

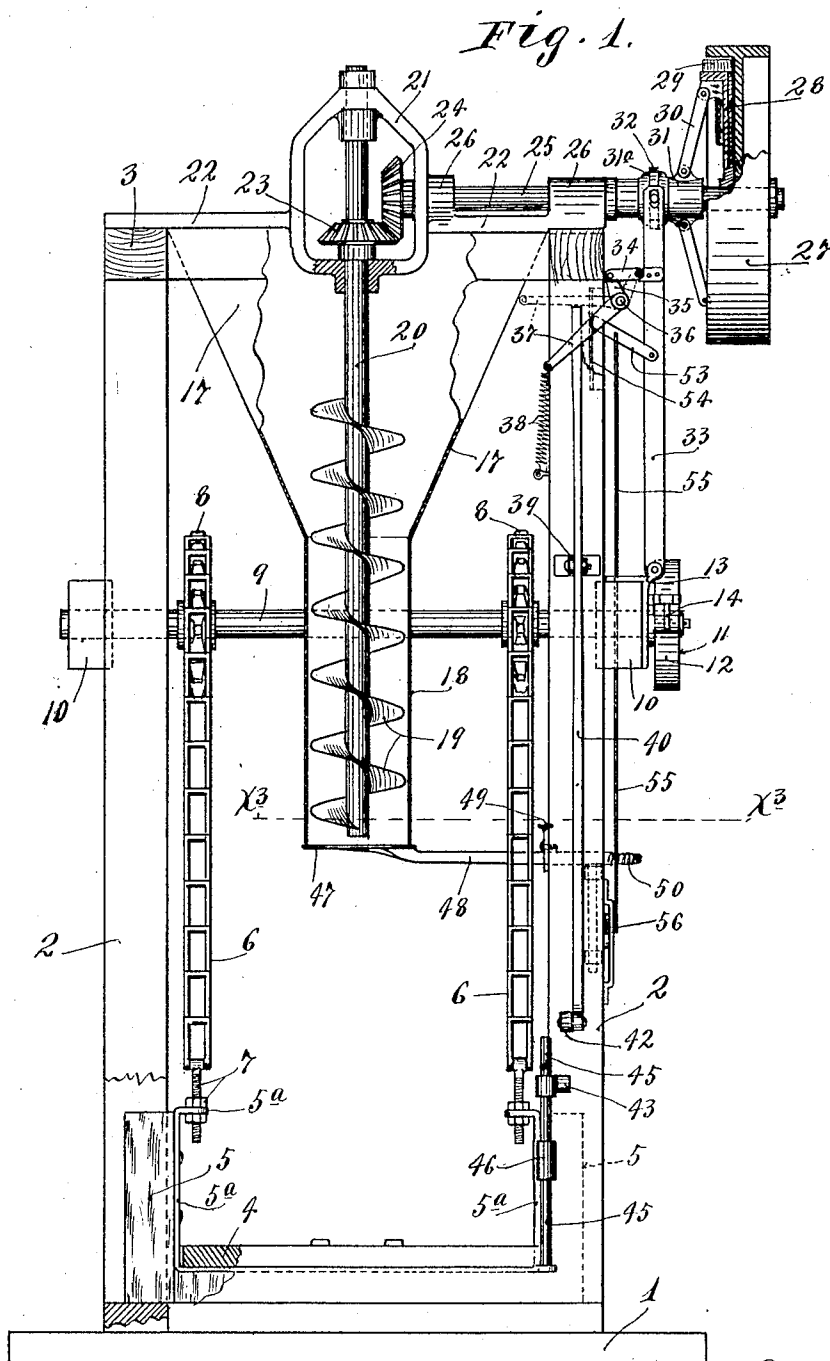
No. 876,389.

PATENTED JAN. 14, 1908.

