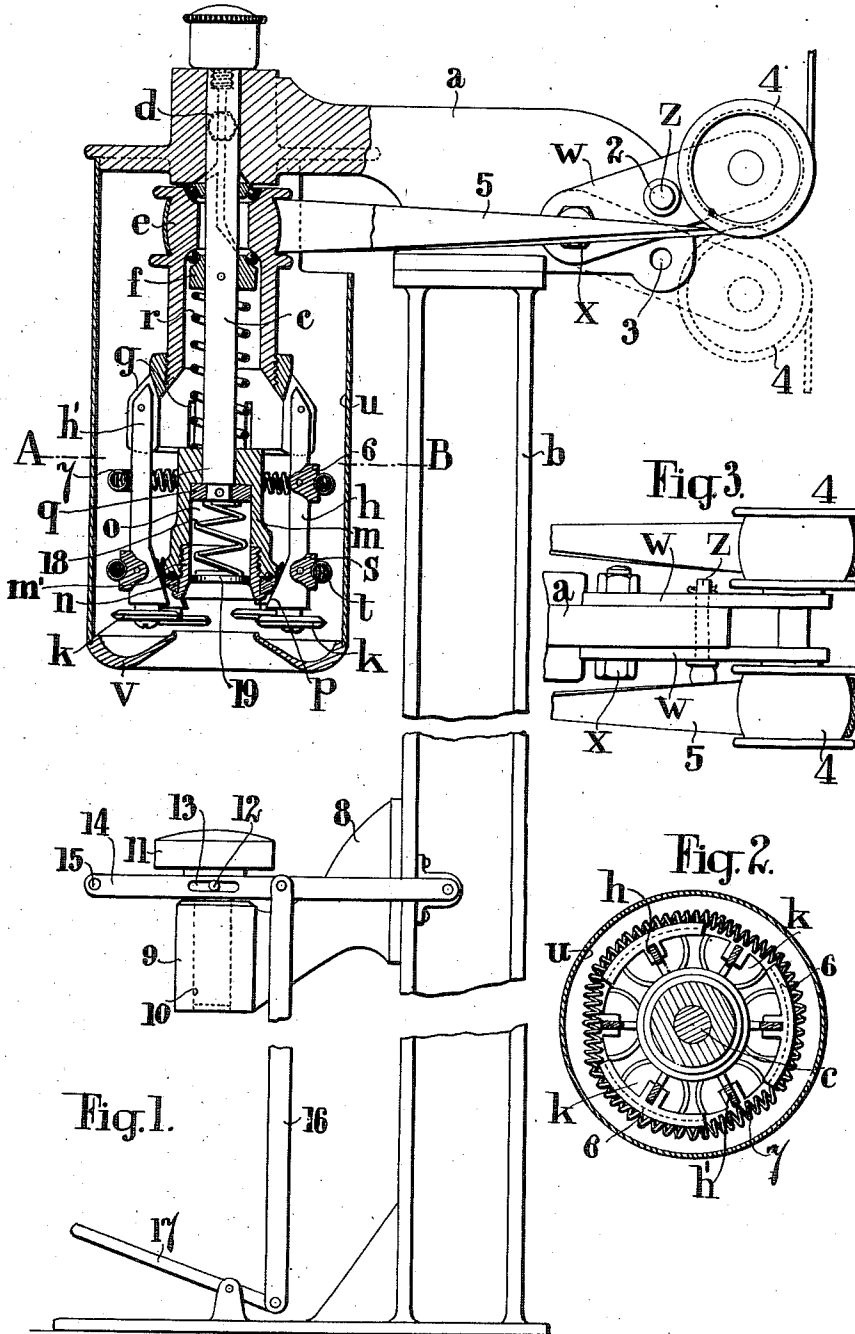


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BOTTLE CAPSULING MACHINE.
APPLICATION FILED NOV. 13, 1909.

995,220.

Patented June 13, 1911.



Witnesses—
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UNITED STATES PATENT OFFICE.

HENRY CHARLES BRAUN, OF LONDON, ENGLAND.

BOTTLE-CAPSULING MACHINE.

995,220.

Specification of Letters Patent. Patented June 13, 1911.

Application filed November 13, 1909. Serial No. 527,889.

To all whom it may concern:

Be it known that I, HENRY CHARLES BRAUN, a subject of the King of England, residing at 236 Pentonville road, King's Cross, in the county of London, England, have invented certain new and useful Improvements in Bottle-Capsuling Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements of machines employed for attaching metallic sleeves or capsules to the necks of bottles, jars and other vessels.

The invention further relates to improvements on that class of machines for capsuling bottles or the like wherein the bottle after corking is placed on a suitable stool and raised into contact with a device comprising rotating arms provided with burnishing or spinning wheels, which rapidly revolve around the neck of the bottle and spin the capsule on to the top of such neck, such arms being kept pressed inward toward the neck of the bottle by elastic means.

