April 27, 1954 W. F. NETTEKOVEN ET AL 2,676,739

BAGGING MACHINE

Filed June 3, 1950

2 Sheets-Sheet 1

Fig. 1

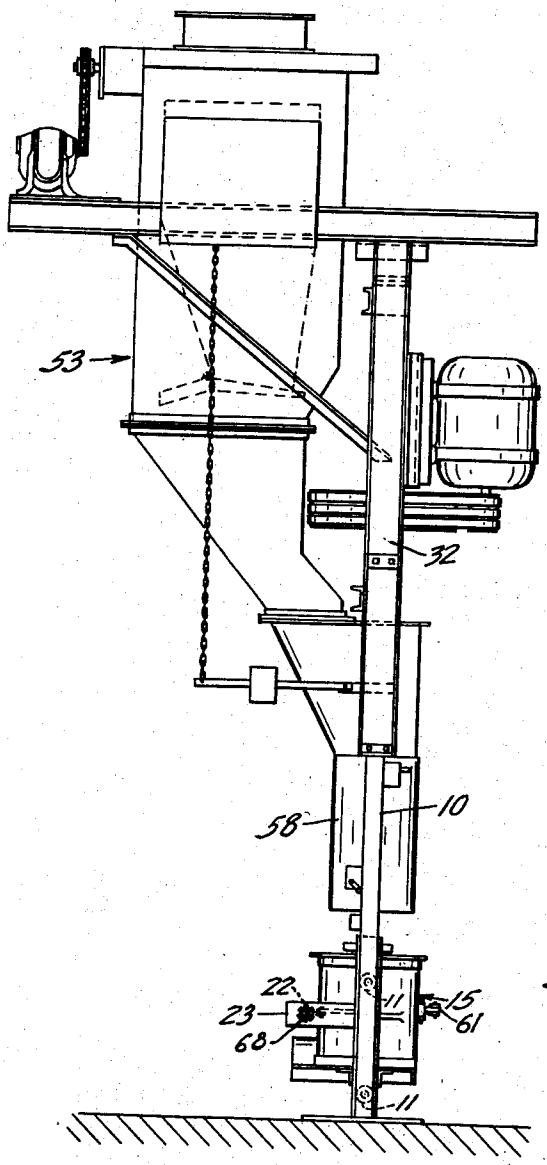
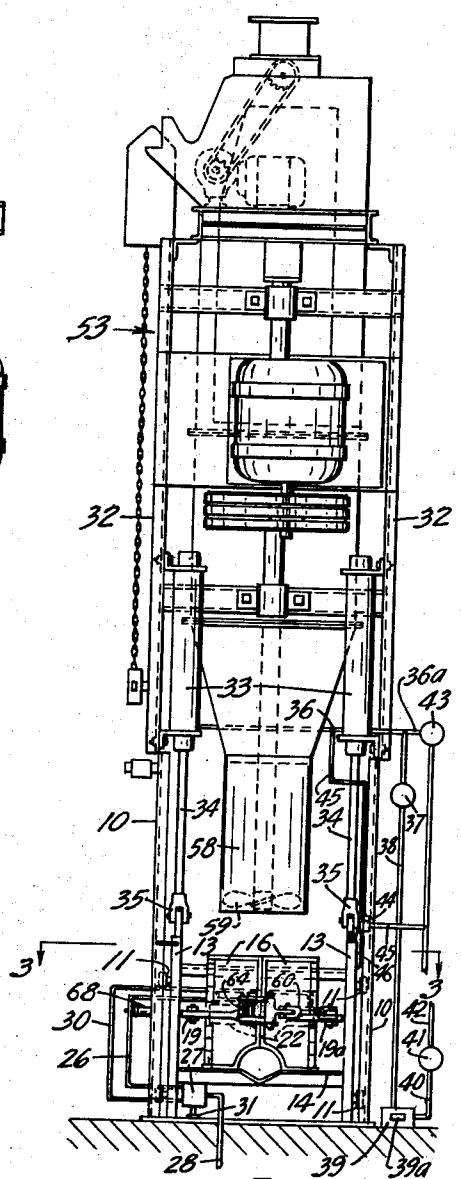


