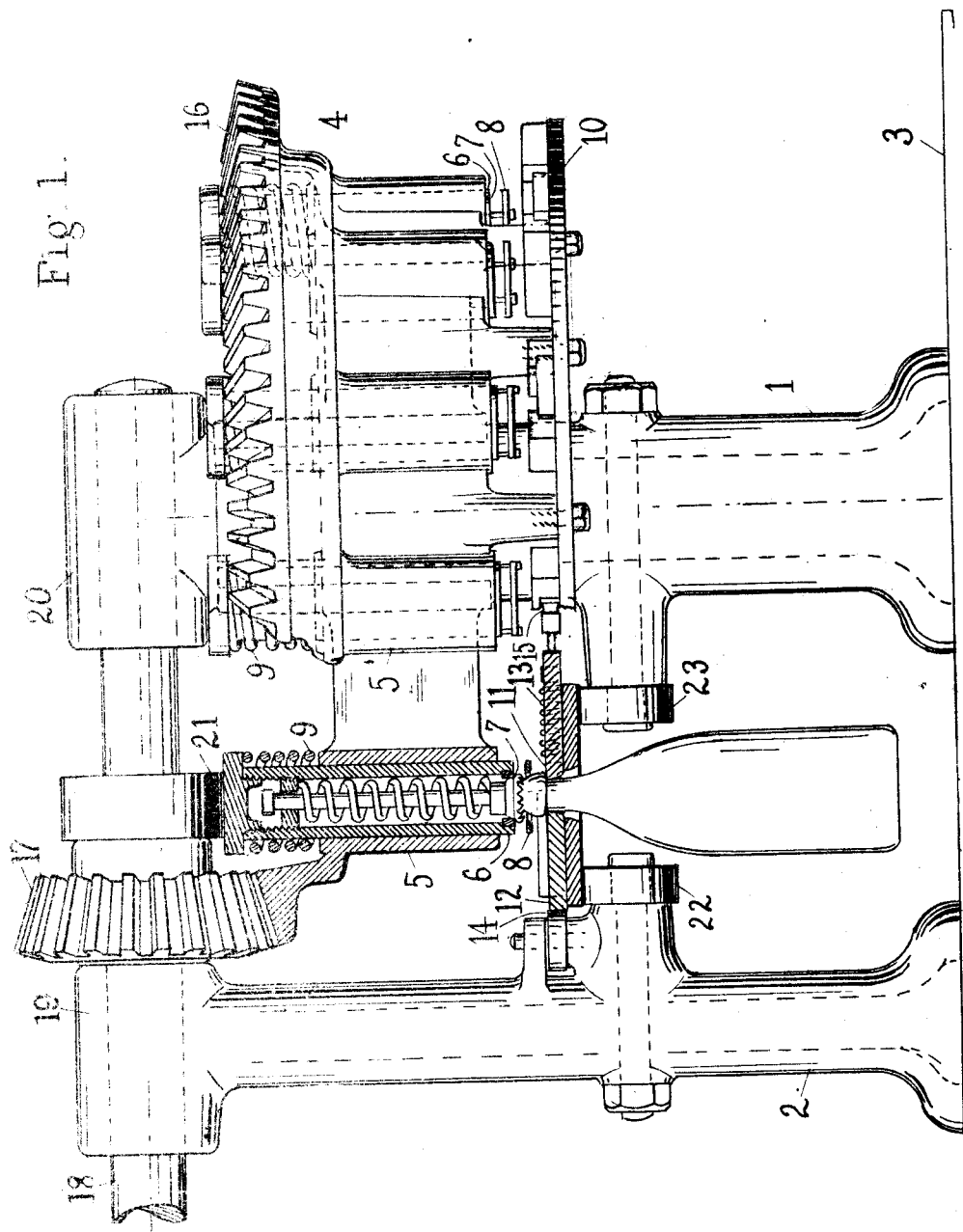


F. RECHT.
MACHINE FOR APPLYING CAPS TO BOTTLES.
APPLICATION FILED AUG. 16, 1909.

1,055,796.

Patented Mar. 11, 1913.

