Nov. 12, 1935. J. E. HIRSCH 2,020,415

PNEUMATIC BAG OR ENVELOPE OPENING DEVICE

Filed Sept. 17, 1934

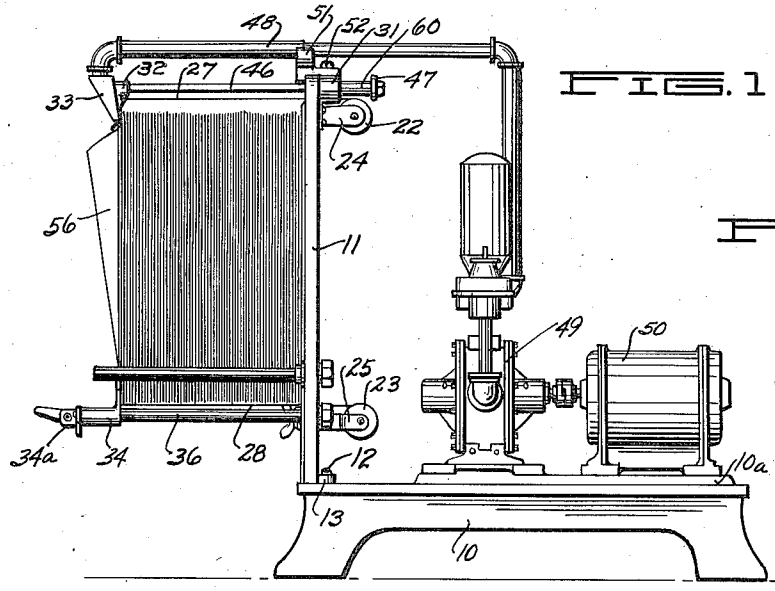


FIG. 1

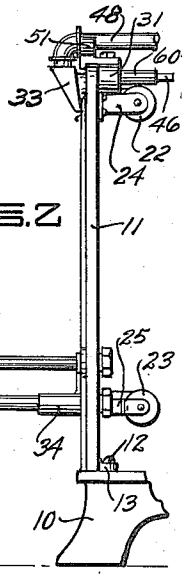


FIG. 2

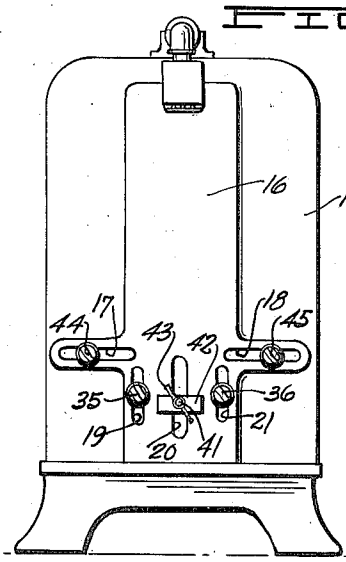


FIG. 3

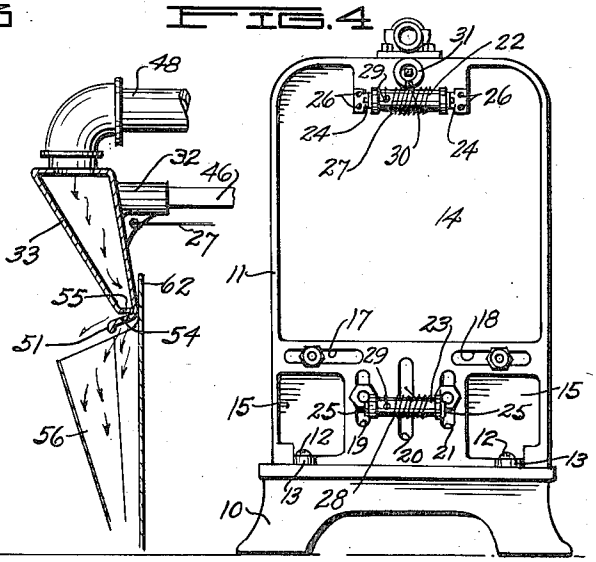


FIG. 4

FIG. 5

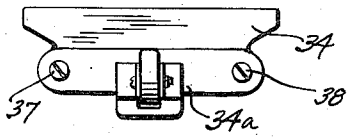


FIG. 6

INVENTOR.
Joseph E. Hirsch

BY John A. Bommhardt

ATTORNEY.

Patented Nov. 12, 1935 2,020,415

UNITED STATES PATENT OFFICE

2,020,415

PNEUMATIC BAG OR ENVELOPE OPENING DEVICE

Joseph Edward Hirsch, Cleveland, Ohio

Application September 17, 1934, Serial No. 744,392

5 Claims. (Cl. 226—49)

This invention relates to pneumatic bag or envelope opening devices and more particularly to a means for pneumatically opening bags, envelopes and the like to expedite the filling thereof with articles of merchandise.

An important object of the invention is to provide a machine comprising means whereby a plurality of bags are held in stacked relation within the device and the bags presented successively to a blast of air whereby they are opened for the filling operation.

Another object of the invention is to provide a device that may be associated with an automatic filling machine whereby articles dispensed from such a machine may be received in the opened bags.

Another object is to provide a bag opening device that may be used alone and the bags filled and removed by hand.

