

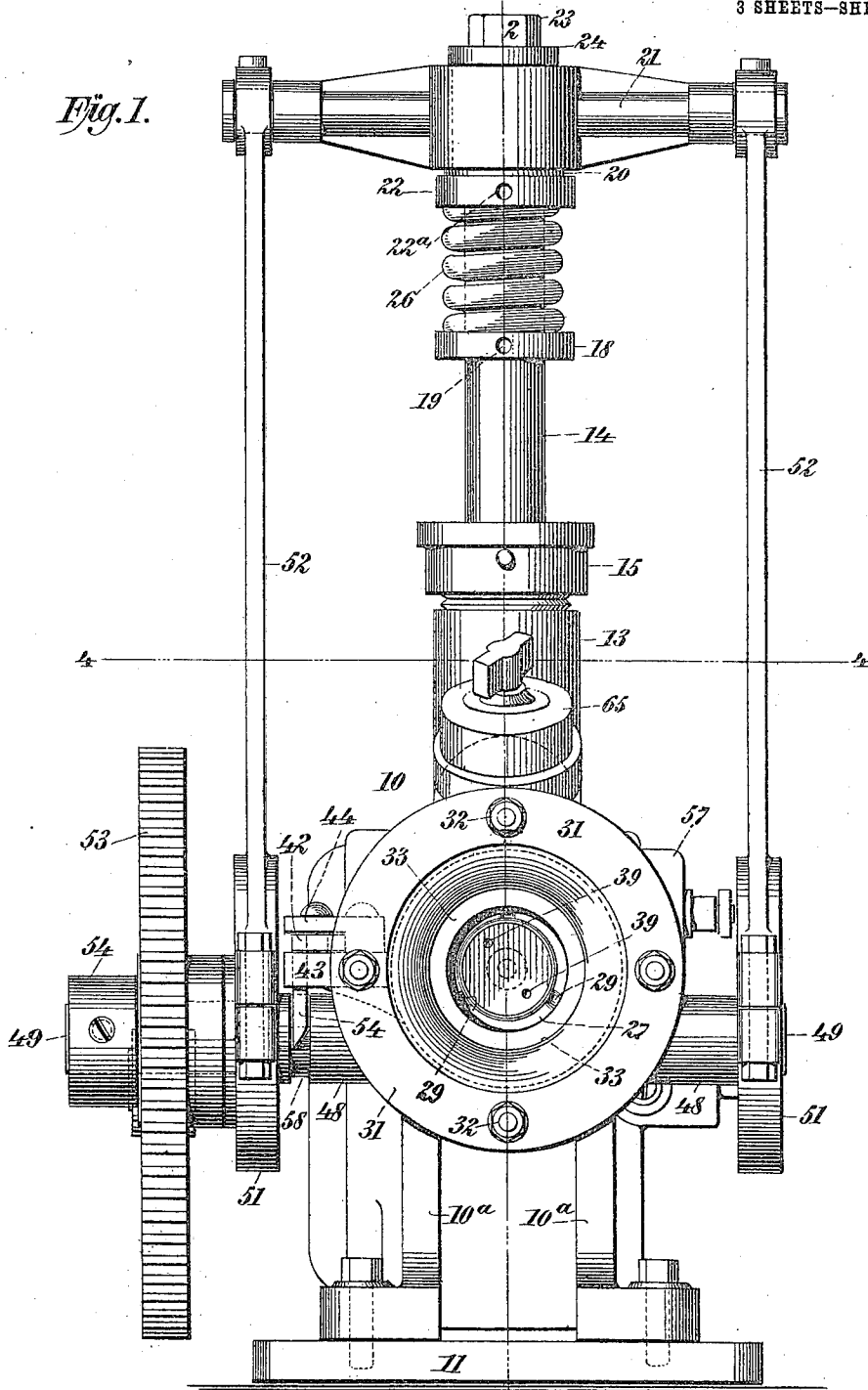
R. W. WITTEMAN.
BOTTLE CAPPING MACHINE.
APPLICATION FILED MAY 15, 1908.

