Oct. 19, 1926. 1,603,786

M. MARSA

METHOD OF MANUFACTURING BOTTLE CLOSURES

Filed May 15, 1925

Fig. 1.

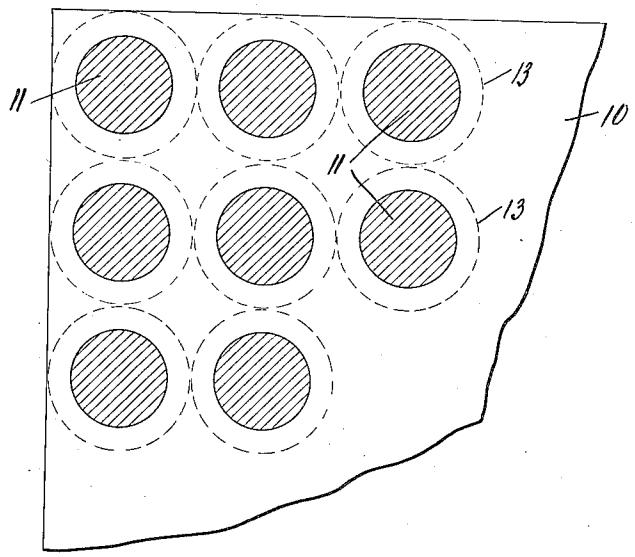


Fig. 3.

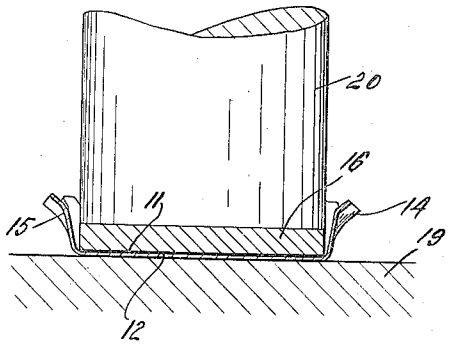
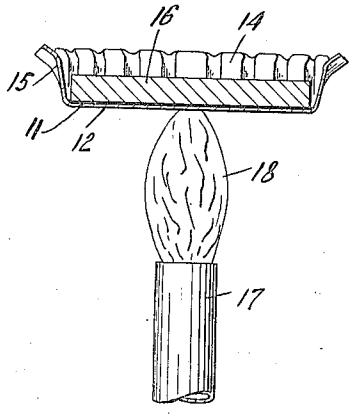


Fig. 2.



INVENTOR
M. Marsa
BY
Sigmund Bergy
ATTORNEY

Patented Oct. 19, 1926. 1,603,786

UNITED STATES PATENT OFFICE.

MELCHOR MARSA, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO NEW PROCESS CORK COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

METHOD OF MANUFACTURING BOTTLE CLOSURES.

Application filed May 15, 1925. Serial No. 30,531.

The present invention relates to the manufacture of bottle closures of the cap variety, including those commonly known as "crown corks".

Closures of this type usually comprise a metallic cap, having a corrugated flange to be locked to the exterior of the bottle neck, and a sealing disk or packing of cork or the like within and cemented to the cap and adapted to be seated against the top of the neck of a bottle, to make a gas- and liquid-tight joint.

Various kinds of cementing materials have been employed heretofore in producing these closures, and the method of making the closure depends mainly on the character of the cementing material employed. In some cases, for instance, fusible cements or binding materials are used; in others cements are employed which are coagulated by heat. As far as known, in all closures heretofore manufactured the cementing material is inserted into the metallic cap after the same has been shaped or formed, preferably by stamping operation, and the sealing or packing disk deposited into the cap on top of the cementing material, the assembled closure being then subjected to further operations, so as to unite the disk with the cap by the aid of the cement.

The main object of the present invention is to reduce the number of steps heretofore employed in assembling and uniting the elements of the closures, and thereby not only simplifying the machines by which the closures are assembled and united, but also reducing the period of manufacture due to the number of reduced steps of the method employed.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the method herein described consists, generally speaking, in applying a cementing material to the metal sheet from which the caps are cut and formed into caps, more particularly to those portions of the sheet which are to constitute the inner faces of the heads of the caps; forming the caps; inserting therein the packing disks; and then uniting the caps and disks by the aid of the cementing material.

The several steps of one of the many possible methods are illustrated in the accompanying drawings, in which:

Figure 1 illustrates the surface of a piece of sheet metal of which the caps are to be formed, having the cementing medium applied thereto in circular spots; Fig. 2 is a central vertical section taken through the assembled closure, the same being heated by a source of heat, such as a gas flame; and Fig. 3 is a similar section taken through the closure, the elements thereof being held under pressure while being cooled.

