E. W. SEAMANS.

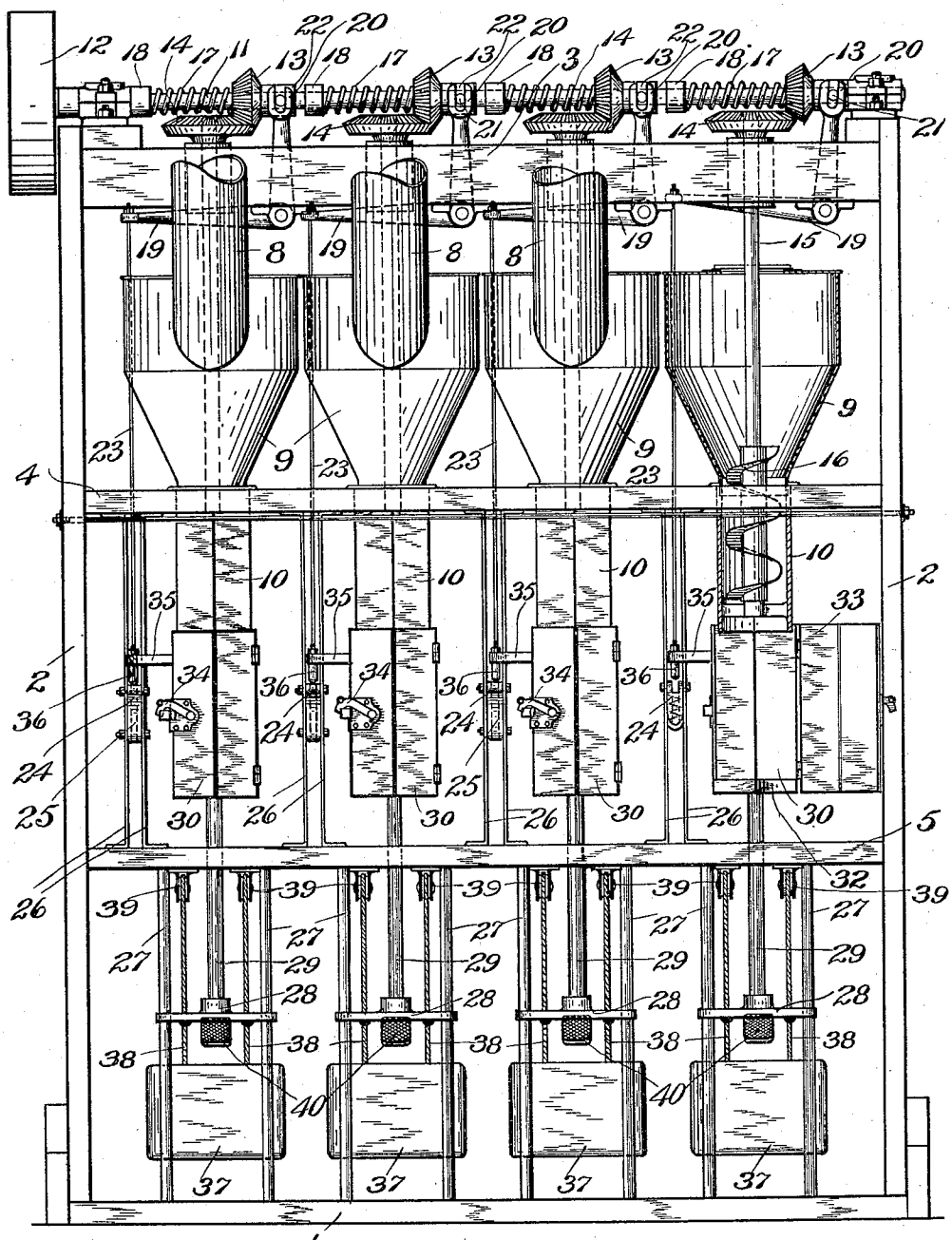
FILLING AND PACKING MACHINE.

