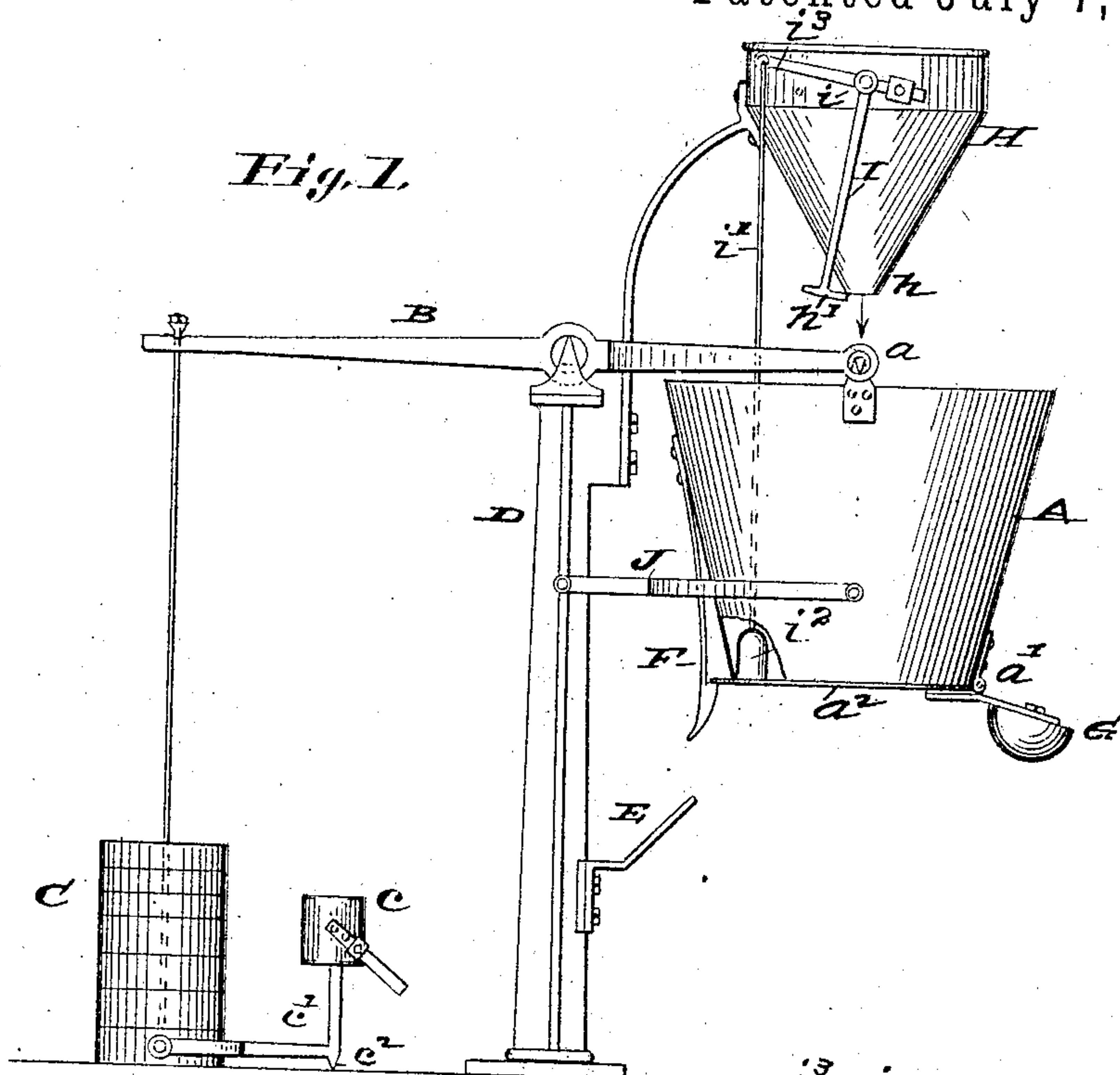
