Aug. 26, 1930. N. F. SAVIANO 1,773,867

CORK FEEDING MACHINE

Original Filed Oct. 19, 1926 2 Sheets-Sheet 1

Fig. 1.

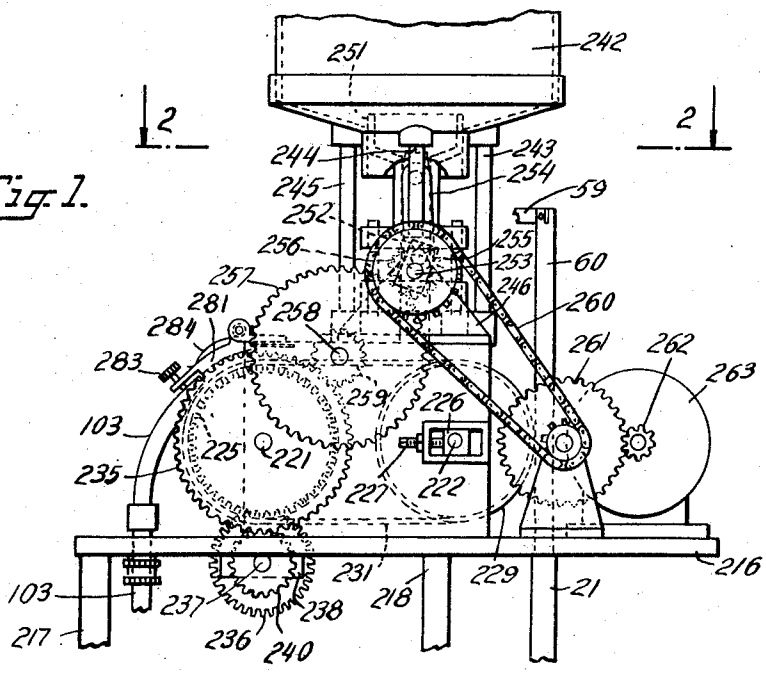



Fig. 2.

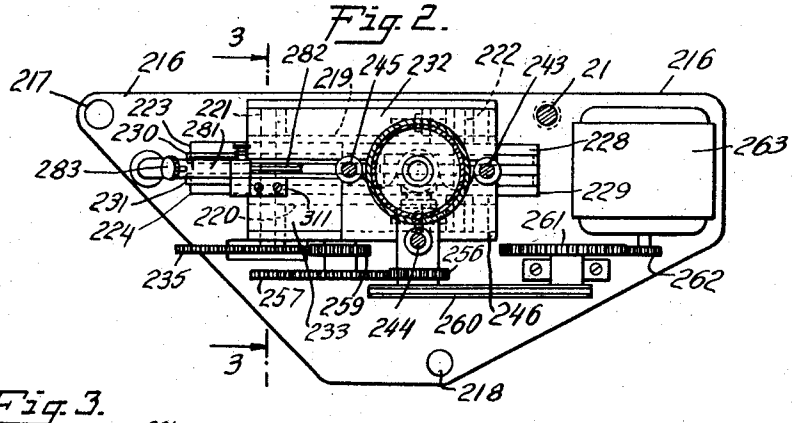
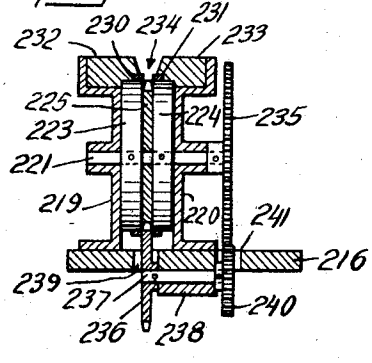



Fig. 3.




