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Patented July 29, 1902.

W. S. DORMAN.
MACHINE FOR SEALING BOTTLES.

(Application filed Sept. 5, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

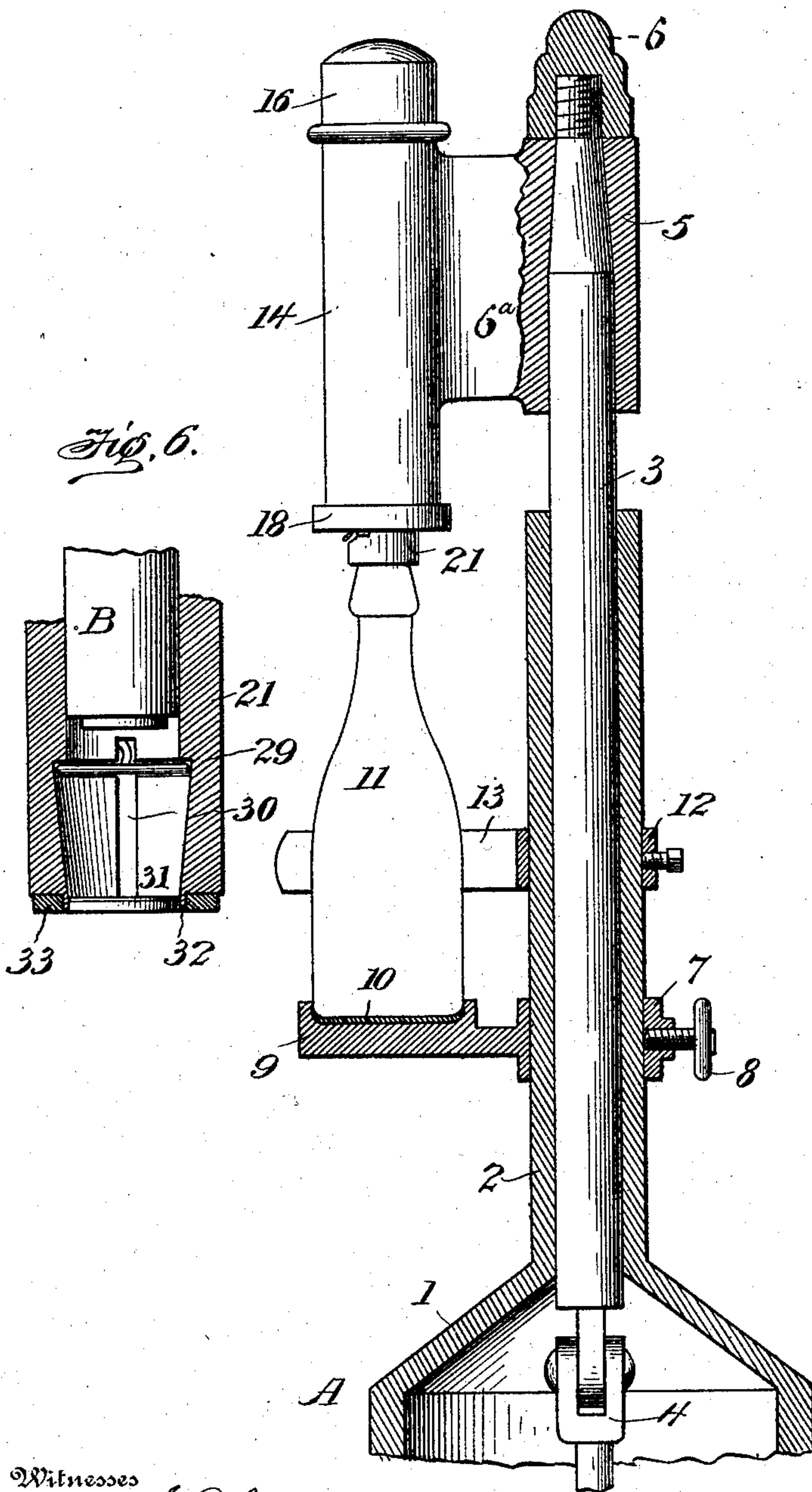


Fig. 6.

