

Dec. 1, 1936.

B. NAGY

2,062,900

ADHESIVE FEEDER

Original Filed Aug. 24, 1933

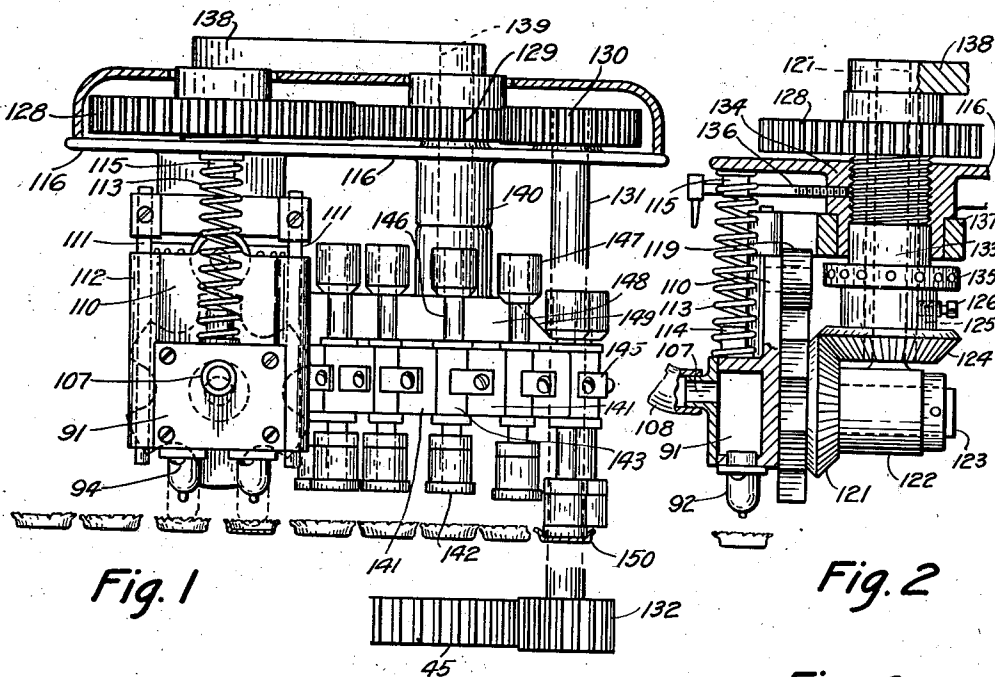


Fig. 1

Fig. 2

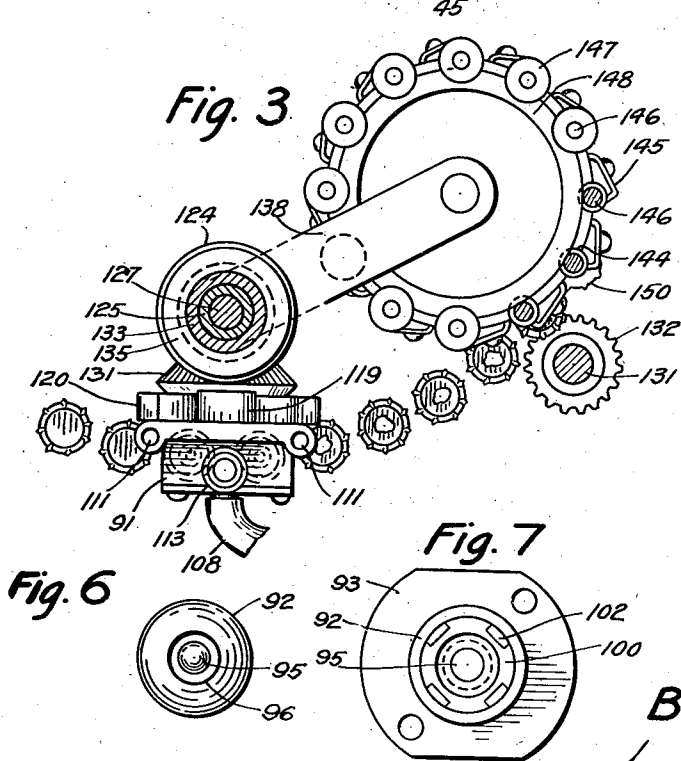


Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

INVENTOR
Berthold Nagy
BY
James Harrison Bowen
ATTORNEY

UNITED STATES PATENT OFFICE

2,062,900

ADHESIVE FEEDER

Berthold Nagy, Ridgewood, N. Y.

