(No Model.)

J. HENRY.

AUTOMATIC GRAIN WEIGHER.

No. 419,947. Patented Jan. 21, 1890.

Fig. 1.

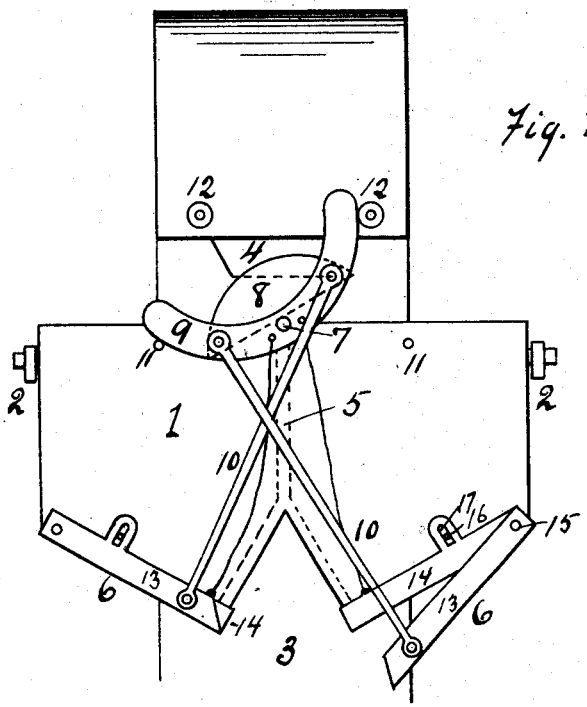
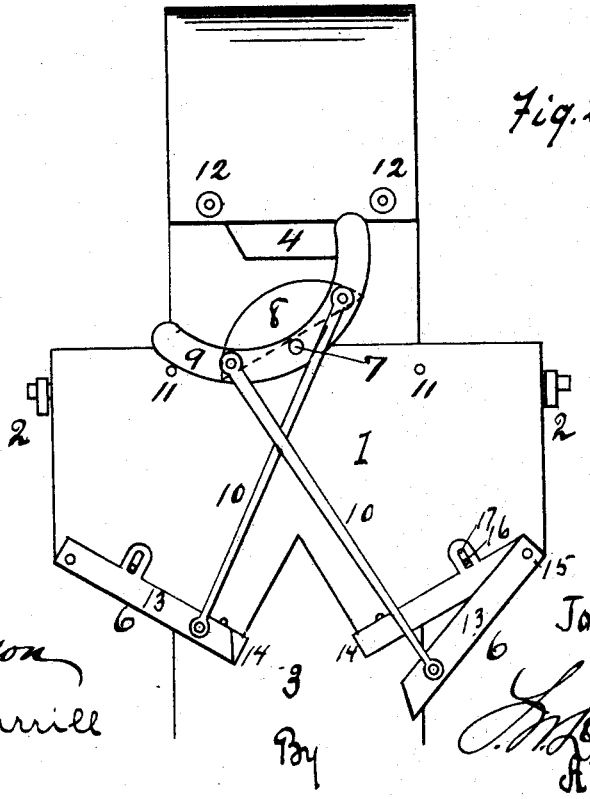


Fig. 2.



Witnesses.
Wm. M. Carson
John F. Merrill

Inventor.
John Henry.
By
Attorney.

UNITED STATES PATENT OFFICE.

JOHN HENRY, OF ARDOCH, (DAKOTA TERRITORY,) NORTH DAKOTA, ASSIGNOR OF ONE-HALF TO JOHN GEORGE NEILSON, OF SAME PLACE.

AUTOMATIC GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 419,947, dated January 21, 1890.

Application filed April 10, 1889. Serial No. 306,743. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY, a citizen of the United States, residing at Ardoch, in the county of Walsh and Territory of Dakota, have invented certain new and useful Improvements in Automatic Grain-Weighers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for weighing grain in the course of its removal from one receptacle to another—as in mills, or in loading cars or vessels from elevators. It is also adapted for use in weighing grain in the course of its discharge from the elevator of a thrashing-machine, or in any similar position.

The invention consists, in general, of a hopper-shaped receiver pivotally suspended between the arms of a forked scale-beam, and having a central vertical partition dividing the interior of the receiver from front to back in the line of the scale-beam. The bottom of each compartment of the receiver is normally closed by a hinged valve, which is actuated in opening by the weight of the contents of the compartment, each valve being connected by a rod with the opposite end of a lever pivotally attached to the end of the receiver in such a manner that the opening of one valve for the purpose of discharging the contents of one side of the receiver closes the valve of the other section. Connected with the lever, and mounted upon a rock-shaft operated thereby, is a tilting chute, open at the top and at each end for the purpose of directing the grain alternately into one end of the receiver and cutting off the flow into the other end, accordingly as the discharge-valve is open or closed.

It also consists in the method of operating the valves automatically, in the means for controlling the guard-lip at the discharge-outlet of the receiver, and in the detailed features of construction hereinafter more fully set forth.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the apparatus, showing the receiver elevated in position for filling; and Fig. 2, a similar view showing the receiver lowered.

The general features of construction are similar to those set forth in my application for Letters Patent of even date herewith, Serial No. 306,744, for automatic grain-weighers, the difference in the two applications relating chiefly to the arrangement for controlling the cut-off between the receiver and supply-spout, and in the means for operating the same in connection with the valves of the discharge-apertures.

