No. 771,413. PATENTED OCT. 4, 1904.

H. S. BREWINGTON.

BOTTLE CAPPING MACHINE.

APPLICATION FILED JUNE 2, 1903.

NO MODEL.

Fig. 1.

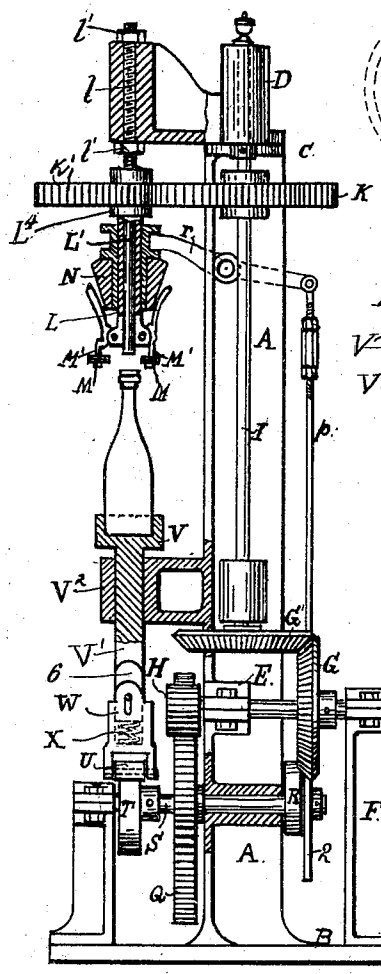


Fig. 3.

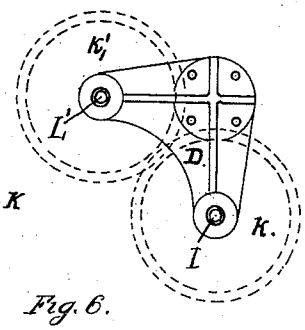


Fig. 6.



Fig. 4.

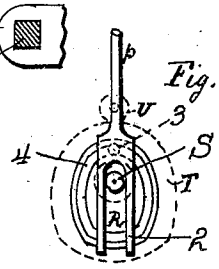


Fig. 2.

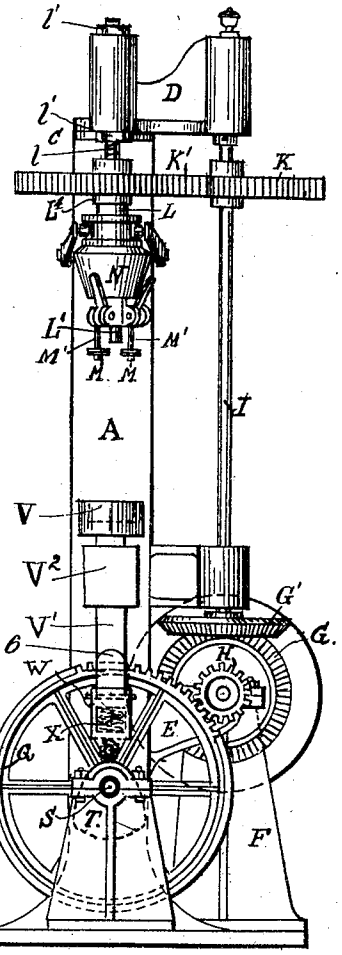
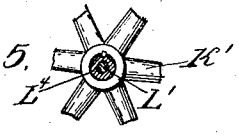


Fig. 5.



Witnesses

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No. 771,413. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

HENRY S. BREWINGTON, OF BALTIMORE, MARYLAND, ASSIGNOR TO NATIONAL CORK AND SEAL COMPANY, A CORPORATION OF MAINE.

BOTTLE-CAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 771,413, dated October 4, 1904.

Application filed June 2, 1903. Serial No. 159,802. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. BREWINGTON, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Bottle-Capping Machines, of which the following is a specification.

My invention relates more particularly to a machine for placing caps on bottles and jars, and especially to that class of sealing-caps which are intended to resist internal pressure.

A further object of the invention is to provide a cheap and effective machine to reduce the breakage of bottles while being sealed.

The cap, to make a more perfect sealing device, should contain in the top thereof a suitable lining or packing of paper, rubber, or cork, preferably cork, to produce the sealing results.

The machine is provided with a stationary mandrel and movable table, the table adapted to receive and raise the bottle into position and the mandrel to hold the cap thereon, while the depending flange of the cap is spun or crimped under the bead on the bottle-head, thus resisting the internal pressure of the gas in the bottle when released by the machine. The machine is so constructed that when the bottle is placed on the table the table is raised and the bottle-head, with the cap placed thereon, is held firmly against the mandrel. Immediately subsequent to the raising of the table the edge of the cap is engaged by the spinning disks and then released. The sealed bottle is then ready to be removed and the operation repeated. I have placed a spring under the table to cushion and take up the variation in the height of bottles. The revolving cone, with the hinged lugs thereon, to which are attached the spinning disks, all work automatically in performing the function of sealing.

In the accompanying drawings, Figure 1 is a view of my improved machine in side elevation with parts in vertical section. Fig. 2 is a view in front elevation. Figs. 3 and 4 are detail views. Fig. 5 is a detail view of the connection between the sleeve L and the gear K′, and Fig. 6 is a detail showing the square shank V′ reciprocating in the square sleeve V^2.

