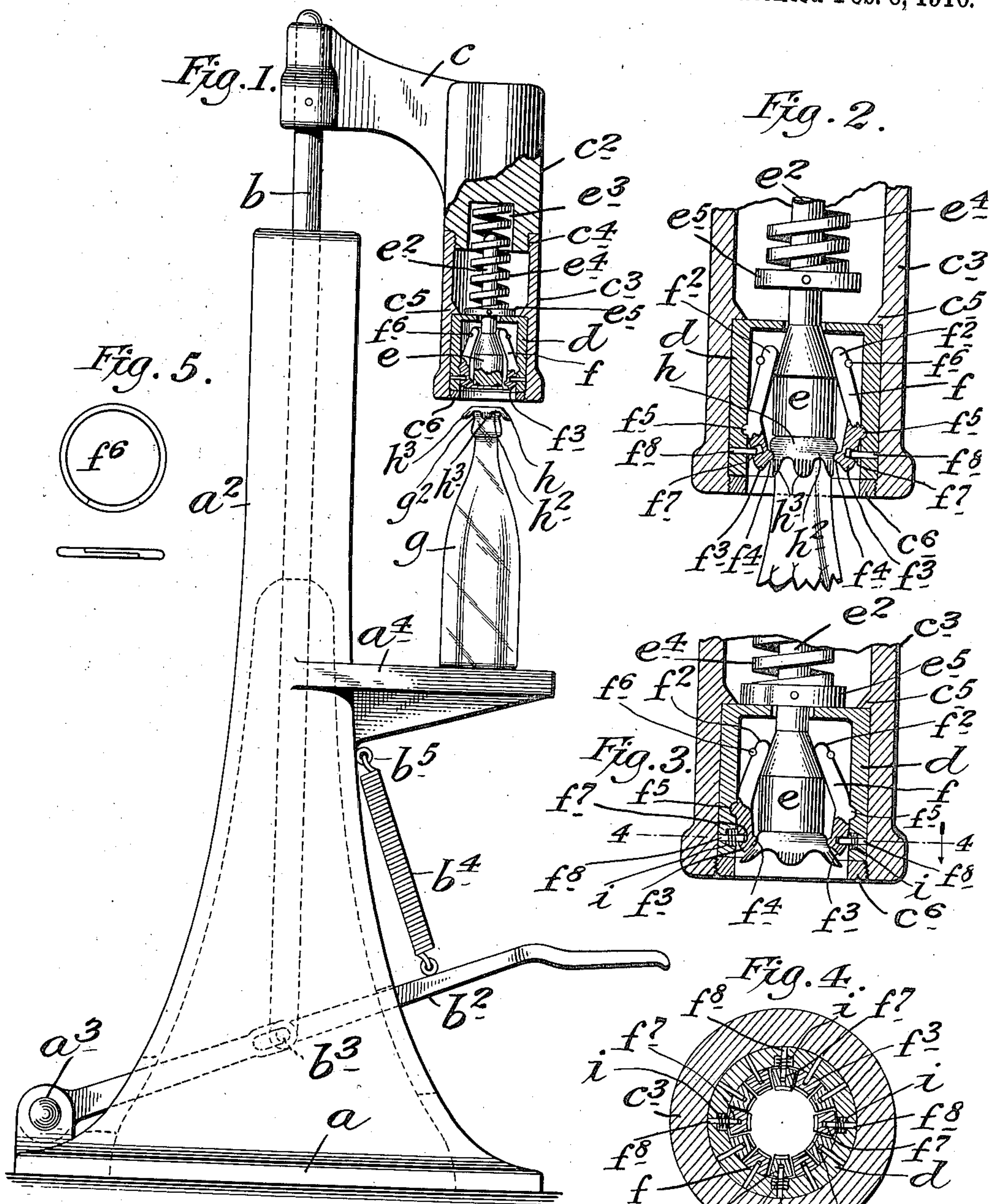


948,569.

Patented Feb. 8, 1910.



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# UNITED STATES PATENT OFFICE.

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## BOTTLE-CAPPING MACHINE.

948,569.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed November 18, 1908. Serial No. 463,187.

*To all whom it may concern:*

Be it known that I, ROSS B. YERBY, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bottle-Capping Machines, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to machines for capping or closing bottles and similar vessels or receptacles in which operation a flexible sheet metal cap is employed; and the object thereof is to provide an improved machine of this class which is simple in construction and operation, and by means of which bottles or vessels of the class specified may be quickly, easily and securely closed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which;—

Figure 1 is a side view of a manually operated machine involving my invention, part of the construction being in section, Fig. 2 a view similar to Fig. 1 of that part of the construction shown in section but on an enlarged scale and omitting some of the parts, the parts shown being in a different position, Fig. 3 a view similar to Fig. 1 of the parts shown in section but showing a modification, Fig. 4 a transverse section on the line 4—4 of Fig. 3, and;—Fig. 5 a side and face view of a spring ring which I employ.