963,017.

Patented June 28, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:
Gustav Dietrich
Edwin H. Dietrich

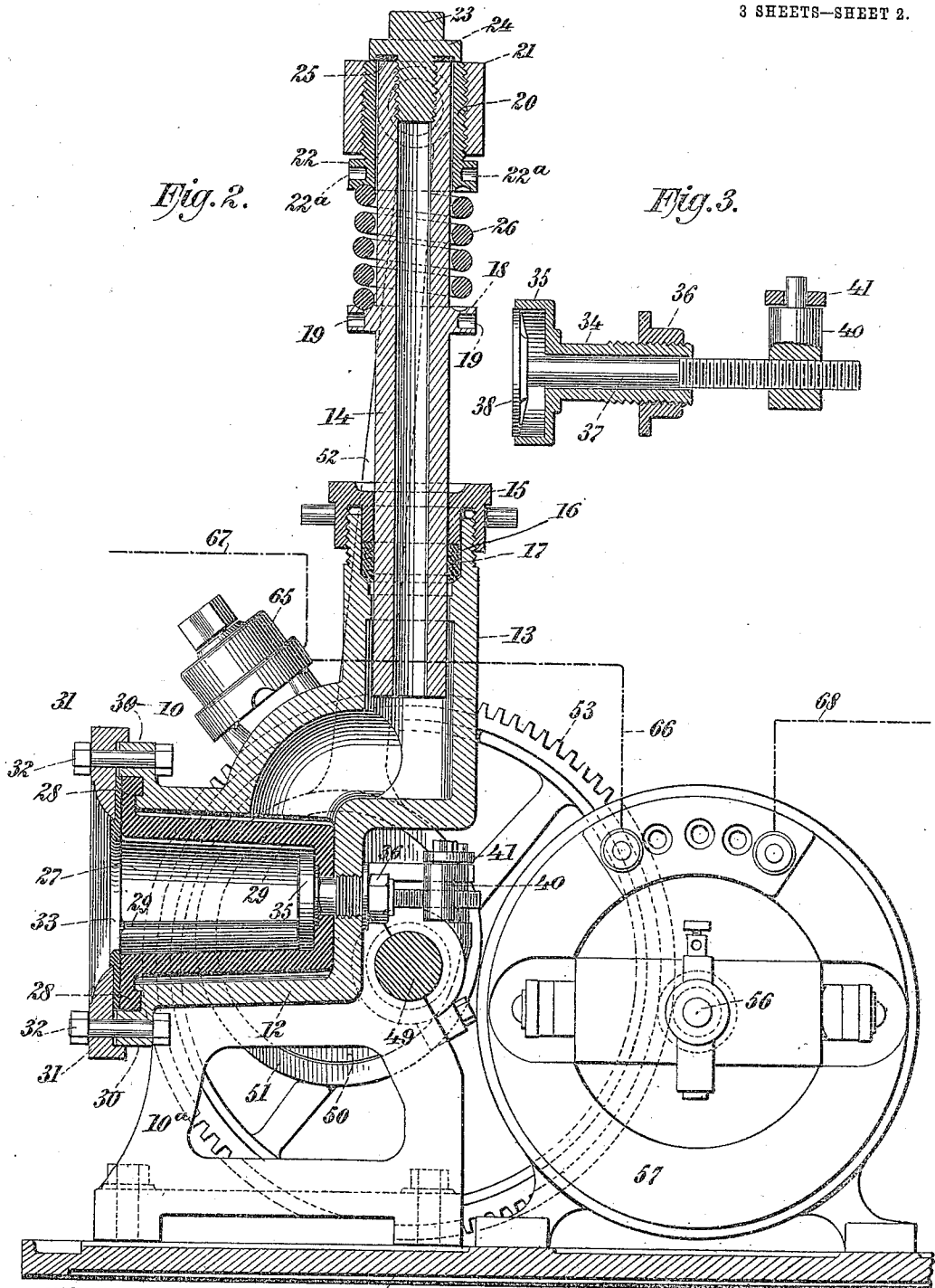
INVENTOR
Rudolph W. Wittemann
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Edwin H. Dietrich

