June 16, 1942. A. RIVERA 2,286,978

APPARATUS FOR PRESSING AND COATING LINERS IN CROWN CAPS

Filed Oct. 5, 1940

Fig. 1.

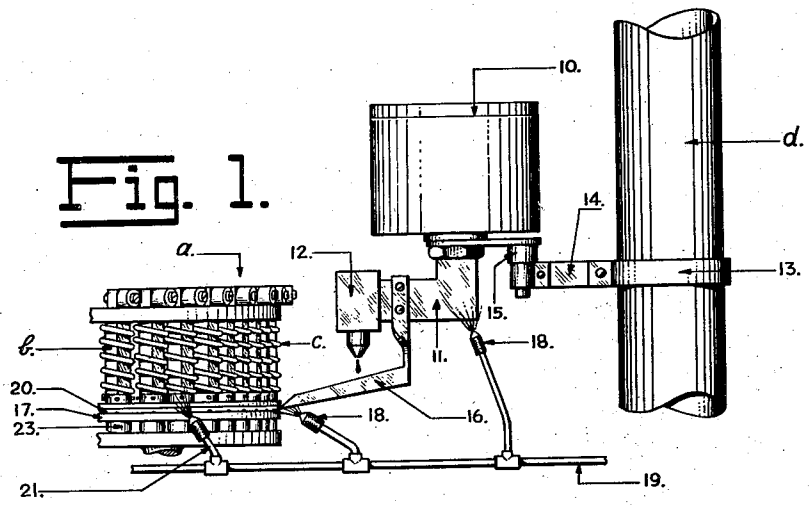


Fig. 2.

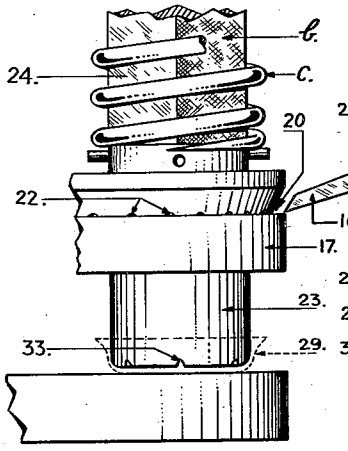


Fig. 4.

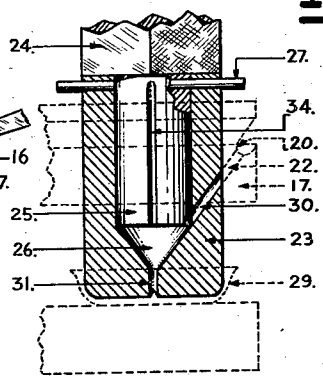
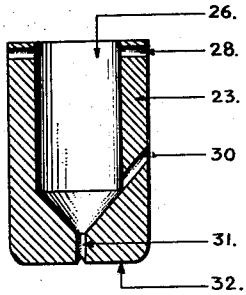


Fig. 5.



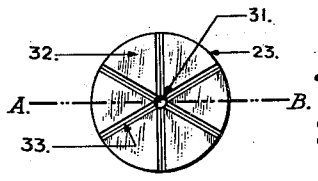


Fig. 3.

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APPARATUS FOR PRESSING AND COATING LINERS IN CROWN CAPS

Antonio Rivera, Mexico City, Mexico

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In Mexico March 29, 1940

3 Claims. (Cl. 113—80)

The present invention relates in general terms, to improvements in the machines for the assemblage of crown or tin caps, and more particularly to a new and useful device, adaptable to the aforementioned machines, whereby the application of paraffine to the cork or cork conglomerate disk is accomplished in a very efficient manner. This cork or cork conglomerate serves as packing for the preceding caps and proves extremely useful to same, specially for avoiding emanations from the liquid contained in the bottle they close.

Up to the present time, the application of paraffine to the cork disk has been performed by hand, once the tin cap has been completely manufactured, i. e. when coming out of the assembling machines; these machines adhere the usual cork conglomerate disks to the inner side of the tin crowns, without obtaining however a quick and uniform application of paraffine. According to my invention, by means of a small additional device as well as a slight modification made to the rings holding the pressing bolts in the aforesaid assembling machines and to the said bolts themselves, the paraffining procedure is carried out during the assemblage of the tin cap, without requiring an extra period and obtaining thereby a very uniform and efficient application of paraffine to the cork.

In order to obtain the above results, all that is needed is to provide each pressing bolt of the assembling machine with some grooves or channels and suitable perforations which allow the passage of the hot paraffine over the cork disk, and in addition make a groove or channel along the entire periphery of the ring holding the aforesaid bolts through which the hot paraffine is to flow and to be deposited by means of suitable perforations in the above mentioned pressing bolts, already arranged suitably in the way indicated, as it may be appreciated clearly in the detailed description made in the annexed drawing. Besides, a small additional device supplying the hot paraffine is required which is adequately provided with heating means as well as conduits or tubes.

