

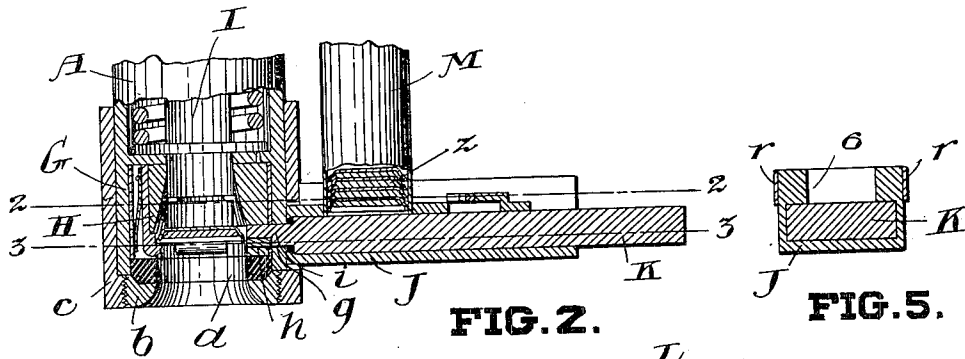
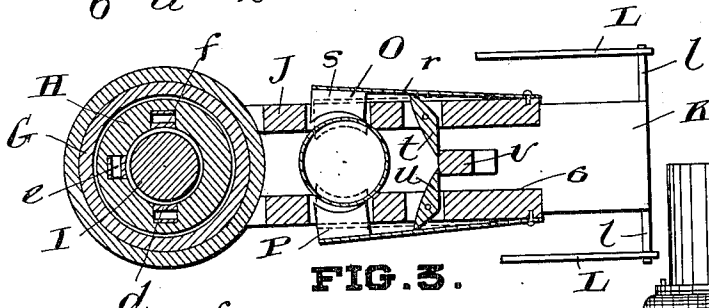
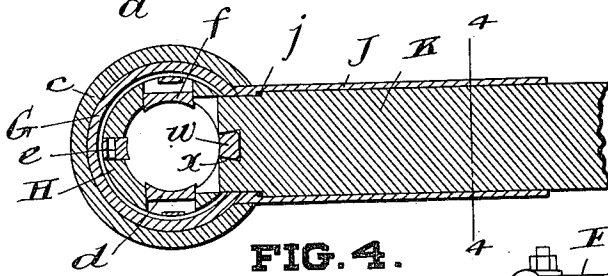
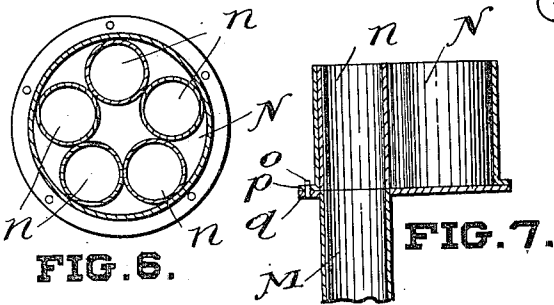
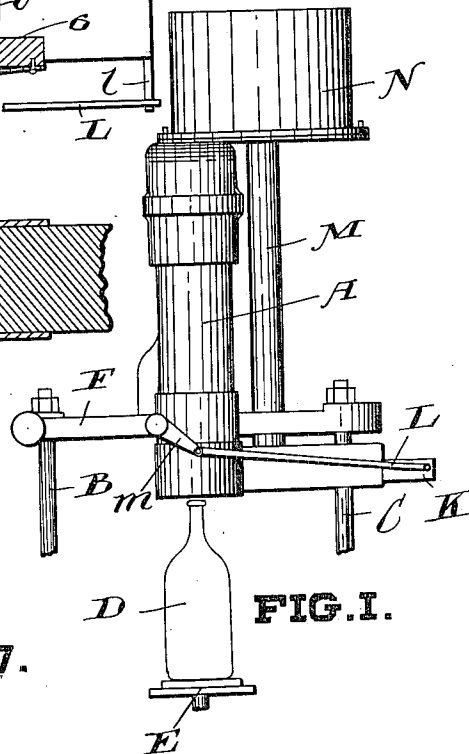
No. 837,065.

PATENTED NOV. 27, 1906.

W. HOGGARD.

FEEDING MECHANISM FOR BOTTLE CAPPING MACHINES.

APPLICATION FILED APR. 19, 1906.



WITNESSES

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WILLIAM HOGGARD, OF OTTAWA, ONTARIO, CANADA.

FEEDING MECHANISM FOR BOTTLE-CAPPING MACHINES.

No. 837,065.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed April 19, 1906. Serial No. 312,639.

To all whom it may concern:

Be it known that I, WILLIAM HOGGARD, of the city of Ottawa, in the county of Carleton, Province of Ontario, Canada, have invented certain new and useful Improvements in Feeding Mechanisms for Bottle-Capping Machines, of which the following is a specification.