Original application August 24, 1933, Serial No. 686,497. Divided and this application September 21, 1934, Serial No. 744,904

3 Claims. (Cl. 91-43)

The purpose of this invention is to provide improvements in glue or adhesive feeding apparatus, which is particularly adapted for feeding an adhesive to bottle caps, in which the adhesive is only fed when a cap is in the correct position in relation thereto, and also in which a definite amount of adhesive is fed to each cap.

This is a divisional application of my co-pending application filed August 24, 1933, with the Serial Number 686,497, separating the liquid, adhesive feeding apparatus therefrom.

The invention is an adhesive feeding apparatus having twin feeding plungers connected to and communicating with an auxiliary reservoir, and having means connecting said auxiliary reservoir to a supply container. The apparatus contains daubers for spreading the glue in the caps after it is fed thereto, and these daubers travel with the caps a short distance, in order to thoroughly spread the adhesive.

Many devices have been provided for automatically feeding glue or other adhesives, and some are particularly adapted for feeding glue to the inside of bottle caps, however, in order to expedite the operation of bottle cap assembling machines, it has been found necessary to feed glue to two caps at the same time, to provide means automatically regulating the amount of glue being fed, and also to provide means for thoroughly spreading the glue, in which the spreader travels with the cap a short distance. Feeding glue to two caps at a time makes it possible to speed up the assembling machine and at the same time, permit the glue feeder to operate with a comparatively slow motion, which is desirable because glue does not drop as quickly as water or most fluids, and it is therefore desirable to operate the glue feeder comparatively slow. It is also desirable to provide a comparatively large opening in the tip of the glue feeder in order to permit glue of comparatively heavy consistency to pass therethru, so that the construction of the tips of the glue feeders is also very important.

The object of the invention is, therefore to provide a glue feeder adapted to feed two caps at the same time, and also adapted to operate with a comparatively slow motion.

Another object is to provide means for spreading the glue which is adapted to travel with the bottle caps in order to insure complete spreading thereon.

Another object is to provide a glue feeder having comparatively large openings in the tip,

in which means is provided for readily closing these openings, so that a very small amount of glue may be fed therethru.

Another object is to provide a glue feeding mechanism in which the glue is only fed when a cap is in place.

Another object is to provide a glue feeding mechanism in which the amount of glue fed thereby may be changed.

Another object is to provide a glue feeding mechanism in which the glue is contained in a sealed container until it is released at the tip of a plunger extending downward from said container.

A further object is to provide a glue feeding mechanism from which the glue may readily be cleaned.

And a still further object is to provide a glue or adhesive feeding apparatus that is particularly adapted for bottle caps, which is of a simple and economical construction.

With these ends in view the invention embodies a glue or adhesive feeder having a reciprocating auxiliary container with plungers extending from the lower end thereof, having tips adapted to open upon engagement with an object or surface, and a plurality of spreading members vertically slidable and rotatably mounted.

Other features and advantages of the invention will appear from the following description, taken in connection with the drawing, wherein:

Figure 1 is a detail showing an elevation of the glue feeding device.

Figure 2 is a cross section thru the mechanism for operating the glue feeder.

Figure 3 is a detail showing a plan view of the glue feeder with parts omitted.

Figure 4 is a cross section, on an enlarged scale, thru one of the glue feeding fingers showing the valve therein in the closed position.

Figure 5 is a similar section showing the valve in the open position.

Figure 6 is a view looking toward the under side of the glue feeding finger.

Figure 7 is a view looking downward into the glue feeding finger with the closure at the upper end thereof and the spring omitted.

