CONTAINER WITH APPLICATOR TUBE FOR DISPENSING A LIQUID FOR DETECTION OF LEAKS

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ABSTRACT

The disclosure includes a bottle for dispensing a liquid including a deformable bottle having a hollow neck with a double ended stopper having socket means formed within each end and connected by a flow hole having a diameter less than the socket means and communicating with the interior of the neck, a flexible tube mounted in the socket means in communication with the flow hole and a storage socket for the free end of the tube for closing off the end of the tube.

2 Claims, 4 Drawing Figures
CONTAINER WITH APPLICATOR TUBE FOR DISPENSING A LIQUID FOR DETECTION OF LEAKS

CROSS REFERENCE
This is a continuation of application Ser. No. 241,198, now abandoned, filed Apr. 5, 1972.

SUMMARY OF THE INVENTION
The invention relates to an improvement in a device for applying a liquid to a joint in a fluid line for the detection of a leak therein when bubbles form in the liquid. More particularly the invention includes a deformable bottle having a neck in which is mounted a stopper, the stopper having socket means in which one end of a flexible tube is positioned. At the bottom of the socket is formed a flow hole which communicates with a second socket in which a second tube is mounted. One of the tubes picks up fluid from within the bottle and the other tube allows application of a liquid to a line for the detection of a leak therein by simply deforming the bottle. The stopper also includes a storage socket for the outer free end of each tube which also prevents flow of fluid from the bottle.

In the drawings forming part of this application:
FIG. 1 is a perspective view of a squeeze bottle with an applicator tube in position for detecting a leak in a pipe joint and embodying the invention.
FIG. 2 is a perspective side elevational view of the bottle.
FIG. 3 is a sectional view of the line 3-3 of FIG. 2 with portions broken away.
FIG. 4 is a sectional view on the line 4-4 of FIG. 3.
Referring to the drawings in detail the device A includes the deformable plastic bottle 10 which contains the testing liquid. The bottle A is formed with the neck 12 open at the upper end. Further provided is the substantially cylindrical double ended stopper 14 which frictionally fits in the neck 12. The stopper includes the hollow cylindrical portion 16 and formed internally and centrally of the portion 16 is the wall 18. The wall 18 has formed axially thereof the flow hole 20. The numeral 22 designates a first tubular socket for the end of a first flexible tube 24 which is formed as part of the wall 18 and which extends axially from the flow hole 20. The end of tube 24 when in the socket 22 bottoms out on the wall 18 as a stop shoulder, for the flow hole 20 is of less diameter than the inside diameter of the socket 22. A second tubular socket 26 for the end of a second flexible tube 28 is provided which is identical to support 22 and which extends axially of the flow hole 20 oppositely disposed to the tubular support 22. The end of tube 28 bottoms out on the wall 18 as a stop shoulder when in the socket 26 as in the case of support 22. The wall 18 acts as a shoulder for the end of each tube.
Further provided is a first storage socket 30 formed between the wall of portion 16 and the support 22 which bottoms out on the central wall 18. Also provided is a second storage socket 32 formed between the wall portion 16 and the support 26 and which bottoms out on the central wall 18. Each of the sockets 30 and 32 receive the outer free end of the tubes 24 and 28, respectively, for storage when not in use as shown in FIG. 2 in full lines and in broken lines in FIG. 3 with the tube 24. The tube 28 may be similarly stored in socket 32. When the end of a tube is positioned in a storage socket fluid is prevented from issuing out of the tube.

The tubes 24 and 28 differ in that the tube 24 is relatively long and the tube 28 relatively short, the tube 24 used in situations where a suspect leak area to be tested is difficult to reach. To use the tube 28 instead of the tube 24 as in FIG. 3, the stopper 14 is removed from the neck 12 and reversed whereby the tube 28 is inside the bottle and the tube 28 outside thereof.

The device A is used by filling the bottle 10 with a liquid that normally is bubble free. The tube such as 24 is positioned in the socket 22 and bottomed out on the wall 18 as in FIGS. 1 and 3 and the bottle squeezed to cause liquid to be forced from the bottle and out through the tube 28, through the flow hole 20, out the tube 24 in an unbroken stream. The liquid may be directed to a suspected leak at a joint such as J as in FIG. 1. If the liquid bubbles a leak is present. Similarly the short tube 28 may be used by reversing the stopper 14. Either of the tubes used may be stored by forcing the outer end of the tube in its respective storage socket 30 or 32 as illustrated in FIG. 2.

What is claimed as new and desired to be secured by Letters Patent of the United States is:
1. A container with applicator tubes for dispensing a liquid, comprising in combination:
a. a deformable bottle having,
b. a hollow neck,
c. a stopper having first and second identical ends, each of said first and second ends being snugly insertable into said hollow neck,
d. said stopper having a first socket formed in said first end and
e. a second socket, identical to said first socket, formed in said second end of said stopper, said first and second sockets terminating in an, f. inner wall having a,
g. flow hole axially of said first and second sockets and of a diameter less than the diameter of said first and second sockets,
h. a tube mounted in each of said first and second sockets in communication with said flow hole and in contact with said inner wall,
i. said stopper including identical storage sockets formed in said first and second ends for receiving the free end of said first and second tubes to seal off the same.
2. The device as in claim 1 wherein one of said first and second tubes is of a greater length than the other.

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