Nov. 25, 1952 M. L. BRICOUT 2,619,255

SEALED METALLIC CONTAINER

Filed Jan. 13, 1948

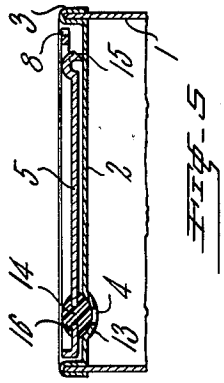


FIG. 5

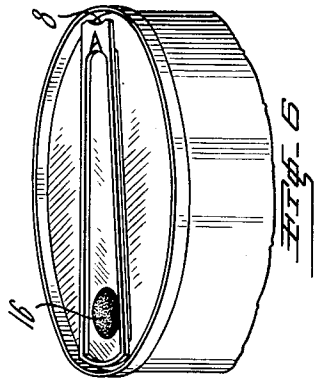


FIG. 6

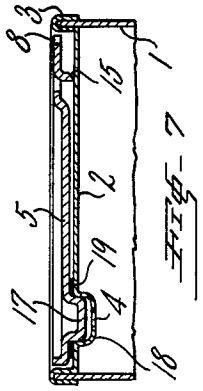


FIG. 7

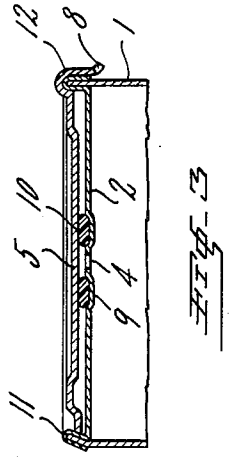


FIG. 3

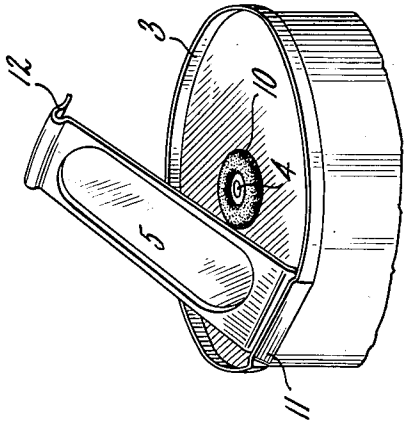


FIG. 4

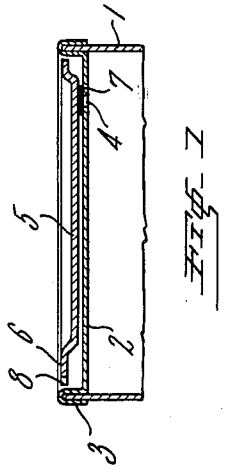


FIG. 1

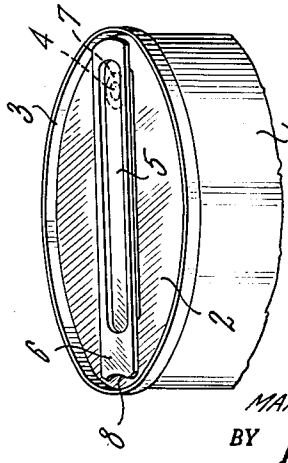


FIG. 2

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SEALED METALLIC CONTAINER

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2 Claims. (Cl. 220—42)

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The present invention refers to sealed metallic containers adapted to receive liquid or semi-liquid products, and more particularly to hermetically sealed tin-cans containing alimentary liquids, such as fruit juices, beer, milk, etc., or any industrial liquids, such as solvents, cleaning solutions, paints, varnishes, etc.

An object of the invention is to do away with the use of a separate tool such as a can-opener for opening the container or the necessity of punching a discharge hole, and eventually also a vent hole, in the flat cover of said container.

Another object is to incorporate to the cover of the container hand-operated opening means without having to make any substantial changes in the manufacturing, filling and sealing processes and machinery or tools in present use for making, filling and sealing such containers, and without adding substantially to the bulk of said containers.

Still another object, in the case of a beverage container, is to facilitate direct use of this container as a drinking vessel with the help of a sucking pipe, such as a stalk of straw or of an artificial straw.

A further object of the invention is to provide a container which can be readily opened and hermetically closed by hand several times in succession when only part of its content is used at a particular time.

Another object is to provide a container or tin-can which can be re-utilized—i. e. re-filled—when preferably thoroughly cleaned and desinfected after each use.

A feature of the invention is to provide a relatively small permanent discharge orifice in one of the two flat faces of the container and sealing means, for closing hermetically said orifice, associated with a means of leverage incorporated on said face of the container for maintaining this orifice tightly closed up to the moment of use of all or part of the liquid content of the can and allowing for the ready manual opening of this orifice without the help of any accessory tool at the time of this use.

Another feature resides in the fact that the discharge orifice is provided laterally in the cover of the container near the edge of said cover and in the fact that said means of leverage is constituted by a rigid lever, diametrically fixed flat across said cover so as to cover and close said orifice up to the moment of the use of the container.

