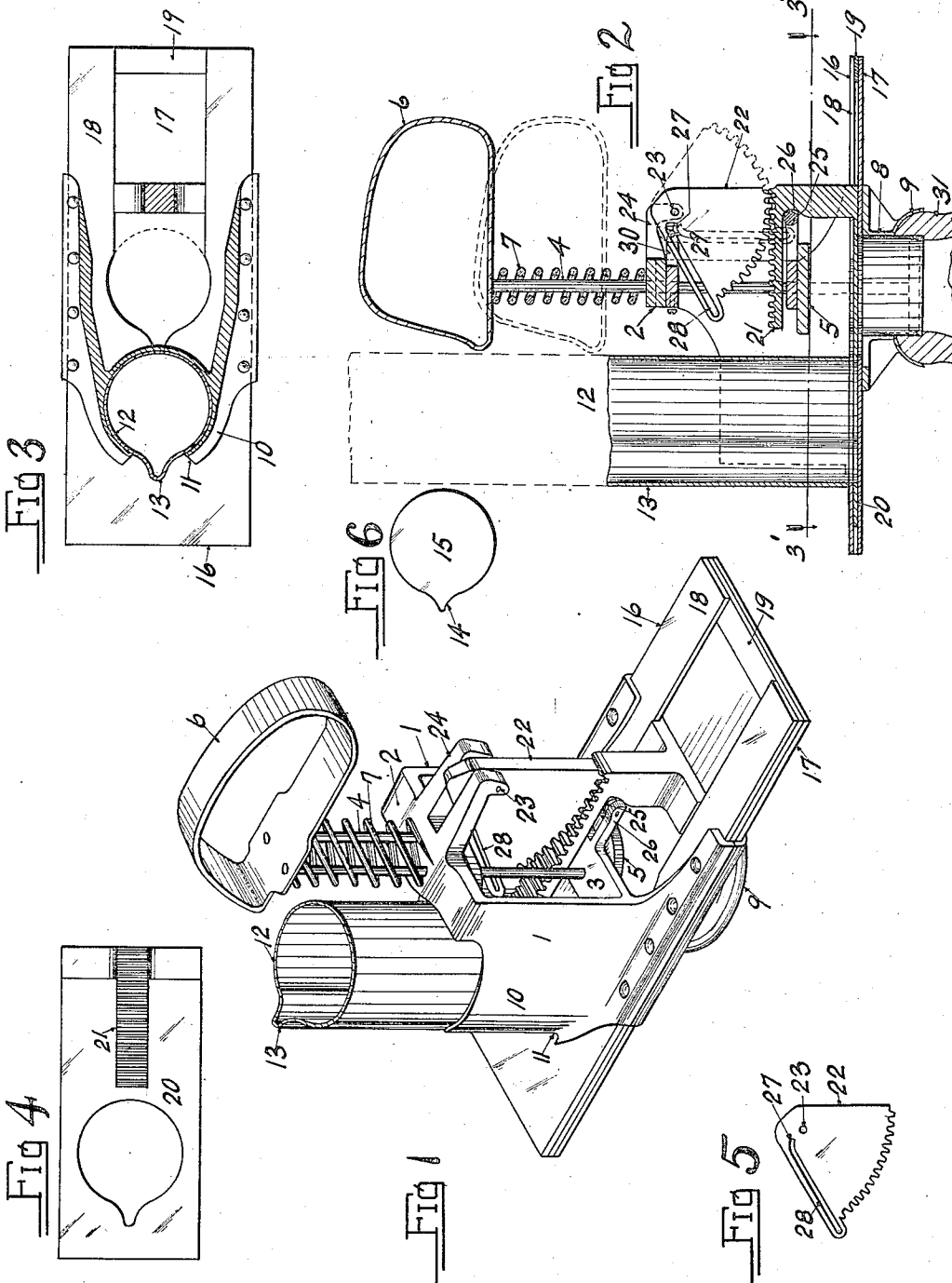


J. H. RESE.
BOTTLE CAPPING MACHINE.
APPLICATION FILED JAN. 31, 1911.

1,065,395.

