

March 3, 1931.

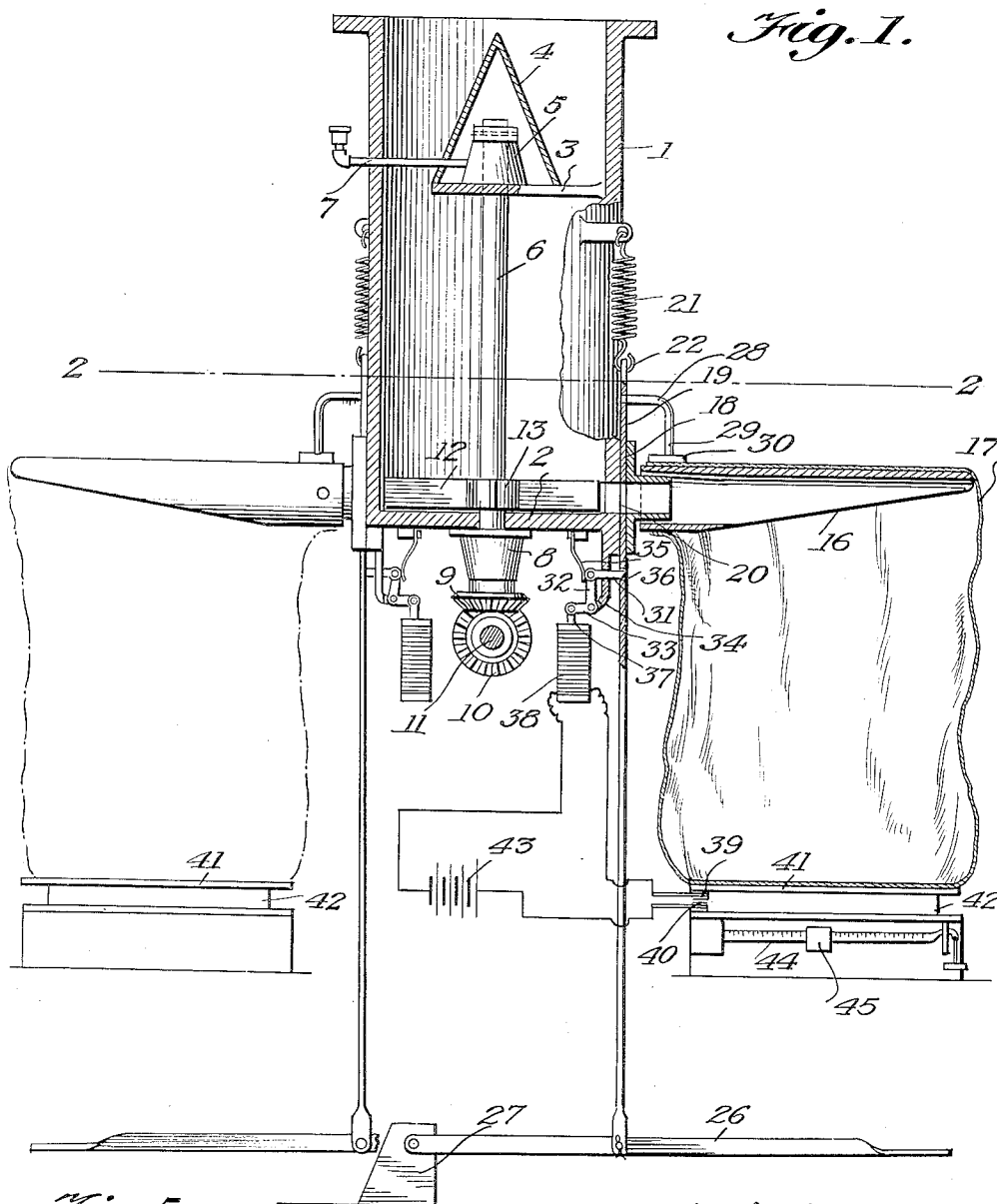
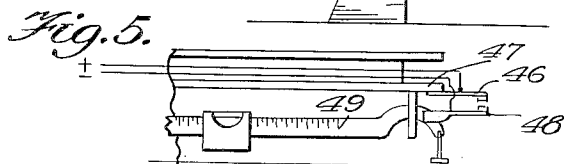
C. H. RICE

1,795,265

BAG FILLING MACHINE

Filed Jan. 31, 1930

2 Sheets-Sheet 1



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Fig. 2.

