J. J. GAYNOR & P. C. LIEBER.

BOTTLE CAPPING MACHINE.

APPLICATION FILED MAR. 16, 1914.

1,136,467.

Patented Apr. 20, 1915.

Fig. 1.

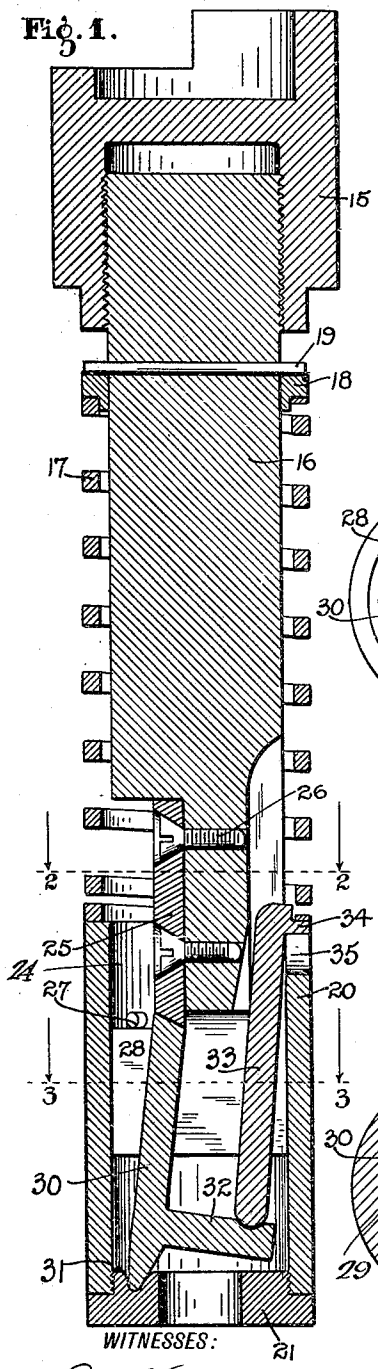


Fig. 2.

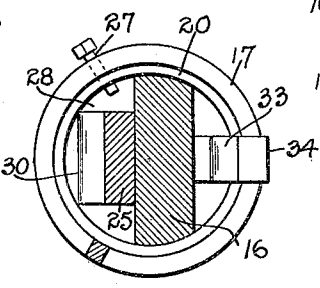


Fig. 3.

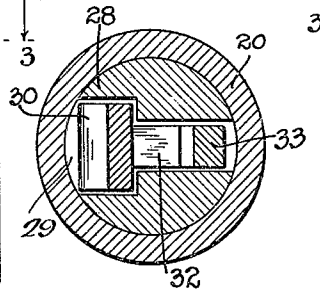
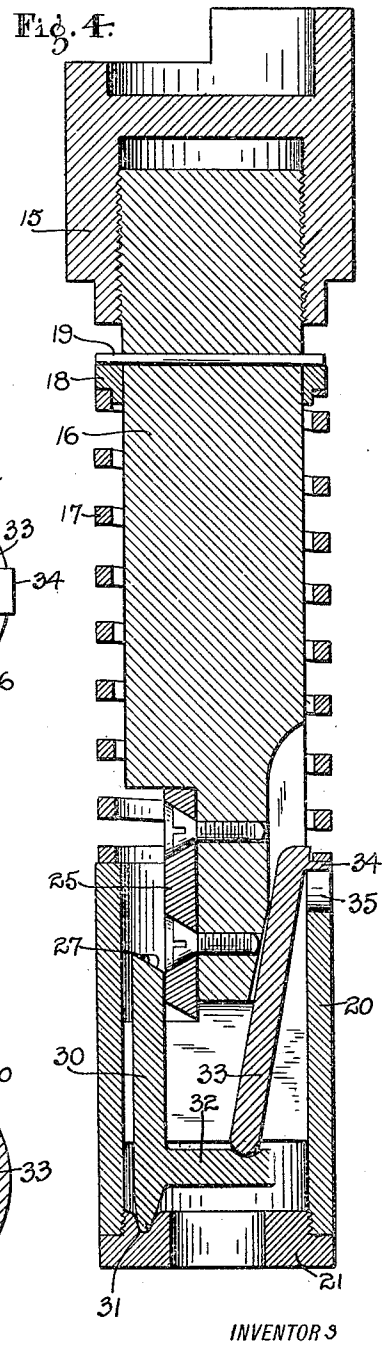


Fig. 4.



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JOHN J. GAYNOR AND PETER CARL LIEBER, OF INDIANAPOLIS, INDIANA, ASSIGNORS TO PROGRESS MACHINE COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION.

BOTTLE-CAPPING MACHINE.

1,136,467. Specification of Letters Patent. Patented Apr. 20, 1915.

Application filed March 16, 1914. Serial No. 825,028.

To all whom it may concern:

Be it known that we, JOHN J. GAYNOR and PETER CARL LIEBER, citizens of the United States, and residents of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Bottle-Capping Machine; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like characters refer to like parts.

The object of this invention is to improve the construction of compensating mechanism in bottle capping machines in the type set forth in our applications, Serial No. 786,030, filed August 21, 1913, Serial No. 797,554, filed October 27, 1913, and Serial No. 806,908, filed December 15, 1913.