In the practice of my invention, I provide a suitable support comprising a base  $a$  having an upright or standard  $a^2$  in which is mounted a vertically movable plunger rod  $b$ . The bottom portion of the upright or standard  $a^2$  is hollow, and pivoted at the back thereof as shown at  $a^3$  is a pedal lever  $b^2$  which passes through the bottom part of the upright or standard  $a^2$  and is connected with the lower end of the plunger rod  $b$  as shown at  $b^3$ , and a spiral spring  $b^4$  is connected with the outer end of the pedal lever  $b^2$  and with the upright or standard  $a^2$  at  $b^5$  and normally holds the pedal lever  $b^2$  in a raised position.

Rigidly connected with the upper end of the plunger rod  $b$  is an arm  $c$  having a vertically arranged cylindrical head or holder

$c^2$  with which is connected a tubular casing  $c^3$  this connection, in the form of construction shown, being made by reducing the lower end of the head or holder  $c^2$  and providing the reduced portion and the end of the tubular casing  $c^3$  with screw threads as shown at  $c^4$ .

Placed in the lower end of the tubular casing  $c^3$  is a thimble-shaped supplemental casing  $d$  the lower end of which is open, and the casing  $d$  abuts at its upper end against lugs or projections  $c^5$  in the tubular casing  $c^3$  and is held in said casing by a ring or band  $c^6$  screwed thereinto.

Placed in the thimble-shaped casing  $d$  is a plunger  $e$ , the upper end of which is conical in form and provided with a stem  $e^2$  which passes upwardly through the top of the thimble-shaped casing  $d$  and into a socket or recess  $e^3$  in the head or holder  $c^2$ , and placed on the stem  $e^2$  of the plunger  $e$  is a spiral spring  $e^4$  which rests on a washer  $e^5$  secured to the stem  $e^2$  of the plunger  $e$  and which normally serves to depress said plunger.

Arranged around the plunger  $e$  within the casing  $d$  are rock jaws  $f$ , twelve of which are preferably employed, and the rock jaws  $f$  are provided with inwardly and upwardly directed arms  $f^2$  and with downwardly and inwardly directed heads  $f^3$  having inwardly directed noses  $f^4$ , and the backs of said jaws are provided with lugs or projections  $f^5$  which enter corresponding recesses in the inner walls of the casing  $d$ , and placed around the upwardly and inwardly directed arms  $f^2$  of said jaws is a contractile spring ring or band  $f^6$ , said ring or band being shown in detail in Fig. 5, but this ring or band may be made in any desired manner. The backs of the heads  $f^3$  of the jaws  $f$  are also provided with sockets or recesses  $f^7$ , and secured in the casing  $d$  are pins or plugs  $f^8$  which enter said sockets or recesses, and while the jaws  $f$  are free to rotate on the lugs or projections  $f^5$  the pins  $f^8$  aid in holding said jaws in position and retaining them in proper condition at all times.

The upright or standard  $a^2$  is provided with a shelf or support  $a^4$  on which a bottle  $g$  may be placed, and my improved bottle capping machine is designed particularly for use in connection with a bottle cap  $h$  of well known form and construction, said cap being provided with an outwardly and



downwardly directed flange or rim  $h^2$  provided at regular intervals with projecting ears  $h^3$ , this cap being the same as that described and claimed in an application for Letters Patent of the United States filed by me on the 20th day of October, 1908, No. 458,598.