INVENTOR

Nicola F. Saviano

By

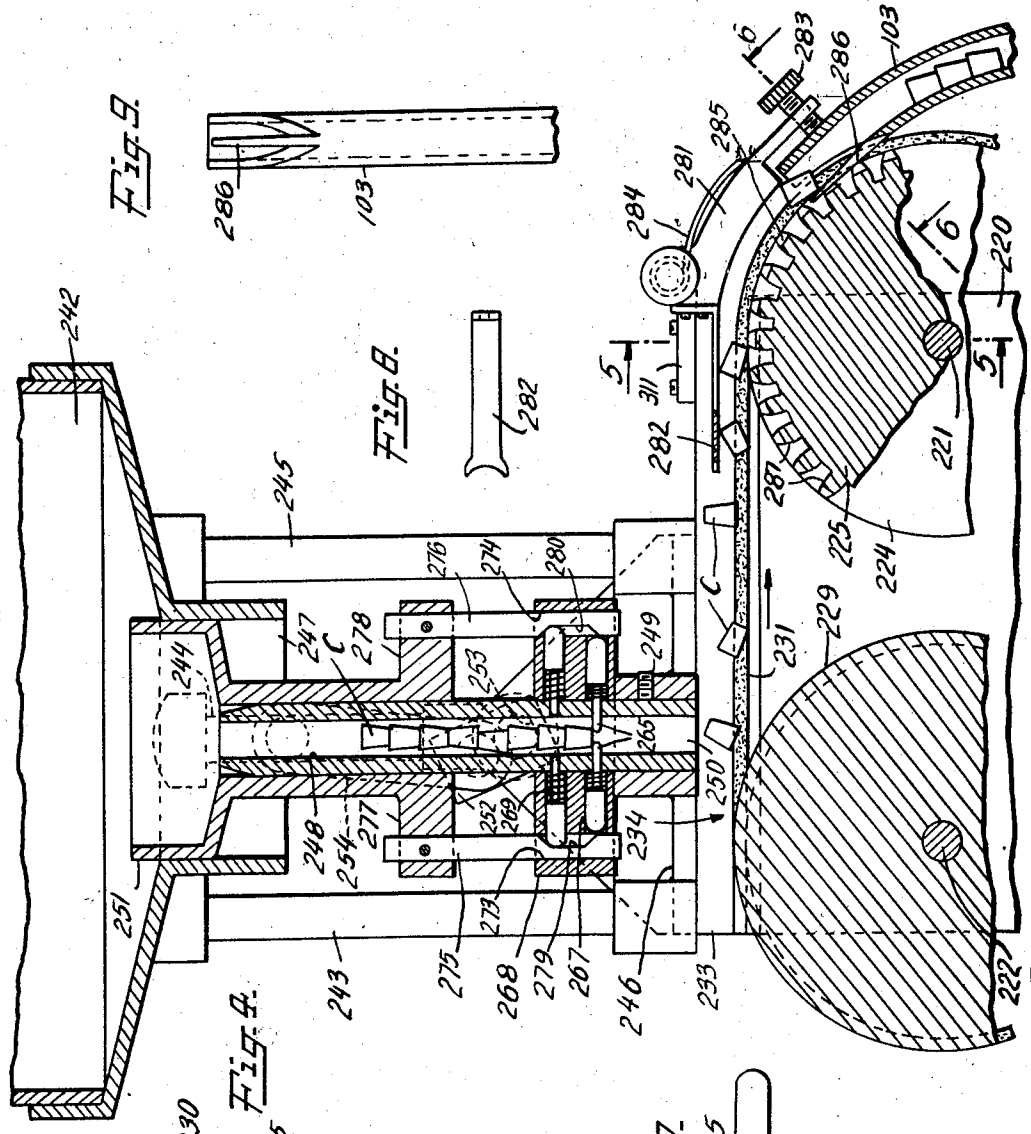
Pennie, Davis, Marvin & Edmonds

HIS ATTORNEYS

Aug. 26, 1930. N. F. SAVIANO 1,773,867

CORK FEEDING MACHINE

Original Filed Oct. 19, 1926 2 Sheets-Sheet 2




INVENTOR
Nicola F. Saviano
By
Pennie, Davis, Marvin & Edmonds
HIS ATTORNEYS

Patented Aug. 26, 1930 1,773,867

# UNITED STATES PATENT OFFICE

NICOLA F. SAVIANO, OF BROOKLYN, NEW YORK, ASSIGNOR TO CHARLES C. ORCUTT, OF NEW YORK, N. Y.