APPLICATION FILED JUNE 29, 1914.

1,151,970.

Patented Aug. 31, 1915.

3 SHEETS—SHEET 1.



Witnesses

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Fig. 1.

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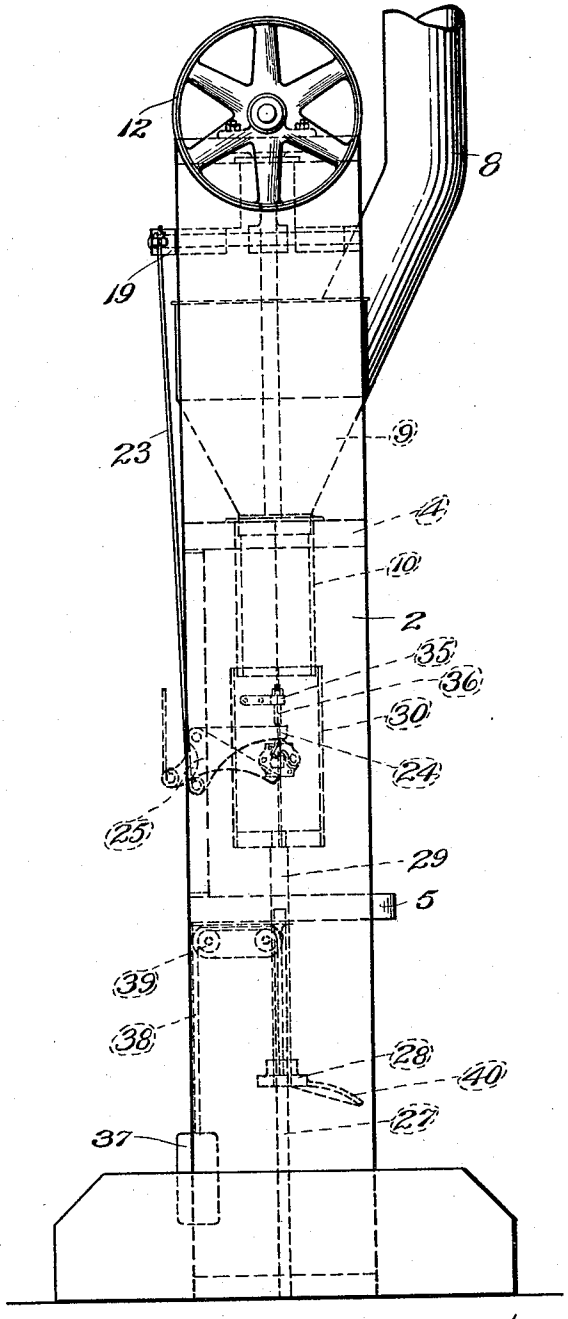



Fig. 2.

