

[54] **LITHOTOMY DRAPE**  
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[21] Appl. No.: **201,736**

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*Primary Examiner*—Charles F. Rosenbaum  
*Attorney*—Rowland V. Patrick

[52] U.S. Cl..... **128/132 D**  
[51] Int. Cl. .... **A61f 13/00**  
[58] Field of Search ..... 128/132 R, 132 D, 128/292

[56] **References Cited**  
**UNITED STATES PATENTS**

R26,759 1/1970 Melges..... 128/292 X  
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[57] **ABSTRACT**

A surgical lithotomy drape or the like is fabricated by folding flat sheet material to form legging pockets having folds at the bottoms of the pockets and having sealed edges along the sides of the pockets so that the depth of the pockets is controlled by the length of a central cross strip portion of the drape and is independent of the width of the remaining portion of the drape.

**7 Claims, 10 Drawing Figures**

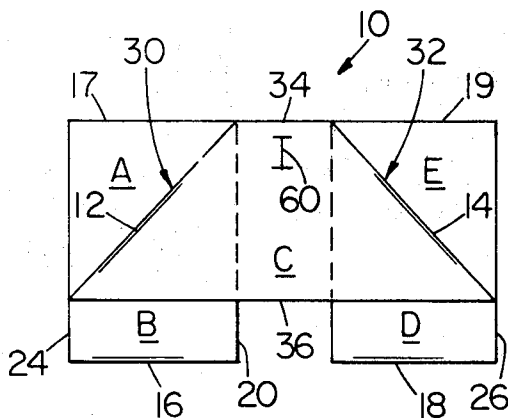


FIG 1

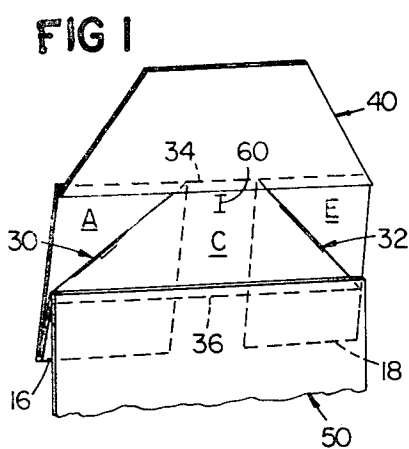


FIG 3

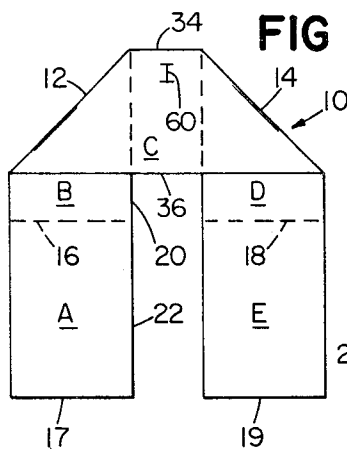


FIG 4

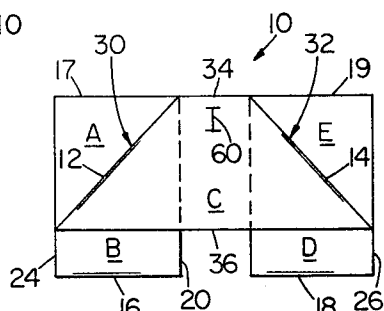


FIG 2

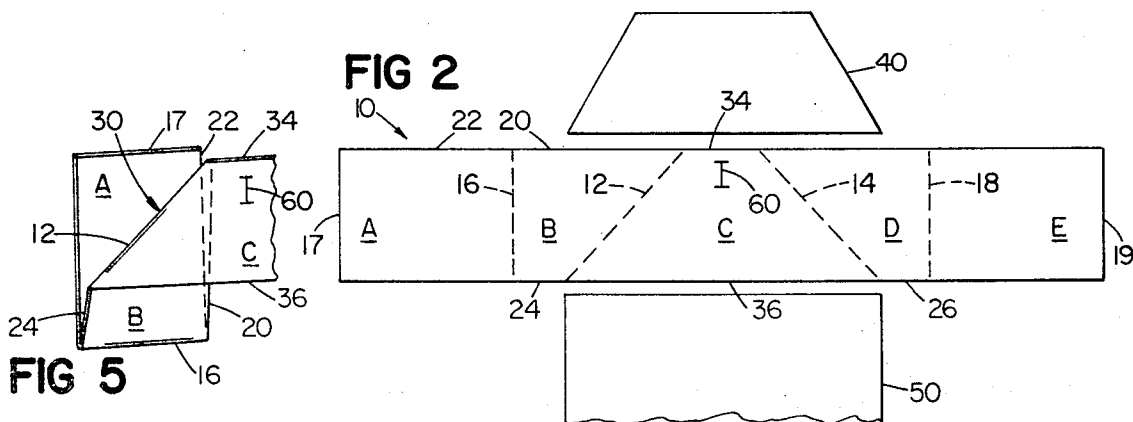


FIG 5

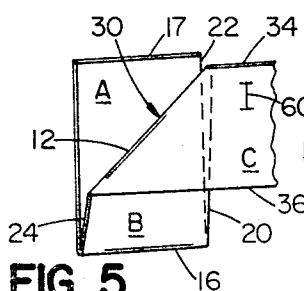


FIG 6

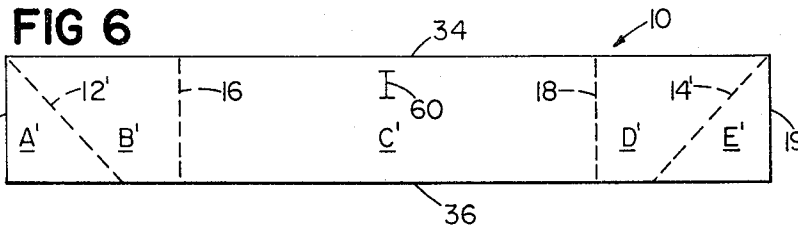


FIG 7

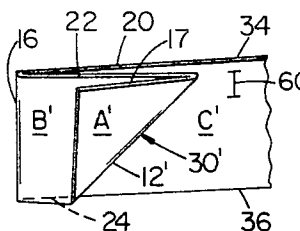


FIG 8

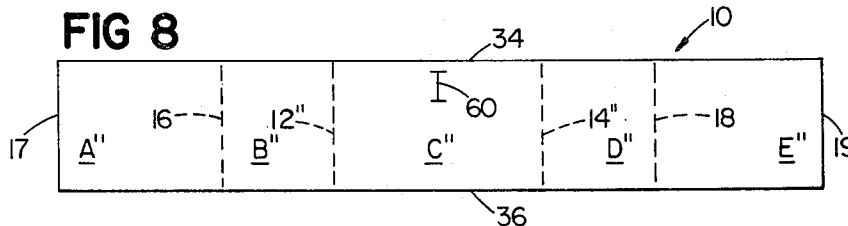


FIG 9

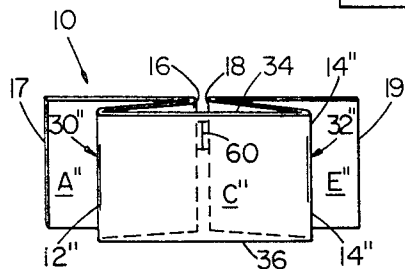
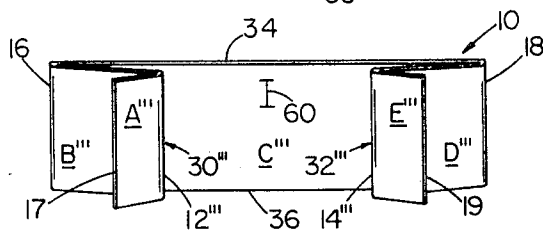


FIG 10



