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VALVE FOR A LIQUID APPLICATOR TUBE ASSEMBLY FOR GIVING ENEMAS OR THE LIKE

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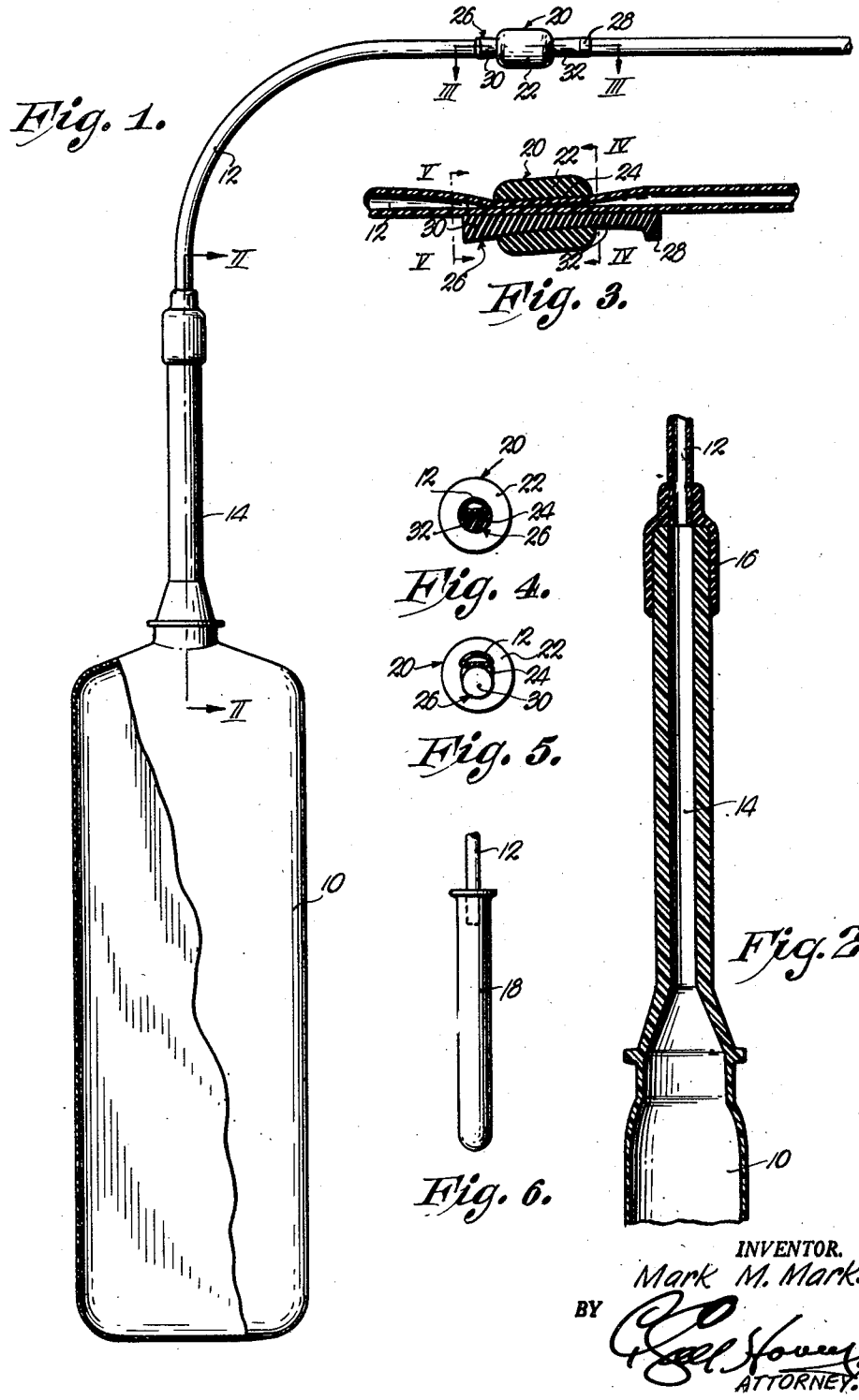



Fig. 1.




Fig. 3.




Fig. 4.




Fig. 5.




Fig. 6.




Fig. 2.

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# VALVE FOR A LIQUID APPLICATOR TUBE ASSEMBLY FOR GIVING ENEMAS OR THE LIKE

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This invention relates to the administration of enemas and the like, the primary object being to provide a composite disposable unit in which the enema solution is stored and sold, and through use whereof, the enema may be given without the necessity of employing conventional instrumentalities.

The present invention contemplates the use of a specially prepared enema solution which, through test, has proved effective, non-irritating, convenient and inexpensive. Relatively small amounts of the solution are required and it is an important object of this invention therefore, to eliminate the necessity of resorting to hot water bottles, syringe devices and the like for its application as has heretofore been the universal practice.

As will be made clear, the solution is packaged in a flexible container capable of being squeezed by the user so as to produce sufficient pressure to force the solution therefrom at the time of administration. A long, flexible tube communicating with the container is provided with an injection nozzle for the convenience of the user.

Additionally, a novel valve is provided on the tube to seal the solution in the container prior to use, and made in a manner to permit use thereof while the enema is being given. Here again, the valve is of such nature that there is no great increase in the cost of the product though the unit is destroyed after use of the solution.

