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2,892,538

FRANGIBLE PACKAGING FOR HYPODERMIC NEEDLES

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Fig. 1

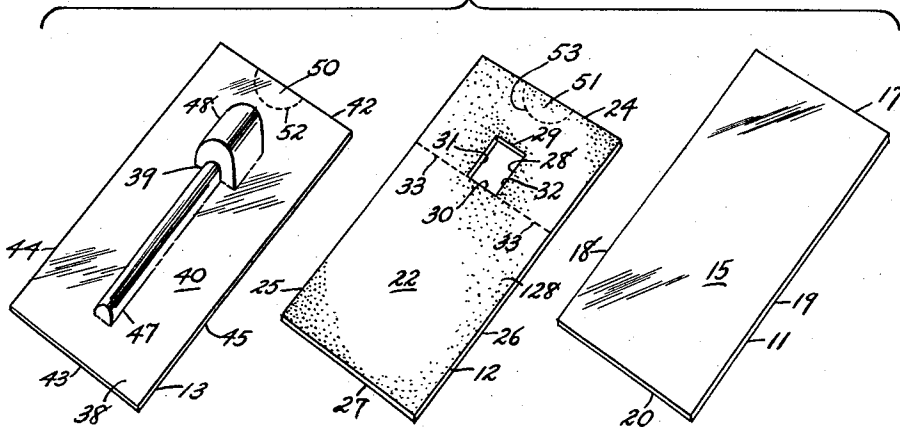


Fig. 2

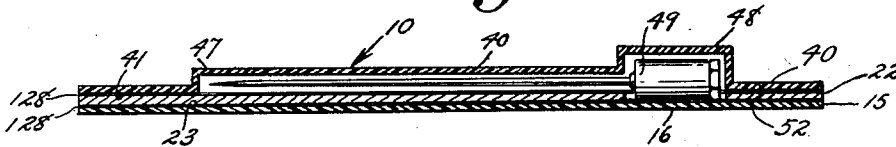


Fig. 3

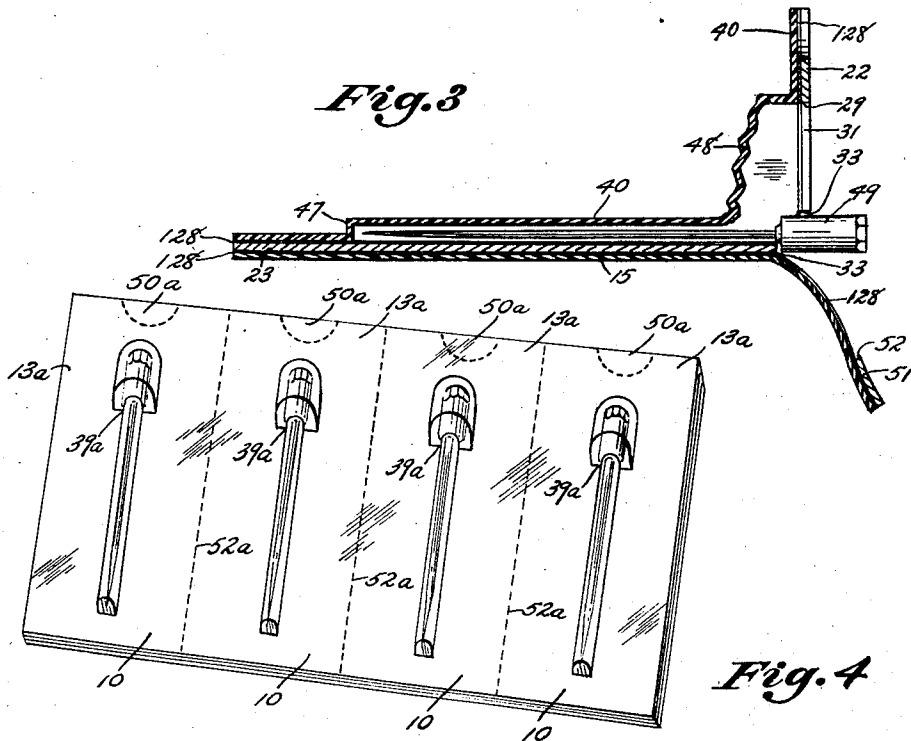


Fig. 4

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FRANGIBLE PACKAGING FOR HYPODERMIC NEEDLES

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4 Claims. (Cl. 206—43)

This invention relates generally to the hypodermic syringe art, and more particularly to an improved form of frangible packaging for needles employed in conjunction therewith.