Fig. 2



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2 Sheets-Sheet 2

Fig. 3

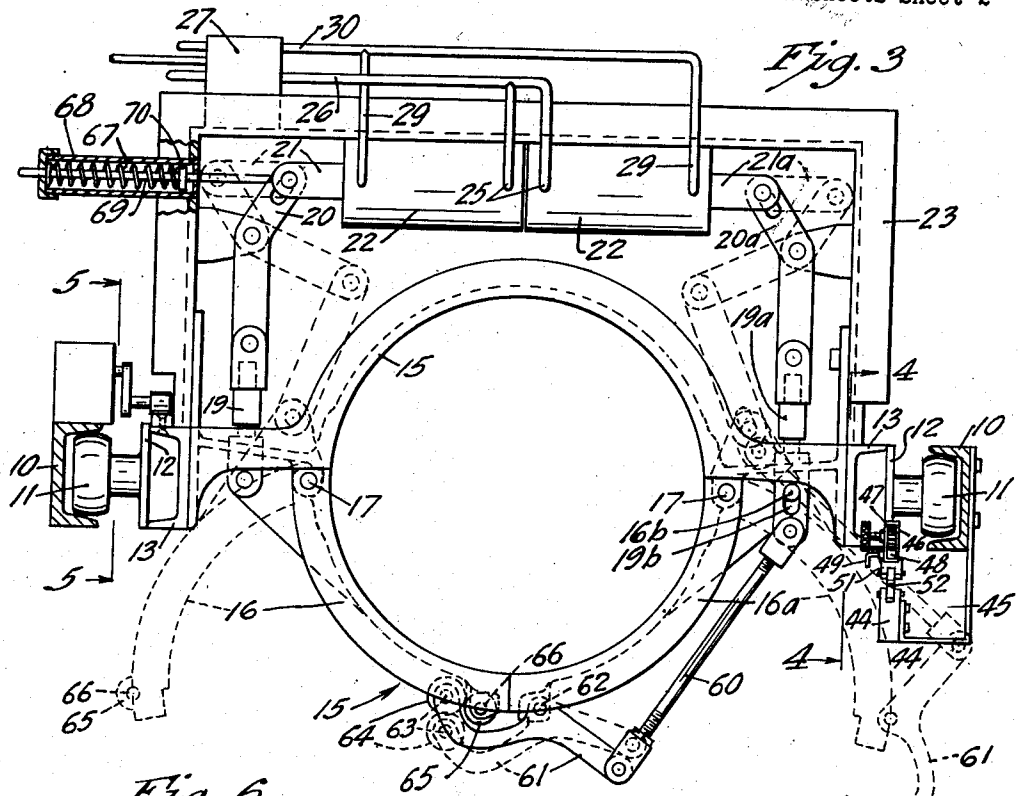


Fig. 6

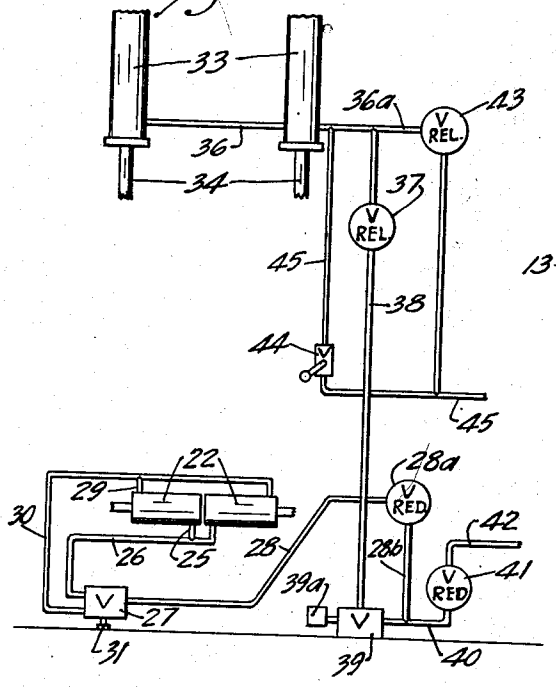


Fig. 4

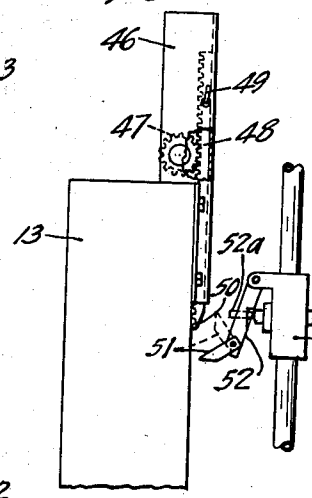
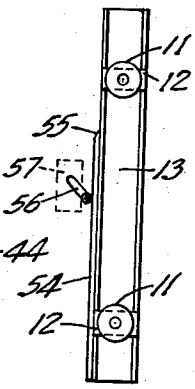


