

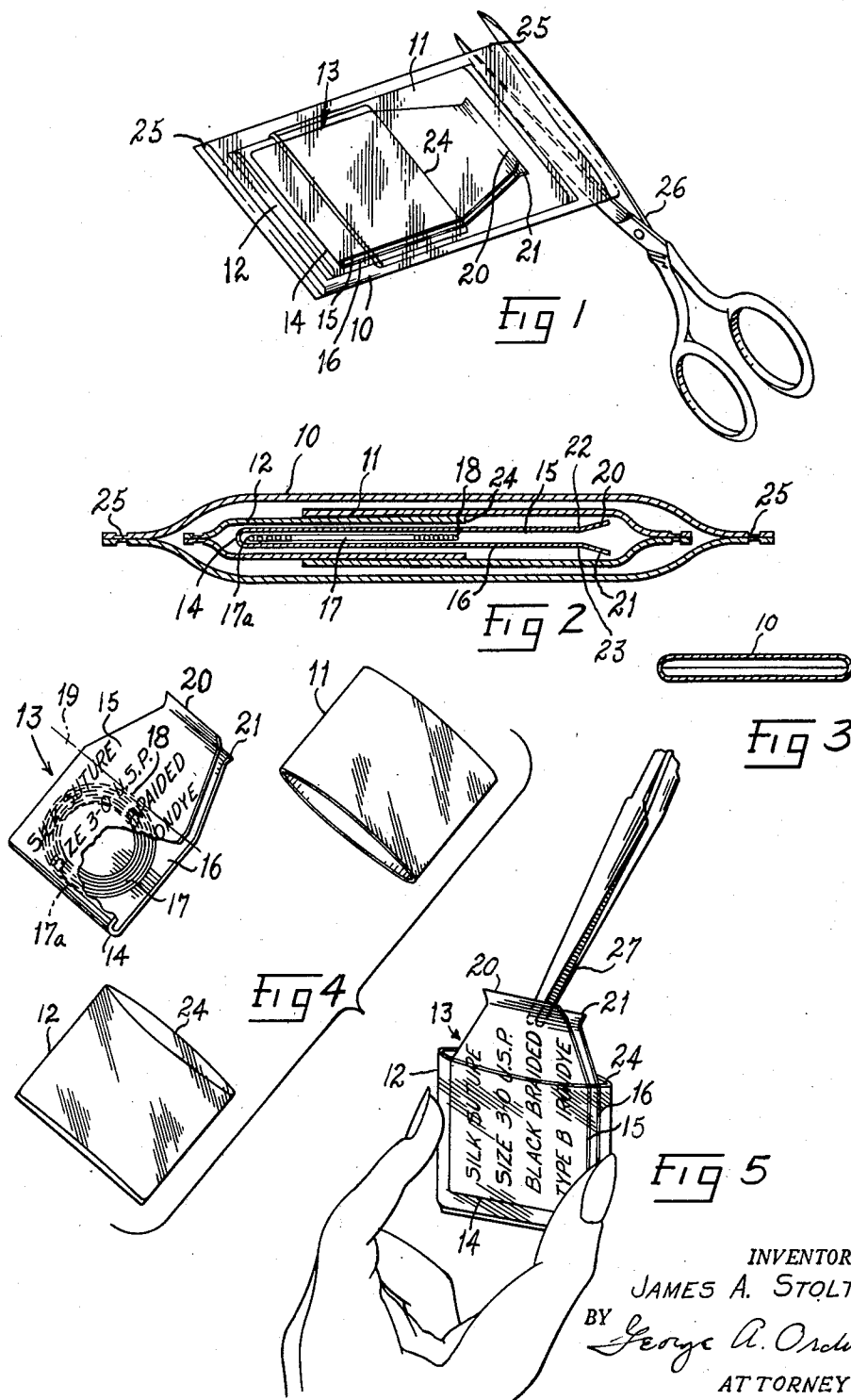
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PACKAGE FOR SURGICAL SUTURES

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PACKAGE FOR SURGICAL SUTURES

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3 Claims. (Cl. 206—63.3)

This invention relates to a package for surgical sutures and more particularly to a package which facilitates and expedites the delivery of such sutures in sterile condition to a sterile area as by spilling or as by removing with sterile forceps or fingers alone.

It is a primary object of the invention to provide a surgical suture package which is compact, economical of manufacture, and which assures maximum safety in delivering the suture in sterile conditions to the site of the operative field.