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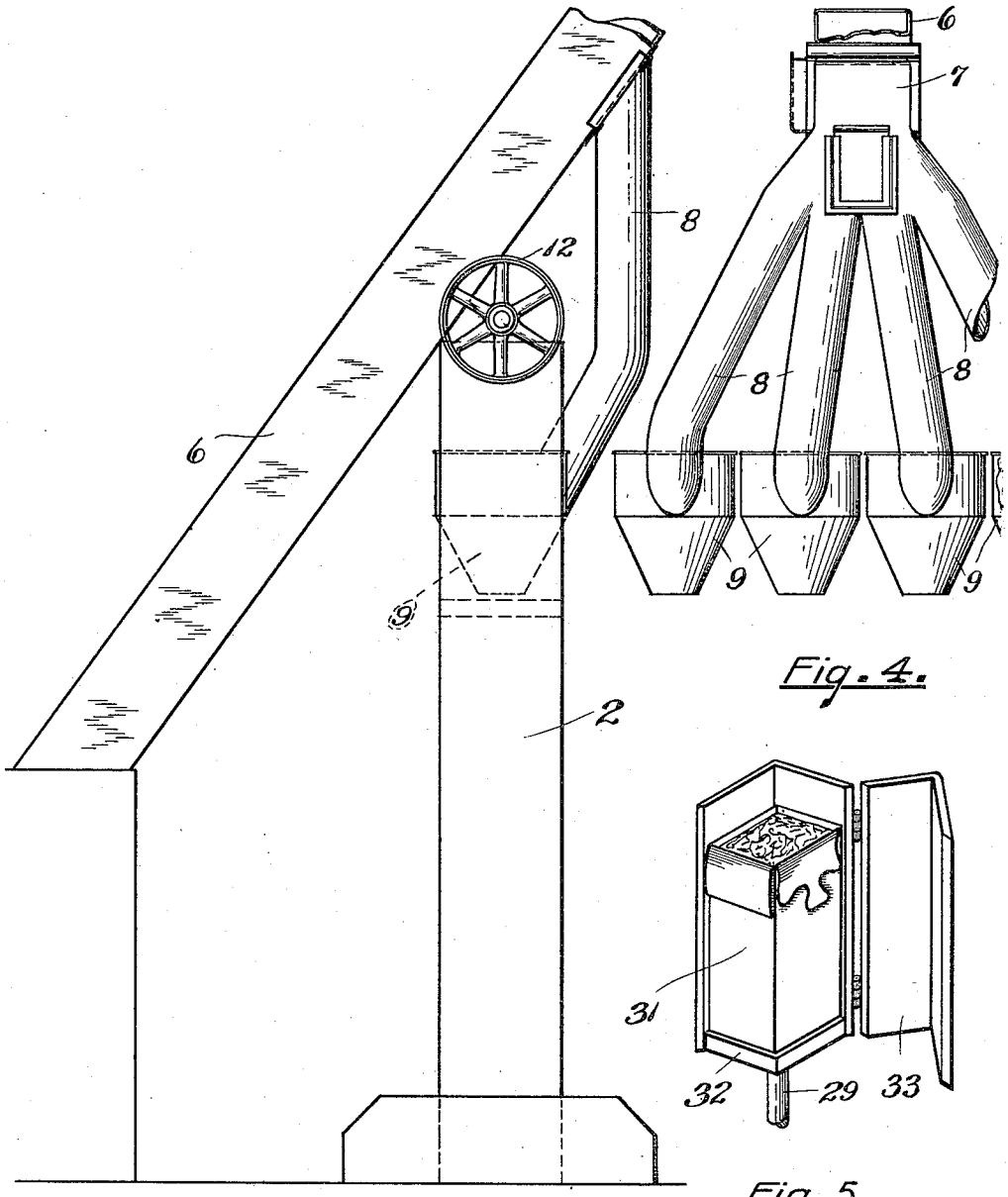



Fig. 3.




Fig. 4.




Fig. 5.

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# UNITED STATES PATENT OFFICE.

EDWARD W. SEAMANS, OF GRAND RAPIDS, MICHIGAN.

## FILLING AND PACKING MACHINE.

1,151,970. Specification of Letters Patent. Patented Aug. 31, 1915.

Application filed June 29, 1914. Serial No. 847,931.

*To all whom it may concern:*

Be it known that I, EDWARD W. SEAMANS, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Filling and 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.

This invention relates to filling and packing machines for use in putting up Alabastine in packages for the market. Alabastine, from its nature, is a very light and fluffy substance, hard to pack in cartons and one which heretofore in the process of filling cartons, has had to be agitated a number of times during the process of filling the carton in order to get the required amount in the carton package. With my invention the carton packages are filled directly from a machine, the Alabastine being forced into a carton and compressed in the process of filling the carton and without any of the resultant dust that arises from the method of filling cartons as heretofore practised.

It is accordingly, the primary object and purpose of my invention to produce a machine of this type which will handle and package Alabastine or material of similar nature, filling the cartons to provide any desired quantity therein, and one which will work practically automatically in every respect except the introducing and removing of the cartons from the machine.

