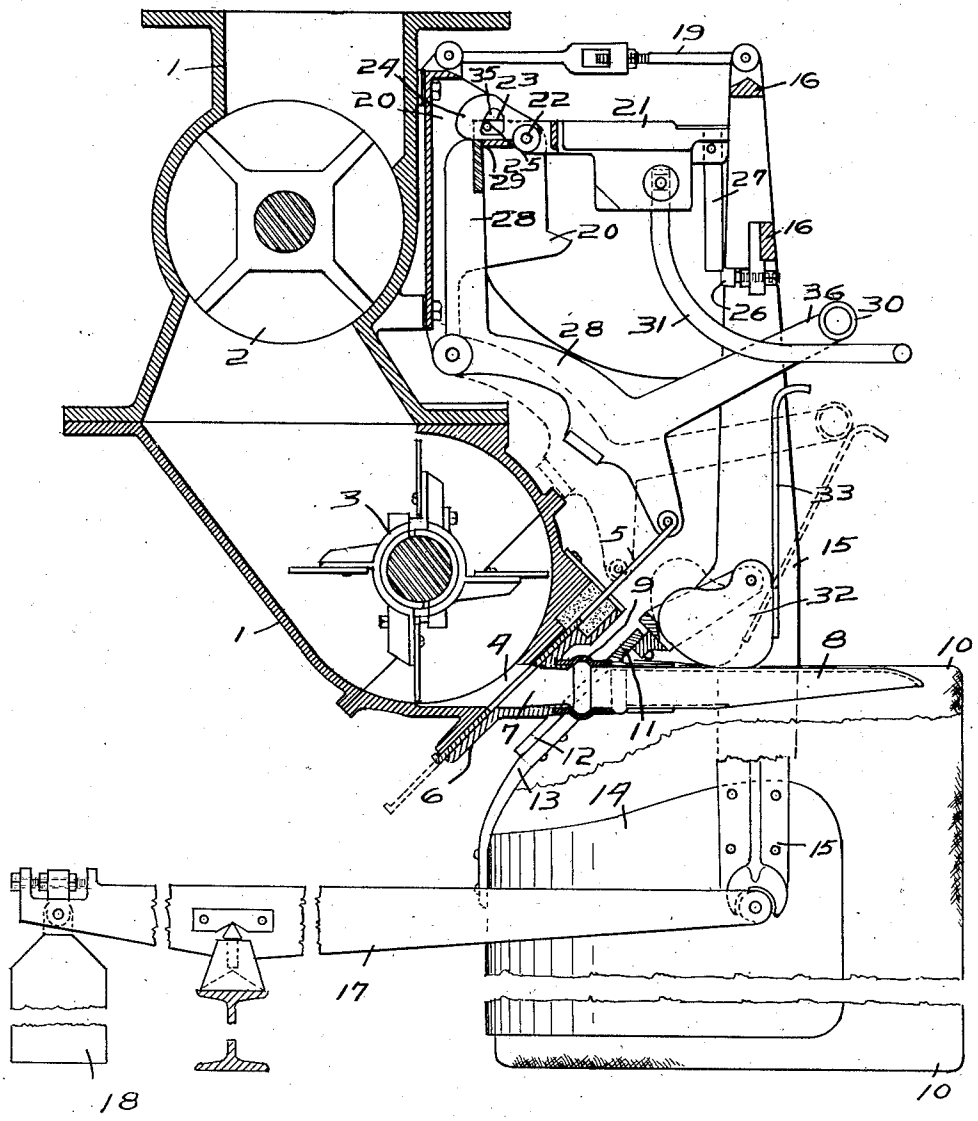
L. H. HARTMAN.

BAG FILLING MACHINE.

APPLICATION FILED MAY 15, 1919.

1,419,627. Patented June 13, 1922.



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BAG-FILLING MACHINE.

