

[54] FENESTRATED DRAPE

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[52] U.S. Cl. 128/132 D

[51] Int. Cl. A61f 13/00

[58] Field of Search 128/132 R, 132 D, 128/155-156, 292, 284, 287; 161/39

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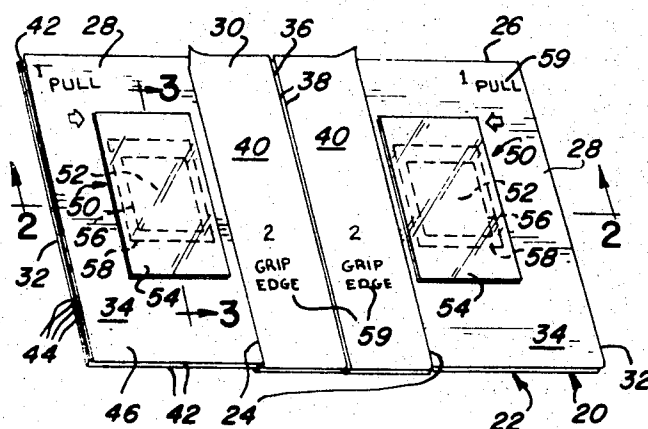
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[57] ABSTRACT

A fenestrated drape comprising a sheet of flexible material. The sheet has a pair of longitudinally extending side edges, a pair of laterally extending end edges connecting the side edges, a first surface for contacting a patient's body after placement of the drape, and a second surface which faces away from the patient after placement. A pair of longitudinally extending fold lines in the sheet define a pair of side panels which are folded against a central panel, extending between the longitudinal fold lines, with the second surface of the side panels facing the second surface of the central panel. A plurality of fold sections are defined by at least one laterally extending fold line in the longitudinally folded sheet, and at least one fold section, which extends from an end edge, has side panels facing outwardly from the laterally folded sheet. The drape also includes adhering means on the side panels of the one fold section to secure the sheet to the patient, with the adhering means having adhesive facing outwardly from the laterally folded sheet.

