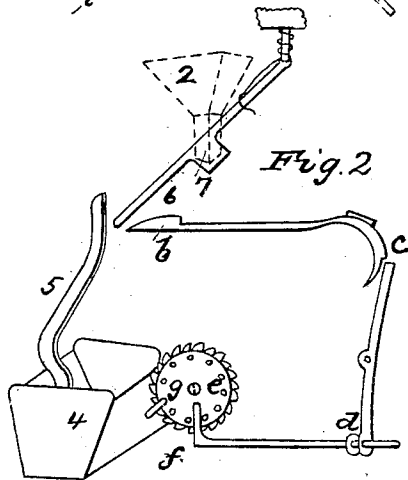
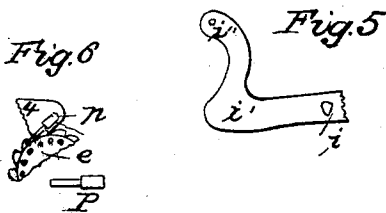
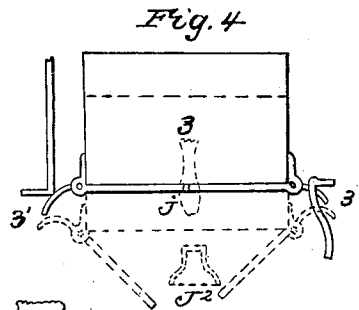
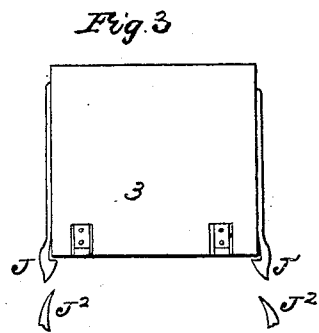
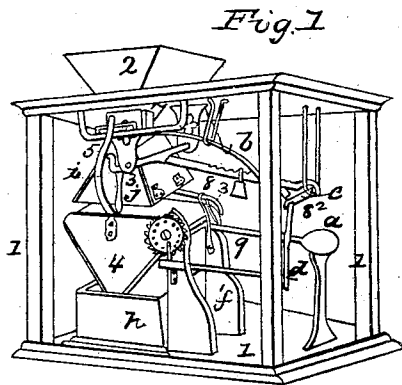


C. H. HUNTER.

Grain Scale.

No. 28,236.

Patented May 8, 1860.



WITNESSES
G. M. [Signature]
E. J. Russell

INVENTOR
Charles H. Hunter

UNITED STATES PATENT OFFICE.

CHARLES H. HUNTER, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO HIMSELF AND WM. THORNBERRY, OF SAME PLACE.

GRAIN-SCALE.

Specification of Letters Patent No. 28,236, dated May 8, 1860.

To all whom it may concern:

Be it known that I, CHARLES H. HUNTER, of the city of Indianapolis, county of Marion, and State of Indiana, have invented a new and useful Improvement in Automatic Grain-Scales; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters and figures of reference marked thereon, like numerals and like letters always referring to like parts.

To enable others, skilled in the manufacture of this class of machines, to construct and use this of mine, I will now proceed to describe its peculiar construction and mode of operation.

Figure 1, is a perspective side elevation of my automatic grain scale: Fig. 2, is a view of those parts of the machine which belong to the automatic cut-off—regulating the flow of the grain into the weighing hopper. Fig. 3, shows the hopper latches that engage and disengage the hopper-bottom—regulating the retention and discharge of the grain—during the process of weighing. Fig. 4, is a side view of Fig. 3—showing the manner, by which the bottom latches hold the half sections of the hopper bottom, at their juncture—also the device by which these bottom sections are restored to their closed condition, after having been tripped. Fig. 5, shows a part of the hopper—suspending lever—the peculiar shape of the same, and the relation the balancing fulcrums sustain to each other—this said peculiarity causing an important function to be performed, which will be more fully described hereafter, and Fig. 6, shows a small spring which moves the registering wheel.

(1.) is the frame of my scales.

(2.) is the first hopper; (3.)—the second hopper;—in this hopper the grain is weighed.

