(No Model.)

N. MORRISON.

AUTOMATIC GRAIN WEIGHER.

No. 341,159. Patented May 4, 1886.

Fig. 1.

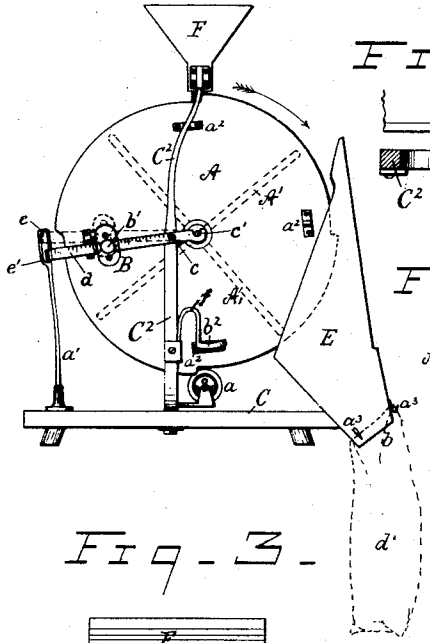


Fig. 6.

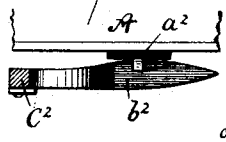


Fig. 7.

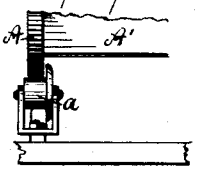


Fig. 2.

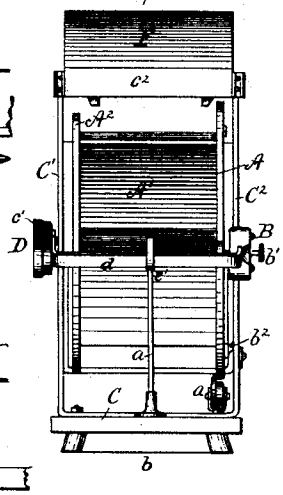


Fig. 3.

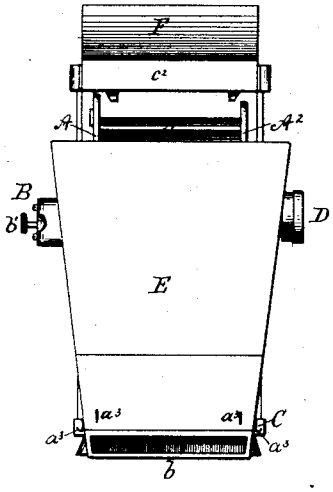


Fig. 4.

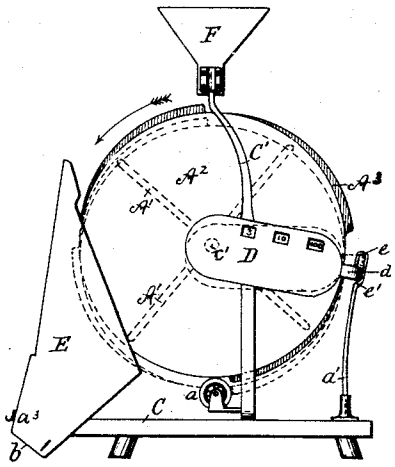
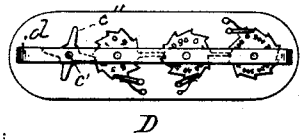


Fig. 5.



D

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AUTOMATIC GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 341,159, dated May 4, 1886.

Application filed June 27, 1885. Serial No. 170,046. (No model.)

To all whom it may concern:

Be it known that I, NELSON MORRISON, a citizen of the United States, residing at Hoosick Falls, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Automatic Grain-Weighers, of which the following is a specification.

This invention relates to automatic grain-weighing apparatus; and it consists in combinations and arrangements of parts, as hereinafter set forth and claimed.

Reference is made to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all figures.

Figure 1 is a side elevation. Fig. 2 is an end elevation. Fig. 3 is an end elevation showing the end opposite of that shown in Fig. 2. Fig. 4 is a side elevation showing the side opposite of that in Fig. 1. Fig. 5 is an interior view in elevation of the registering device. Fig. 6 is a top view of the spring-catch b^2 and lug a^2 detached from the disk A. Fig. 7 is an end view showing the flange-roller a in connection with the receiver A.

C is a platform, on which the receiver is supported.

A is the grain-receiver, formed of disks connected by radial plates or partitions A′, which divide it into four separate compartments. These compartments can be increased or diminished in number.

C′ and C², as shown in Figs. 1 and 2, are posts or standards located each side of the receiver A. These standards are secured to the platform C, and extend upward to the top of the receiver and support at their upper ends the hopper F.

The scale-beam d is U-shaped, having its arms spanning the receiver and pivoted to the standards at c, and at their extreme ends supporting and giving bearings to the axle c', on which the receiver turns. The post or upright d' has its foot fastened to the platform and its upper end slotted at e to receive the scale-beam, and bounds the latter in its movements. The lugs a^2 are fastened concentrically to the sides of the receiver, one for each of the compartments.

b^2, secured to one of the standards C², is notched, and has its end inclined, as shown, to guide the lugs a^2 into the notch, and in the rear of the notch it is bent up in the form of the letter U, so as to better receive the shock incident to a sudden stopping of the receiver.

The weight B is adjustable along the scale-beam, and may be secured in any desired adjustment by the set-screw b'.