J. M. NIKOLAI.  
FEED PACKING MACHINE.

APPLICATION FILED MAY 31, 1907.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

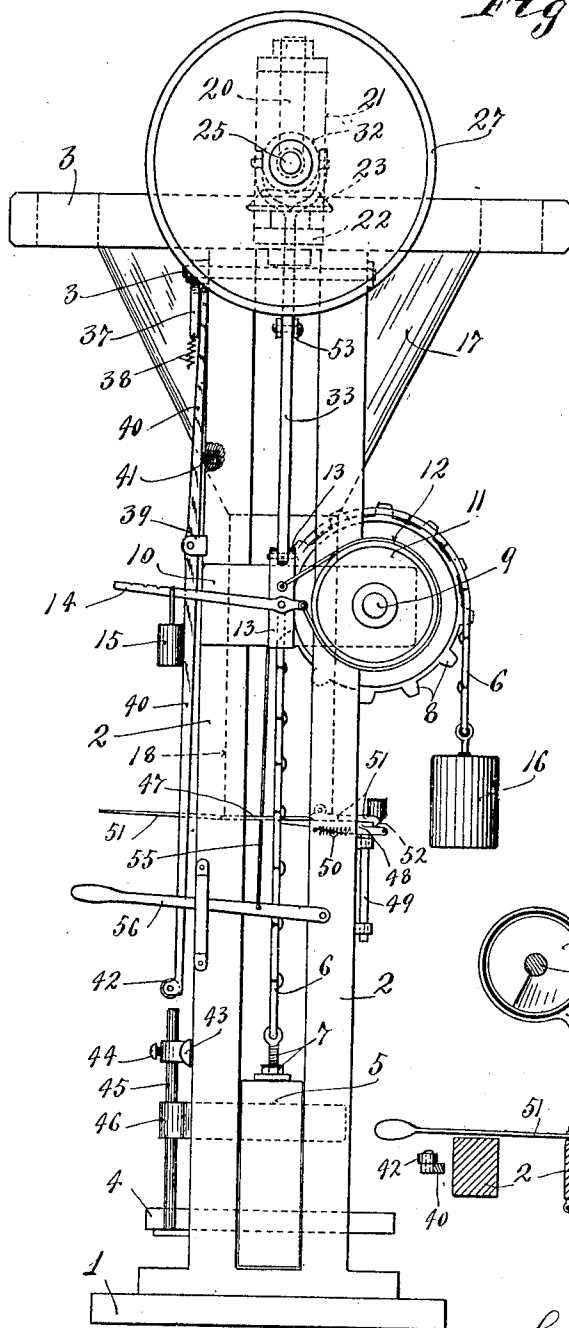
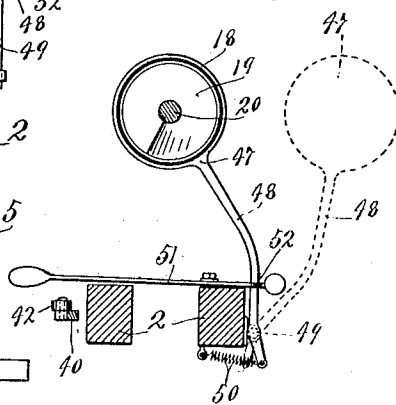


Fig. 3.



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# UNITED STATES PATENT OFFICE.

JACOB M. NIKOLAI, OF MADISON, MINNESOTA.

## FEED-PACKING MACHINE.

No. 876,389.

Specification of Letters Patent.

Patented Jan. 14, 1908.

Application filed May 31, 1907. Serial No. 376,462.

*To all whom it may concern:*

Be it known that I, JACOB M. NIKOLAI, a citizen of the United States, residing at Madison, in the county of Lac qui Parle and State of Minnesota, have invented certain new and useful Improvements in Feed-Packing Machines; and I do hereby 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.

My invention has for its object to provide an improved packing machine generally adapted for use in packing ground cereals and the like in sacks, but especially adapted for use to pack coarsely ground feeds such as corn and oats.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a front elevation of the improved packer, with some parts broken away and some parts sectioned. Fig. 2 is a side elevation of the improved packer. Fig. 3 is a detail in horizontal section taken on the line  $x^3 x^3$  of Fig. 1.

The framework of the machine comprises a base 1, a pair of bifurcated pedestals 2 and a rectangular top frame 3, which parts are rigidly connected. The vertically movable bag supporting platform 4 is provided at its sides with projecting guide blocks 5 that work vertically in the openings between the upright beams of the bifurcated pedestals 2, and the said platform is yieldingly supported by a pair of sprocket chains 6 shown as adjustably connected at their lower ends to the upper ends of the guide blocks 5, or rather, to brackets 5<sup>a</sup> thereof by means of nutted screw bolts 7. The upper portions of the chains 6 work on sprockets 8 carried by a counter-shaft 9 shown as mounted in bearing blocks 10 secured to the outer surfaces of the pedestals 2. At one end, the counter-shaft 9 is provided with a friction wheel 11 around which works a flexible metallic brake band 12, one end of which is anchored, as shown, to a bearing bracket 13 secured to the adjacent bearing block 10. The other end of this brake band 12 is pivotally connected to the short end of a lever 14, to the long end of which is applied an ad-