More specifically, it is an object of the present invention to provide such a package wherein extremely wide marginal safety factors are provided for such sterile delivery and ease of usage not previously available.

Another object of the invention is to provide a sterile suture pack whereby the character and type of suture is easily identifiable by operating room personnel at all times.

A salient feature of the present invention lies in its easy accommodation to conventional operating room procedures, and in the fact that the "sterile" nurse may deliver the suture to the operating surgeon with assurance of absolute sterility.

In general, the present invention contemplates packaging the suture within a label which completely enfolds the suture, packaging the suture-containing label within an inner telescoping type envelope, and, lastly, packaging the inner telescoping type of envelope within an outer envelope with the label, inner envelope, and outer envelope each marginally over-extending each other and the perimeter of the coiled suture material.

Another aspect of the invention lies in the provision of outwardly flared lips on the ends of the enfolded label stock which encases the suture, which lips serve to facilitate the opening of the opposed flaps for spilling the suture upon a sterile area, as well as (if preferred) facilitating the easy ingress of forcep tips for removing the suture in a sterile condition and passing the same to the operating surgeon.

Another aspect of this invention is that a suture nurse or other sterile person can remove the entire inner telescoping envelope from the outer package while it is held by a circulating nurse without any danger of contamination.

The inner package affords an ease of handling by either the suture nurse or the circulating nurse with an ease hitherto unavailable with glass tubes or packages previously used, and this is so because of their inflexibility. It is not necessary that the present invention to spill the package over the sterile field; however, this may be done if so desired.

These and other objects of this invention will become apparent to those skilled in the art upon becoming familiar with the following description when taken in conjunction with the accompanying drawing in which like parts are designated by like numerals and in which:

Fig. 1 is a perspective view of my improved sterile, surgical suture, pack and diagrammatically illustrates the removal of one end of the outer envelope,

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Fig. 2 is an enlarged longitudinal sectional elevation thereof,

Fig. 3 is a transverse, cross-sectional elevation, in reduced scale, of the outer flat tubular envelope,

Fig. 4 is an exploded perspective view illustrating the top and bottom parts of the inner envelope and the coiled suture enfolded within the indicia-bearing label, and

Fig. 5 is a perspective view showing the base of the inner, telescoping envelope and the suture enfolding label with forcep tips poised for easy ingress to insure sterile removal of the sterile suture.

Referring to Fig. 1, the completed package comprises an outer envelope 10 preferably formed of flat, transparent, gas-, heat-, or electron-permeable, plastic material; an inner envelope consisting of a top 11 telescopically sliding with a relatively close tolerant fit over a base envelope 12 and preferably of such length as to substantially completely sheath the latter. The plastic material may be polyethylene, "Mylar," "Kell-F," or like material. Within base envelope 12 is an enfolded strip of relatively thin but rigid paperstock label 13 creased at 14 to form a hinge line providing two opposed flaps 15 and 16. The suture material 17 is coiled as clearly shown in Figs. 2 and 4. The perimeter of the coil of suture material is preferably of such dimension that it lies well within the confines marginally of the side edges and ends of flaps 15 and 16. The inner portion 17a of the outer convolution of coil 17 rests adjacent to the hinged line 14 and its outer portion 18 lies within the plane indicated by dot-and-dash line 19, as shown in Fig. 4, so that the outer ends of the flaps 15 and 16 over-extend with a considerable margin as a safety factor the perimeter of said opposed convolution. The outer flaps may be tapered along their opposite edges commencing from line 19, inwardly toward their outer ends as illustrated in Figs. 1, 4, and 5. The extreme outer ends of said flaps desirably terminate in outwardly flared lips 20 and 21, respectively, for a purpose later to be described. These lips may be formed as by scoring the paperboard stock a short distance inwardly from their outer ends as indicated in Fig. 2 at 22 and 23, respectively.

The suture 17 enfolded within flaps 15 and 16, as described, is next inserted within the bottom or base 12 of the inner telescoping envelope 11—12.

The base portion 12 is preferably of such depth that the tapered projecting edges of flaps 15 and 16 protrude amply from the upper edge 24 (Fig. 5) when label 13 is inserted therewithin, as clearly shown in Figs. 1, 2, and 5. Next, top 11 of the inner envelope, which preferably is made of transparent material similar or identical to that used in fabricating the outer envelope, is slid telescopically over flared lips 20 and 21 and the projecting ends of flaps 15—16 to marginally encase said label containing the suture 17, which, in turn, is marginally encased therewithin as previously described.