My present invention has for its object constructional improvements on machines of this description and is intended to enable the inward pressure of the arms to be more perfectly regulated to facilitate the withdrawal of the bottle after corking and to enable the machine to be driven either from above or below.

In my machine used to fix capsules on bottles, a column or standard rises from a suitable base, and by means of an adjustable collar at the top part is fixed a block having a vertical rod placed at a suitable height therein. Running freely on such vertical rod is a loose pulley around which passes a band, which also passes around two guide pulleys mounted on a double pivoted arm capable of being set in one of two positions. At the lower end of the vertical rod is a rising and falling loose collar, kept down in its lowest position by a spiral spring, but free to move upward on being pressed by the neck of the bottle as hereinafter described. Just below the loose pulley and attached permanently thereto, is a fitting, by preference in the form of a metal ring having lugs into which are loosely pinned a plurality of arms pendent from the lugs

downward and hanging almost to the bottom of the beforementioned collar. Each of these arms ends in a burnishing wheel or tool. These arms with their burnishing wheels are drawn in toward the center of the collar by springs or such like means, of such strength that when the burnishers come into contact with the capsule covering the neck of the bottle and are caused to revolve rapidly around and upon the capsule, they will spin in and compress the capsule so as to make it conform to the shape and inequalities of the bottle neck, and cause the capsule to hold tightly and firmly on the bottle neck. When at rest or revolving without a bottle inserted in the mouth of the collar the burnishing wheels or tools run around on a suitable metal band or steel collar at the lower part of the rising and falling collar, but as soon as this collar is pushed upward, by pressure of the neck of the bottle, the burnishing wheels or tools by losing their support are allowed to come in toward the center and press against the lower portion of the capsule. They then continue their revolving and spinning of the capsule with the result that they shape such capsule to the form of the neck of the bottle as before mentioned and prevent its removal without mutilation.

A suitable means such as springs, levers or the like may carry the bottle up to the position where its neck enters the opening in the collar.

Provision may be made for covering the whole, or part of the mechanism to prevent accidents and any suitable hand, electric, overhead, foot or other power may be used for revolving the burnishing wheels.

In order that this invention may be better understood, I will now proceed to describe the same with reference to the drawing accompanying this specification, in which:—

Figure 1 shows a side elevation of a machine constructed according to this invention, partly in section; Fig. 2 shows a section taken on the line A, B, Fig. 1; and Fig. 3 shows a plan of the guide pulleys.

The same letters and numerals of reference are employed to denote the same parts in all the views.

a is a casting carried on the standard *b* of the machine. This casting is bored and contains a fixed spindle *c* held in position by a

screw *d*. Mounted loosely in ball bearings on the spindle *c* is a pulley *e* resting on a collar *f* attached to the spindle *c*. The pulley carries an extension and has pivoted in slots 5 *g* in the extension a number of pendent arms *h* and *h*¹; (the arms *h* being somewhat longer than the arms *h*¹ for the purpose hereinafter explained). Each of the arms *h* and *h*¹ carries a small steel wheel *k*. Attached at the 10 bottom of the spindle *c* is a tubular piece *m* forming a chamber, with a ring *n* mounted at the bottom thereof so as to revolve thereon, suitable ball bearings being interposed between the parts. The lower part of the 15 ring is supported by a flange of a member *m*¹ threaded into the tubular piece *m*.

It will be observed that the arms *h* and *h*¹ have inclined surfaces at *p* where they come in contact with the outer edge of the ring *n*. 20 A collar *q* is provided at the bottom of the spindle *c* and inside the top of the fitting *m* to prevent the same coming off the spindle, and a strong compression spring *r* is provided between the top of the fitting *m* and 25 the underside of the collar *f*, which keeps the said fitting normally in the lowermost position.

Each of the arms *h* and *h*¹ has attached thereto a saddle piece *s* and around the saddles of all the pieces is extended or passed a 30 tension spring *t* which tends normally to press all the arms toward the center. In addition the arms *h* are provided with other saddle pieces 6 and extending around these 35 saddle pieces is another compression spring 7, preferably somewhat stronger than the spring *t*.

Surrounding the mechanism is a protective casing *u* provided at the bottom with an oil 40 gutter *v*, so formed that a space is left through which the neck of the bottle can be introduced into the mechanism.

Referring to the driving arrangement, mounted on either side of the casting *a* is an 45 arm *w*. These arms *w* turn upon a bolt *x* and can be locked in either of two positions by means of a pin *z* passing through holes 2 and 3, in the casting *a*. This enables the 50 pulley 4 mounted at the ends of the arms *w* to be put in position either for an overhead drive as shown in full lines in Fig. 1, or for an under drive as shown in dotted lines. The driving belt 5 passes around the pulley *e*, is twisted under (or over) the guide pul- 55 leys 4 and thence to a power pulley.