justable weight 15. As shown, said lever 14 is pivotally connected directly to the bearing bracket 13. The force of the weight 15 causes the brake band to frictionally engage the wheel 11 and resist the rotation of the shaft 9 and, hence, the downward movement of the platform 4 with a varying force, depending on the adjustment of the said weight 15. To the upper ends of the chain 6 are applied weights 16. These weights 16 should not be heavy enough to raise the platform 4, when empty, against the friction of the brake band 12 on the brake wheel 11, and hence the lever 14 should be raised when said platform is to be returned.

Supported by and depending from the rectangular top frame 3 is an upwardly flaring hopper 17 having a depending cylindrical lower end or spout portion 18. A spiral packer, blade or screw 19 works within the spout 18 and in the lower portion of the hopper 17, and a shaft 20 is journaled in a bearing yoke 21 which, by means of laterally projecting arms 22, is rigidly secured to the top frame 3. Within the yoke 21 the packer shaft 20 is provided with a miter gear 23 that meshes with a miter gear 24, which latter gear is carried by the inner end of a shaft 25 mounted in bearings 26 on one of the arms 22. Loosely mounted on the outer end of the shaft 25 is a driving pulley 27 which, by means of a belt, (not shown) is adapted to be constantly driven. Working within the inner flange of the pulley 27 but loose therefrom and fixed to the shaft 25 is a clutch carrying head 28 in which a pair of diametrically opposite brake shoes 29 are mounted to move radially to and from engagement with the inner rim of the pulley 27. These two shoes 29 are connected by toggle links 30 to a hub 31 slidably mounted on the shaft 25. This hub 31 is provided with a grooved head 31<sup>a</sup> in which a shipper ring 32 works loosely. The shipper ring 32 is provided with radially projecting trunnions that work in the slotted upper end prongs of a shipper lever 33, which latter, at its lower end, is directly pivoted, as shown, to the bearing brackets 13 before noted. The upper portion of the shipper lever 33 is connected by a short link 34 to a short arm 35 of a small rock shaft 36 mounted in suitable bearings on the upper portion of the adjacent column 2. At its forward end, this rock shaft 36 has a projecting latch arm 37, the free end of which is attached to and yieldingly drawn downward by a coiled

spring 38, the lower end of which is anchored to the adjacent pedestal 2.

Intermediately pivoted at 39 to the right hand pedestal 2, as shown in Fig. 1, is a vertically extended long latching and tripping lever 40, the upper end of which is yieldingly pressed outward by a small coiled spring 41 shown as set into the said pedestal. In the position of the parts shown in Figs. 1 and 2 by full lines, the upper end of the latching and tripping lever 40 is held pressed inward by the latch arm 37 which then overlaps the same. At its lower end, the lever 40 is shown as provided with a roller 42, for a purpose which will presently appear.

For coöperation with the roller 42 and the lower end of the tripping and latching lever 40, the platform 4 is provided with a trip projection in the form of a trip lug 43 which is adjustably secured by a set screw 44 to the upper end of a trip rod 45 which, as shown, works through a guide 46 on the adjacent pedestal 2 and the lower end of which is rigidly secured to one of the brackets 5<sup>a</sup> of the platform 4.

The lower end of the delivery spout 18 is adapted to be closed by a disk-like gate or valve 47 which is secured at its free end to a horizontally swinging arm 48, which arm is pivoted to a bearing 49 on the right hand pedestal 2 and is subject to a coiled spring 50, which spring is attached to the short end of said arm and to the adjacent pedestal 2 and tends to swing the valve 47 into an inoperative position. Said valve 47 is adapted to be held in operative position, that is, in position to close the lower end of the delivery spout 18, by means of a lock dog 51, the rear end of which is weighted and is provided with a beveled hook lug 52 that directly engages the said arm 48. When the forwardly projecting end of the dog 51 is depressed, the arm 48 will be released and the spring 50 will throw the valve 47 into an inoperative position. When the arm 48 is moved forward so as to carry the valve 47 under the spout 18, the said arm cams itself into engagement with the beveled hook lug 52 of the dog 51.

