Nov. 24, 1936. R. LUTHI 2,061,582

LIQUID DISPENSER

Filed Jan. 7, 1936 2 Sheets-Sheet 1

Fig. 1

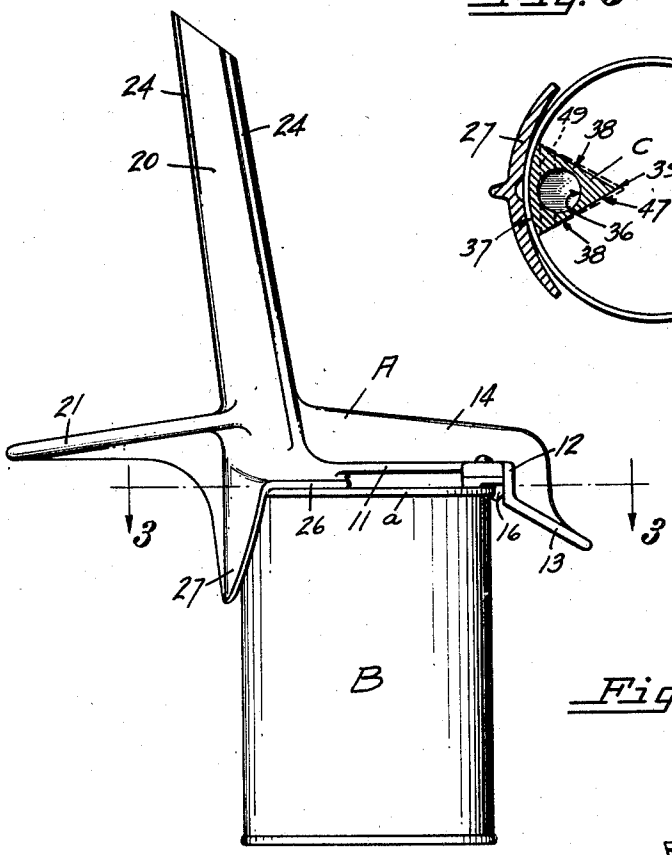



Fig. 3




Fig. 4

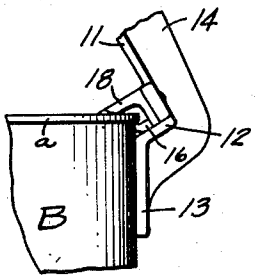
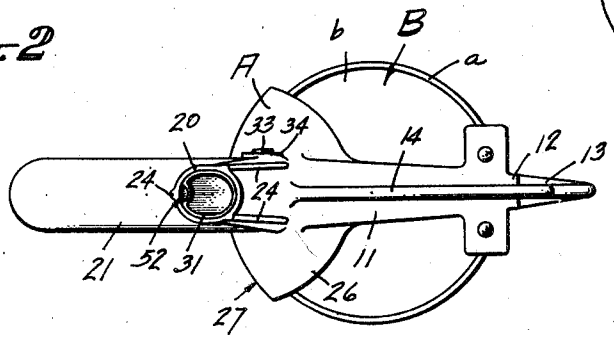