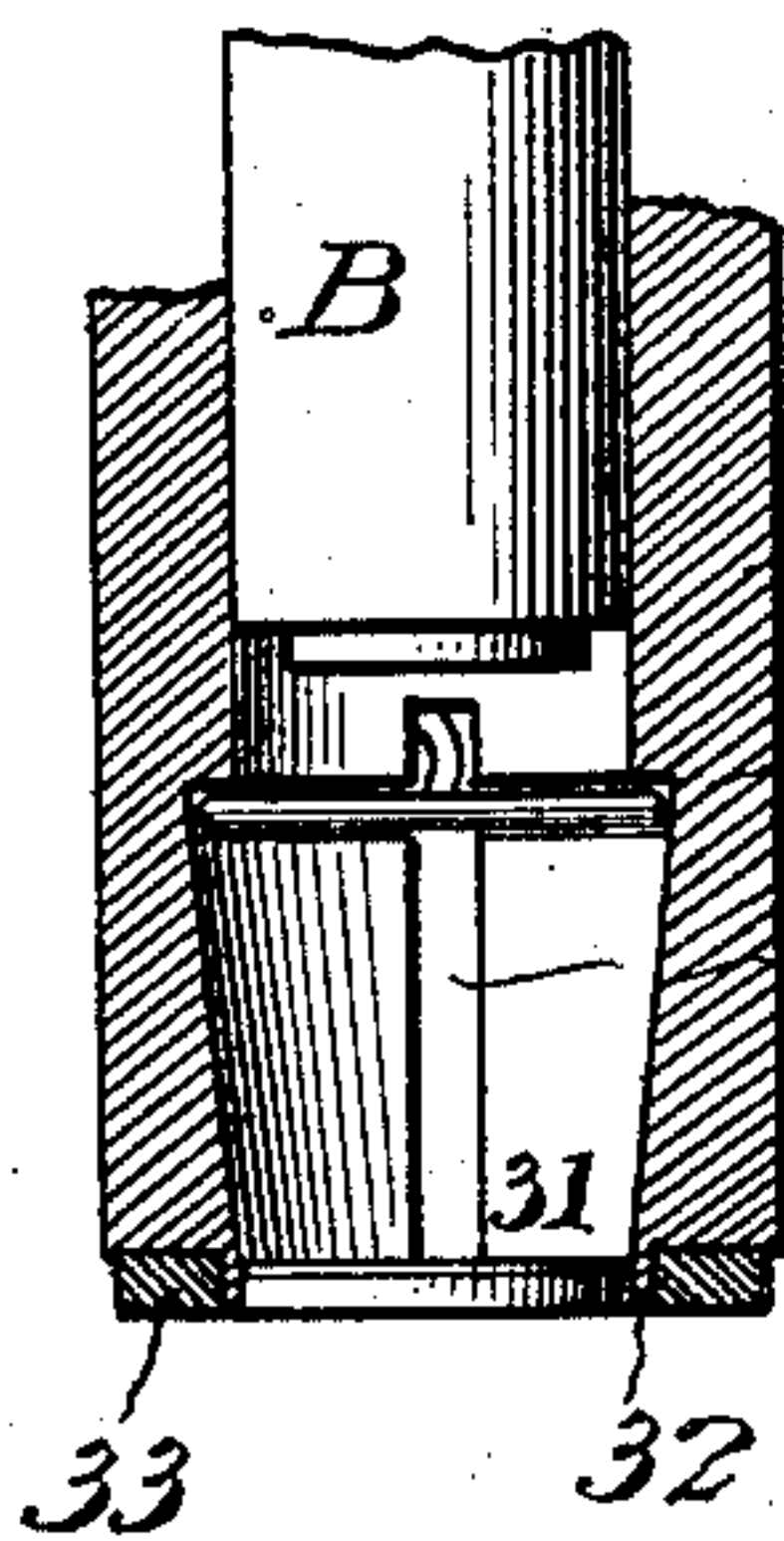