According to the above, the main object of the invention is to procure practical and convenient means for the application of paraffine to the cork or cork conglomerate disk serving as packing to the crown cap during the proper manufacturing or assembling process of the tin cap, without there being any need of an additional period of operation.

Another one of its purposes is to provide the means for supplying the feeding system adapted to the assembling machines with paraffine or liquid wax, as well as the means of effecting this feeding in suitable quantities and proportions.

Further purposes, details and characteristics of the invention will be forthcoming in the following description as well as the drawing, illustrating it. The same figures or characters referred to are being used to point out or mark the same parts in the five figures shown.

In accordance with this drawing:

Fig. 1 illustrates an elevation or bird's eye view of the complete device that feeds the press cylinder of the crown caps assembling machine with liquid paraffine, which device is adapted to the machine. In said figure only a fragment of this press cylinder is shown.

Fig. 2 is a fragmentary view of one of the pressing bolts lodged in the ring of the press cylinder of the tin caps assembling machine, which bolt exerts a pressure by pressing the cork disk against the tin case over the plate of the aforesaid cylinder. To carry the liquid paraffine to the exterior surface of the cork disk, these bolts are the ones that suffer slight modifications as well as the aforementioned ring of the press cylinder of the machine.

Fig. 3 is a ground sketch or the lower end of one of the pressing bolts, showing its channels or grooves and its central perforation.

Fig. 4 is another fragmentary view in elevation of the pressing bolt, the inferior end of which is shown in a vertical section according to the line A—B of Fig. 3.

Fig. 5 also presents an elevation view in vertical cut of that piece which constitutes the inferior end in which the pressing bolt is lodged. This is the piece which exerts a pressure on the cork disk against the tin capsule.

Before proceeding to describe in detail the invention, in accordance to what the annexed drawing illustrates, I should like to point out specifically that this shows merely a specimen of its practical application. However, this does not mean that the invention will be restricted to the specific details illustrated and described. Therefore, one may avail oneself of variations and modifications of secondary parts and accessories, without deviating from the principles and sphere of the invention, which is invariably within the reach of the clauses contained in the chapter concerning the claims.

As illustrated in the annexed drawing, (*a*) is the press cylinder, with which the well known

crown caps assembling machines are equipped and into which the cork or cork conglomerate disks are pressed so as to fasten or adhere then to the interior of the tin capsule, an operation which is effected by means of the pressing parts or bolts (*b*), provided with its corresponding springs (*c*). The supporting column of the crown feeder is marked with (*d*), with which the aforesaid machines are always equipped and to which the paraffine feeding device, to be described subsequently in detail, may be fastened. Of course, this paraffine feeding device may be affixed to any other part of the machine considered suitable, the column (*d*) having been chosen as a mere instance of practical application.

As already inferred from the preceding paragraph, the cylinder (*a*), the pressing bolts (*b*), provided with its springs (*c*) and the column (*d*) are already usual and known in the machines assembling the cork packing to the tin crowns. They are merely illustrated and described so that the invention may be easily understood by the technicians and because to certain parts of the aforementioned cylinder (*a*) modifications are made which render possible the distribution of a reduced quantity of paraffine in the surface of each cork disk during its fastening process to the tin crowns.

It has already been mentioned that to the column of support (*d*) of the crown feeder or to any other part of the machine considered convenient and adequate, the paraffine deposit is fastened. This is a closed receptacle **10**, equipped with a lower conduct **11**, that connects said deposit with a dripper **12**, allowing the slow passage of the paraffine contained in deposit **10**. The fastening of the paraffine deposit **10** to column (*d*) or any other part of the machine may be carried out through any other suitable means, for instance, by means of a clasp **13** holding a lid or plate **14**, which in turn sustains a bolt **15**, fastened to said deposit **10**.

The dripper **12** or the paraffine deposit **10** allows, as already stated, the slow passage of same towards the conduct or channel **16** which carries said liquid paraffine to the ring **17**, with which all the machines are equipped in the press cylinder. This ring directs the stroke of the pressing bolts (*b*) and with the modifications described in subsequent paragraphs carries said liquid paraffine through the aforementioned pressing bolts (*b*) and deposits it gradually on the cork disks. Said channel **16** is fixed conveniently so that it receives the paraffine as it drops from the dripper **12**.