(4.) is the third hopper. This hopper is so suspended and balanced, that by its vibrations—up and down—the cut-off is regulated, and the registry made.

(5.) is an upright lever, extending from the lower hopper (4) up to the cut-off bar (6.). This cut-off bar plays snugly under the upper hopper chute—or spout. It has an expanded side projection immediately under this spout sufficiently broad to answer as a vibrating cut-off-bottom (7). The

cut-off bar (6.) is vibrated by the lever (5.) and is held from over the hopper chute by the latch (b.) and disengaged from it by the upward trip of weighing beam (8).

(9.) is the balancing beam of the lower hopper—with balance weight (a.) at one end, and this weight is adjustable by a screw cut on the beam.

(e.) is a register ratchet wheel—operated by the small spring (P) and this spring is vibrated by the up and down movement of lower hopper, (4.)—as it is attached to the hopper.

(g) is an adjustable pin, which can be set at any desirable point in this ratchet wheel, by placing it in any one of the numerous holes studding around near the periphery of said wheel. This pin comes in contact with the projection (f) pushing it back to the right, when the collar (d) comes against the lower end of the lever—the upper end of which strikes into the notch, or shoulder of latch bar b at the point (c.) The object of this arrangement is—not only to record the amount of grain weighed, but, to limit the amount at any sum required, which limit is determined by the place at which the pin g, is set.

(J') are spring latches, which hold shut the bottom of the second hopper while it is receiving its required quantity of grain.

(J²) are projections attached to the lower hopper, and serve the purpose of expanding the latches (J') when hopper (3) has received its load and drops upon them. These latches having been thus disengaged from the bottom of hopper (3) the weight of the grain opens them and suddenly drops out into hopper (4.)—and, hopper 4 having a small throat allows the grain to pass out slowly. The gravity of the grain in this lower hopper causes it to drop down a few inches which movement turns the register wheel one notch, and after its grain is discharged it is suddenly elevated by the counter balance knob (a.) This upward movement causes the bar (5.) to pull the cut off to the right until the latch (b) catches and holds it, thus opening the chute (7) again, and so allowing the grain to pass freely from the upper hopper into the next one below. When this in its turn, has again received sufficient grain to tip the "pea", or weight, upon beam (8) the same operation, as just described, is repeated over again. As hop-

per (3) drops to its place (having discharged its grain) the curved projections (3') force the bottom of said hopper to close within the grasp of latches (J') where it is held until the hopper is full.

The advantages of my automatic scale over others are as great, as they are apparent. Contrary to others every movement in it is independent:—viz—the weighing is accomplished by one separate hopper. When this hopper has received its quantum it drops down—and just as the bottom is opened, a pin (8²) on the end of the weighing beam—as it flies up, unlatches the cut-off, and so stops the flow of grain: and when the grain strikes the lower hopper, its descent caused thereby, moves the register, and, when empty—its ascent opens the cut off again. Also, by the peculiar shaped fulcrum bar (Fig. 5) by which the weighing hopper is suspended—this effect is produced—viz, when the hopper commences its descent, its point of suspension being on an upward curved lever, or beam, it leaves the fulcrum of the beam with a multiplying velocity, inasmuch as the point of suspension of said hopper passes out and away from the fulcrum in its downward course,—thus virtually increasing the weight on the short end of the beam. The effect of this is to make

the cut-off very sudden, and consequently very accurate, since the grain is stopped flowing at the moment the pea on the beam is balanced.

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

1. The peculiarly shaped balancing lever, or beam (i) when constructed with bifurcated curved ends, in which the point of suspension for the weighing hopper is made—as, and for the purpose shown.

2. The combination of the trip-lever (5,) with the cut-off (6,) and (7,) when said lever is used for the purpose described.

3. The horizontal balancing lever (9,) when constructed with poising, and adjustable weight (a,) at one end, and used for the objects expressed.

4. I claim the perforated ratchet register wheel (e,)—with pin (g), and with slide and pawl (f,)—when these several parts are used in conjunction, as shown in the preceding specification, and for the purposes therein described.

CHARLES H. HUNTER.

Witnesses:

G. M. LEVETTE,
E. T. BUSSELL.