

Nov. 12, 1940.

H. J. BERENSON ET AL

2,221,177

CAN CLOSURE

Filed Dec. 15, 1937

Fig. 1.

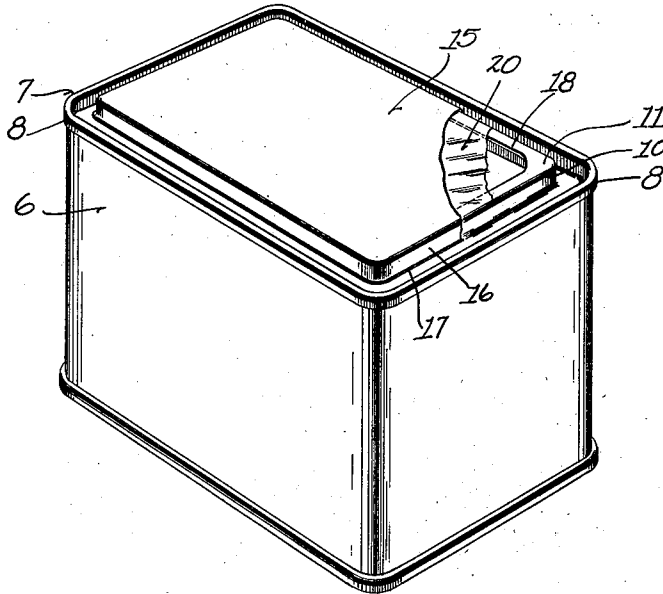


Fig. 3.

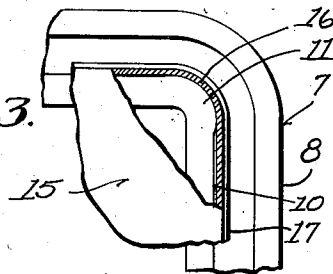


Fig. 2.

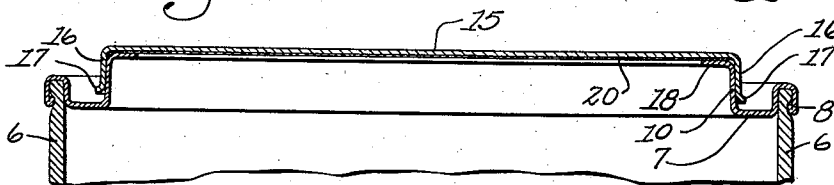


Fig. 4.

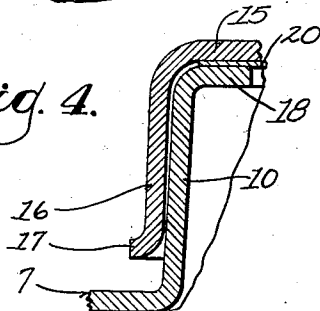
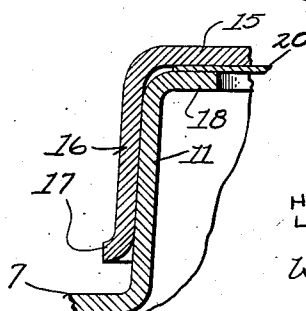


Fig. 5.



INVENTOR
HENRY J. BERENSON AND
LOUIS N. TRUDEAU
BY
Wheeler, Wheeler Wheeler
ATTORNEYS

UNITED STATES PATENT OFFICE

2,221,177

CAN CLOSURE

Henry J. Berenson and Louis N. Trudeau, Milwaukee, Wis., assignors to Eben C. Ives, St. Paul, Minn.

Application December 15, 1937, Serial No. 179,817

3 Claims. (Cl. 220—42)

This invention relates to improvements in can closures.

While the invention may be used upon cans or containers made of any materials, it has particular reference to metal closures for use upon non-metallic containers.

It is the primary object of the invention to provide a novel, improved and smoothly operable closure in which the cap portion of the closure is frictionally secured to the top wall thereof and which, in repeated operations of removal and replacement, will always function smoothly without sticking. There has never been an entirely satisfactory closure for the purposes of a container or can of the type in which the contents are used gradually so that the cap must be repeatedly applied and removed. The present device seeks to provide a satisfactory closure for use under these circumstances, and achieves its objective to produce results of a very satisfactory nature.

The invention is particularly directed to closures of the type in which the rim of the can top is received within the rim of a shallow cap. Thus the device may be used either with or without a seal or supplemental closure of foil, Cellophane, or paper.

Additional objectives of the invention will be apparent from the following disclosure.

In Figure 1 we have illustrated in perspective a device embodying the invention, portions of the cap being broken away to expose a rim portion of the can top.

Figure 2 is an enlarged fragmentary cross section through the device shown in Figure 1.

Figure 3 is a further enlarged detail view partially in plan and partially in horizontal section, showing a corner portion of the assembly.

Figure 4 is an enlarged detail view in cross section through a side portion of the device shown in Figure 1.

Figure 5 is an enlarged detail view in cross section through a corner portion of the assembly shown in Figure 1.

Like parts are identified by the same reference characters throughout the several views.