Fig. 2




INVENTOR
Robert Luthi
BY Dean B. Thornburgh
Charles H. Craft
ATTORNEYS

Nov. 24, 1936. R. LUTHI 2,061,582

LIQUID DISPENSER

Filed Jan. 7, 1936 2 Sheets-Sheet 2

Fig. 7

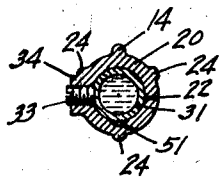



Fig. 8

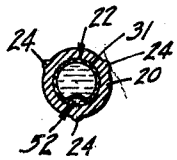



Fig. 6

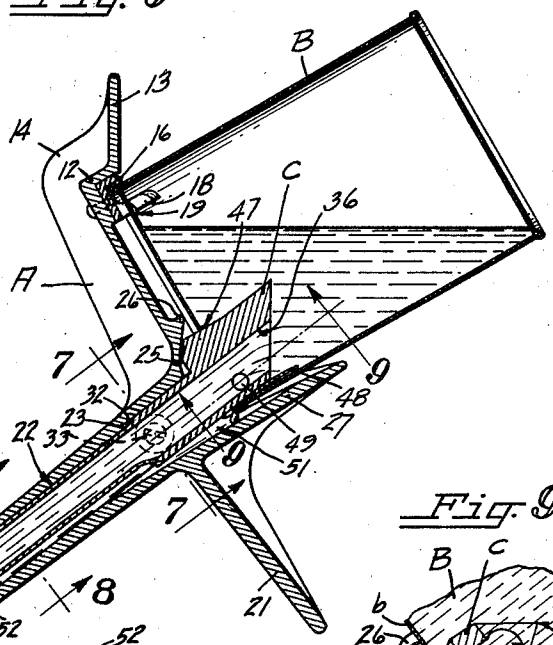



Fig. 9

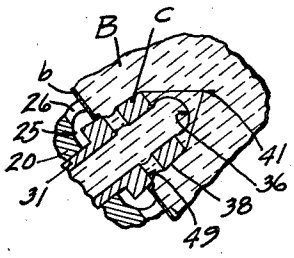
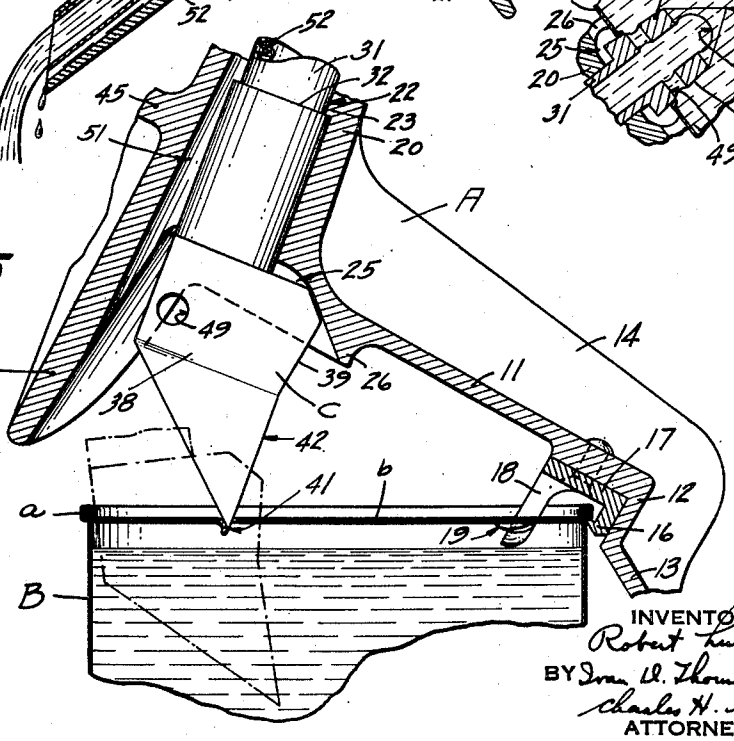



Fig. 5




INVENTOR
Robert Luthi
BY Irvin W. Thornburgh
Charles H. Cipes
ATTORNEYS

Patented Nov. 24, 1936

2,061,582

# UNITED STATES PATENT OFFICE

2,061,582

## LIQUID DISPENSER

Robert Luthi, Maywood, Ill., assignor to American Can Company, New York, N. Y., a corporation of New Jersey

Application January 7, 1936, Serial No. 57,990

6 Claims. (Cl. 221—23)

The present invention relates to a liquid dispenser having a pouring spout and cooperating opening elements which function to cut into and open sealed liquid filled containers or cans as dispenser and can are brought together, the liquid contents of the can draining into and through the pouring spout when the device is used in its dispensing capacity and the invention has particular reference to the embodiment of the pouring spout and the elements associated therewith in a unitary structure in which moving parts are eliminated and which includes an opening element which is substantially self-sealing with the edges of the opening it makes in the container, and which further includes means for collecting liquid which may accidentally leak from the container during dispensing and for conducting this liquid through the spout into the same place of deposit with the main body of the liquid.

