

Feb. 14, 1939.

S. A. WARK ET AL

2,147,004

BEER CAN

Filed Sept. 22, 1937

Fig. 1

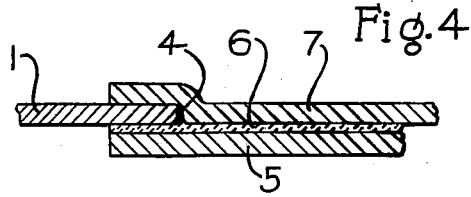
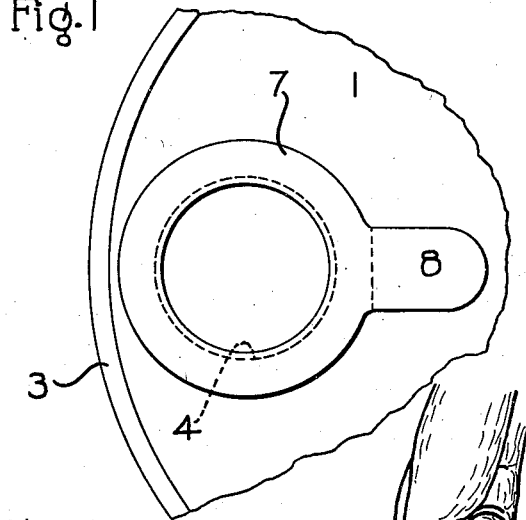


Fig. 2

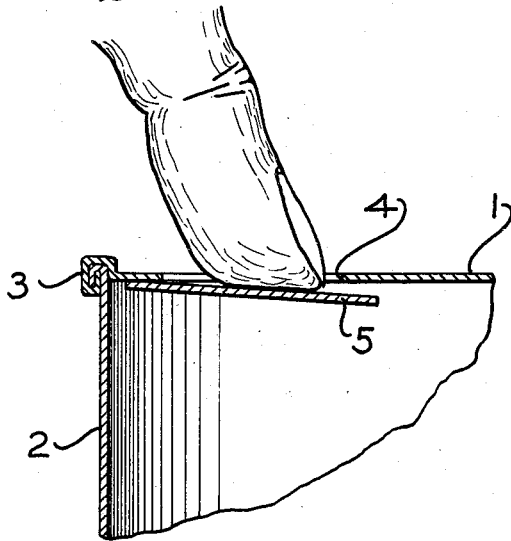
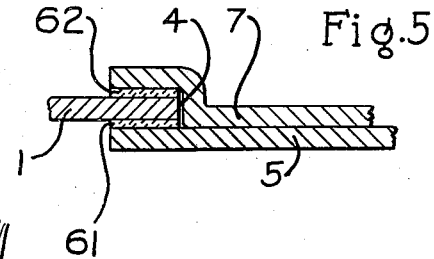
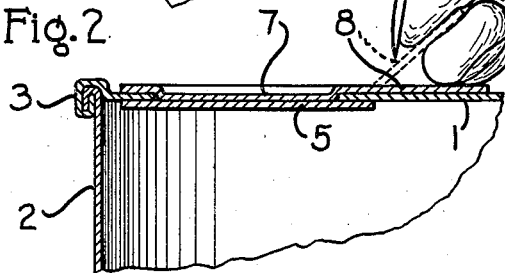


Fig. 6

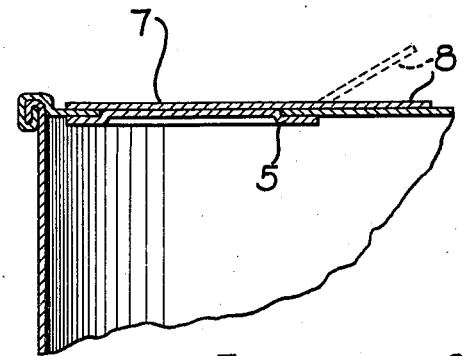


Fig. 3

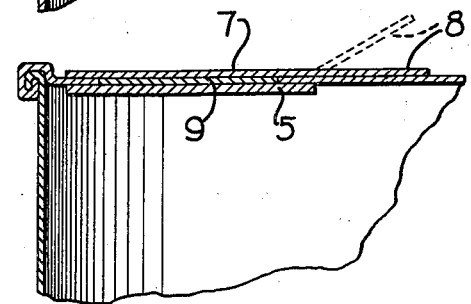


Fig. 7

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UNITED STATES PATENT OFFICE

2,147,004

BEER CAN

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Application September 22, 1937, Serial No. 165,122

3 Claims. (Cl. 220-53)

Our invention relates to containers in which fluids under pressure are to be held, and from which they are consumed. In particular it is designed as a can for beer.