## LITHOTOMY DRAPE

This invention relates to a surgical lithotomy drape or the like and more particularly to a disposable drape made of unwoven sheet material which is folded in such manner as to include leggings.

Drapes of this type are known to the art, one form being illustrated in U.S. Reissue Pat. No. 26,759.

It is a primary object of the invention to provide an improved drape wherein the depth of the legging pockets is independent of the width of the drape, thus permitting saving of material in those cases where it is desired to provide so much pocket depth that the pockets when in a flat folded laterally extending position reach beyond the side edges of the remainder of the drape.

The above and other features of the invention will be more fully understood when taken in connection with the following description of embodiments of the invention as shown in the accompanying drawings wherein:

FIG. 1 is a perspective view of a surgical drape broken away to indicate variable extent;

FIG. 2 is a plan view of unfolded sheet material parts from which the drape of FIG. 1 is fabricated;

FIG. 3 is a plan view indicative of the manner in which the central portion strip of FIG. 2 is folded;

FIG. 4 is a plan view showing additional folds imparted to the strip of FIG. 3;

FIG. 5 is a fragmentary partially unfolded view showing how the folds of FIG. 4 are made;

FIG. 6 is a plan view of the central portion strip of FIG. 2 indicating different fold lines for making a modified folded version of the drape of the invention.

