

E. JAGENBERG.
BOTTLE CAPPING MACHINE.
APPLICATION FILED OCT. 5, 1910.

1,042,231.

Patented Oct. 22, 1912.

3 SHEETS—SHEET 1.

Fig. 1.

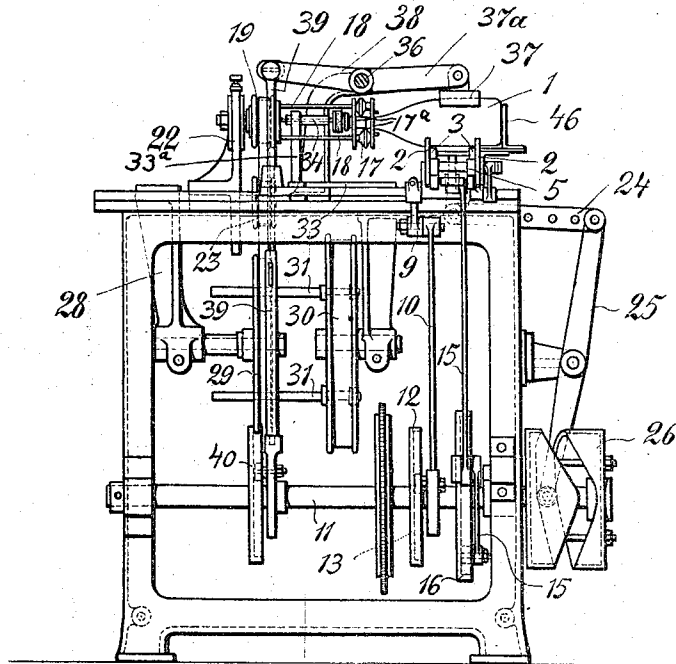
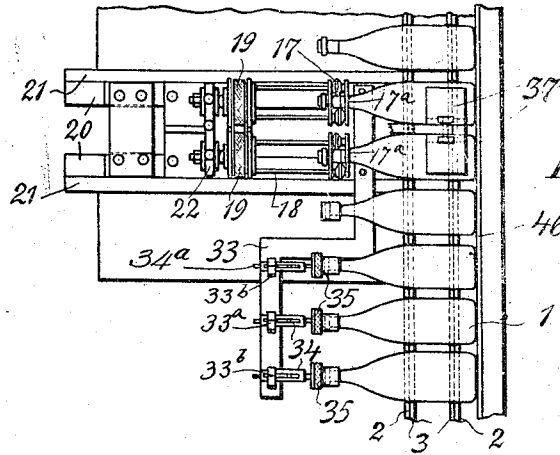


Fig. 3.



Witnesses:
Katherine Koch
Daniel Holmgren.

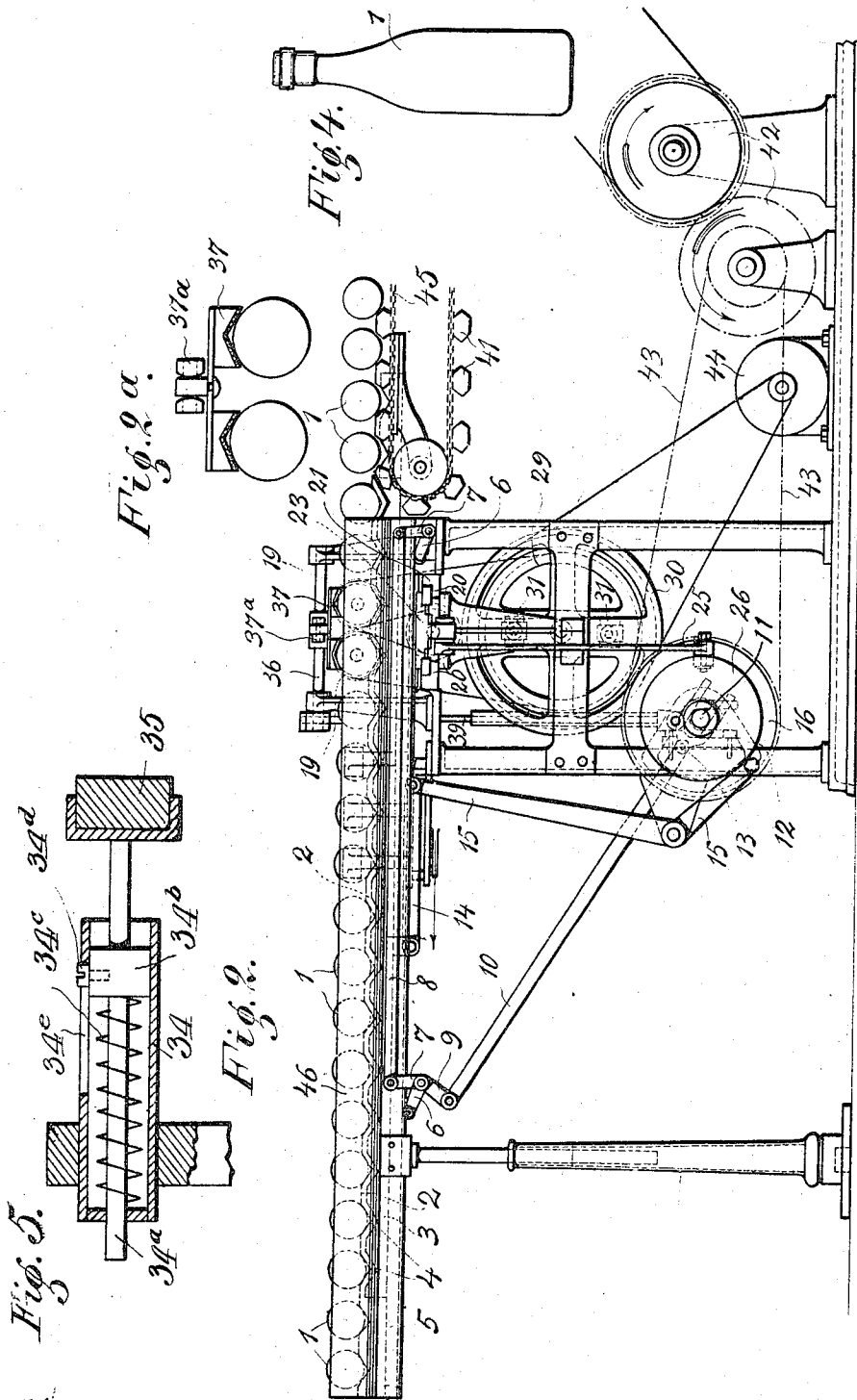
Inventor:
Emil Jagenberg
by his attorney
Bureau & Gundry