To keep the paraffine in deposit **10** at a warm temperature and in liquid form, so as to enable it to pass through conduct **11** and dripper **12** and flow into the inclined conduct or channel **16**, a plurality of gas, oil or any other fuel burners is available and is fed through the common conduct **19**. Their flames will hold the bottom or deposit **10** and conduct **11**, as well as channel **16** warm.

As stated in the preceding, there must be applied some modifications to the ring **17** of the press cylinder (*a*), consisting principally of a groove or hack **20**, made by an oblique cut along the entire periphery of said ring, in the form indicated more clearly in the Figures 2 and 4 of the annexed drawing, this groove **20** being the one that receives the hot paraffine coming from the channel **16**. A burner **21**, disposed at the height of the channel or groove **20**, keeps the paraffine falling into it warm and consequently fluid, since the cylinder (*a*) and therefore the ring **17** has a rotary or revolving movement, as already well known, in all the crown or tin caps assembling machines. Besides, to the same ring **17** a plurality of oblique perforations or bored holes **22** (Fig. 4 of the drawing) is made, which originate from the bottom of the groove **20** until connecting with the part **22** that constitutes the inferior end of the pressing bolts (*b*), it being therefore necessary that each oblique perforation or bored hole **22** coincides with each pressing bolt (*b*), disposed in the ring **17** of the cylinder (*a*).

The pressing bolts (*b*) are always composed of the pieces: the superior part **24**, surrounded by the spring (*c*), and the piece **23**, mentioned above, which practically is a hollow cylinder, closed in its base, reduces itself in its inferior end to the stem **25** that penetrates in the cavity **26** of piece **23**, fastened to it by means of the slider **27** that passes through said stem **25** and the bored holes **28** drilled at the superior edge of piece **23** (Figs. 4 and 5 of the drawing).

Now, in order that the hot paraffine flowing in the groove **20** made in the periphery of ring **17** communicates itself to piece **23** and passing through this is deposited on the surface of the cork disk (one has to bear in mind that the piece **23** constitutes the pressing part of the cork disk against the tin crown **29**, illustrated with dotted lines in the Figs. 2 and 4 of the drawing), this piece **23** must in turn have an oblique perforation **30**, that communicates precisely and effectively with the similar **22** of ring **17**, while at the bottom as well as at its center said piece **23** has another vertically bored hole **31**, through which the hot paraffine passes directly to the surface of the cork disk. It is to be preferred that the exterior surface **32** of piece **23** has a plurality of channels or grooves **33**, so that the paraffine flows through them and extends itself on the cork disk.

In order that the cylindrical stem **25** of the superior part **24** of the pressing bolt (*b*) does not obstruct the diagonal perforation **30** made in the piece **23**, it will have a small cut connecting with said perforation, as it is illustrated in Fig. 4 of the drawing; likewise, this same stem **25** will have a groove or channel **34** that serves only as draught establishing the current of air that facilitates the passage of the paraffine.

By this means, the paraffine contained in the receptacle **10** in liquid state, is carried through the conduct **16** towards the channel or groove **20** of the ring **17**, holding the pressing bolts, and through the perforations **22** coinciding exactly with the similars **30** of each piece **23** of same, as well as through the bored hole **31**, the paraffine will reach the cork disk, where it expends through the grooves **33** made at the bottom of said piece **23**.

Having thus described the invention, which I consider as new and desire to secure by Letters Patent is:

1. In a machine of the class described, a support for a crown cap, a plunger, means for moving the plunger into pressing relation with the liner cushion in a crown cap resting on the support, an element mounted in fixed relation to the support and having a bore of the same diameter as that of the plunger and through which the plunger operates, a fluid-coating-receiving channel in the outer surface of the member having a connecting passage with the bore, the plunger being provided with a passage having an outlet to register with the connecting passage in

the element only at a predetermined point in the path of movement of the plunger, the plunger passage having another outlet in the cushion engaging surface of the plunger, and means for delivering fluid coating material to the channel in the element.

2. A construction as defined in claim 1, wherein the cushion-engaging surface of the plunger is provided with surface grooves leading from and communicating with the coating outlet in that surface, said grooves serving to distribute the fluid coating material on the surface of the cushion.

3. In a machine of the class described, a support for crown caps, a plurality of plungers, means for moving the plungers into pressing relation with the liner cushions in crown caps resting on the support, a ring surrounding and common to all the plungers and having an endless fluid-coating-receiving channel on its outer surface, said channel having communicating passages through the ring to each of the plungers, each plunger being provided with a passage having an outlet to register with a communicating passage in the ring at a predetermined point in the path of movement of the plunger, each plunger passage having another outlet in the cushion engaging surface of the plunger, and means for delivering fluid coating material to the ring channel.

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