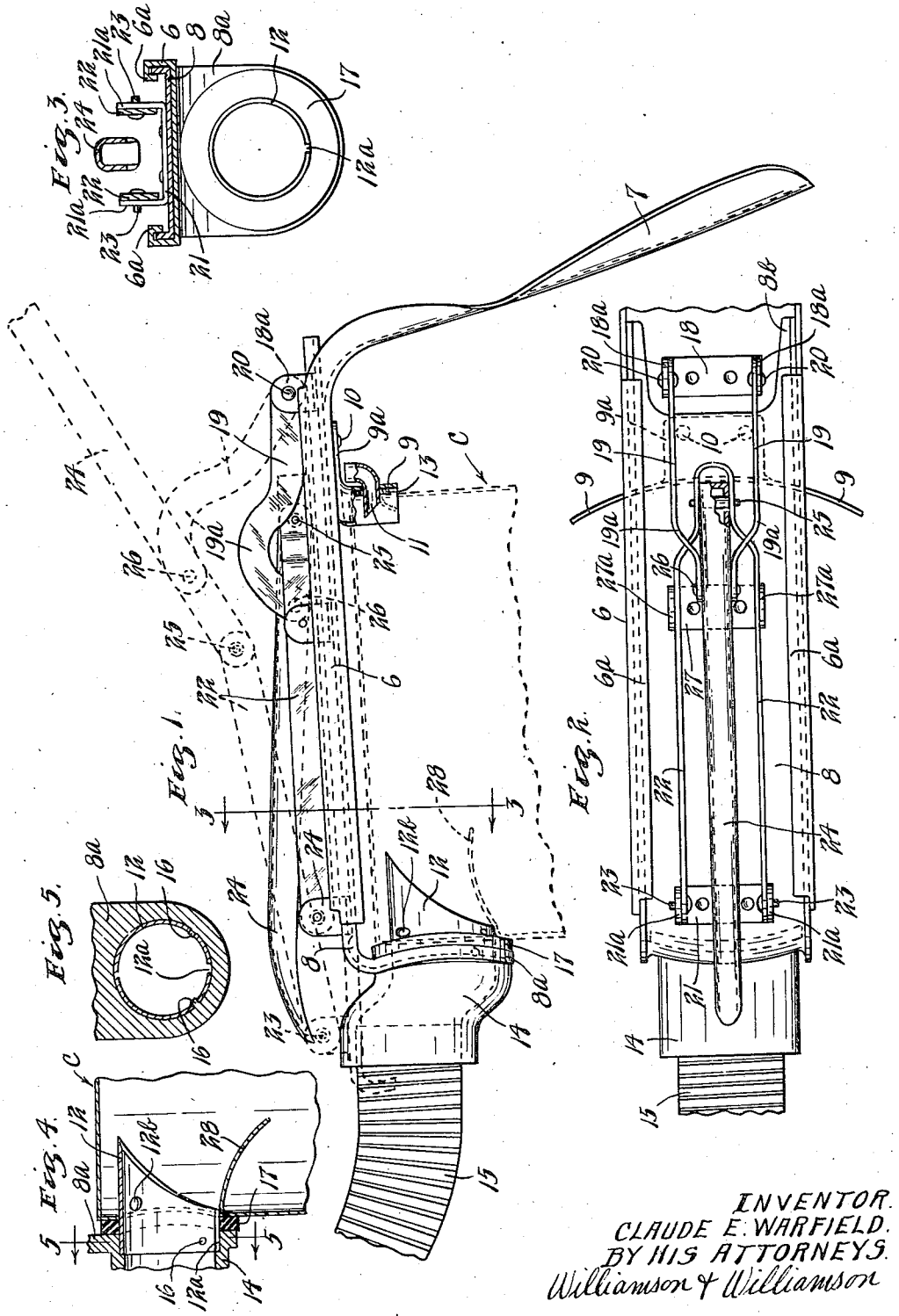
Jan. 5, 1943. C. E. WARFIELD 2,307,378

DISPENSER FOR CAN-CONTAINED LIQUIDS

Filed April 14, 1939



Patented Jan. 5, 1943

2,307,378

UNITED STATES PATENT OFFICE

2,307,378

DISPENSER FOR CAN-CONTAINED LIQUIDS

Claude E. Warfield, Minneapolis, Minn., assignor to H. L. Millis, Northfield, Minn.

Application April 14, 1939, Serial No. 267,756

2 Claims. (Cl. 221—23)

My invention relates to dispensers for liquids and particularly to dispensers for can-contained liquids.

At the present time many liquid products, such as, for example, automobile engine oil, are packed in cans which have no removable caps, pouring spouts or handles and which are usually the same general type of cylindrical tin can as that in which canned foods are packed. If such cans are merely cut open to afford access to the contents, part of the contents may be spilled, pouring is difficult and the can is clumsy to hold during the pouring operation.

