

Feb. 6, 1968

W. S. LARSON ET AL
HYPODERMIC SYRINGE PACKAGE

3,367,486

Filed Nov. 16, 1966

FIG. 1.

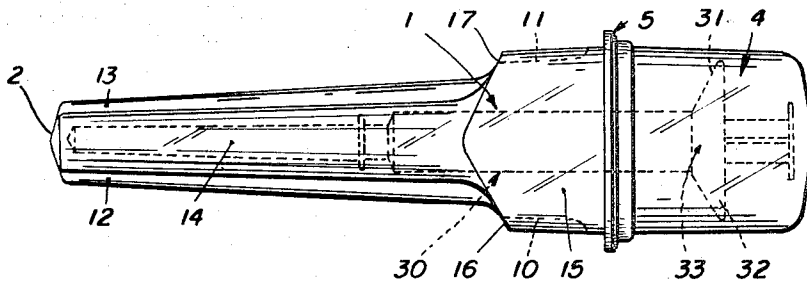


FIG. 2.

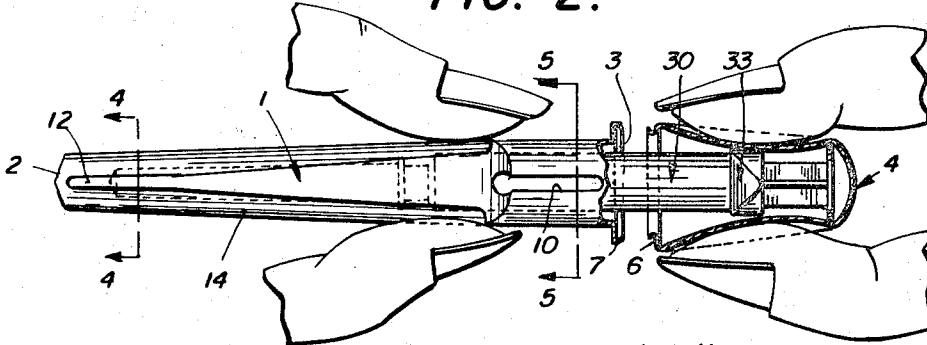


FIG. 3.

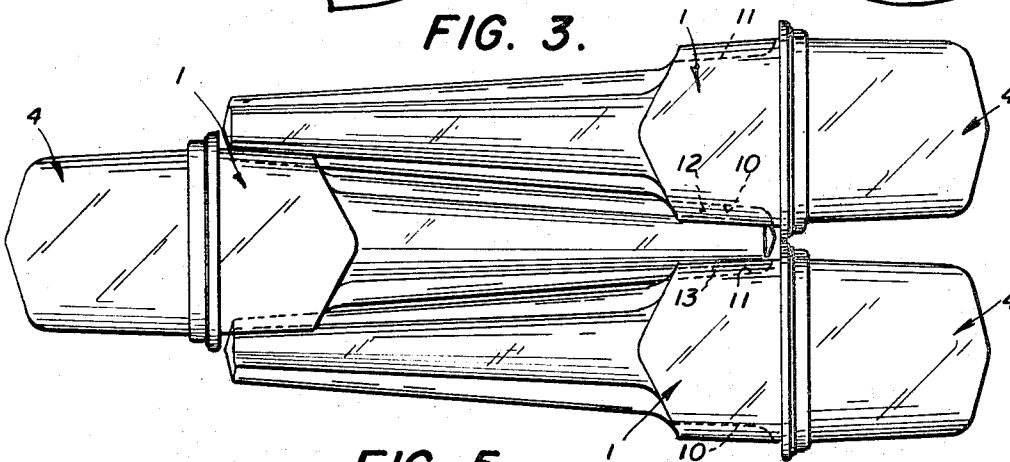
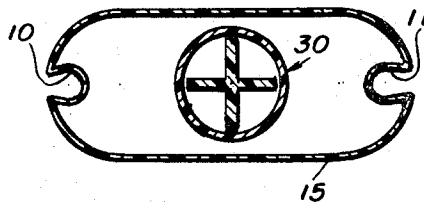
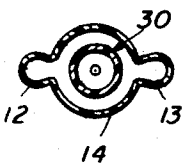


FIG. 5.

FIG. 4.



