May 19, 1931. F. E. YOUNGDAHL ET AL 1,805,680

SAFETY DEVICE FOR BOTTLE CAP CRIMPING MACHINES

Filed Oct. 9, 1928

FIG. 1.

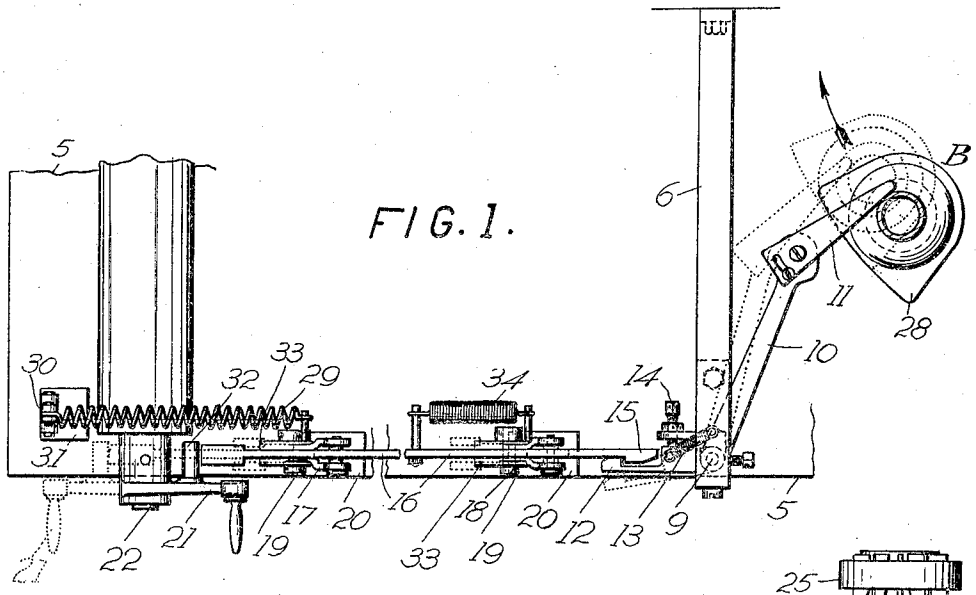


FIG. 3.

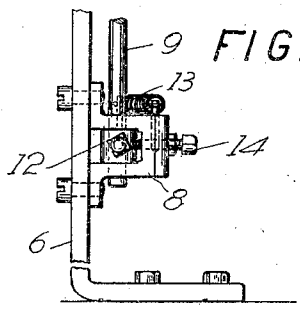


FIG. 2.

INVENTOR
Francis Edgar Youngdahl
BY Clarence Judkins
Sydney P. Prescott
ATTORNEY

Patented May 19, 1931 1,805,680

UNITED STATES PATENT OFFICE

FRANCIS EDGAR YOUNGDAHL AND CLAS JACOB JULSTEDT, OF BROOKLYN, NEW YORK, ASSIGNORS TO THE LAKEWEST CORPORATION, A CORPORATION OF NEW YORK

SAFETY-DEVICE FOR BOTTLE CAP CRIMPING MACHINES

Application filed October 9, 1928. Serial No. 311,364.

This invention relates to an improvement in machines for crimping caps on bottles. It is particularly designed for use in machines for automatically crimping caps of paper, tinfoil, or the like, on bottles, such for instance as the machine disclosed in the copending application of Rupert E. Rundell, S. N. 100,398, filed April 7, 1926. In machines of this type, a series of crimper heads are progressively moved above a series of correspondingly moving bottle supports. These bottle supports are raised and lowered to push the top of the bottle, after a cap has been fed thereto, into the crimper head, and are thereafter lowered to withdraw the capped bottle from the head. The bottle is subsequently removed from the machine by suitable delivery means. Occasionally because of a torn cap, an oversize bottle, or some other reason, the crimper head fails to release the bottle and after lowering of the bottle support, it is left hanging in the head. When this occurs, the bottle will be carried beyond the point at which it would normally leave the machine and is liable to injure the machine and cause breakage.

The main object of the present invention is to prevent this possibility by providing means for automatically stopping the machine when a bottle thus sticks in the crimper head.

With this and other objects in view, the invention consists in certain constructions and combinations which will be hereinafter described and then set forth in the hereunto appended claims.

In the accompanying drawings which form a part of this specification and in which like characters of reference indicate the same or like parts:

Fig. 1 is a plan view of the safety device;

Fig. 2 is a side elevation of the same; and

Fig. 3 is an enlarged detail view taken along line 3—3 of Fig. 2, looking in the direction of the arrows.

In carrying the invention into effect, there is provided in combination with a progressively moving crimper head for crimping caps on bottles, a support for the bottles operable to withdraw the capped bottles from the head after crimping, a control member positioned between the path of movement of said head and the tops of bottles normally withdrawn from said head for the purpose of engaging only bottles which stick in the head, and means actuated by said control member to automatically stop the machine when a bottle stuck in said head engages said member. In the best constructions, said means includes a drive clutch for the machine, controlled by said member. The means above referred to may be widely varied in construction within the scope of the claims, for the particular machine selected to illustrate the invention is but one of many possible embodiments of the same. The invention, therefore, should not be restricted to the precise structure of the machine shown and described.