2 SHEETS-SHEET 1.



Witnesses
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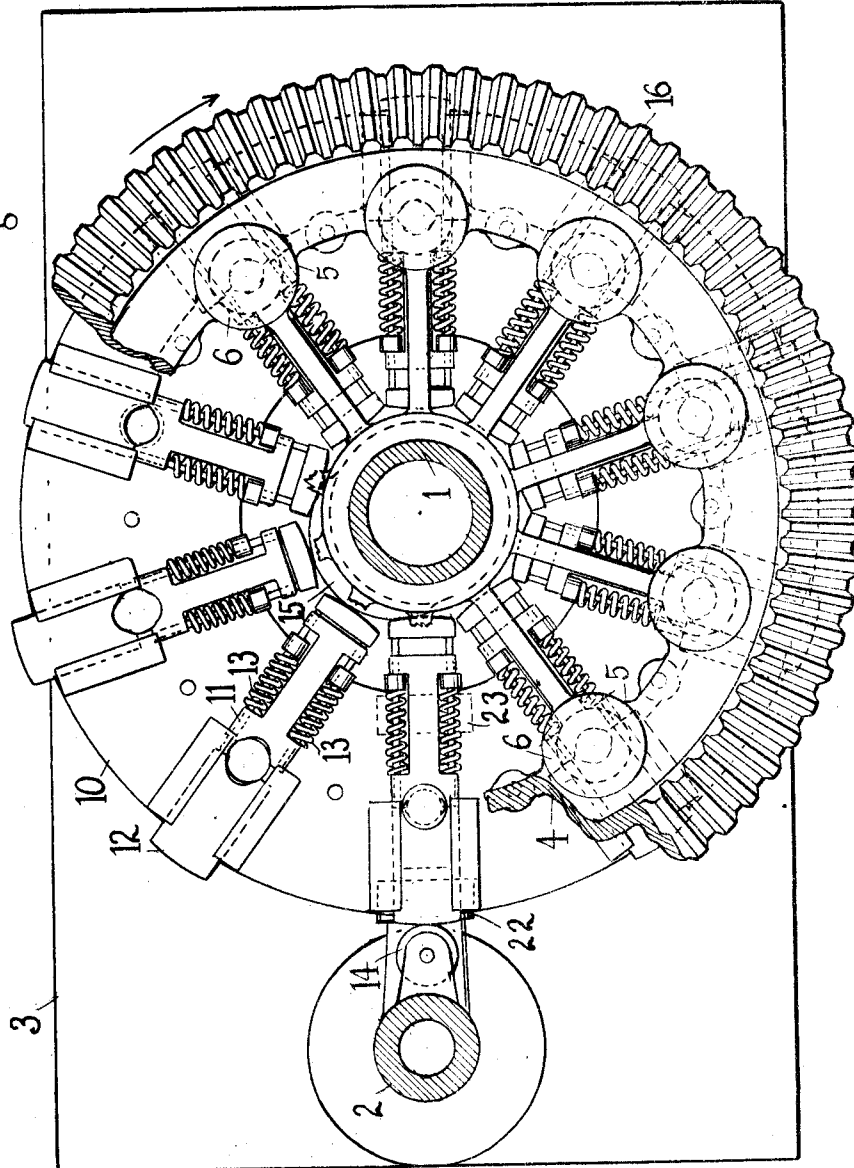
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Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERICK RECHT, OF NEW YORK, N. Y.

MACHINE FOR APPLYING CAPS TO BOTTLES.

1,055,796.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed August 16, 1909. Serial No. 512,956.

To all whom it may concern:

Be it known that I, FREDERICK RECHT, a citizen of the United States of America, and a resident of the borough of Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Machines for Applying Caps to Bottles, of which the following is a specification.

10 This invention is intended particularly for the application to the mouths of bottles of metallic sealing caps which are provided with a compressible or elastic sealing medium, as disks of cork, and means for locking the caps to the bottles. Such caps can, I find, be most satisfactorily applied by means of a capping-head containing a chuck constructed to receive the caps and through which pressure is applied in the direction of the bottle-axis by relative movement of the capping-head and the means by which the bottle is held during the closure. Such a chuck is set forth in Letters Patent of the United States granted to me July 27, 25 1909, No. 929,248. The requisite axial pressure is considerable, and as the power expended is proportionate to the distance through which the moving parts are required to travel while the pressure is sustained, it is desirable that such movement be reduced as much as possible by proper adjustment. Close positive adjustment to reduce such movement has not been possible in bottle-capping machines as they have heretofore been constructed owing to variations in the heights of bottles. But in such machines the bottles have been supported by their bases during the capping operation. By my present invention the bottles are suspended by means engaging with the necks of the bottles, and this means is constructed in proper adjustment with the capping mechanism. This is possible since that portion of the bottle between its neck and the lips against which sealing contact is made consists ordinarily of a double bead which is molded and is quite uniform, whereas the body of the bottle is subject to variations which it has not been found possible to eliminate in manufacture.

A further object of the invention is to relieve the body of the bottle from the strains imposed in capping, and thereby eliminate the danger of breakage or weakening of the bottles thereby.