5 Canned beer is particularly suitable for transporting to out-of-the-way places, as on picnics, yachting, fishing, etc., but when it is to be drunk it is necessary to have available a can opener, usually one of special design being used for the purpose. Such an opener may not be readily available in the place where the beer is to be consumed, but in any event the gratuitous furnishing of such an opener with the sale of a few cans of beer constitutes an expense to the merchant which is a considerable portion of any profit he may make, and even so, an opener which may be furnished may be lost, or is not readily available to all members of a party when the beer is to be consumed.

20 Accordingly it is an object of our invention to construct, as an integral part of the can, a means which will hold the contents securely up to the time when it is desired to consume the contents, and which then will permit access to the contents readily, without the use of any tools, and without the application of any appreciable force, and which will leave in the top or other wall of the can a hole through which the beer may be drunk, which will have no sharp, jagged edges.

30 It is naturally a further object to provide such an access opening and closure therefor which will be simple and so cheap to manufacture that it can be built into every such can, thereby completely obviating any necessity for furnishing openers, and making the contents of the can available at any time, yet holding these contents securely against accidental opening until such time as it is desired to consume the contents.

40 Our invention may be embodied in various forms, and in various containers, and in various parts of different containers, and in containers for various products, especially where there is internal pressure. Various objects, and particularly such as pertain to different uses or environments of the invention, will be determined as this specification progresses.

50 Our invention comprises the novel closure and the novel combination thereof with a container and with associated parts, all as shown in the accompanying drawing, and as will be hereafter described and more particularly defined by the claims which terminate this specification.

55 In the accompanying drawing we have shown our invention embodied in various illustrative forms, and this drawing is intended as informative rather than restrictive.

60 Figure 1 is a top plan view of a portion of a can cover, showing our invention incorporated

therein, in a form which is at present preferred by us.

Figure 2 is a transverse section through the can cover and through our closure, applied thereto, illustrating the first step in the operation of opening the can, and Figure 3 is a similar view showing the second and final step.

Figure 4 is an enlarged section through an edge of the hole and of the closure, showing one way in which the parts are assembled, and Figure 5 is a similar view showing a modified manner of assembly.

Figure 6 is a view similar to Figure 2, showing a slight modification in the form of the individual parts, and Figure 7 is a similar view showing a further modification.

As we have stated above, the invention is applicable to various types and shapes of container, to containers formed of different materials, and to containers for holding various commodities, but it is best illustrated by reference to the ordinary cylindrical can of the type now employed for holding beer, and is deemed by us to be best adapted for such use. The can body is illustrated at 2, the top at 1, and the seam whereby the top is sealed to the body at 3. The bottom of the can is not shown, but would be applied and sealed in the normal way.

Departing from previous cans of this nature, according to our invention the top 1 is formed with an aperture or hole 4, which preferably is located near one edge of the top 1. Prior to filling the can the hole 4 is closed by a disk 5, placed upon the inner side of the top 1, and which is of a size and shape to completely close over the hole 4, and to marginally underlap all margins of the hole. The size and shape of the hole 4 may vary, as may be preferred, and the size and shape of the disk 5 will vary correspondingly. Preferably the hole is round, since that is the simplest shape to form and a closure disk for such a round hole most readily resists the internal pressure of the beer within the can, tending to push it upwardly through the hole.

It will be evident that this internal pressure serves to press the disk 5 to a seat, all about the margin of the hole 4, and if the disk 5 is sufficiently stiff it cannot be bowed upwardly through the hole, and consequently will serve to seal the hole. The disk need have very little inherent stiffness to resist the bowing tendency of the inward pressure in a hole of normal size, such as would be formed in the top of the ordinary beer can. However, it is preferable to provide positive sealing means, rather than to rely wholly upon the internal pressure of the beer upon the disk to hold the margins of the latter to the margins of the hole, or to rely wholly on this pressure for the prevention of leakage past the margin of the hole. To this end a sealing substance, for

instance, latex similar to that employed in sealing the parts at the seam 3, may be employed, and is indicated at 6 in Figure 4. This seals about the edge of the disk 5 and about the edge of the hole 4.

Thus sealed, whether by reliance wholly upon the internal pressure or by the application of the sealing substance 6, the disk 5 is not readily displaced by accident, but it can be displaced by inwardly directed pressure of a thumb through the aperture upon the disk, in the manner illustrated in Figure 3.