24 Claims, 13 Drawing Figures



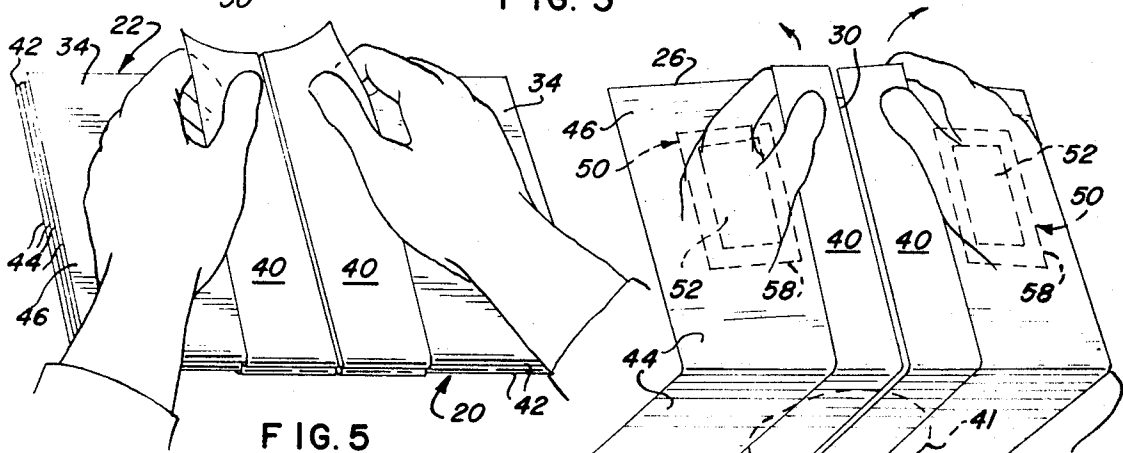
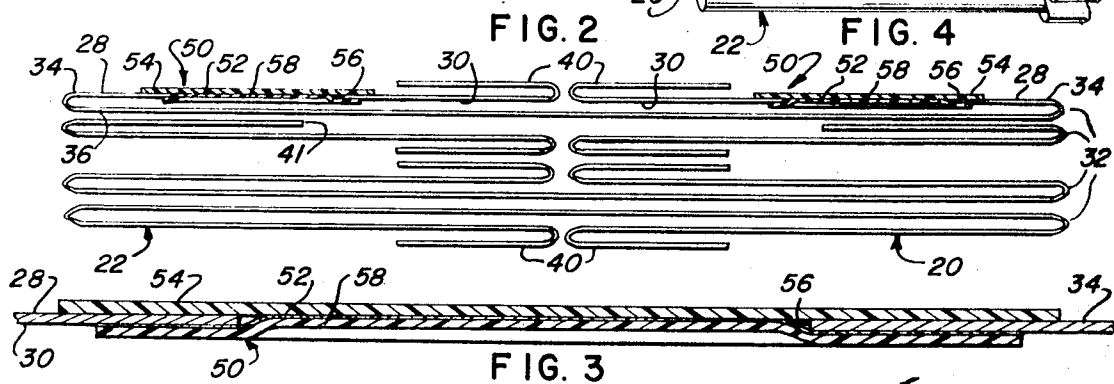
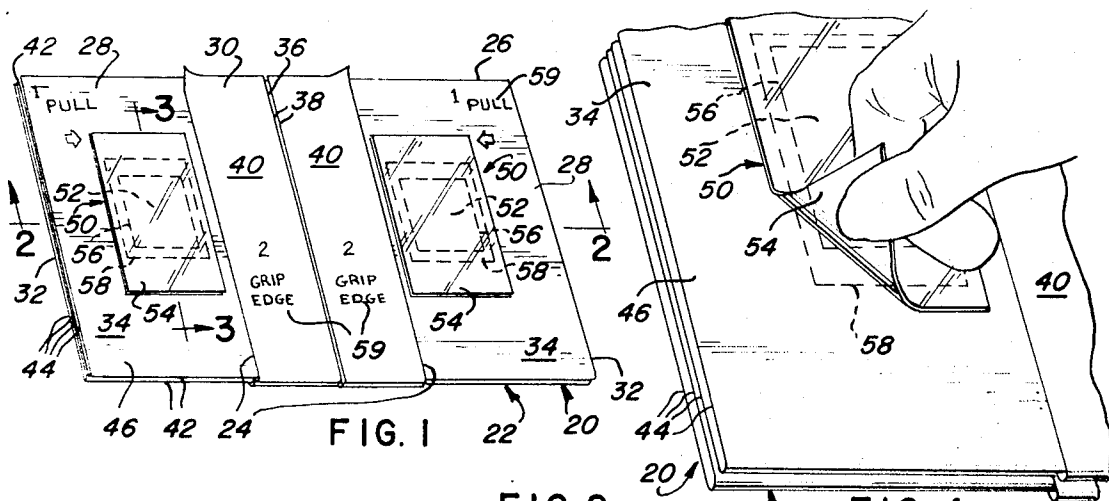


