June 30, 1936. H. G. EDWARDS 2,045,589

LIQUID DISPENSER

Filed Aug. 29, 1935 2 Sheets-Sheet 1

Fig. 2

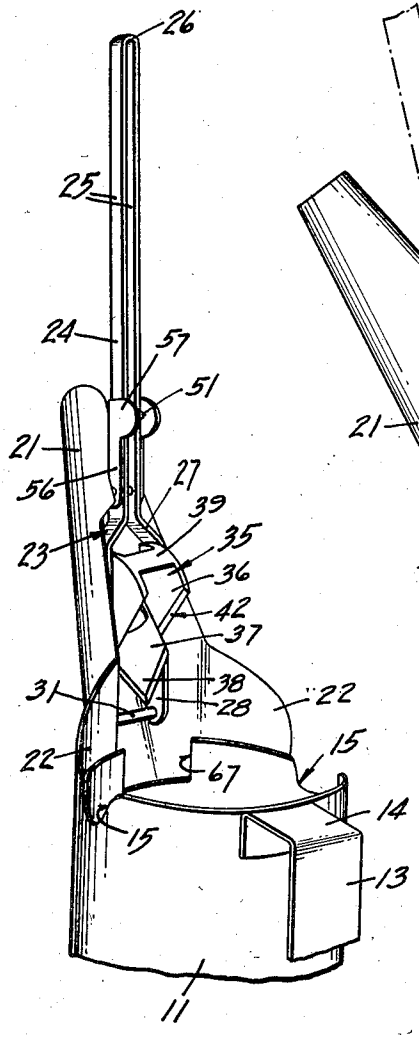


Fig. 1

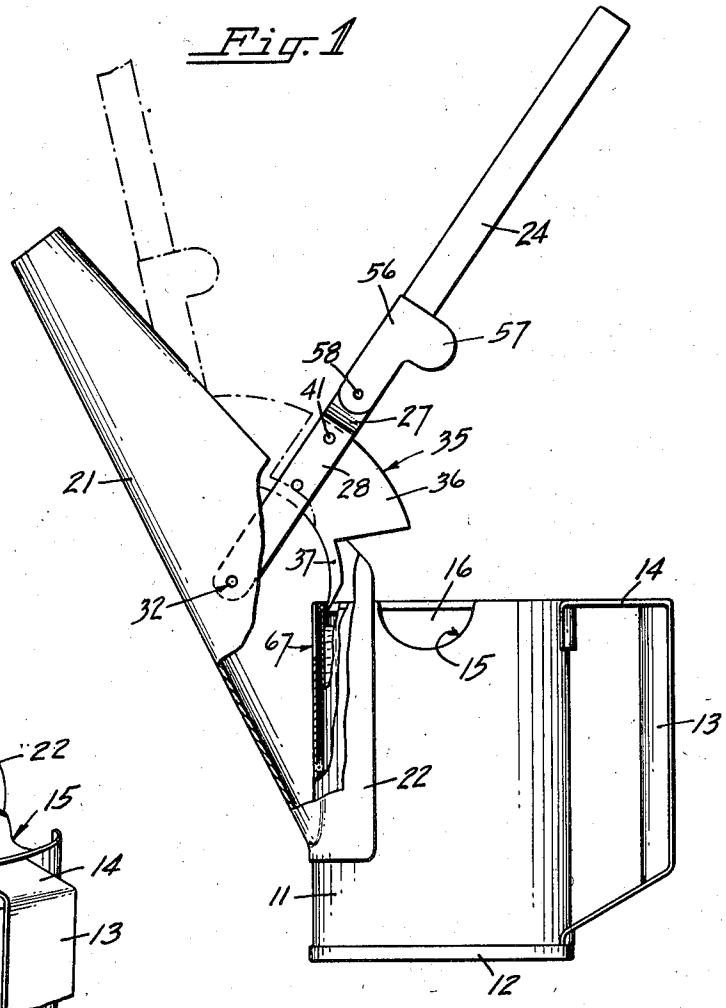
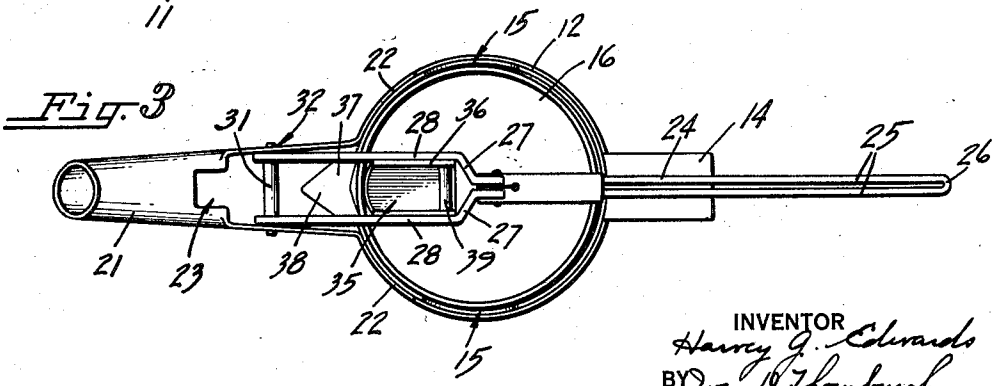


