(No Model.)

C. J. HARTLEY.

GRAIN WEIGHER.

No. 490,710. Patented Jan. 31, 1893.

Fig. 1.

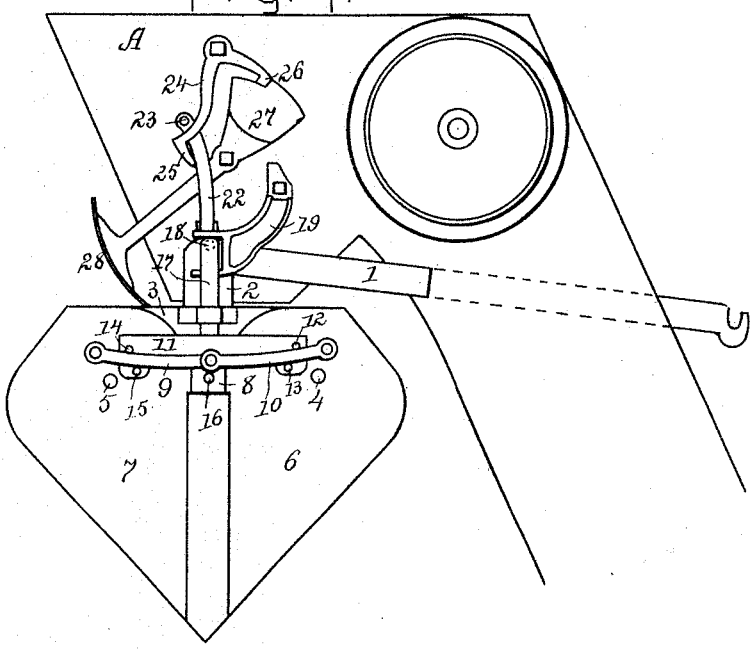
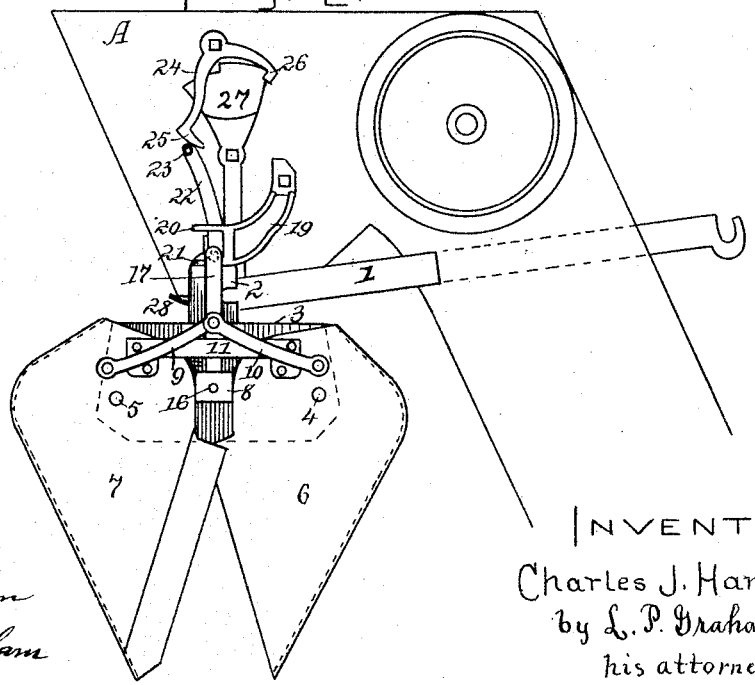


Fig. 2.



Attest

Helen Graham

William Graham

INVENTOR

Charles J. Hartley

by L. P. Graham

his attorney.

UNITED STATES PATENT OFFICE.

CHARLES J. HARTLEY, OF DECATUR, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO JOHN K. WARREN AND BRADFORD K. DURFEE, OF SAME PLACE.

GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 490,710, dated January 31, 1893.

Application filed September 30, 1892. Serial No. 447,363. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. HARTLEY, of Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Grain-Weighers, of which the following is a specification.

This invention relates to the weighing receptacles, and to the cut-off valves of automatic grain weighers. Under the one head it is designed to hold the receptacle firmly closed while filling, and permit a free and rapid discharge when the proper quantity has accumulated; and under the other head it is designed to hold the cut-off of the elevator chute securely closed while the discharge end of the weighing receptacle is open.

In the drawings forming part of this specification Figure 1 is a side elevation of an embodiment of my invention, showing the position of the various parts while the receptacle is filling, and Fig. 2 is a similar view showing the receptacle in the act of discharging, and other parts in consequently changed positions.