To the intermediate portion of the shipper lever 33 is pivoted an arm 53, the free inner end of which is arranged to slide upon a vertical thrust surface 54 secured to the upper portion of the right hand pedestal 2. The intermediate portion of this arm 53 is connected by a rod 55 to the intermediate portion of a lever 56 which is pivotally mounted on the outer surface of the lower portion of the right hand pedestal 2.

In the normal position of the parts as shown in Figs. 1 and 2 by full lines, the clutch shoes 29 are out of engagement with the rim of the driving pulley 27 so that the latter runs freely while all the movable parts of the packer are at rest. It will, of course, be understood, that the feed or other material

to be packed within the sack is delivered into the upper end of the hopper 17. A suitable housing (not shown) should entirely inclose the gears 23 and 24. The machine is thrown into action by a downward movement of the lever 56, under which movement the free end of the arm 53 is caused to travel downward on the thrust surface 54 and thereby crowd the upper end of the arm 33 outward, which movement forces the toggle links 30 outward slightly beyond a dead center and locks the brake shoes 29 to the pulley 27. This, as is evident, couples the shaft 25 to the pulley 27 and causes the spiral packer 19 to be driven. The dotted lines in Fig. 1 show the position into which the arm 37, through the link 34, arm 35 and shaft 36 will be moved when the clutch is thrown into action, as just described, by a downward movement of the hand lever 56. The said arm 37 is thus raised above the upper end of the tripping and latching lever 40, so that the upper end of said lever, under the action of the spring 41, will be forced slightly outward and under the said arm, thereby locking the same against the tension of the spring 38 in a position to hold the clutch shoes 29 in engagement with the pulley 27. It will also be noted that this engagement of the lever 40 with the arm 37 relieves the shipper ring 32 from lateral pressure to which it is subjected when the spring 38 is released.

The clutch shoes 29 will be released from the pulley 27 by the spring 38 whenever the upper end of the lever 40 is pressed inward so as to permit the arm 37 to be drawn downward by the said spring 38. It should here also be noted that the thrust arm 53, even when drawn downward to its extreme limit by the lever 56, stands at such angle with respect to the thrust surface 54 that its free inner end will be slid upward, thereby permitting an inward movement of the lever 33 and shipper ring 32 whenever the spring 38 and arm 37 are released. This release of the said spring and arm takes place whenever, under downward movement of the platform 4, the trip lug or cam 43 engages the roller 42 and presses the lower end of the lever 40 outward and, consequently, the upper end of said lever inward and from under the said arm 37.

The sack to be filled should be applied around the spout 18 while the platform 4 is down and preferably just before the machine is thrown into action and, of course, to permit of the application of the sack to the spout, the valve 47 must be moved into an inoperative position, a movement which, as already pointed out, is produced by the spring 50 whenever the lock dog 51 is released from the arm 48.

The hopper 17 with open top and the spiral packer working in the spout 18 and extending upward into said hopper, adapts

the machine for use in packing coarsely ground materials, such as crushed corn, oats, or any other bulky feed or material.

The machine described, while simple, has in practice been found extremely efficient for the purposes had in view.

What I claim is:

1. In a packing machine of the kind described, the combination with a hopper having a depending spout and a packer working therein, of an edgewise movable valve for closing the lower end of said spout, a yielding device tending to move said valve into an inoperative position, and a latch for securing said valve in an operative position, which latch is releasable at will, substantially as described.

2. In a packing machine of the kind described, the combination with a hopper having a depending spout and a spiral packer working rotatively therein, of a horizontally movable pivoted arm provided at its free end with a flat disk-like head serving as a valve to close the lower end of said spout, a spring applied to said arm and tending to move said valve into an inoperative position, and a pivoted latch dog operative on said arm to

hold said valve in an operative position, substantially as described.

3. In a packing machine of the kind described, the combination with a delivery spout and a packer working therein, of a yieldingly mounted platform below said spout, a counter-shaft geared to said packer, a pulley loose on said counter-shaft, a clutch for intermittently connecting said pulley to said shaft, and clutch actuating mechanism comprising a shipper lever, a spring-actuated connection to said shipper lever tending to release said clutch, an intermediately pivoted latching and tripping lever serving to hold said spring-actuated connection out of action when the clutch is set, and a trip carried by said platform operative on said lever to cause the same to release said spring-actuated connection and thereby cause the latter, through said clutch, to release said pulley, substantially as described.

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

JACOB M. NIKOLAI.

Witnesses:

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OBERT R. NELSON.