18 is a compression spring attached to the collar *q* and having fixed at the other end a plate 19.

The action of the machine will be readily 60 understood.

It is of course presumed that any suitable arrangements are provided for holding the bottle to be capsuled and for pushing it up 65 into the required positions, for instance, hand levers, foot levers actuated by weights

or springs may be provided or again automatic mechanism may be adapted for the purpose. In the drawing at the lower part of Fig. 1, is shown a stool for this purpose.

8 is a bracket bolted to the lower part of 70 the standard *h*. This bracket carries a barrel 9 in which slides vertically a hollow rod 10.

11 is a stool at the top of the sliding rod 9.

12 is one of a pair of pins which engage 75 slots 13 of two pivoted levers 14 on either side. These are connected by a handle 15.

17 is a treadle connected by means of a pivoted lever to two rods 16 which are pivotally connected to the arms 14. Thus it will 80 be seen that the bottle can be raised either by hand by means of the handle 15 or by foot by means of the treadle 17.

The bottle being introduced into the proper position with a capsule large enough 85 to embrace it loosely, it is pushed up by raising the handle 15 or pressing on the treadle 17. This causes the bottle to press against the plate 19, thus compressing the spring 18 and causes considerable pressure 90 on the top of the cork, thus preventing any possibility of the capsule bulging during the operation of spinning. The bottle at the same time pushes up the fitting *m* which 95 allows the arms *h* and *h*¹ to be forced inward under the influence of the springs *t* and 7, until the wheels *k* come in contact with the outside of the capsule and the springs *t* and 7 being strong enough to over- 100 come the resistance of the metal, the capsule is spun into close contact with the outside of the bottle neck, conforming itself to the shape of such neck, the springs *t* and 7 allowing the wheels *k* to accommodate them- 105 selves to any irregularity, as the arms *h* and *h*¹ rapidly rotate under the influence of the pulley *e*.

It will be seen that owing to the particular construction of the mechanism that is on 110 account of the arms *h* being longer than the arms *h*¹, the burnishing wheels *k* carried by the arms *h* come first into contact with the outer surface of the capsuling metal commencing the spinning, while the wheels *k* 115 carried by the arms *h*¹ afterward take up the work and complete it, thus giving a highly finished appearance to the capsule when in position on the bottle.

When the bottle is properly capsuled the stool is lowered, and the fitting *m* descends 120 under the influence of the compression spring *r* forcing the ring *n* against the sides *p* of the arms *h* and *h*¹ thus separating the said arms and allowing the neck of the bottle to be withdrawn when the apparatus will 125 be ready for use with a fresh bottle.

Suitable devices may be fitted for lubricating the parts. For instance, in the particular machine shown in the drawing, a cup is fitted at the top, which opens into a 130

passage way, furnished with apertures for delivering the lubricant at the required points.

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

1. In a bottle capsuling machine, the combination of a rotatable member, arms of different lengths pivotally connected thereto, burnishing wheels fixed to the ends of the arms, a vertical rod passing through the rotatable member, a tubular piece slidably mounted on the rod, a collar secured to the rod and arranged within the tubular piece, means for holding the tubular piece normally against the collar, a spring pressed plate slidably mounted in the tubular piece, a coil spring passing around the arms tending to force same inwardly, and a rotatable ring carried by the tubular piece for engaging the arms to separate same, substantially as described.

2. In a bottle capsuling machine, the combination of a hollow rotatable member, arms pivotally connected to the rotatable member having inclined cam faces, burnishing wheels fixed to the ends of the arms, a fixed vertical rod passing through the rotatable member, a tubular piece slidably mounted on the rod, a collar secured to the end of the rod and arranged within the tubular piece, a coil spring on said rod for holding the tubular piece normally against the collar, a spring pressed plate slidably mounted in the tubular piece, a pair of coil springs passing around the arms tending to

force same inwardly, and a ring rotatably mounted on the end of the tubular piece for engaging the cam faces of the arms, substantially as described.

3. In a bottle capsuling machine, the combination of a hollow rotatable member, arms of different lengths pivotally connected to the rotatable member and having inclined cam faces near their lower ends, burnishing wheels fixed to the ends of the arms, a fixed vertical rod passing through the rotatable member, a tubular piece slidably mounted on the rod, a collar secured to the end of the rod and arranged within the tubular piece, a coil spring on said rod and engaging the tubular piece for holding same normally against the collar, a plate slidably mounted in the tubular piece, a coil spring interposed between the plate and the said collar, saddle pieces secured to said arms and arranged in alinement, coil springs passing around the arms and seated in the saddle pieces tending to force the arms inwardly, a ring rotatably supported by the end of the tubular piece for engaging the cam faces to separate the arms, and a casing inclosing the parts provided with a conical opening for receiving the neck of the bottle, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

HENRY CHARLES BRAUN.

Witnesses:

H. D. JAMESON,
F. L. RAND.