My invention relates to improvements in feeding mechanisms for bottle-capping machines; and the objects of my invention are to provide simple and effective means to be employed in connection with any of the ordinary forms of crowning or capping machines which will automatically feed the caps, thus avoiding the necessity of placing them in position by hand, as is at present the usual practice, further objects being to utilize the ordinary movement of the lever operating the capping mechanism to accomplish this feeding, further objects still being to render the device easily applicable to any of the ordinary forms of crowning or capping machines, whereby it will not be necessary to reconstruct the machine to apply my attachment thereto; and it consists, essentially, of a suitable feeding-tube in which the caps are contained, a reciprocating slide operating below the bottom of said tube and which works in a slot extending through the throat of the capping mechanism and which is adapted to move a cap placed before it into the required position in the capping mechanism, means for normally preventing the caps from feeding, and means operated by the slide for releasing said means and allowing one cap to drop into position in front of the slide at each reciprocation thereof, the various parts of the device being constructed and arranged in detail as hereinafter more particularly described.

Figure 1 is an elevation of a portion of the capping mechanism of a bottling-machine having my attachment applied thereto. Fig. 2 is an enlarged sectional detail of the throat-capping mechanism. Fig. 3 is a sectional view on the line 2 2, Fig. 2. Fig. 4 is a sectional view on the line 3 3, Fig. 2. Fig. 5 is a sectional view on the line 4 4, Fig. 4. Fig. 6 is a transverse sectional view through the cap-containing reservoir. Fig. 7 is a vertical section through the same.

In the drawings, like letters of reference indicate corresponding parts in each figure.

In bottle-capping machines of the type to which this invention refers it has usually

been the practice to have the caps fed to the machine by hand—that is, when the bottle is in a certain position the operation of the machine is stopped while a cap is inserted into the throat of the machine by hand. In my invention I aim to replace this hand method of feeding by means automatically operated by the operation of other parts of the machine.

My invention may be applied to any type of machine, and while I have herein described it as applied to one common form of capping-machine, yet it can without difficulty be adapted for use in any machine of the same class.

Referring to the drawings, A represents the upper movable part of a bottling-machine which is supported on standards B and C and the construction of which is well known in the art and, forming no part of the present invention, need not be here described.

The bottle D to be capped rests on a fixed platform E, which is part of the lower portion of the machine. The upper part A is raised and lowered by means of a bell-crank lever F, and when lowered over the neck of the bottle a capping mechanism, located within the head G, will operate to secure a cap to the top of the bottle. Within the head G is located the removable throat H, the inside surface of which, when the cap is pressed upwardly on top of the bottle, compresses the sides of the caps to cause them to grip the flange on the neck of the bottle. As usual, this throat is held in position on top of an annular rubber ring *a* by means of a ring *b*, having a screw-threaded engagement with an outer casing *c*. Within the throat and protruding slightly from the inner side thereof near the bottom are a plurality of spring-held dogs *d*, *e*, and *f*, which are adapted to hold the cap in position prior to capping. Extending into the throat is the vertically-movable slide I, which presses on the cap on its upward movement through the throat.

All the above features are old and well known in the machines now in use for capping bottles, and in the operation of these machines the attendant places the stopper within the throat H and resting on the dogs *d*, *e*, and *f* prior to operating the capping-lever F. On the upward movement of the bottle through the throat the cap is lifted on the top thereof and being forced upwardly is crimped into position around the flange on

the top of the bottle by means of the inclined inner surface of the throat.

The old device having now been made clear, I will describe the improvements I have devised for automatically supplying the caps to the bottles as they are required. Secured to the head G and laterally extending therefrom is a casing J, within which a slide K reciprocates. Opposite this casing openings *g* and *h* are provided through the head G and through the throat H, whereby the slide may in its innermost position extend through these. The front portion *i* of the slide K, which is adapted to extend through the openings *g* and *h*, is somewhat smaller than the rest of the slide, and at the juncture of the two a packing-ring *j* extends around the same. This is to insure that when the slide is in its innermost position, as shown in Fig. 2, no liquid may leak out through the openings. The slide K is reciprocated by means of links L, connected to pins *l* thereon, the opposite ends of the said links being connected to the extremities of arms *m*, integral with the bell-crank lever F. By this means the slot is reciprocated whenever the crank is operated, and that is once to cap each bottle.