1,419,627. Specification of Letters Patent. **Patented June 13, 1922.**

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To all whom it may concern:

Be it known that I, LOUIS H. HARTMAN, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Bag-Filling Machine; 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, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to bag filling machines wherein an automatic cut-off is provided for preventing the escape of material when a predetermined weight of the material has been inserted in the bag. In this connection it particularly provides a mechanism coacting with a flexible connector intermediate the filling tube and the machine, which will permit movement of the scale and, notwithstanding the limited movement necessitated by the connecter, the mechanism will operate to prevent movement of the material to the filler tube. By my invention is thus provided a means whereby no material from the machine is lost by the movement of the bag in response to its weight which is counterbalanced to a certain point by the scales. Also by my invention is provided a mechanism that will respond to a very slight movement of the bag which is necessarily limited by reason of the short flexible connector intermediate the filler tube and the machine.

The invention may be used in connection with filling and weighing machines of different forms and for purpose of illustrating a practical application of my invention, I have selected one of such forms as an example and shall describe it hereinafter. The construction selected is illustrated in the accompanying drawings.

The figure shown in the drawings illustrates the application of my invention to a machine for filling bags with Portland cement.

1 in the figure, is the shell or casing of the machine and particularly that part of the machine to which the finely comminuted material is fed. It is provided with suitable agitating devices 2 and 3. The device 3 operates to force the material towards an outlet 4. The casing 1 is provided with a suitable shutter 5 that passes across the outlet 4 to prevent the material from being forced from the casing by the agitator 3. The shutter 5 is located within a cover 6 that is suitably secured to the casing 1. It has an opening 7 extending through a boss that registers with the outlet 4 and thus forms a tubular nipple to which the filler tube or nozzle 8 may be connected by the flexible tube 9. The tube 9 may be formed of thin rubber and yet of such a thickness that it will withstand the pressure caused by the ejectment of the material through the nozzle by the operation of the agitator 3.

The bag 10 is hung onto the nozzle or filler tube 8. The upper end of the bag is slipped onto the filler tube 8, the filler tube passing through an opening formed in the corner of the bag.

The bag is thus supported by the filler tube or nozzle 8. The nozzle is supported on a U member 11 having legs 12 to which are connected arms 13. The arms 13 support a suitable shield 14 in which the bag 10 may be inserted. The U member 11 is also attached to uprights 15 that are suitably connected together by cross-beams 16. The uprights 15 are also attached to the shield 14 and the uprights, the shield, the U member 11 and the nozzle or filler tube 8 are supported on a scale 17. For purposes of illustration I have selected a conventional form of scale and the parts are supported on the end of the scale arm and are counterbalanced by the weight 18. The bag 10 being supported by the filler tube or nozzle 8, is likewise counterbalanced by the weight 18 until the weight of the material passes beyond a certain point whereupon the uprights 15, the U member 11, the nozzle 8 and the bag 10 lowers. The movement of the parts in response to the overbalancing of the weight 18 of necessity is very slight.

The upper ends of the uprights 15 are guided or held substantially vertical by means of the adjustable rod 19 which is attached to a bracket 20 secured to the casing 1. A lever 21 is also pivoted to the bracket 20, it being secured for pivotal movements on a pin 22. It has a bifurcated arm 23 in which is located a rotatable member 24. The member 24 is provided with an opening 35 through which the pin 25 extends and is secured in the bifurcated arm 23. The movements of the weighted member 24 relative to the lever 21 are thus limited by

the slot 35 and pin 25. One of the cross-beams 16 of the uprights 15 is provided with an adjustable screw member 26 and the lever 21 is provided with a rod 27 that catches onto the edge of the adjustable screw member 26 so that when the bag 10 makes a very slight downward movement the lever 21 is tripped and falls. A lever 28 is also pivoted to the bracket 20 and engages a notch 29 formed in the member 24 so that when the lever 21 is tripped the lever 28 also falls. The shutter 5 is connected with the lever 28 and when the lever 28 falls, that is, when the scale allows the bags to lower a very slight extent, the shutter 5 closes the opening 4. The lever 28 has an arm 36 that is provided with a roller 30 that is engaged by an arm 31 connected to the lever 21, so that when a bag to be filled is placed in position on the filler tube or nozzle 8 the lever 31 may be lifted and this will operate to lift the lever 28 and cause the engagement of the lever by the weighted member 24.