FIG. 6

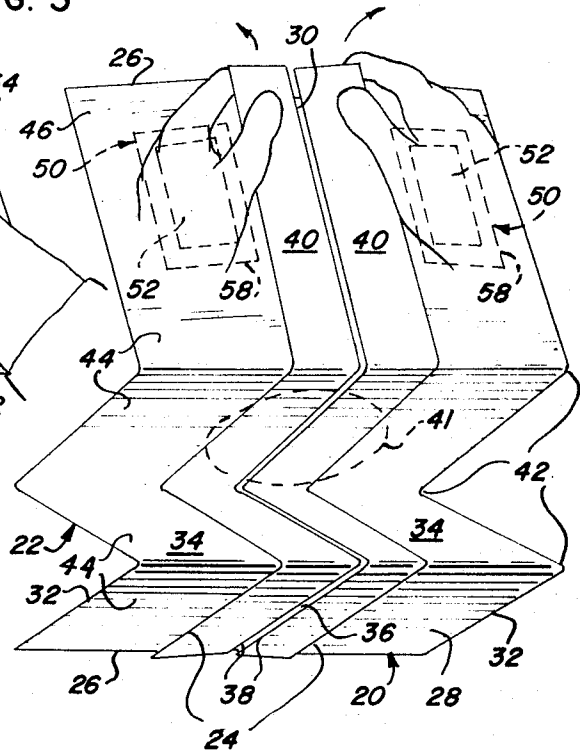


FIG. 7

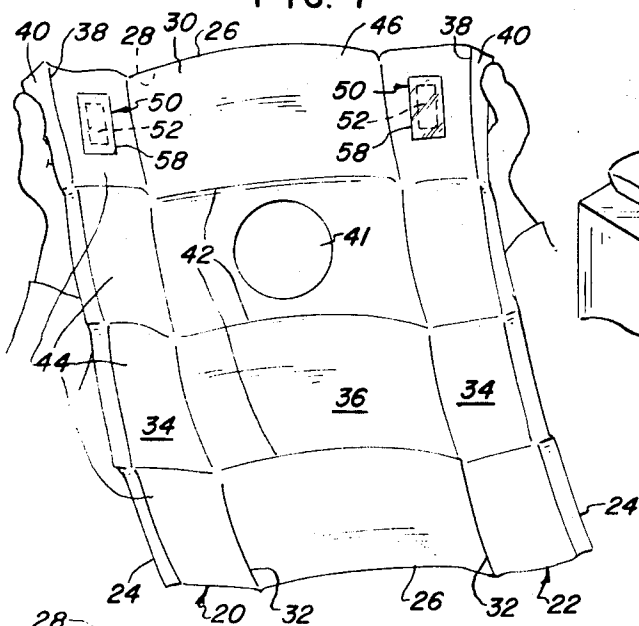


FIG. 8

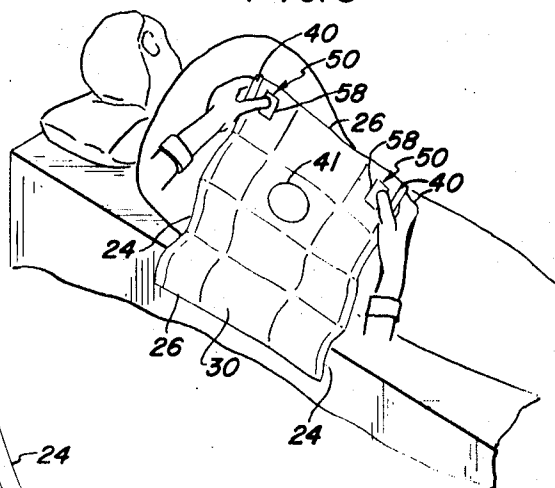


FIG. 9

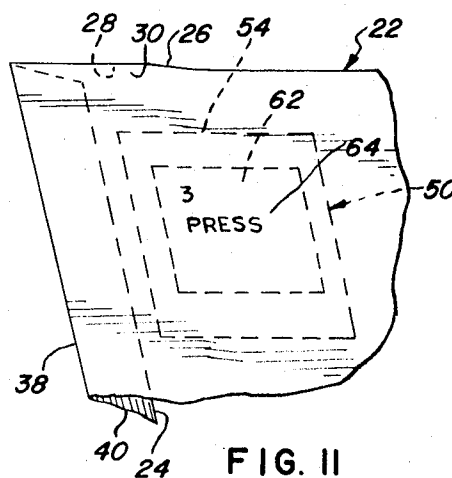
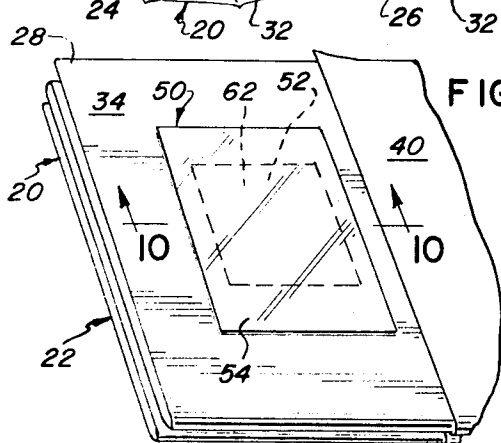


FIG. 11

FIG. 10

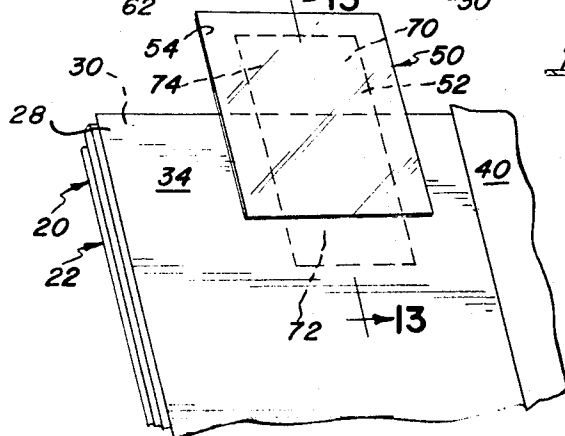
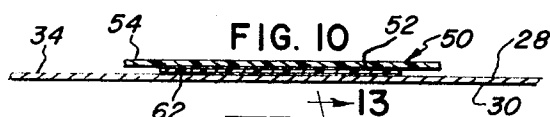


