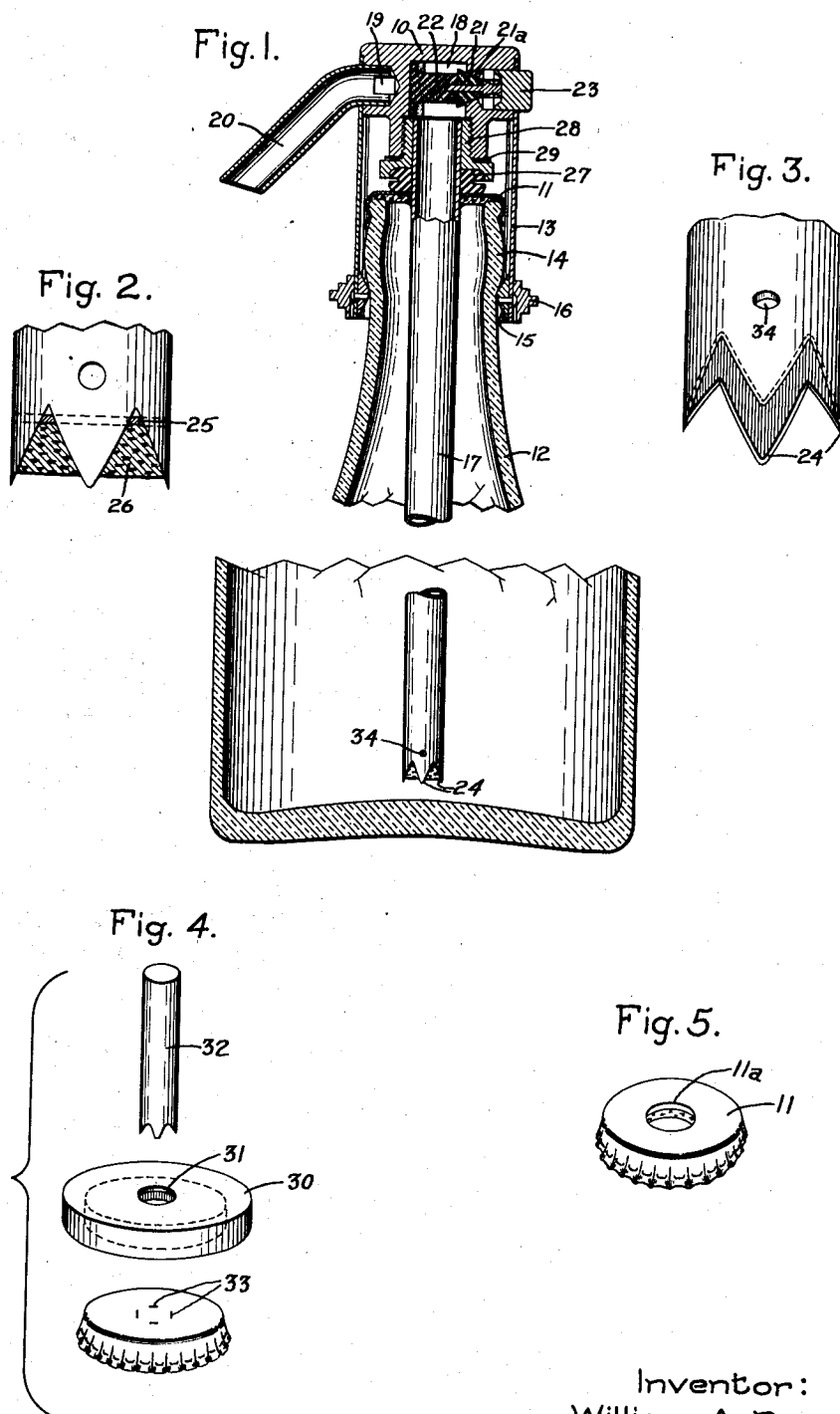


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W. A. RAMSAY
FLUID DISPENSING DEVICE

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Inventor:
William A. Ramsay,
by *Claude H. Mott*
His Attorney.

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FLUID DISPENSING DEVICE

William A. Ramsay, Honolulu, Territory of
Hawaii

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This invention relates to fluid dispensing devices and has for its object a detachable dispensing device for various containers having thin metal closures, especially capped bottles, and the like.