It is the most important object of the present invention therefore, to provide a liquid applicator tube assembly for giving enemas or the like that permits expansion of use of the product to the home by virtue of the way in which it is packaged, sold and conveniently employed by the purchaser.

In the drawing:

Figure 1 is a fragmentary elevational view of a liquid applicator tube assembly for giving enemas or the like made according to the present invention, parts being broken away for clearness.

Fig. 2 is an enlarged, fragmentary, cross-sectional view taken on line II—II of Fig. 1.

Fig. 3 is an enlarged, fragmentary, cross-sectional view taken on line III—III of Fig. 1.

Fig. 4 is a cross-sectional view taken on line IV—IV of Fig. 3.

Fig. 5 is a cross-sectional view taken on line V—V of Fig. 3; and

Fig. 6 is an elevational view of a nozzle with which the assembly may be equipped.

Container 10, shown in Fig. 1 of the drawing, is preferably of an elongated, relatively flat nature for convenience in storing and shipping. Additionally, container 10 is fully flexible so that it may be squeezed and the enema solution therein contained readily extracted through flexible tube 12. Thus container 10 may be easily grasped in one hand during giving of the enema whereby the task is greatly simplified as compared with the conventional use of heavy and bulky bottles, bags and the like.

Container 10 is desirably provided with a long, integral spout 14, to which one end of tube 12 is rigidly affixed



as by use of a coupling 16. An injection nozzle 18 (Fig. 6) may be rigidly secured to the opposite end of tube 12.

A valve 20 on tube 12 includes an elongated collar 22 provided with a longitudinal bore 24 of circular cross-sectional configuration and having a larger diameter than that of tube 12 which it receives. Collar 22 also receives an elongated, longitudinally reciprocable wedge 26 that has a laterally-extending fingerpiece 28 on one end thereof engageable with the proximal end of collar 22 to limit the extent of movement of wedge 26 to the left, viewing Fig. 3.

Wedge 26 has a frusto-conical length 30 at its opposite end whose base end has a diameter substantially the same as the diameter of bore 24. Fingerpiece 28 is joined integrally to a length 32 of wedge 26 which is semi-circular in cross-section and joined integrally to length 30 at the apex of the latter within bore 24. The flat face of length 32 engages tube 12 whereas fingerpiece 28 extends beyond the convex face of wedge length 32.

At the time of packing the enema solution in container 10 for storage and sale, the valve 20 is closed on tube 12 by pressing wedge 26 to the right, viewing Fig. 3, relative to the collar 22. Tube 12 is squeezed closed by the action of the lengths 30 and 32 of wedge 26 on tube 12, and the liquid is held in container 10 even until after insertion of nozzle 18. Selected amounts of the enema solution may then be squeezed from the container 10 after opening of valve 20 by manipulating fingerpiece 28. Valve 20 may be easily and quickly closed at any time while the nozzle 18 remains inserted, eliminating any waste or condition requiring clean-up as is normal when using large, unwieldy means for giving of enemas.

As is clear in the drawing, container 10, spout 14 and tube 12 are all preferably made from a lightweight, pliable material such as synthetic resin or plastic and valve 20 is made from a heavier flexible substance such as rubber. Thus, when wedge 26 is forced inwardly toward the right, viewing Fig. 3, the length 30 thereof becomes progressively tighter in the collar 22, and as the latter tends to conform to the combined shape of length 30 and flattened tube 12, there is a resultant collapsing of tube 12 substantially from the apex end of length 30 to that end of collar 22 proximal to the base end of length 30.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. A closure for an elongated pliable tube comprising a collar of flexible material adapted to be slidably threaded on the tube intermediate the ends thereof; and an elongated wedge, longer than the collar and reciprocable therein, longitudinally thereof for engagement with the tube to squeeze the tube closed upon movement of the wedge toward one end of its path of travel relative to the collar, said wedge having a frusto-conical length at one end thereof provided with a base end disposed outside the collar and an apex end within the collar, and a second length joined at one end thereof to said apex end and extending outwardly beyond the collar, the second length being semi-circular in cross-section, presenting an elongated flat face disposed for engagement with the tube, said base end having substantially the same diameter as the inner diameter of the collar whereby the frusto-conical length collapses the tube throughout a substantial distance along said frusto-conical length upon movement of the wedge in one direction relative to the collar toward said one end of its path of travel.

2. A device for closing a flexible tube intermediate the ends thereof comprising an elongated collar of flexible material having a longitudinal, cylindrical, tube-receiving bore therethrough; an elongated wedge, longer than the

collar and reciprocable in the bore longitudinally thereof, said wedge having a frusto-conical length at one end thereof provided with a base and disposed outside the collar and an apex end within the collar, and a second length joined at one end thereof to said apex end and extending outwardly beyond the collar, the second length being semi-circular in cross-section, presenting an elongated flat face disposed for engagement with the tube, said base end having substantially the same diameter as the diameter of the bore whereby the frusto-conical length collapses the tube throughout a substantial distance along said frusto-conical length upon movement of the wedge in one direction relative to the collar; and a laterally-extending fingerpiece on the opposite end of the



second length disposed for engagement with the proximal end of the collar to limit the extent of movement of the wedge in the opposite direction relative to the collar, said second length having an arcuate surface, said fingerpiece extending radially beyond said arcuate surface.

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