The packaging of needles of this type is generally known in the art, most containers being specifically designed in such manner that the syringe may be engaged with the hub portion of the needle without the necessity of manually touching the hollow shaft portion thereof, so that the same may be maintained in an uncontaminated condition up to the point of injection.

With increasing labor cost, it has been found by many hospitals and medical practitioners, that it is no longer practical to reuse syringe needles, since the meticulous care in cleaning, sharpening and sterilizing used needles results in a cost greater than the cost of manufacture of the needle itself. There has thus arisen a need for a disposable packaging for needles which will be used for a single injection and subsequently discarded, which packaging will serve to replace the more expensive casings and containers employed in the art. Such a packaging must provide for the protection of the hollow shaft portion of the needle during engagement of the hub portion thereof with a syringe, and capable of maintaining the needle disposed within in an uncontaminated condition until such time as the packaging is opened for removal of the needle.

It is therefore among the principal objects of the present invention to provide frangible hypodermic needle packaging of the class described capable of fulfilling the above-mentioned requirement.

Another object of the invention lies in the provision of frangible hypodermic needle packaging in which the needle may be sterilized by gas pressure sterilization processes known in the art, after the packaging has been closed.

Still another object of the invention lies in the provision of improved frangible packaging of the class described which will withstand ordinary handling without damage, and which may yet be conveniently opened without resort to any tools.

A feature of the invention lies in the provision of paper surfaces upon which information may be printed, which surfaces are protected beneath other portions of the device, thereby preventing unauthorized alteration of the printing and permitting the ready identification of particular needles disposed within the packaging without the necessity of opening the same.

These objects and features, as well as other incidental ends and advantages, will become more clearly apparent during the course of the following disclosure, and be pointed out in the appended claims.

On the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

Figure 1 is an exploded view in perspective showing an embodiment of the invention.

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Figure 2 is a central longitudinal sectional view showing the device in sealed condition with a single hypodermic needle disposed therein.

Figure 3 is a central longitudinal sectional view corresponding to that seen on Figure 2, but showing the device in ruptured condition permitting the engagement of the hub portion of the needle with a hypodermic syringe.

Figure 4 is a perspective view showing an alternate form of the embodiment.

In accordance with the invention, the device, generally indicated by reference character 10 comprises broadly an outer film member 11, a fiber base member 12 and an outer molded dome member 13.

The outer film member 11 is preferably die cut from thin synthetic resinous material such as cellulose acetate, butyrate, cellulose nitrate or polyethylene of a gauge sufficiently strong to permit separation without tearing. It includes an upper surface 15, a lower surface 16, and is bounded by a top edge 17, side edges 18 and 19 and a bottom edge 20. If desired the upper surface 15 may be precoated with an adhesive for lamination described hereinafter.

The base member 12 is formed of cardboard, and is of outer dimensions generally corresponding to those of the film member 11. The base member is bounded by an upper surface 22 which may be calendered for printing and a lower surface 23 as well as a top edge 24, side edges 25 and 26 and a bottom edge 27. The upper and lower surfaces 22 and 23 may be coated with adhesive 128 to facilitate integration of the same with the film member 11 and outer dome member 13.

The dome member 13 is preferably formed of materials similar to those used in the formation of the film member 11 but of a substantially heavier gauge. It includes a flange portion 38 and a dome 39 adapted to partially enclose a needle when the device is assembled. The planar portion 38 includes an upper surface 40, a lower surface 41, and is bounded by a top edge 42, a bottom edge 43 and side edges 44 and 45. The dome 39 includes an elongated portion 47 corresponding to the shape of the shaft portion of a needle generally indicated by reference character 49 and a larger cylindrical portion 48 adapted to surround the hub portion of the needle. The portions 47 and 48 are interconnected in a plane which lies generally perpendicular to the plane of the dome member 13.

Referring to the base member 12, as best seen on Figure 1 of the drawing, the same is provided with a rectangularly shaped cut-out portion 28 bounded by an upper edge 29, a lower edge 30, and side edges 31 and 32. A scored line 33 extends from the side edge 25 to the side edge 26, and lies within the plane of interconnection of the dome portions 47 and 48. It will be observed that this line coincides with the lower edge 30 of the cut-out portion 28.