Following this, the assembled inner envelope 11—12 is slid within the confines of a flat, tubular, transparent outer envelope 10 (shown in reduced scale in Fig. 3). The opposed ends of said envelope, at the time of insertion, are open. Following insertion of the inner envelope the ends of outer envelope 10 are thermosealed as at 25. It is to be noted here that the outer envelope is preferably of such dimension as to marginally over-extend perimetrically the outer edges and ends of the inner envelope 11—12, with such an excess of margin at all edges and ends as will permit of an easy, casual clipping off of one end of said outer envelope 10 or one end and one adjoining side edge of said envelope to allow the removal of the inner envelope from within the outer one.

The completed, thermosealed package may then be placed within a suitable sterilizing chamber, such as an

autoclave, or the like; preferably it is placed within a chamber containing "carboxide" gas under sufficient pressure to completely permeate the walls of outer envelope 10, the walls of inner envelope 11—12, the paperstock label 13, and the suture material per se 17. The completed package is left in such sterilizing chamber for a sufficient period of time commensurate with the particular type of sterilizing agent used (dry heat, gas, vapor, or electron beam) to ensure complete sterility of each and all of the component parts of the package as described.

In operation, this package may be opened by the "circulating" nurse in the following manner: surgical scissors, such as are indicated at 26, are manipulated to clip one end of outer envelope 10 just inwardly of the thermoseal 25. It is here noted that even though scissors 26 be sterile if, perchance, the exterior of outer envelope 10 has, for any reason, become unsterile, the contamination of the edges of outer envelope 10 can in no manner be communicated to inner envelope 11—12, or label 13, or suture 17 due to their progressively, respective, larger marginal encasements. Following the clipping off of either end or one end and one side edge of outer envelope 10, inner package 11—12 is removed from such open end and/or side. Next, holding the base 12, preferably as illustrated in Fig. 5, the telescoping top 11 is slid upwardly therefrom, exposing the tapered, projecting ends of flaps 15—16.

At this point, the removal of suture 17 in sterile condition may take either of three optional forms of procedure: first, with some marked degree of safety and casualness, the "sterile" nurse may grasp lips 20—21, invert label 13, and pull flaps 15—16 apart about hinge line 14, to permit sterile suture 17 to spill upon a sterile area; secondly, by simply folding back the two free corners of the outside package (this only in the event two adjoining edges of outer envelope 10 are cut by circulating nurse) the sterile nurse can remove with her fingers the entire inner pack 11—12; thirdly, if desired, the tips 27 (Fig. 5) of surgical forceps may be easily and expeditiously slid between guiding lips 20—21 of flaps 15—16 into a firm and positive engagement with suture 17 for its safe, aseptic withdrawal, either when one end edge of outer envelope 10 is cut or when two adjoining edges (one end edge and one adjoining side edge) are cut. So long as the tips 27 of the surgical forceps are sterile, or so long as the finger tips of the "circulating" nurse engage only the outwardly flared lips 20—21 of flaps 15—16 the possibility of rendering suture 17 unsterile during removal is rendered nil. Moreover, due to the progressively increasing marginal extensions of flaps 15—16, top and base inner envelope 11—12, and outer envelope 10, the opportunity of contaminating suture material 17, which, in effect, is in a sterile "sanctum sanctorum," is reduced to substantially an impossibility. Notwithstanding this, the removal procedures may be carried on in a rather casual manner. In other words, with only slight care, an unsterile or circulating nurse or surgical or sterile, operating assistant can deliver suture 17, irrespective of their sterile or unsterile status, to the operating surgeon either by sterile gloved hand, or by spilling, or by passage with forceps in a safe, aseptic, and facile manner.

It is to be noted here that the transparency of outer envelope 10 and inner envelope 11—12, respectively, permits easy identification of the type and character of the suture by simply reading the indicia imprinted upon the opposed outer faces of flaps 15—16 of label 13.

While the invention has been described in conjunction with sutures, it will be understood that it can be applied to other forms of material which necessitate sterile packaging for operating room use.

Although the invention has been described with reference to certain particular embodiments, it is to be understood that it is not limited thereby; therefore, changes, omissions, substitutions, and/or additions may be made

without departing from the spirit of the invention as defined in the appended claims.