Still another feature is to interpose the hermetic sealing or packing means between said

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lever and the cover of the container around the orifice and to use them simultaneously as means of fixation of the lever to said cover.

Still another feature is to provide this lever with hand-operated opening means to open said orifice without the help of any separate tool when it is desired to discharge part or the whole of the liquid content of the container.

In a first embodiment of the invention, the lever is held on the apertured face of the container by being soldered, cemented, spot-welded or sealed up thereto around the discharge orifice, and is provided with a raised portion forming the handle thereof.

In a second embodiment, a portion of the upstanding flange of the container, raised as usual above the level of the apertured face thereof, is slightly bent inwards, so as to form a fulcrum around which one of the ends of the lever pivots when its other bent end is pressed down on the raised edge of the container so as to compress a rubber ring engaged in a circular groove forming a reinforcing bead around the discharge orifice.

In a third embodiment, the lever is pierced close to one of its extremities by a hole registering with the discharge orifice and is kept fixed on the cover of the container by means of a biconvex seal made of latex injected and molded around and between this registering hole and orifice during the manufacture of the container, and is stamped and punched toward its other extremity so as to form a piercing point capable of piercing a vent in the cover of the container when one presses down on said extremity of the lever preferably for lifting said extremity of the lever for breaking the seal and opening the discharge orifice.

Other objects, features and advantages of the present invention will become apparent from the reading of the following description in conjunction with the accompanying drawings, which show four embodiments of the invention as illustrative examples thereof, and in which:

Fig. 1 is an axial section of the first embodiment;

Fig. 2 is a perspective view thereof;

Fig. 3 is a similar section of the second embodiment;

Fig. 4 is a perspective view thereof showing the opening operation of the can;

Fig. 5 is a section of the third embodiment;

Fig. 6 is a perspective view thereof; and

Fig. 7 is an axial section of a fourth embodiment.

Referring now to Fig. 1, 1 indicates the cylindrical body of the container or tin-can and 2 its cover having a circumferential edge, said cover also having an upstanding endless flange 3.

According to the present invention a discharge orifice 4 of relatively small diameter is provided in the flat top wall 2 of the sealed container structure and contiguous to the circumferential edge thereof. As clearly illustrated in Fig. 1, the upstanding flange 3 defines the uppermost end of the container structure. Extending across the top wall or cover 2 is an elongated closure element in the form of a substantially flat and rigid lever, the latter being arranged within the space defined by the circumferential edge.

The lever includes a median dished or reinforced body portion 5 which terminates in opposite offset ends. One of the ends or extremities 6 forms a handle which can be manually operated to effect the removal of the lever from the top wall.

Both of the offset ends of the lever extend above the top wall and below the uppermost end of the container structure, at least one of the offset ends of the lever defining a curved recess 8 between the upstanding flange 3 and the top wall 2. The median dished portion 5 of the lever is spaced substantially along its entire length from the top wall 2 and includes a part which spacedly overlies the discharge opening 4.

Disposed in the space intermediate the part of the lever overlying the discharge opening is a sealing means 7 in the form of a circular soldering seam which seals the discharge opening and forms a supporting fulcrum for the lever. As illustrated, the curved recess is positioned remote from the soldered portion or sealing means 7 and facilitates the removal of the lever from the discharge opening 4 by the hand of an operator.

The operation of this embodiment is very simple. When it is desired to empty the container, one lifts the raised extremity 6 of the lever 5 by introducing the nail of the thumb under the notch 8. Thereby, one detaches the opposed extremity, soldered to the cover 2, by breaking the circular line of solder 7 surrounding the orifice 4. The liquid content of the can may then, either be used on the spot by utilizing the can itself as a drinking vessel with the help of a sucking tube, such as a straw, introduced through the orifice 4, or by emptying the can in a glass, or any other container, through said orifice 4.

It should be noted that the device just described for hermetically closing and manually opening a liquid container or tin-can may be readily adapted to any conventional type of metallic container without having to make any change in the manufacture, filling and sealing of said container, except the piercing of the orifice 4 of the cover 2.

One should note further, that the bulk of the device according to the invention is so reduced that it may be entirely lodged within the flat cylindrical space formed by the upstanding flange 3 above the cover 2 of the container, without any part of the device sticking above said space or beyond said flange 3.

In the embodiment shown in Fig. 3, the orifice 4 is pierced in the cover 2 in the center of a small circular bead 9, in which is permanently engaged a ring 10 made of rubber or any other suitable material inert to the liquid filling the container. This rubber ring projects above the upper lever of the cover 2 when uncompressed. In this embodiment, the lever 5 is fulcrumed at

one of its extremities in a notch 11 formed by bending slightly inwards a portion of the upstanding flange 3. The opposed extremity of the lever 5 is bent, as at 12, so as to embrace the diametrically opposed portion of this flange 3, when one presses this extremity 12 of the lever 5 down so as to compress the ring 10 and thereby close hermetically the orifice 4. In this lower position the nail notch 8 forming the free extremity of the bent end 12 of the lever 5 presses elastically against the adjacent lower part, bent inwards, of the flange 3 so as to lock elastically and detachably the lever 5 in its active position of closure of the hermetic joint, formed by the rubber ring 4. In order to open the container, it suffices to engage the nail under the notch 8 and to lift the extremity 12 of the lever 5.

