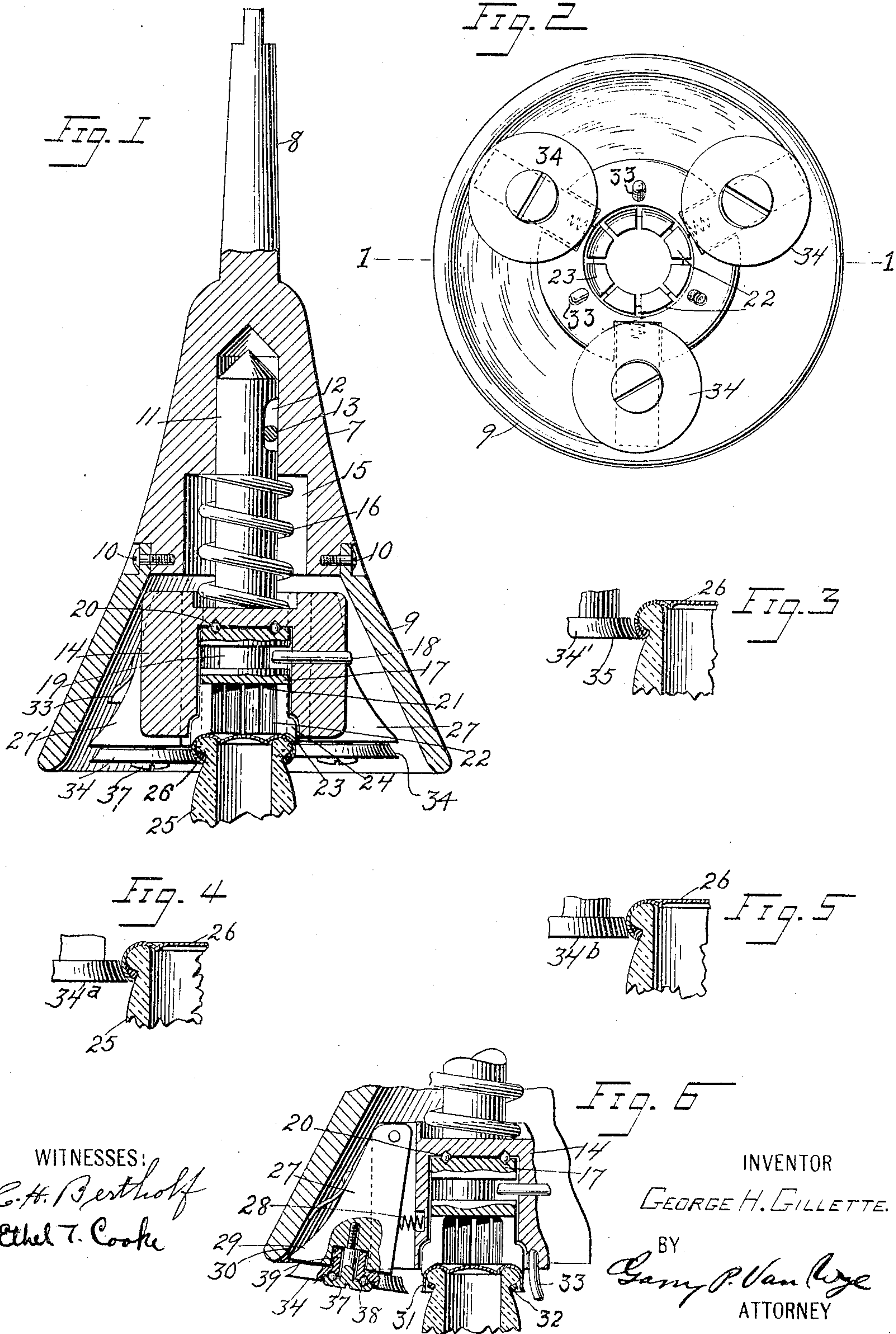


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G. H. GILLETTE.
HEAD FOR BOTTLE CAPPING MACHINES.

APPLICATION FILED JUNE 4, 1904.



WITNESSES:

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HEAD FOR BOTTLE-CAPPING MACHINES.

No. 798,579.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed June 4, 1904. Serial No. 211,200.

To all whom it may concern:

Be it known that I, GEORGE H. GILLETTE, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and useful Head for Bottle-Capping Machines, of which the following is a specification.

