J. T. KEELING.

GRAIN METER.

No. 103,470. Patented May 24, 1870.

Fig. 1.

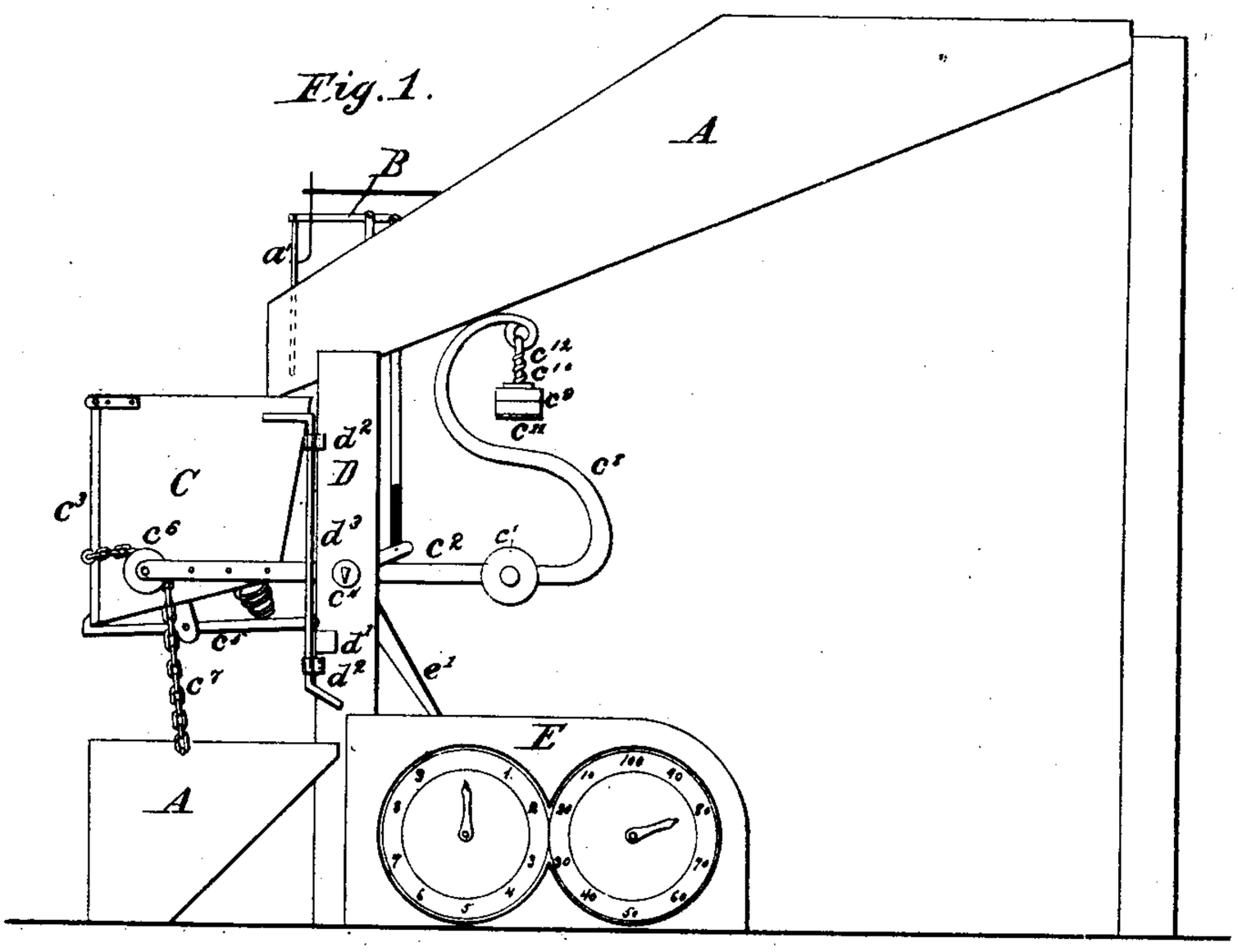
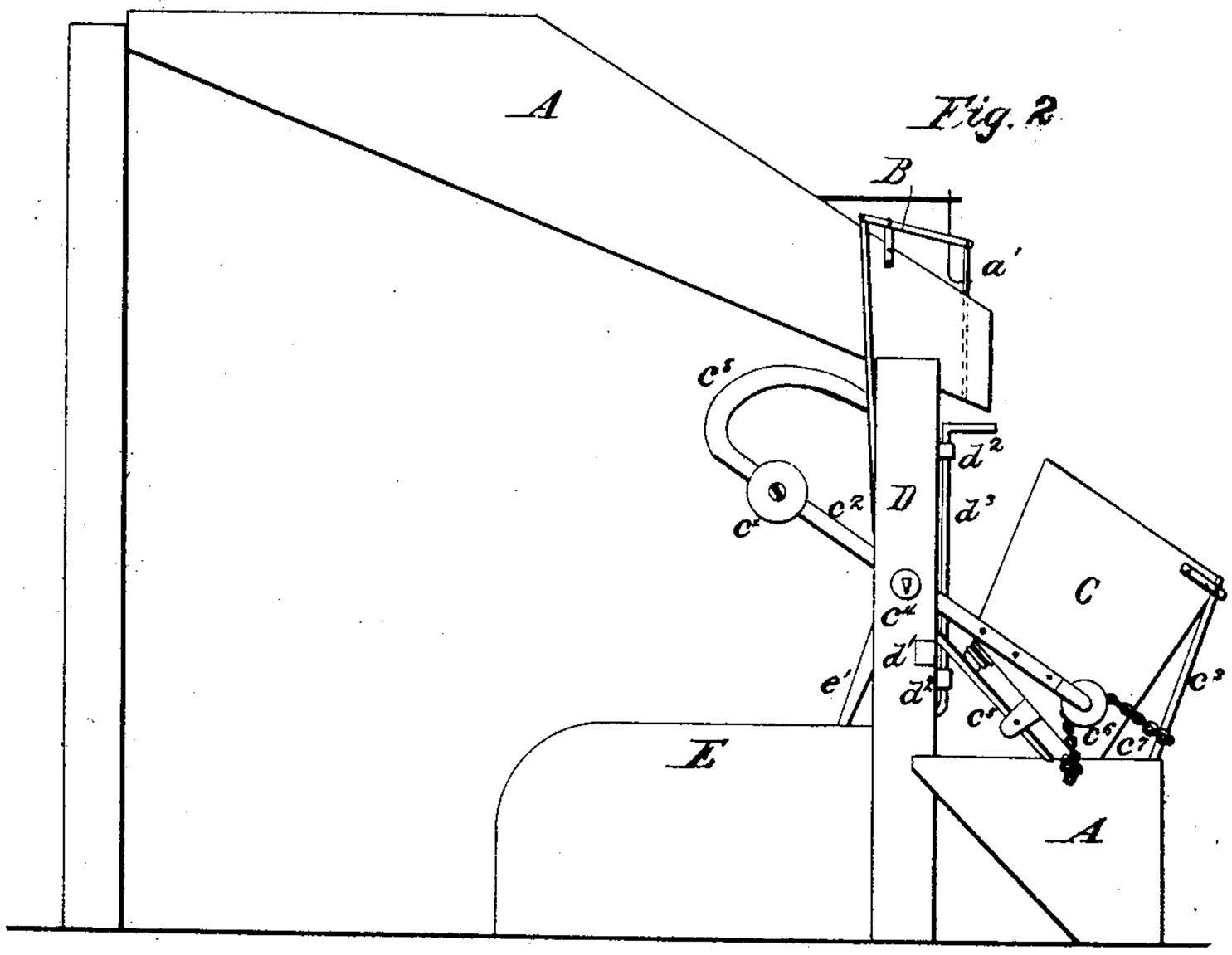


