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BARREL PACKING MACHINE.

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Fig. 2.

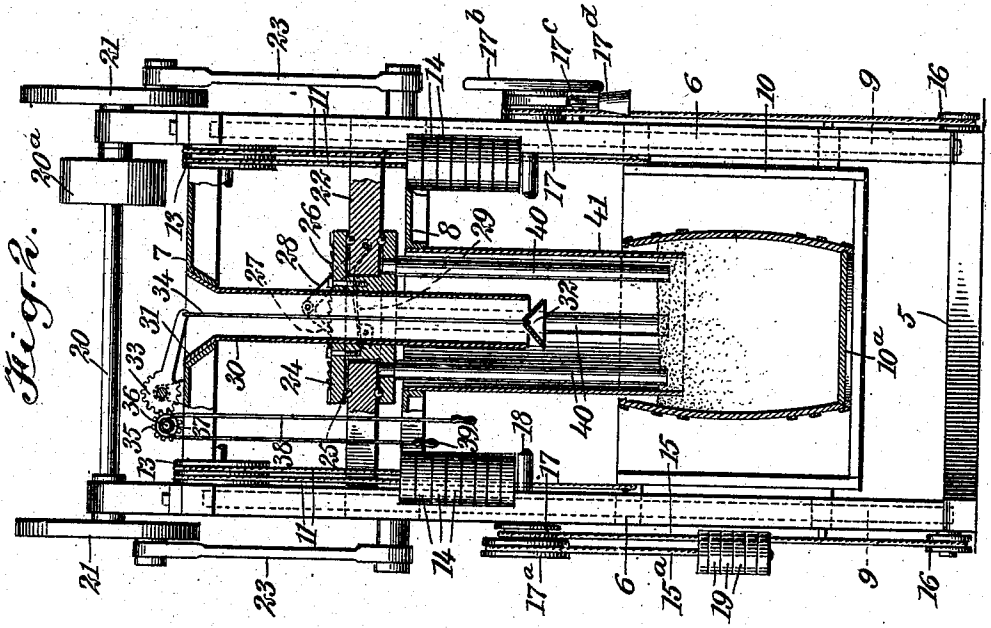
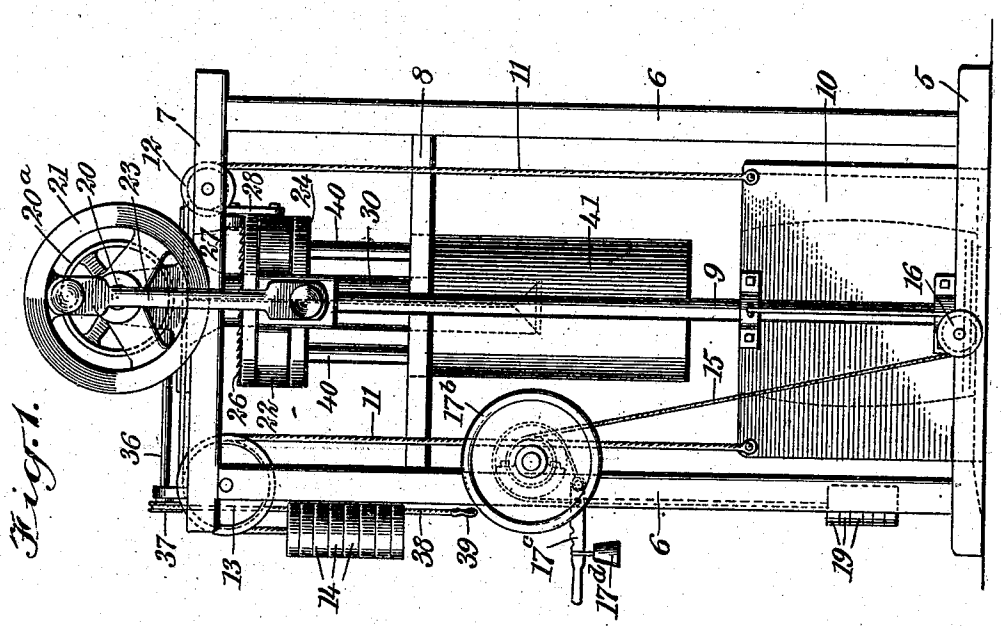


Fig. 1.



