Aug. 22, 1939. W. M. VOGEL 2,170,436

CAN

Filed March 26, 1938

Fig. 1.

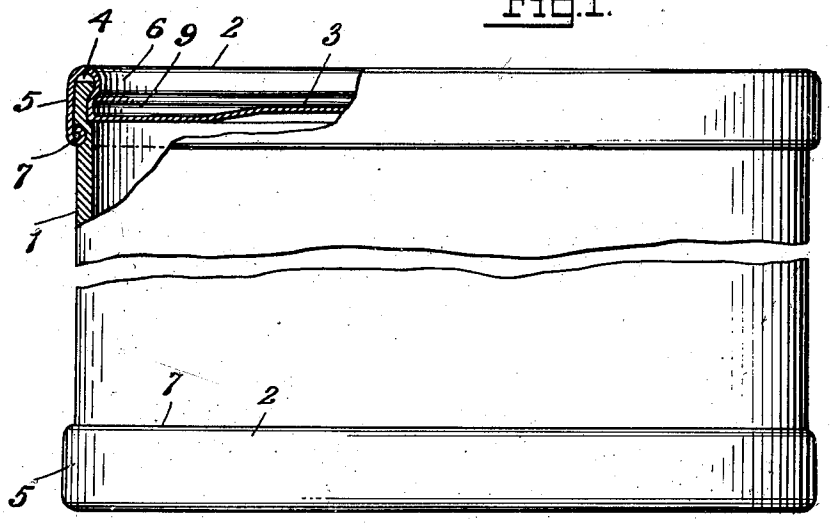


Fig. 2.

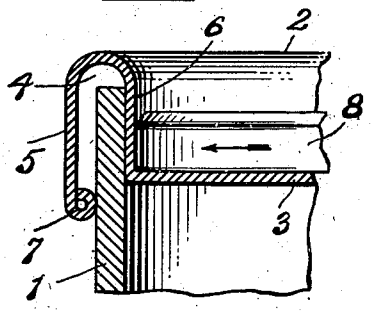


Fig. 3.

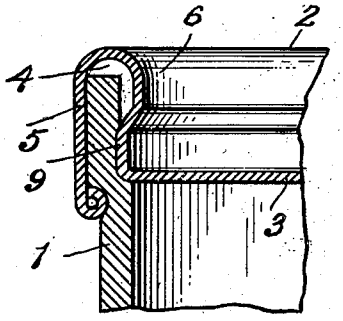
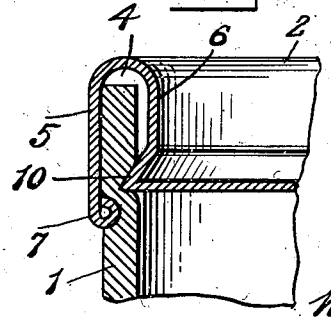


Fig. 4.



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CAN

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1 Claim. (Cl. 229—5.6)

This invention relates to cans or similar receptacles and particularly those in which the body of the can or receptacle is made of cardboard or some similar relatively soft and compressible material. Cans of this character as made at the present time are composed of a cylindrical body made of cardboard and closed at the opposite ends by means of sheet metal closure members or caps.

It has been found relatively difficult to provide some satisfactory means by which these metal end caps or covers can be successfully attached to the ends of the cardboard body. Any means of attachment employed for uniting the closure members or caps with the cardboard body of the can must be one which will positively provide a leak-proof joint. In addition, the ends must be so attached as to stiffen the entire can and hold the body as rigid as possible and must also be attached so securely as to avoid disconnection during the normal use of the can.

The object of this invention therefore, is to provide a simple and practical means by which the sheet metal end caps or closure members may be attached to a tubular body or cardboard or other compressible material, to meet all of the requirements above mentioned.

A further object of the invention is to provide means for so attaching the ends of the can, that said ends may be speedily and securely attached to the can body with a minimum of labor and without the performance of extraordinary assembly operations.

A further object of the invention is to provide a new and novel method for effectively attaching sheet metal end members to a cardboard can body.

