

J. M. WELBOURN.
GRAIN WEIGHER AND SACKER.

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UNITED STATES PATENT OFFICE.

JOSIAH M. WELBOURN, OF MORROW COUNTY, OHIO, ASSIGNOR OF ONE-HALF
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GRAIN WEIGHER AND SACKER.

SPECIFICATION forming part of Letters Patent No. 561,742, dated June 9, 1896.

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To all whom it may concern:

Be it known that I, JOSIAH M. WELBOURN, a citizen of the United States, residing in the county of Morrow, in the State of Ohio, have invented a new and useful Improvement in Grain Weighers and Sackers, of which the following is a specification, reference being had to the annexed drawings, and to the figures and letters of reference marked thereon, in which—

Figure 1 in the drawings is a front elevation of my machine with part of the box cut away to show the interior construction. Fig. 2 is a section drawn on line 2 2, Fig. 1, and shows the peculiar construction of the valve and that part of the throat of a chute in which the valve is situated.

My invention consists in mechanism by which grain is gradually run into sacks or other receptacles as it comes from the chute and, when filled to the desired weight, by which a valve is tripped in the throat of the chute and the flowing grain is directed from the weighed sack to another empty one at the other end of the chute. It also consists in the particular mechanism herein described, and specifically set out in the various claims.

Letter A is the box or body part of my weigher and sacker. It has one inlet or throat *a* and two outlets *a'* and *a''*. The inlet *a* is adapted to admit the incoming grain, and the outlets *a'* and *a''* are adapted to direct it into the bags or sacks, one of which is represented by S.

The inlet or throat *a* has an open communication with the outlets *a'* and *a''*, which communication is opened and closed alternately by the reversible valve V, which serves to direct the grain first through one outlet *a'*, and then when tripped over to direct it through the other outlet *a''*. This valve is pivotally hung by a shaft W to the box, so as to swing substantially in the same plane as the front of the box. This shaft is provided with a crank C at one end which engages a trip-lever T, which when it moves back and forth trips the crank C and shifts the valve back and forth with the lever T, and thus shuts one outlet and opens the other as the trip-lever is

thrown back and forth. This trip-lever is the lower part of the weigh-beam B and has its lower end made with open jaws *j j*, which engage the crank C, as shown. Its upper end is fastened to and preferably made a part of the weigh-beam B, which is a beam having on it an adjustable movable pea P, which regulates the weight to be put into the sack by shoving it up or down on the beam B. At or about the point it is joined to the trip-lever. This beam has two arms or lugs *l l* made fast to it, and to the ends of which lugs or arms are pivotally swung the levers L L by links or hangers *h h* by their inner ends, while their other ends are pivotally connected by appropriate connections to the box or framework. Between this pivotal connection and the end of the lever is suspended the bag or sack holder H, which consists of the box K, adapted to telescope the ends of the outlet-chutes *a'* and *a''*, and jaws or clamps *m m*, fitting down upon shoulders *n n* on the lower end of the box. Levers *o o* are pivotally connected to the box at one end and secured to the jaws or clamps *m m*. These levers *o o* are pivotally connected to a hand-lever *d*, the one upon the one side and the other upon the other side of the pivotal center from a point between the clamp and the pivotal connection of the levers, by links or other appropriate connections. This hand-lever is provided with a ratchet and pawl *e*, placed on the box and handle, respectively, which serve to hold the lever in place when set. These bag-holders are suspended to the weight-levers L L by appropriate hangers, so as to swing free from contact with the outlet-chutes *a'* and *a''* while the bag is being filled and weighed. This hand-lever is pivotally connected to a spring *s'*, which is fastened to the box so as to make a yielding connection for it which will give or take any unevenness from the bag at the clamping-point.

X X are bars fixed to the box at the upper and lower ends and serve to strengthen the box as well as to provide a support for the levers L L and has stops *s s*, which are adjustably clamped or otherwise adjustably secured thereto at points between the upper

and lower ends. These stops *s s* serve to arrest the movement of the beam *B*. This beam *B* is pivotally connected to the box, on about the vertical center, by means of a shaft *B'*,
5 which passes through the box.

S is a bag or sack clamped to the holder *H* and is swung clear of the floor while being filled and weighed. The valve is provided with flange *Y* on its side, projecting upward
10 and adapted to pass up behind the guards *Z* on the inside of the throat, which prevents the grain from getting in between the side of the throat and the valve and preventing it from working.