INVENTOR

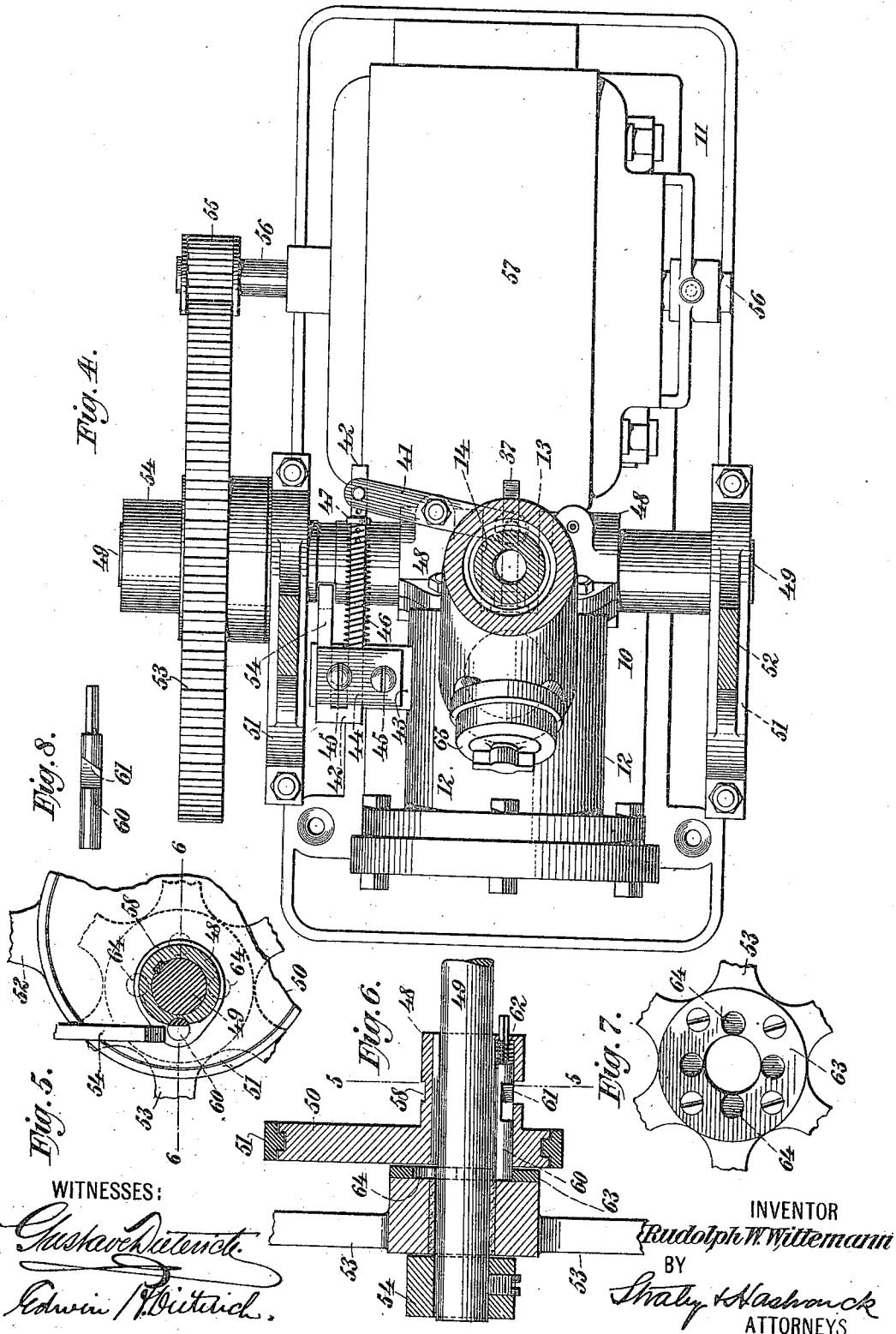
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

RUDOLPH W. WITTEMANN, OF NEW YORK, N. Y., ASSIGNOR TO WITTEMANN BROTHERS,
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BOTTLE-CAPPING MACHINE.