Fig. 3



INVENTOR
Harvey G. Edwards
BY Ivan A. Thornburgh
Charles H. Effner
ATTORNEYS

June 30, 1936. H. G. EDWARDS 2,045,589

LIQUID DISPENSER

Filed Aug. 29, 1935 2 Sheets-Sheet 2

Fig. 4

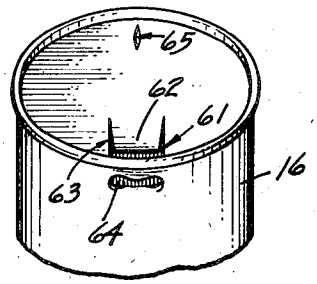
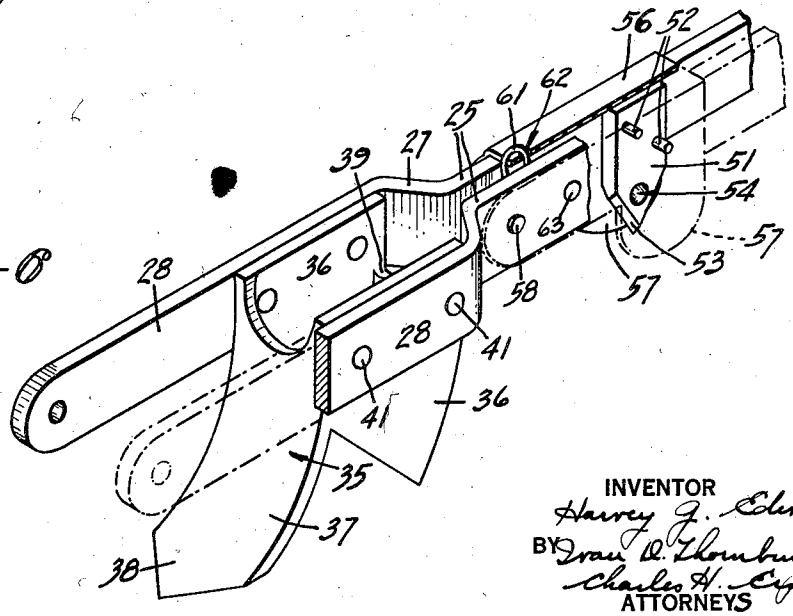


Fig. 5

Fig. 6



INVENTOR
Harvey G. Edwards
BY Dean D. Flomburgh
Charles H. Cope
ATTORNEYS

Patented June 30, 1936

2,045,589

UNITED STATES PATENT OFFICE

2,045,589

LIQUID DISPENSER

Harvey G. Edwards, New York, N. Y., assignor to American Can Company, New York, N. Y., a corporation of New Jersey

Application August 29, 1935, Serial No. 38,445

6 Claims. (Cl. 221—23)

The present invention relates to liquid dispensing devices and has particular reference to the opening of sealed receptacles or cans containing liquids such as lubricating oil and to the dispensing of the liquid contents, the opening action at the same time mutilating both end and side walls of the receptacle to prevent its re-use. In some respects the present invention is an improvement upon the Nicholls United States Patent No. 1,970,573, issued August 21, 1934, upon Liquid dispenser.