The packaging is assembled by inverting the dome member 13 to present the cavity formed by the dome portions 47 and 48. The needle is then placed within the cavity, following which the base member 12 is positioned thereupon. Following this, the film member 11 is placed upon the base member 12. If desired, the lamination of the members 11 and 12 may be performed in advance of the above procedure.

The packaged device is then subjected to the action of a die which firmly presses the planar members 11 to 13, inclusive, together so that the adhesive on the base member 12 or the surface 15 of the member 11 forms a complete seal. The die simultaneously cuts through the dome member 13 and partially through the base member 12 to form a frangible notch 50 on the dome member 13 and a similarly shaped notch 51 on the base member 12,

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If desired, the assembly may include the simultaneous integration of a number of devices 10 in which case the die may be used to sever individual devices 10 from each other.

Upon the completion of the above operation, the assembled device may be subjected to the action of gas-pressure sterilization, or other type of sterilization not deleteriously affecting the components of the package, following which the same may be packed for shipment.

To ready the needles for use, it is necessary only to grasp the device 10 and to break through the scored line 52 on the dome member 13 and 53 on the base member 12 facilitating the tearing off of the film member 11. The base member 12 and dome member 13 are then bent as indicated on Figure 3 of the drawing to distort the plane of interconnection between the dome portions 47 and 48 and expose the hub of the needle 49 while permitting the shaft portion thereof to be disposed beneath the portion 47. In this position, the syringe (not shown) may be readily engaged following which the needle may be withdrawn for use.

Turning now to the alternate form of the embodiment illustrated on Figure 4 of the drawing, parts corresponding to those of the principal form have been designated by similar reference characters with the additional suffix "a."

The alternate form of the embodiment differs from the principal form only in the formation of a plurality of the devices 10 integrated and separated by a plurality of scored lines 52a in generally parallel relation permitting the severance of individual units from the group as required. This form of packaging is particularly adapted for use in hospitals and dispensary practice. As mentioned hereinabove, this construction facilitates production where a large number of devices are assembled at the same time.

We wish it to be understood that it is not considered that the invention is limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

We claim:

1. A frangible package for maintaining hypodermic needles in uncontaminated condition comprising a first outer film member, a base member superimposed upon said film member, said base member having a cut-out portion adapted to permit passage of the hub of a needle, and an outer dome member having a flange portion superimposed upon said base member; said dome member including a first dome portion positioned to overlie said cut-out portion in said base member, and a second dome portion of elongated configuration adapted to at least partially contain the shank portion of said needle; said film member, base member and dome member having planar surfaces maintained in adhesive lamination.

2. A frangible package for maintaining hypodermic needles in uncontaminated condition comprising a first

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outer film member, a fiber base member superimposed upon said film member, said base member having a cut-out portion adapted to permit passage of the hub of a needle, and an outer dome member having a flange portion superimposed upon said base member; said dome member including a first dome portion positioned to overlie said cut-out portion in said base member, and a second interconnecting dome portion of elongated configuration adapted to at least partially contain the shank portion of said needle; said base member being scored along a line disposed within the plane of interconnection between said first and second dome portions.

3. A frangible package for maintaining hypodermic needles in uncontaminated condition comprising a first outer film member, a fiber base member superimposed upon said film member, said base member having a cut-out portion adapted to permit passage of the hub of a needle, and an outer dome member having a flange portion superimposed upon said base member; said dome member including a first dome portion positioned to overlie said cut-out portion in said base member, and a second interconnecting dome portion of elongated configuration adapted to at least partially contain the shank portion of said needle; said base member being scored along a line disposed within the plane of interconnection between said first and second dome portions; said base member having first and second surfaces, and an adhesive on said surfaces.

4. A frangible package for maintaining hypodermic needles in uncontaminated condition comprising a first outer film member, a fiber base member superimposed upon said film member, said base member having a cut-out portion adapted to permit passage of the hub of a needle, and an outer dome member having a planar portion superimposed upon said base member; said dome member including a first dome portion positioned to overlie said cut-out portion in said base member, and a second interconnecting dome portion of elongated configuration adapted to at least partially contain the shank portion of said needle; said base member being scored along a line disposed within the plane of interconnection between said first and second dome portions; said base member having first and second surfaces coated with an adhesive; said outer dome member and base member each having corresponding portions adjacent an edge thereof which are partially cut through to facilitate the tearing off of said outer film member to permit removal of said needle disposed within said packaging.

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