

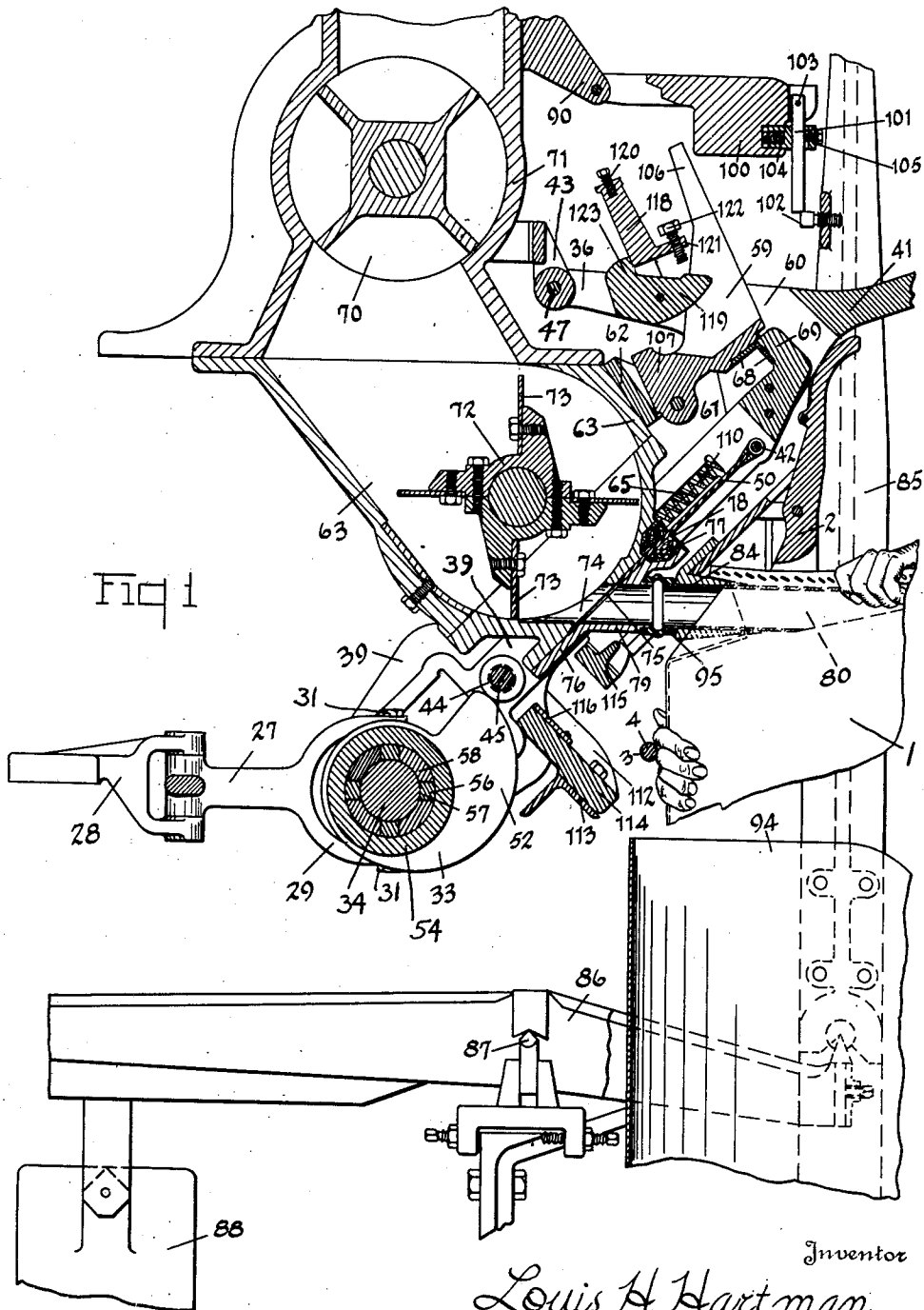
Jan. 1, 1929.