Referring to the drawings, the present device is illustrated attached to the frame 5 of the machine disclosed in the above mentioned copending application, only so much of the same being shown as is necessary to illustrate the present device. On this frame 5 there is mounted an upright support 6 carrying brackets 7 and 8 in which is rotatably mounted a vertical shaft 9. The upper end of the shaft 9 carries fixedly mounted thereon an arm 10, having adjustably mounted on its free end a horizontal control finger 11. The arm 10 is located on said shaft 9 at such a height that the control finger 11 is located between the path of movement of the crimper head 25—26 and the tops of the bottles when withdrawn from the crimper head, as shown in dotted lines in Fig. 2.

A horizontally extending latch element 12 is rigidly secured to the lower end of the shaft 9 and is pulled by spring 13 against an adjustable stop screw 14 mounted in an extension of bracket 8. When pulled to this position, the latch engages a catch 15 on a bar 16. This bar is mounted for longitudinal movement towards a clutch shifting lever 21, by means of a pair of levers 17 and 18 mounted on studs 19 and brackets 20 secured to frame 5. The lever 21 is pivoted on shaft 22 and operates the clutch 23 on the main drive shaft 24 of the machine.

During the operation of the bottle cap

crimping machine, the bottle B rests on the plunger 28 on turret 27 below the crimper head provided with crimping fingers 25*a* simultaneously operated by a ring 25, which plunger is raised to push the bottle into the cap support 26 of the crimper head. After a cap has been crimped on the bottle by the head which is progressively revolved in the direction indicated by the arrow in Fig. 1, the plunger 28 is lowered and this normally withdraws the bottle from the fingers 25*a* of the crimper head to the position shown in dotted lines in Fig. 2. As will be seen from Fig. 2, the finger 11 is located below the crimping fingers 25*a* and above the position of the tops of bottles when normally withdrawn from said fingers and along the path of the progressively moving crimper head, so that the crimping fingers pass above the control finger 11 and the normally withdrawn bottles pass below the control finger without disturbing said control finger.

If, however, for any reason the crimping fingers fail to release the bottle so that same hangs therein, as shown in full lines in Fig. 2, the control finger will extend across its path as it is carried along by the moving crimper head and the bottle will engage and move said control finger, thereby swinging the arm 10, the shaft 9 and the latch element 12. The latch 12 will then disengage from the catch 15 on the bar 16, which is urged against a pin 32 on the clutch lever 21 by the spring 29, but normally held in abeyance by said latch. The bar 16 will, therefore, strike the pin 32 of the lever 21 and throw the lever, disengaging the clutch 23. The forward motion of the bar 16 is limited by lugs 33 of levers 17 and 18, which engage the sides of the brackets 20 and recoil of the bar is prevented by the spring 34 attached to bar 16 and lever 18, so that the retarding force exerted by said spring will increase toward the end of the stroke of the bar as tension of the spring 29 decreases and by hinging spring anchoring lever 30 at 31. This hinging of lever 30 tends to eliminate recoil through preventing back compression or a back compressional surge in the spring.

It will, therefore, be seen that the invention provides means for automatically stopping the machine when the crimper head fails to release a bottle, which will not in any way interfere with the normal operation of the machine, and which is certain in operation.

What is claimed is:

1. In a bottle capping machine, the combination with a progressively moving crimper head for crimping caps on bottles, of a support for the bottles operable to lower the capped bottles from the head after crimping, a control member positioned between the path of movement of said head and the tops of bottles normally lowered from said head for the purpose of engaging only bottles which stick in said head, and means actuated by said control member to stop the machine when a bottle engages said member.

2. In a bottle capping machine, the combination with a progressively moving crimper head for crimping caps on bottles, of a support for the bottles operable to lower the capped bottles from the head after crimping, a control member positioned between the path of movement of said head and the tops of bottles normally lowered from said head for the purpose of engaging only bottles which stick in said head, and means actuated by said control member to stop the machine when a bottle engages said member, said means including a clutch controlled by said member.

3. In a bottle capping machine, the combination with a progressively moving crimper head for crimping caps on bottles, of a support for the bottles operable to lower the capped bottles from the head after crimping, a control member positioned between the path of movement of said head and the tops of bottles normally lowered from said head for the purpose of engaging only bottles which stick in said head, and means actuated by said control member to stop the machine when a bottle engages said member, said means including a clutch, spring pressed means for throwing out said clutch, and a latch controlled by said member normally holding said spring pressed means in abeyance.

4. In a bottle capping machine, the combination with a progressively moving crimper head for crimping caps on bottles, of a support for the bottles operable to lower the capped bottles from the head after crimping, a control member positioned between the path of movement of said head and the tops of bottles normally lowered from said head for the purpose of engaging only bottles which stick in said head, and means actuated by said control member to stop the machine when a bottle engages said member, said means including a clutch, an operating lever for said clutch, a spring pressed member having limited movement against said lever to throw the same, and means for preventing recoil of said member.

In testimony whereof, we have signed our names to this specification.

FRANCIS EDGAR YOUNGDAHL.
CLAS JACOB JULSTEDT.