WITNESSES

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BARREL-PACKING MACHINE.

No. 905,017. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed April 21, 1908. Serial No. 428,375.

To all whom it may concern:

Be it known that we, JOHN H. VOGT and LOUIS STORCK, citizens of the United States, and residents of Stamford, in the county of Fairfield and State of Connecticut, have invented a new and Improved Barrel-Packing Machine, of which the following is a full, clear, and exact description.

This invention is an improvement in packing machines for barrels and such like shipping cases which are filled with granulated or pulverized material, and has for its purpose to provide for the uniform hammering or application of pressure to the material as the latter is placed in the case. To this end we construct the machine with a yielding support for the barrel or other receptacle, and pound the material as it is fed thereinto, by one or more plungers, the resistance offered by the support to the plungers being readily varied, whereby the firmness or closeness of the packing may be changed to suit the particular case.

The invention further includes means for compensating for the weight of the material on the support as it is placed in the barrel, such that the impact of the blow on the material will be approximately the same throughout the packing operation.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a side elevation of the preferred form of our invention complete; and Fig. 2 is a front elevation of the same, partly in central vertical section.

The machine in its preferred embodiment comprises a frame which consists of a suitable base 5, side frames 6 rigidly attached to the base, a top 7 connecting the upper ends of the side frames together, and a cross-bar 8, rigid with the side frames intermediate their length. Projecting upwardly from the base between the side frames 6, at opposite sides of the machine, are fixed guides 9, preferably in the nature of vertical shafts. Between the frames 6 is slidably mounted on the guides 9, a box support 10, for the barrel or other receptacle to be packed, having its front open, as shown in Fig. 2, and provided with an annular raised portion or plate 10^a on its bottom for centering the barrel and supporting its bottom head. To each corner of the box support is attached a line or cable 11, which, at the rear of the machine, passes over sheaves 12 journaled in the head 7, and thence passes to the front of the machine over sheaves 13, as do the front cables, the sheaves 13 having double grooves for this purpose. The free ends of each set of cables at one side of the machine are attached to a weight hanger adapted to carry a number of removable weights 14. Also attached at opposite sides of the box support, near the upper edges, are cables 15, which pass over sheaves 16 journaled adjacent to the base 5, and thence pass upwardly and are connected to drums 17 fixed to the opposite ends of a cross-shaft 18. Also fixed to the shaft 18, adjacent to one of the drums 17, is a drum 17^a, around which passes one or more times, a cable 15^a, having a weight hanger connected to its free end, to which a number of removable weights 19 are adapted to be applied. Adjacent to the other drum 17, the shaft 18 is further supplied with a hand-wheel 17^b and a brake 17^c, the latter being in the nature of a band passing over a disk, with the operating lever for drawing it taut, as clearly shown in Fig. 1. This lever, as shown, is constructed with one or more notches for the application of a weight 17^d.

Journaled in suitable bearings at the top of the machine is a cross-shaft 20, having a driving pulley 20^a, and cranks 21 fixed to its opposite ends, the pins of which are connected with the pins of a cross-head 22 through the intermediary of connecting rods or pitmen 23. The cross-head 22 is slidably mounted on the shafts or guides 9, and carries at its center a revoluble head 24, preferably supplied with anti-friction bearings 25. The upper face of the revoluble head 24 has ratchet teeth 26 circularly arranged and engaged by a pawl 27 fulcrumed to the outer end of a pivoted arm 28, the latter being normally retained in an inclined operative position by a spring 29. Through the head 24 centrally passes a feed tube 30 having a hopper 31 at its upper end, supported on the top 7 of the frame, and is provided at its opposite and lower end with a controlling valve 32, preferably of conical form, the valve being connected to the projecting arm of a segmental gear 33 by a hanger or stem 34. The segmental gear 33 meshes with a pinion 35 attached to the inner end of a shaft 36. Attached to the outer end of this shaft is a small drum 37, about which a cord or cable 38 is wound one or more times intermediate

its length, and is preferably provided with suitable handles 39 attached to its free ends. Rigid with the head 24 are a number of depending plungers 40, which surround the lower portion of the feed tube 30 and project some distance therebelow, and are themselves inclosed by a cylinder or casing 41 attached to the fixed cross-head 8. This cylinder is of a size and shape to closely fit into the upper end of the barrel or receptacle to be packed, in which relation it operates to insure the passage of the material from the feed tube into the receptacle, and prevent the flying of the material due to the operation of the plungers.