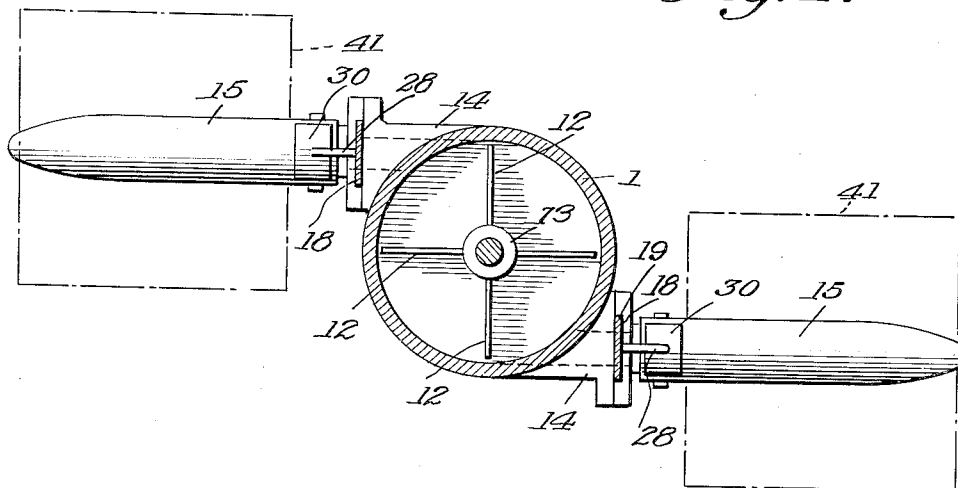


Fig. 3.

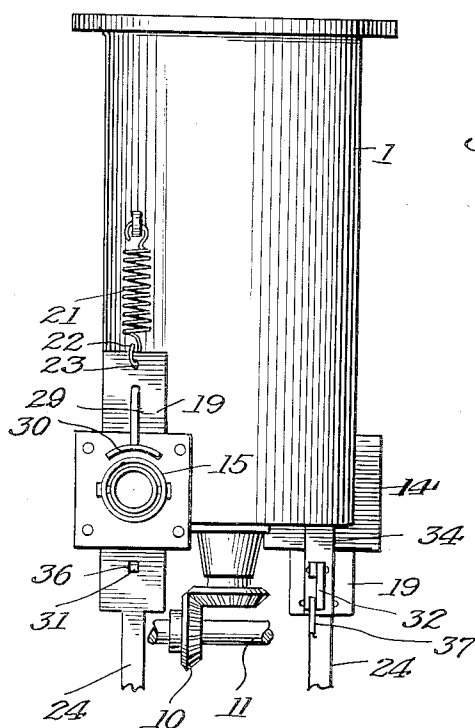
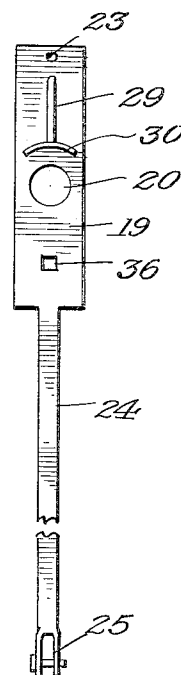


Fig. 4.



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UNITED STATES PATENT OFFICE

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BAG-FILLING MACHINE

Application filed January 31, 1930. Serial No. 425,009.

This invention relates to an automatic bag filling machine and has as one of its objects to provide a machine whereby a pre-determined quantity, by weight, of any finely ground, powdered or similar material may be delivered to one or more receptacles and the supply cut off when the pre-determined weight of the material has been delivered to each receptacle.