FIG. 12

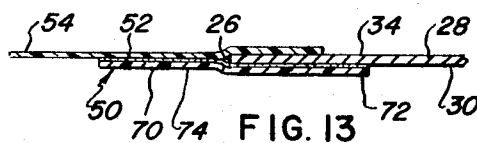


FIG. 13

FENESTRATED DRAPE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to fenestrated drapes, and more particularly to drapes having adhering means for securing the drape to the body of a patient.

2. Description of the Prior Art

Prior to a percutaneous procedure or surgery, the area of the patient's body surrounding the location for penetration or incision is usually sterilized or prepped. Since the area of the body outlying the prepped area is considered to be in a non-sterile condition, a sterile drape is frequently placed over the patient's body, and the penetration is performed through an opening in the drape. Such drapes may cover a substantial portion of the non-sterile body area to prevent contamination of the physician or surgeon during the operation, and confine the flow of fluid which otherwise is inconvenient for the physician and may result in the spreading of contamination. Preferably, the drapes are secured to the patient's body to prevent slippage and movement during the procedure, whether the drape is positioned horizontally or vertically on the body.

Since it is necessary to maintain sterile conditions throughout the procedure, the surface of the drape facing the physician must remain sterile to prevent contamination of the physician. Various types of drapes, which are adherable to the patient in some manner, have been proposed in a number of U.S. Pats., such as, Creager, Jr. et al. No. 3,364,928, Melges, No. 3,503,391, Questel, No. 3,260,260, Blanford, No. 3,349,765, Blanford, No. 3,452,750, Pereny et al. No. 3,060,932, Orndorff, No. 3,111,943, Melges, No. 3,494,356, and Morgan, No. 3,263,680.

However, several deficiencies in such drapes have increased the likelihood that contamination will occur during placement of the drapes. For example, if the sterile drape has any considerable bulk, it is desirable to fold the drape for convenience of packaging and storage. However, the complex manipulations required to unfold and place the drapes may result in a loss of sterility due to handling. Also, the difficulty in adhering the drapes to the patient pronounces the probability that the drape surfaces or the physician will become contaminated.

SUMMARY OF THE INVENTION

A principal feature of the present invention is the provision of a sterile fenestrated drape which is placed on and adhered to a patient's body in a simplified manner to prevent loss of sterility.

The fenestrated drape of the present invention comprises a sterile sheet of flexible material. The sheet has a pair of longitudinally extending side edges, a pair of laterally extending end edges which connect the side edges, a first surface for contacting the patient's body after placement of the drape, and a second surface facing away from the patient after placement. A pair of longitudinally extending fold lines in the sheet define a pair of side panels which are folded against a central panel extending between the longitudinal fold lines, with the second surface of the side panels facing the second surface of the central panel. A plurality of fold sections are defined by at least one laterally extending fold line in the longitudinally folded sheet, and at least one fold section, which extends from an end edge, has

side panels facing outwardly from the laterally folded sheet. Each of the side panels include longitudinally extending panel fold lines which are adjacent to and spaced from the side edges, such that the panel fold lines define a pair of edge panels which are folded with the first surface of the edge panels facing the first surface of the sheet. The sheet may include opening means through which surgery is performed in the placed drape. The drape also includes adhering means on the side panels of the one fold section having adhesive facing outwardly from the laterally folded sheet. Peel strips releasably cover the adhesive in the adhering means.

A feature of the present invention is that the peel strips are removed from the fenestrated drape prior to unfolding, thus exposing the adhesive for adhering the drape to the patient's body in a simplified manner.

Another feature of the invention is that the edge panels in the one fold section are grasped to lift and laterally unfold the drape.

A further feature of the invention is that the drape is spread by the grasped edge panels to unfold the sheet about the longitudinal fold lines.

Yet another feature is that the drape is positioned on the patient's body by the grasped edge panels, thus permitting placement of the drape while only touching the edge panels.

A further feature of the invention is that the adhesive in the adhering means of the placed drape faces the patient's body, and the drape is secured to the body by pressing the adhering means from the second side of the sheet.

Another feature of the invention is that in one embodiment of the adhering means one-sided tape strips are adhered to the second surface of the side panels over openings in the side panels, such that adhesive faces through the openings.