963,017.

Specification of Letters Patent. Patented June 28, 1910.

Application filed May 15, 1908. Serial No. 433,153.

To all whom it may concern:

Be it known that I, RUDOLPH W. WITTEMANN, a citizen of the United States, residing at the city of New York, borough of Brooklyn, 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 full, clear, and exact specification.

My invention relates to improvements in means for sealing, ornamenting or protecting bottles, and the same has for its object more particularly to provide a machine by means of which a cap made of tinfoil or analogous material may be applied to the neck of a bottle to protect or inclose the cork therein.

Further, said invention has for its object to provide a machine in which the cap when in place upon a bottle neck is first creased to produce a plurality of plaits, and thereupon said plaits or creases pressed down against the side of the bottle in order to hold the cap in position thereon.

Further, said invention has for its object to provide means whereby the machine is automatically placed into operation by the act of inserting a bottle into the machine, and the machine thrown out of operation again upon the withdrawal of the bottle therefrom.

Further, said invention has for its object to provide a machine in which the pressure of the operating fluid may be varied or the excess relieved in order to prevent breakage of the bottle.

Further, said invention has for its object to provide a machine by means of which a considerable saving in power and operating parts thereof may be attained.

To the attainment of the aforesaid objects and ends my invention consists in the novel details of construction, and in the combination, connection and arrangement of parts hereinafter more fully described, and then pointed out in the claims.

In the accompanying drawings forming part of this specification, wherein like numerals of reference indicate like parts, Figure 1 is a front view showing one form of a machine constructed according to and embodying my said invention; Fig. 2 is a section thereof taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged detail longitudinal sectional view showing the means for actuating the

clutch mechanism whereby the machine is automatically thrown into and out of operation, Fig. 4 is a plan view partly in section, taken on the line 4—4 of Fig. 1; Fig. 5 is a detail sectional view taken on the line 5—5 of Fig. 6, showing a portion of the driving shaft and clutch mechanism; Fig. 6 is a similar view taken on the line 6—6 of Fig. 5; Fig. 7 is a detail face view showing the inner side of the driving gear, and a portion of the clutch mechanism thereon, and Fig. 8 is a detail side view showing the construction of the pin for connecting the gear with the driving shaft.

In the drawings 10 denotes a casing mounted upon supports 10^a, 10^a which are secured or bolted at their lower ends to a horizontal base 11. The casing 10 comprises a horizontal cylindrical member 12 which is slightly tapered and communicates at its inner portion adjacent to its upper end with a vertical cylindrical portion 13. Within said vertical cylindrical portion 13 is disposed a tubular plunger 14 which extends through a screw cap 15 arranged at the upper end of the cylindrical section 13 and is provided with a recessed portion 16 in which is disposed a packing 17. The tubular plunger 14 is provided intermediate its ends with an integral collar 18 having recesses 19, 19 in its periphery to receive the ends of a wrench, spanner or other implement.

20 denotes a sleeve member disposed upon the upper end of the tubular plunger 14 and provided upon its outer surface with screw threads adapted to engage a cross head 21 and at its lower end said sleeve member 20 is provided with a collar 22 having recesses 22^a in its periphery to receive the ends of the spanner or other implement.

23 denotes a screw plug which is adapted to engage the upper end of the tubular plunger 14 and is provided with a flange 24 to engage the upper edge of the sleeve member 20, and 25 denotes a packing disposed intermediate the under surface of said flange 25 and the upper end of the tubular plunger 14 in order to effect a fluid tight joint at that point, and also hold said plunger in engagement with said cross head.