The chief feature of the invention consists in improvements by way of simplification of the compensating device for supporting the bottles and the like and particularly in the construction and means for controlling and operating the dog which initially receives the downward pressure of movement of the bottle support when the strain thereon becomes excessive. Also with the present construction all springs are dispensed with excepting the main supporting spring of the device. This not only simplifies the construction, but renders the same much more positive and certain in its operation.

The nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a central vertical section through a bottle support and the means on which it is mounted, in the bottle capping machine, the parts being in idle position. Fig. 2 is a cross section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section similar to that in Fig. 1, showing the parts in operative position.

In the drawings there is shown a bottle support 15 which is screwed on the upper end of a bar 16 around which there is a spiral supporting spring 17 lying between a collar 18 under a pin 19 through said bar 16 and the upper end of a tube 20 which surrounds the lower part of the bar 16 and has a removable ring 21 screwed into its lower end. The construction is such that the bar 16 telescopes in said tube 20 and the spring 17 tends to hold the bar and bottle support in their elevated position with reference to the tube 20 and when the pressure upon the bottle being capped becomes excessive, the bottle support and bar 16 are forced downward, compressing the spring 17. The spring 17 however has for its chief function, maintaining the bottle support 15 in its upper and normal position. The resistance of the downward movement of the bottle support when the pressure on a bottle while being capped becomes excessive, is resisted and regulated by the following means: The lower end of the bar 16 is recessed in one side at 24 for a sufficient distance to receive a stationary plate 25 which is secured therein by the screws 26. A stop 27 extends from the tube 20 into the lower part of the recess 24 in position to engage a lateral projection 28 on the lower part of the bar 16, see Figs. 1 and 3, and thus limit the upward movement of the bar 16 and bottle support 15 under the expanding influence of the spring 17, after a downward pressure has ceased.

There are two of the projections 28 making a vertical recess 29 in the lower part of the bar 16, which recess is a downward continuation of the recess 24, but is narrower than the recess 24. In this recess 29 there is a dog 30 with its lower end bearing loosely in a groove 31 in the upper surface of the ring 21. The upper end of the dog is beveled downwardly and inwardly to fit a corresponding but opposite bevel in the plate 25. An arm 32 extends inwardly from the lower part of the dog 30 and upon said arm the lower end of a rod 33 rests, and the upper end of said rod 33 has an outwardly projecting finger 34 through a vertical slot 35 in the upper part of the tube 20, see Fig. 1. Said finger 34 lies beneath and against the lower end of the spring 17, or in other words, is normally flush with the upper surface of the tube 20 upon which said spring 17 rests.

In operation the dog and plate 25 and rod 33 are in the position shown in Fig. 1, and the downward pressure of the spring 17 through the bar 33 and arm 32 tends to hold the upper end of the dog 30 inward and under the lower end of the plate 25 and, therefore, supporting the bar 16, excepting in so far as it is supported by the spring 17. So with this arrangement it tends to hold the parts in their normal position until an

excessive strain comes upon the bottle carried by the bottle support and then the downward pressure of the plate 25 crowds the upper part of the dog 30 outward against the downward action of the spring 17 on the rod 33, into the position shown in Fig. 4. And when the dog 30 thus moves from under the plate 25, the bottle support will move downward as far as the spring 17 will let it. When the downward pressure on the bottle support has ceased, the spring 17 will return the bar 16 to its upper position and the dog 30 will be returned to its normal position, as shown in Fig. 1, by the pressure of the spring 17 acting through rod 33 and arm 32 on said dog. Therefore, it is seen that the single spring 17 performs the same function as it performed in our prior devices and also performs the additional function of holding the dog 30 yieldingly in its resisting position and also, after the pressure on the bottle support has ceased, said spring forcibly returns the dog 30 to its resisting position.

The invention claimed is:

1. A bottle capping machine including a bottle support, a dog for frictionally resisting the movement thereof, means for holding said dog in its frictionally resisting position, and a spring for returning the bottle supporting means after its actuation and acting on said dog holding means and causing it to hold the dog in its resisting position.

2. A bottle capping machine including a bottle supporting means having a downwardly extending bar with beveled surface thereon, a tube in which the lower end of said bar extends, a dog mounted in said tube with the beveled upper end engaging the beveled surface of the bar, means for holding said dog in its engaging position, and a spiral spring surrounding said bar and acting on said dog holding means for returning the bottle supporting means to its normal position and for actuating said dog holding means.

3. A bottle capping machine including a bottle supporting means with a downwardly extending bar having a beveled surface thereon, a tube in which the lower end of said bar extends, a dog fulcrumed at its lower end in said tube and with its upper end beveled to engage the beveled surface of the bar, said dog having a laterally extending arm, a rod engaging said arm on the dog, and a spiral spring surrounding said bar and bearing down upon said rod, substantially as set forth.

4. A bottle capping machine including a bottle supporting means having a bar, a plate secured to said bar with a beveled lower end, a tube in which the lower end of the bar is mounted, a dog with the lower end fulcrumed in said tube and with the upper end beveled and engaging said beveled plate and said dog having a laterally extending arm, a rod resting on said arm and with a projection from its upper end through a slot in said tube, and a spiral spring surrounding said bar with its lower end resting upon the projection from said rod, substantially as set forth.

In witness whereof, we have hereunto affixed our signatures in the presence of the witnesses herein named.

JOHN J. GAYNOR.
PETER CARL LIEBER.

Witnesses:
J. H. WELLS,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."