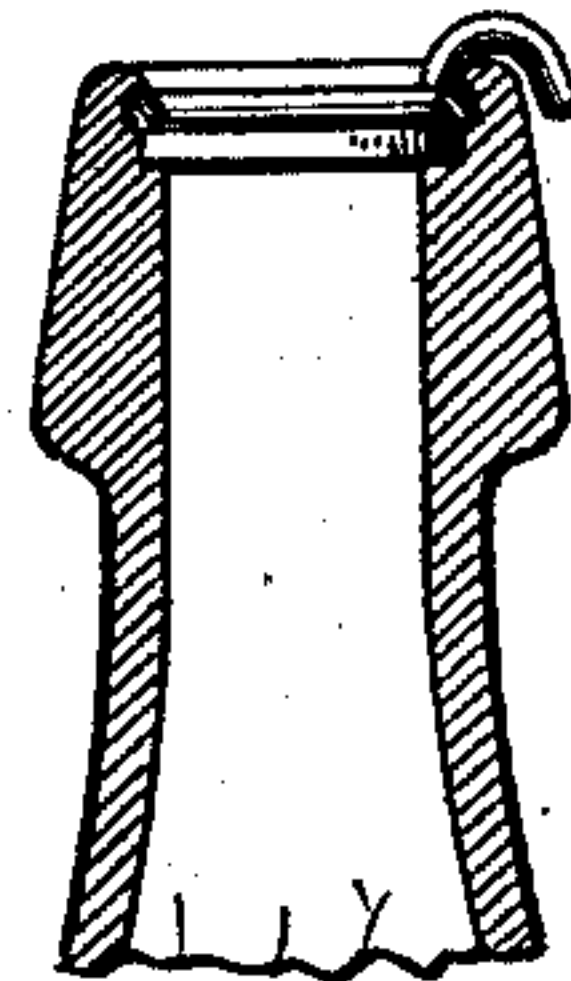
Fig. 8.



Fig. 9.



Fig. 7.