The invention contemplates a dispensing device for opening sealed cans preferably filled with lubricating oils and for dispensing these oils into the crank cases of automobiles although the device is equally well suited for opening sealed cans filled with any other kind of liquid and for dispensing the liquid into any other place where it may be used.

An object of the invention is the provision of a liquid dispenser of unitary structure which is adapted to be quickly and securely applied to an end of a sealed liquid filled can, the dispenser having elements for engaging under the can end seam which is utilized as a fulcrum for pivoting the dispenser into can opening position and having a pouring spout and a cooperating opening element or cutter for perforating the top of the can and for conveniently pouring the contents therefrom into a suitable place of deposit when the dispenser is used in its dispensing capacity.

Another object is the provision of such a liquid dispenser wherein the cutter is substantially self-sealing with the edges of the opening it makes in the can end and which secures the dispenser on the can with increasing tightness as the opening of the can proceeds.

Still another object is the provision in a liquid dispenser of this character of means for collecting liquid which may accidentally drip from the can while the dispenser is being used in its dispensing capacity and for conducting the drip through the dispenser spout into the place of deposit with the main body of liquid to prevent its accumulation on the outside of the can.

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 dispenser embodying the instant invention, the view showing the dispenser applied to a can;

Fig. 2 is a top plan view of the dispenser and can illustrated in Fig. 1;

Fig. 3 is a horizontal section taken substantially along the line 3—3 in Fig. 1;

Fig. 4 is a side elevation showing a fragment of the upper end of the can and one end of the dispenser, illustrating the position of the latter when first applied to the can to engage the dispenser with the can end seam;

Fig. 5 is an enlarged fragmentary vertical section taken through a part of the dispenser and the upper part of the can and illustrating the dispenser pivoted from the position shown in Fig. 4 to a position where the cutter is just beginning to cut through the can top;

Fig. 6 is a sectional view showing the dispenser fully applied to the opened can and in tilted position as when used in its dispensing capacity;

Figs. 7 and 8 are sectional views taken through the dispenser pouring spout, the sections taken being indicated by the lines 7—7, 8—8 in Fig. 6; and

Fig. 9 is a sectional view taken substantially along the line 9—9 in Fig. 6.

The dispenser illustrated in the drawings as a preferred embodiment of the invention and designated by the letter A (Figs. 1, 2 and 6) is adapted to be applied to an end of a container or can B filled with a liquid such as lubricating oil which is to be dispensed. In applying the dispenser to the can one end of the dispenser is preferably engaged under the can end seam, indicated by the letter *a*, (as shown in Fig. 4) which is used as a fulcrum while the dispenser is pivoted into can opening position against the can end (marked *b*). Vent holes are punched in the can end during this pivoting movement.

A cutter C (Figs. 5 and 6) secured in the dispenser A is utilized for opening the can end *b* when the can and the dispenser are brought together. After the can is opened and the dispenser and can are brought into dispensing position as illustrated in Fig. 6 the liquid draining out of the can flows through the cutter and the dispensing spout into any suitable place of deposit which may be an automobile crank case or other place where the oil is to be used.

The dispenser A includes a flat main frame 11

which is disposed horizontally over the can top when the dispenser is applied to the can B as illustrated in Fig. 1. At one end the frame 11 is formed with a short right angle leg 12 (Figs. 1, 4 and 6) which merges into an outwardly and downwardly sloping arm 13 which is used for properly locating the dispenser when it is first applied to the can as illustrated in Fig. 4. This structure of frame, leg and arm is reenforced by a continuous vertical rib 14.