Carbonated, charged or other effervescent beverages are ordinarily handled in bottles provided with thin metal caps known generally as crown caps. In practice the removal of the cap from the bottle of effervescent liquid requires that the liquid be used in a limited length of time, otherwise it becomes flat. Furthermore, it is desirable in using such fluid in the mixing of beverages to dispense it from the bottle in a small stream and at high velocity, commonly known as "fizzing".

In carrying out my invention I provide a simple and inexpensive dispensing attachment, arranged to be detachably mounted over the closure caps of bottles in which carbonated liquids are usually packed, operable to dispense the contents of the bottle in a small stream and to hold the bottle sealed except when the content is being dispensed. More particularly, I provide an attachment which may be applied to the bottle without removing the closure cap or otherwise unsealing the bottle. In one form of my invention I provide a valved attachment head with a tube or spear extending downward therefrom into the bottle. This tube is tapered and provided with a special cutting edge at its lower end for cutting a smooth edge hole in the closure cap. Thus the dispensing attachment may be applied by striking the lower end of the tube through the closure cap and then pushing it down into the bottle, the tapered construction of the tube effectively cooperating with the smooth edge of the hole to completely seal the bottle during the application of the attachment as well as thereafter.

For a more complete disclosure of my invention reference should be had to the accompanying drawing of which Fig. 1 is a sectional view of a bottle dispensing device embodying my invention; Fig. 2 is an enlarged fragmentary view of the lower end of the tube after insertion in a bottle with the portions cut out of the cap lodged therein; Fig. 3 is an enlarged fragmentary view of the lower end of the tube showing the cutting edge; Fig. 4 is a view in perspective of an auxiliary device for centrally marking the cap before application of the dispensing device; while Fig. 5 is a perspective view of a used bottle cap showing the smooth edge central hole cut by the tube.

Referring to the drawing, I have shown my invention in one form as applied to a dispensing device for bottles, although it may be applied to dispensing devices for various other containers for fluid having thin metal covers or closures. In the form shown I have provided a head 10 arranged to be clamped securely in place over the conventional crown closure cap 11 of a bottle 12 by means of a plurality of flexible strips 13, forming a skirt, secured to the head 10 and fitting over the bulged portion 14 of the neck of the bottle. Several of the strips 13 are provided with projections 15 which are equally spaced around the neck of the bottle and pressed tightly on the neck by means of a ring 16. The clamping projections 15 as shown are clamped to the bottle at the lower end of the bulged portion 14. To remove the head the ring 16 is moved upward thus allowing the strips to spring outward in accordance with their bias.

The head 10 is provided with a tube or spear 17 extending downward to a point near the bottom of the bottle, a central chamber 18 communicating with the upper end of the tube, an annular chamber 19 connected to an outlet spout 20, and a valve 21 normally held by a rubber spring 22 to close a passage 21a from the chamber 18 to the chamber 19. This valve may be opened by pressing a button 23 to allow the contents of the bottle to be forced out through the spout 20 by the pressure of the gases in the liquid.

In accordance with my invention I provide a special cutting edge on the lower end of the tube for cutting a smooth edge hole in the crown cap 11, through which hole the tube is inserted into the bottle. This cutting edge consists of a plurality of projections or prongs 24, four being shown, which are cut in the wall of the tube and extend longitudinally of the tube. These projections have their edges formed from the inside out, as shown clearly in Fig. 3, i. e., the cutting edge is located at the outer surface of the tube. Moreover, it will be observed that the bases of the prongs 24 are coextensive with the periphery of the tube. In other words the prongs are formed by cutting V notches in the tube and the prongs are pointed. Consequently the cutting edge formed by the sharpened prongs is a continuous one at an angle with the surface of the cap and this angle is chosen for efficient cutting. As a result a smooth, clean cut is made without tearing, as shown in Fig. 5, a round disk portion 25 of the metal of the cap and a similar portion 26 of the cork disk of the cap being cut out as shown clearly in Fig. 2.

