

Nov. 26, 1963

G. H. STEWART
STERILE PACKAGE

3,112,031

Filed May 3, 1960

Fig. 1

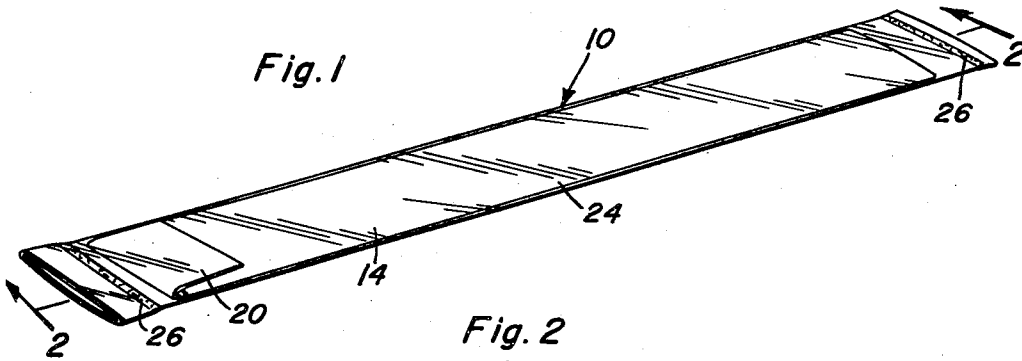


Fig. 2

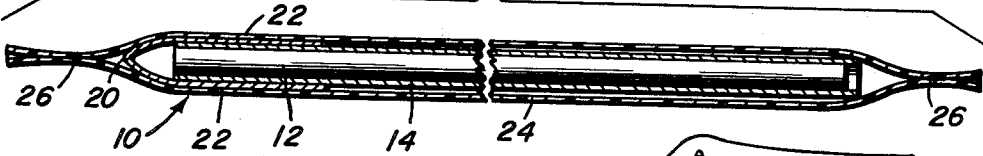


Fig. 3

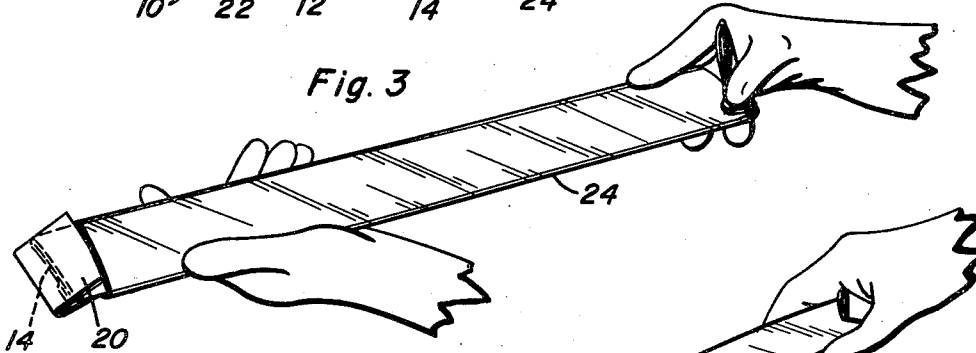


Fig. 4

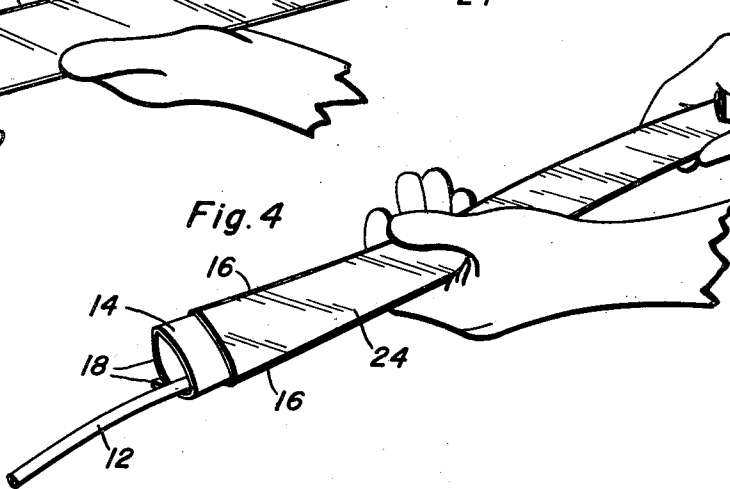
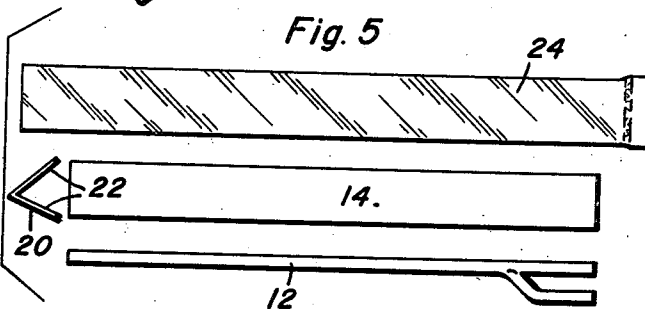


Fig. 5



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3,112,031

STERILE PACKAGE

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Filed May 3, 1960, Ser. No. 26,624

1 Claim. (Cl. 206—63.2)

This invention relates to new and useful improvements in the art of packaging sterile articles such as catheters, rubber tubing, surgeons' gloves and various other similar articles which have an elongated, substantially flat form, and the principal object of the invention is to provide a sterile package from which the packaged article may be easily and quickly removed without being touched by hands, so as to assure positive asepsis.