Fig. 5



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UNITED STATES PATENT OFFICE

2,676,739

BAGGING MACHINE

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Application June 3, 1950, Serial No. 165,894

6 Claims. (Cl. 226—25)

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This invention relates to bagging machinery employed in the bagging and packing of granular and powdered material.

In the bagging of powdered and granular material such as flour, bran, animal feed and the like, the powdered or granular material is customarily dropped through a discharge spout carrying a packing auger. The bag is placed around the spout and supported while it is being filled by a platform carrying a jacket which surrounds the bag to prevent it from bursting while being packed. As the bag is filled the platform and jacket move downwardly, and in certain machines which have been extensively used the auger operates under a head of material and when the bag drops down to a certain level a clutch is tripped to stop the auger, leaving the surface of the material in the bag practically level. The bag is then removed by the operator through gates provided in the jacket and placed on a scale, whereupon the operator trims off the contents of the bag to get the exact weight required. This is a slow and laborious operation.

To eliminate the trimming of the bags by hand and the resulting loss of time and accuracy automatic scales have been introduced ahead of the packing auger and the auger is constantly driven. The scale discharges an accurate pre-determined weight of material each cycle, and consequently eliminates the necessity for hand trimming of the filled bag on scales after the filling operation. Difficulty, however, has been encountered in such a system by reason of the fact that through the elimination of the trimming by hand and through use of the constantly rotating auger, the auger fluffs up the material in the top of each bag and reduces the length of the bag available for sewing, necessitating the use of bigger and more expensive bags. This fluffing up is caused by the fact that in the batch feeding through the spout when the auger starts to pack each bag it has a head of material which gradually diminishes as the packing continues. While the bottom of the bag is packed properly, there is not enough head of material toward the end of the packing operation to continue the extruding of the material from the spout under pressure, and, accordingly, the auger fluffs up the last bit of material which goes into the bag between the auger and the larger portion of material already packed into the bag.

In such bag packing machinery the jacket is raised to encircle the bag fitting around the discharge spout and after the bag is filled the jacket is carried to a level below the spout. The

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jacket is equipped with gates to permit of the release of the filled bag from the jacket and as these gates must be closed and opened as each bag is packed and as the gates have been hand operated the opening and closing of the gates takes considerable time and slows down the entire packing operation.

It is one of the objects of the present invention to provide in bag packing machinery including an auger equipped discharge spout through which material in weighed batches is discharged means for preventing the fluffing up of the material at the top of the bag by the auger during the last part of the filling operation.

A more specific object of the invention is to provide automatic means for instantaneously dropping the bag away from the auger the moment the head of the material behind the auger is insufficient to continue the extruding process, allowing the auger merely to flatten off the balance of the material into the bag as it descends away from the auger.

Another object is to provide means for automatically closing the gates of the jacket as it is raised to encircle the bag fitting around the discharge spout and to automatically open the gates as the jacket is lowered toward its limit of downward movement, thereby speeding up the packing operation through the elimination of the labor required to manually close and open the gates of the jacket.

Yet another object of the invention is to provide means for elevating the bag holding unit and actuating the above mentioned gate in such synchronism that the bag holding unit will begin its upward movement slightly ahead of the closing movement of the gate and the gate will commence its opening movement slightly before the bag holding unit reaches its lower limit of movement.

A further object is to provide fluid controlled mechanism for raising and lowering the jacket, for closing and opening the gates of the jacket, for controlling the dropping away of the jacket and bag from the auger, and another object is to provide such fluid controlled mechanism which will be automatically operated through a complete cycle once the mechanism has been set in operation to fill a particular bag.

Another object is to provide a bag filling machine which includes a bag holding unit which moves vertically under fluid pressure to receive material from a feeder under pressure, and wherein means is provided for offsetting or compensating for the pressure of the material fed

into the bag against the fluid pressure of the elevating means.