A general object of my invention is to provide a dispensing device for use in connection with cans of the type described to make the process of opening a can and dispensing its contents more rapid, simple and convenient and to effectively minimize spillage during said process.

A more specific object is to provide a handled device for gripping a can and thus providing a handle therefor.

Another object is to provide such a device including means for piercing a can responsive to placement of the device in gripping relation therewith so as to provide a liquid outlet for the can and also including a spout for guiding liquid issuing from said outlet.

Yet another object is to provide such a device including a second piercing element for producing an air inlet for the can.

Still another object is to provide such a device which may be temporarily locked in operative relation with a can.

A further object is to provide such a device which is adjustable to fit more than one size of can and which is of simple, light, compact, rugged and inexpensive construction.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawing, wherein like reference characters refer to the same parts throughout the views, and, in which:

Fig. 1 is a side view of an embodiment of my invention shown in operative relation with a can outlined in dotted lines and with certain parts of the device shown in locked and released positions respectively in full and dotted lines;

Fig. 2 is a partially broken away top view;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 1 as indicated by the arrows;

Fig. 4 is a sectional view taken parallel to the view of Fig. 1 and showing the mode of interconnection of certain parts of the device; and

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 4 as indicated by the arrows.

Referring to the drawing the embodiment of my invention illustrated thereby includes means adapted to be placed in diametrically crossing relation with the upper end of a liquid containing can such as the can C. Elements carrying inwardly projecting generally tubular cutters are carried by the diametrical crossing means in depending relation therewith so that the cutters are directed against diametrically opposed parts of the upper portion of the peripheral wall of the can. The diametrical crossing means includes mechanism for drawing the depending elements toward each other so that the cutters will pierce diametrical opposite portions of the can C.

A frame member 6 of channel shaped cross section and adapted to be placed in diametrical crossing relation with the upper end of a can is provided, this member being extended downwardly and somewhat outwardly to form a handle 7. The handle 7 may be formed into such shape as to be convenient for grasping thereof by a user's hand. The free edge portions of the channel shaped member 6 are bent inwardly at right-angles to form guide flanges 6a and the free edges of the flanges 6a may be bent downwardly as shown in Fig. 3.

A second channel shaped member 8 is placed within the first channel shaped member 6 as indicated in Figs. 2 and 3 in longitudinally slidable relation therewith, the free edge portions of this second channel member 8 being retained between the downwardly turned free edge portions of the flanges 6a and the upwardly projecting main flange portions of the member 6. The left-hand end of the inner channel member 8 is bent downwardly to form a depending element 8a which will be disposed adjacent the upper part of the peripheral wall of a can C on which the device is placed. As best seen in Fig. 2 the depending element 8a is curved to approximately conform to the curvature of the peripheral wall of a can.

The outer channel member 6 near the end thereof carrying the handle 7 is provided with a depending element 9 having an upper portion 9a thereof bent to the right and secured to the channel member 6 by suitable means such as the rivet 10. The depending element 9 is similar in shape to the previously described depending element 8a but is preferably somewhat smaller in dimensions. The depending element 9 is curved to approximately correspond to the curvature of the peripheral portion of a can such as the can C.

The depending element 9 and the depending element 8a are each provided with tubular cutting elements such as the elements 11 and 12 respectively directed toward each other, that is toward a can on which the device is placed.

The cutting element or can piercing element 11 is of tubular construction and is mounted in its medial portion in a suitable aperture formed in the depending element 9. The tubular cutter 11 is secured to the depending element 9 in a suitable manner, as, for example, by welding. The inwardly directed end of the cutter 11 is skewed in shape so that the uppermost portion thereof extends further inwardly than the lowermost portion and this skewed end of the cutter 11 is sharpened to form a cutting edge. The part of the tubular cutter 11 disposed outwardly of the depending element 9 is bent upwardly so that the uppermost end of the bent portion is disposed slightly above the top of a can such as the can C on which my device is placed. The tubular piercing element 11 constitutes an air admitting means for the can C and, as forced toward the can C, will pierce the wall thereof and then become a duct establishing communication between the surrounding atmosphere and the interior of the can C. For purposes of sealing the tubular element 11 to the peripheral wall of the can C a washer 13 formed of compressible material is placed on the cutter 11 immediately inwardly of the element 9 in such manner as to encircle the cutter 11 and bear against the outer side of the peripheral wall of a can to which the cutter 11 has been applied.

