

[54] VIAL AND SYRINGE CARTON FOR
EMERGENCY DRUGS

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[51] Int. Cl. **B65d 79/00, B65d 5/48**

[58] Field of Search **206/365, 229, 223**

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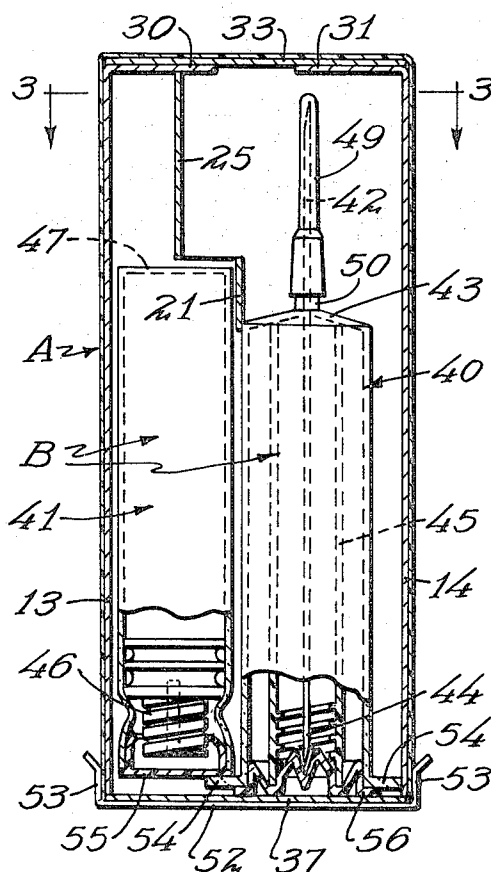