As above indicated, the material of which the can or container is made is broadly not pertinent to the present invention. It may, however, be assumed that the receptacle or can 6 is made of paper or fiber upon which the top 7 is crimped as shown at 8 in the usual manner.

Regardless of the shape of the can, the present invention contemplates that the can top 7 shall be provided with an upstanding rim 10 over

which the cap hereinafter to be described shall be telescopically slidable, the arrangement being such that the rim and the cap are not entirely complementary, one or the other being offset at substantial intervals to provide areas of pressure contact between which there exists a minute spacing barely sufficient so that the friction between the cap and the rim is concentrated at such contact areas.

For the purposes of the present disclosure it may be assumed that it is preferred that the rim 10 be of generally polygonal and preferably rectangular outline in plan, as distinguished from a circular or elliptical contour. In other words, it should have corners 11 which need not be sharply rectangular and may, in fact, be rounded as shown, but which should desirably be very well defined and should preferably be separated by substantially rectilinear side portions. Where the outline is polygonal, these corners 11 may conveniently constitute the portions of the rim which are pressed slightly outwardly. This may readily be accomplished by a suitable conformation of the forming die. The degree of expression is actually exaggerated in Fig. 3. In actual practice the projection of the corners 11 beyond the remaining side portions of rim 10 is so slight as to be almost imperceptible.

The cap 15 has a skirt portion 16 which is complementary to the rim 10 with the exception that its generally polygonal outline should not be expressed specially at its corners, and with the further exception that its angle with reference to the vertical is materially less than that of the rim. In actual practice we prefer that the angularity of pitch of the rim 11 be approximately three degrees from the vertical, while the angularity of the skirt or flange 16 of the cap is only approximately one and one half degrees from the vertical. The extreme margin of the skirt or flange 16 is also preferably formed outwardly as shown at 17 to facilitate its application over the rim.

The upper margin of the rim is preferably provided with a horizontal flange at 18 to comprise a seat upon which the flat upper surface of the cap rests when the closure is tightly applied. There may also be interposed between the seat 18 and the closure a seal 20 which may be made of sheet metal or paper or the like, but is preferably made of Cellophane which, being transparent, will fully protect the contents of the original package while rendering them fully visible upon removal of the closure. Moreover, the

Cellophane seal is readily broken to permit access to the contents.

The extent to which the corners 11 of the rim are projected beyond the sides thereof is so slight as not to be perceptible to the eye. Consequently the gap between the skirt portion of the lid and the side portion of rim 10 which exists as shown in Fig. 4 is so minute as to be of a capillary nature and it does not permit the escape of the contents of the can even if the lid 15 is not tightly seated on the flange 18. Yet the gap exists and eliminates all friction between the sides and ends of the cap and the sides and ends of the rim.

15 Since all friction is concentrated at the corners 11, the lid or cap may be removed and applied with no sticking whatever and with great smoothness of movement. The difference of operation between a device embodying this invention and the more conventional circular or elliptical cap or the stopper type cap is pronouncedly apparent to the operator. Moreover, the slight difference in angle between the sides of the cap and rim causes a very gradual increase in frictional resistance to movement of the cap during application thereof so that ultimately the cap is very firmly held by friction but is so smoothly operable as to be instantly and readily removable under all circumstances.

30 Thus the invention is particularly adapted for cans or receptacles from which the contents are removed in relatively small amounts from time to time. The replacement of the cap following each removal will make the package as tight as it was in the first instance, and this is accomplished without sticking or binding at any time.

I claim:

1. In a device of the character described, the combination with a container top having a substantially rigid upstanding rim of generally rectangular form with its exterior surface at a slight angle to the vertical and its corners rounded and projecting slightly beyond its sides and ends, of a removable cap with a skirt portion in frictional pressure engagement with the

outer surface of said corner portions and a flange projecting from the top of said rim and slightly spaced from the rim intermediate said corner portions, said skirt having an angle with respect to the vertical less than that of said rim, said top being provided with a central opening within said rim and a flange projecting from said rim centrally about said opening.

2. In a device of the character described, the combination with a container top having a substantially rigid upstanding rim of generally rectangular form with its exterior surface at a slight angle to the vertical and its corners rounded and projecting slightly beyond its sides and ends, of a removable cap with a skirt portion in frictional pressure engagement with the outer surface of said corner portions of the rim and slightly spaced from the rim intermediate said corner portions, said skirt having an angle with respect to the vertical less than that of said rim, said top being provided with a central opening within said rim and a flange projecting from the top of said rim centrally about said opening, together with a seal seated on said flange and upon which said cap is seated.

3. In a device of the character described, the combination with a container top having an upstanding rim of generally rectangular form with its exterior surface at a slight angle to the vertical and its corners rounded and projecting slightly beyond its sides and ends, of a removable cap with a skirt portion in frictional pressure engagement with the outer surface of said corner portions of the rim and slightly spaced from the rim intermediate said corner portions, said skirt having an angle with respect to the vertical less than that of said rim, said top being provided with a central opening within said rim and a flange projecting from the top of said rim centrally about said opening, together with a seal seated on said flange and upon which said cap is seated, said seal comprising a transparent web.

LOUIS N. TRUDEAU.
HENRY J. BERENSON.