Another object is to provide proper mechanism which will automatically act to discharge the quantity of material which has been weighed out through the spout only as the jacket is raised to its uppermost position surrounding the bag and spout.

These and other objects and advantages of our invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to similar parts throughout the several views, and in which

Fig. 1 is a side elevational view of an automatic hopper scale showing our improved bag filling unit at the lower portion thereof;

Fig. 2 is a front elevational view of the structure shown in Fig. 1;

Fig. 3 is an enlarged section taken approximately on the line 3—3 of Fig. 2 with some of the fluid conduits removed and with alternate positions of the bag holding gate and latch in full and dotted lines;

Fig. 4 is an enlarged section taken approximately on the line 4—4 of Fig. 3;

Fig. 5 is an enlarged section taken approximately on the line 5—5 of Fig. 3; and

Fig. 6 is a diagrammatic layout of the pressure system and its controls.

The bag holding unit includes a pair of vertically disposed channel shaped guides 10 which receive rollers 11 mounted on plates 12, which in turn are welded to cross channels 13 forming part of the frame of a vertically movable bag holding unit.

Extending between the movable channels 12 is a platform 14 carrying a vertically disposed bag holding jacket 15 of cylindrical shape, said jacket being open at its upper end. This jacket has a pair of gates 16 and 16*a* of arcuate shape in horizontal section which cooperate to form the front wall of the jacket, and these gates are hingedly mounted on vertical pintles 17 carried by the forward edges of the fixed walls of the jacket 15.

The gates 16 and 16*a* are respectively pivotally connected by links 19 and 19*a* to forward arms of bell crank levers 20 and 20*a* and the rear ends of these bell crank levers are in turn connected to piston rods 21 and 21*a* working in oppositely disposed air cylinders 22 which are located at the rear of the jacket 15 on a U-shaped support 23 whose arms are connected to the vertical movable channels 13. There is a loose sliding connection between the gate 16*a* and the link 19*a*, this connection being effected by a pivot pin 16*b* working within a slot 19*b* in the link 19*a*. Pivotally connected to the forward end of the link 19*a* is an adjustable length latch rod 60 which is pivotally connected to one arm of a latch bell crank lever 61 mounted for swinging movement on a pivot 62 carried by the forward and swinging end of gate 16*a*. The other arm of the bell crank lever 61 carries a pivot pin 63 on which a latch roller 64 is mounted, this roller being at times adapted to engage behind a roller 65, mounted on a pivot pin 66 carried by the forward and swinging end of the gate 16. The rod 60, bell crank lever 61 and roller 64 form a dead-center acting latch which is adapted to cooperate with the roller 65 to lock the two gates 16 and 16*a* in a closed position when the piston rods 21 and 21*a* are drawn inwardly into their cylinders 22 as shown in full line position Fig. 3. In such position the axial center of pivot pin 63 carrying roller 64 has been swung inwardly just past a dead-center relation in respect to a line taken through the axial centers of the two pins 62 and 66 and, accordingly, until bell crank lever 61 is swung it will be impossible for the gates 16 and 16*a* to open. To insure unlatching of the gates ahead of the time of opening movement of the gates and to cause gate 16*a* to open ahead of gate 16, resistance to extension of piston rod 21 is secured by means of a compression spring 67 enclosed in a cylinder 68 mounted on the U-shaped support 23, the said spring encircling a rod 69 carrying a head 70 within the cylinder 68. The spring 67 reacts between the outer closed end of cylinder 68 and head 70 and urges the inner end of rod 69 against piston rod 21. Air pressure is applied to the two cylinders 22 tending to extend piston rods 21 and 21*a*. The piston rod 21*a* is first extended a short distance before piston rod 21 is extended by reason of the spring pressure applied by the spring pressed rod 69 against the piston rod 21. As rod 21*a* extends from its cylinder, the link 19*a* first slides rearwardly relative to the pivot pin 16*b* before the gates 16*a* or 16 start to swing to an open position. As the link 19*a* slides rearwardly, rod 69 is actuated to swing the bell crank lever 61, thereby swinging axial center of pivot pin 63 outwardly past a dead-center relation in respect to a line taken through the axial center lines of the two pivots 62 and 66, causing roller 64 to clear roller 66, unlocking the gates and permitting the gate 16*a* to swing outwardly under the action of link 19*a*. The latch part will first move to the inner dotted line position shown in Fig. 3. Thereafter, first the gate 16*a* and later the gate 16 will be swung outwardly as the piston rods 21 and 21*a* are further extended from the cylinders until the gates are swung wide open to the outer dotted line position shown in Fig. 3.