I claim:

1. A sterile surgical suture package comprising a coiled suture; a label having a pair of oppositely disposed, hinged-together flaps; the inner portion of the periphery of said coiled suture lying immediately adjacent the hinge of and between said flaps and the outer portion of the periphery of said coil lying in a plane substantially inwardly from the free ends of said flaps, the width and length of said flaps completely overextending marginally said periphery; said suture so marginally encased between said label being further marginally encased within an inner, telescoping, two-piece, top and base type of envelope of sterilizing agent-permeable, transparent, plastic material; the outer edge of said base lying substantially flush with the plane of the outer periphery of said coiled suture; said ends of said flaps projecting beyond said outer edge of said base of said inner envelope and being completely encased by said top thereof; said inner envelope being encased within an outer one-piece, flat, tubular, envelope of sterilizing agent-permeable, transparent, plastic material; the opposed sides and ends of said outer envelope being spaced marginally from the corresponding sides and ends of said inner envelope and the opposed ends of said outer envelope being thermosealed; and the complete package being subjected to sterilization in a chamber wherein sterilizing agents capable of permeating the outer envelope, the inner envelope, the label, and the suture do permeate all of said elements and render them sterile; whereby one or a pair of adjoining edges of said outer envelope may be cut to facilitate the casual but assuredly sterile removal of the inner envelope and its suture therefrom by either a spilling or forcep technique.

2. A sterile surgical suture package comprising a coiled suture; a label having a pair of oppositely disposed, hinged-together flaps; indicia designating the character and size of a coiled suture imprinted on at least one of the opposed outer faces of said flaps; the inner portion of the periphery of said coiled suture lying immediately adjacent the hinge of and between said flaps and the outer portion of the periphery of said coil lying in a plane substantially inwardly from the free ends of said flaps, the width and length of said flaps completely overextending marginally said periphery; said free ends of said flaps being flared outwardly along a transverse score line to provide lips for facilitating easy ingress guidance for forceps or grasping finger tips remote from the suture coil; said suture so marginally encased between said label being further marginally encased within an inner, telescoping, two-piece top and base type of envelope of sterilizing agent-permeable, transparent, plastic material; the outer edge of said base lying substantially flush with the plane of the outer periphery of said coiled suture; said ends of said flaps projecting beyond said outer edge of said base of said inner envelope and being completely encased by said top thereof; said inner envelope being encased within an outer one-piece, flat, tubular, envelope of sterilizing agent-permeable, transparent, plastic material; the opposed sides and ends of said outer envelope being spaced marginally from the corresponding sides and ends of said inner envelope and the opposed ends of said outer envelope being thermosealed; and the complete package being subjected to sterilization in a chamber wherein sterilizing agents capable of permeating the outer envelope, the inner envelope, the label, and the suture do permeate all of said elements and render them sterile; whereby one or a pair of adjoining edges of said outer envelope may be cut to facilitate the casual but assuredly sterile removal of the inner envelope and its suture therefrom by either a spilling or forcep technique.

3. A sterile surgical suture package comprising a coiled suture; a label having a pair of oppositely disposed, hinged-together flaps; indicia designating the character

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and size of a coiled suture imprinted on at least one of the opposed outer faces of said flaps; the inner portion of the periphery of said coiled suture lying immediately adjacent the hinge of and between said flaps and the outer portion of the periphery of said coil lying in a plane substantially inwardly from the free ends of such flaps, the width and length of said flaps completely over-extending marginally said periphery; said free ends of said flaps being tapered along their side edges and flared outwardly along a transverse score line to provide lips for facilitating easy ingress guidance for forceps or grasping finger tips remote from the suture coil; said suture so marginally encased between said label being further marginally encased within an inner, telescoping, two-piece top and base type of envelope of sterilizing agent-permeable, transparent, plastic material; the outer edge of said base lying substantially flush with the plane of the outer periphery of said coiled suture; said tapered ends of said flaps projecting beyond said outer edge of said base of said inner envelope and being encased completely by said top thereof; said inner envelope being encased within an outer one-piece, flat, tubular, envelope of sterilizing agent-permeable, transparent, plastic material; the

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opposed sides and ends of said outer envelope being spaced marginally from the corresponding sides and ends of said inner envelope and the opposed ends of said outer envelope being thermosealed; and the complete package being subjected to sterilization in a chamber wherein sterilizing agents capable of permeating the outer envelope, the inner envelope, the label, and the suture do permeate all of said elements and render them sterile; whereby one or a pair of adjoining edges of said outer envelope may be cut to facilitate the casual but assuredly sterile removal of the inner envelope and its suture therefrom by either a spilling or forcep technique.

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