

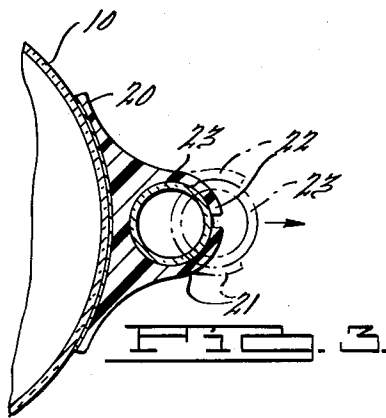
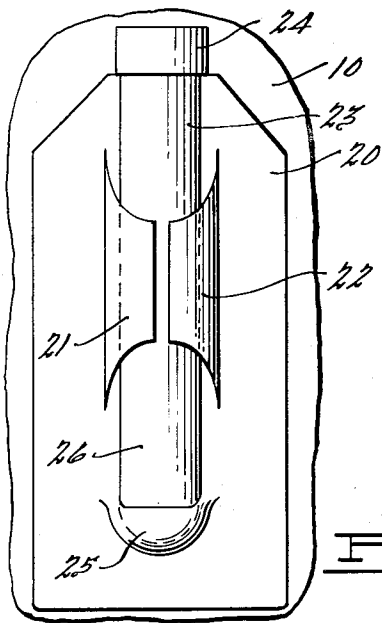
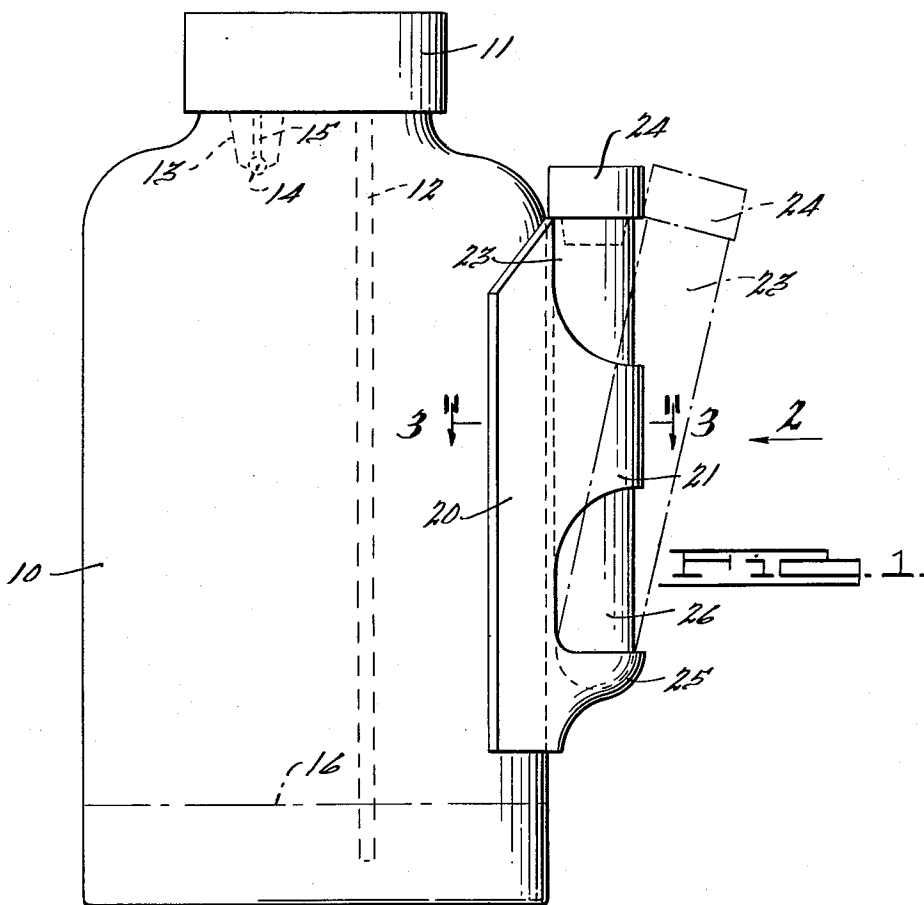
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BOTTLE PILOT TUBE ATTACHING DEVICE

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BOTTLE PILOT TUBE ATTACHING DEVICE

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1 Claim. (Cl. 215—100)

The present invention relates generally to a bottle unit assembly having a pilot tube attaching device secured thereto. More specifically, the invention relates to a pilot tube attaching device for attachment to a blood donor bottle for holding a small blood sample tube for typing, cross matching, and other identification purposes.