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3 SHEETS—SHEET 2.

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Katherine Koch
Daniel Holmgren

Inventor:
Emil Jagenberg
by his attorneys
Bieren & Junge

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3 SHEETS—SHEET 3.

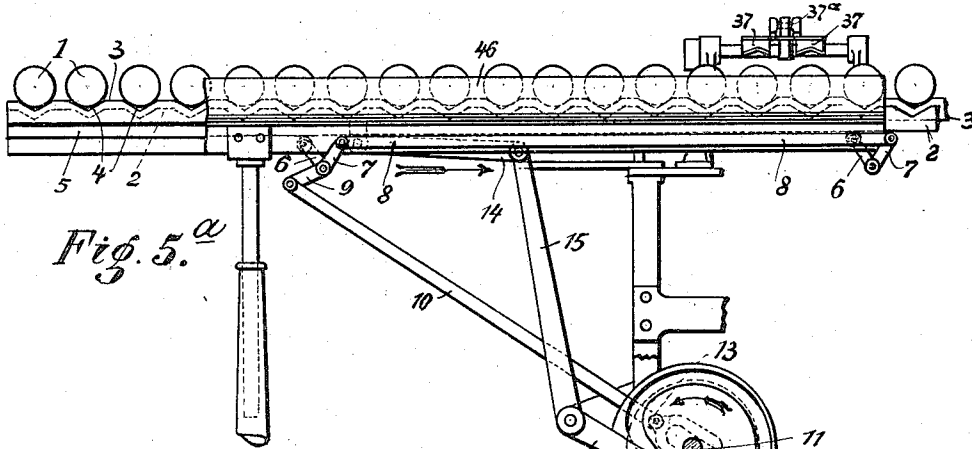


Fig. 5. a

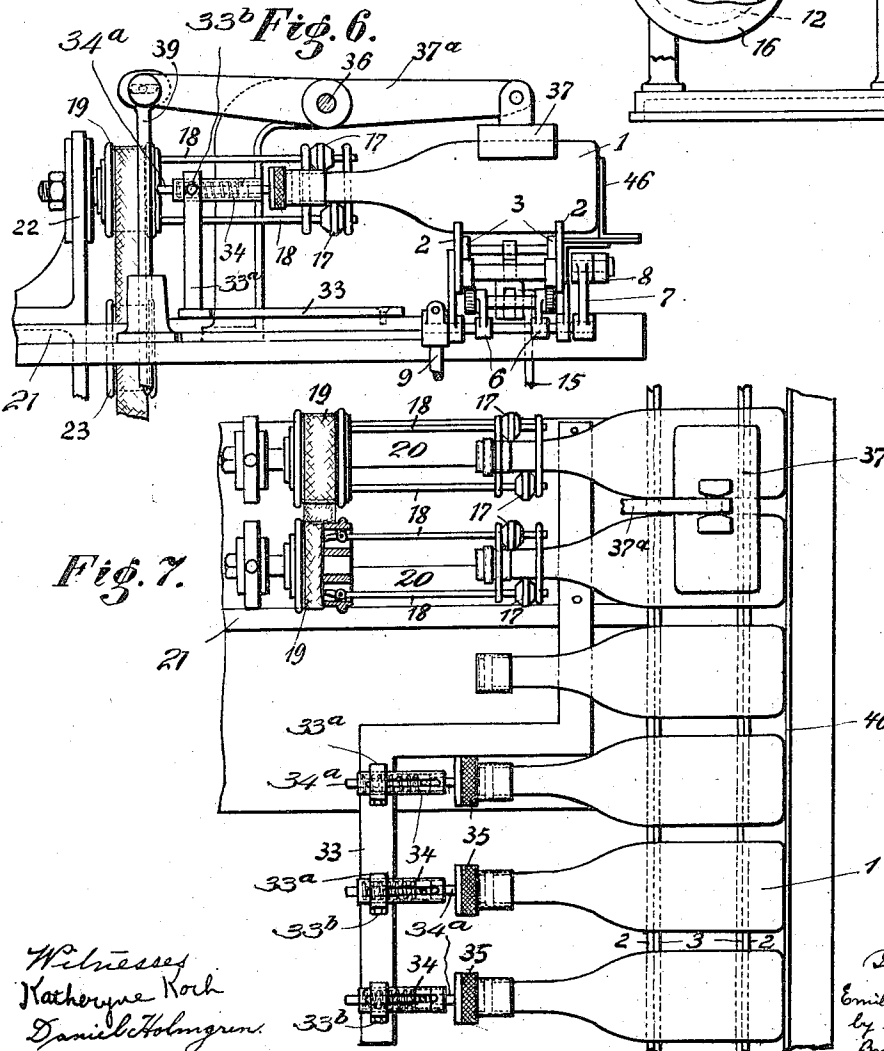


Fig. 7.

Witnesses
Katherine Koch
Daniel Holmgren

Inventor:
Emil Jagenberg
by his attorneys
Brisson & Jumper

UNITED STATES PATENT OFFICE.

EMIL JAGENBERG, OF DUSSELDORF, GERMANY.

BOTTLE-CAPPING MACHINE.

1,042,231.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed October 5, 1910. Serial No. 585,346.

To all whom it may concern:

Be it known that I, EMIL JAGENBERG, a citizen of the German Empire, and a resident of Dusseldorf, Germany, have invented certain new and useful Improvements in Bottle-Capping Machines, of which the following is a specification.

This invention relates to a machine for applying caps to bottles so as to cover the heads and stoppers thereof.

The machine is so constructed that the feeding of the bottle together with the cap to the capping device proper, the pressing of the cap against the bottle head and the removal of the capped bottle are automatically performed in a quick and reliable manner.