INVENTORS
WESLEY S. LARSON
RICHARD L. PANICCI

BY
Larry N. Barger

ATTORNEY

1

3,367,486

HYPODERMIC SYRINGE PACKAGE

Wesley S. Larson, Hazardville, and Richard L. Panicci, Westfield, Mass., assignors to Pharmaseal Laboratories, Glendale, Calif., a corporation of California
Filed Nov. 16, 1966, Ser. No. 594,916
7 Claims. (Cl. 206—56)

ABSTRACT OF THE DISCLOSURE

A sterile package including a sterile hypodermic syringe which includes a narrow stem portion having lateral ribs on opposite sides adjacent the closed end of the stem and elongated sockets in longitudinal, spaced alignment from said ribs permitting a plurality of the sterile packages to be detachably connected in a substantially flat layer in stem-to-head relation to take up a minimum amount of space. And in which flexible caps are secured to the housing and have a portion of the hypodermic syringe entering the cap to be manually grasped so the syringe can be readily removed from the housing without disturbing the sterile integrity of the syringe.

This invention relates to a package for keeping a hypodermic syringe sterile until used. More particularly, it relates to a package that can be locked to other similar packages for easier handling and dispensing and to a package which can be used to easily transfer a syringe from the package onto a sterile surface.

Disposable hypodermic syringes are used by the hundreds of millions each year, and packaging, storing, counting and handling this many small individual packages can be a problem. Also, individual randomly oriented packages take up considerable bulk in cartons of one thousand syringe packages. This is because randomly oriented syringes cause the carton to have considerable wasted air space.

We have overcome these problems by providing a series of syringe packages that can be locked together into a chain. This chain can be continuously fed into packaging machinery, inspection machinery, etc. The syringes can also be counted merely by measuring the length of the chain.

Each package which can be separated from the chain when a syringe is used includes a housing and a unique cap structure combination. With this unique cap structure an encased syringe can be transferred to a sterile surface by an operator without touching the syringe.

Our invention will perhaps become more apparent with reference to the attached drawings, in which:

FIGURE 1 is a top plan view of the hypodermic syringe package with the encased syringe shown in dotted lines;

FIGURE 2 is a side elevational view of the package being opened with the cap shown in section;

FIGURE 3 is a top plan view of three packages locked together;

FIGURE 4 is a sectional view taken along line 4—4 of FIGURE 2; and

FIGURE 5 is a sectional view taken along line 5—5 of FIGURE 2.

Turning now to the drawings, the syringe package includes a hollow stem section 14 adjacent a closed end 2 of housing 1 and a laterally enlarged section 15 adjacent an open end 3 of the housing 1. The laterally enlarged section 15 and stem section 14 are joined by shoulders 16 and 17. Fitting within this housing is a hypodermic syringe 30 having a portion 33 that extends outwardly beyond open end 3 of housing 1. Closing off the housing's

2

open end 3 is a cup-shaped cap 4 fitting loosely about section 33 of the syringe with its laterally extending finger flanges 31 and 32. The cup-shaped cap 4 is connected to the housing by fastening means 5 which can be a combination of an undercut lip portion 6 on the cap that snaps over a flange 7 of the housing.

Each syringe package has interlocking means which cooperate with similar interlocking means of other packages to lock two or more packages together as shown in FIGURE 3. These interlocking means include elongated sockets 10 and 11 extending along opposite sides of laterally enlarged section 15 and ribs 12 and 13 extending along opposite sides of stem portion 14. Both the ribs 12 and 13 and sockets 10 and 11 have undercut generally C-shaped cross sections so they can lock together. The sockets 10 and 11 open into shoulders 16 and 17, respectively, so it is easy to slide ribs 12 and 13 into these sockets. A chain of these syringe packages so connected is easy to count, inspect and handle and takes less space in storage than randomly oriented syringe packages.

Once the syringe packages arrive at the hospital, the nurse or physician can take one or a short chain of as many packages as he needs. As he uses them he can disconnect an individual syringe from this short chain.

Very often the syringes are used in surgery where the packages must be opened and the encased syringe transferred to a sterile surface for the physician. This is often referred to as the "sterile transfer" technique. A nurse performing this technique must not touch the syringe. In previous peel-apart paper packages, the nurse opened the package and dumped the syringe onto a sterile surface. While the syringe remains sterile, it was hard to control exactly where the syringe could land and its orientation.