E is a spout or chute to conduct the grain after it is weighed or measured into bags d', being secured to the end of the spout by hooks a^3.

a is a roller, which can have a flange or not. I have shown it as a flange-roller for the rim of the receiver or disk to roll on. This receiver can be supported by a roller on each side for each disk to roll on, and in this case no flanges are required on the rollers which support the receiver.

D is a registering device, which is fastened to the scale-beam d, and is actuated by a tappet-wheel, c'', on the axle c', as shown in Fig. 5. The tappet-wheel should have as many arms or tappets as there are compartments in the receiver. Each tappet as it passes moves the adjacent wheel one space or one-tenth of its way round. One revolution of this wheel moves the second wheel one space or one-tenth of a revolution, and one revolution of the second wheel turns the third wheel one space or one-tenth of a revolution. The first wheel, therefore, registers units, the second tens, and the third hundreds. The lugs a^2 and the spring-catch b^2 are so located that the receiver is stopped after each partial rotation with one of the compartments underneath the hopper F, but inclined toward the spout E or the delivery side, as shown in Fig. 1, so that when the upper compartment is loaded with grain to the desired extent and the receiver is allowed to turn it will turn so as to discharge this compartment through the spout into the bag d'.

The scale-beam d has one of its arms that is provided with the weight B graduated like an ordinary scale-beam for measuring pounds, and serves to gradually lift the receiver during each partial rotation. The perimeter of one of the sides of the receiver is divided into cams, equal in number to the divisions or compartments. These cams run on the roller a.

The arrows in Figs. 1 and 4 show which way the receiver revolves when in operation.

The operation of my weighing and measur-

ing apparatus is as follows: The weight B being first adjusted on the scale-beam so as to allow the receiver to fall when a certain number of pounds of the grain to be measured—say enough to make one bushel—is put in its upper or receiving compartments, the grain is then poured into the hopper, either by hand or otherwise, and conducted by the hopper into the upper compartment of the receiver. When a bushel of grain has been received into this compartment, the scale-beam tips up, causing the receiver to fall, thereby withdrawing the lug from the catch b^2 and allowing the receiver to turn one-quarter round, bringing a second compartment underneath the hopper and emptying the first through the chute into the bag d' or into any other receptacle. As the receiver falls its cam-rim strikes and rests on the roller a, by which, as it turns, the receiver is again lifted gradually to its first position, so that the second lug a^2 is brought in line with the spring-catch b^2 and is caught in its notch. By this spring-catch the receiver is not only automatically stopped at the proper position for the second compartment to receive the grain coming through the hopper, but is also brought to an easy stop without shock or blow by means of the peculiar shape of the U-shaped spring, as shown at f. As the receiver turns to deliver the bushel of grain the tappet-wheel C^2, fastened on its axle, also turns, bringing one of the tappet-arms against a tooth of the first or unit wheel of the registering device and causing it to turn so as to show one bushel delivered. When the second compartment is filled, the receiver again falls and turns, emptying the second bushel, bringing up the third compartment, and registering two bushels delivered, and so continuously each bushel tips the beam, turns the receiver, delivers the grain, and registers the number.

I claim—

1. The combination of the rotating receiver having cam-faces corresponding to its partition with the supports or rollers a, on which the cam-faces ride, substantially as described, and for the purpose set forth.

2. In combination, a registering mechanism secured to and supported on the scale-beam and a rotating receiver provided as to its axle with a tappet device and pivoted on the arms of the scale-beam, so that the rotation of the receiver through its tappet device shall directly actuate the unit-wheel of the registering mechanism, substantially as described.

3. In combination, in a grain-weigher, a U-shaped scale-beam having its side bars pivoted to standards on the main frame, an intermittingly-rotating receiver having its axle taking bearing in the ends of the side bars and having a tappet device on its axle, a registering mechanism supported on one of the side bars, and a weight adjustable along the graduated edge of the other side bar, substantially as described.

4. In combination, in a grain-weigher, an intermittingly-rotating receiver having cam-faces supporting rollers on which the cam-faces of the receiver ride, and an elastic spring pawl or stop for catching and holding the receiver between its periods of rotation, substantially as described.

5. In combination, in a grain-weigher, an intermittingly-rotating receiver mounted and taking bearings in the ends of the side bars of a U-shaped scale-beam, a U-shaped scale-beam having its side bars pivoted to vertical standards rising from the main frame on either side of the receiver and bearing on the side arms, a weight for weighing and mechanism for registering the amount of grain passing through the receiver, a hopper supported on the tops of the standards, and a chute provided with hooks, conducting the measured grain into bags, substantially as described.

6. In combination, in a grain-weigher, an intermittingly-rotating receiver provided with cams on the perimeter of its disks, a U-shaped scale-beam bearing the receiver at the ends of its arms, a weight adjustable on the graduated edge of one of the arms, and a roller or rollers underneath the receiver on which the receiver rides to return it to its normal position, substantially as described.

7. In combination, in a grain-weigher, a U-shaped scale-beam pivoted to standards from the main frame and graduated as to one of its arms, a weight adjustable on the graduated arm, a registering mechanism attached to one of the arms, an intermittingly-rotating receiver taking bearings as to its axle in the ends of the arms, a tappet device on the axle actuating the registering mechanism, a hopper on the tops of the standards tying them together, a cushioned spring pawl to catch the receiver in its rotation, and a chute to conduct the measured grain from the receiver, substantially as described.

NELSON MORRISON.

In presence of—

WILLIAM A. HAY,

MARTIN S. B. PETERS.