As such, an important feature of the invention resides in the provision of a package having an inner wrapper wherein the packaged article is contained and a sealed outer envelope for the wrapper, the removal of the article from the package being effected by severing one end of the sealed envelope, exerting pressure on the opposite end portion of the envelope to slidably protrude a part of the wrapper therefrom, and then permitting the article to slide by gravity out of the wrapper and envelope into a sterilized tray or other suitable sterile receptacle for subsequent use by a nurse or a surgeon.

Another important feature of the invention resides in the provision of a closure cap on the end of the wrapper which slides first out of the envelope, such a cap being readily separated by falling off the wrapper when the latter is protruded from the envelope, so that it is not necessary to remove the cap by hand.

Another important feature of the invention resides in forming the wrapper from deformable material so that while it is initially substantially flat to fit the article therein, it may be deformed by lateral pressure into a substantially tubular form so that the article is free to slide out of the wrapper by gravity.

Some of the advantages of the invention reside in its simple construction, expeditious and dependable operation, in its adaptability to accommodate articles of various different types, and in its adaptability to convenient and economical manufacture.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the sterile package in accordance with the invention;

FIGURE 2 is a longitudinal sectional view thereof, taken substantially in the plane of the line 2—2 of FIGURE 1;

FIGURE 3 is a perspective view showing the step of protruding the wrapper from the envelope of the package and ejecting the protective cap;

FIGURE 4 is a perspective view showing the step of sliding the article out of the wrapper and illustrating the orientation of the envelope; and

FIGURE 5 is a group view of the components of the package.

Referring now to the accompanying drawings in detail, the sterile package in accordance with the invention is designated generally by the numeral 10 and is intended for packaging elongated, substantially flat articles, such as for example, a sterile catheter 12 shown in the drawings. It is to be understood, however, that the use of the invention is not limited to this, and that the package may contain rubber tubing, surgical gloves, or any other similar articles.

The package 10 embodies in its construction an elongated, open-ended and substantially flat wrapper 14 which is formed from deformable material such as cardboard, for example, and is of a length sufficient to fully accommodate the article 12 therein. The wrapper 14 may be formed from a strip of cardboard provided with a pair of spaced, longitudinally extending folds 16, the portion of the strip between the two folds forming one side of the flat wrapper, while the portions 18 of the strip at the outside of the folds are mutually overlapped and form the other side of the wrapper, as is best shown in FIGURE 4. The overlapped strip portions 18 are preferably detached from each other.

A closure cap 20 is provided on one end portion of the wrapper 14 and is in the form of a cardboard sheet or panel which is doubled upon itself to provide a pair of complementary sections 22 between which the end portion of the wrapper 14 is freely inserted, as is best shown in FIGURE 2. If desired, a similar closure cap may be provided at the other end of the wrapper.

The wrapper 14 together with the cap or caps 20 is contained in an elongated, sealed envelope 24 which is preferably formed from transparent plastic material, that is, a transparent plastic flexible sheet, the ends of the envelope being heat-sealed or otherwise secured as indicated at 26 prior to sterilization of its contents by gas or other means well known in the art.

When the package is to be opened, the end portion of the envelope adjacent the closure cap 20 is cut off to provide the envelope with an open end, through which the wrapper 14 may be slidably protruded by finger pressure exerted on the relatively opposite end of the envelope, as illustrated in FIGURE 3. As soon as the end of the wrapper slides out of the envelope, the closure cap 20 is separated by falling off the wrapper, leaving that portion of the wrapper extending beyond the envelope completely free of contamination, then lateral pressure is exerted thereon as shown in FIGURE 4, which causes the wrapper to be deformed into a substantially tubular form, so that the article 12 therein may slide by gravity out of the wrapper into a sterilized tray or some other receptacle. It will be apparent from the foregoing that the article is removed from the package without being touched by hand, so that positive asepsis in removal is assured. It may be also noted that the closure cap 20 does not become separated from the wrapper 14 until the wrapper has slid outwardly from the envelope beyond the point at which the end of the envelope was severed for opening, whereby the cap protects the wrapper 14 against contamination by contact with non-sterile portions of the envelope created by the severance of its end.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

In a sterile package, the combination of an elongated substantially flat wrapper having at least one open end and side walls capable of being outwardly flexed away from each other, a sterile article contained within the wrapper and retained therein by frictional engagement with the unflexed walls of said wrapper, said sterile article being releasable from said wrapper by an outward flexing of the walls of said wrapper, a closure cap consisting of a flat panel of relatively stiff paperboard-like material doubled upon itself so as to provide a pair of complementary panel sections with open sides, said closure cap being loosely positioned on said open end of the wrapper

with the free edges of the panel sections orientated below said end of the wrapper, and an elongated sealed envelope enclosing said wrapper and said cap, the end portion of said envelope adjacent said cap being severable to provide the envelope with an open end, said closure cap being held in position by the elongated envelope in a manner so as to require the wrapper end to be projected beyond the severed end of the envelope in order to release the cap, said cap, upon being projected beyond the severed

end of the envelope, being automatically releasable thus providing a sterile exit for the enclosed sterile article.

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