In the liquid dispenser of the Nicholls patent an oil can is opened by puncturing the top or end wall of the can. After the can was emptied it was found that the entire top might be cut off from the body and the body reflanged, filled again with oil and a new top or end member seamed in place. This was, of course, a case of substitution for the marking on the outside of the can giving the original oil company's name, etc., was no longer correct as in fact a poorer grade of oil was palmed off on the public who was deceived in thinking it was obtaining the original high grade oil.

In some cases unscrupulous jobbers of oil succeeded in cutting away only sufficient of the double seam which joined the can cover with the can body of emptied cans so that the punctured end could be lifted off of the can without mutilating the flange of the can body. Here again an inferior grade of oil was sealed into the can, it being merely necessary to apply a new can cover.

An object of the present invention is the provision of a liquid dispenser which is adapted to receive sealed liquid filled containers such as cans of lubricating oil and to hold them while opening and venting by a simple movement of the opening elements, after which the opened can still held in the holder, is emptied of its contents by a simple tipping action of the holder, the opening and venting operation of the dispenser simultaneously mutilating not only the end of the can but also the side wall of the body so that such a can is rendered useless for refilling, it being impossible to reclose such a mutilated can without detection.

A further object of the invention is the provision of liquid dispensers of the character described having pouring spouts and a can opener element operated at the time the can is opened to not only cut through the end wall of the can to permit dispensing of the liquid but also to pass on and into the side wall so that the can body is mutilated, this being done without any extra operation and without detracting in any manner from the opening and dispensing action of the device.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a side elevation of a liquid dispensing device embodying the present invention, parts being broken away to more clearly illustrate its construction, this view illustrating the position of the opening device just prior to the opening operation and illustrating the cutting element in place upon the held can;

Fig. 2 is a perspective view of the upper part of the dispenser and showing the cutter elements in non-operating position prior to the reception of a can into the dispenser;

Fig. 3 is a top plan view of the device shown in Fig. 1;

Fig. 4 is a perspective view of the upper end of a can after it has been opened and illustrating the mutilation in the end and body walls of the can;

Fig. 5 is a longitudinal sectional view of the dispensing device shown in pouring position and illustrating dispensing of the liquid contents from the opened can; and

Fig. 6 is a perspective view of a portion of the opening elements of the device and their mountings, parts being broken away.

A preferred embodiment of the invention such as is illustrated in the drawings comprising a dispensing holder 11 open at the top and closed by a bottom member 12. This holder is preferably provided with a handle 13 formed with a horizontal straight upper section 14 disposed in a horizontal line passing along the upper rim of the holder. The wall of the holder 11 adjacent its upper rim is cut away at opposite sides as at 15 (Figs. 1, 2 and 3) and a sealed receptacle or can 16 containing a liquid such as lubricating oil may be placed into the holder, the openings 15 permitting holding of the container by the fingers during such positioning.

A pouring spout 21 is provided having a pair of side wings 22 at the bottom of the spout which are secured to the exterior front wall of the holder 11. This pouring spout extends upwardly and at an angle and is slightly conical in form. The upper end of the spout terminates in a tubular mouth or discharge opening and below this the spout is cut away along its top to provide a

clearance or transverse opening 23 for an opening lever 24.

The opening lever is preferably formed with spaced rear legs 25 connected at the back in a rounded section 26, these legs providing a handle for the lever. The legs 25 merge into inclined slightly rounded connecting sections 27 which are also integral parts with front spaced legs 28. The front ends of the latter are connected by a transversely disposed pin 31 which is pivotally connected at 32 in side walls of the pouring spout 21.

The opening lever 24 has two positions of rest, one a vertical open position as illustrated in Fig. 2, and also indicated in dot-and-dash lines in Fig. 1, and a second or closed position illustrated in Fig. 5. The rear legs 25 of the lever rest upon the handle section 14 when the opening lever is in its closed position. The inclined sections 27 of the opening lever engage against and snap under the top wall edges of the pouring spout 21 adjacent its opening 23 when the opening lever is moved into open position, Fig. 2 showing such a position.

It is when the opening lever 24 is in its open and vertical position that the filled and sealed can 16 is inserted within the holder 11. The can is a fairly snug fit within the holder as it rests upon the bottom 12, its upper edge being substantially in line with the top rim of the holder. In this inserted position the opening and venting of the can is effected by a shifting of the lever 24 as it is brought down into its closed or horizontal position over the can.