The air cylinders 22 are provided with inlet conduits 25 which admit air under pressure to the inner ends of the cylinders. These inlet conduits are connected to a common supply conduit 26 which is connected to a spring-actuated push button valve 27 to which an air supply line 28 is connected. The other ends of the cylinders 22 have conduits 29 connected thereto, and these conduits 29 are in turn connected with another conduit 30 which runs to the valve 27. The valve 27 is actuated to its two positions by a push button 31 which is normally urged resiliently outwardly from the valve. In one position of the valve the push button 31 is in contact with the floor or some other stationary structure so that the push button is pressed inwardly against its spring tension and in this position the valve is set so that compressed air delivered through the supply line 28 to the valve 27 is transmitted through the valve and through the conduit 26 and conduits 25 to the inner ends of the cylinders 22, causing the gates to open. Air from the outer ends of the cylinders 22 may exhaust through the conduits 29 and 30 back to the valve 27 and then vent to atmosphere from the valve when the push button 31 of the valve is inwardly pressed. If now the platform 14 and bag holding jacket 15 are elevated so as to carry the valve upwardly relative to the base or stationary structure, the spring actuating the push button 31 will force the push button outwardly relative to the valve reversing the flow of air to and from the cylinders 22 and thereby closing the gate 16. In

other words, as the platform 14 and bag holding jacket 15 raise from the base or from the position shown in Fig. 2, the valve 27 will be actuated to its other position and air will then be supplied from the supply line 28 first to the valve 27 and thence through the conduits 30 and 29 to the outer ends of the cylinders 22, the air in the inner ends of the cylinder discharging through the conduits 25 and 26 back to the valve 27 to exhaust therefrom to atmosphere.

Mounted on upward extensions 32 of the stationary side guides 10 of the machine are air cylinders 33 having pistons therein (not illustrated) connected to piston rods 34 extending downwardly from the cylinders. The lower ends of the piston rods 34 are connected by clevises 35 to the upper ends of the vertically movable frame channels 13 which form part of the bag holding and elevating unit. The cylinders 33 are connected by a conduit 36 to a regulating pressure valve 37 set to pass air only when the pressure exceeds a pre-determined pressure. This valve is connected by a conduit 38 to a foot-operated shut-off valve 39 having a foot treadle 39a which controls the opening of the same. A conduit 40 runs from the shut-off valve 39 to a main regulating valve 41 and this valve is connected by an air supply conduit 42 to a suitable source of air under pressure.

A branch conduit 36a is connected to the conduit 36 running to the two cylinders 33 and this branch conduit 36a is in turn connected to a bleeder or pop valve 43 which is set to open under a predetermined pressure greater than the pressure for which the valve 37 is set to open. An exhaust valve 44 is connected in an exhaust line 45 which leads from the line 36. Both the exhaust valve 44 and the bleeder or pop valve 43 may exhaust to atmosphere direct, but in the form shown they are illustrated as being connected to an exhaust line 45 which exhausts to atmosphere.

The air supply line 28 which supplies air to the valve 27 and thus to the cylinders 22 is connected to a pressure reducing valve 28a, and the pressure reducing valve 28a is connected to the conduit 40 by a conduit 28b. The pressure reducing valve 28a is normally set to deliver air to the valve 27 at a reduced pressure relative to the setting for which the regulating valve 37 is set.

As shown in Figs. 3 and 4, the upper movable channel 13 has a bracket 46 extending upwardly therefrom. This bracket supports a pinion gear 47 which meshes with a rack 48 slidable in the bracket 46, which, as shown in Fig. 3, is in the form of a rectangular shell. A locking bolt 49 is used to clamp the rack in any desired vertically adjusted position.

The lower end of the rack bar 48 is tapered as at 50 to provide a cam surface which engages an operating arm 51 pivotally connected to a valve actuating lever 52, this lever carrying a set screw 52a adapted to engage plunger 44a of valve 44 to open the valve 44 when the lever 52 is swung downwardly and inwardly. When the bag holding unit moves downwardly, the rack bar 48 will engage the operating arm 51 to swing the valve operating lever downwardly and inwardly, opening valve 44 and thereby completely opening the line from the fluid pistons 33, this action taking place just before the bag holding unit including the platform 14 and jacket 15 has reached its lower limit of movement. The operating arm 51 has freedom for upward swinging movement relative to lever 52 to permit the rack bar 48 to raise upwardly with the bag holding unit without swinging lever 52.