L. H. HARTMAN
BAG FILLING MACHINE

1,696,952

Filed Sept. 26, 1927

4 Sheets-Sheet 1



Inventor

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Jan. 1, 1929.

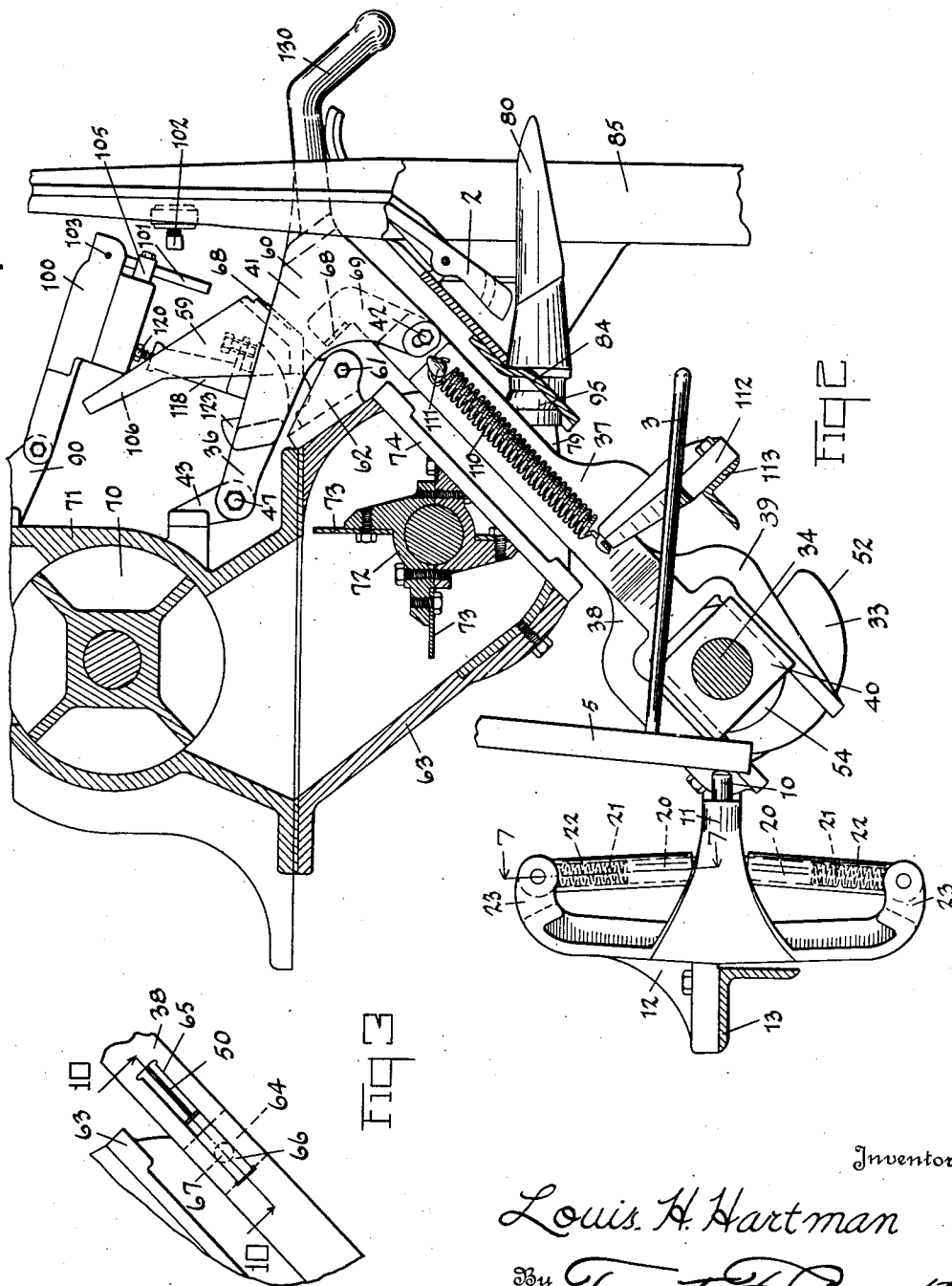
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4 Sheets-Sheet 2