In the drawing the device is shown as it may be made wherein the glue or adhesive is fed by an adhesive carrying container 91 provided with two valves in the lower end thereof and as these valves are identical, the same reference numerals will be applied to the respective parts of each. These valves are shown in detail in Figures 4 to 7 and are mounted in casings 92 which are pro-

vided with flanges 93 that may be held to the bottoms of the container 91 by screws 94. The lower end of the casing is rounded and a small plunger 95 extends out of the lower end thru an opening 96 which is slightly larger than the plunger. A valve seat 97 is provided at the inner end of the opening 96 and a valve disc 98 is mounted on the plunger 95 and is held in a recess 99 in a sliding member 100 in which the plunger is mounted and which is held downward by a spring 101 inside of the casing. The outer wall of the member 100 is provided with grooves 102, as shown in Figure 7, which permit glue to pass downward therethru and it will be noted that as the plunger 95 is moved inward to the position shown in Figure 5, glue may pass downward thru the grooves 102 and out of the lower end of the casing thru the opening 96. In the upper end of the casing is a seat 103 for the spring and this is held in place by a spring clip 104, which snaps into a groove 105 in the inside of the upper end of the casing. This spring member is in the form of a split ring with one end curved slightly upward, so that it will snap into the groove and also so that it may be pried upward by a screw driver. The edges of the member 103 are provided with grooves 106 thru which glue or adhesive may pass from the interior of the container 91 into the casing 92. It will, therefore, be noted that normally the valves in the casing 92 will be closed, whereas when the casings are lowered into the caps so that the lower ends of the plunger 95 engage the inner surface of the caps, they will open the valves and permit a small amount of glue to drop into the cap. This arrangement provides means for shutting off the glue at the point where it is used and the glue may be completely inclosed in sealed containers until it arrives at this point.

The container 91 is provided with a spout 107 which is to be connected by a tube or hose 108 to a supply container which may be located at any point. The container 91 is mounted upon a plate 110 and this is slidably held on rods 111 thru hubs 112 and it will be noted that as the plate 110 slides upward and downward on the rods 111, the container 91 may move upward and downward on the rods. The container and plate are held downward by a spring 113 which is mounted on a pin 114 on the upper end of the container and the opposite end of which is held upon a pin 115 on the lower side of a frame 116. The frame 116 may be of any type or design and may be connected to any suitable supporting means.

A roller 119 is pivotally mounted on the back of the plate 110 and this roller rides upon a cam 120, mounted on the back of a gear 121 which is pivotally mounted in a hub 122 thru a shaft 123, and the gear 121 meshes with another gear 124 fixedly mounted on a vertical sleeve 125 to which it is held by a set screw 126. The sleeve is rotatably mounted on a pin 127 which extends from the hub 122, as shown in Figure 2. On the upper end of the sleeve 125 is a gear 128, which rotates the sleeve and this gear meshes with another gear 129 on the glue spreading attachment and the gear 129 meshes with a gear 130 on a vertical shaft 131, which extends downward and the lower end of which is provided with a gear 132 that meshes with the gear 45 below the cap carrying element. These gears are arranged and proportioned to time the movement of the glue attachment and also of the spreading attachment so that the valves and plungers will move downward into caps as the caps pass thereunder. The roller 119 will drop off of one of the projections of the

cam 120, so that the spring 113 will force the container 91 downward into caps, as shown in Figures 1 and 5 the caps arrive at their respective positions.