In Figs. 3 and 5 we have illustrated a microswitch control unit which is adapted to discharge a weighed quantity of material from the automatic hopper scale assembly indicated generally at 53 in Figs. 1 and 2. The vertically movable channel 13 at the left hand side of the bag holding unit as viewed in Fig. 3 has an elongated cam bar 54 secured thereto. This cam bar has an upper tapered end 55 which is adapted to engage a pivoted arm 56 on a microswitch 57. This switch is adapted to open and close a circuit causing material to be discharged from the scale 53. The elements of the scale and its discharge mechanism are not shown in detail, since they do not constitute a part of the present invention and also because they are well known in the art.

While the setting of the different valves may be considerably varied, for the purpose of describing the operation of the machine let us assume that the valve 41 which connects with the air supply line 42 is set for ninety pounds pressure so that this valve will prevent the delivery of air over this pressure beyond this valve 41. Let us further assume that the valve 28a is set for twenty pounds pressure so that air over this pressure will not be delivered beyond the valve 28a through the conduit 28 and to the valve 27 and, thence, to the cylinders 22. Of course, the valve 39 is capable of being opened only as the foot lever 39a is depressed and at all other times it shuts off the flow from the conduit 40 through the conduit 38. Let us further assume that the valve 37 is set so that air will be delivered past this valve only when the pressure of the air exceeds seventy pounds. Let us further assume that the bleeder valve 43 is set so that it will open only when the air pressure in the cylinders 33 and in the branch conduit 36a exceeds one hundred ten pounds. Of course, the exhaust valve 44 is normally closed and will be opened only when the lever 52 is actuated by the cam 50.

With the jacket 15 and the platform 14 located at their lower limit of movement and with the push button 31 of the valve 27 bearing against the floor on which the machine is supported, the valve 27 is set so that the condiut 28 is in communication through the valve 27, the conduits 26 and 25 with the inner ends of the cylinders 22, while the outer ends of the cylinders 22 are in communication with atmosphere through the conduits 29, 30 and the valve 27 and, hence, the gates 16 and 16a stand in the open position. When a bag is to be filled it is placed around the spout 58 of the automatic hopper scale. This spout has a continuously driven material packing auger 59 located therein near its lower end as is well known in the art. The foot lever 39a of the valve 39 is now pressed downwardly to open the valve 39. Air under ninety pounds pressure then passes from the source of air supply through the conduit 42 and regulating valve 41, through the valve 39, and thence through the conduit 38 and through the valve 37 having a low setting of seventy pounds, through the conduit 36 to the two cylinders 33. As this occurs the piston rods 34 are moved upwardly a short distance to raise the platform 14 and the jacket 15 slightly, thereby carrying the push button 31 of the valve 27 out of engagement with the floor and permitting this valve to reverse the flow to the two gate operating cylinders 22. Air now flows under twenty pounds pressure through the valve 27, conduits

30 and 29 to the outer ends of the two cylinders 32, while air is being exhausted from the inner ends of the two cylinders through the conduits 25, 26 and the valve 27 to atmosphere. The flow of air to the two gate operating cylinders 22 momentarily reduces the pressure of air supplied through the conduit 38 to the valve 37 and drops this air pressure below the seventy pound pressure for which it is set and thus the gates 16 and 16a of the jacket 15 are positively closed and latched closed shortly after the beginning of the up movement of the platform 14 and jacket 15 and before the jacket is brought around the bag held by the spout 58.

