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B. COHN

1,921,808

METHOD OF MAKING CLOSURES

Filed July 20, 1932

Fig. 1.

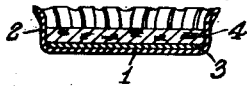


Fig. 2.

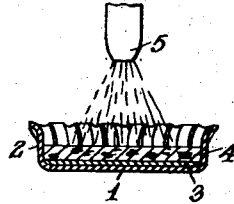


Fig. 3.

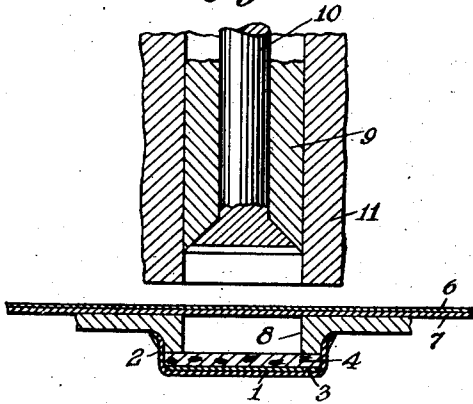


Fig. 4.

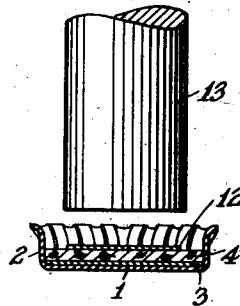


Fig. 5.

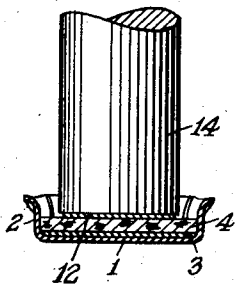
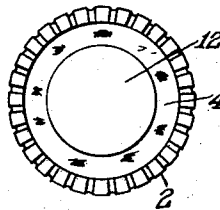


Fig. 6.



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METHOD OF MAKING CLOSURES

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3 Claims. (Cl. 113—80)

My invention relates to an improved method of manufacturing container closures having a "spot" or disk of metal foil or other suitable material centrally located on the exposed face of the sealing gasket within the closure and it is my object to practice an economical method by which such "spots" are cut cold from the ribbon or strip from which they are punched and are firmly united to the gasket.

The "spots" or disks of metal or other material, are, in practice punched or cut from a strip or ribbon which is faced on one side with a suitable adhesive, such as gutta-percha, which is hard enough to handle conveniently at ordinary temperatures but which becomes tacky when heated.

Heretofore a completed cap has been fed beneath a heated cutting die which has punched out the "spot" or disk and forced it against the gasket, the heat of the die softening the adhesive and causing the "spot" and gasket to stick together. The use of a hot die melted the adhesive and gummed the cutting die causing it to stick and even break when the accumulation of adhesive became too great. Moreover one operation was required to assemble the gasket in the shell and a subsequent operation was required to apply the "spot" to the gasket.

By my method the strip or ribbon of foil or other material is cut or punched by a cold die and pressed against a heated gasket so that there is no danger of the cutting die accumulating adhesive which would render it inoperative. Furthermore the assembly of shell, gasket and "spot" is accomplished in one operation. This is more economical and better, and avoids marring the appearance of the cap by excessive handling and heating. My new method has further advantages which will be set forth herein.

In the drawing I have shown my invention in diagrammatic, exaggerated form as the machines used in carrying it out are well known in the art. Fig. 1 is a sectional view of a cap with the adhesive and sealing gasket therein; Fig. 2 a sectional view of the cap of Fig. 1 passing under the heating flame; Fig. 3 a sectional view showing the cutting out and insertion of the "spot"; Fig. 4 a sectional view showing the operation of the smoothing plunger; Fig. 5 a sectional view of the cap under the plunger on the cooling ring of an assembly machine; and Fig. 6 a view of the inside of a finished cap.

For the purpose of illustrating my invention I have shown it applied to a crown cap but the method may be applied to any other type of closure.

The crown cap consists of a metal shell having a top 1 and a depending, corrugated skirt 2. An adhesive 3 is introduced into the shell, generally in the form of a disk of paper saturated with gums, which becomes adhesive under the action of heat. A sealing gasket 4, of cork or other material, is then placed in the shell on top of the adhesive. Heretofore, in making "spot" closures the assembled closure so far described has been subjected to heat and pressure to stick the gasket to the shell and the "spot" has been applied by a subsequent operation.

By my method the shell, adhesive and gasket are assembled but not firmly stuck together as they are in the completed crown under the old method referred to above. Depending on the adhesive used, the shell, with or without adhesive or gasket therein, may or may not be heated. The closure is then passed, gasket side up, under a flame 5 which heats the gasket. A series of heated plungers may be substituted for the flame. The closure next passes under a strip or ribbon of foil 6 (or any other suitable material) coated on its lower face with an adhesive 7. This strip or ribbon runs over a female die 8 having an opening the size and shape of the "spot" to be applied to the gasket, and an annular, depending flange adapted to enter the shell and center it. A cutting punch 9, with a knock-out plunger 10, is mounted in a sleeve 11 and is reciprocated over the female die 8 and on the down stroke the cutting punch 9 punches out a "spot" 12, which "spot" is pushed against the heated gasket 4 by the knock-out plunger 10. The cutting punch 9 and knock-out plunger 10 are cold so that the adhesive on the strip or ribbon will not be softened and adhere thereto. As the knock-out plunger 10 is necessarily smaller than the "spot" 12 the edges of the latter will not be firmly pressed against the gasket 4, but the "spot", as a whole, will be firmly enough united to the gasket 4 as not to be jarred out of position. Before the adhesive has cooled the closure, with the spot adhering to the gasket 4, is next passed under a smoothing plunger 13, which may be heated when desirable and which covers the entire gasket and presses the entire surface of the "spot" into contact with the gasket.

The closure finally passes under a plunger 14 on the cooling ring of the assembling machine where pressure is maintained on the completed closure until the adhesive 3 and the adhesive 7 have set.

In this way a single assembling machine may be used to assemble the various parts of a "spot"

closure instead of completely assembling the closure in one machine and then refeeding it through another machine which applies the "spot"

I claim:

5 1. The herein described method of making closures comprising the following steps in continuing succession: the application of a cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

10 2. The herein described method of making closures comprising the following steps in continuing succession: the application of a fusible cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, the temporary application of heat

throughout substantially the entire area of said disk, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing cold pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

85 3. The herein described method of making closures comprising the following steps in continuing succession: the application of a fusible cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, the temporary application of heat and pressure throughout substantially the entire area of said disk, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing cold pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

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