Another object of the invention is to provide means whereby the material may be delivered, uniformly to several receptacles, through spouts radiating from a hopper, so that two or more receptacles may be filled simultaneously, thereby economizing in the time required to weigh the material and transfer the same to the receptacles.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts through the several views, and in which:—

Figure 1 is a vertical diametric sectional view through the machine embodying the invention.

Figure 2 is a horizontal sectional view therethrough on the line 2—2 of Figure 1 looking in the direction indicated by the arrows.

Figure 3 is a view in side elevation of a portion of the machine.

Figure 4 is a detail view in elevation illustrating a part of the structure which is shown in Figure 3.

Figure 5 is a view illustrating a slight modification of the invention.

The machine comprises a hopper 1 which is preferably of cylindrical form and which may be supported in any suitable manner, and into which the finely ground, powdered or similar fine material, to be measured and packed in receptacles, may be introduced. The hopper 1 is preferably open at its top and is provided with a closed bottom 2 and a

bracket member 3 is arranged within the hopper near the top thereof, and supports a conical housing 4 in which is arranged a bearing 5 for the upper end of a shaft 6, an oil conducting pipe 7 being led through the wall of the hopper and through the housing 4, and in communication with the bore of the bearing 5, so as to supply lubricant to this portion of the shaft, and yet prevent any of the lubricant reaching any of the material introduced into the hopper. The lower end of the shaft 6 is mounted in a bearing 8 upon the under side of the bottom 2 of the hopper and a bevel gear 9 is fixed upon this end of the shaft and meshes with a bevel gear 10 mounted upon a shaft 11 driven by an electric motor (not shown). Blades 12 radiate from a collar 13 which is fixed upon the shaft 6 immediately above the bottom 2 of the hopper, and the hopper is provided at diametrically opposite points upon its wall the tangentially extending outlet spouts indicated by the numeral 14 through which the material, introduced into the hopper may be delivered, through the rotation of the blades 12, into the receptacles which are supported by outward extensions of the said spouts, these outward extensions being indicated by the numeral 15.

The spout extensions 15 are fitted to the ends of the spouts 14 and extend in alignment therewith and their under sides are cut away as indicated by the numeral 16, so that the mouth of a sack 17 may be arranged over each of the extensions, and in order that the sack may be held assembled with the spout extension and the supply of material through the spout to the sack cut off when the required weight of the material has been delivered to the sack, each spout 14 is preferably formed in two mutually connected sections, one of which is integral with the hopper 1 and the other separably connected with the first mentioned section, and the latter section is formed with a vertically extending recess 18 in which is slidably fitted a plate 19 having an opening 20 therein, which is of circular form and which is adapted to register with the bore of the respective spout 14, when the plate 19 is slid to one position

of its vertical adjustment. A tension spring 21 is provided at its lower end with an eye 22 which engages in an opening 23 in the upper end of the plate 19, and the plate is provided at its lower end with a downwardly extending stem 24 which is bifurcated as indicated by the numeral 25 to straddle a foot lever 26 mounted at one end on a support 27 below the hopper 1. Each plate 19 supports an arm 28 which extends outwardly at right angles from the plate above the respective spout 14, and thence downwardly at right angles from a portion 29 provided with an arcuate head 30 which, in the lowered position of the plate 19 embraces the upper side of the respective spout extension 15, and the portion of the mouth of the sack fitting thereover, and thus grips this portion of the mouth of the sack and prevents disengagement of the sack from the extension.

