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NEEDLE CONTAINER

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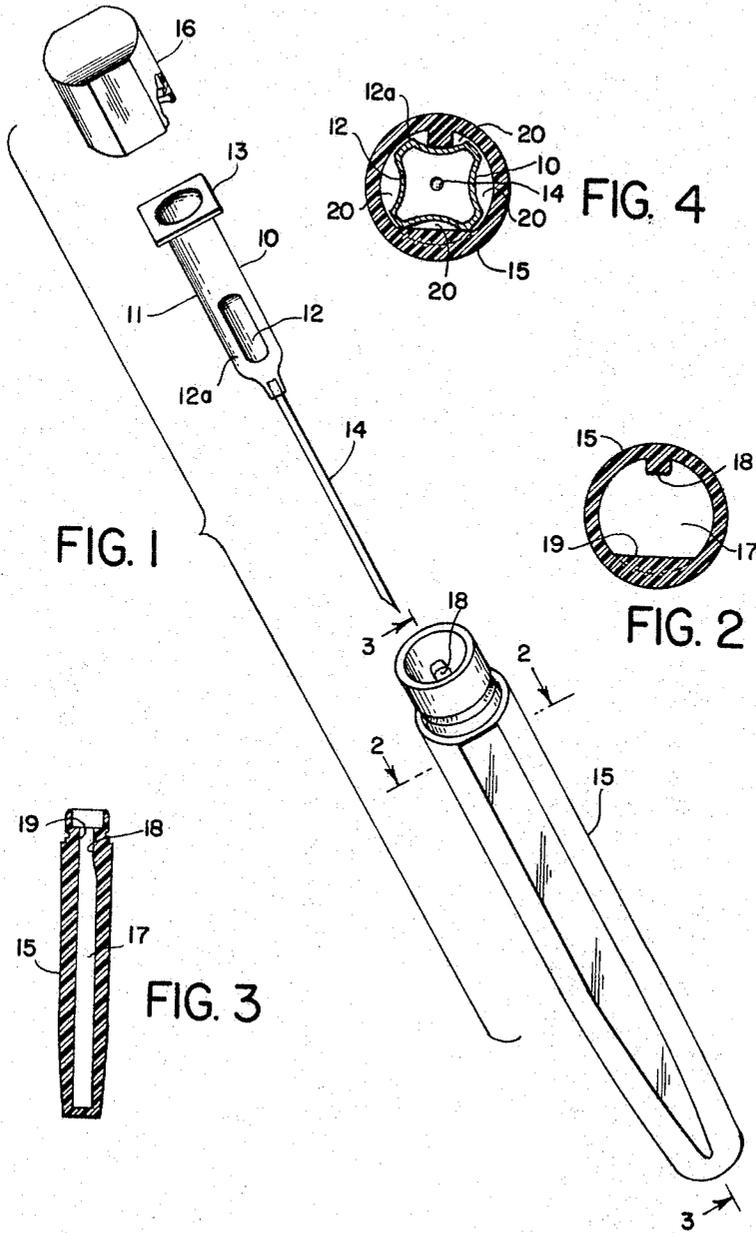


FIG. 1

FIG. 4

FIG. 2

FIG. 3

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NEEDLE CONTAINER

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The present invention relates to a novel container for hypodermic needles. More particularly it relates to a container which in addition to protecting the needle aids in its application and removal from a hypodermic syringe.

In the past hypodermic needles have been packaged generally in boxes or sterile glass tubes. Recently several efforts have been made to develop disposable plastic containers for hypodermic needles. Several U.S. patents, including U.S. Patents Nos. 2,953,243 and 3,021,942, disclose such containers. However, none of the heretofore patented containers have completely satisfied the hypodermic needle user. For example, many of these containers were designed to provide a wrench mechanism which unfortunately provided such a strong wrenching action that they attached the needle too securely to the syringe barrel. Furthermore, in securing the needle to the syringe barrel the wrench mechanism was often damaged so that the needle could not be removed from the syringe barrel by the same means. Still other of the containers provided insufficient wrenching action to join the needle and syringe securely enough to prevent the needle and syringe junction from leaking.

It is an object of the present invention to provide a simple, inexpensive, disposable container for hypodermic needles.

It is a further object to provide a needle container which makes it possible to securely fasten a needle to a syringe, and which further provides an automatic "relief" action which prevents the needle from being too securely attached and the wrenching mechanism of the container from being damaged.

These, and still further objects of the present invention will be more fully understood from the description which follows.