26 denotes a coil spring disposed about the tubular plunger 14 intermediate the collars 22 and 18 secured to and surrounding said plunger, forming a take-up for

excess of pressure and also serving as a means for regulating the pressure produced within the casing 10. In the horizontal section 12 of the casing, which section is slightly tapered inwardly, is disposed a compression cup 27 made of rubber or other suitable elastic material, and provided at its outer edge with a peripheral flange 28, and upon its inner surface said compression cup 27 is provided with a plurality of longitudinal recesses or grooves 29, 29. The outer end of the horizontal tapered section 12 of said casing 10 is provided with a lateral flange 30 having an annular recess therein adapted to receive the flange 28 of the compression cup 27.

31 denotes an annular plate secured to the flange 30 of the horizontal tapering section 12 by means of bolts 32 extending through said annular plate 31 and flange 30, and intermediate the inner surface of said annular plate 31 and the outer surface of the flange 28 of the compression cup 27 is disposed an annular gasket 33. The inner edge of the plate 31 is slightly curved and the opening in the inner plate 33 is made slightly smaller in diameter than the opening in the annular plate 31 and the interior diameter of the compression cup 27 adjacent to its open end, in order to slightly overlap the inner edges of said plate 33 and compression cup 27. The inner end of the compression cup 27 is flat and bears against the inner surface of the closed rear end of the horizontal tapering section 12, and is secured at said end to said casing by means of a hollow bolt 34 having a head 35 at its inner end substantially co-extensive in diameter with the opening in the inner end of the compression cup 27 which head is recessed upon its outer surface. The outer or threaded end of said bolt 34 extends through the casing 10 and is secured in position thereto by means of a nut 36. Within said hollow bolt 34 is disposed a rod 37 carrying at its inner end a plate 38 located within the recessed portion of the head 35 and provided with apertures 39, 39 to receive the ends of a spanner. The outer end of said hollow rod is screw threaded and projects beyond the outer threaded end of said bolt 34 and 40 denotes a stud which is adjustably mounted upon the outer or threaded end of said rod 37.

41 denotes a lever pivotally mounted intermediate its ends upon one of the supports 10^a having one end secured to the stud 40 and its other end pivotally secured to one end of the U-shaped member 42 having a depending portion 54 at its other end. Said U-shaped member is slidably supported in a slotted bearing 43 arranged upon one side of the horizontal section 12 of the casing and maintained in position therein by means of a cover plate 44 secured thereto

by screws 45, 45. 46 denotes a spring disposed upon one leg of said U-shaped member intermediate the bearing 43 and a collar 47 which is adjustably arranged upon said leg.

Arranged upon the support members 10^a to the rear of the horizontal section 12 are provided bearings 48 48 within which is supported a shaft 49 having fixed upon its opposite ends eccentrics 50 50 encircled by straps 51 51 carried by the lower ends of rods 52 52 which are pivotally connected at their upper ends to the opposite ends of the cross head 21. Upon the projecting end of the shaft 49 is loosely mounted a large gear 53 which is maintained in position thereon by means of a collar 54 secured to the projecting end of the shaft 49. The large gear 53 meshes with a pinion 55 on the shaft 56 of an electric motor 57 mounted upon the baseplate 11 to the rear of the supports 10^a and the casing 10 thereon.

The hub portion of the eccentric 50 adjacent to the large gear 53 is provided with an annular recess 58 communicating with a longitudinal aperture which extends through said eccentric and into the hub thereof, and within said longitudinal aperture is disposed a pin 60 having a transversely, cut-out portion provided with an inclined face 61, said pin being held normally projected beyond the outer face of the eccentric 50 by means of a coil spring 62 disposed intermediate the inner end of said pin 60 and the closed inner end of said hub. Upon the inner face or hub of the gear 53 is secured a circular plate 63 having four apertures 64 therein adapted to receive the end of the pin 60 when said pin is released from its engagement with the depending portion 54 of the U-shaped member 42.

Upon the front portion of the casing intermediate the horizontal and vertical sections thereof is provided a switch 65. 66 denotes a conductor extending from the switch 65 to one of the poles of the motor, and 67, 68 denote conductors of which the conductor 67 leads from the switch 65 and the other conductor 68 from the remaining pole of the motor to the source of electric energy for actuating said motor.