Secured to the main frame 11 adjacent the leg 12 is a hook member 16 (Figs. 1, 3, 4, 5 and 6) for engaging under the can end seam *a* when the arm 13 is placed vertically against the can body (Fig. 4). The hook member is formed on a plate 17 which is riveted to the bottom of the main frame and which is also formed with a pair of spaced puncturing instrumentalities 18 which engage the can top adjacent the seam *a* for transversely locating the device and for forming vent holes 19 (Figs. 3, 5 and 6) in the can top *b* when the dispenser is pivoted on the seam *a* to open the can.

At the opposite end of the frame 11 the dispenser is provided with the cutter C for opening the can and an upwardly extending pouring spout 20 for dispensing the liquid contents of the can after it is opened. A handle 21 projecting from the side of the pouring spout is used for pivoting the dispenser on the seam *a* to effect the opening of the can.

The pouring spout is formed integrally with the frame 11 and is substantially circular in cross-section (see Fig. 8) having an internal bore 22 which is enlarged at the entrance end of the spout to provide an internal shoulder 23 (Figs. 5 and 6). The outside of the spout is formed with longitudinal projecting ribs 24, preferably three in number, which allow for venting when the spout is inserted into an automobile crank case or other place of deposit when the dispenser is used in its dispensing capacity.

The cutter C (Figs. 3, 5 and 6) is disposed in the entrance end of the pouring spout in a pocket or recess 25 formed in the frame 11. The pocket is surrounded by a flange 26 which merges into a pouring spout extension 27 which projects down adjacent the side wall of the can when the dispenser is fully applied. The cutter C is formed on one end of a tubular member or sleeve 31 which is disposed inside of the pouring spout 20 frictionally engaging the spout bore 22. Adjacent the cutter the sleeve is enlarged providing a shoulder 32 which abuts against the spout shoulder 23 for preventing longitudinal displacement of the sleeve during a can opening operation. The sleeve is further held in position by a set screw 33 (Figs. 6 and 7) threaded into a boss 34 formed on the side of the spout.

The cutter C is formed from a solid block of material substantially triangular in cross-section and having a central bore 36 which forms a continuation of the bore of the tubular sleeve 31. The back of the cutter is curved as at 37 to correspond substantially with the curve of the can body side wall, while the sides of the cutter are flat as indicated by the numeral 38.

The upper part of the cutter sides 38 (Figs. 5 and 9) flare outwardly and upwardly and at the same time converge toward the front of the cutter to provide a sharp cutting edge 39 inclined upward and outward. The lower part of the sides 38 extend down into a sharp point 41 and at the same time converge into an outwardly and downwardly inclined sharp cutting edge 42 which joins with the cutting edge 39.

Insertion of the cutter C into the can top *b* as the dispenser is pivoted about the seam *a* produces a triangular opening 47 in the can top through which the contents of the can may be drained into and through the pouring spout when the dispenser is used in its dispensing capacity. The inclined cutting edges 39, 42 and the flared sides 38 of the cutter produce a wedging and plowing action through the metal of the can top which causes the can seam hook 16 to be drawn into tight engagement with the seam *a* as the opening of the can proceeds and to hold the dispenser tightly on top of the can when the former is fully seated. The wedging action of the cutter side walls 38 also turn down the edges of the opening 47 against the sides of the cutter as shown in Fig. 9 as it enlarges the opening and this forms a seal around the cutter which is substantially leakproof.

A flap or tongue 48 of the material of the can top (Fig. 6), produced by the action of the cutter, is turned back against the body wall of the can by the bottom and the rear curved edge of the cutter to prevent trapping of any liquid in the can. A hole 49 is formed in the cutter transversely thereof and communicates with the cutter opening 36 and this assists in completely draining any liquid which may collect around the cutter while the liquid is being dispensed.