In practice, the bottle  $g$  is placed directly under the head or holder  $c^2$  as shown in Fig. 1 and the cap  $h$  is placed thereon. The neck of the bottle is provided at the top  $g^2$  with an annular bead, and with the parts in position as shown in Fig. 1, the cap  $h$  being placed on the neck of the bottle, the pedal lever  $b^2$  is depressed. This operation forces the head or holder  $c^2$  downwardly and the neck of the bottle with the cap  $h$  thereon passes into the bottom of the casing  $c^3$ . In this operation the top surface of the cap  $h$  bears on the lower end of the plunger  $e$ , and said plunger moves upwardly slightly under the pressure of the spring  $e^4$  and at the same time the heads  $f^3$  of the rock jaws  $f$  are forced outwardly and downwardly, and as the pressure on the pedal lever  $b^2$  continues the plunger  $e$  moves into the position shown in Fig. 2, the upper ends  $f^2$  of the rock jaws  $f$  are forced outwardly and the noses  $f^4$  of the heads  $f^3$  of said rock jaws are forced inwardly and the rim  $h^2$  of the cap is crimped or compressed around the bead  $g^2$  at the top of the neck of the bottle and the ears  $h^3$  of the cap are forced downwardly against the neck of the bottle as shown in Fig. 2. In this operation the bottle is securely closed, and when the pressure is removed from the pedal lever  $b^2$  the spring  $b^4$  forces said lever and the plunger rod  $b$  together with the head or holder  $c^2$  upwardly, and these parts return to the position shown in Fig. 1, and this operation may be repeated as often as desired, and at each repetition thereof a bottle is capped.

In Figs. 3 and 4 I have shown a modification of the construction of the parts in or supported by the head or holder  $c^2$ , and in this form of construction the plunger  $e$  is slightly shorter than the plunger  $e$  shown in Figs. 1 and 2. With this construction four of the jaws  $f$  are provided with springs  $i$  which are placed in recesses in the casing  $d$  through which the pins  $f^8$  pass, and these springs normally serve to force the heads of the jaws back of which they are placed inwardly as shown in Fig. 4. With this form of construction the caps  $h$  are first inserted into the holder as shown in Fig. 3, and the bottle  $g$  is supported as shown in Fig. 1. The noses  $f^4$  of the jaws  $f$  back of which the springs  $i$  are placed hold the cap  $h$  in the position shown in Fig. 3 when said cap has once been inserted, and when the pedal lever  $b^2$  is operated or forced downwardly the head or holder  $c^2$  descends, and the top of the neck of the bottle enters the cap  $h$ . As

the pressure is applied the plunger  $e$  is forced upwardly slightly, and the heads  $f^3$  of the jaws  $f$  are forced inwardly and the cap is secured to the neck of the bottle as shown in Fig. 2.

My improved machine is simple in construction and operation and comparatively inexpensive, and while I have shown a manually operated machine, it will be apparent that a power operated machine may be made involving the principle of the head or holder  $c^2$  and the parts therein and by means of which a number of bottles may be capped at a single operation; and my invention is not limited to the details of construction herein shown and described, and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

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

1. In a bottle capping machine, a vertically movable plunger head the lower end of which is provided with a tubular casing, a vertically movable spring depressed plunger mounted in said casing and the top portion of which is conical in form, a plurality of rock jaws mounted around said plunger and provided with inwardly directed upper end portions adapted to bear on the conical part of the plunger and downwardly and inwardly directed heads having inwardly directed noses, and a spring band placed around the upper parts of said rock jaws.

2. In a bottle capping machine, a vertically movable plunger head the lower end of which is provided with a tubular casing, a vertically movable spring depressed plunger mounted in said casing and the top portion of which is conical in form, a plurality of rock jaws mounted around said plunger and provided with inwardly directed upper end portions adapted to bear on the conical part of the plunger and downwardly and inwardly directed heads having inwardly directed noses, and a spring band placed around the upper parts of said rock jaws, said rock jaws being also provided with lugs or projections which fit in the walls of said casing.

3. In a bottle capping machine, a vertically movable plunger head the lower end of which is provided with a tubular casing, a vertically movable spring depressed plunger mounted in said casing and the top portion of which is conical in form, a plurality of rock jaws mounted around said plunger and provided with inwardly directed upper end portions adapted to bear on the conical part of the plunger and downwardly and inwardly directed heads having inwardly directed noses, and a spring band placed around the upper parts of said rock jaws,



said casing being also provided with lugs or projections which fit in recesses formed in the backs of the heads of the rock jaws.

4. In a bottle capping machine, a vertically movable plunger head the lower end of which is provided with a tubular casing, a vertically movable spring depressed plunger mounted in said casing and the top portion of which is conical in form, a plurality of rock jaws mounted around said plunger and provided with inwardly directed upper end portions adapted to bear on the conical part of the plunger and downwardly and inwardly directed heads having inwardly directed noses, and a spring band placed around the upper parts of said rock jaws,

said rock jaws being also provided with lugs or projections which fit in the walls of said casing, and said casing being provided below said lugs or projections with pins which fit in recesses formed in the backs of the heads of the rock jaws, and part of said jaws being provided with springs which force the lower ends or head portions of said jaws inwardly.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 17th day of November 1908.

ROSS B. YERBY.

Witnesses:

A. R. APPLEMAN,  
C. E. MULREANY.