Other objects and advantages may be seen from the following specifications and accompanying illustrations in which:

Fig. 1 is a side elevation of the device filled with bags for opening.

Fig. 2 is a fragmentary view showing the device empty of bags.

Fig. 3 is a front elevation.

Fig. 4 is a rear elevation.

Fig. 5 is an enlarged fragmentary section of the air nozzle and bag.

Fig. 6 is an enlarged front elevation of the guide lock and guide base.

Referring to the drawing in which similar numerals indicate like parts, 10 indicates a base upon one end of which is mounted a vertical plate 11, said plate being secured to the base by screws 12 passing through lugs 13 formed on plate 11. The plate 11 is cast in such a manner that it has depressed portions 14 and 15 formed on its rear surface and raised portion 16 formed on its front surface, as shown best in Figs. 3 and 4. The plate as shown is slotted horizontally at 17 and 18 and vertically at 19, 20 and 21 within the raised portion 16.

As best seen in Fig. 4 the plate 11 has secured to its rear face a pair of spring tensioned rollers 22 and 23 mounted on brackets 24 and 25 which are secured to the plate as by screws 26. These rollers have interior springs like a common shade roller. And attached to the respective rollers are fine wires 27 and 28 which may have their ends attached to the rollers as by a screw 29, the wires being then wound about the respective rollers. The end of the wire 27 projects through a slot 30 in the lug 31 and is attached to the lug 32 of the air nozzle 33. The end of the wire 28 projects through the slot 20 and is connected to the guide base 34.

Mounted and extending through the vertical slots 19 and 21 are two rods 35 and 36 which may be securely held in place by washers and nuts 39 and 40 screwed to their threaded ends. To the outer ends of the rods is connected a guide base 34, and a guide lock 34*a* is secured to the rods 35 and 36 by screws 37 and 38, to prevent the guide base from becoming disengaged from the ends of the rods 35 and 36. It will readily be seen that these rods 35 and 36 form a support for a stack of bags and may be adjustably raised or lowered within the limits of the slots 19 and 21.

A pair of guide rods 44 and 45 are mounted in the horizontal slots 17 and 18 as by washers 39 and nuts 40 and may be readily adjusted horizontally to accommodate different width bags.

As will be seen the nozzle 33 is rigidly attached to a guide rod 46 which is slidably mounted through plate 11 in a boss 60, said rod having near its inner end a stop 47 to prevent the rod from slipping out of position past the boss 60.

Said nozzle 33 is also connected to a telescopic pipe 48 which pipe is connected to an air compressor 49 which is operated by a motor 50, both the compressor and the motor being mounted on a raised portion 10*a* of the base 10. A bearing support 51 is mounted on the top of plate 11 as by screws 52, to support the sliding pipe 48.

The nozzle 33 has at its bottom end an outwardly extending lip 53, perforated at 54, the bottom wall of the nozzle also being perforated at 55.

In operation, the motor 50 operates the compressor 49 which forces air through the air line 48 and through perforations 54 and 55 in nozzle 33. The air blowing downward enters the bag 56 and opens or inflates it so that the article of merchandise may be inserted. As each bag is removed the tension on the wires 27 and 28 is maintained by the spring tensioned rollers 22 and 23 rotating and drawing the nozzle 33 and guide base 34 back towards the plate 11, and thus always holds the stack of bags in an upright and tightly nested position.

The bags are of the type having a flap 62 at the top of one side thereof, and these flaps are engaged by the rear side of the nozzle 33 to support the stack of bags in upright position during the operation of the machine.

It will thus be seen that I have provided a very efficient and useful device for opening bags or envelopes, that is simple and positive in opera-

tion and may be used in connection with hand filling or automatic machine filling of bags.

I claim:

1. A pneumatic bag opening device, comprising a support for a stack of bags, a movable air nozzle arranged to be pressed laterally against the outermost bag in the stack, a spring tensioned roller connected to the nozzle, and adapted to press the same against said bag, and a guide member supporting a stack of bags beside the air nozzle, the air nozzle being positioned to direct a blast of air into the mouth of the outermost bag.

2. In a pneumatic bag opening device, a support, an air compressor mounted on the support, an upright plate mounted on the support, supporting rods extending through openings in said plate, a guide member mounted on the rods, a spring roller connected to said guide member and engaging and compressing the bottoms of a stack of bags mounted on the supporting rods, a nozzle connected to the compressor and movable to direct air to the mouth of a bag, and means to move the nozzle to cause it to remain pressed against the outermost bag as successive bags are opened and removed from the stack.

3. A bag opening device, comprising a support for a stack of bags, an air compressor, an air nozzle connected to said compressor by a slidable pipe, a spring roller provided with a tension wire connected to said nozzle, said nozzle being directed to the mouth of the outermost bag of the stack, a slidable guide mounted on the support for the bags, and another spring roller provided with a wire connected to the guide for compressing the bottoms of the bags.

4. In a pneumatic bag opener, the combination of a support for a stack of bags, a movable air nozzle pressing against the upper end of the outermost bag in the stack and arranged to deliver a blast of air into said bag, and means to move the nozzle to cause it to remain pressed against the outermost bag as successive bags are opened and removed from the stack.

5. The combination stated in claim 4, said means comprising a pull wire connected to the nozzle.

JOSEPH EDWARD HIRSCH.