Referring now to the drawings, the numeral 10 indicates a piece of sheet metal, to one face of which is applied in circular spots 11 a cementing medium. This cementing medium is, preferably, a resinous substance in solution, it being odorless and tasteless in order to meet the requirements, and it being applied to the sheet in any suitable manner while in solution. The circular spots 11 are of a size corresponding substantially to that of the inner faces of the heads 12 of the caps to be formed, and are properly spaced corresponding to the spacing of the dies of the press on which the sheet is initially cut along the dotted lines 13 in the process of shaping and forming the caps.

After the cementing material has been applied to the metal sheet, the latter is subjected to high temperature, preferably, in an oven, to evaporate the solvent of the cementing material. The sheet may thus be handled without danger of removing the cementing material therefrom.

The sheet is then placed into a press and the caps shaped and formed, one of the same being indicated by the numeral 14 (Figs. 2 and 3). This cap comprises a head 12, as above stated, and a corrugated flange 15, the latter being applied to and locked to the exterior of the bottle neck to be closed. On top of the cementing material is placed within the cap a packing disk 16 of cork or the like, and thereafter heat is applied to the assembled elements of the closure. Any suitable source of heat may be used, for instance a gas burner 17, from which issues a jet 18, preferably striking the outer face of the head of the cap. The cementing material is thus fused. The assembled closure is thereupon placed on a support 19, and the

elements thereof placed under compression, for instance by a plunger 20 bearing against the exposed face of the packing disk 16, and the closure cooled in any suitable manner, to harden the cementing material, whereby the elements of the closure are firmly united.

This type of bottle closures is usually produced on automatic machines, all of which must, of necessity, contain a mechanism for depositing into the metal caps of the closures a cementing material, either in liquid or viscous form, or in the form of paper collet, treated with the cementing medium. It is obvious that the machines for carrying out the method herein described do not need the cement feeding and depositing means, and, therefore, they are not only simplified in construction but permit of a faster turning out of the closures. In the present method the cementing material is applied to the metal sheets, of which the closures are to be formed, simultaneously with the steps necessary for treating the same, preparatory to the cutting and shaping operations. These steps include shellacking of the sheets and decorating the same, that is to say printing thereon trade-marks or other information, which is to appear on the outer faces of the heads of the caps.

It is obvious that, while in the method herein described heat is applied to the assembled closures previous to the elements thereof being placed under compression, heat may be applied, to fuse the cementing material, before the packing disks are placed into the caps, or after the elements of the closure have been put under compression without departing from the invention, which lies mainly in applying the cementing medium to the sheet, of which the caps of the closures are to be shaped and formed. It is entirely immaterial, as far as the method, forming the subject matter of the present application for Letters Patent is concerned, at which stage of manufacture the said cementing medium is fused or softened.

It is also obvious that, instead of a fusible cementing medium, a cement may be employed which is coagulated by heat. In such case the closures, after the elements thereof have been assembled, are placed under compression and heated to coagulate the cement, whereby an almost instantaneous union is formed between the caps and the packing disks therein.

What I claim is:—

1. The method of manufacturing bottle closures of the cap variety which consists in, first, applying to one face of the metal sheet of which the caps of the closures are to be formed a fusible cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, second, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material, third, inserting into a cap a packing disk of cork or the like, fourth, fusing the cementing material, and, fifth placing the cap and the packing disk therein under pressure and cooling the assembled closure so as to harden the cementing material.

2. Those steps of manufacturing bottle closures of the cap variety which consist in, first, applying to one face of the metal sheet of which the caps of the closures are to be formed a cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, and, second, cutting the sheet around the said spot and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material.

3. The method of manufacturing bottle closures of the cap variety which consists in applying to one face of the metal sheet of which the caps of the closures are to be formed a fusible cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head of a cap to be formed, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head only of each cap is substantially covered with cementing material, inserting into a cap a packing disk of cork or the like, fusing the cementing material either before or after the insertion of the packing disk, and cooling the assembled closure under pressure so as to harden the cementing material.

4. The method of manufacturing bottle closures of the cap variety which consists in applying to one face of the metal sheet of which the caps of the closures are to be formed a cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material, inserting into a cap a packing disk of cork or the like, and thereafter subjecting the assembled closure to further treatment to unite the elements thereof.

Signed at New York, in the county of Kings and State of New York, this 8th day of May, A. D. 1925.

MELCHOR MARSA.