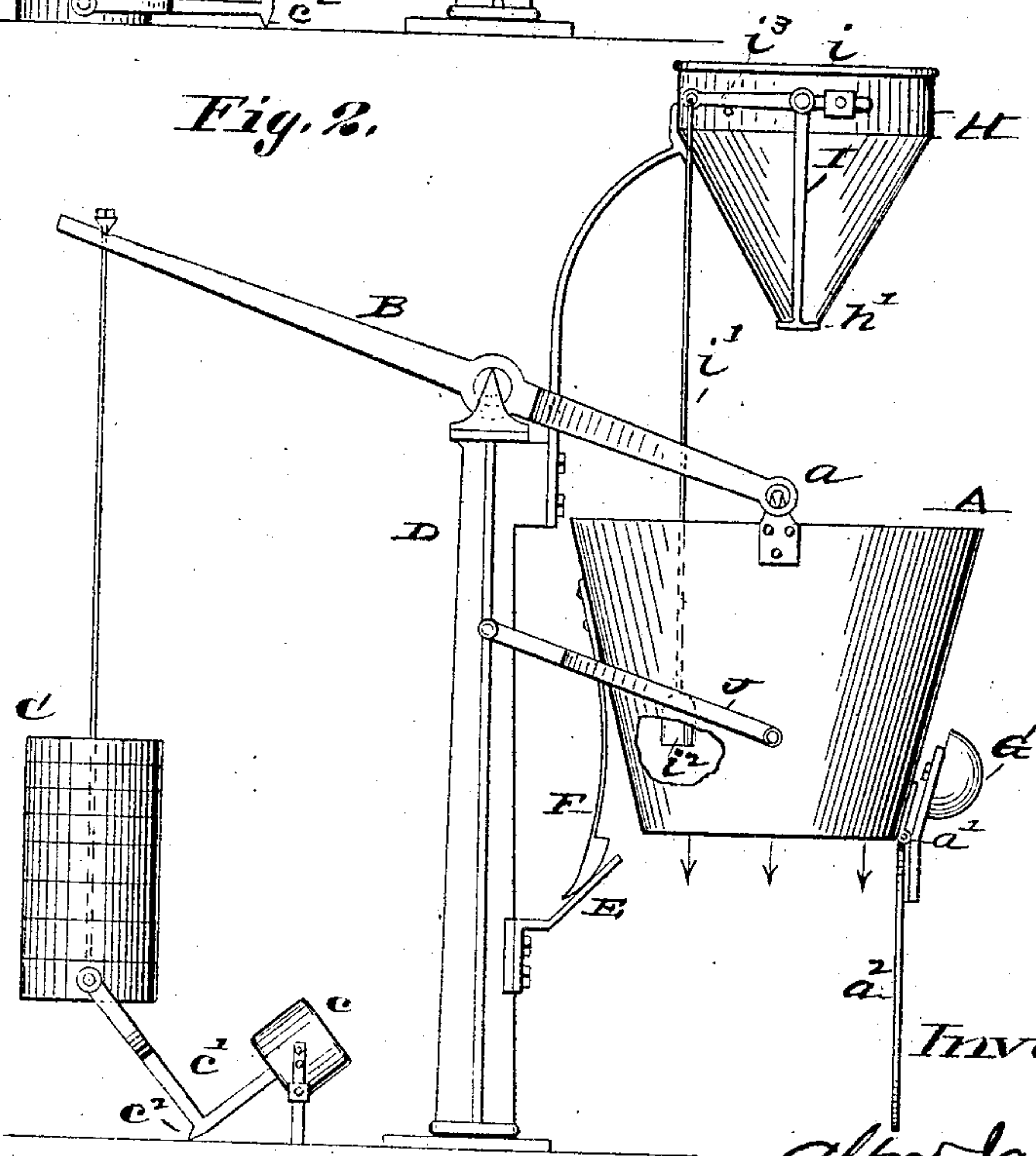