In order that the plate 19 may be held in its lowered position of shifting adjustment, a keeper 31 is pivotally connected at its inner end to the upstanding arm 32 of an angle lever 33 pivotally mounted at the lower end of a bracket arm 34 upon the bottom of the hopper 1 and normally this keeper is held by a leaf spring 35 in engagement at its outer end in an opening 36 formed in the said plate 19. The core 37 of a solenoid 38 is connected pivotally at its upper end to the horizontal arm of the angle lever and the field of the solenoid is in circuit with spaced contacts 39 and 40, the contact 39 being mounted upon the under side of the platform 41 of a scale 42 and the contact 40 being mounted upon the top of the casing of the scale so that when the platform 41 is lowered when weight is imposed thereon by the delivery of the material into the sack 17, the contact 39 will be lowered into engagement with the contact 40, and the current from the battery 43 will be closed through the respective solenoid with the result that the downward pull exerted by the core 37 upon the angle lever will result in rocking of the lever to retract the detent and permit the spring 21 to shift the plate 19 upwardly to move the opening 20 out of registration with the bore of the respective spout 14 and thus automatically cut off the flow of material from the hopper, the head 30 being at the same time moved upwardly so as to release the mouth of the sack, whereupon the mouth may be slid off the spout extension 15 and closed.

The scale 42 includes the usual scale beam 44 and adjustable weight 45, and therefore by adjusting the weight 45 along the scale beam 44, the quantity of material required to actuate the mechanism, above described, may be determined.

In the embodiment of the invention shown in Figure 5, instead of the switch comprising the parts 39 and 40, above described, being

mounted upon the platform of the scale, the arrangement shown in Figure 5 of the drawing may be employed and in this figure the numeral 46 indicates a contact member which is mounted upon the base of the scales, which base is indicated by the numeral 47, and the numeral 48 indicates another contact member which is carried by the scale beam, which in this figure is indicated by the numeral 49, it being understood that when the outer end of the beam, upon which end the said contact 48 is mounted, is swung upwardly, the contact will be brought into mutual engagement so as to close the circuit through a magnet corresponding to the magnet 38 to retract a detent corresponding to the detent 31, previously described.

What I claim is:—

1. In a bag filling machine, a hopper, a spout radiating from the hopper, a weighing scale having its platform positioned to support a bag, the mouth of which is fitted over the spout, a member movable to position to open the spout, means yieldably urging the member upwardly to position to close the spout, a detent for holding the member against upward movement, means actuated by movement of the scale platform for rendering the detent inactive, and manually operable means for restoring the member to its lowered position.

2. In a bag filling machine, a hopper, a spout radiating from the hopper, a weighing scale having its platform positioned to support a bag, the mouth of which is fitted over the spout, a member movable into and out of position to close the spout, means yieldably urging the member to an elevated position to close the spout, a detent for holding the member against such movement, a presser head carried by the said member for clamping engagement with the mouth of the bag against the spout in the lowered position of the member, whereby when the member is moved to elevated position the presser member will be moved out of engagement with the bag, in order to release the same, and means actuated by the movement of the scale platform, when pre-determined weight is imposed upon the platform, for rendering the detent inactive.

3. In a bag filling machine, a hopper, spouts radiating from the hopper and tangential thereto, a weighing scale having its platform position to support the bag, the said spouts having extensions over which the mouth of a bag, to be filled, is adapted to be disposed, the lower side of the extension being open, a shaft rotatable within the hopper, means for rotating the shaft, blades extending from the shaft for directing the material through the spouts, a member associated with each spout and movable into and out of position to close the spout, means yieldably

urging the member to closed position, a detent for holding the member against such movement, and means actuated by movement of the scale platform for rendering the detent inactive.

In testimony whereof I affix my signature.

CLARK H. RICE.

DISCLAIMER

1,795,265.—*Clark H. Rice*, Findlay, Ohio. BAG-FILLING MACHINE. Patent dated March 3, 1931. Disclaimer filed September 7, 1933, by the patentee, the assignee, *The St. Regis Paper Company*, assenting and concurring.

Hereby enters this disclaimer to claim 1 of said Letters Patent which is in the following words, to wit:

"In a bag filling machine, a hopper, a spout radiating from the hopper, a weighing scale having its platform positioned to support a bag, the mouth of which is fitted over the spout, a member movable to position to open the spout, means yieldably urging the member upwardly to position to close the spout, a detent for holding the member against upward movement, means actuated by movement of the scale platform for rendering the detent inactive, and manually operable means for restoring the member to its lowered position."

[*Official Gazette September 26, 1933.*]