Further objects are to produce a capping-

machine of simple construction, adapted for continuous running, having a large output, and which will cap, without readjustment, bottles which vary greatly in height and capacity.

In the accompanying two sheets of drawings which form a part of this application—Figure 1 is a side elevation with parts at the side where the closing is effected in vertical section, showing a capping machine embodying my invention. Fig. 2 is a plan view of the same with parts broken away.

The framework of the machine comprises an axial column 1 and a second column 2 adjoining the side where the sealing is effected. These columns may be comparatively short and may have their bases supported on a table 3 since no mechanism is required below the level at which the bottles are conveniently brought to and removed from the machine. The axial column carries a rotary member 4 with a rim which carries a series of guides 5, 5, which are tubes parallel with and equidistant from the axis of the rotary member. These carry capping-heads 6, 6. The capping heads have capping-chucks 7, 7, set in their lower ends. The capping-heads carry below the chucks guards 8, 8, which support the caps and carry them to the position where they are closed upon the bottles. The guards have holes in them through which the caps will pass readily when reduced in diameter by the operation of capping to permit their withdrawal with the bottles. The capping-heads have a short vertical movement and are normally held at the upper limits of their movements by springs 9, 9.

A flat ring 10 is bolted to projections extending from the lower side of the rim of the rotary member and is carried by and forms a part of the rotary member. The ring has holes opposite the capping-heads through which the bottle-necks can be passed and the bottle-lips presented to the action of the capping-heads. A pair of jaws, one of which 11 is made fast to the flat ring, and the other of which 12 is movable, is located over each of the holes and serves as a bottle-suspending means for engaging the necks of bottles. The jaws are drawn together by springs 13, 13. These springs permit the jaws to be pushed apart by the act of inserting a bottle and snap together under the beads which surround the neck at the mouth. At the position

where the caps are closed on the bottle the movable jaws come opposite a roller 14 carried by one of the columns of the machine which locks the jaws. On leaving the side where the closing is effected the movable jaw is pushed away from the fixed jaw by a cam cast on the column and the bottle is released.

The rotary member carries a bevel gear 16 by which it is driven in the direction indicated by an arrow. This gear is engaged by a pinion 17 on a shaft 18 through which power is applied to the machine and which is carried by bearings 19 and 20 on the tops of the columns. The capping heads are depressed toward the bottle-suspending means to effect the sealing at the side where the closing is effected by being brought under a cam 21 which is conveniently a roller mounted on the driving shaft. Rollers 22, 23 carried by the two columns support the flat ring and the bottle-suspending means on the side where the closing is effected.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for effecting the closure of a cap on the mouth of a bottle provided with a supporting shoulder and a locking lip, a capping-head, bottle-suspending means for engaging the supporting shoulder, and positive means for effecting relative movement of the capping-head and bottle-suspending means toward each other for effecting the closure of the cap on the bottle by pressure in the direction of the bottle axis.

2. In a machine for effecting the closure of a cap on the mouth of a bottle provided with a supporting shoulder, a capping-head, a pair of jaws for engaging and supporting the bottle by the shoulder, a support for the jaws substantially inclosing the bottle neck, and positive means for effecting relative movement of the capping head and jaws

with their support toward each other for effecting the closure of the cap on the bottle by pressure in the direction of the bottle axis.

3. In a machine for effecting the closure of caps on the mouths of bottles provided with supporting shoulders, a series of capping-heads and a series of bottle-suspending means for directly engaging and positively supporting the bottles by the shoulders in permanent alinement with the capping-heads, means for bringing each of the capping-heads and its alined bottle-suspending means in turn to a position for closing the cap on the bottle, and a cam for positively imparting a definite movement to each capping-head for effecting the closure of the cap on the bottle by pressure in the direction of the bottle axes.

4. In a machine for effecting the closure of caps on the mouths of bottles provided with supporting shoulders, a series of capping-heads and a series of bottle-suspending means for directly engaging and positively supporting the bottles by the shoulders in permanent alinement with the capping-heads, a bevel gear for bringing each of the capping-heads and its alined bottle-suspending means in turn to a position for closing the cap on the bottle, a transverse shaft carrying a pinion in engagement with the bevel gear and a cam for positively imparting a definite movement to each capping-head for effecting the closure of the cap on the bottle by pressure in the direction of the bottle axes.

Signed by me at New York, borough of Manhattan, N. Y., this fourteenth day of August 1909.

FREDERICK RECHT.

Witnesses:

SAMUEL W. BALCH,
JOHN BURT, Jr.