Patented June 24, 1913.



WITNESSES
William H. Hofer
William C. Lyon

INVENTOR
John H. Rese.
By Fred H. Hunter
Attorney.

UNITED STATES PATENT OFFICE.

JOHN H. RESE, OF PITTSBURGH, PENNSYLVANIA.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN H. RESE, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Bottle-Capping Machines, of which the following is a specification.

This invention relates to bottle capping machines, and particularly to hand operated devices for sealing milk and other bottles, jars and the like, by inserting disks of paper or the like into the mouths thereof.

The object of this invention is to improve the construction and operation of such machines in order to render the same reliable, easy to operate, and capable of capping bottles while in crates so as not to necessitate the removal of the bottles therefrom, and particularly to insert in the mouths of the bottles caps or disks provided with integral tabs.

I am aware that machines have heretofore been used for putting plain round caps or disks in bottles, but I believe myself to be the first to devise a machine for inserting into bottles, caps or disks provided with integral tabs which are turned upwardly when the cap is inserted in the mouth of the bottle and serve as means for removing the cap.

The invention comprises the construction, arrangement and combination of parts hereinafter described and claimed.

In the accompanying drawings Figure 1 is a perspective view of a capping machine embodying my invention; Fig. 2 is a vertical central section therethrough; Fig. 3 is a horizontal section on the line 3'-3', Fig. 2; Fig. 4 is a plan view of the feeding slide; Fig. 5 is a detail view of the cam and gear segment; and Fig. 6 is a view of one of the caps or disks.

The frame work of the machine may be variously constructed. As shown, the main portion of the frame is formed as a casting or stamping and comprises side pieces or uprights 1 joined at their upper ends by the cross bar 2 and farther down by another cross bar 3, said cross bars being provided with suitable openings for receiving and guiding the plunger. The latter comprises two vertical rods 4 carrying at their lower ends the plunger head or disk 5 and at their

upper ends having secured thereto the handle 6. A compression spring 7 surrounds the plunger rods and is interposed between the handle and the top cross bar of the frame and serves to normally hold the plunger elevated.

Integral with or secured to the side standards or upright 1 is a downwardly extending tubular portion or sleeve 8, which projects down a considerable distance below the table of the machine and at its lower end is flaring or funnel shaped, as at 9, to guide the device upon the necks of the bottles.

Integral with the standards or uprights 1 is a magazine receiver or base 10 which is of general tubular form, being open on one edge, as at 11. This is adapted to receive the magazine 12 containing the paper or other disks, which magazine is of general tubular form, being provided on one edge with a projection 13 to accommodate the tabs 14 on the disks 15, and being adapted to be slipped into the magazine receiver or base in filled condition and when empty to be removed and a freshly filled tube substituted therefor. The magazine base is open on one side for the purpose of giving resiliency thereto and also to permit of the passage of the tabs on the disks. The magazines 12 are made of paper board, sheet metal or other suitable material.

Located immediately below the magazine receiver or base is the table 16 of the machine. This is formed of a bottom plate 17 and a top plate 18, which are separated by spacers 19 to form a guide way between said top and bottom plates for the reciprocating slide 20 which carries the disks from underneath the magazine to a position underneath the plunger and over the sleeve 8. This slide is in the form of a plate provided with an opening of such size as to neatly receive the disk shown in Fig. 5. The bottom plate 17 of the table is provided with a similarly shaped opening registering with the sleeve 8, while the top plate 18 of said table is provided with a similarly shaped opening underneath the magazine 10 so that the disks provided with integral tabs can drop from the magazine into the opening in the slide. The opening in the slide is such a distance from the end thereof that when the slide is

fully retracted said end is underneath and supports the disks in the magazine. The actuating means for the slide is attached to its other end.