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN T. KEELING, OF HIBERNIA, MISSOURI.

IMPROVEMENT IN GRAIN-METERS.

Specification forming part of Letters Patent No. **103,470**, dated May 24, 1870.

To all whom it may concern:

Be it known that I, JOHN T. KEELING, of Hibernia, in the county of Callaway, and in the State of Missouri, have invented certain new and useful Improvements in Grain-Meters; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction and arrangement of a self-acting device for weighing grain or other substances.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a front view showing the machine ready for work, and Fig. 2 is a rear view of the same at the moment of emptying.

A represents the chute or conductor, through which the grain is passed, said conductor being broken and a box, C, introduced between its two parts. The upper end of the broken conductor A is closed by means of a gate, a', the opening and shutting of which are performed through the lever arrangement B, in combination with the balancing weighing-box C. This box has on one side a beam, c^2, with a weight, c', attached to it, and is supported by a balancing-bar or knife-edge, c^4, in such a manner that, being empty, the weight c' will balance the same—that is, the beam c^2 will be brought to a horizontal position, and the upper edge of the box C immediately under the broken conductor A, as shown in Fig. 1. The box C is provided with a door, c^3, hinged or pivoted at its upper edge, and when the beam c^2 is in a horizontal position this door will close the weighing-box by means of the spring-catch c^5 and chains c^7, which run over rollers c^6, their ends being fastened to the door and to the lower part of the broken chute or conductor A, when at the same time the lever arrangement B, which is connected with the beam c^2, will hold the gate a' open and allow the substance contained in the upper part of the chute A to slide into the weighing-box C. This would set the beam c^2 out of balance, to prevent which, until a certain quantity has passed into the box, an upright scale-beam, c^8, is fastened to the beam c^2, which scale-beam supports weights c^9, necessary to counterbalance the quantity to be weighed in the box C. The least overweight in the box will, by means of the lever arrangement B, shut the gate a' and stop the substance from passing out of the upper part of the chute A. The weighing-box being full and going down, the spring-catch c^5 will touch the cross-bar d', fastened between the two supporters D, and, sliding from the door c^3, permits the substance contained in the box to open the door by its own weight and fall into the lower part of the chute A. The weighing-box would remain in this position, the substance counterbalancing weight c^9, standing perpendicularly above the balancing-point c^4, did not the repulsion of the spring-catch c^5 on the cross-bar d', transferred to the box, bring the same back to its former position. A catch, e', attached to the beam c^2, acts, by means of a stopping-wheel, upon a clock-work, E, the hands of which will show how often the balancing movement has been repeated, indicating how much of the substance, according to its weight, has passed the weighing-box C.

The operation of self-weighing, which indicates continually the same quantities as long as they are brought through the conductor A to the weighing-box C, can be stopped at any moment by means of a rock-shaft, d^3, provided with arms bent at right angles, but in different directions, said shaft running through bearings d^2 d^2, and when turned toward the box catch the same with its upper arm before the box has risen far enough to allow the lever arrangement B to open the gate a'. Hence, the gate a' remaining closed, the self-weighing operation is stopped.

The weights c^9 are attached to the scale-bar c^8 in such a manner that it is impossible for them to get loose during the working of the machine. This is accomplished by tonguing and grooving the weights and placing them between two plates, c^{10} and c^{11}, the lower one, c^{11}, being fastened to the supporting-wire of the weights, and the upper one, c^{10}, put in such a position that it will slide down and press upon the weights by means of a spring, c^{12}. By this means any desired number or pieces of weights may be put on.

This machine may be constructed of iron, wood, or any other suitable material, and may be used in combination with thrashing-machines, elevators, mills, or wherever desired.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement between the upper and lower part of the broken chute or conductor A of the weighing-box C, with door c^3 hinged or pivoted at the upper end, chains c^7, rollers c^6, and spring-catch c^5, all substantially as shown and described.

2. In combination with the above, the beam c^4, with scale-beam c^8, lever arrangement B, gate a', cross-bar d', catch e', and clock-work E, all substantially as and for the purposes herein set forth.

3. The combination of the rock-shaft d^3 with the weighing-box C, for the purpose of stopping the movement of the machine, substantially as herein set forth.

4. The combination of the grooved and tongued weights c^9, plates c^{10} and c^{11}, and the spring c^{12}, with the upright scale-beam c^8, substantially as and for the purposes herein set forth.

JOHN T. KEELING.

Witnesses:

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