The operation of the machine is as follows: The casing 10 is first filled with glycerin or other suitable fluid through the upper end of the hollow plunger 14 whereupon the screw cap 23 is secured in position therein in order to seal the same. Hereupon a bottle with a tinfoil cap is inserted into the compression cup 27 and as soon as the end of the neck of the bottle comes in contact with the plate 38 on the rod 37 the same is forced rearwardly and the end of the lever 41 connected to said rod will be forced rearwardly and its opposite end for-

wardly thereby moving the U-shaped member 42 forwardly and releasing the depending portion 54 thereof of its engagement with the pin 60 carried by the eccentric 50 thus causing said pin to be projected and enter one of the apertures 64 in the plate 63 on the inner side of the gear 53, and thereby operatively connect said eccentrics 50, 50 with the shaft 49 and actuate the rods 52, 52, cross head 21 and reciprocate the hollow plunger 14 to operate the compression cup 27 under the influence of the fluid displaced within said hollow casing. By this action the tinfoil cap inclosing the mouth of the bottle will be pressed against the outer side of the neck and at the same time three plaits will be laid or formed in the cap by the longitudinal recesses 29, 29 in said cup. Hereupon with the next ascending movement of the follow plunger 14 the bottle is given about a quarter turn within the compression cup 27 while said bottle is still in contact with the plate 38 in order to bring the produced plaits in contact with the inner surface of the compression cup 27 intermediate the longitudinal grooves 29 29 therein, and with the descent of the hollow plunger 14 the plaits will be pressed against the neck of the bottle, and thus complete the operation of capping. Hereupon, as the bottle is withdrawn from the compression cup 27, the clutch mechanism is released and the gear 57 disconnected from the shaft 49, and the machine permitted to run idle until the next bottle with its cap attached is inserted within the compression cup.

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

1. A machine of the character described, comprising a support, a yielding member thereon adapted to inclose a bottle neck and a cap thereon fluid means for forcing said yielding member into engagement with said bottle neck and cap, and means adapted to be operated by engagement with a bottle acting upon said means to cause said yielding member to secure said cap to said bottle neck, substantially as specified.

2. A machine of the character described, comprising a casing adapted to contain fluid, a yielding section in said casing adapted to receive a bottle neck and cap, means adapted to be actuated by engagement with a bottle for acting upon said fluid to cause said yielding section to form a fold in said cap, and then press said produced fold over and against said cap, substantially as specified.

3. A machine of the character described, comprising a casing adapted to contain fluid, a yielding section in said casing adapted to receive a bottle neck and cap and closing the end of said neck, means adapted to be actuated by engagement with a bottle for acting

upon said fluid to cause said yielding section to form a plurality of longitudinal folds in said cap, and then press the produced folds down and upon said cap to secure the same upon said bottle neck, substantially as specified.

4. A machine of the character described, comprising a casing adapted to contain fluid, a yielding section in said casing adapted to receive a bottle neck, means for displacing said fluid to act upon said yielding section, and means operated by a bottle for actuating said fluid displacing means, substantially as specified.

5. A machine of the character described, comprising a casing adapted to contain fluid, a yielding section in said casing adapted to receive a bottle neck, means arranged in said casing for displacing the fluid therein, means for operating said displacing means, and means adapted to be operated by engagement with a bottle for controlling the operation of said displacing means, substantially as specified.

6. A machine of the character described, comprising a casing adapted to contain fluid, a compressible section in said casing adapted to receive a bottle neck, a plunger working in said casing, means for operating said plunger, and means adapted to be actuated by a bottle for controlling the operation of said plunger, substantially as specified.

7. A machine of the character described comprising a casing adapted to contain fluid, an elastic cup in said casing adapted to receive a bottle neck, a plunger working in said casing, means for reciprocating said plunger, and mechanism adapted to be actuated by contact with a bottle for placing said plunger into and out of operation, substantially as specified.