## CORK-FEEDING MACHINE

Original application filed October 19, 1926, Serial No. 142,537. Divided and this application filed July 12, 1928. Serial No. 292,257.

This invention relates to apparatus for use in the corking of bottles, and more particularly concerns a device for arranging tapered bottle corks or stoppers in a predetermined relation.

In the packing of large quantities of small articles, such as medical pills or pellets in small containers, such as bottles, it has been found economical and otherwise desirable to employ automatic packing machinery. It is essential that machinery of this type be arranged to perform the packing operations continuously and rapidly, and that the machine be capable of operating with a minimum amount of manual attention.

With the above and other considerations in mind, it is proposed in accordance with the present invention to provide a mechanism for continuously and automatically arranging bottle corks or stoppers in a predetermined relation and feeding them to a bottle corking mechanism with their large ends uppermost, thus avoiding the necessity of a manual operation in arranging the corks.

This application is a division of my copending application, Serial No. 142,537, filed October 19, 1926. The cork arranging and feeding mechanism of the present invention is preferably employed with suitable apparatus for automatically inserting corks in bottles. In another divisional application, Serial No. 292,260, filed July 12, 1928, a bottle corking machine in connection with which the cork arranging apparatus of the present invention may be employed has been described and claimed.

In describing the invention in detail, reference will be made to the accompanying drawings, in which;

Figure 1 is a side elevation of the cork arranging and feeding mechanism;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1 and viewed in the direction of the arrows;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2 and viewed in the direction of the arrows;

Fig. 4 is an enlarged sectional view of the cork feeding mechanism;

Figs. 5 and 6 are respectively sections taken along the lines 5—5 and 6—6 of Fig. 4;

Fig. 7 is an enlarged view of one of the cork retaining plungers;

Fig. 8 is a plan view of the cork arranging tongue; and

Fig. 9 is a view of the under side of the receiving end of the cork feed tube.

Referring to the drawings, the cork feeding apparatus of the present invention is carried by a suitable platform or table 216, preferably supported above the corking apparatus by the supports 21, 217 and 218. Two parallel plates 219 and 220 are suitably secured to the upper surface of the platform 216, these plates carrying two parallel horizontal shafts 221 and 222 journaled therein. The shaft 221 carries two spaced drums 223 and 224 fixed thereto and a gear 225 between these drums, the gear 225 being free to rotate on the shaft. A shaft 222 is journaled in the blocks 226, the horizontal position of this shaft being adjustable by means of the set screws 227 to vary the distance between the shafts 221 and 222. The shaft 222 carries two drums 228 and 229 disposed in alignment with the drums 223 and 224 on the shaft 221. Two parallel endless belts 230 and 231 are carried respectively by the aligned pairs of drums 223, 228, and 224, 229, these belts being spaced apart a distance slightly greater than the smallest diameter and slightly less than the largest diameter of the corks used. The belts 230 and 231 are held in this relation by grooves formed in two oppositely disposed blocks 232 and 233 carried respectively by the plates 219 and 220 and overhanging the upper surfaces of the drums. The blocks 232 and 233 are cut away at an angle on their inner faces to form a downwardly converging channel or groove 234 as clearly shown in Fig. 3.

The shaft 221 together with the drums 223, 224, 228 and 229 are driven by a gear 235 fixed to this shaft, and the gear 225 between the drums 223 and 224 is driven at a slightly higher speed than the drums by the gear 236. The gear 236 is fixed to a shaft 237 journaled in a block 238 carried below the platform 216, the gear 236 passing through an opening 239 in the platform. The shaft 237 is driven

from the gear 235 through a pinion 240, fixed to this shaft and passing through an opening 241 in the platform 216.