FIG. 7 is a view similar to FIG. 5 but showing the modified folded version;

FIG. 8 is a view similar to FIG. 6 indicating still different fold lines for making another modified version of the drape; and

FIGS. 9 and 10 show partially unfolded views of two different folded versions of the strip of FIG. 8.

The surgical drape shown in FIG. 1 is fabricated with a single one-piece rectangular strip 10 of drape material, shown in FIG. 2, acting as the central cross portion thereof.

The strip 10 is folded in such a way that the strip is divided into connected panels A B C D and E with the middle panel C having the shape of an isosceles trapezoid.

The end panels A and E are both rectangular in shape and are connected to the middle panel C by intervening panels B and D.

While the sequence of folding is unimportant, FIG. 3 shows panels B and A at one end and D and E at the other end folded under trapezoidal panel C so that they extend downwardly from the diagonal fold lines 12 and 14 which are coincident with the non-parallel sides of the trapezoidal panel C.

FIG. 4 shows the panels A and E folded back upwardly under the panels B and D, the panels A and E having been hinged or folded along the fold lines 16 and 18 so that the original end edges 17 and 19, respectively, of the strip 10 become continuations of the top edge 34 of middle panel C in line therewith. All or most of the top edges 20 and 22 of the panels B and A and of the panels D and E are sealed together. Also it is preferred to seal the bottom edges of juxtaposed panels B and A and of D and E at 24 and 26 respectively.

FIG. 5 illustrates how the bottom edges of the panels A and B are connected together by fold 16 while the top of B and the side of C are connected by fold 12.

FIGS. 1 and 5 show how the legging pockets are formed between the panel A and the overlying panel B (or, on the other end, the panel E and the overlying panel D) with the openings 30 and 32 to the pockets facing upwardly and outwardly and being coincident with the non-parallel sides of the trapezoidal middle panel C.

The folded strip as shown in FIG. 5 thus has a triangular single thickness portion formed of the outer corner of end panel A. The portions of the panels A and B which extend below the bottom of the panel C form a double thickness area whereas the triangular area adjacent the opening 30 to the pocket has a triple thickness of all the panels A B and C. A similar arrangement exists with panels E D and C.

Since end edges 17 and 19 of the original strip are in alignment with the top edge 34 of trapezoidal middle panel C, a separate panel 40 may be attached to the cumulative length of edges 17, 34 and 19 by an overlapping adhesive seal, as indicated in FIG. 1, without attaching it to any edge of panels B or D.

Similarly to enlarge the sterile field in use a panel 50 may be adhesively secured to the lower edge 36 of the middle trapezoidal panel C, as shown in FIG. 1, without attaching the panel 50 to any portions of the pockets. The panel 50 in FIG. 1 is shown broken away to indicate that its extent downwardly can be a varying length.

It will thus be seen that the central portion of the drape of FIGS. 1-5 is formed from a rectangular strip of drape material having a middle panel. Triangular end portions of panels A and E are in effect gathered inwardly so that their inner or hypotenuse edges lie on spaced diagonal lines 12 and 14 extending across the strip from the top edge 34 downwardly and outwardly to the bottom edge 36, leaving intervening portions folded one upon another forming pockets with fold lines 16 and 18 at their bottoms and presenting mouth openings 30 and 32 extending along the diagonal lines 12 and 14.

Moreover, the middle panel C is of isosceles trapezoidal shape and is flanked by end panels A and E portions of which are folded under the middle panel. The panels A and E are connected to the middle panel C by intervening panels B and D which are sandwiched by the folds between the folded under end panels A and E and the middle panel C. The intervening panels B and D are connected to the middle panel C along fold lines 12 and 14 which are coincident with the non-parallel sides of the trapezoidal middle panel C. The intervening panels B and D are further joined to the end panels A and E respectively along fold lines 16 and 18 extending parallel to the parallel edges 34 and 36 of the middle panel C.

While in the embodiment shown in FIGS. 1-5 the pockets extend parallelly downwardly from the openings 30 and 32, FIGS. 6 and 7 indicate how, when permissible or desirable, the pockets can be arranged in alignment at opposite ends of the middle portion of the drape, simply by hinging the pockets about the diagonal lines 12 and 14 so that the pockets lie under and extend outwardly beyond the triangular panels or flaps A' and E'. FIG. 7 illustrates how this hinging action occurs about the hinge line 12 of FIG. 5 unfolding the fold 12

while simultaneously making a diagonal fold between panel A' and panel B' at 12'' as shown in FIG. 7.