Fig. 2.



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ALFRED JAMES BUIE, OF ST. LOUIS, MISSOURI.

GRAIN-SCALES.

SPECIFICATION forming part of Letters Patent No. 321,481, dated July 7, 1885.

Application filed April 27, 1885. (No model.)

To all whom it may concern:

Be it known that I, ALFRED JAMES BUIE, of St. Louis, Missouri, have made a new and useful Improvement in Grain-Scales, of which the following is a full, clear, and exact description.

The object of the improvement is to provide improved means for measuring or weighing grain by automatus action.

The improvement consists of a combination and adjustment of vessels, levers, weights, and springs, by means of which grain falling from a hopper is accurately and continuously weighed or measured.

The improvement is better explained by reference to the drawings hereto annexed, and forming part of this specification.

Figure 1 is a front elevation, partly in section, of the improvement as in use, the bucket being raised and its bottom closed. Fig. 2 is a similar view, showing the bucket lowered and its bottom opened.

The same letters of reference denote the same parts.

A represents a vessel which may be termed a "bucket." It is pivoted at a to an arm of the lever B, whose other arm supports a weight, C, whose function is to act as a counterpoise to the quantity of grain received into the bucket A. The lever B turns upon a suitable fulcrum, such as the standard D, which also supports the hopper H and the deflector E, whose function is hereinafter described.

The bottom a^2 of the bucket A is pivoted to the bucket at a' and is free to fall from the position shown in Fig. 1 into that exhibited in Fig. 2 when released from the spring-latch F, which is attached to the bucket and adapted to uphold the bucket-bottom, substantially as shown. The weight G, attached to the bottom of the bucket, serves to swing the bottom from the position shown in Fig. 2 into that of Fig. 1.

H represents a hopper whose outlet h is adapted to be closed by the slide h' . This slide is attached to the lower arm of a bell-crank lever, I, which is pivoted at i to the hopper, as shown, and whose arm i^3 , by means of the rod i' , supports a weight, i^2 , which also rests upon the bottom of the bucket when the latter is in the position shown in Fig. 1, and which, by dropping, serves to move the lever I

and thereby close the outlet of the hopper when the bucket falls to the position shown in Fig. 2.

When the weight C is lifted by the gradually-increasing quantity of grain received from the hopper into the bucket A, it is desirable that its motion shall be prompt and to a height sufficient to precipitate the bucket into the position shown in Fig. 2. To effect this the weight C is provided with a supplemental weight, c , attached by means of a lever, c' , substantially as shown in Fig. 1, and so arranged that when the weight C rests upon the floor the supplemental weight must necessarily rest upon a small base, c^2 . When, therefore, the weight C begins to rise, it lifts the longer arm of the lever c' , which has the effect of moving the supplemental weight outside of its center of gravity. When the weight C has been lifted to a height sufficient to move the center of gravity in the weight c outside of its base at c^2 , the weight c falls to the floor and the larger weight rises promptly. The operation of the improvement is as follows:

Grain is placed into the hopper H. It falls through the outlet h and into the bucket A. When sufficient grain falls into the bucket to overcome the counterpoise C, the latter begins to rise and the bucket A begins to descend. When this gradual motion proceeds to the point of precipitating the weight c to the floor, the weight C is instantly projected upward and the bucket A downward. In passing downward the spring-latch F encounters the deflector E and is thereby drawn from beneath the bottom of the bucket, whereupon the weight of grain in the bucket overcomes the resistance of the weight G, the bottom falls, and the grain is precipitated into a vessel (not shown) prepared to receive it. The small weight i^2 having lost its support on the bottom of the bucket, bears upon the lever I and causes the slide h' to close the outlet of the hopper, all substantially as shown in Fig. 2.

The grain having now fallen from the bucket the weight C returns to its original position on the floor, and the bucket A is thereby drawn back to its position, as shown in Fig. 1. At the same time the weight G causes the bottom of the bucket to swing back into its place, while the small weight i^2 , being lifted again by

the bucket, causes the lever I to move and thus open the outlet of the hopper, whereupon all will be in readiness for a repetition of the weighing process, substantially as shown in 5 Fig. 1.

In the descent of the bucket A, as described, the arm J, which at one end is jointed to the standard D and at the other end to the bucket A, serves to hold the bucket back and prevent 10 it from being drawn too far toward the standard when the spring-latch encounters the deflector.

I claim—

1. The combination of the standard D, the 15 bucket A, the lever B, the weight C, the lever c' , and the weight c , substantially as described.

2. The combination of the standard D, the bucket A, the weighted lever B, the hopper

H, the lever I, the slide h' , the rod i' , and the weight i^2 , substantially as described. 20

3. The combination of the standard D, the bucket A, the lever B, the arm J, the spring-latch F, and the deflector E, substantially as described.

4. The combination of the standard D, the 25 bucket A, the hinged bottom a^2 , weighted at G, the weighted lever B, the spring-latch F, the deflector E, the hopper H, the slide h' , the lever I, and the weighted rod i' , substantially as described.

Witness my hand—

ALFRED JAMES BUIE.

Witnesses:

C. D. MOODY,

J. W. HOKE.