Feb. 25, 1936. E. L. NALL 2,031,616

LIQUID DISPENSER

Filed Dec. 27, 1933

Fig. 1

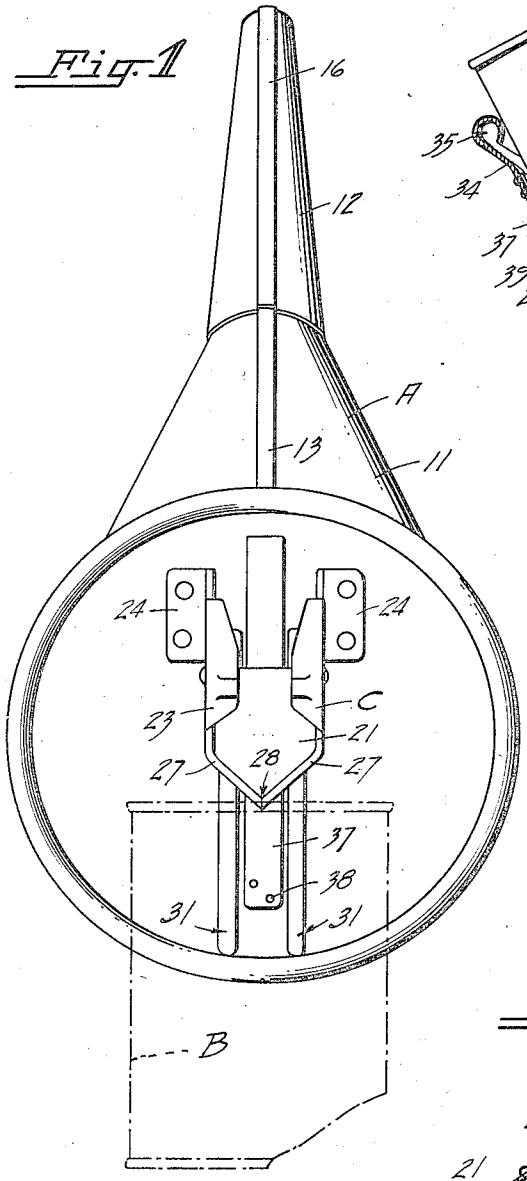


Fig. 2

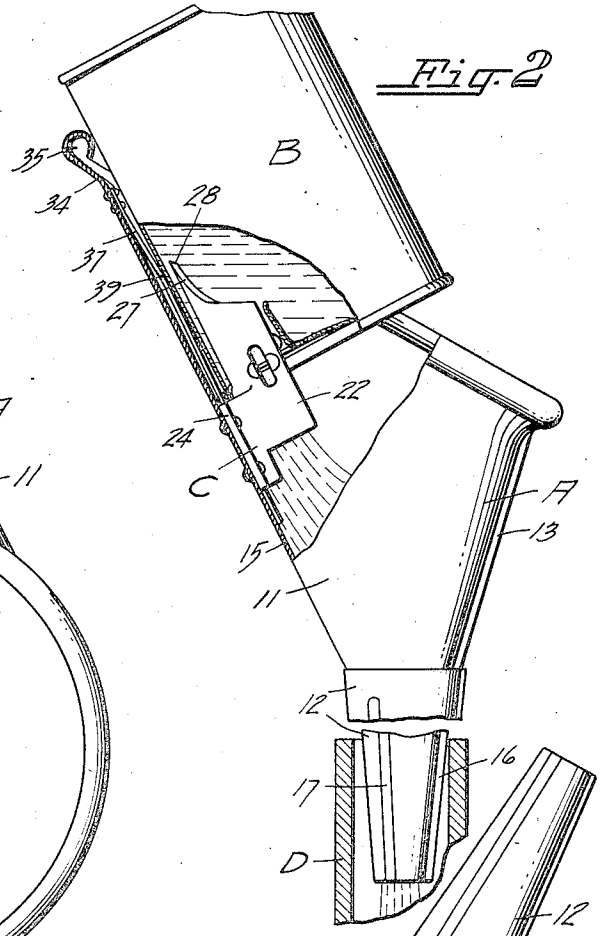
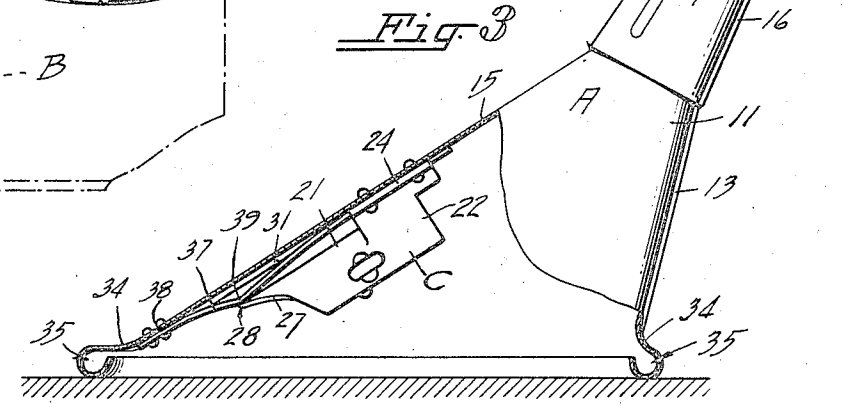