Provision is also made for carrying off any liquid which may accidentally escape through the can top opening 47 and around the cutter C during the dispensing operation. Such seepage of liquid, if any, drops from the cutter into the pocket 25 from which it drains into an inclined groove 51 (Figs. 5, 6 and 7) formed in the pouring spout 20 adjacent the shouldered end of the sleeve 31. Beyond this shouldered end the sleeve is bent inwardly to effect a channel 52 (Figs. 6 and 8) for draining this seepage through the pouring spout, but separated from the main body of liquid. The sleeve 31 extends to the discharge end of the pouring spout so that any liquid remaining in the spout when the can is righted after a dispensing operation, will drain back into the can through the cutter.

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 for sealed liquid filled containers, comprising in combination a one-piece rigid frame, means fixed on said frame for engaging an end seam of the container and for utilizing the seam as a fulcrum, a pouring spout on said frame, a hollow cutting element disposed at the entrance of said pouring spout, and a handle formed on said pouring spout for pivoting said frame on said seam as a fulcrum whereby said cutter is caused to perforate a wall of said container for draining the contents thereof into and through said pouring spout when the device is used in its dispensing capacity.

2. A liquid dispensing device for sealed liquid filled containers, comprising in combination a one-piece rigid frame, means fixed on said frame for engaging an end seam of the container and

for utilizing the seam as a fulcrum, vent hole cutting instrumentalities secured to said frame, a pouring spout on said frame, and a hollow cutting element disposed at the entrance of said pouring spout, said vent hole cutting instrumentalities and said hollow cutting element being adapted to penetrate a wall of said container for providing venting and pouring openings therein when said frame is pivoted about said seam as a fulcrum.

3. A liquid dispensing device for sealed liquid containers, comprising in combination a one-piece rigid frame, means fixed on said frame for engaging an end seam of the container and for utilizing the seam as a fulcrum, a pouring spout on said frame, and a hollow cutting element disposed at the entrance of said pouring spout and having wedge shaped cutting edges and sides for penetrating a wall of said container with a wedging action which draws the seam engaging means into tight engagement with the seam as the cutting element penetrates the container wall and which is substantially self-sealing with the edges of the opening it makes in the wall.

4. A liquid dispensing device for sealed liquid filled containers, comprising in combination a one-piece rigid frame, means fixed on said frame for engaging an end seam of the container and for utilizing the seam as a fulcrum, a pouring spout on said frame, a hollow cutting element disposed at the entrance of said pouring spout for penetrating a wall of said container when said frame is moved into can opening position by pivoting the same on said seam, and a pocket formed in said frame at the entrance end of said pouring spout for collecting liquid which accidentally seeps from said container when the device is used in its dispensing capacity.

5. A liquid dispensing device for sealed liquid filled containers, comprising in combination a one-piece rigid frame, means fixed on said frame for engaging an end seam of the container and for utilizing the seam as a fulcrum, a pouring spout on said frame, a hollow cutting element disposed at the entrance of said pouring spout for penetrating a wall of said container when said frame is moved into can opening position by pivoting the same on said seam, a pocket formed in said frame at the entrance end of said pouring spout for collecting liquid which accidentally leaks from said container when the device is used in its dispensing capacity, and means in said pouring spout for draining the liquid collected in said pocket through the spout separated from the main body of liquid passing through the spout and for discharging the collected liquid at the end of the spout with the main body of liquid.

6. A liquid dispensing device for sealed liquid filled containers, comprising in combination a one-piece rigid frame adapted to be applied to an end of a container, means fixed to one end of said frame for engaging an end seam of the container and for utilizing the seam as a fulcrum, an element formed on said frame adjacent said seam engaging means for locating the latter relative to said seam when the device is first applied to said container, a pouring spout formed integrally with said frame at its opposite end, and a hollow cutting element disposed at the entrance of said pouring spout for penetrating a wall of said container when said frame is moved into can opening position by pivoting the same on said seam.

ROBERT LUTHI.