5 Secured to the slide 20 is the horizontal bar 21 provided on its top with rack teeth. This rack bar is engaged by a toothed gear segment 22 which is mounted at 23 between arms 24 projecting from the top cross bar 2 of the frame. To prevent the rack bar 21 from springing downwardly where it is engaged by the gear segment, it is supported by a small roller 25 supported by projections 26 from the lower cross bar 3 of the frame. 10 The gear segment 22 is provided with a slot having an upper cam portion 27 and a substantially straight portion 28, which slot is engaged by a roller 29 carried by arms 30 secured to the plunger rods 4. The cam slot is so shaped that upon a slight depression of the plunger the gear segment is given its full throw to positively move the slide 20 to carry a disk from underneath the magazine to a position underneath the plunger, and 25 then remains stationary during the further downward movement of the plunger. The roller 29 is for the purpose of reducing friction, and is not absolutely necessary, as a pin engaging the cam would produce the same movement. 30

The handle 6 is of loop form, as shown, so that not only can the plunger be conveniently depressed, but the whole machine can be carried thereby. This handle is not symmetrical with reference to the plunger but projects more to one side than to the other. 35 This is for the purpose of enabling it to clear the magazine which is placed in as close proximity to the plunger as possible, as is desirable so that the disks need not be moved any great distance. The shape of this handle is such that the machine practically balances when suspended by the handle. 40

In the use of the device a tube 12, filled with the paper disks is inserted in the magazine receiver or base 10. The machine is then placed over the bottle with the neck of the bottle 31 projecting into the flaring end 9 of the sleeve 8. The operator then presses 50 down on the handle, thereby depressing the plunger against the tension of spring 7. The first portion of the downward movement of the plunger causes the roller 29 to ride down the cam portion 27 of the slot in the cam segment 22, thereby imparting the full movement to the cam segment and through the rack bar drawing the slide fully back so as to carry a disk from underneath the magazine to a position underneath the 60 plunger. During the further downward movement of the plunger the roller 29 moves down the straight portion 28 of the cam slot in the gear segment and hence causes no further movement of the slide. The plunger is

then fully depressed and presses the paper 65 disk down into the neck of the bottle and turns the tab upwardly, as will be readily understood. Pressure on the handle is then released, when the spring 7 lifts the plunger and returns the cam segment and slide to the 70 original position. During the first portion of the upward movement of the plunger the gear segment holds the slide stationary until the plunger head clears the feed slide, and at the uppermost portion of the movement 75 returns the slide to position to bring the opening therein underneath the magazine to receive a new cap. The device is carried from bottle to bottle and the operation repeated at each bottle. This operation can be 80 very quickly effected and a large number of bottles can be capped by an operator in a short period of time. The sleeve 8 is of such length that the device can be applied to bottles while in crates and without the necessity 85 of removing the same from the crate. Usually the edges of the crate project somewhat above the tops of the bottles, so that the bottles next to the walls of the crate are not accessible by a flat bottomed capping device. 90 The sleeve 8, however, is of such length that the bottles at the walls of the crate can be capped as readily as those farther in. This sleeve not only permits the table of the machine to lie above the top edge of the crate, 95 but also centers the machine on the bottle.

The device described is of simple construction and very easy to operate. The movements are all positive and the device can be used without fatiguing the user, the shape 100 of the handle being such as to not only provide effective means for depressing the plunger, but also for lifting the entire machine from one bottle to the other.

While I have described a machine for inserting an integral tab cap or disk, I do not wish to be confined to the particular showing of my invention made in the drawings hereof, as it is evident that other means can be employed, such as the machine being 110 made in multiples and operated by foot or other power; also in place of the machine being lifted, the plunger can be operated with the same result, without departing from the spirit of the invention. The caps 115 come flat in the tubes or magazine and the tab is bent upward when cap is put in the bottles by the plunger.

What I claim is:

1. A bottle capping machine comprising upper and lower plates spaced apart vertically and respectively provided with openings spaced apart horizontally, a pair of standards secured to said plates and supporting a magazine over the opening in the upper 120 plate, a slide movable between said plates and adapted to receive a bottle cap from the magazine and carry it to position over the 125

opening in the lower plate, a cross bar connecting said standards, a plunger slidably mounted in said cross bar over the opening in the lower plate and arranged to force a bottle cap from said slide into a bottle mouth, a rack bar connected to said slide, a gear segment pivotally supported on said cross bar and engaging said rack bar and operatively connected to said plunger, and a spring engaging the upper cross bar and plunger and arranged to move said slide to position with its opening beneath the magazine.