In the drawings, 1 represents the receiver, pivotally suspended between the arms of a forked scale-beam 2, fulcrumed upon any suitable standard or means of support 3, in such a position that the center of the receiver shall be directly underneath the mouth of the supply-spout 4. The receiver is divided into two compartments by means of a partition 5, (shown in dotted lines,) extending across the middle of the interior of the receiver from front to back, and the bottom of each section slopes toward the partition. The bottom is formed by valves 6 6, hinged at the outer edges to the receiver in such a manner as to swing outwardly in each direction from the partition. To a rock-shaft 7, extending across the top of the receiver vertically above and parallel with the partition 5, is secured a platform or chute 8, open at the top and at each end and adapted to tilt from side to side to direct the supply from the spout 4 to either compartment of the receiver. Upon either or both ends of the rock-shaft is attached a lever 9, having arms extending outwardly and upwardly in each direction from the shaft, and at any convenient point upon the lever between the shaft and the end are attached rods 10 10, connecting each arm of the lever with the valve 6 upon the opposite side of the middle of the receiver in such a manner that when one of the valves is lowered, as in discharging, the corresponding arm of the lever is raised, and vice versa, thus directing the grain by means of the chute, which tilts with the lever, into the compartment whose valve is raised or closed. Suitable stops 11 11 upon the sides of the receiver limit the movement of the lever in each direction and thereby restrict the opening movement of the valves.

To prevent the opening of the valves until the desired quantity of grain shall have entered the receiver, the upwardly-extending arm of the lever with which the closed valve is connected engages with a stop 12, mounted at one side of the vertical center of the receiver at any convenient point upon the supply-spout or the frame-work, in such a position as to prevent any movement of the lever until the downward movement of the lever from the tipping of the scale-beam releases the arm from engagement therewith. When the receiver drops to such a distance as to release the lever from the stop 12, the weight of the grain in the loaded compartment forces open its valve, and thereby tilts the lever until its opposite arm is in position to be engaged with the stop 12 upon the other side of the center, holding the other valve closed until its compartment shall have been loaded sufficiently to tip the beam. The chute 8, tilting with the lever, cuts off the supply of grain to the compartment whose valve is open, directing it to the other side of the partition.

To insure the closing of the discharge-apertures of the receiver by the return of the valves, the opposite sides of the same are provided with upwardly-extending flanges 13 13, which embrace the sides of the receiver to close the discharge-apertures at the sides, and also serving as a chute to direct the discharge of the grain. To further assist in making a perfect joint when the valve is closed, a swinging lip or guard 14 14 is provided, extending across the edge of the discharge-aperture of each compartment. This guard 14 has arms extending along the sides of the receiver inside of the flange upon the valve, and at the extremities of said arms is pivoted to the receiver, as shown in 15, in such a manner as to swing freely upon the pivots. This swinging movement is limited by stops 16 in the sides of the receiver passing through slots 17 in the arms. The action of the guard 14 is by its own weight to close the discharge-outlet, partially by reason of the valve closing against it slightly previous to its meeting with the sides of the receiver, affording a yielding valve-seat to insure perfect closing. To allow of a more rapid discharge of the grain from the receiver, the arms upon which the guard 14 is mounted may be connected by cord or otherwise with the arm of the lever 9 upon its own side of the center of the receiver, as shown in Fig. 1, by which means the guard is raised simultaneously with the opening of the valve, thereby considerably increasing the size of the discharge-aperture, and increasing the working capacity of the apparatus without in the least interfering with the proper functions of the guard.

The operation of the apparatus is rapid, since there is no cessation in the flow of grain from the supply-spout, as is the case when a close cut-off is used, and is wholly automatic, accurately weighing the grain as long as the supply is kept up.

A suitable registering apparatus may be attached in any desired position.

The stops 12 12 preferably consist of wheels or rollers properly mounted to allow the engagement of the arm of the lever 9 therewith, and release therefrom with as little friction as possible.

I claim as my invention—

1. In a grain-weigher, a receiver having two compartments and pivotally suspended between the arms of a forked scale-beam, hinged valves normally closing the bottoms of said compartments, a rock-shaft carrying a chute or platform underneath the supply-spout, adapted to be tilted thereupon to discharge into either compartment, a lever secured to the end of said rock-shaft, rods connecting the ends of said lever with the valve on the opposite sides of the middle of the receiver, and guide-stops in position to retain one arm of said lever raised until said scale-beam is tipped, substantially as and for the purpose herein specified.

2. In a grain-weigher, a divided receiver pivotally suspended between the arms of a forked scale-beam, hinged valves forming the bottom of the compartments of said receiver, and actuated in opening by the weight of the contents of the compartment, a rock-lever pivotally mounted upon the top end of the receiver in line with the dividing partition, rods connecting each arm of said lever with the valve upon the opposite side of the partition, whereby as one valve opens the corresponding arm of the lever is raised and the other valve closed, stops in position to be engaged with and retain the arm when the receiver is raised, and to be disengaged therefrom when the receiver lowers, and means, substantially as described, connected with and operated by said lever whereby the supply is directed into the compartment whose valve is closed, as and for the purpose specified.

3. The divided receiver 1, pivotally suspended between the arms of a forked scale-beam 2, valves 6 6, rock-lever 9, rods 10 10, chute 8, tilting with said lever, stops 11 11, limiting the downward movement of each arm of the lever, stops 12 12, retaining the raised end of the lever, and thereby preventing the closed valve from opening until the weight of the contents of the closed compartment overbalances the scale-weight and the receiver lowers, and hinged guard-lip 14, so connected with said lever as to be raised as the valve of that compartment opens, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN HENRY.

Witnesses:
W. T. SHEPPARD,
MICKEL CAVNER.