The tubular cutter 12 carried by the depending element 8a is of substantially larger diameter than the above described tubular cutter 11. The tubular cutter 12 at the end thereof toward a can, such as the can C on which my device is placed, is skewed in shape so that the uppermost portion of the cutter 12 extends further toward the cutter 11 than the lower portion of the cutter 12. The skewed end of the cutter 12 is sharpened except in the lowermost portion thereof to form a cutting edge so that the cutter 12 will pierce a peripheral wall of the can C against which the cutter 12 may be forced. Since the cutter 12 is not sharpened in its lower portion, less than a complete circle will be cut in the wall of a can and the resulting ear 28 of can wall material is left connected at its lower portion to the can wall and will be bent inwardly by the blunt lower portion of the cutter 12 as indicated in Fig. 1, so as not to block passage of liquid through the liquid outlet port which has been formed. The cutter 12 is removably attached to the depending element 8a as will be later described.

The depending element 8a is apertured for receiving the base of the tubular cutter element 12 and is provided with an outwardly, then upwardly and then again outwardly extending conduit member 14. The inner end of the conduit member 14 is secured to the depending element 8a in a suitable manner, as, for example, by welding so that the interior of the conduit element 14 and the apertured portion of the depending element 8a constitute a continuous duct of circular cross section of which the portion in the immediate vicinity of the depending element 8a may be considered as being a cylindrical bore. A spout element 15 preferably of tubular construction and also preferably of flexible construction as indicated in the drawing is placed in communication with and secured to the outer end of the conduit element 14.

As previously indicated the base portion of the tubular piercing element 12 is removably mounted in the apertured portion of the depending element 8a. As indicated in Fig. 4 the lowermost portion of the piercing element 12 is provided with a longitudinal slit 12a therein of moderate width. The element 12 is made of resilient material so that the same may be contracted to close the gap 12a and hence reduce the diameter of the piercing element 12. A pair of inwardly projecting elements such as the pins 16 are mounted in the material of the depending element 8a and the conduit 14 defining the cylindrical bore previously mentioned. The pins 16 are disposed in the lower portion of the bore and are circumferentially spaced as indicated in Fig. 4. The tubular can piercing element 12 is apertured at such points that the pins 16 will be disposed in the apertured portions of the piercing element 12 when the piercing element 12 is in its normal position relative to the depending element 8a. The piercing element 12 may be engaged with and disengaged from the pins 16 for purposes of mounting and removal of the element 12 by contracting the element 12 to withdraw the apertured portions thereof from positions thereof wherein the pins 16 would be received therein. The element 12 has a vent aperture 12b formed therein near the upper limit thereof as shown in Fig. 1.

When the piercing element 12 is forcibly thrust against the peripheral wall of a can it will pierce this wall and thereafter may function as a liquid outlet duct for the can so that the can may be tilted and liquid will flow therefrom through the interiors of the piercing element 12, the conduit element 14, and the spout element 15. Air to replace the liquid which is removed from the can C will be admitted into the interior of the can C through the right-hand tubular piercing element 11. For purposes of sealing the depending element 8a to the exterior of the peripheral wall of the can C a sealing washer 17 formed of compressible material is placed on the tubular piercing element 12 in encircling relation therewith immediately adjacent the inner side of the depending element 8a.

Means is provided for forcibly drawing the respective tubular piercing elements 11 and 12 toward each other so that the same may pierce respective opposite sides of the upper portion of the peripheral wall of a can, such as the can C. For this purpose suitable mechanism is arranged for producing relative movement of the inner channel member 8 longitudinally of the outer channel member 6. A generally U-shaped bracket 18 is mounted on the upper side of the right-hand portion of the outer channel member 6 as indicated in Figs. 1 and 2. The bracket 18 includes upwardly projecting apertured portions 18a. The inner channel element 6 is cut away in its right-hand end portion as at 6b to accommodate the bracket 18. A pair of links 19 are swingably connected to the apertured portions 18a of the bracket 18 by suitable means such as the rivets 20. A bracket 21 is mounted on the left-hand end of the inner channel element 8 as indicated in Figs. 1 and 2 and includes upwardly projecting apertured portions 21a. A generally U-shaped strip of material 22 is provided at its free ends with outwardly projecting pivot pins 23 which are normally journalled in the apertured portions 21a of the bracket 21. The U-shaped member 22 is

tensioned to constantly urge the pivot pins 23 outwardly away from each other.