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4 Sheets-Sheet 3

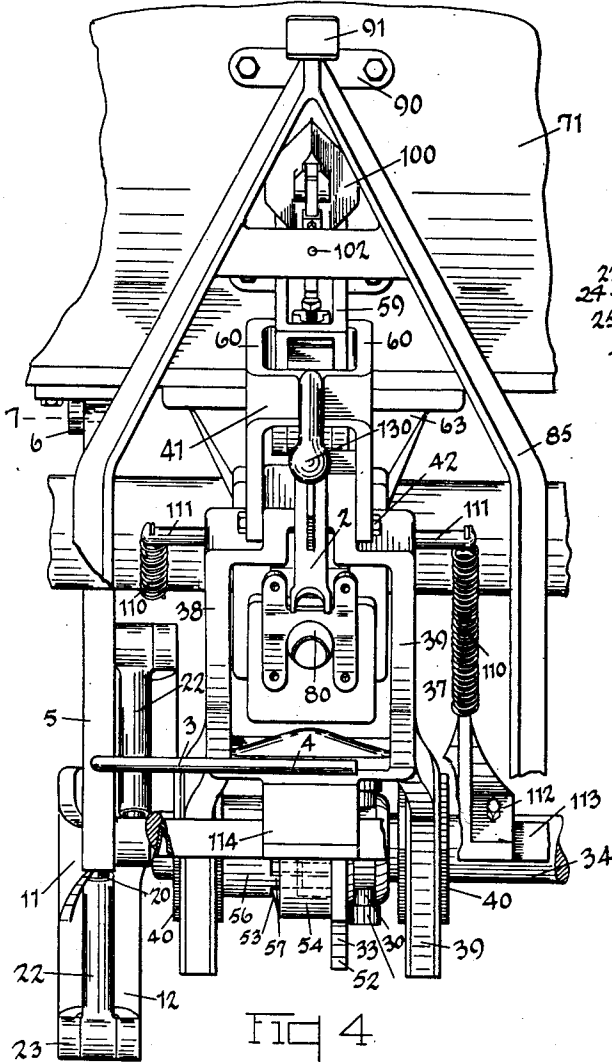


FIG 4

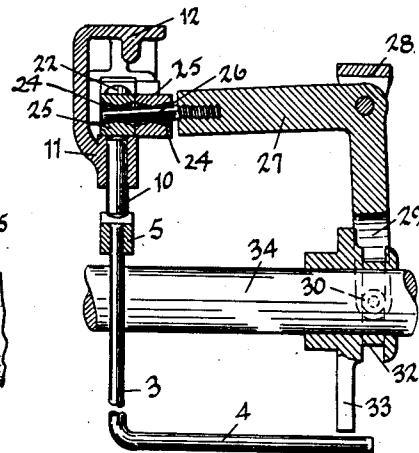
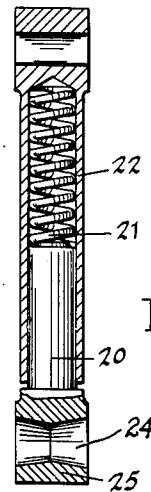


FIG 5



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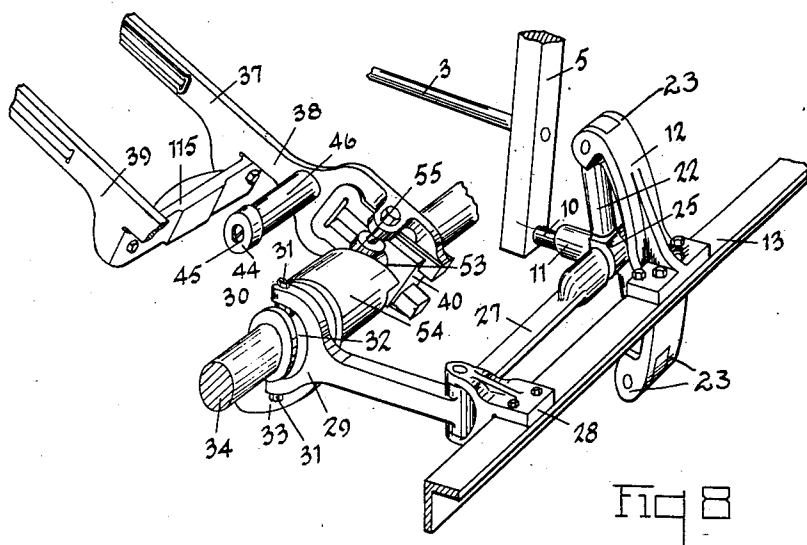