My invention relates to machines for capping bottles, and especially to that class in which the cap is spun upon the bottle; and the object of my invention is to provide a head for spinning the cap upon the bottle in a simple and efficient manner; second, to provide a head with a pressure-block of special construction to insure the close seating of the cap on the top of the bottle while the edges thereof are spun in under the shoulder above the groove; third, to provide a head that will be comparatively inexpensive to manufacture and which will be easy to handle and operate.

I accomplish the objects of my invention by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a head constructed according to my invention, taken on the line 1 1 of Fig. 2. Fig. 2 is a bottom plan view of the head. Figs. 3, 4, and 5 are views of modified forms of spinning-wheels, and Fig. 6 is a detailed view of the construction of one of the spinning-wheels and its relation to the other parts.

In the accompanying drawings the several parts of my invention are indicated by numerals of reference, and in practice I provide a head consisting of a block 7, having a shaft 8, to which may be secured a flaring tunnel or shell 9, by means of screw 10, although, if desired, the shell 9 and block 7 may be made integral, as will be understood.

Within the block 7 I mount a shaft 11, provided with a scarfed portion or recess 12, and a rod or pin 13, passing through the block 7 and through this recess 12, prevents the rotation of this shaft within the block 7; but the longitudinal recess 12 provides for a limited vertical movement of this shaft. On the lower end of the shaft is a head or block 14, which may be integral with said shaft or may be secured thereto in any desired manner, and above this head within the block 7 is a recess or cavity 15, in which I mount a compression-spring 16, which normally holds the head and shaft

in a lowered position, as will be understood.

Within the head 14 I mount a pressure-block 17, which is held within said head by a pin 18, the end of which enters a groove 19 in said block and prevents the vertical movement of this pressure-block while allowing for the rotation of the same, and a ball-race 20 provides for the easy turning of this block within the head. The lower end of the block is recessed, as shown at 21, and the side walls thereof are slotted longitudinally, providing a series of fingers 22, the lower edges of which are concaved, as shown at 23, the fingers being thickened at the lower end, as shown at 24, to provide for an increased concaved and pressure surface, the concaving being outwardly and downwardly, so that when pressed upon the convex surface of the lip of the bottle the tendency will be to force these fingers outwardly, conforming to the surface of the lip of the bottle.

In operation the entire head is mounted in a suitable bottle-capping machine or any machine that will give the head a rapid rotary motion. A bottle 25, with a cap 26 mounted on the top thereof, is brought in contact with the pressure-block 17 either by the raising of the bottle or the lowering of the head until a firm contact is made with the concaved surface 23 of the fingers 22, sufficient pressure being applied to slightly spread these fingers, so as to press the cap outwardly and downwardly upon the mouth of the bottle at the same time that the block 14 and shaft 11 are forced upwardly within the shell 9 against the action of the spring 16, and the spinning-wheels 34, mounted on pivoted arms 27, normally held extended by compression-springs 28, as shown in Fig. 6, are forced inward by the inclined portions 29 engaging the flaring sides 30 of the shell 9 until the periphery of the wheel strikes the flange of the cap and folds it in under the shoulder 31 of the head of the bottle, which may have a sealing-ring 32 mounted thereunder, as clearly shown in the drawings, thereby making a very tight seal. By this construction of pressure-block the cap is held very firmly and smoothly upon the mouth of the bottle, while the flange thereof is spun in under the shoulder of the bottle-neck, thereby insuring a very tight and effective connection, it being understood that by reason

of the ball-race 20 the pressure-block 17 will remain stationary while the remaining parts of the head are rotated.

To assist the centering of the bottle in a proper position, I may use a plurality of guide-posts 33, which may be mounted in the block 14 and may be inclined downwardly and outwardly to center the head of the bottle on the bottom of the pressure-block 17.

In practice I have found it desirable to make one of the blocks 27' a trifle longer than the other blocks, so that the wheel 34 mounted thereon will reach a little lower down than the other wheels, thereby tucking in the edge of the flange of the cap beneath the packing-ring 32 and holding it firmly in position, while the other spinning-wheels are compressing the sides of the flange inwardly and spinning it under the shoulder, and to provide that the wheel on this arm shall reach the flange sooner than the other wheels, at the same time allowing for the proper inward movement of the same, I prefer to provide a spring 33, which is mounted on the side of the arm 27', so that this arm will be forced inward sooner than the other arms, and at the same time when the wheel is forced inwardly as far as the bottle-neck will permit the spring will allow for this arm to be forced outward slightly, preventing the breaking of the neck of the bottle.