To prevent accidental dislodgment of the disk 5 we prefer to protect it by an outer disk 7. This may take various forms and shapes, though preferably it is primarily of the same shape as the disk 5, and thus marginally overlaps the hole 4. It may be embossed downwardly, as shown in Figures 2, 4 and 5, whereby its center is disposed within the aperture 4 and contacts the upper surface of the inner disk 5. Thus it reinforces the inner disk against the inward pressure. The outer disk 7 is preferably held in place against accidental removal, as for instance in the form shown in Figure 4, by the spreading of the adhesive substance 6 between the two disks, the disk 7 being embossed to substantially contact the disk 5, with the adhesive 6 between them. In the form shown in Figure 5 the adhesive is arranged in a small ring, as shown at 61, only about the margin of the inner disk 5, and is similarly arranged in a ring 62 about the margin only of the outer disk 7.

The outer disk is provided with a tab 8 which is not secured to the top 1, but which can be hinged back so that it may be grasped between the thumb and forefinger, in the manner illustrated in Figure 2. This enables the outer disk 7 to be lifted, the only resistance being the adhesion of the sealing substance. In this manner the disk 7 can be removed when its removal is desired, yet accidental removal is extremely unlikely. Once the outer disk 7 is removed, the inner disk 5 may be pressed inwardly, as shown in Figure 3, in opposition to the adhesion of the sealing compound and to the internal pressure, and the contents of the can are immediately accessible. All of this may be accomplished without the use of any tools whatsoever, and by a construction which is simple in the extreme, and which will be found particularly suitable for use in beer cans.

Figure 6 illustrates a slight reversal of the form shown in Figure 2, for here the inner disk 5 is dished upwardly, and the outer disk 7 is plane. With respect to the embossing of one or the other of the disks, it should be pointed out that the edges of the embossed portion preferably do not contact with the edges of the hole 4, as is best shown in Figures 4 and 5. The embossed disk is in no sense analogous to the well-known friction top or closure, where the securement of the top is accomplished by engagement of an embossed portion within the edge of an aperture. In this closure the space between the edge of the hole 4 and the embossed portion of one or the other of the disks is free and clear, and there is no necessary contact. This space may become filled with some of the sealing substance, but there is in no sense a frictional engagement here which is relied upon to retain either disk in position, except as it aids in preventing movement of the disk in the plane of the top.

In Figure 7 both the inner and outer disks are shown as plane, but with a disk 9 interposed between them. The disk 9 may be secured to one or to the other of the disks 5 or 7, or to neither. It is in effect merely a spacer between the two plane disks, and might indeed be formed of the material cut out to form the aperture 4.

The same principles may be embodied in containers where the contents are not under pressure, or are even subjected to reduced pressure, as in a "vacuum-pack". In the latter case, at least, the disk 5 would be applied to the outside of the apertured wall of the container, the better to resist the higher inwardly directed pressure of the atmosphere. Should the contents be under no particular pressure, positive or negative, the invention will still be desirable and effective, and the latex 6 will serve as the principal sealing agent.

What we claim as our invention is:

1. In combination with a sealed container for retailing beer or a like liquid under pressure, having an aperture in its top or other wall of a size to admit the consumer's finger, a disk within the container underlying and marginally overlapping the aperture, whereby the internal pressure acts to press the disk outwardly to a seat about the margin of the aperture, and the disk is unseated by pressure inwardly directed upon the disk, through the aperture, a second disk seated upon the outside of the container top, at the aperture, and protecting the first disk against inwardly directed pressure, and a sealing compound or the like to support the second disk in such position, readily releasable without tools for access to the first disk.

2. In combination with a sealed container for beer or a like liquid under pressure, having an aperture in its top or other wall, of a size to admit the consumer's finger, a sheet metal disk within the container underlying and marginally overlapping the aperture, whereby the internal pressure acts to press the disk outwardly to a seat about the margin of the aperture, and the disk is unseated by pressure of the consumer's finger inwardly directed upon the disk, through the aperture, to fall free within the container, a second sheet metal disk seated upon the outside of the container top, surrounding the aperture, and engaging the first disk through the aperture, whereby the outside disk protects the inside disk against inwardly directed pressure, and reinforces the inside disk's resistance to outwardly directed pressure, and a sealing compound or the like to support the outside disk in such position, readily releasable for access to the first disk.

3. In combination with a sealed can for beer or the like, having a dispensing hole formed in its top, of a size to admit the consumer's finger, a sheet metal disk applied to the inner face of the top, of a size to marginally underlap the hole, and a second disk applied to the outer face of the top, and contacting the inner disk through the hole, of a size to marginally overlap the hole, and a sealing substance acting to prevent leakage past the edge of the hole, and holding the disks in place against accidental removal, but permitting separation of the outer disk, and then separation of the inner disk by inward pressure, all without the use of tools.

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