Fig 8

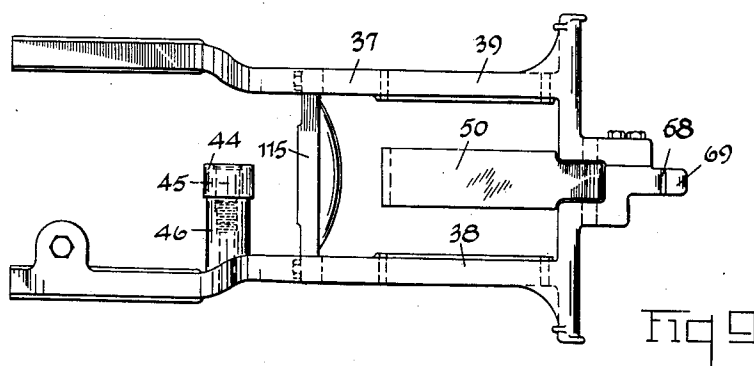


Fig 9

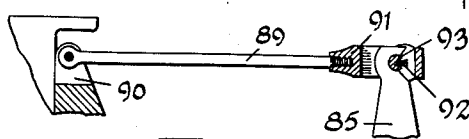


Fig 11

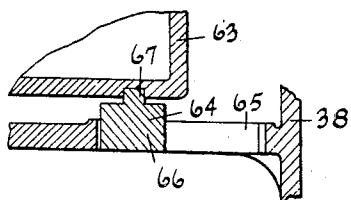


Fig 10

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UNITED STATES PATENT OFFICE.

LOUIS H. HARTMAN, OF TOLEDO, OHIO.

BAG-FILLING MACHINE.

Application filed September 26, 1927. Serial No. 221,873.

My invention has for its object to provide a bag filling machine whose operation is controlled by the placement of bags in position to receive the material to be dispensed.

5 The invention affords a means for insuring the proper placement of the bags in advance of introduction of material into the bags. The machine containing my invention may also be provided with a means for automati-
10 cally regulating the amounts of a material dispensed by the machine, the regulating means being actuated by the weight of the material. My invention is an improvement particularly in bag filling machines wherein
15 operation is initiated as the receptacle for receiving the dispensed material is placed in position relative to the dispensing parts.

The invention may be contained in various forms of dispensing machines, and, to illustrate a practical application of my inven-
20 tion, I have selected one form of such machines as an example and shall describe it hereinafter. The machine selected is shown in the accompanying drawings.

25 Fig. 1 is a view of a vertical section of the machine. Fig. 2 is a view of a side elevation of the machine, certain of the parts being shown in different positions than shown in Fig. 1. Fig. 3 is a detail view of one portion
30 of the machine. Fig. 4 is a view of the front of the machine. Fig. 5 is a view illustrating a controlling lever and bell crank. Fig. 6 is a rear view of a portion of the machine. Fig. 7 is a view of a cross section taken on the
35 plane of the line 7-7 indicated in Fig. 2 and illustrates a detail of the machine. Fig. 8 is a perspective view of the parts of the machine. Fig. 9 is a plan view of the members controlling the shut-off slide. Fig. 10 is a
40 view of a section taken on the plane of the line 10-10 indicated in Fig. 3. Fig. 11 is a side view of a guiding link for the counterbalancing pan or bag supporting frame.