With the unique cap structure of our syringe package, the nurse has positive control over the sterile syringe without actually touching it herself. Upon opening the package, as shown in FIGURE 2, she grasps the housing 1 in her left hand and the cap 4 in her right hand and pulls the cap from the housing. By laterally squeezing the cap which fits loosely about outwardly extending section 33 of the syringe, she gets a firm grip on this section of the syringe. After she pulls the syringe 30 from housing 1, she can deposit it in a precise location and in a controlled orientation on a sterile field. Upon releasing her squeezing grip, the cap 4 will return to its loose fit about the syringe, and the syringe will slide out of the cap.

In this specification we have used a specific embodiment to describe our invention. However, it is understood by those skilled in the art that certain modifications to this embodiment can be made without departing from the spirit and scope of this invention.

We claim:

1. A plurality of sterile instrument packages in combination: each package having a hollow casing which includes an elongated stem portion integral with a laterally enlarged head portion and forming a shoulder therebetween, said casing including male and female locking means in spaced longitudinal alignment and on opposite sides of said housing for detachably connecting said packages in a chain as a substantially flat layer of sterile packages, one of said locking means being disposed at said shoulder and said other locking means being located adjacent the terminal end of said stem whereby said male and female fastening means are alternately disposed when said flat layer of packages is formed, said layer being formed with the terminal end of said stem being disposed between the enlarged head portions of two packages being disposed in the same direction, each package having a mouth opening from said enlarged head portion; a sterile instrument in said hollow casing and having a portion extending out of said casing beyond said mouth; and a flexible terminally closed cap loosely receiving the portion of

3

said instrument extending out of said housing and including fastening means detachably connected to said housing mouth whereby said instrument portion can be readily manually grasped through said cap and separated from said housing without destroying the sterile integrity of said instrument.

2. The combination as claimed in claim 1 in which said female fastening means comprises an elongated socket disposed in angular relation to the longitudinal axis of said housing and opening through the lower portion of said housing shoulder, said socket being in substantial alignment and spaced from said male fastening means, said male fastening means comprising a rib complementary to the elongated socket of an adjacent housing, said housing being substantially tapered inwardly from beneath said shoulders toward the terminal end of said stem portion.

3. The structure as claimed in claim 1 in which said fastening means between said cap and housing comprises peripheral lip and flange portions.

4. The structure as claimed in claim 1 in which said stem portion includes external ribs extending from said male fastening means to an inward lower portion of said housing shoulder and substantially confronting a similar rib on an adjacent housing whereby each housing is substantially rigidified to facilitate removal of a syringe and separation from an adjacent housing.

5. A sterile package comprising in combination:
an elongated housing comprising a longitudinally tapered, hollow stem section closed at its smaller end, and a laterally enlarged section opening into the other end of said housing and defining lateral shoulders at opposite sides of said stem section;

a terminally closed cap of a flexible material for permitting the same to be manually collapsed, said cap

4

being detachably connected to the open end of said housing; and

a sterile hypodermic syringe having a needle portion received in said stem section and a barrel portion extending through and projecting out of said enlarged housing section and into said cap whereby said barrel portion can be readily grasped when said cap is manually collapsed to permit the sterile syringe to be removed from said housing without destroying the sterile integrity thereof.

6. The structure as claimed in claim 5 in which said housing includes integral male and female mechanical coupling means disposed in spaced relation beneath said shoulders and adjacent the terminal end of said tapered stem whereby similar sterile packages can be detachably connected in a flat layer of packages and in alternating "head-to-toe" relation.

7. The structure as claimed in claim 6 in which said male and female coupling means comprise complementary elongated ribs and grooves disposed in angular relation with respect to the longitudinal axis of said housing.

References Cited

UNITED STATES PATENTS

25	3,114,455	12/1963	Claisse et al.	206—43 X
	3,255,873	6/1966	Speelman	220—23.4 X
	3,131,829	5/1964	Masser	220—23.4 X

FOREIGN PATENTS

30	846,602	8/1960	Great Britain.
	85,137	12/1935	Sweden.

JOSEPH R. LECLAIR, *Primary Examiner.*

THERON E. CONDON, *Examiner.*

35 J. M. CASKIE, *Assistant Examiner.*