I will now proceed to describe the automatic means I provide to drop a cap in front of the slide at each reciprocation thereof, whereby the slide will push the cap into position in the throat. M is a feeding-tube made of slightly larger diameter than the caps Z and the bottom of which extends through the top of the casing J. The upper end of this tube leads to a circular cap-reservoir N, within which are a plurality of cap-containing tubes *n*, which are so placed around the interior of the reservoir that they will be successively brought in alinement with the feeding-tube M. This alinement may be insured by the employment of dowel-pins *o*, adapted to extend through holes provided in flanges *p* and *q* on the feeding-tube and reservoir. When one of the tubes is emptied, another may be moved into place, and thus a large number of caps may be conveniently stored in a small space. The downward movement of the cap in the tubes is normally prevented by means of two dogs O and P on opposite sides of the casing and extending therethrough and partially across the cap-containing tube. These dogs may be of any desired form that I consider preferable, comprising flat springs *r*, secured at one end to the casing and having at their opposite ends projecting plates *s*, each formed integral with the spring and normal thereto and which are adapted to normally extend partially across the capping-tube, as indicated in dotted lines in Fig. 3. To move the dogs O and P out of position to allow a cap to drop in front of the slide at each reciprocation thereof, I provide pivoted levers *t* and

u, the outer ends of which about the flat surface of the springs *r* and the inner ends of which are adapted to be engaged by a tappet *v*, secured to the top of the slide. To enable this tappet to operate, a slot 6 is provided in the top of the casing. By this means when the slide is in its innermost position the dogs O and P will be removed from across the cap-feeding tube and a cap will drop down and rest on top of the slide, the height of the plates O above the slide being such that only one cap may rest between the slide and the plates. When the slide is drawn back to its outermost position, the cap which has been freed by the outward movement of the dogs and has been dropped on top of the slide will now drop before the front of the slide, and when the slide again moves inwardly this cap will be pushed through the openings *g* and *h* into the capping-throat and will be held on the dogs *e*, *d*, and *f* therein. The cap has thus been moved by automatic means into the same position as in the ordinary form of machines it would be placed by hand. As the inner end *i* of the slide is somewhat smaller than the other portions, a space will be left below this when the slide is withdrawn to its outermost position, and to prevent the cap becoming caught in this space I provide a small dog *w* in the front of the slide, wedge-shaped, as shown, which is loosely held in a similarly-shaped recess *x* in the slide, and when the slide is in its outermost position is adapted to drop down and slide on the bottom of the casing.

It will thus be seen that I have devised an exceedingly cheap and simple form of machine, which may be attached to any of the ordinary forms of capping-machine and which will automatically feed a cap into the throat of the machine at each operation thereof.

While I have described with great particularity of detail one specific form of my invention, yet certain changes may be made in the construction thereof within the scope of the appended claims.

What I claim as my invention is—

1. In a device of the class described in combination a vertically-extending feeding-tube, a feeding-slide reciprocating below the bottom thereof, a spring-held dog normally preventing the caps from feeding and means operated by the slide for intermittently releasing said dog and allowing one cap to be fed at each reciprocation of the slide as and for the purpose specified.

2. In a device of the class described in combination a vertically-extending feeding-tube, a slide reciprocating below the bottom thereof, a spring-held dog normally preventing the caps from feeding, a pivoted lever adapted when operated to release said dog and a tappet on said slide adapted to operate the said lever as and for the purpose specified.

3. In a device of the class described the

combination with the vertically-extending feeding-tube of a cap-reservoir comprising a plurality of tubes and means for successively bringing the same into alinement with the feeding-tube as and for the purpose specified.

4. In a device of the class described in combination a feeding-tube, a feeding-slide reciprocating below the bottom thereof, a spring-held dog normally preventing the caps from feeding, means operated by said slide for intermittently releasing said dog and allowing one cap to be fed at each reciprocation thereof, a cap-containing reservoir comprising a plurality of tubes and means for successively bringing said tubes in alinement with the feeding-tube as and for the purpose specified.

5. In a feeding mechanism for bottle-capping machines the combination with the throat having a passage-way extending through the side thereof of a reciprocating slide adapted to feed a cap therethrough at each reciprocation thereof and means for producing a water-tight joint between the slide and the passage-way in the throat when the slide is in its innermost position as and for the purpose specified.

6. In a feeding mechanism for bottle-capping machines the combination with the

throat having a passage-way through the side thereof of a casing laterally extending from around said passage-way, a reciprocating slide operating in said casing, means for dropping a cap in front of said slide at each reciprocation thereof and means for producing a water-tight joint between the outside of the opening through the throat and the end of the slide as and for the purpose specified.

7. In a feeding mechanism for bottle-capping mechanism the combination with the throat and head having a passage-way through the side thereof, of a casing, a reciprocating feeding-slide having a reduced inner end adapted to extend through said passage-way, means for dropping a cap in front of said slide at each reciprocation thereof and a packing-ring extending around the slide at the juncture between the reduced and the large portion thereof and adapted when the slide is in its innermost position to prevent the leakage of liquid through the passage-way as and for the purpose specified.

Signed at the city of Ottawa, in the Province of Ontario, this 16th day of April, 1906.

WILLIAM HOGGARD.

Witnesses:

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RUSSEL S. SMART.