A machine of the form illustrated in the
45 drawings is used for dispensing such pulverized or powdered material as cement, plaster, and lime, which is dispensed into suitable receptacles as the machine is operated. In the form of construction shown, a bag 1 is
50 placed on a nozzle, or filling tube, of the machine and secured by a suitable bag holding member 2. The filling tube is inserted into a mouth formed in one corner of the bag 1 and, as the operator places the bag on the
55 tube, his hand is brought into contact with

a bar 3. The bar 3 is connected to parts of the machine so that its actuation initiates the operation of the machine. The bar 3 is bent in the shape of an L, the portion 4 extending across the front of the machine. 60 The portion 4 of the bar is so located with respect to the filling tube that the bag must be placed in correct position before the hand of the operator will move the bar 3. This insures proper positioning of the bag for fill-
65 ing. The bar 3 extends rearwardly from the portion 4 and is secured in a bar 5 suspended from the machine. The upper end of the bar 5 is supported in a bracket 6 by a
70 pin 7.

As the bar 3 is moved rearwardly by the force of the operator's hand, the bar 5 will be swung in the same direction against a pin 10. The pin 10 is movably supported in the
75 end of a flange 11 which extends horizontally from a bracket 12. The bracket 12 is secured to an angle iron 13 of the frame of the machine.

The pin 10 moves against a head 25 of one of a pair of pins 20. The pins 20 are spring
80 pressed by springs 21, the pins 20 and the springs 21 being located in the hollow shanks of studs 22. The studs 22 are each pivotally supported between a pair of flanges 23. The
85 flanges 23 project at substantially right angles from the bracket 12. One pair of flanges 23 project from the top of the brackets and the other pair of flanges 23 project
90 from the lower end of the bracket 12. Thus, the studs 22 extend from the pairs of flanges 23 so that the heads 25 of the pins 20, that are located in the studs 22, will be adjacent each
95 other and at a point intermediate the pairs of flanges 23. The flanges 23 projecting from the bottom and top of the bracket 12 are offset from the vertical center of the bracket to allow the head portions 25 and the pins 20
100 to be located in close proximity. The heads 25 of the pins have double frustumal openings 24 in which is located a pin 26 to provide a flexible joint between the parts. The
105 pin 26 is threaded into one end of a bell crank lever 27 which is pivotally supported in a bracket 28. The other end of the lever 27 is formed in the shape of a yoke 29. A
110 pair of rollers 30 are rotatably supported on the bolts 31 threaded into the ends of the yoke 29, the ends of the bolts 31 extending through the yoke being reduced in diameter to accom-

cated in a groove 32 formed in the hub portion of a cam wheel 33. The cam wheel 33 is slidably mounted on a shaft 34. Thus, as the pin 10 is moved inwardly by the bar 5, the pins 20 are actuated to rotate the bell crank 27 about its axis to shift the cam wheel 33 laterally on the shaft 34.

When the dispensing parts of the machine are not operating, a frame 37, formed of two arms 38 and 39, is located in its down position. The lower ends of the arms 38 and 39 are made in the form of a yoke and are slidably mounted on grooved bushing blocks 40. The blocks 40 are mounted on the shaft 34 on each side of the cam wheel 33. The upper end of the frame 37 is pivotally connected to a lever 41 by a bolt 42. A pair of fingers 36, projecting rearwardly from the body of the lever 41, are supported on a bracket 43. The cam wheel 33, when moved laterally by the bell crank 27, is positioned so that its cam surface will engage a roller 44 rotatably supported by a bolt 45. The bolt 45 is threaded into a boss 46 formed on the inner side of the arm 38. The rise of the cam 33 moves the frame 37 diagonally upward and also causes the lever 41 to rotate about the axis of the bolt 47. The movement of the frame 37 is sufficient to raise a shut-off slide 50 connected in the upper end of the frame 37 by the bolt 42 which connects the frame 37 to the lever 41 and opens a passage-way for the material to be dispensed.