Fig. 3



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Patented Feb. 25, 1936 2,031,616

UNITED STATES PATENT OFFICE

2,031,616

LIQUID DISPENSER

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Application December 27, 1933, Serial No. 704,191

6 Claims. (Cl. 221—23)

The present invention relates to liquid dispensing funnels equipped with opening elements which function to cut into and open sealed liquid containing receptacles as funnel and receptacle are brought together, the liquid contents of the receptacle draining into and passing through the funnel as the latter is used in its dispensing capacity and the invention has particular reference to the formation of the funnel and elements associated therewith including elements for collecting liquid clinging or adhering to the sides of the funnel after using and for preventing this liquid from dripping from the funnel when it is not in use.

The invention contemplates a funnel for opening sealed receptacles and dispensing liquids such as lubricating oil therefrom which is used in its dual capacty of opening and dispensing, the funnel being also formed to hold residual liquid, clinging to its inner surfaces after use, and to prevent this liquid from being smeared upon surfaces on which the funnel may be laid.

An object of the present invention is the provision of a liquid dispensing funnel, equipped with container opening elements, for opening and dispensing the contents of a sealed liquid containing receptacle, the funnel being formed in such a manner as to provide a convenient base for supporting the funnel after use and for preventing the escape of residual liquid adhering to its inner surfaces.

Another object of the invention is the provision of a liquid retaining channel formed as a part of a liquid dispensing and container opening funnel for catching and holding any residual liquid adhering to the funnel after use to prevent smearing of the liquid upon surfaces on which the funnel may be placed.

A further object of the invention is the provision of a funnel of the character described having a liquid draining channel and a directing instrumentality associated with a container opening element located in the funnel for draining residual liquid from the funnel walls into the liquid retaining channel and for directing residual liquid adhering to the opening element back into the channel after the funnel has been used.

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 drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a front elevation of a funnel embodying the present invention, this view illustrating the funnel in its inverted position with a dot and dash outline of a receptacle in proper relation for opening;

Fig. 2 is a combination side elevation and longitudinal section of the funnel and a receptacle in its opened position within the funnel, the funnel being in its upright dispensing position; and

Fig. 3 is a combination side elevation and longitudinal section of the funnel, resting on its open face in non-using position.

The funnel illustrated in the drawing and designated by the letter A is adapted to receive a sealed receptacle B holding a liquid to be dispensed such as automobile oil or the like. A cutter C secured in the interior of the funnel A is utilized for opening the receptacle B as cutter and funnel are brought together. After the receptacle B is opened and the funnel is brought into dispensing position the liquid contents emptying from the receptacle flow around the cutter through the body of the funnel and into a suitable place of deposit, graphically illustrated in Fig. 2 as the receiving neck D of the crank case of an automobile.

The funnel A comprises a body 11 which is preferably conical in shape and which is connected with a dispensing spout 12. The open or receiving end of the body 11 opposite the spout 12 is cut away along one side which may be adjacent a side seam 13 for example, this open mouth extending at an angle to the funnel body and providing a short or narrow side wall section along such side seam and a long or wide section 15 directly opposite.

The dispensing spout 12 may also be formed with a side seam 16 and with longitudinal projecting ribs 17 which allow for venting when it is inserted in an automobile crankcase neck D or other place of deposit.

The cutter C is preferably formed with an arcuate wall 21 (Figs. 1 and 3) which is concentric to the funnel wall and which merges into parallel side walls 22 that are again bent inwardly at 23. The side walls 22 at one end of the cutter are bent out into supporting feet 24 which are riveted to or otherwise secured in the funnel body 11. This cutter is thus secured on the long side 15 of the funnel body.

The cutter wall 21 at the end opposite the feet 24 is sharpened and formed into triangular edges 27 which merge at the center into a piercing point 28. The sharpened or angular zone of the cutter edges also extend back along the edges of the side walls 22. The body wall 11 of the funnel along

its long section 15 may also be pressed inwardly to provide parallel ridges 31 (Fig. 1) and these ridges extend between the feet 24 of the cutter and are adjacent to but spaced from the cutter wall 21.

The sealed receptacle B may be inserted into the funnel A when the latter is in dispensing position as illustrated in Fig. 2, or the funnel may be inverted over the receptacle as the latter rests in an upright position as in Fig. 1. If received into the position illustrated in Fig. 2 it is necessary to support the funnel A in any suitable way, as by holding it in one hand, while the receptacle B is moved down along the wide wall section 15 by the other hand.