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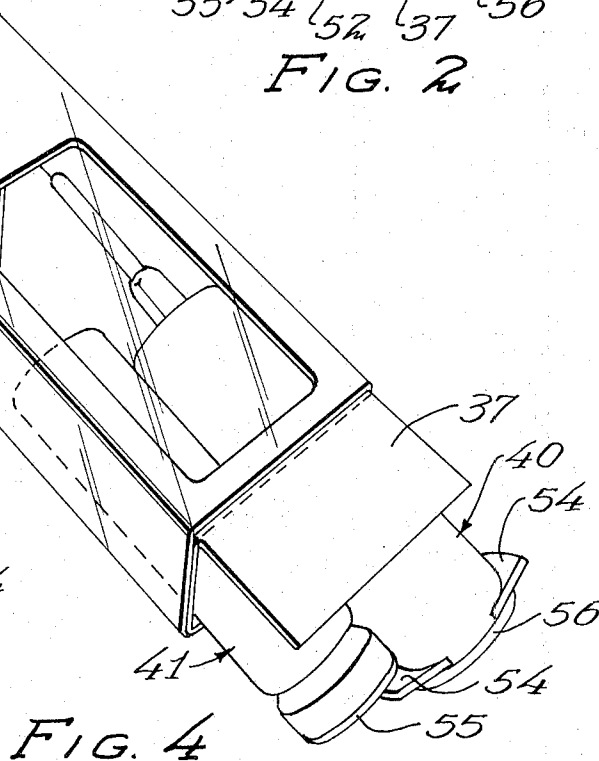
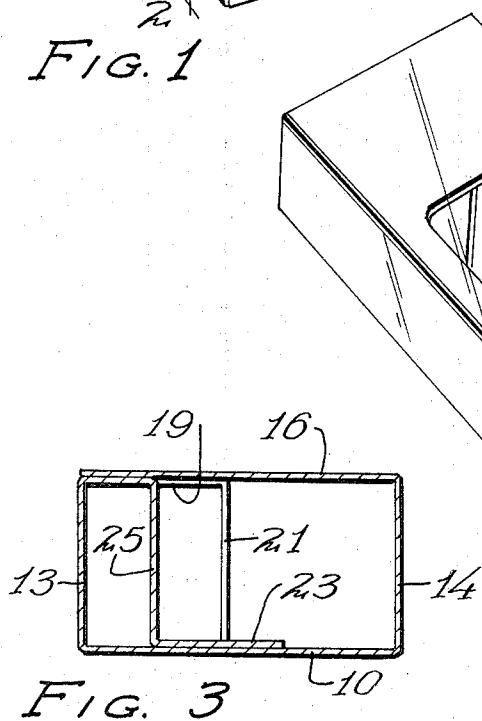
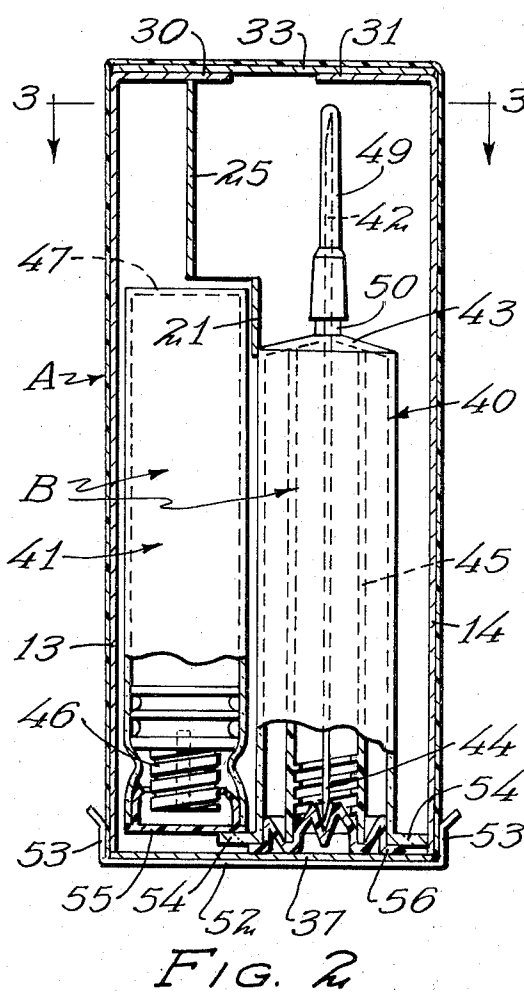
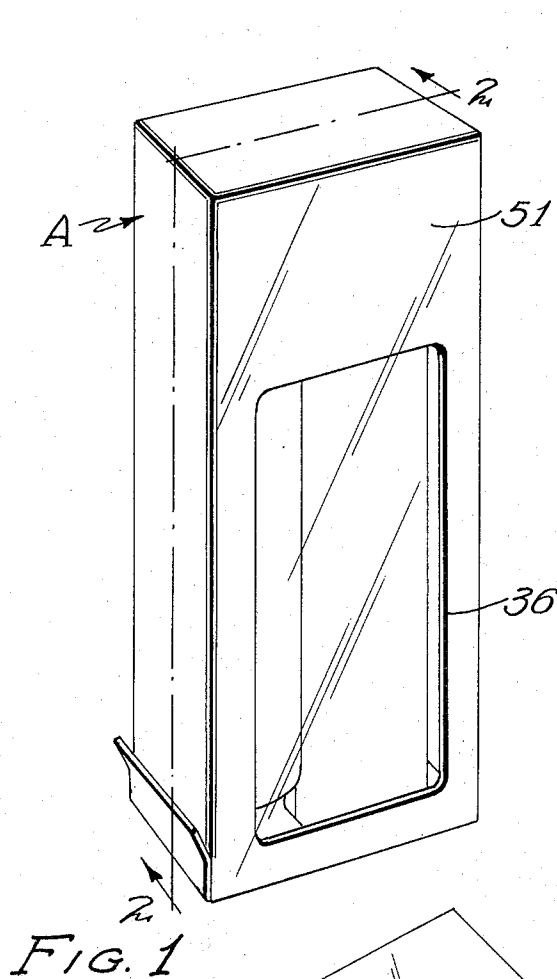
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[57] **ABSTRACT**