When the cam portion 52 of the cam wheel 33 has rotated to the highest point in its rise, the cam wheel 33 is again shifted laterally on the shaft 34 by the pressure of a cam surface 53, formed on a collar 54, against a roller 55 supported on the arm 38 of the frame 37. The collar 54 is press-fit on a collar 56 having the teeth 57 formed in one end. The teeth 57 are in constant yet sliding engagement with a corresponding arrangement of teeth 58 formed on the side of the cam wheel 33. This relation of the collar 54 and the cam wheel 33 causes the collar 54 to shift with the cam wheel 33 and rotate with it so that when the frame 37 has been raised by the action of the cam surface 52 against the roller 44, the cam surface 53 of the collar 54 will engage the roller 55 to move the cam wheel 33 out of operating position relative to the collar 44. The shifting of the cam wheel 33 swings the bell crank 27 and moves the push rod 3 forward to the original starting position.

The frame 37, which is now moved to the upper limit of its movement, is held by the engagement of two steel blocks 68. The arm 38 of the frame 37 is provided with a projecting lug 69 to which one of the blocks 68 is bolted. The second block 57 is bolted on the underneath side of a U-shaped member 59. The member 59 is located between the sides 60 of the lever 41 and rotatably supported by

a bolt 61 on a bracket 62 which is secured to a casing 63 of the machine. The major portion of the body of the member 59 is located to one side of axial center of the bolt 61 which causes the member 59 to locate the block 68 in an angular position for engagement with the block 58 secured to the lug 69 of the frame 37. To provide for maintaining the frame 37 in a substantially parallel relation with respect to the plane in which the slide 50 moves, blocks 64 are located in channels 65, formed in the arms 38 and 39. The blocks 64 have portions 66 which are slidably located in the channels 65 formed in the frame 37 and cylindrical studs 67 are pivotally supported in the sides of the casing 63. By thus providing the blocks 64, the slide 50 is enabled to move freely through the casing and without twisting or binding in its upward or downward movements. If desired, the frame 37 and the slide 50 may be raised manually by raising the handle 130 of the lever 41 and held in this position by the block 57.

For dispensing powdered materials of the character described, it is necessary to provide a means for feeding the material into the machine from the bins and also a means for restricting the passage of the material into the bags. Because of the weight and compacting condition of the material and its resultant effect at the outlet of the machine, a rotary feeder 70 is supported in a shell 71 to regulate the movement of the material to the casing 63. The casing 63 is provided with a rotary ejector 72 having a series of paddles or blades 73. The blades 73 force the material into the outlet or orifice 74. The orifice is opened or closed by the position of the slide 50. The slide 50 is located in a narrow recess 75 which is formed between the casing 63 and a plate 76. In order to prevent the material from working up the recess 74 with the slide 50, a packing material is located in an enlarged portion 77 of the recess. The enlarged portion 77 of the recess is closed by a plate 78.

The orifice 74 is continued through the plate 76 by an extended neck portion 79 which is formed integral with the plate 76. The distance between the end of the neck 79 and the slide 50 is made very short so as to locate the filling tube as near as possible to the ejector blades 73. The tube 80 is supported in a plate 84 secured to a frame 85. The frame 85 is movable in a vertical plane and is supported on the end of a scale beam 86. The scale beam is mounted on a fulcrum 87 and is provided with an adjustable weight member 88 of suitable size. The frame 85 is held in its vertical position by a rod 89 pivotally connected at one end to a bracket 90 secured to the shell 71. The other end of the rod 89 is secured in a stirrup 91. The stirrup is provided with a knife edge 92 which engages in a socket formed in a cross member 130

93 of hardened material located in the upper end of the frame 85. The frame 85 may be provided with a support 94 for the bag 1 which, when filled with the dispensed material, will cause a slight downward movement of the frame 86 against the counterbalancing weight member 88. The short limit of movement of the frame 85 will tilt the tube 80 relative to the plate 76. To provide for this slight movement, a short flexible tube 95 is located between the ends of the neck 74 and the tube 80.

To provide a means for closing the orifice 74 at such time that the frame 85 is moved downward by the weight of the material, a weighted member 100 is pivotally connected to the bracket 90 and is supported in a horizontal plane by a bar 101 which engages a bolt 102. The bar 101 is pivotally connected to the member 100 by a pin 103 and is forced from vertical alignment with the member by a spring 104. The spring 104 is located in a stirrup 105 which is located in a socket formed in the body of the member 100.