A hollow puncturing member or cutter 35 (Figs. 2 and 6) is provided for cutting a dispensing opening in the can end and also for mutilating its side wall. This cutter comprises spaced side walls 36 joined in front by a curved blade 37 which terminates in a depending piercing point 38. In the rear the side walls 36 are joined by a curved web 39. The hollow cutter 35 is located between the front spaced legs 28 of the opening lever and is held in fixed position between these legs by rivets or pins 41. The lower edges of the cutter side walls are sharpened or beveled as indicated at 42 (Figs. 2 and 5).

The lever 24 also carries a vent blade 51 which is located between the rear legs 25 of the opening lever and which is held in place by pins 52 seated in the spaced leg walls 25. This vent blade is provided with a V-shaped pointed and beveled depending piercing edge 53 which projects below the opening lever, the blade being also cut through with a transverse opening 54. Its use will be made apparent later.

The piercing edge of the vent blade 51 is enclosed most of the time and for this purpose there is provided a protecting shield 56 formed with side walls 57 which normally extend down below the piercing point. These side walls at the front are pivotally mounted on a pin 58 carried in the spaced legs 25 of the opening lever.

When shielded the parts are in the position illustrated in Figs. 1, 2 and 6, the shield frame being held down against the lever 24 by a spring 61. The spring is coiled around the pivot pin 58 and one end of the spring is inserted in an opening 62 (Figs. 5 and 6) formed in the upper wall of the shield member 56. The opposite end extends over and engages a pin 63 held in the spaced legs 25 of the opening lever.

After the can 16 is inserted within the holder 11 the opening lever is brought down from its vertical position (Fig. 2 and also dotted lines in Fig. 1) until the piercing point 38 of the blade 37 rests upon the end of the can, this position being illustrated in full lines in Fig. 1. The piercing point 38 of the cutter it will be observed engages the top of the can just inside and adjacent its side wall.

Further depression of the lever forces the cutter 35 into the can wall the edge of the piercing member 38 and the two side cutting edges 42 cutting into the can end, the final position being illustrated in Fig. 5. It will be observed that the blade 37 in addition to cutting into the can end has passed entirely through the side wall of the can and has bent out a portion of the wall. During this cutting movement the web 39, engaging the severed section of the can end after it is cut by the cutting edges 42, bends back the severed can end section into the can. Fig. 4 illustrates the dispensing opening formed in the top of the can, this being designated by the numeral 61, a part of the wall as at 62 being bent back by the web 39. The opening 61, it will be observed, is bounded on the side by lines of cut designated by the numeral 63, these being where the cutting edges 42 of the cutter entered the can end.

The curved blade 37 of the cutter is an arc of a circle having as its center the center of the pin 31, this being the pivotal center on which the lever 24 moves. Accordingly when the lever is brought down into the position illustrated in Fig. 5 the curved shape of the blade 37 causes its piercing point 38 to pass from the top end opening 61 directly into the side wall of the can adjacent its junction with the top end. In passing into and through this side wall a mutilated opening 64 (Figs. 4 and 5) is produced. This opening destroys the usefulness of the can body and prevents re-use of such a body wall.

As the opening lever 24 approaches the end of its downward stroke but prior to coming into its final position of Fig. 5, the bottom rounded edges of the side walls 57 of the vent shield 56 strike against the top of the can and are stopped while the continued movement of the opening lever causes the shield to pivot on the pin 58. The piercing point of the vent blade 51 engages and enters into the wall of the can during such continued movement.

A vent opening 65 (Fig. 4) is thus produced in the can top on the opposite side from the dispensing opening 61. The vent blade 51 remains in this opening (Fig. 5) as long as the opening lever is in its closed position and this is the position for dispensing. By reason of the opening 54 in the blade, air passes from the outside into the opening and thence enters into the can above the liquid.

The dispensing device with its confined and opened can may now be lifted by its handle 13, the handle end of the opening lever 24 being preferably held down against the handle part 14. Dispenser and can are then tipped into the position illustrated in Fig. 5 for the discharge of the can contents.

The liquid flowing from the can passes out through the hollow cutter 35 and through the dispensing opening 61 in the can top and thence through the pouring spout 21 out through its discharge end where it is directed as desired. Some of the liquid may even pass through the mutilated opening 64 in the side wall of the can although the curved blade substantially closes the opening. Any liquid passing through the opening drops into the spout and eventually flows

therefrom with the body of liquid issuing through the dispensing opening.