After the gates 16 and 16a have been closed and latched closed, the air pressure in the conduit 38 again builds up quickly to above the seventy pound setting of the valve 37 and, hence, air is again supplied to the jacket raising cylinders 33 and the platform and jacket continue to rise. As the bag holding unit continues to move upwardly the cam bar 54 shown in Fig. 5 will actuate the microswitch 57 and the energization of this switch will dump a predetermined weighed quantity of the material from the upper portion of the scale 53 to the lower portion thereof. This action takes place, however, due to the positioning of the cam bar 55 relative to the lever 56 of the microswitch just shortly before the bag holding unit reaches its uppermost position. At that time the closed jacket 15 surrounds the bag and the spout 58 so that none of the material from the spout may be discharged before the bag is embraced by the jacket. The material under considerable head is now forced by the auger 59 into the bag, and this auger will pack the material into the bag while the bag is embraced by the jacket 15. It will be understood that the bag, the platform 14, the jacket and the entire bag holding unit are supported in the raised position by the pressure of air within the cylinders 33. Accordingly, as the auger 59 packs the material into the bag the partially filled bag and the bag holding unit will be forced downwardly by the auger against the pressure of air within the two cylinders 33 so that the packing action will take place under considerable pressure. In order to prevent this air pressure from becoming too great and to permit of the proper down movement of the bag holding unit as additional quantities of material are packed in the bag the bleeder valve 43 is provided which will open to relieve the pressure in the cylinders 33 if this air pressure becomes excessive. Accordingly, if this bleeder valve is set for one hundred ten pounds pressure and this pressure is exceeded in cylinders 33, valve 43 will open to allow a portion of air from the cylinders 33 to escape through the conduit 36, the branch conduit 36a, the bleeder valve 43, and the exhaust line 45 until the pressure in the cylinders 33 is reduced down to that for which the bleeder valve is set. It should, of course, be stated that after the bag holding unit has been raised to its extreme upward position the foot pressure on the foot lever 39a of the valve 39 is relieved so that this valve 39 closes and thus even though the pressure developed in the cylinders 33 during the filling operation of the bag exceeds the ninety pound pressure in the conduit 40 and conduit 38 the air cannot run back in the line beyond the valve 39 which, of course, is closed.

At length, when the bag is nearly filled, there will be insufficient head of material above the auger 59 in the spout 58 to permit the auger to properly pack the material into the bag without fluffing up the material. At this particular time, the cam 59 carried by the rack 48 will engage the roller 51 carried by the lever 52 of the valve 44 and open this exhaust valve. This will completely release the pressure from the cylinders 33 and the platform and bag holding jacket 15, together with the entire bag holding unit, will thus immediately drop away from the spout 58 carrying the nearly filled bag with them. As the bag holding unit drops downwardly sharply the last quantity of the weighed material in the automatic hopper scale will flow through the spout 58 into the upper portion of the bag and while the auger 59 will not pack this last quantity of material it will smooth it off as the bag drops away from the spout.

Shortly before the bag holding unit drops to its lowest position the push button 31 of the valve 27 will strike the floor, thereby reversing flow of air from the conduit 28 through the valve 27 and supplying air through the conduits 26 and 25 to the inner ends of the gate actuating cylinders 22, while permitting the discharge of air from the outer ends of the cylinders 22 through the conduits 29, 30 and valve 27 to atmosphere. Accordingly, the gates will be unlatched and thrown open automatically just before the bag holding unit reaches its lowest position and the filled bag may then be removed from its position within the jacket 15 resting on the platform 14.

It should be noted that the entire cycle of operation is automatic after the foot lever 39a of the valve 39 has been depressed. The gates are closed and latched automatically before the jacket is brought up around the bag held by the spout of the automatic hopper scale. The scale is dumped only after the jacket embraces the bag adjacent the uppermost position of the bag holding unit. The larger portion of the bag is packed by the constantly revolving auger 59 under pressure. The bag holding unit moves downwardly against the pressure of the air in the cylinders 33 during the packing operation so that the larger portion of the contents of the bag are tightly packed. As the head of the material being packed is insufficient to permit proper packing action by the auger 59 the bag is dropped downwardly sharply and the auger smoothes the last bit introduced into the bag and just before the bag holding unit drops to its extreme lowermost position the gates are automatically unlatched and opened to permit quick removal of the filled bag. The synchronized automatic action greatly reduces the time required for filling the bags with relatively finely divided material, saves a great deal of labor, and limits other undesirable factors such as human error and fatigue. The pressure setting of the various valves can, of course, be considerably varied as desired, the figures used for the settings and above referred to being merely given by way of example to better clarify the operation of the device.

By adjustment of the rack 48 upwardly or downwardly on its support the dropping of the bag from the spout can be adjusted to the requirements of the particular material being bagged and packed and size of the bag used.