When the quantity of material in the receptacle is sufficient to move the frame 85 downward, the screw 102 is lowered sufficiently to release the bar 101. The weighted member 100 swings downward and strikes against the upwardly extending projections 106 of the U-shaped member 59. The weight of the member 100 and the impact thus produced carries the member 59 backward until the base portion 107 comes in contact with the bracket 62. The rearward movement of the member 59 breaks the engagement of the blocks 68 and the frame 37 moves downward by reason of its own weight and that of the lever 41. The frame 37 forces the slide 50 into the orifice 74 along the recess 75. The bottom end of the slide 50 is beveled to provide a wedge or knife edge when the slide is forced through the material. The knife edge is particularly preferable when fibrous particles are mixed in the dispensed material. A pair of tension springs 110 located on either side of the frame 37 coact with the combined weight of the frame and the lever 41 to force the slide 50 through the compact material at the outlet of the machine. The springs 110 are connected to the lugs 111 of the frame 37 and to a pair of blocks 112. The blocks 112 are secured to an angle iron 113 extending between the sides of the machine. A block 114 and a cross bar 115 limit the downward movement of the frame. The block 114 may be provided with a pad of leather 116 to absorb some of the impact when the cross bar 115, secured to the frame 37, strikes the block.

The member 100 is raised to a horizontal position by a member 118 supported on a lug 119 formed on the lever 41. The member is provided with a screw 120 which may be rotated to adjust the lifting of the weight mem-

ber 100. A flange 121 extending from the body of the member 118 is also provided with an adjustment screw 122. As the member 100 is raised, the bar 101 engages the head of the screw 102 to support the member.

The member 118 is then carried past the member 100 until the lever 41 is raised to its highest limit. The member 118 is located on the lug 119 so that when this position is reached by the lever, the center of gravity of the member is overbalanced and the member falls against a projection 123 formed at the back of the lug 119.

I claim:

1. In a bag filling machine, a spout forming an outlet for the material dispensed by the machine, a shutter for opening and closing the outlet of the machine, means for operating the shutter, a member for controlling the said means and operable by a movement in the direction of the movement of the bag along the spout as the bag is placed in position to receive the material from the outlet.

2. In a bag filling machine having an outlet for the material dispensed, a shutter for opening and closing the outlet, a slidable frame connected to the shutter, means for shifting the frame to open and close the shutter, a member for controlling the operation of the said means, and located in line with the movement of the bag as it is placed in position to receive the material from the outlet.

3. In a bag filling machine, the machine having an outlet for material dispensed by the machine, a counterbalanced frame for supporting the bag and material deposited in the bag, a shutter for opening and closing the outlet, the machine having a rotative member and mechanism operated by the rotative member for opening the shutter, a member for connecting the mechanism with the rotative member for opening the shutter, and a trip controlled by the counterbalanced frame for causing the shutter to close.

4. In a bag filling machine having an outlet for the material dispensed, a shutter for opening and closing the outlet, means for operating the shutter the said means actuated at the same time that the bag is placed in position to receive the material from the outlet, and a member for controlling the said means operated manually in placing the bag in position for receiving the material from the outlet.

5. In a bag filling machine, a tubular member forming the outlet for the material dispensed by the machine and extending substantially horizontally for supporting the upper end of the bag, a shutter for opening and closing the outlet and a member for controlling the closing of the said shutter and located in proximity to the tubular member

and in position to be operated by the hand of the operator in shifting the bag in position on the tubular member.

6. In a bag filling machine having an outlet for the material dispensed, a shutter for opening and closing the outlet, a slidable frame connected to the shutter, a cam for operating the sliding frame, a trip for en-

gaging the sliding frame when it is moved to open the shutter, means for disconnecting the cam from the frame when the frame has been engaged by the trip. 10

In witness whereof I have hereunto signed my name to this specification.

LOUIS H. HARTMAN.