During this discharging of liquid from the can the air is entering through the opening 54 of the vent blade 51 as has already been explained. This air passes through the vent opening 65 in the can top wall and displaces the liquid as fast as it is drawn off. An easy dispensing action results.

Following a dispensing action and emptying of the can, the opening lever is returned to its non-operating position within the pouring spout. The empty can may then be lifted out of the holder, easy grasping of the can by the fingers being possible by reason of the clearance openings 15 in the side walls of the dispenser holder as has already been explained. The ragged can wall edge which is pushed out by the blade 37 at the making of the mutilated opening 64 passes into a clearance slot 67 (Figs. 1 and 2) which is formed in the front wall of the holder 11 and this clearance opening now permits lifting of the emptied can from its seat within the holder without interfering with the free sliding movement of the same.

By reason of the construction of the curved and fixed cutter member 35 the desired kind of dispensing opening 61 is formed with a single stroke of the lever 24 and at the same time and without further movement of the blade 37 other than its body movement by reason of the change of position of the lever 24. In other words without further effort and in a single simple movement the operator opens the sealed can for easy dispensing of its contents and mutilates it beyond re-use. Dispensing of its liquid contents is then a simple matter after which the can is removed from the holder in the regular way.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A liquid dispensing device comprising in combination, a holder adapted to receive a sealed receptacle containing a liquid to be dispensed, a pouring spout connected with said holder, an opening lever movable relative to said holder, and puncturing means carried by said lever and insertable into and through the receptacle confined in said holder for forming an opening in an end of the receptacle to permit dispensing of its liquid contents through said spout and for also cutting through a side wall of the receptacle to mutilate and prevent its re-use.

2. A liquid dispensing device comprising in combination, a holder adapted to receive a sealed receptacle containing a liquid to be dispensed, a pouring spout associated with said holder, an opening lever having one end operable in said spout, and puncturing means carried by said lever and insertable into and through the receptacle confined in said holder for forming an opening in an end of the receptacle to permit dispensing of its liquid contents through said spout, said puncturing means also passing out through a side wall of the receptacle to mutilate and prevent its re-use.

3. A liquid dispensing device comprising in combination, a holder adapted to receive a sealed receptacle containing a liquid to be dispensed, a pouring spout associated with said holder, an opening lever having one end operable in said spout, and a curved puncturing member carried by said lever and insertable in the receptacle confined in said holder for forming openings in a wall of the receptacle to permit dispensing of its liquid contents through said spout, said curved member also passing through and mutilating another wall of the receptacle to prevent its re-use.

4. A liquid dispensing device comprising in combination, a holder adapted to receive a sealed receptacle containing a liquid to be dispensed, a pouring spout associated with said holder, an opening lever having one end pivoted in said spout, and a curved puncturing member carried by said lever and having said lever pivot as the center of its curve, said puncturing member being insertable in the receptacle confined in said holder for forming an opening in one part of the receptacle to permit dispensing of its liquid contents through said spout, said curved member after moving further relative to said lever pivot also passing through another part of the receptacle to so mutilate it as to prevent its re-use.

5. A liquid dispensing device comprising in combination, a holder adapted to receive a sealed receptacle containing a liquid to be dispensed, a pouring spout secured to one side of said holder, an opening lever pivotally connected with said spout, and a fixed puncturing member secured to said lever and insertable in both end and side walls of the receptacle confined in said holder to permit dispensing of its liquid contents through said spout and for mutilating the opened walls to prevent re-use of the receptacle.

6. A liquid dispensing device comprising in combination, a holder adapted to receive a sealed receptacle containing a liquid to be dispensed, a pouring spout secured to one side of said holder, an opening lever pivotally connected with said spout, and a hollow puncturing member secured to said lever and having an arcuate cutting blade with said lever pivot as its center, said cutting blade being insertable into a receptacle confined in said holder to cut a dispensing opening in a wall thereof for dispensing the receptacle liquid contents through said hollow member and through said spout, said cutting blade as moved further by the pivoting of said lever also passing through a second wall while remaining in said dispensing opening for mutilating the cut walls to prevent re-use of the receptacle.

HARVEY G. EDWARDS.