This smooth edge of the hole 11a in the cap forms a gastight joint with the smooth polished, preferably chrome or nickel plated, outer surface of the tube. Furthermore the tube is tapered somewhat, being smallest at the lower end, so that as the tube is moved through the hole looseness is prevented and a gastight joint is assured.

Preferably the dispensing device is applied to the bottle by first placing the cutting edge in a central position on the cap and then striking the upper end of the head 19 a sharp blow with the open hand, the bottle and device of course being held upright, whereby the hole is cut in the cap and the tube forced into the bottle for some distance. The tube is then fully inserted until a rubber gasket 27 at its upper end is seated on the crown cap 11. The clamping ring is then pressed down to secure the device in place, the head being at the same time held down firmly so that the gasket 27 is compressed slightly to further assure the maintenance of a tight seal for the bottle. The contents of the bottle may then be dispensed as desired by pressing the button 23, and kept for any length of time in its original condition. It will be understood that the pressure of the gases confined in the liquid is sufficient to expel the liquid with considerable force.

Preferably as shown the tube 17 is secured at its upper end to a threaded collar 28 which is screwed into a cooperating threaded opening in the head, a sealing gasket 29 of suitable thickness being provided between the head and a flange in the collar. By providing a gasket 29 of appropriate thickness an adjustment of the vertical position of the gasket 27 is provided to assure compression of the gasket when the head is secured to the bottle.

To assist in positioning centrally the cutting edge of the tube on the cap of the bottle, I provide a cap 30 which may be placed over the cap on the bottle. The cap 30 is provided with a central hole 31 of about the same size as the lower end of the tube. A punch 32 having four prongs on its lower end is then inserted in the hole and struck a sharp blow so as to form indentations 33 in the cap. The cutting edge of the tube may then be put in place with the ends of the prongs 24 in the indentations, and the head struck to insert the tube as previously described.

In view of the fact that the lower end of the tube is partially if not completely closed by the metal disk 25 and cork disk 26 lodged therein a plurality of holes 34 are provided in the tube near the lower end to provide for passage freely of the contents of the bottle through the tube.

While I have shown a particular embodiment of my invention, it will be understood, of course, that I do not wish to be limited thereto since many modifications can be made, and I therefore contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. The combination in a fluid dispensing device for a bottle provided with a sheet metal sealing top, of a head member, a tube connected to said head member, a cutting edge provided with a plurality of sharpened projections on the lower end of said tube, said head member being provided with a central opening communicating with the upper end of said tube and with a chamber surrounding said opening, a port connecting said opening with said chamber, a valve biased to normally close said port, means on the exterior of said head for opening said valve, a spout on said head connecting with said chamber, and means carried by said head member for detachably securing said head member to a bottle.

2. A fluid dispensing device for a bottle having a metallic closure cap comprising a tube having a cutting edge on one end for cutting an opening for insertion of said tube through the closure cap, a head member secured to the other end of said tube, said head member being provided with a central chamber communicating with said tube, an outer chamber and a valve opening connecting said central chamber with said outer chamber, a valve biased to normally close said valve opening, means on said head member operable from the exterior thereof for opening said valve, a discharge spout on said head member connected with said outer chamber, a plurality of depending flexible members secured to said head member arranged to fit over the neck of a bottle, and means on said head member for compressing said flexible members on the neck of a bottle to thereby secure said head member to the bottle.

3. A fluid dispensing device for a bottle having a metallic closure cap comprising a tube having a cutting edge on one end for cutting a smooth edge opening for insertion of said tube through the closure cap, a cylindrical head member secured to the other end of said tube, said head member being provided with a central chamber communicating with said tube, an outer chamber and a valve opening connecting said central chamber with said outer chamber, a valve in said central chamber biased to normally close said valve opening, means on said head member operable from the exterior thereof for opening said valve, a discharge spout on said head member connected with said outer chamber, a plurality of depending flexible strips secured to said head member around the periphery of said head member arranged to fit over the neck of a bottle, a ring on said head member surrounding said strips and arranged to be moved downward to compress the ends of said strips on the neck of a bottle to thereby secure said head member to the bottle, and a compressible gasket surrounding said tube and arranged to be compressed between said head member and the closure cap on the bottle when said head member is secured to a bottle.

WILLIAM A. RAMSAY.