A is a T-shaped column with a base-plate B, either cast integral or bolted to it at the lower end, and there is a flange C on the upper end, which carries the cap-piece D. Bracket E is cast or bolted to the column near the lower end, which in connection with the stool F carries the pulley-shaft, which latter is provided with tight and loose pulleys at the outer end, a bevel or miter gear G at or near the middle, and a spur-pinion H at its forward end. The bevel or miter gear G drives a vertical shaft I, through bevel gear-wheel G′ thereon, which through the spur-gears K and K′ drives the spinning sleeve L, which turns on a stationary but adjustable mandrel L′, which is carried by the boss of cap-piece D. The sleeve L is secured to the gear-wheel K′ in any suitable manner, as by means of a key fitting in a groove in the hub L^4 of the gear-wheel. The lower end of the spinning sleeve L is provided with two or more lugs to which the spinning disks M M M are attached. These disks revolve on arms M′ M′, hinged to the lugs, which arms are provided on the upper end with fingers, which are pushed apart by the downward motion of the cone N, which is operated by the lever *r* and a rod *p* in the rear of the column. As a simple means for adjusting the mandrel it is provided with a threaded end *l*, which when turned in the threaded hole in the cap-piece adjusts it up and down, and lock-nuts *l′ l′* thereon are turned to hold it in its adjusted position.

The spur-pinion H gears into a spur-wheel Q, which is fastened on a shaft S, carrying on its rear end the disk-cam R, which operates the cone N through rod *p* and lever *r*, the lower end of the reciprocating rod *p* being slotted, as at 2, and straddling the shaft S, and a stud 3, mounted on the rod and extending into a cam-groove 4, formed in the cam R, whereby the rotation of the cam R causes the reciprocation of rod *p*, the slotted end of which serves as a guide to retain the rod in position. On the forward end of the shaft S is a face-cam T, which through roller U, carried by a hollow shoe W, raises or lowers the

table V, the shank V′ of which slides in a square-bored sleeve V², attached to the column A, the shank being provided with a foot 6. The foot has loosely attached thereto the hollow shoe W, containing a spring X to make up for different heights of bottles, as well as to have a cushioning effect when they are raised and abut the stationary mandrel. The detail of cams in Fig. 4 shows how the cam T first raises the table, pressing the bottle, with the cap laid on, hard against the mandrel L′. Then cam R presses the cone N down, closing the spinning wheels against the bottle, which is held rigidly in place by the stationary mandrel L′. The wheels are revolving at a high speed, and after making about twenty turns the cam R releases the spinning wheels and bottle-cap, and then the cam T lowers the bottle from its raised position, so that it can be removed.

Having described my invention, what I desire to secure by Letters Patent and claim is—

1. In an automatic capping-machine, the combination with a suitable frame having a threaded aperture therein, of a threaded mandrel adjustably received and held stationary within the aperture, rotating means journaled on the mandrel, reciprocating means sliding upon the rotary means, sealing means carried by the rotary means and actuated by the reciprocating means, means for regulating the throw of the reciprocating means, a reciprocating support, means for automatically actuating the support prior to the actuation of the reciprocating means and cushioning means carried by the reciprocating support.

2. In an automatically-operated capping-machine, the combination with a suitable frame, a mandrel supported therein, rotating means journaled on the mandrel, reciprocating means mounted on the rotary means, a lever connected with the reciprocating means, an adjustable rod secured to the lever, the lower end of the rod provided with a slot, a driven shaft embraced by the slotted rod, a cam mounted upon the driven shaft and provided with a cam-groove therein, a stud carried by the rod and received in the cam-groove, a reciprocating means for supporting the work, a shoe, a pin-and-slot connection for loosely securing the shoe and work-support, a cushioning means interposed between the supporting means and shoe, means for automatically reciprocating the support and sealing members carried by the rotary means on the mandrel, the reciprocating means operating intermediate of the full operation of the supporting means.

3. The combination with a suitable frame, a vertical shaft having a gear-wheel intermeshing with one of the gears on the vertical shaft, the drive-shaft provided with a pinion, a counter-shaft provided with a gear meshing with the pinion, of an adjustable mandrel stationarily secured to the frame, a rotating means journaled thereon, spinning means carried by the rotating means, a gear on the rotating means meshing with a gear on the vertical shaft, a reciprocating means slidingly mounted on the rotary means and operating the spinning means, a movable table and means on the counter-shaft for actuating the table and reciprocating means at predetermined intervals.

4. The combination with a suitable frame, a vertical shaft having a spur and bevel gear thereon, a drive-shaft having a bevel gear intermeshed with the bevel-pinion on the vertical shaft and provided with a spur-pinion, and a counter-shaft which has a large gear the teeth of which intermesh with the teeth of the spur-pinion receiving motion therefrom, of a mandrel, a spinning sleeve, hinged shafts carried thereby, spinning disks carried by said spinning shafts, a spur-gear on said sleeve intermeshed with the spur-gear on the vertical shaft, a cone movable on the spinning sleeve and adapted to operate the spinning shafts, a movable table, and means on the counter-shaft for reciprocating the table and cone, at predetermined intervals.

In testimony whereof I have signed my name to this specification in presence of two witnesses.

HENRY S. BREWINGTON.

Witnesses:
E. WALTON BREWINGTON,
ROBT. C. RHODES.