In the drawings:

FIGURE 1 shows an exploded elevational view of the novel needle container and a hypodermic needle.

FIGURE 2 shows a cross-sectional view of the container taken along lines 2-2 of FIGURE 1.

FIGURE 3 shows a section view of the container taken along lines 3-3 of FIGURE 1.

FIGURE 4 shows the view of FIGURE 2 with a hypodermic needle in position.

In the drawings the hypodermic needle 10 is provided with hub section 11, which in turn is provided with longitudinally extending diametrically opposed grooves 12, groove edges 12a, and an outwardly extending flange 13. Attached to the hub is a cannula 14, which is pointed at one end.

The tubular container 15 is provided with a cover 16. As seen in FIGURES 2 and 3 the container 15 is further provided with an internal passage or chamber 17. Projecting into the chamber 17 and interrupting its inner surface is a lug 18 and a flat or flattened portion 19. The lug and flat interlock with the longitudinally extending grooves and groove edges of the hub of the hypodermic needle as shown in FIGURE 4, thus suspending the cannula of the hypodermic needle in a position in which it does not contact the sides or bottom of the container and further provides for the ready passage of air or sterilizing fluid throughout the container via passageways 20 (seen only in FIGURE 4). This arrangement further provides for limiting the relative movement of the needle and con-

tainer sufficiently to securely fasten the needle to a syringe while still permitting the relatively free longitudinal movement of the two components.

The hypodermic needle when in place as shown in FIGURE 4 may be readily attached by a simple twisting motion to a hypodermic syringe having a Luer adaptor or other standard taper. Once the needle is secure further twisting motion forces the needle to ride or "cam" out of the container. Such a "camming" action is due to the presence of the flat 19. When the flat is replaced with one or more additional lugs the pressure of the twisting motion often so tightly secures the needle to the syringe that any efforts to remove the needle from the syringe, using the same container as a wrench, destroys the very lugs which were effective to place it there in the first place. In contrast the novel combination of a single lug and the flat provides the unique "camming" action, apparently by temporarily deforming the flat so that the needle pops out of the container. Surprisingly, if later it is desired to remove the needle from the syringe the flat portion is found to be no longer deformed and once again effective in providing sufficient wrenching action to remove the needle.

The container of the present invention, and its cover, are preferably molded of a plastic material which is firm and yet fairly resilient. The preferred material is a low or medium density polyolefin resin such as polyethylene or polypropylene.

The container of the present invention in addition to being useful for the application and removal of a needle from a syringe is also helpful in disposal of such needles, i.e., it provides a convenient container for discarding the needle.

It will be readily apparent to those skilled in the art the number of variations and changes that may be made without departing from the spirit and scope of the present invention.

What I claim is:

1. In combination a needle for use with a syringe, said needle comprising a cannula pointed at one end and a manipulating hub fastened at the other end, a container for the needle provided with an internal chamber, and cooperating means between the hub of the needle and the container for interlocking the two thus limiting to an extent their relative movement, but providing for relatively free longitudinal movement, said means comprising a plurality of longitudinally extending grooves having longitudinally extending top edges and formed in circumferentially spaced relationship in the hub of said needle and a flat and a single lug projecting into the chamber of said container, said lug extending within said groove and flat engaging a length of said hub defining said groove on said needle hub and said flat spanning a second groove whereby said flat contacts only said longitudinally extending top edges of said second groove, respectively, so that the relative movement of said hub within said container is limited whereby said container can be used as a wrench to securely fasten said needle to a syringe and whereby further wrenching cams the container out of engagement with the needle hub.

2. The combination of a hypodermic needle adapted for attachment to a hypodermic syringe, a container for said needle and means for locking said needle within said container so that their relative movement is limited, said means comprising longitudinally extending grooves defining longitudinally extending top edges and formed in circumferentially spaced relationship in the hub of said needle, a chamber in said container the internal wall of said chamber being provided with a flat and a single lug projecting radially inwardly from said internal wall, said lug extending within said groove and engaging a groove of said needle hub and said flat spanning a second groove

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and contacting only said longitudinally extending top edges of said second groove respectively so that said container can be used as a wrench to fasten said needle to a syringe, said container being formed of a polyolefin resin of such density that once the needle has been securely fastened to a syringe additional twisting motion imparted to the container will cause the flat to be temporarily deformed and the needle to cam out of the container thereby providing an automatic relief action which prevents the needle from being too securely attached to the syringe.

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