An operating lever 24 is swingably connected at its inner end to the right-hand end of the U-shaped member 22 by suitable means such as the pivot pin 25, and the ends of the links 19 opposite the ends thereof associated with the bracket 18 as by means of rivets 26 are swingably connected to the lever 24 at a point somewhat toward the medial portion of the lever 24 from the pivot pin 25. The links 19, operating lever 24, and U-shaped member 22 together comprise a toggle assembly for drawing the cutters 11 and 12 toward each other. In Fig. 1 the above described toggle assembly is shown in dotted lines in the position thereof which will cause the cutters 11 and 12 to be separated to substantially a maximum degree and is shown in full lines in the position thereof wherein the cutters 11 and 12 have been drawn toward each other to be separated to a minimum degree. The links 19 are arched upwardly as at 19a to provide clearance between the links 19 and U-shaped member 22 when the toggle mechanism is in the position thereof shown in full lines in Fig. 1. The lever 24 may be of U-shaped cross section as indicated in Fig. 3 to lend rigidity to the lever 24.

Means is provided whereby the above described device may be used in conjunction with a can of a larger size than the can C indicated in the drawing. For this purpose an additional bracket 27 similar to the bracket 21 and having upstanding apertured portions 27a is mounted on the inner channel member 8 at a distance to the right of the previously described bracket 21. Since the U-shaped member 22 is resilient the respective legs thereof may be squeezed toward each other to withdraw the pivot pins 23 from engagement with the apertured portions of the bracket 21. With the U-shaped member 22 squeezed together the pivot pins 23 may be aligned with the apertured portions of the additional bracket 27 whereafter the U-shaped member 22 may be released to place the pivot pins 23 in journalled relation with the apertured portions 27a of the bracket 27.

It should be apparent that this change will dispose the inner channel member 8 farther to the left than before relative to the outer channel member 6 and hence will space the tubular piercing elements 11 and 12 farther apart to adapt the device for use in connection with a can larger than the can C.

In use of the device the toggle mechanism controlled by the lever 24 is placed in the position thereof shown in dotted lines shown in Fig. 1. The device is then placed on a can C with the tubular cutting elements 11 and 12 directed toward diametrically opposite portions of the peripheral wall of the can. The lever 24 is then swung to the position thereof shown in full lines in Fig. 1 so as to draw the piercing elements 11 and 12 toward each other to pierce the walls of the can C. By using the handle 7 the user of the device may pick up the can C which is firmly anchored to the device by means of the piercing elements 11 and 12, and may tilt the can C to pour the contents thereof through the spout 15 into whatever container the liquid is to be transferred to.

The device can be used as a means of carrying a sealed can without puncturing the same by placing it over the can, holding the handle 7 with the fingers of one hand and pressing the lever 24 upwardly with the thumb to approximately the dotted line position shown in Fig. 1 to cause the piercing elements 11 and 12 to engage the can without piercing the same. When dispensing oil to retail customers in service stations it is extremely desirable to open the can in the customer's sight. Because of the arrangement of the handle 7 and lever 24 the can can be carried as above described and then quickly and easily pierced to permit pouring as soon as the salesman has reached the customer by merely swinging the handle 24 over to the full line position shown in Fig. 1.

It should be apparent that operation of the lever 24 when the device is in operative position on a can causes piercing of a liquid outlet port and an air inlet port in the can and also firmly secures the can to the device. When this has been done the device and the can associated therewith become in effect a unit having a pouring spout and handle in addition to an air inlet formed by the piercing element 11.

It is apparent that I have invented a novel, simple, compact, rugged and inexpensive dispenser for can-contained liquids which may be very rapidly and conveniently applied to a can and which enables convenient pouring of liquid of the can.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. In a dispenser for can-contained liquids having a cross frame adapted to be placed in diametrically crossing relation with the top of a can, a pair of abutments carried by said cross frame and situated to become disposed adjacent diametrically opposite portions of the peripheral wall of a can on which said cross frame is placed, one of said abutments having a bore therein having an axis parallel to said cross frame, a projection carried by said one abutment and extending into the interior space of said bore, a longitudinally split generally tubular can-piercer received at one end thereof in said bore and projecting therefrom toward a can disposed between said abutments, said piercer having an aperture therein adapted to receive said projection when said piercer is in normal relation with said bore, and said piercer being resilient to enable forcible contraction thereof and tensioned to expand against the wall of said bore.

2. In a dispenser for can-contained liquids having a cross frame adapted to be placed in diametrically crossing relation with the top of a can, a pair of abutments carried by said cross frame and situated to become disposed adjacent diametrically opposite portions of the peripheral wall of a can on which said cross frame is placed, one of said abutments having a bore therein having an axis parallel to said cross frame, a pair of projections carried by said one element and extending into the interior space of said bore at points spaced circumferentially thereof, a longitudinally split generally tubular can-piercer received at one end thereof in said bore and projecting therefrom toward a can disposed between said elements, said piercer having apertures therein located at respective sides of the split in the same and adapted to receive said respective projections when said piercer is in normal relation with said bore, and said piercer being resilient to enable forcible contraction thereof and tensioned to expand against the wall of said bore.

CLAUDE E. WARFIELD.