The sleeve 125 is rotatably mounted in an adjustable bearing 133, which is threaded in a hub 134 on the lower side of the member 116 and the lower end of the bearing 133 is provided with a flange 135 having openings therein so that it may be gripped by a spanner wrench, or the like, to turn the bearing in order to move it upward or downward in the hub. It will be noted that by moving this bearing upward or downward, the sleeve 125 will also move, and the position of the gears, cam and container 91 may be adjusted vertically so that the exact amount of opening of the valves in the lower part of the container 91 may be obtained. The position of the bearing 133 may be locked by a screw 136, as shown in Figure 2, however, it will be understood that this may be held by a set screw or any other means. The upper end of the bearing 133 engages the lower surface of the gear 128, so that this gear may be raised and lowered with the bearing and operating mechanism. On the lower end of the hub 134 is a bracket 137 which is provided with outwardly extending members in which the upper ends of the rods 111 may be held, as shown in Figures 1 and 2. This member may be held to the hub in any manner or by any means and the rods may also be fixedly held therein in any manner or by any means. A bar 138 may be freely mounted on the upper end of the pin 133 and the opposite end may be freely mounted on the upper end of a shaft 139 upon which the gear 129 is mounted, and this bearing will hold the gears 128 and 129 in their relative positions and at the same time permit the gear 128 to move upward and downward with the adjusting movement of the bearing.

The shaft 139 extends downward thru a hub 140 on the lower side of the member 116 and a hub 141 is provided at the lower end which may be rotated by the gear 129 thru the shaft, and daubers or spreaders 142 may be slidably held in the periphery of the member 141 in bushings 143. The bushings may be held in openings 144 in the hub by clips 145, as shown in Figures 1 and 3, and it will be noted that these may be readily removed and replaced when it is desired to clean the members 142. The members 142 are mounted on spindles 146 on the upper ends of which are weights 147, the lower ends of which ride upon the upper surface of a stationary cam 148 and the cam is provided with a recess 149, which permits the weights 147 to force the spindles and members 142 downward as the caps arrive at positions directly below the members 142, as shown at the points 150 in Figures 1 and 3. It will be understood that these members may be mounted and operated in any other manner or by any other means and also that any other means may be used for spreading the glue or adhesive on the inside of the caps.

It will be understood that other changes may be made in the construction without departing from the spirit of the invention. One of which changes may be in the use of other means for raising and lowering the carrying container, another may be in the use of other means for raising and lowering the spreaders, another may be in the use of valves of any other type, and still another may be in the use of this glue or adhesive feeding apparatus for any other substance or for any other purpose.

The construction may readily be understood from the foregoing description. In use the device may be provided as shown and described and, with the carrying container 91 connected by a tube 108 to a supply container, the container 91 will be filled with glue and, as the device is operated by a gear 45, thru the train of gears at the upper end, the cam 120 will raise and lower the container 91 and, as it arrives at the lower position, the points 95 will engage the surfaces of caps 26, so that the member 100 and the disc 98 will be raised above the seat 97, so that the lower ends will be opened, thereby permitting glue to pass downward thru the openings 96 and off of the ends of the members 95. With small amounts of glue deposited thereby on the surfaces of the caps 26 the container 91 will raise, so that the valve will close, and as the caps pass under the members 142, these members will drop downward, as shown in Figure 1, so that the daubers will engage the inner surfaces of the caps and spread the glue. The daubers will remain in the caps for a short distance, when the members 147 will ride up the cam surface and lift the daubers out of the caps. It will be noted that as the feeding of the glue is dependent upon the pins 95 engaging a surface, the glue will only be fed when a cap is in place as, if a cap has been omitted, the points 95 will not engage the surface thereof, and therefore the valves will not be opened. It will be understood that any adhesive may be fed by this ap-

paratus and also that it may be used for feeding any other substance, and it may also be used for any other purpose.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In an adhesive feeding apparatus, a slidable container, a flexible connection from said container to means for supplying an adhesive, valves in relatively short round end tubular casings in the lower end of said container with stems extending out of their lower ends, said stems adapted to open said valves as they engage an obstruction, a roller on said container, a cam, the surface of which engages said roller, said cam adapted to raise said roller and container, means rotating said cam, resilient means moving said container downward, and means adjusting the position of said container.

2. An adhesive feeding apparatus, as described in claim 1, in which the cam raises the container and valves with a positive movement and springs move said container and valve downward with a yielding movement.

3. An adhesive feeding apparatus, as described in claim 1, in which the container and operating means therefor may be raised or lowered as a unit to adjust the position thereof in relation to the caps.

BERTHOLD NAGY.