In many packaging applications involving the use of a bottle or other container, it would greatly facilitate identification, laboratory control, and quality control procedures if a small pilot bottle or container were attached for sampling purposes. In this way, the pilot bottle may be filled with the same material as the principal container at the time of filling the latter, the pilot bottle attached to the principal container and labels attached to both to prevent loss of identity. With blood donor bottles, the problem of sampling for laboratory work is of special importance because blood donor bottles are usually put up with a small quantity of saline or other solution and sealed with a special sealer cap having a bleeder tube installed therein, the completed assembly then being sterilized so as to be ready to receive blood without unsealing the bottle. In use, these blood donor bottle units are filled with blood taken directly from the veins of the donor and subsequently used without breaking the bottle seal. Removal from the bottle of a small sample without destroying the sterile condition of the contents, is particularly difficult.

It would greatly facilitate matters if a pilot tube could be attached to the donor bottle or other medicinal container in such a manner that the labels of both the tube and bottle were plainly visible. Since there are many thousands of blood bottles already in stock, there is need for a convenient pilot tube attaching device which may be easily attached to the bottle and without the need for tools, fastening devices and the like.

It is a principal object of this invention, therefore, to provide a pilot tube attaching device for use on blood donor bottle units.

Another object is to provide a blood donor bottle having firmly attached thereto a small tube-like container for holding a laboratory sample of the same blood as is contained in the principal bottle.

Still another object of this invention is to provide a blood donor bottle unit having a pilot tube attaching device secured thereto which will firmly grip the pilot tube and from which the pilot tube is easily removed.

A yet further object of this invention is to provide a pilot tube attaching device made of a resilient material which is easily attached to both new and existing blood donor bottles, and which will adequately protect a pilot tube inserted therein against accidental breakage during handling.

Other objects and advantages of the invention will be apparent or will become apparent from the following detailed description of the invention when taken in conjunction with the accompanying drawings, in which:

Figure 1 is a side elevational view of a typical blood donor bottle having the pilot tube attaching device of this

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invention secured thereon, and in particular, showing one manner of easy removal of the pilot tube;

Fig. 2 is a fragmentary front elevational view of the pilot tube attaching device of this invention showing in larger detail the disposition of a pair of tube-holding clip members and a cup-shaped bottom tube receptacle, both attached to a concave bottle attaching member, the view being taken in the direction of the arrow 2 in Fig. 1; and

Fig. 3 is a fragmentary plan view in section of the pilot bottle-attaching device of this invention, the section being taken along the line 3—3 of Fig. 1.

In accordance with the present invention, the pilot tube-attaching device is shown in Fig. 1 as being attached to a typical blood donor bottle 10, the latter having a puncturable sealer cap 11 to which are attached a bleeder tube 12 and a sealer member 13 to seal about a withdrawal tube to be inserted therein (not shown). The member 13 is split four ways and there is inserted a glass or plastic bead 14 to seal the end of passageway 15 formed at the juncture of the four sections. The bottle 10 is sealed after placing therein a small quantity of solution 16 such as dextrose solution or other conventional diluent, and the bottle and its contents sterilized.