When diagonal openings such as 30 and 32 are not necessary, certain of the objectives of the invention are still attained by utilizing pockets which do not have diagonal mouths. The fold lines of such a version are indicated in FIG. 8 and the folds shown in FIG. 9. Thus the end panels A'' and E'' are folded inwardly under the central rectangular panel C'' forming loops or pockets having bottom folds 16 and 18 when the top and bottom edges of the overlapping portions of the panels A'' and E'' are adhesively secured to the top and bottom edges of the overlapped portions of panels B'' and D''. The pockets thus formed have openings 30' and 32' facing outwardly and extending perpendicularly across the width of the strip.

In the case of FIG. 9, the panel 40 will be attached to the top aligned edges of panels A'' C'' and E'', leaving the loops or pockets free to hinge about the fold lines 12'' and 14''. The bottom panel 50 will also be attached to the bottom edges of panels A'' C'' and E'' again leaving the pockets free to hinge about the fold lines 12'' 14''. When so hinged the pockets may lie as shown in FIG. 10 with the mouth openings 30''' and 32''' facing inwardly instead of outwardly and the fold lines 12''' and 14''' being between the panels A''' and B''' and between panels E''' and D''', instead of being between the panels B'' and C'' and C'' and D'' in the folded form shown in FIG. 9.

As can be understood whether the folding be done in the manner of FIG. 5 or in the manner of FIGS. 7, 9 or 10, the length of the rectangular strip 10 of FIG. 2 is entirely independent of the width of the drape material used to form the upper and lower sections 40 and 50.

As an example, in FIG. 2 the total length of the strip can be 185 inches, the top edge 34 of panel C being 17 inches in length and the top edges of each of panels A, B, D and E being 42 inches in length.

The width of the rectangular strip 10 may be 30 inches.

The result is that the lower section 50 has a width of 77 inches as does the folded central section when folded in accordance with FIG. 5. In FIG. 7 the folded central section will be about 24 inches longer with the pockets extending outwardly on each side of the middle panel beyond the side edges of the remainder of the drape material. In all of FIGS. 7, 9 and 10 however the distance between edges 17 and 19 of the folded strip may remain constant while the depth of the pockets may vary by varying the original length of the strip 10; while in FIGS. 1-4 the cumulative length 17, 34, 19 may remain constant while the pocket depths are similarly varied.

The reference number 60 marks a fenestration for surgical access positioned in accordance with known practice.

What is claimed is:

1. A surgical drape having a central portion comprising a rectangular strip of drape material having

a middle panel,

end portions of said strip being gathered inwardly to form panels having their inner edges lying on spaced lines extending across said strip from one edge of said strip downwardly to the opposite edge of said strip, leaving intervening portions of said strip in folded relation one upon the other forming pockets having fold lines at the bottoms of the pockets and presenting mouths extending along said spaced lines,

edges of said strip in said intervening portions being sealed along at least a portion of the sides of said pockets.

2. A surgical drape as claimed in claim 1 wherein the pockets formed by said intervening portions present mouths extending diagonally across said rectangular strip in opposite directions at opposite ends of said strip.

3. A surgical drape as claimed in claim 1 wherein the middle panel is rectangular in shape and the pockets formed by the intervening portions of the strip present mouths extending perpendicularly transversely of said rectangular strip.

4. A surgical drape comprising a rectangular strip of drape material including a middle panel having the shape of an isosceles trapezoid, portions of said strip material connected to the non-parallel sides of said middle panel being

folded under said middle panel and forming a pair of pockets depending from said middle panel;

said pockets presenting openings which face diagonally outwardly with respect to said middle panel, and

separate pieces of material adhered to the top and bottom edges of said folded strip to enlarge the overall area of said drape.

5. A surgical drape as claimed in claim 4 wherein the pockets present openings facing diagonally upwardly and outwardly at the ends of the middle panel.

6. A surgical drape comprising a rectangular strip of drape material including a middle panel having the shape of an isosceles trapezoid flanked by end panels portions of which are folded under said middle panel and connected to said middle panel by intervening panels sandwiched by folds between said folded-under end panels and said middle panel and joined to the middle panel along fold lines coincident with the non-parallel sides of said trapezoidal middle panel and joined to the end panels along fold lines extending parallel to the opposite parallel edges of said middle panel,

each end panel and its adjacent connecting panel having side edges sealed together to form a pocket having an opening facing diagonally outwardly at the ends of said middle panel.

7. A surgical drape as claimed in claim 6 wherein the end edges of the folded under panels lie in alignment with the shorter longitudinal edge of said trapezoidal middle panel as continuations thereof.

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