The receptacle in its relative movement with the funnel in either position rests on or against the parallel ridges 31 and is forced down on to the cutter C or the cutter is forced down on the receptacle. As soon as the end of the receptacle is punctured by the cutter point 28 and the sharpened cutter edges 27 have entered into the receptacle wall the receptacle is opened and ready for dispensing. If the funnel has been forced down on the receptacle (Fig. 1) both are first inverted into the position of Fig. 2 and the spout is positioned for discharge. From the position of Fig. 2 the liquid contents of the receptacle flow down inside the wall of the funnel and out through the dispensing spout 12.

When the receptacle is empty it is removed from the funnel A and discarded. The funnel is withdrawn from the crank case neck D and the natural act of a user is to lay it down on its face as shown in Fig. 3. A film of liquid clings to the inner surfaces of the funnel after using and in the rest position of an ordinary funnel the residual liquid runs down the inner sides and drips or runs off on the surface on which the funnel may be resting, smearing the surface with liquid and leaving an unsightly spot.

The funnel of the instant invention prevents such a condition, the open mouth of the funnel being bent or flared outwardly at 34 and thence bent or rolled inwardly in an open curl that forms a substantial continuous channel 35 around the mouth of the funnel. This channel being at the lowest point of the resting funnel (Fig. 3) catches and arrests the flow of the liquid film and holds it within the funnel.

The cutter C having been flooded with liquid will also contain some residual liquid after use and when the funnel is inverted and at rest this liquid runs down as it drains and gathers at the point 28. To prevent this bead of liquid from dropping off on the surface beneath the funnel there is provided a leaf spring 37 secured by rivets 38 to the wall 15 of the funnel body 11. This spring is preferably centrally disposed between the ribs 31 and extends parallel with them and at one side of the curved part 27 of the cutter C and adjacent the wall 15. The spring 37 is bent or bowed at 39 where it engages the point 28 of the cutter. Any liquid gathered at this point when the funnel is at rest flows down the spring 37 onto the wall 15 and thence into the channel 35.

In this manner residual liquid adhering to any part of the interior of the funnel after using will be eventually directed into the channel 35 during the time the funnel is resting upon its face. When the funnel is next used, this liquid within the channel 35 runs back into the funnel body 11 and mixes with the liquid flowing from the container B then being emptied.

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 funnel, comprising in combination, a body member cut away along one side to provide an open mouth and adapted to receive a sealed receptacle containing a liquid to be dispensed, a cutter secured in said funnel body and adapted to enter and cut into said receptacle to open it, said body member having a channel arranged around its open mouth for collecting the residual liquid adhering to said funnel and said cutter after use when the funnel is in inverted or non-pouring position, and a yieldable spring member secured to said funnel body and normally engaging said cutter for directing residual liquid from the cutter into said channel.

2. A liquid dispensing funnel, comprising in combination, a body member having an open mouth and adapted to receive a sealed receptacle containing a liquid to be dispensed, a cutter secured in said funnel body and adapted to enter and cut into said receptacle to open the latter, means adapted to engage said cutter for draining away residual liquid from the entire cutter when the funnel is in inverted or non-pouring position, and means associated with said open mouth of the funnel for collecting said residual liquid.

3. A liquid dispensing funnel, comprising in combination, a body member having an open mouth and adapted to receive a sealed receptacle containing a liquid to be dispensed, a cutter secured in said funnel body inside of its open mouth, and adapted to enter and cut into said receptacle to open the latter, means secured to the inner side of the funnel body and yieldably engaging said cutter for draining away residual liquid adhering to it after use of said funnel when the funnel is in inverted or non-pouring position, and means associated with the funnel body for collecting said residual liquid.

4. A liquid dispensing funnel, comprising in combination, a body member having an open mouth and adapted to receive a sealed receptacle containing a liquid to be dispensed, a cutter secured in said funnel body and adapted to enter and cut into said receptacle to open the latter, said body member having a channel arranged around its open mouth for collecting the residual liquid adhering to said funnel after use, and means associated with said cutter for directing liquid adhering to it into said channel when the funnel is in inverted or non-pouring position.

5. A liquid dispensing funnel, comprising in combination, a body member cut away along one side to provide an open mouth and adapted to receive a sealed receptacle containing a liquid to be dispensed, a cutter secured in said funnel body and adapted to enter and cut into said receptacle to open the latter, said body member having a channel arranged around its open mouth for collecting the residual liquid adhering to said funnel after use, and means associated with said cutter for directing liquid adhering to it into said channel when the funnel is in inverted or non-pouring position.

6. A liquid dispensing funnel, comprising in combination, a body member cut away along one side to provide a wall along on one side and short on the other and adapted to receive a sealed receptacle containing a liquid to be dispensed, said walls merging into each other and defining a continuous inwardly curled channel communicating with the interior of said funnel for collecting residual liquid adhering to said funnel after use, a cutter secured in said funnel body on its long side and adapted to enter and cut into the receptacle during relative movement between the cutter and receptacle to open it, and yieldable means associated with said cutter for draining residual liquid adhering to it into said channel when the funnel is in inverted or non-pouring position.

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