In the drawing wherein an embodiment of the invention is shown, Fig. 1 is a side elevation, with parts in section, of a can made in accordance with the invention, the closure members or caps being purposely enlarged to more readily disclose construction; Fig. 2 is a sectional view through a part of the can body and through the flange portion of one of the caps before the flange is distorted; Fig. 3 is a sectional view similar to Fig. 2 showing the flange portion of the cap in its final position as applied to the end of the body of the can; and Fig. 4 is a sectional view showing a modified structure.

In the drawing, 1 indicates the can body which is of the conventional tubular form and is preferably composed of relatively thick, compressible material such as cardboard or the like. The opposite ends of the tube thus formed are adapted to be closed by means of the closure members or caps 2. Each of said closure members or caps is composed of a body portion 3 of disc-like form having its marginal edge channelled as indicated at 4, said channel including the outer downwardly extending flange 5 and the inner wall 6 integrally connected to the flange. The end portion of the cardboard body 1 fits into the channel 4 and is thus disposed between the flanges 5 and 6. The outer, downwardly extending, flange 5 has its lower edge continuously rolled up or beaded as at 7, or otherwise continuously reinforced to stiffen the entire flange. The inner wall 6 is shorter or of less depth than the outer flange 5.

The first step in the method of attaching the caps 2 to the ends of the body portion 1 is indicated in Fig. 2. In its initial form each cap 2 is in the shape shown in Fig. 2 where it will be seen that the inner flange 6 is straight or undeformed. In this condition, the cap is inserted on the end of the body portion 1 so that the end of said body portion fits into the channel 4. Then rotating forming-rollers 8 apply lateral pressure against the exposed faces of the inner wall 6, said pressure being exerted in the direction of the arrow in Fig. 2, causing the wall 6 to be distorted or deformed outwardly to provide an annular lateral projection or rib 9 in wall 5, as clearly shown in Figs. 1 and 3. The formation of such projection by the action of the rollers 8 causes the compressible body portion 1 to be deformed within the channel 4 substantially as shown in Fig. 3 and firmly gripped between flange 5 and the projection or rib 9 and a very secure attachment of the cap on the upper end of the body portion 1 results. It will be noted that the lateral projection 9 formed in the wall 6 is located above the stiffened or beaded lower edge 7 of flange 6.

The edge shape of the forming rollers 8 determines the shape of the distorted portion 9 of the inner wall 6. For example, by the use of a distorting roller of an edge shape slightly different from that shown in Fig. 2, the type of projection shown at 10 in Fig. 4 can be made in the wall 6. The shape of the projection produced in the wall 6 and the extent to which it compresses and deforms the portion of the cardboard wall of the container between it and the inner face of the outer flange 5 is dependent to a considerable extent upon the softness, resiliency and other factors, of the type of cardboard or other compressible material used for the formation of the wall of the receptacle.

It will, of course, be understood that while the forming-rollers 8 are operating to distort the wall 6 outwardly, the wall flange 5 is suitably backed or otherwise supported and prevented from being deformed by said pressure, so that the deformation occurs only in the wall 6 and not in the outer flange 5.

By the application of a cap or closure member to the end of a compressible body portion in the manner shown, a strong and effective closure is provided which will not only reinforce and stiffen the structure of the can, but will be leak-proof under all conditions of use.

What I claim is:

A closure for cans comprising, a can body body composed of compressible material such as cardboard, a closure cap for fitment over one end of the can body, said closure cap being formed at its periphery with an upwardly extending wall having an outwardly and downwardly extended flange portion co-operating with the wall to form a channel between said wall and the flange into which the end of the can body is fitted, said flange being of greater depth than the wall, the flange having its end provided with a continuous inwardly-rolled bead located below the lower end of the wall and thereby stiffening the end of the flange below the end of the wall, the wall having a laterally distorted portion directed into the channel above the stiffened, beaded end of the flange and co-operating with said stiffened, beaded end of the flange to engage, grip and distort a portion of the compressible body of the can between them.

WILLIAM MARTIN VOGEL.