Various other objects and purposes together with structure by which they are attained will be apparent on understanding being had of the construction shown in the accompanying drawings in which,

Figure 1 is a front elevation of my packaging machine. Fig. 2 is a side elevation thereof. Fig. 3 is a side elevation of the machine and showing its connections to the chute through which the Alabastine is introduced to the machine. Fig. 4 is a front elevation of the series of hoppers into which the material is introduced from the chute and the connections therewith to the chute. Fig. 5 is a perspective view of the carton holder, showing it in open position and with a carton filled.

Similar reference characters refer to similar parts throughout the several views of the drawing.

In the construction of my machine there is provided a frame-work including a base 1, spaced apart vertical side members 2 connected adjacent their upper ends by a cross-beam 3, while intermediate the base and upper cross-beam are two transverse members 4 and 5, supported by and between the side members 2. A chute 6 positioned at an incline to the vertical, is located above the machine as shown in Fig. 3 and has leading from the underside thereof, an outlet pipe 7 which in turn has communication with a series of conducting pipes 8 leading into a series of hoppers 9 which are supported by the transverse member 4. I have shown four of these hoppers but it is apparent that the number may be more or less, as desired. The hoppers are vertically positioned and have outlets 10 extending through and a distance below the transverse supporting member 4. Supported in suitable journals above the cross-beam 3 is a shaft 11 adapted to be driven by the drive wheel 12 which may be rotated by belt connection with any suitable source of power. A series of beveled pinions 13 are mounted on the shaft 11 being keyed thereto for rotation therewith but having slidable movement on the shaft. Said pinions are adapted to engage with the beveled gears 14 fixed at the top of shafts 15, one of which extends downwardly into each hopper 9 and each of which carries at its lower end a screw conveyer 16 which extends into the outlet 10 of the hopper. Normally the pinions 13 are forced away from the gears 14 by the compression springs 17 located between the pinions and collars 18 which are fixed at intervals along the length of the shaft 11.

A plurality of bell-crank levers 19 are pivotally mounted on the cross-beam 3, one for each pinion 13, and the vertical arms of said levers are each provided with a yoke 20 having engagement with pins 21 formed integrally with sleeves 22 loosely mounted on the shaft 11 and which are positioned in direct engagement with pinions 13, as shown. To the horizontal arms of the bell-crank levers rods or wires 23 are attached, said rods extending downwardly and being connected each to a bell-crank lever comprised of a horizontal arm 24 and a downwardly projecting arm 25, the lower ends of the rod 23

being secured at the extreme ends of the arms 25. It will be apparent that with the arm 24 of any lever in upper position as shown in Fig. 2, that its associated bell-crank lever 19 will be operated so as to cause the meshing of its pinion 13 with the corresponding gear 14 and that when said lever arm 24 is in the lower position indicated in Fig. 2, the spring 17 will be permitted to throw the pinion out of the mesh. When the lever arm 24 is in upper position, the connection of rod 23 to arm 25 will be directly below the pivotal mount of the lever and the force of spring 17 will not be sufficient to operate the lever into its lowered position. The bell-crank levers comprised of arms 24 and 25, are pivotally mounted between the uprights 26 which are supported by and between the transverse members 4 and 5.

Between the member 5 and base 1 are shown eight upright standards 27, two for each hopper. On each pair of standards is loosely mounted a plate 28 which is adapted to slide up and down the standards and which has connected centrally thereof a post 29 extending upwardly through the transverse member 5 and carrying thereabove a carton holder 30 adapted to hold cartons 31 as shown in Fig. 5, the holder being comprised of a base 32 attached directly to the post 29 and having two angular sides rigidly secured thereto, the holders being completed by a hinged member 33 which, when closed, forms a box open at the top and rectangular in cross section adapted to receive cartons of similar form. Latches 34 are provided to insure the safe closure of the carton holders.