While the operation of the device is described as pneumatic, by slightly modifying the fluid system it is possible to employ a hydraulic system for the operation.

It will, of course, be understood that various changes may be made in the form, details, ar-

rangement, and proportions of the various parts without departure from the scope of our invention, which, generally stated, consists in the matter shown, and described, and set forth in the appended claims.

What we claim is:

1. In a bag filling machine having a packing auger working in a spout through which weighed quantities of pulverulent material are intermittently discharged, an open topped bag receiving jacket mounted for vertical reciprocation relative to the spout to, when in its raised position, receive a bag placed around the spout while being filled, fluid controlled means for raising and lowering said jacket relative to the spout, said fluid controlled means including a body of compressible gas which tends to be increasingly compressed permitting lowering of said jacket as the bag is filled, relief means permitting the escape of gas when the pressure thereof increases beyond a predetermined point, and means controlling the escape of fluid from the fluid controlled means to drop the jacket from the spout when the head in the spout is reduced as the bag approaches complete filling, thereby permitting complete filling of the bag and preventing fluffing up of the granular material at the top of the bag by the action of the auger as the bag is completely filled.

2. For use with bagging machines having an auger equipped discharge spout through which weighed material in batches may be discharged, an open topped bag receiving and reinforcing jacket mounted for vertical reciprocation relative to the spout to, when in raised position, receive a bag placed around the spout while being filled, said jacket including a laterally movable gate which when open will permit removal of the filled bag from the jacket, fluid controlled means for raising and lowering said jacket relative to the spout, said fluid controlled means including fluid escape means permitting the escape of fluid from the fluid controlled means to drop the jacket and nearly filled bag from the spout as the bag approaches complete filling, fluid controlled means operated by the movement of said jacket as the jacket approaches the limit of its downward movement to automatically open said gate and actuated by the movement of said jacket as it moves upwardly to close said gate.

3. The structure defined in claim 2 and means for latching said gate as the gate closes and for unlatching the gate immediately prior to its opening.

4. In a bag filling machine for use with an intermittent discharge hopper, a spout depending from said discharge hopper for receiving intermittently a batch of material from said discharge hopper, a feed sugar journalled within said spout, drive means for imparting constant rotation during and between intermittent discharge times, a vertically movable bag holding unit adapted for positioning beneath the spout for movement upwardly to a material receiving and bag filling position, and a hopper tripping control assembly adapted for connection with the discharge means of the hopper, said tripping assembly comprising a pair of relatively movable trip elements, one of which is movable with said vertically movable bag holding unit, and the other of which is located in the path of movement of said first mentioned trip element to actuate said trip after a predetermined upward travel of said bag holding unit.

5. In a bag filling machine having a packing auger working in a spout through which weighed quantities of pulverulent material are intermittently discharged, an open topped bag receiving jacket mounted for vertical reciprocation relative to the spout to, when in its raised position, receive a bag placed around the spout while being filled, fluid controlled means for raising and also for lowering said jacket relative to the spout, a restricted fluid relief valve connected to said raising and lowering fluid control means for bleeding fluid therefrom at a predetermined pressure when said bag receiving jacket and bag held therein are forced downwardly by material fed into the bag, and an unrestricted fluid release connected to said raising and lowering fluid control means to drop the jacket from the spout when the head in the spout is reduced as the bag approaches complete filling, thereby permitting complete filling of the bag and preventing fluffing up of the granular material at the top of the bag by the action of the auger as the bag is completely filled.

6. In a bag filling machine having a constantly rotating packing auger working in a spout through which weighed quantities of pulverulent material are intermittently discharged, an open topped bag reinforcing jacket mounted for vertical reciprocation relative to the spout to, when in raised position, receive and reinforce a bag placed around the spout while being filled, fluid controlled means for raising and lowering said jacket relative to the spout, said fluid controlled means including fluid escape means permitting the escape of fluid from the fluid controlled means to drop the jacket and nearly filled bag as the bag approaches complete filling, thereby preventing fluffing up of the pulverulent material at the top of the bag by the action of the auger as the bag is completely filled and permitting the auger to smooth off the material at the top of the bag, said jacket including a laterally opening gate, means for automatically opening said gate to permit removal of the filled bag as said jacket approaches its lowest position of movement, and means for automatically closing said gate during the upward movement of said jacket.

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