8. A machine of the character described, comprising a casing adapted to contain fluid, an elastic cup secured in said casing adapted to receive a bottle neck, a plunger working in said casing, means for operating said plunger, clutch mechanism intermediate said plunger and motor, and means connected to said clutch mechanism adapted for contact with a bottle whereby to control the operation of said plunger, substantially as specified.

9. A machine of the character described, comprising a casing adapted to contain fluid, an elastic cup secured in said casing adapted to receive a bottle neck, a plunger working in said casing, means for operating said plunger, a yielding take-up for said plunger, clutch mechanism intermediate said plunger and operating means, and means connected to said clutch mechanism adapted for contact with a bottle whereby to control the operation of said plunger, substantially as specified.

10. A machine of the character described

comprising a casing adapted to contain fluid, an elastic cup secured therein adapted to receive a bottle neck, a plunger working in said casing, a shaft, eccentric means thereon
 5 connected to said plunger, means for actuating said shaft, clutch mechanism intermediate said shaft and said operating means, and a release interposed between said clutch mechanism and said elastic cup adapted to
 10 be actuated by contact with said bottle neck, substantially as specified.

11. A machine of the character described comprising a casing, a support therefor, an elastic cup secured in said casing adapted
 15 to receive a bottle neck, a plunger working in said casing, a shaft mounted in said support, eccentrics fixed in said shaft, rods connected to said eccentric and said plunger, a gear mounted on said shaft, a clutch mechanism arranged intermediate said gear and
 20 shaft, means for rotating said gear, and means for actuating said clutch mechanism, said means extending into said elastic cup and adapted to be engaged by a bottle as the
 25 same is inserted into said elastic cup, substantially as specified.

12. A machine of the character described comprising a casing, a support therefor, an elastic cup secured in said casing adapted to
 30 receive a bottle neck, a plunger adapted to work in said casing, a collar on said plunger adjacent to its upper end, a cross-head secured to the upper end of said plunger, a spring adjustably arranged on said plunger
 35 intermediate said collar and cross-head, a shaft mounted in said support, eccentrics fixed upon said shaft, rods having their lower ends strapped to said eccentrics, and their upper ends pivotally secured to said
 40 cross-head, a gear loosely mounted on said shaft, a motor connected to said gear, clutch mechanism interposed between said gear and shaft, a spring-pressed slidable member in engagement with said clutch mechanism, a
 45 lever pivotally supported intermediate its ends upon said frame having one end connected to said slidable member, a sleeve ex-

tending through said elastic cup and casing, a rod disposed in said sleeve, having its outer end pivotally secured to said lever, and
 50 a head secured to its inner end adapted for contact with a bottle neck, substantially as specified.

13. A machine of the character described, comprising a casing consisting of a horizontal section, and a vertical section communicating therewith, a support for said casing, an elastic cup secured in said horizontal section, adapted to receive a bottle
 55 neck, a plunger working in the vertical section of said casing, a cross-head secured to the upper end of said casing, a shaft mounted in bearings upon said support, eccentrics fixed upon said hollow shaft, rods having
 60 their lower ends strapped to said eccentrics and their upper ends pivotally secured to said cross-head, a gear loosely mounted on said shaft, means for rotating said gear, a clutch interposed between said gear and shaft, a movable member adapted for en-
 65 gagement with said clutch mechanism, spring means for holding said clutch mechanism normally out of engagement with said gear, a lever pivotally secured at one end to said movable member, a hollow bolt se-
 70 cured in the horizontal section of said casing provided at its inner end with a recessed head for holding the closed end of said elastic cup against the side of said casing, a rod disposed in said tubular bolt having a
 75 plate at its inner end located within the recessed head of said hollow bolt, and a stud adjustably mounted upon the outer end of said rod and pivotally connected to the other end of the lever aforesaid, substantially as
 80 specified.

Signed at the city of New York, in the county and State of New York, this twelfth day of May, nineteen hundred and eight.

RUDOLPH W. WITTEMANN.

Witnesses:

CONRAD A. DIETERICH,
 A. R. ANGUS.