Extending from each carton holder is a horizontal arm 35, carrying at its end a downwardly projecting pin 36, which on the downward movement of the carton holder as hereafter described, is adapted to contact with and force downwardly the horizontal arm 24 of its associated bell-crank lever, in effect tripping the lever and permitting the disengagement of the associated pinion 13, which drives the screw conveyer associated with the particular carton holder. Each carton normally is forced upwardly by a counterweight 37 supported by flexible connections 38 extending upwardly and over idle pulleys 39 and thence downwardly to the plate 28 to which it is attached. Each plate 28 has projecting forwardly therefrom a foot member 40 which may be cast integrally with the plate or secured thereto in any suitable manner.

From the foregoing description, the use and operation of my machine will be readily apparent. The shaft 11 is continuously driven and the pinions 13 rotate continuously with the shaft. Said pinions normally are not engaged with the gear 14, the arm 24 being in lower position so that the screw 16 does not operate in the hopper 9. To set a conveyer in motion whereby it will fill a carton package, the plate 28 with its attached carton holder 30 is forced to lower position by pressure of the foot on the foot member 40, the carton holder is opened and a carton placed inside after which the foot is removed from member 40 and placed beneath said member to elevate the carton holder to uppermost position. In this operation, the carton 31 will pass over the outlet 10 to the hopper. The carton holder is then closed and the arm 24 is grasped and raised to upper position, thereby throwing its associated pinion 13 into mesh with its gear 14 upon which Alabastine or similar material in the hopper, will be conveyed out of the outlet 10 and into the carton. It will be evident that as the material is forced out of the outlet into the carton, the holder 30 will be continuously moved in a downward direction against the force of gravity as exerted by the counterweight 37 and that the effect of the counterweight will be to cause a compression of the material as it is forced in the carton. This process will continue until arm 35 and pin 36 thereon have been lowered sufficiently to contact against the horizontal arm 24 of the adjacent bell-crank lever, tripping it and permitting the disengagement of the pinion 13 from the gear 14. As soon as this occurs, the screw conveyer 16 stops its motion and no further material is delivered from that particular hopper. The carton may then be removed and sealed, a new one being introduced in its place as described. With a plurality of carton fillers working in this manner, an attendant to the machine need only introduce the empty cartons, remove the filled cartons and place the trip lever arm 24 in proper position after the empty carton has been placed in the machine. The material sliding by gravity down the chute 6, enters the various pipes 8 and if at any time any of the pipes should be filled with material, it will merely run over into those adjacent. After a carton has been filled and the mechanism filling that particular carton stopped, it is not essential that the carton be immediately removed as the other cartons and machinery filling them is amply sufficient to take care of the material for a short time.

From the foregoing it will be seen that I have provided a machine of this character which will package Alabastine or similar light and fluffy material, compressing it in the process, and doing away entirely with objectionable dust that is common to such material.

Various modifications in this machine may be made without departing from my invention which is defined in the appending claims. I therefore consider myself entitled

to all the modifications in structure falling properly in their scope.

What I claim is:—

1. In a filling and packing machine, a base member, a transverse member located above the base member parallel thereto, vertical rods positioned in pairs between said base and transverse member, a plate slidably mounted on each pair of rods, a post extending upwardly from the plate and through the transverse member, pulleys mounted on the transverse member, flexible connections attached to the plates and leading over the pulleys, weights attached to the said connections, and a carton holder fixed at the upper end of each post.