In the accompanying drawing: Figure 1 is a front elevation partly in section of a capping machine embodying my invention; Fig. 2^a a detail of the bottle holding jaws; Fig. 2 a side elevation of the machine; Fig. 3 a plan of part of the machine; Fig. 4 a side view of a bottle capped by the machine; Fig. 5 a detail of the sleeves carrying the cheeks; Fig. 5^a a side view of the bottle feeding means showing the movable rails raised; Fig. 6 a detail side view of the capping mechanism, and Fig. 7 a plan thereof.

The feeding means for the bottles 1 to be capped comprises two fixed rails 2, and two connected movable rails 3. The fixed rails, as well as the movable rails are provided with notched seats 4 arranged at equal distances from each other. The movable rails 3 are connected to each other and rest on a pair of connected longitudinal rails 5. The lower side of each rail 5 is engaged by the first arms 6 of a pair of spaced bell cranks, 40 the second arms 7 of which are connected to each other by a rod 8. One of the bell cranks is adapted to be oscillated, such movement being transmitted by rod 8 to the other bell crank so that in this way rails 5 45 together with rails 3 are alternately raised and lowered by arms 6. For actuating the driving bell crank, it is provided with an arm 9 connected to rod 10, the lower forked end of which straddles a countershaft 11 50 and carries a roller 13 engaging a cam 12 on said shaft. In order to impart a longitudinal reciprocative movement to rails 3 when rails 5 and 3 are in their raised position, one of the rails 3 is by link 14 connected to a two arm lever 15 carrying a 55 cam roller that engages a cam 16 of shaft 11.