15 The operation of this device is so apparent from the above description that I do not deem it necessary to say more than that when the bag is clamped, the holder and the bar *B* is thrown to the left, and the pea is run up the
20 bar for the desired weight to be put in a bag, and the throat or inlet is attached to the chute of a threshing-machine or other grain or flour chute, the machine is ready for use, and as the grain runs down into the suspended
25 bag it fills in tightly and compactly, and when the desired weight is in the bag or suspended sack it pulls down the lever *L*, which pulls the lug *l* and trips or throws the beam *B* beyond its perpendicular to the right, and by
30 its own weight it falls to the stop on the right, where it is arrested. It at the same time engages with its jaws the crank *C*, which throws the valve to the left in direction of the dotted lines, which cuts the flow of grain off the right-
35 hand outlet without checking the flow through the throat of the machine. When it is turned thus into the left-hand outlet-chute, it proceeds to fill the bag there attached. When it has filled this bag, the left-hand lever pulls
40 down on the left-hand lug on beam *B* and throws it to the left and directs the grain again into the right-hand outlet-chute, which has been replenished in the meantime with an empty bag. Thus the machine automatically
45 operates weighing and filling the sack. This gradually filling the sacks by the gradual flow is of great advantage over other machines where it is dumped in by the half-bushel or
50 dumps of any size, because there is no backing up of grain or flour in the throat of the machine, but it is always free, and because of this gradual flow the sack is filled out full in all its parts and thoroughly packed. Neither is
55 the bag liable to be torn or jerked from its holder, as is often the case where dumps are made into a suspended sack.

The figures 1, 2, 3, and 4 are a series of pawls and wheels, arranged, as shown, to make a
60 registering device which is a common registering device applied to my machine, and I claim nothing new for it except as applied to this new machine for weighing and sacking grain.

The pawl 1 is hung on the lever 5, which is
65 pivotally connected to the box *A* and is pro-

vided with a slotted hole-and-pin connection to the weighted beam *B*, so that it will move the pawl 1, and consequently the ratchet-wheel 2, whenever the lever is thrown to the right. This wheel is journaled on the box *A* 70 and is provided with a registering-hand 6, which registers two points every time the beam *B* is thrown to the right. This ratchet-wheel 2 is provided with a pin 7, which is adapted to engage a lever 8, which lever is 75 pivotally connected to the box *A* and has a pawl 3 at its upper end and has its lower end adapted to engage the pin 7, which pin at each revolution of the wheel 2 moves said lever and pawl and causes the registering- 80 hand 9 to register one point on its dial.

10 is a dial for the hand 9, and 11 is a dial for the hand 6. The dial 11 has one hundred points and the dial 10 has any number of points, so that when the register-hand 6 has 85 registered one hundred bags the register-hand 9 registers (1) one. It registers the hundreds while the other registers the bags from "1" to "100."

Now what I claim as new, and for which I 90 wish Letters Patent to be issued to me, is—

1. An automatic weigher and sacker comprising a stationary main throat or chute, two auxiliary chutes in combination therewith, two movable open-ended uninterrupted 95 bag-holders at the lower ends of said chutes, bags suspended from the hooks a weighted lever connected with and operated by the weight of the filling bags through the medium of the said open-ended uninterrupted bag- 100 holders, and a shifting-valve at the junction of said main and auxiliary chutes operated through the medium of the said bag-holders, substantially as described.

2. An automatic weigher and sacker, com- 105 prising a stationary main throat, or chute, two auxiliary chutes in combination therewith, two movable open-ended uninterrupted bag-holders at the lower end of said chute, bags carried thereby, a weighing mechanism, 110 and movable connections between the movable bag-holders and the weighing mechanism, substantially as described.

3. In an automatic weigher and sacker, the combination of a main chute, auxiliary chutes 115 having communication therewith, a valve at the junction of the said chutes, a weighted lever connected therewith, and open-ended movable bag-holders operatively connected with and supported by the said weighted 120 lever, and bags carried by the movable bag-holders substantially as described.

4. In a grain-weigher, the combination of the weighted beam *B*, arms *l, l*, to which are suspended weighing-levers *L, L*; with the 125 lever 5 engaging the weighted beam *B* and pivotally attached to the box *A* having a pawl 1 adapted to engage the ratchet-wheel 2; ratchet-wheel 2 journaled on the box *A* and provided with an index-hand 6 and pin 7, 130

which pin engages and actuates the lever 8;
the lever 8 pivotally connected to said box A
and engaging the pin 7 at one end and pro-
vided with a pawl at the other engaging the
5 ratchet-wheel 4, and said ratchet-wheel jour-
naled to said box and actuated by said pawl
and provided with an index-hand 9, all com-
bined and arranged to register at each throw

of the weighted beam B and at each revolu-
tion of the ratchet-wheel respectively, sub-
stantially as described.

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Attest:

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