The pilot tube attaching device of this invention comprises a relatively thin concave-shaped base member 20 which is adhesively secured in a substantially vertical position on a vertical side of bottle 10. Integral with the base member 20 are a pair of outwardly extending arcuate or circular-shaped clip members 21, 22. The latter, as will be seen in Fig. 3, are integral with the base member 20 and are positioned thereon so as to firmly grip and support the upper end of a sealed pilot tube 23 having a cap 24, when the latter is inserted therein. Near the bottom of base member 20, there is provided a cup-shaped member 25 which is shaped and positioned beneath clips 21, 22 so as to receive the rounded lower end of pilot tube 16 when inserted therein and to expose a considerable portion of the lower tube surface, as is indicated by the numeral 26 in Figs. 1 and 2 and/or the upper surface below cap 24, for labelling purposes. As will be seen in Figs. 2 and 3, the clip members 21, 22 are separate, or divided, so as to permit withdrawal of the tube 23 by pulling the latter horizontally and out of the tube holder. When this is done, as shown in Fig. 3, clip members 21, 22 flex outwardly to permit passage of the tube 23. Once free of the clips 21, 22, the tube 23 may be lifted out of the bottom cup member 25. Also, if desired, the tube 23 may be pulled vertically out of the holder without substantial flexing of the clips 21, 22. Since, as will be explained later herein, the clip members 21, 22 and preferably also cup-shaped member 25, are made of a resilient plastic or rubbery material, they tightly grip a tube inserted therein. Since the clip members 21, 22 and the cup-shaped base member 25 completely surround a pilot tube inserted therein, the latter is cushioned against accidental breakage in storage and handling. Also, since clip members 21, 22 and cup-shaped member 25 have considerable elasticity, pilot tubes of a considerable variation in diameter may be inserted therein. It is also within the scope of this invention to provide clip members capable of holding more than one pilot tube and to provide a plurality of pairs of clip and cup members to hold more than one pilot tube in side-by-side relation on the base member 20.

The concave-shaped base member 20 is curved to fit the bottle 10. Since it is also preferably made of a somewhat elastic material, the curvature imparted to this member need not be accurately designed for a given bottle size. The member 20 may be flexed slightly and then secured to any bottle corresponding only approximately to its original curvature.

Securing of base member 20 to the bottle or other container preferably is by means of a suitable adhesive ma-

terial. Most convenient are any of the pressure-sensitive adhesives which do not require heat or molding pressure during application of the tube-attaching device. However, since blood donor bottles conventionally are sterilized, any of the temperature-activated glass adhesives may be employed. Since the bottle generally will be a glass bottle, the adhesive should have the property of tenaciously adhering to glass. However, in some cases, it may be desirable to secure a pilot tube to a blood or plasma bottle made of plastic or other material. In such cases, the adhesive should be selected for its ability to adhere to the material of construction of the bottle. It is preferred that the adhesive employed be resistant to water, steam, and high temperatures, such as are employed during sterilization of the complete package.

The pilot tube attaching device is preferably made of an elastic plastic material having sufficient elasticity and resiliency to allow minor flexing of its base member during attachment and of its clip members during the inserting and removal of the pilot tube. It is preferred, of course, that the device be molded in one piece of a suitable resilient thermosetting or thermoplastic resin or rubber compound. While the drawings illustrate such an integrally molded device, it is obvious that its separate parts may be separately molded or formed and then secured together by a suitable adhesive or by screws or other mechanical fastening devices.

The advantages inherent in the pilot tube attaching device of this invention are that it does not require a special bottle or container construction, it may be attached to existing blood donor bottles, it has smooth clean surfaces which make it sanitary during use, and its resilient material of construction effectively protects the tube against breakage during use. The pilot tube attaching device of this invention firmly grips a tube inserted therein, yet the tube may readily be removed therefrom without unfastening auxiliary mechanical fastening devices. The blood donor bottle unit of this invention greatly facilitates the collection, storage and identification of blood samples and per-

mits sampling of the blood without destroying the sterile condition of the bottle contents.

What is claimed is:

In a device for attaching a pilot tube to a bottle having a curved peripheral surface, a one-piece unit formed of an elastic plastic material and including a base having an attaching surface adapted to be secured to said peripheral surface of said bottle, the marginal side portions of said base being relatively thin and adapted to deflect to conform to the configuration of said bottle surface, a pair of outwardly projecting clip portions integrally joined to said base at a position intermediate the ends thereof, the outer ends of said clip portions curving toward each other and terminating in spaced relationship with respect to each other whereby said clip portions define an open-sided aperture adapted to receive said pilot tube, and an outwardly projecting cup portion integrally joined to said base and defining a recess aligned with said aperture and adapted to receive one end of said pilot tube, said cup portion being positioned on said base in spaced relationship with respect to said clip portions whereby a substantial area of the surface of said pilot tube is exposed when said pilot tube is inserted in said unit, said clip portions being adapted to grip and resiliently support said pilot tube and to yield when pressure is applied to said tube so as to permit said tube to be withdrawn through the open side of said aperture.

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