The cap is forced against the bottle head by means of rollers 17 revolving around the bottle, and against the same by endless rubber bands 17^a or otherwise. Rollers 17 are 60 mounted on arms 18 arranged around a cylindrical shaft, carrying a pulley 19. As shown two such shafts with pulleys 19 and arms 18 are provided, so that two bottles may be capped simultaneously. The bearings 22 for pulleys 19 are mounted upon a 65 slide 20 engaging rails 21, and constituting also a support for a tension roller 23. Slide 20 is operated from a cam 26 of shaft 11 by a lever 25 and a link 24. The contour of 70 cam 26 is such that it will so intermittently reciprocate the slide, that its movement toward the bottles takes place slowly, while its movement away from the bottles takes place quickly. From slide 20 depends a hanger 75 28, in which is journaled a shaft carrying a pulley 29. This pulley is apertured for the reception of rods 31 secured to a second pulley 30, so that by the rotation of the 80 latter, pulley or driver 29 will also be rotated. At the same time, pulley 29 is free to move toward or away from pulley 30, so as to participate in the movement of slide 20 and bearing 28. From pulley 29, pulleys 19 are driven by a belt passing over tension 85 roller 23.

To slide 20 is secured a cross piece 33 carrying a plurality of perforated standards 33^a, within which sleeves 34 are adjustably 90 secured by set screws 33^b. Within each sleeve is slidably mounted a rod 34^a carrying a cheek 35 composed of rubber or similar material. Rod 34^a is provided with a collar 34^b which is engaged by a spring 34^c tending to maintain the rod in its extreme outer 95 position, said outward play of the rod being limited by a screw 34^d engaging a corresponding slot 34^e of sleeve 34.

Above the capping rollers 17, is journaled a shaft 36, to which are adjustably secured 100 by an arm 37^a, a pair of angular rubber jaws or saddles 37 adapted to hold the bottles during the capping operation. To shaft 36 is further secured a lever 38 pivoted to a link 39, which is composed of two 105 yieldingly connected telescoping sections, and provided with a roller adapted to engage a cam 40 of shaft 11.

After the caps have been seated upon the bottles, the latter are placed at the left end 110 of the machine (Fig. 2) upon the seats 4 of rails 2. By cam 12, rod 10 is alternately

advanced and retracted, so that through arms 6, the rails 5 and the superposed rails 3 are alternately raised and lowered. Rails 3 thus engage with their notches, bottles 1 and raise them out of the notches of rails 2, and above the latter. At this moment, rails 3 are by cam 16, lever 15 and link 14 moved toward the right (Fig. 2) so that the bottles are advanced for the distance of two notches along rails 2. The movable rails 3 now descend owing to the coöperation of cam 12 and rod 10, so that the bottles are placed into the corresponding seats of rails 2. Rails 3 are then shifted toward the left as indicated by the arrow Fig. 2, whereupon the operation is repeated. As soon as the bottles have been placed into the seats of rails 2, shaft 36 is partly turned by cam 40, so that arm 37^a with its jaws 37 is depressed to yieldingly hold the bottles to their seats after having arrived at the capping device. In order to permit two bottles of different thicknesses to be uniformly held by the two jaws 37, the bolt which connects arm 37^a with jaws 37, has a play in the aperture receiving the same, so that the jaws may be tilted (Fig. 2^a). Slide 20 with bearings 22, hanger 28 and the shafts journaled therein is now slowly moved toward the bottles, so that the rotating rollers 17 are projected over the bottle heads and will press the caps tightly against the same and the stopper. Arm 33 participates in the movement of slide 20, so that cheeks 35 will press the caps against the tops of the bottles resting on rails 2 prior to their arrival at the capping device proper. The bottles engage with their bottoms a rail 46, which prevents the same from axial displacement during the advance of cheeks 35, and during the operation of the capping device. Slide 20 is finally retracted, and rails 3 are again ac-

tuated to remove the capped bottles from the capping device and feed new bottles toward the same.

Behind the bottle feeding rails is arranged a feed chain 45 carrying blocks 41 to which the bottles are delivered. The bottles are accommodated between the blocks 41, which sustain them at equal distances upon the chain. The chain delivers the bottles to a labeling machine or similar device (not shown).

Shaft 11 is preferably operated by a transmission 42 and 43. Pulley 30 that rotates the capping rollers is preferably operated through a special belt, or by an electromotor 44 or similar apparatus.

In place of pressing the caps against the bottle by rotating rollers 17, other known means may be employed.

I claim:

1. A device of the character described, comprising rotatable capping members, pulleys secured thereto, a slide carrying said members and pulleys, an additional apertured pulley hung in the slide, means for operatively connecting said additional pulley with the first named pulleys, and a driver having rods that engage the apertures of the additional pulley.

2. A device of the character described, comprising a slide, means for reciprocating the same, an arm secured to the slide, a plurality of spring-influenced cheeks carried by the arm and adapted to engage the tops of the bottles to be capped and a plurality of capping members carried by the slide and arranged back of the cheeks.

EMIL JAGENBERG.

Witnesses:

JOSEPH FROHN,
KATHERYNE KOCH.