Witnesses
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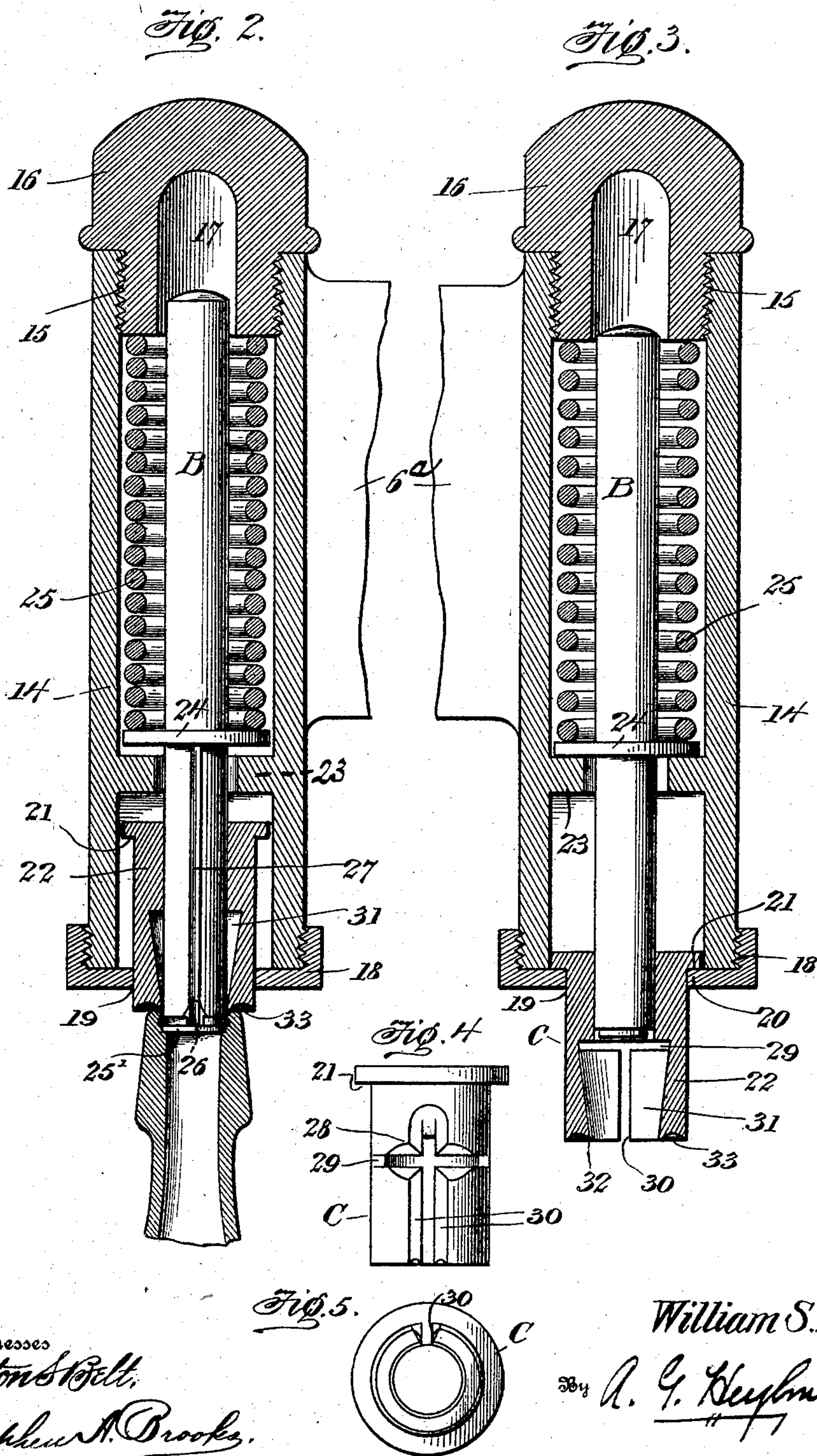
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

WILLIAM S. DORMAN, OF NEW YORK, N. Y.

MACHINE FOR SEALING BOTTLES.

SPECIFICATION forming part of Letters Patent No. 705,564, dated July 29, 1902.

Application filed September 5, 1901. Serial No. 74,383. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. DORMAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Sealing Bottles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machines for corking and sealing or securing a cork or sealing device in the mouth of bottles, and especially relates to that class of corking and sealing mechanism wherein the cork or sealing-disk is forced and lodged within the mouth of the bottle and a spring retaining-ring is placed on the stopper and is held in place by engagement in an interior annular groove in the mouth of the bottle above and contiguous to the closing-disk; and the object is to provide a simple and efficient mechanism whereby the sealing-disk and the retaining-ring may be sequentially placed and secured in the bottle.

With this object in view my invention consists in the novel construction of parts and their arrangement and aggroupment in operative combination, as will be hereinafter fully specified, and particularly pointed out and distinctly claimed.

I have fully and clearly illustrated the invention in the accompanying drawings to be taken as a part of this specification, and wherein—

Figure 1 is a view in elevation, partly in vertical central section, showing the hollow stem of the machine and the reciprocating rod carrying the head, also showing the bottle-seat and steadying-ring. Fig. 2 is a vertical central section of the assembled parts, indicating them as in downward movement. Fig. 3 is vertical central section of the assembled parts as in upper position, the illustration being in reverse to that of Fig. 2. Fig. 4 is a view in elevation of the retaining-ring and sealing-disk sleeve. Fig. 5 is a bottom plan

view of the retaining-ring and sealing-disk sleeve. Fig. 6 is a detail vertical central section of the lower portion of the retaining-ring and sealing-disk sleeve, showing the ring and disk inserted in the chamber of the sleeve. Fig. 7 is a detail vertical section of the bottle-neck, showing the sealing-disk held in place by the retaining-ring. Figs. 8 and 9 are side and plan views of the retaining-ring.