In the operation of the machine, the barrel or other shipping case to be packed is seated within the box support, and the weights 19, sufficient to counterbalance these parts, together with the weight of the material which is to be placed in the barrel, are applied to the weight hangers of the cables 15^a. The weights 14 are also applied to the weight hangers of the cables 11 sufficiently to overcome the weights 19, and at the same time to pull the box support upwardly with sufficient force to offer the required resistance to the plungers 40, which of course will depend upon the closeness or firmness the material is to be packed. The granulated or pulverized material is then poured into the hopper 31 and descends through the feed tube at the rate desired, by the operation of the valve 32 by the handles 39. The box support is gradually elevated by the operation of the brake lever 17^c until the bottom of the barrel presses against the lower end of the cylinder or casing 41, which, as shown, projects a slight distance below the extreme lower position of the plungers in order that there will be no danger of the plungers striking the bottom of the receptacle. As the pulley 20^a is driven, the plungers 40 are reciprocated through the intermediate connecting mechanism and pound or pack the material into the barrel. On each upward stroke of the plungers, the connection between the pawl 27 and spring-arm 28 contacts with the top of the frame and forces the revoluble head 24 around the distance between one or more of the ratchet teeth, thus imparting a step by step revolution to the plungers during their linear movement. Each time a measured quantity of the material passes into the barrel its weight may be compensated for by removing one or more of the weights 19, thus adapting the box support to offer the same resistance to the plungers throughout the packing operation.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. The combination of a support for a receptacle, means for packing a material within the receptacle, variable means normally forcing the receptacle toward the packing means, and variable means normally drawing the support away from the packing means for compensating for the weight of the material placed within the receptacle.

2. The combination of a receptacle support, a plunger for packing a material within the receptacle, means for reciprocating and intermittently revolving the plunger about an axis, and means for feeding the material to be packed to the receptacle on said axis.

3. The combination of a support for a receptacle, a plurality of plungers for packing a material within the receptacle, and means for feeding the material to be packed to the receptacle between said plungers.

4. The combination of a support for a receptacle, a plurality of plungers for packing a material within the receptacle, means for feeding the material to be packed to the receptacle between said plungers, means for reciprocating the plungers, and means for revolving the plungers step by step during the reciprocatory movement.

5. The combination of a support for a receptacle, a plurality of plungers for packing a material within the receptacle, means for forcing the receptacle toward the plungers, and a casing surrounding the plungers, operating to limit the upward movement of the receptacle.

6. The combination of a support for a receptacle, plungers for packing a material within the receptacle, means for reciprocating the plungers, means for feeding the material to be packed to the receptacle between the plungers, and cables attached to the support having removable weights normally forcing the support toward the plungers.

7. In a machine for packing receptacles, a reciprocating cross-head having a revoluble member, a series of plungers depending from said member, a feed tube passing through said member between the plungers, means for reciprocating the cross-head, and means for revolving said member step by step during the reciprocatory movement.

8. In a machine for packing receptacles, the combination of a cross-head, a plurality of plungers depending from the cross-head, and a feed tube discharging between the plungers, having a controlling valve.

9. In a machine for packing receptacles, a support for the receptacle, a plunger movable to and from the support, means having removable weights normally forcing the supporting means to the plunger, and means having removable weights normally forcing the support away from the plunger.

10. In a machine for packing receptacles, a support for the receptacle, a plunger movable to and from the support, means having removable weights normally forcing the supporting means to the plunger, means having

removable weights normally forcing the support away from the plunger, and a brake operably connected to the last mentioned means.

11. In a machine for packing receptacles, the combination of a cross-head having a revoluble member, means for reciprocating the cross-head, plungers depending from the revoluble member, a stationary casing surrounding the plungers, a feed tube passing through said member and discharging between the plungers, and a ratchet mechanism revolving the said member step by step by the reciprocation of the cross-head.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN H. VOGT.
LOUIS STORCK.

Witnesses:
W. W. HOLT,
JOHN P. DAVIS.