The bag 10 is held in position not only by reason of the fact that it rests upon the filler tube or nozzle 8 but also it is locked in position by means of the cam 32 that is pivoted between the uprights 15. The cam 32 is weighted so that when the bag is pushed on, the cam 32 will automatically engage the bag and upon any return or outward movement with respect to the nozzle 8, the bag will be clamped between the nozzle 8 and the cam 32. The cam 32 is provided with an arm 33. The upper end of the cam 33 is curved or inclined outward and is located in the path of movement of the arm 29 so that when the lever 28 is dropped by the tripping of the lever 21 the arm 29 will strike the upper end of the arm 33 and tilt it outward and tilt the cam 32 inward so as to automatically release the bag 10 whereupon it may be withdrawn from the nozzle or filler tube 8. The cam 32 will thus be withheld until another bag has been inserted into position on the nozzle or filler tube 8 and the arm 31 has been raised so as to open the shutter 5 and cause the engagements between the lever 21 and the lever 28 and between the catch members 26 and 27 that hold the lever member 21 in position. These will again be tripped when the bag is again permitted to be lowered by overbalancing the scale.

The filler tube, or nozzle 8 is held in a horizontal position and very close to the boss of the plate 6 in which the opening 7 is located. The nozzle is placed close to the casing because there should be the least possible material in the nozzle and in the rubber connector 9 on account of its weight and the pressure of the discharge of the material by the operation of the ejector or agitator 3. Consequently the movement of the nozzle 8 caused by the weight of the material in the bag should not be more than one-sixteenth of an inch to produce the necessary tripping operation of the lever 21.

By my invention is thus provided a receptacle filling and weighing machine wherein there is little or no loss of material, no escape of the material into the surrounding air and yet which is exceedingly accurate and efficient.

I claim:—

1. In a receptacle filling and weighing machine, a horizontally extending filler tube for receiving the upper end of the receptacle, a machine casing, an ejector located in the casing for forcing the material through the tube, a frame for supporting the receptacle and connected to the filler tube, a scale for supporting the frame, a flexible horizontally disposed tube interconnecting the casing and the filler tube through which the material is forced by the ejector.

2. In a receptacle filling and weighing machine, a weighing scale for supporting the receptacle, a filler tube for receiving the upper end of the receptacle, a machine casing, a flexible tube interconnecting the filler tube and the casing for conducting comminuted material from the casing to the receptacle, an ejector for forcing the material from the casing through the flexible tube into the receptacle.

3. In a receptacle filling and weighing machine, a scale for supporting the receptacle, a filler tube for receiving the upper end of the receptacle, a casing, a flexible tube interconnecting the filler tube and the casing, means for forcibly ejecting the material from the casing through the flexible tube and filler tube into the receptacle, and means coacting with the movement of the scale for automatically closing the connection between the casing and the receptacle when the scale moves by reason of the weight of the material.

4. In a receptacle filling and weighing machine, a filler tube, a frame, a scale for supporting the frame, the filler tube connected to the frame, a casing, an ejector located in the casing, a rubber tube for connecting the filler tube with the casing, a weighted cam pivoted on the frame for locking a part of the receptacle between the cam and the filler tube, a shutter located in the casing, a lever for operating the shutter and the cam, for closing the shutter and removing the cam from the part of the receptacle engaged by the cam, a second lever engaging the first named lever, means located on the frame for tripping the second lever to disengage the first lever to cause the first lever to operate the shutter and the cam.

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

LOUIS H. HARTMAN.