Referring to the drawings, A designates the upper portion of the machine-frame, the base being broken off, as not essential to the description. The parts shown consist of a conical base portion 1, from the apex of which rises a vertical hollow tube 2 of such height as may be essential to steady the stem in its reciprocations and work. In the base of the tube 2 is slidably placed a stem 3, projecting beyond the upper end of the tube, as indicated, and having its lower end jointed to a pitman 4, the lower end of which connects with a treadle or other suitable mechanism (not shown) arranged to produce the requisite reciprocations of the stem. On the upper end of the stem 3 is carried a bracket 5, held to the stem by a fastening-nut 6, substantially as shown. Laterally projecting from the bracket-sleeve 5 is an arm 6^a, on the outer end of which is the cylindrical hollow head. Clamped to the tube 2 is a band or ring 7, adjustable vertically and held in position by a set-screw 8. From the ring 7 extends the bottle-seat 9, preferably dished in its upper face, as at 10, to properly support the bottle 11, seated therein, and at a higher plane than the bottle-seat on the tube is a second ring 12, formed with projecting arms 13, between which the bottle engages when placed on the bottle-seat, substantially as indicated in Fig. 1.

The hollow head is made up of a cylinder 14, having interior screw-threads 15, in which a threaded extension of a cap 16 engages. This cap 16 is formed with a vertically-extending socket 17, into which the upper end of the plunger has entrance. On the lower end of the cylinder 14 is secured a cap 18, having a central circular opening 19, of less diameter than the interior of the cylinder, whereby an annular shoulder 20 is formed at the base, whereon the annular shoulder 21 of the sleeve 22 engages to prevent the sleeve from

falling out of the cylinder. In the cylinder at the proper point is made an interior annular collar 23, on which the annular flange of the plunger engages and is limited in its independent downward movements.

B designates the plunger, consisting of a round metal bar of such length as may suit for the purposes intended and formed with an annular collar 24, which engages on the collar 23, as shown in Fig. 3. The lower end of the plunger is shouldered, as at 25', forming a seat which engages with the retaining-ring in the downward movement of the plunger. The end face of the plunger is formed with a flaring inclined recess 26, opening into a vertical clearance-groove 27, extending upwardly in the body of the plunger and intended to admit the shank of the retaining-ring in the operation of the plunger. In the chamber of the cylindrical head 14 is disposed a spiral spring 25, encircling the plunger and having its upper end lodged against the upper end of the chamber and its lower end bearing on the annular collar or flange 24. The province of this spring is to carry the plunger, with the cork retaining or locking ring, down through the ring-holder, as indicated in Figs. 2 and 3 of the drawings. When the downward movement of the head has reached the limit of the stroke and the return or upward movement begins and progresses, the flange 23 impacts the collar 24 and carries the plunger up with the spring.

C designates the retaining-ring and disk holder, consisting of a cylindrical body having a central opening extending therethrough, in which the plunger slidably passes, and having an annular collar 21 at its upper end and recessed, as at 28, transversely to its axis, the recesses leading into a transverse slot 29 to take in the retaining-ring preliminary to being forced downward and also formed with a vertical slot 30, extending from its lower end and opening into the transverse slot 29. The entrance to the vertical slot 30 is made flaring from the slot outward, as seen in the drawings, to afford room for the free passage of the stem and end formation of the retaining-ring. In the holder C is formed a chamber 31, tapering from top to bottom, which readily takes in through the transverse slot 29 a retaining-ring, which as it is pushed down by reason of the gradual decrease of the diameter of the chamber is contracted and delivered into the mouth of the bottle in condition to spring or expand into the seat for it in the bottle-mouth. The lower end of the ring and disk holder is provided with a depending flange 32, about which is arranged an elastic gasket or ring 33, adapted to sit down on the rim of the bottle-mouth and prevent breakage of the bottle.