2. In a bottle capping machine, the combination with a frame, of a plunger movable vertically therein and having a circular head, a magazine adjacent to the plunger, a slide to receive the caps and transfer them from the magazine to a position underneath the plunger, and operative connections from the plunger to the slide whereby the actuation of the plunger moves the slide, said slide having a notch to receive the integral tab of a cap, and said plunger head arranged to force a cap into a circular bottle mouth and simultaneously bend its tab normal to the cap.

3. In a bottle capping machine, the combination of a frame, a cap feeding member movable therein and having a notch to receive the integral tab of a cap, a movable plunger for transferring caps to the bottle mouth, said plunger being formed with a head corresponding in shape to the body of the cap and arranged to simultaneously seat the same and bend the tab normal to the body.

4. In a bottle capping machine, the combination of a frame, a plunger movably mounted therein, a magazine adjacent to said plunger, a slide arranged to transfer bottle caps from the magazine to a position underneath the plunger, a rack connected to said slide, a gear segment engaging the rack, and a cam and pin connection between the segment and the plunger whereby the movement of the plunger moves said slide, said cam being so shaped as to give full movement to the slide during the first portion of the downward movement of the plunger and hold said slide immovable during the remainder of the downward movement of the plunger and until the plunger in its upward movement has cleared the slide and then return the slide to position with its opening underneath the magazine.

5. In a bottle capping machine, the combination of a frame, a movable plunger comprising two parallel rods or members carrying the plunger head, a slide adapted to transfer bottle caps to a position underneath the plunger, a rack bar connected to said slide and adapted to project above the plunger head between the two rods or members

thereof, a gear segment engaging the rack, and a cam and pin connection between said gear segment and plunger, whereby movement of the plunger positively moves the slide.

6. In a bottle capping machine, the combination of a frame, a plunger having a circular head movable therein, a magazine adjacent the plunger, a slide provided with an opening to receive the caps and transfer them from the magazine to a position underneath the plunger, and operative connections from the plunger to the slide whereby actuation of the plunger moves the slide, said magazine having a projection and the opening in said slide having a notch, said projection and notch facing away from the plunger and being of such shape as to receive and feed a flat cap provided with an integral tab, and said plunger head arranged to force a cap into a circular bottle mouth and simultaneously bend its tab normal to the cap.

7. In a bottle capping machine, the combination of a frame, a cap feeding member movable therein and having an opening corresponding in shape to the shape of the body of the bottle cap and having a notch to receive the integral tab of the cap, a movable plunger for transferring caps from said feeding member to the bottle mouth, said plunger being formed with a head corresponding in shape to the body of the cap and arranged to simultaneously seat the same and bend the tab normal to the body.

8. In a bottle capping machine, the combination of a frame having upper and lower plates, a feed slide movable therebetween, said plates each having an opening, the openings being spaced apart in the direction of movement of the slide, said slide having an opening arranged to register with the openings in the plates, the openings each being of shape to correspond with the shape of the body portion of a bottle cap and having a notch to receive the integral tab thereof, the notches all facing in the same direction and away from the opening in the lower plate, a magazine above the opening in the upper plate, and a movable plunger for forcing a cap from said slide into a bottle mouth, said plunger having a head corresponding in shape to the body portion of the cap.

9. In a bottle capping machine, the combination of a frame having upper and lower plates, a feed slide movable therebetween, said plates each having an opening, the openings being spaced apart in the direction of movement of the slide, said slide having an opening arranged to register with the openings in the plates, the openings each being of shape to correspond with the shape of the body portion of a bottle cap and having a notch to receive the integral tab there-

of, the notches all facing in the same direction, a magazine above the opening in the upper plate, and a movable plunger for forcing a cap from said slide into a bottle
5 mouth, said plunger having a head corresponding in shape to the body portion of the cap.

In testimony whereof, I have hereunto set my hand.

JOHN H. RESE.

Witnesses:

F. W. WINTER,
MARY E. CAHOON.