If it is desired to use only a part of the liquid content of the container, as the rubber ring 10 is bonded to the bead 9, it is possible to put the lever back in position so as to close hermetically the orifice 4 as often as desired.

In the third embodiment, Fig. 5, the orifice 4 is pierced in the bottom of a more or less spherical depression 13, formed in the cover 2 near the upstanding flange 3 of said cover. One of the extremities of lever 5 is provided, opposite the orifice 4, with a hole 14, while at the other extremity there is formed, by stamping and partial cutting of a small triangular portion, a piercing point 15, projecting downwards between the raised extremity of the lever and the cover 2. In this embodiment, the lever 5 is secured to the container 1 at the time of the filling and closing operations of the container. The fixation is made by injecting latex in a liquid condition, between a matrix and a counter-matrix inserted in the interior of the container 1, in a biconvex sealing pocket formed between and by these two matrices, respectively above and beneath the corresponding holes 4 and 14. After removal of the two matrices and solidification of the latex, one forms thus around the holes 4 and 14 and in the pocket 13 a seal or biconvex sealing lens 16 of latex which closes hermetically the two holes 4 and 14.

This embodiment operates as follows: when it is desired to open the can 1, one presses down with considerable force the extremity of the lever 5 opposed to the seal 16, so as to pierce in the cover 2 a small vent hole by means of the point 15. This done, one engages the thumbnail under the thumb-notch 8 and one lifts the lever 5 so as to break and detach the latex seal 16 from the bottom of the pocket 13 and one removes the lever 5, carrying said seal 16, so as to uncover the discharge orifice 4.

In the fourth embodiment (Fig. 7), the lever 5 is held down on the cover 2 of the can by the wedging engagement of a stamped circular depression 17 of said lever into a corresponding slanting depression 18, stamped in the cover 2 around the discharge orifice 4. When forcing the depression 17 into the depression 18, one compresses a rubber washer 19, or equivalent, interposed between the lever 5 and the cover 2 around the slanting depression 17, so as to insure a hermetic closure of the discharge orifice 4.

Many modifications could be made in any of these four embodiments without departing from the spirit and scope of the invention.

For instance, in the embodiment of Figs. 3 and 4, the grip 12 of the lever 5 could be replaced by a down-turned end forced and wedged against the inner periphery of the upstanding flange 3 of the can, which edge will

there present a second internally bent portion 11, diametrically opposed to the first.

Obviously, the attachment of the lever to the cover of the can and the hermetic closing of the discharge orifice provided in this cover could be realized in any suitable manner without departing from the spirit of the invention.

Obviously also the shape of the lever, its length and the reinforcing ribs that may be formed in order to increase its rigidity may vary considerably without departing from the spirit of the invention.

It is equally possible without departing from the spirit of the invention to provide a discharge opening and a lever on each flat face of the container, for instance in order to empty rapidly the latter.

Finally, one could pierce in the cover 2 a small permanent vent hole that the lever 5 would hermetically close by any suitable tightening means up to the moment of the use of the container.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. In a sealed container structure having a top wall with a circumferential edge and with an upstanding flange; said top wall being provided with a discharge opening, an elongated, one-piece metallic closure element in the form of a substantially flat, rigid lever extending diametrically across and confined within said circumferential edge, said lever being provided with an intermediate recessed portion and opposite ends at either side of said recessed portion, said ends being shaped to extend above said top wall and below said flange, at least one of said ends of said lever defining a recess between said flange and said top wall, said intermediate portion of said lever including an extremity in contact with said opening of said top wall, and sealing means joining said extremity of said lever with a part of said top wall surrounding said opening to thereby hermetically seal said container, said recess being positioned remote from said extremity and facilitating removal of said lever from said opening by means of the hand of an operator, the other end of said lever being shaped to allow said other end to puncture said container in at least one place of said top wall prior to the removal of said lever from said container.

2. In a sealed container structure having a flat top wall terminating in a circumferential edge, and a flange extending upwardly from said top wall and defining the uppermost end of said container structure, said top wall being provided with a discharge opening adjacent said circumferential edge; an elongated closure element in the form of a substantially flat and rigid lever extending across said top wall and within the space defined by said circumferential edge, said lever including a median dished portion terminating in opposite offset ends, both said offset ends extending above said top wall and below the uppermost end of said container structure, at least one of said offset ends of said lever defining a curved recess between said flange and said top wall, said median dished portion of said lever being spaced substantially along the entire length of said top wall and including a part spacedly overlying said discharge opening, and sealing means within the space intermediate said part of said lever and the portion of said top wall surrounding said discharge opening to thereby seal said discharge opening and to form a supporting fulcrum for said lever, said curved recess being positioned remote from said part and facilitating removal of said lever from said discharge opening by means of the hand of an operator.

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