A syringe package is provided for a syringe including a cylinder having a hypodermic needle projecting through one closed end thereof, the needle extending throughout the major portion of the length of the cylinder and extending from said closed end. A plunger is provided which may be readily secured to the cylinder, and which contains the fluid to be dispensed. The package includes a carton which supports the cylinder and plunger in side-by-side relation. The carton is generally rectangular in cross-section, with a top closure and with a bottom preferably comprising a single hingedly connected panel held in place by a strip of plastic film which, when removed, permits the bottom panel to swing open, permitting the cylinder and plunger to slip out of the carton, permitting the syringe to be slid from the carton and readily assembled in a time period much shorter than is normally required.

5 Claims, 7 Drawing Figures




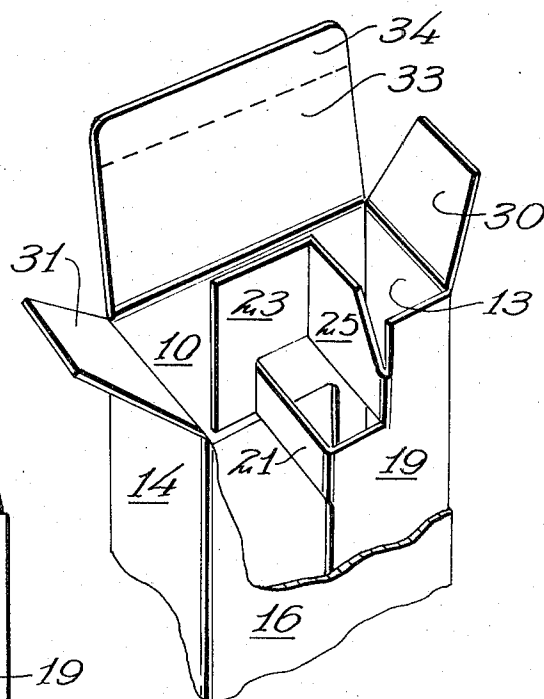


FIG. 5

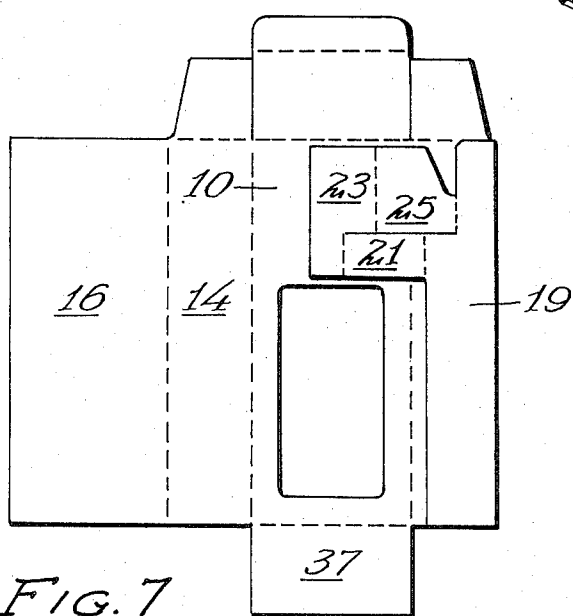


FIG. 7

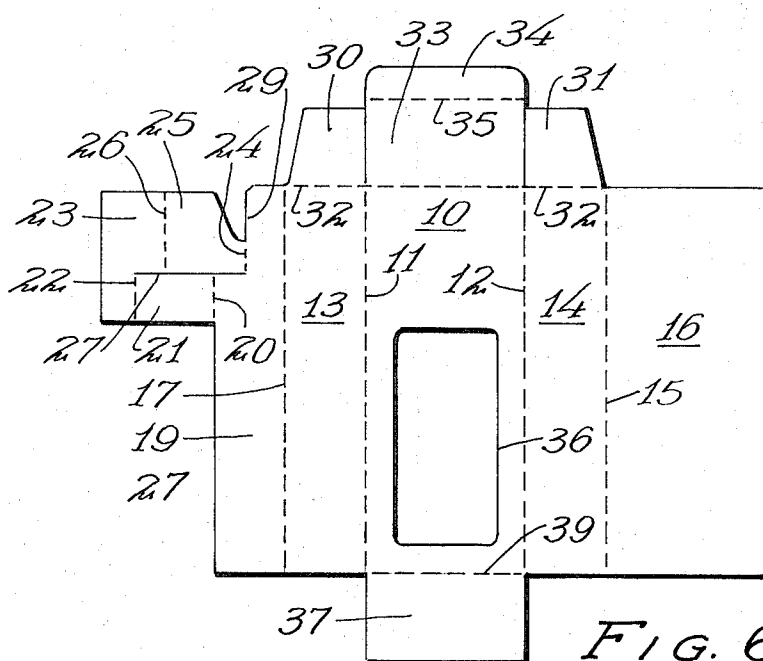


FIG. 6

VIAL AND SYRINGE CARTON FOR EMERGENCY DRUGS

This invention relates to a syringe package, and deals particularly with a carton used for containing a syringe, the syringe including a cylinder, and a separate plunger which may be attached to the cylinder portion in a minimum of time.

BACKGROUND OF THE INVENTION

Syringes such as are used in dispensing a product which is used in conjunction with heart attacks and the like must be ready for use in the shortest time possible. Normally about three minutes is required for removing the cylinder portion of the syringe from the package, removing the plunger portion from the package, and assembling the two parts so that the device may be assembled in a matter of minutes, rather than in seconds. This time required to assemble the syringe is often sufficient to make the difference between life and death. Thus it is absolutely essential that the minimum time be required for this operation, particularly in the event of a heart attack.