2. In a filling and packing machine, a base, vertical frame members at each end of the base, a beam connecting the upper ends of the vertical members, an upper transverse member located below the beam, a lower transverse member located between the base and the upper transverse member, a hopper supported by the upper transverse member provided with an outlet spout extending through and below the transverse member, a pair of vertical rods located between the base and the lower transverse member, a plate slidably mounted thereon, a post projecting upwardly from the plate through the lower transverse member, pulleys mounted on said member, flexible connections secured to the plate and leading over the pulleys, a weight attached to the connections, a carbon holder fixed at the upper end of the post adapted to pass over the outlet spout, an arm projecting laterally from the carton holder, a drive shaft mounted above the beam, a screw conveyer in the hopper having a shaft extending through the beam, a gear on said shaft, a pinion slidably mounted on the drive shaft, a spring normally forcing the pinion away from the gear, a bell crank lever mounted below the beam, a collar on the drive shaft bearing against the pinion and with which the vertical arm of the bell crank lever connects, upright supports secured between the upper and lower transverse members, a second bell crank lever pivotally mounted between said supports and having a horizontal arm projecting into the path of the arm on the carton holder, and a connection between the horizontal arm of the first bell crank lever and the vertical arm of the second bell crank lever, substantially as described.

3. In a filling and packing machine, a base, vertical frame members at each end of the base, a beam connecting the upper ends of the vertical members, an upper transverse member located below the beam, a lower transverse member located between the base and the upper transverse member, a hopper supported by the upper transverse member provided with an outlet spout extending through and below the transverse member, a plate mounted for slidable movements below the lower transverse member, a post extending upwardly from the plate through the lower transverse member, means normally elevating the post and plate, a carton holder fixed at the upper end of the post and adapted to pass over the outlet spout, an arm projecting laterally from the carton holder, a drive shaft mounted above the beam, a screw conveyer in the hopper having a shaft extending through the beam, a gear on the shaft, a pinion slidably mounted on the drive shaft, a spring on the drive shaft normally forcing the pinion away from the gear, a bell crank lever mounted below the beam and having vertical and horizontal arms, a collar on the drive shaft bearing against the pinion and with which the vertical arm of the bell crank lever connects, upright supports secured between the upper and lower transverse members, a second bell crank lever pivotally mounted between said supports and having a horizontal arm projecting into the path of the arm on the carton holder and a vertical arm, and a connection between the horizontal arm of the first bell crank lever and the vertical arm of the second bell crank lever, substantially as described.

4. In a filling and packing machine, a base, vertical frame members at each end of the base, a horizontal beam connecting the upper ends of the vertical members and upper and lower transverse members located between the beam and base, a hopper supported by the upper transverse member provided with an outlet spout extending through and below the transverse member, a screw conveyer in the hopper having a shaft extending through the beam, a drive shaft mounted above the beam, driving means interposed between the drive shaft and the conveyer shaft including a pinion slidably keyed to the drive shaft, a spring normally forcing the pinion to inoperative position, a bell crank lever pivotally mounted on the beam and having a horizontal arm projecting upwardly adjacent the pinion and adapted to force it into operative position, said bell crank lever also having a horizontal arm, a carton holder mounted below and adapted to receive the lower end of the outlet spout, an arm extending laterally from the carton holder, means normally forcing the carton holder upwardly, a bell crank lever pivotally mounted between the transverse members and a horizontal arm extending into the path of movement of the arm on the carton holder and also having a downwardly projecting vertical arm and a connection between said vertical arm and the horizontal arm of the bell crank lever mounted on the beam, substantially as described.

5. In a filling and packing machine, a supporting frame, a hopper supported in the upper part of the frame, and having a downwardly extending outlet spout, a screw conveyer in the hopper having a vertical shaft extending above the hopper, a gear on said shaft, a drive shaft mounted above the gear, a pinion slidably keyed to the drive shaft, a spring on the drive shaft normally forcing the pinion away from the gear, a bell crank lever having a vertical arm adapted to force the pinion into engagement with the gear against the spring, a carton holder mounted below the spout, means for normally forcing the carton holder in an upward direction, an arm projecting laterally from the carton holder, a trip lever pivotally mounted adjacent the carton holder, and have a part extending in the path of movement of said laterally projecting arm and connections between said trip lever and the bell crank lever for controlling the bell crank lever from the trip lever, substantially as described.

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

EDWARD W. SEAMANS.

Witnesses:

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MAE RANKIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."