A cork container or hopper 242 is supported above the plates 219 and 220 by three vertical supports 243, 244 and 245, which supports are fixed to a frame 246 carried on top of the block 233 as shown in Fig. 4. The hopper 242 has a large central opening 247 in the base thereof, into which extends a vertical tube or pipe 248, fixed to the frame 246 by the set screw 249 and having its lower opening 250 directly over the groove 234 between the guide blocks 232 and 233. The space between the tube 248 and the walls of the opening 247 in the hopper 242 is occupied by the enlarged upper end of a movable sleeve member 251 which is slidably mounted on the tube 248 and in the opening 247.

The sleeve 251 is continuously reciprocated up and down through a short distance of travel by means of a crank 252 carried by a shaft 253, a connecting rod or link 254 being suitably pivotally connected between the crank 252 and the sleeve 251 as shown in Fig. 4. The shaft 253 carries a sprocket wheel 255 fixed to the outer end thereof, and also carries a small gear 256 engaging a large gear wheel 257. The gear wheel 257 is mounted on a shaft 258 to which is fixed a pinion 259, engaging the gear 235 on the shaft 221. The sprocket wheel 255 is driven through a chain 260 and a gear and pinion 261 and 262 from a suitable source of power such as the small electric motor 263. In this manner all the moving parts of the cork arranging and feeding mechanism are driven in synchronism from the motor 263.

Two pairs of horizontally disposed cork retaining plungers 265 extending through two pairs of aligned oppositely disposed openings near the lower end of the tube 248, these plungers being slidably carried in caps 266 which in turn are slidably mounted in cylindrical openings 267 in a block 268. The vertical distance between the pairs of plungers 265 is arranged to be greater than the height of a single cork C and less than the height of two such corks disposed one above the other. Each of the caps 266 is biased toward its retracted position by a spring 269, and each plunger 265 is secured within its cap by a pin 270 disposed in a slot 271 in the cap, a spring 272 normally retaining the plunger in the extended position as clearly shown in Fig. 7. Two vertical cylindrical openings 273 and 274 are provided in the block 268, these openings communicating with the ends of the openings 267 from which the ends of the sleeves 266 normally protrude. A pair of vertical rods 275 and 276, fixed to the extensions 277 and 278 respectively on the movable sleeve 251, extend respectively into the openings 273 and 274, these rods being provided with the cut away cam surfaces 279 and 280 which engage the ends of the caps 266 as shown. As the sleeve 251 moves up and down, the cam surfaces 279 and 280 alternately move the upper and lower pair of plungers 265 into the tube 254, thus dropping one cork at a time from a tube into the groove 234, and on to the belts 230 and 231.

A curved guide member 281 of substantially U-shaped cross section is pivoted to a fixed block 311 and extends substantially parallel to the periphery of the drums 223 and 224 and the gear 225 as shown in Fig. 4. This guide member 281 carries a cork arranging tongue 282 on one end thereof, the tongue having a curved free end as shown in Fig. 8, and extending into the groove 234 over the belts 230 and 231. The cork feed tube 103 passes through an opening in the plate 216 and is suitably rigidly fixed thereto, the upper end of this feed tube being curved into close proximity with the peripheral edge of the gear 225. An adjusting screw 283, threaded into the guide member 281 engages the upper end of the feed tube 103, the guide 281 together with the tongue 282 being firmly pressed against the feed tube by the spring 284.

The teeth of the gear 225 are cut away at their ends to form a peripheral groove 285 in this gear as shown in Fig. 6. The end of the feed tube 103 is cut away as shown in Fig. 9, and is provided with an integral finger or extension 286 which lies in the peripheral groove 285. It is evident that the position of the guide member 281 relative to the feed tube 103, and the tongue 282 relative to the belts 230 and 231, may be readily adjusted by manipulation of the set screw 283.