SUMMARY OF THE INVENTION

It has been previously been found that by providing a single panel which is held in place by a strip of plastic sheeting or the like which may be readily grasped and removed, the bottom closure may swing open and allow the cylinder and plunger to merely slide out of place into the hand of the doctor or nurse, so that the closure caps covering the ends of the two parts of the syringe may be readily removed and the two parts assembled. It is with this type of package with which the present application is concerned.

The object of the present invention lies in the provision of a carton having two transverse partition members, one of which engages the end of the plunger to keep the plunger from moving any material distance longitudinally of its axis, and to provide a second partition which is designed to engage between the cylinder and the plunger, tending to hold the two parts in parallel spaced relation. With this arrangement, the lower end of the plunger engages one of the finger engaging ears on the cylinder which are at the end of the cylinder opposite that from which the needle projects. This engagement serves to hold the cylinder portion from sliding axially in the carton, and holds the needle end of the cylinder in spaced relation to the upper end of the carton, thus preventing injury to the needle.

As a result of this construction, when the lower end of the container is opened, both the cylinder and plunger slide from the carton in unison, and into the hand of the doctor or nurse who may then remove protective caps from the ends of the two parts to be engaged and to attach the plunger to the dispense the liquid contents thereof.

These and other objects and novel features of the present invention may be more clearly and fully set forth in the following specification and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the sealed and over-wrapped package.

FIG. 2 is a vertical sectional view through the package, the position of the section being indicated by the line 2—2 of FIG. 1.

FIG. 3 is a transverse sectional view through the unfilled carton, the position of the section being indicated by the line 3—3 of FIG. 2.

FIG. 4 is a perspective view of the carton after the bottom has been opened.

FIG. 5 is a perspective view through the empty carton partially broken away and showing the partition structure.

FIG. 6 is a diagrammatic view of the blank from which the carton is formed.

FIG. 7 is a diagrammatic view of the carton in flat partially folded condition.

The carton A is shown in its blank form in FIG. 6 of the drawings. As indicated in this Figure, the carton includes the front panel 10 which is hingedly connected along opposite fold lines 11 and 12 to side wall panels 13 and 14 respectively. The side wall 14 is hingedly connected along a fold line 15 to a rear panel 16. The side wall 13 is hingedly connected along the fold line 17 to a glue flap panel 19 which is approximately one half the width of the front panel 10 and rear panel 16. The glue flap panel 19 is hingedly connected along a fold line 20 to a partition panel 21 which, in turn, is connected along a fold line 22 to a glue flap or anchoring flap 23. The glue flap panel 19 is also connected along a fold 24 to a partition panel 25. The partition panel 25 is connected along a fold line 26 to the anchoring flap or panel 23. It will be noted that the fold line 24 is substantially midway between the edges of the side wall 13 while the partition panel 21 is connected along an extension of the edge 27 of the side wall 19. In view of the fact that the partition panels 21 and 25 are both of the same width, the two partition panels are laterally offset, and the fold lines 26 and 22 are also offset. A cut line 27 extends between the lower end of the fold line 24 and the upper end of the fold line 22 so as to separate the two partition panels.

A notch 29 is provided adjoining the fold line 24 extending into the partition panel 25 from the upper edge thereof. As will be described, this notch is designed to accommodate the tuck flap which will be described.

Inner closure flaps 30 and 31 are foldably connected to the upper edges of the side wall panels 13 and 14 while a top closure flap 33 is connected to the upper edge of the front wall panel 10 along continuations of the fold line 32. A tuck flap 34 is hingedly connected to the end of the top panel along a fold line 35.

In preferred form, an opening 36 is provided in the front wall 10 through which the contents of the carton may be viewed. The bottom closure flap 37 is hingedly connected to the lower edge of the front wall 10 along a fold line 39.

While the specific form of the syringe is not of importance in the present invention, the syringe B is normally formed in two parts, one of which comprises a cylinder 40, and the other of which comprises a plunger 41. A needle 42 projects from the closed upper end 43 of the cylinder 40, this needle extending through the top closure 43 and extending to a point near the open bottom end of the cylinder as indicated at 44. A concentric sleeve 45 is suspended from the top closure 43 of the cylinder and also extends to a point near the open lower end of the cylinder. The sleeve 45 is designed for threaded engagement with a plug 46 of resilient material which seals against the inner surface of the cylindrical wall of the plunger 41. The other end of the plunger is closed as indicated at 47.