In Figs. 8 and 9 are shown forms of the style of retaining-ring the mechanism is made to fix in place. These form no part of the invention.

Having specifically described the elements or parts involved in the invention and generally stated their functions, I proceed to state the operation of the coacting elements, which is as follows: The mechanism being in the position shown in Fig. 3 of the drawings, with the retaining-ring and disk holder extending from the cylinder and held in depending position by the annular collar at its upper end, a retaining-ring may be inserted in the slot of the holder and the sealing disk or cork inserted in the mouth of the tapering chamber. The operation of sealing the bottle and fastening the seal can then be proceeded with, and the following movements in sequence will take place: The head of the machine moves downward, sliding freely on the retaining-ring holder until the end of the holder contacts with the rim of the bottle and at the same time carrying with it the plunger until the latter comes in contact with the retaining-ring and pushes the ring down in the tapered chamber, during which movement the ring is contracted to conform to the contracted end of the tapered chamber and is eventually forced, with the sealing-disk, into the mouth of the bottle in their relative positions as seal and lock. The hollow head then continues down to the limit of its stroke, while the spring, the holder, and the plunger remain stationary.

What I claim is—

1. In a machine for setting a cork-retaining ring in the mouth of a bottle, a sliding retaining-ring holder depending from and slidably disposed in the hollow head and formed with a tapering chamber in its lower end to receive the said ring, and means for pushing the ring down through the chamber into the mouth of the bottle, substantially as described.

2. In a machine for setting a cork-retaining ring in the mouth of a bottle, a sliding retaining-ring holder depending from and slidably disposed in the hollow head and formed with a tapering chamber in its lower portion to receive the ring and a transverse slot through which the ring is passed into the chamber, and a reciprocating plunger to push the ring through the chamber into the mouth of a bottle, substantially as described.

3. In a machine for setting a cork-retaining ring in the mouth of a bottle, the combination with a reciprocating casing, of a yieldingly-held plunger in the casing, and a retaining-ring holder through which the plunger passes, said holder being formed with a tapering retaining-ring chamber and a transverse slot through which the ring is entered.

4. In a machine for setting a retaining-ring in the mouth of a bottle, the combination with a reciprocating casing, of a yieldingly-supported plunger in the casing formed with a recess at its lower end and a vertical clearance-groove leading therefrom, and a retaining-holder slidably arranged in the lower end of the casing through which the plunger

passes and formed with a tapering retaining-ring chamber, a transverse slot in the holder through which the ring is inserted and a vertical slot through which the stem of the ring descends, substantially as described.

5 5. A mechanism for setting a cork-retaining ring in the mouth of a bottle, comprising a reciprocating casing, a plunger in the casing formed with an annular collar, a spiral
10 spring on the plunger above the collar, and a retaining-ring holder through which the plunger passes, formed with a tapering chamber, a transverse slot and a vertical slot intersecting each other substantially as described.

15 6. A mechanism for setting a cork-retaining ring in the mouth of a bottle, comprising a reciprocating casing, a yielding plunger in the casing formed with a shouldered lower end to fit in the retaining-ring and a recess
20 and vertical groove, and a retaining-ring holder through which the plunger passes

formed with a tapering retaining-ring chamber and transverse and vertical slots opening into the said chamber, and provided with an elastic gasket on its lower end, substantially
25 as described.

7. In a machine for sealing bottles, the combination with the reciprocating hollow head having an internal annular flange at its lower end, the plunger and the spring on the plunger, of a depending ring-retaining sleeve having an external annular flange to lodge on the internal flange of the head and loosely depending from and slidably disposed in the lower end portion of the hollow head.

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35 In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM S. DORMAN.

Witnesses:

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