Instead of using spinning-wheels 34 of the shape shown in Figs. 1 and 6 I may use spinning-wheels having a different face, as shown in Figs. 3, 4, and 5, the spinning-wheel 34' (shown in Fig. 3) having a sharp lower edge 35 to turn the lower edge of the flange of the cap 26 far in under the shoulder. In Fig. 4 the spinning-wheel 34^a has an edge less in curvature than the wheel shown in Fig. 3 and engages the sides of the flange of the cap 26 higher up, but still turning the same in under the shoulder of the bottle 25, while the spinning-wheel 34^b (shown in Fig. 5) has a beveled edge and strikes the flange of the cap 26 more on the side, spinning it tightly against the outer edge of the bottle, as shown in that figure.

It will thus be seen that I have provided a head for a bottle-capping machine simple in construction, efficient in action, and one that will allow for bottles with mouths of slightly different sizes, as in practice the lips of the same make of bottles will not be uniform and if the pressure-block is adapted to a bottle of a fixed size if there is a slight variation the cap will not be seated firmly upon the mouth of the bottle; but by this construction these variations are provided for and all caps will be firmly seated and fixed in position.

In constructing the spinning-wheel I mount the wheel 34 on the lower end of the block 27 and secure the same thereto by a screw 37, between the head of which and the screw I provide a ball-bearing 38 and prefer to provide

a hub 39, seated in a corresponding cavity in the block 27. The pull on the wheel is always downward.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A head for a bottle-capping machine comprising a non-rotating circumferentially-expandible contact-block, to press the cap on the lip of the bottle, and means for clamping the cap on the exterior of the bottle, substantially as described.

2. A head for a bottle-capping machine comprising a non-rotating, expandible contact-block, a spring-controlled pressure-block, and means to clamp the cap on the exterior of the bottle.

3. A head for a bottle-capping machine comprising a spring-controlled pressure-block, a non-rotating, expandible, contact-block, spring-controlled arms carrying spinning means, and means to force said arms and spinning means inward against the cap of the bottle, for the purpose set forth.

4. A head for a bottle-capping machine comprising a spring-controlled pressure-block, a non-rotating, expandible, contact-block, arms pivotally connected with said pressure-block and carrying spinning-wheels and means to force said arms and spinning-wheels inward to engage the cap on said bottle, for the purpose set forth.

5. A head for a bottle-capping machine comprising a spring-controlled pressure-block, a non-rotating contact-block, arms variable in length, pivotally connected with said pressure-block and carrying spinning-wheels, and means to force one of said arms inward in advance of the others, for the purpose set forth.

6. A head for a bottle-capping machine comprising a bell-shaped casing, a spring-controlled pressure-block, mounted therein, and having means to limit the vertical motion thereof, a non-rotating, expandible contact-block mounted in said pressure-block, pivotally connected with said pressure-block and carrying spinning-wheels, each of said arms having downwardly and outwardly inclined faces whereby the arms are forced inwardly when the pressure-block is forced upwardly within the casing, as and for the purpose set forth.

7. The herein-described head for a bottle-capping machine comprising a block, a bell-shaped casing secured thereto, a shaft mounted in said block and adapted to a limited vertical movement, a head or pressure block secured to said shaft, a spring mounted on said shaft adapted to hold the same in a lowered position, an expandible contact-block mounted in said pressure-block and adapted to move independently on the ball-race between the pressure-block and contact-block, arms pivotally

connected by said pressure-block, spinning-
wheels on said arms, springs adapted to hold
said arms in contact with said casing, each
arm having a downwardly and outwardly in-
5 clined edge, and said casing having an up-
wardly and inwardly inclined surface whereby
the arms are driven inward, as and for the
purpose set forth.

In testimony whereof I have signed my name
to this specification in the presence of two sub- 10
scribing witnesses.

GEORGE H. GILLETTE.

Witnesses:

ETHEL T. COOKE,
L. D. DE SAUSSURE.