A needle cap 49 is threaded to a shank 50 which projects upwardly from the upper end 43 of the cylinder 40. This needle cover may be removed by twisting it free and pulling it from the needle.

A body of the carton including the top, front, rear and side walls is covered by a film 51 of plastic material or the like, forming a transparent window for the opening 36 in the front panel 10. The bottom closure panel 37 is held in closed position by a strip 52 of plastic film which extends beneath the bottom panel 37 and has ends 53 which are detachably secured to the film overlying the side walls 13 and 14. The plunger 41 is in side-by-side relation to the cylinder 40, the partition member 21 extending between the plunger and the cylinder to hold them in position. The upper partition 25 terminates above the level of the closed end 47 of the plunger to limit any axial slidable movement of the plunger. The cylinder 40 is provided near its lower open end with laterally extending ears 54, one of which lies inwardly of the side wall 14, and the other of which underlies the plunger 41. The open end of the plunger which is normally sealed by the resilient plug 46 is closed by a plug type cap 55, while the open end of the cylinder 40 is closed by a closure cap 56.

From this description it will be clear that the plunger 41 is limited in its slidably axial movement by engagement with the lower end of the partition 25 and the finger engaging ears 54 of the cylinder 40. The engagement of the plunger 41 with the laterally projecting ear 54 holds the cylinder 40 from upward movement to a greater extent than the distance of movement of the plunger 41. The cap 56 rests upon the closure panel 37.

While the single closure panel 37 is a feature of the device as a whole, it is not a part of the present invention, nor is the film strip 52 which underlies the panel 37 and normally holds it in closed position.

The package is completed by folding the front, rear and side walls into rectangular tubular relation, enclosing the top closure. Obviously, while a top closure panel is shown having two side wall closure flaps and a top panel provided with a tuck flap, obviously, this top closure can be in the nature of a regular paste end carton.

The plunger 41 is then slid into place until the closed end 47 engages the partition member 25. The cylinder 40 is then inserted, one of the ears 54 extending beneath the cap 55 of the plunger 41, and the other ear 54 engaging the inner surface of the side wall 14. After the cylinder 40 has been inserted, the bottom closure flap 37 is swung into place, and secured by the plastic strip 52, and the end portions 53 of the strip are detachably secured to the plastic overwrap enclosing the remainder of the carton body.

When it is desired to open the carton, an end 53 of the strip 52 is grasped and pulled free, at least the end portions 53 being detached from the remainder of the carton. The closure panel 37 is then free to fold open as indicated in FIG. 4 of the drawings, and the plunger and cylinder are slid from the carton by merely tilting the carton in the hand of the nurse or doctor. The caps 50

55 and 56 are removed, and the plug 46 is threaded onto the internal sleeve 45 of the cylinder 40. The needle cap 49 is removed, the needle 42 inserted into the body, and the contents are dispensed by pushing the plunger 41 into the cylinder 40, the needle end 44 penetrating the plug 46, and permitting the liquid to flow through the needle end 44 and the needle end 42. This entire procedure takes merely a few seconds to complete so that the liquid may be injected in an extremely short period of time.

In accordance with the Patent Statutes, I have described the principles of construction and operation of my improvement in Syringe Package; and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

We claim:

1. A syringe package for use with a syringe including an open ended cylinder having a hypodermic needle projecting coaxially therefrom and, a plunger slidably adaptable in said cylinder, the plunger comprising a cylindrical body having a closed end and a plug of resilient material closing the other end of said plunger, said plunger containing the fluid to be dispensed, the cylinder including finger engaging ears adjoining the open end thereof, the package including: a body including front, rear, and side walls connected in tubular relation. top and bottom closures for said tubular body, said body including the cylinder and plunger in side-by-side relation, means in said carton body preventing slidable movement of said plunger in an axial direction, an end of said plunger engaging one of said finger extending ears to prevent longitudinal movement of said cylinder supporting said projecting needle, the open end of said cylinder substantially engaging said bottom closure.
2. The structure of claim 1 and in which said means preventing the slidable movement of said plunger comprises a partition wall connecting said front and rear walls.
3. The structure of claim 1 and including a double partition member including a first partition member extending from the front wall to the rear wall and engageable with the upper end of said plunger, and a second partition member connecting said front and rear walls extending between said cylinder and said plunger.
4. The structure of claim 3 and in which one of said side walls includes a glue flap secured in face contact to the inner surface of one of said front and rear panels at varying distances from said one side wall and secured to the other of said front and rear panels.
5. The structure of claim 4 and including an attachment flap secured to the other of said front and rear panels and to which said partitions are hingedly secured.

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