In operation, the hopper 242 is filled with corks which are agitated by the upper end of the reciprocating sleeve 251 and thus fed into the upper end of the tube 248. The corks are retained by the plungers 265, and are dropped one by one thereby as the plungers are alternately moved in and out of the tube 254. It should be observed that if a pair of plungers 265 should catch a cork between them, the springs 272 will give and the plungers will slide backward into their caps 266, thus avoiding the mutilation of the corks. The corks are then dropped into the groove 234 and are carried along in the direction of the arrow by the belts 230 and 231. The corks fall on to these belts in various positions, and as they are moved under the tongue 282, they are pushed over by this tongue and swung to a position in which their tapered small ends hang downward between the belts, their enlarged ends being caught and held between these belts as best shown in Fig. 5. The corks are then carried under the guide member 281 and over the peripheral edge of the gear 225, and since this gear is rotating at a higher speed than the drums 223 and 224 and the belts carried thereby, the teeth 287 of the gear engage the depending small ends of the corks

and swing them into a position in which they lie substantially parallel with the belts with their small ends leading. In this position, the corks are picked out from between the belts 230 and 231 by the finger 286, and are guided thereby into the cork feed tube 103, through which they are fed to the corking mechanism and inserted in the filled bottles as described above.

The present invention has been described in connection with a single specific machine, and it should be clearly understood that the invention is not limited to the exact mechanical details or expedients shown, and that certain modifications, changes and omissions may be made in the machine without departing from the scope of the invention as defined in the appended claims.

I claim:

1. A cork arranging mechanism for bottle corking machine comprising a cork container, a plurality of horizontally moving belts beneath said container, means for feeding corks one by one from said container into engagement with said belts, means adjacent to and below said belts and moving at a higher rate of speed than said belts for arranging said corks in a predetermined relation along said belts, and means for receiving said corks from said belts in said predetermined relation.

2. A cork arranging mechanism for arranging tapered corks in a predetermined arrangement comprising a cork container, a pair of spaced horizontal belts beneath said container, means for dropping said corks from said container to the space between said belts, means for moving said belts at a predetermined velocity, and means extending between said belts and moving at a higher velocity than said belts for arranging said corks along said belts with their small ends leading.

3. A cork arranging mechanism for arranging corks in a predetermined relation comprising a pair of spaced parallel belts, disposed horizontally and moving at a predetermined velocity, means for feeding corks to the space between said belts, rotary means having portions thereof extending between said belts and moving at a higher velocity than said belts for arranging said corks in a predetermined relation between said belts, and means for receiving said corks in said relation from said belts.

4. A cork arranging mechanism for arranging tapered bottle corks in a predetermined relation comprising a cork container, a tube extending into said container at the lower end thereof, means for agitating the corks in said container to drop them through said tube, a pair of horizontal parallel belts adjacent the lower end of said tube, said belts being spaced apart a distance less than the largest diameter of said corks, means for continuously moving said belts, and means extending between said belts and moving at a higher velocity than said belts for engaging the small ends of said corks and swinging said corks to a position in which their small ends are leading.

5. A cork arranging mechanism for arranging tapered bottle corks in a predetermined relation comprising a pair of parallel horizontal belts spaced apart a distance less than the diameter of the large ends of the corks and greater than the diameter of the small ends thereof, guide blocks for maintaining said belts in this spaced relation, means for continuously moving said belts, means for dropping corks between said guide blocks into engagement with said belts, and means for arranging said corks along said belts with their small ends leading comprising a toothed wheel disposed adjacent said belts with the peripheral edge thereof extending between said belts, and means for rotating said wheel to move the peripheral edge thereof at a higher velocity than said belts.

6. A cork arranging mechanism for arranging tapered bottle corks in a predetermined relation comprising a pair of horizontally disposed parallel belts spaced apart a distance less than the diameter of the large end and greater than the diameter of the small end of the corks to be arranged, means for dropping the corks one by one between said belts, means for moving said belts at a predetermined velocity, a tongue extending over the space between said belts for forcing the small ends of said corks between said belts, a rotary means extending between said belts and moving at a higher velocity than said belts for swinging said corks to a position in which their small ends are leading, and a feed tube for receiving said corks in this relation from said belts.

In testimony whereof I affix my signature.

NICOLA F. SAVIANO.