The upper end of an elevator, such as is attached to a thrasher and used to elevate the grain to the weigher, is shown at A. A scale beam, as I, embraces the elevator head and from ends on opposite sides of the head sustains the weighing receptacle. A lug 2, connecting the receptacle with the scale beam, is shown in the drawings, and a similar lug, not shown, is similarly placed on the opposite side of the head of the elevator. Each lug is attached to an end plate 3, only one of which appears in the drawings. Studs 4 and 5 project from the end plates and provide pivotal supports for the sides 6 and 7, respectively, of the receptacle. The receptacle is, generally speaking, of triangular outline, in side elevation; the upper, receiving side being horizontal and open, while the other sides incline downward one toward the other and are closed, or solid. It is bivalvular, and the valves, 6 and 7, are suspended on the studs, as aforesaid, at, or near, their respective centers of gravity, or in such positions that they each tend naturally to maintain the position shown in Fig. 1, without assistance from the other. A block 8, on an end plate 3, prevents either valve from swinging into the path of the other valve, and so insures accurate closing. A toggle joint, composed of bars 9 and 10 pivoted together, connects the valves above the pivots thereof, and when in a horizontal position, as seen in Fig. 1, it holds the valves securely closed. A cross bar 11 has trip pins 12, 13, 14 and 15, as seen in Fig. 1, such pins engaging the arms of the toggle joint and providing means for operating the same. Vertical bar 17 connects rigidly with cross bar 11, it has sliding bearings in the end plate, and it is provided with an inwardly extending pin, shown by dotted lines at 18, in Fig. 1. A bracket 19 is secured to the head of the elevator and it is provided with stops 20 and 21, indicated for convenience in Fig. 2. The stops limit the motion of bar 17, by acting on pin 18, and so actuate the toggle joint as the receptacle rises and falls.

The above described mechanism embodies that part of the invention which relates to the receptacle, and its operation is as follows: The receptacle remains in the position shown in Fig. 1, with its valves locked closely together by means of the toggle joint, until the predetermined weight of grain has accumulated and the descent begins. Then when the pin 18 comes in contact with the lower stop of bracket 19 the toggle joint is broken and the valves open quickly to any extent that the weight and condition of the grain may require, making in effect an instantaneous discharge under all circumstances. As the receptacle re-ascends the pin 18 strikes the upper stop of bracket 19 and causes the toggle joint to reassume its locked condition. If, by any cause, one valve should reach its normal closed position before the other, the block 8 will act as a stop, as before explained. The pin 16 on block 8 prevents the toggle joint from descending lower than the position shown in Fig. 1.

The arm carrying the cut-off 28 of the elevator chute, has the upward extension 27. A bell crank lever 24, pivoted on the elevator head, has the dog 26 adapted to engage extension 27 of the arm of the cut-off, and it also has the inclined foot 25. An upwardly extended trip bar 22 is secured to a lug 2, and is provided at its upper end with a laterally extending trip pin 23. The cut-off closes by gravity and is raised, or opened by the ris-

ing receptacle, the connection being on the opposite side of the elevator head, and of any desired construction. As the weighing receptacle descends, the pin 23 acts on the lower end of the lever 24, and, by raising the dog, permits the cut-off to close the chute. When the chute is closed the dog drops behind extension 27, as seen in Fig. 2 and effectually prevents the cut-off from bounding partly open when it reaches the termination of its closing throw. When the receptacle rises sufficiently to permit the valves thereof to come together, the pin 23, acting on the foot 25 of the bell-crank lever, releases the dog from the extension and permits the cut-off to open. The trip bar reciprocates unyieldingly in a vertical line, and acts alternately on the inclined planes formed by the lever 24 and the foot 25, to swing the lever and release the dog.

I claim,—

1. A bivalvular weighing receptacle, a toggle joint adapted to hold the valves closed when fully extended, and a trip for the toggle joint adapted to be actuated by the descent of the receptacle.

2. In weighing receptacles, the combination of the end plates sustained from the scale beam, the valves pivoted on the end plates, the toggle joint connecting the valves above the pivots thereof, the trip bar connecting with the toggle joint, and the permanent stops adapted to arrest the motion of the trip bar, substantially as set forth.

3. In weighing receptacles, the combination of end plates suspended from a scale beam, valves pivoted on the end plates, a toggle joint connecting the valves above the pivots thereof, a horizontal bar having pins engaging the arms of the toggle joint, a vertical bar extending upward from the horizontal bar, and permanent stops adapted to arrest the motion of the vertical bar, substantially as set forth.

4. In weighing receptacles, the combination of the end plates, the valves pivoted on the end plates and together constituting the entire receptacle, and the stop block on an end plate in position to prevent the valves from swinging past their normal closing place, substantially as set forth.

5. The combination with the end 27 of the arm of the chute closing valve 28, of lever 24 having dog 26 and foot 25, and a trip bar adapted to release the dog by acting on the foot, substantially as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

CHARLES J. HARTLEY.

Attest:

HENRY A. WOOD,

JOHN B. PRESTLEY.