A further feature of the invention is that double-faced tape strips are adhered to the first surface of the side panels in the one fold section to form another embodiment of the adhering means, with indicia on the second surface of the side panels indicating the position of the double-faced tape strips.

Still another feature of the invention is that in another embodiment of the adhering means first portions of one-sided tape strips are adhered to the second surface of the side panels in the one fold section, and second body-adhering portions of the strips extend beyond the end edge of the one fold section.

Further features will become more fully apparent in the following description of the embodiments of this invention and from the appended claims.

DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a perspective view of the fenestrated drape of the present invention having one embodiment of the adhering means;

FIG. 2 is a sectional view taken substantially as indicated along the line 2—2 of FIG. 1;

FIG. 3 is a sectional view of the adhering means of FIG. 1 taken substantially as indicated along the line 3—3 of FIG. 1;

FIG. 4 is a fragmentary perspective view of the drape of FIG. 1, showing the removal of a peel strip for placement of the drape;

FIG. 5 is a perspective view of the drape of FIG. 1, with a pair of edge panels being grasped preparatory to placement of the drape;

FIG. 6 is a perspective view showing the drape being lifted by the grasped edge panels to laterally unfold the drape from the configuration of FIG. 5;

FIG. 7 is a perspective view showing the drape as spread from the configuration of FIG. 6 by the grasped edge panels;

FIG. 8 is a perspective view showing the unfolded drape as positioned on a patient's body, with the adhering means being pressed against the body to secure the drape;

FIG. 9 is a fragmentary perspective view of the drape showing another embodiment of the adhering means of the present invention;

FIG. 10 is a sectional view of the adhering means of FIG. 9 taken substantially as indicated along the line 10—10 of FIG. 9;

FIG. 11 is a fragmentary perspective view of a fold section in the drape showing indicia specifying the location of the adhering means of FIG. 9 on the reverse surface of the drape;

FIG. 12 is a fragmentary perspective view of the drape showing another embodiment of the adhering means of the present invention; and

FIG. 13 is a sectional view of the adhering means of FIG. 12 taken substantially as indicated along the line 13—13 of FIG. 12.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, a fenestrated drape, generally designated 20, is shown in a folded and unfolded configuration in FIGS. 1 and 7, respectively. The drape 20 comprises a sterile flexible sheet designated generally 22 which may be constructed from any suitable material, such as Dexter material — X1433K made by C. H. Dexter, a division of Dexter Corp., and may include a liquid impervious material to prevent passage of fluid through the sheet during percutaneous procedures or surgery. Examples of procedures for which the drape 20 may be conveniently utilized include, myelography, lumbar puncture, spinal anesthesia, needle biopsy, fluid aspiration procedures, and other minor surgical procedures and diagnostic tests.

The sheet 22 includes a pair of longitudinally extending side edges 24, and a pair of laterally extending end edges 26 connecting the side edges 24. In a preferred embodiment, the sheet 22 has a generally rectangular shape, with the side and end edges 24 and 26 being generally parallel. The sheet 22 also has a first surface 28 which contacts the body of a patient after placement of the drape 20, and a second surface 30 which faces away from the patient after placement of the drape.

In order to obtain the folded drape of FIG. 1, the sheet 22 is first folded along longitudinally extending fold lines, as best illustrated in FIGS. 6 and 7, which are spaced from and generally aligned with the side edges 24, with the sheet fold lines 32 defining a pair of side panels 34 and a central panel 36 extending between the fold lines 32. The side panels 34 are folded against the central panel 36 with the second surface 30 of the side panels 34 facing the second surface 30 of the central panel 36. In addition, the side panels 34 are folded along longitudinally extending panel fold lines 38, which are adjacent to and spaced from the side edges

24. The fold lines 38 define a pair of edge panels 40 which are folded with the first surface 28 of the edge panels 40 facing the first surface of the sheet 22 in the side panels 34. The sheet 22 may be folded longitudinally such that the panel fold lines 38 are slightly spaced from each other, as shown in FIGS. 1 and 6.

Next, the longitudinally folded sheet, as shown in FIG. 6, is folded along laterally extending fold lines 42, as best illustrated in FIGS. 5—7, defining a plurality of fold sections 44. In a preferred form, the fold lines 42 are generally aligned with the end edges 26, and each of the fold sections 44 have approximately the same shape. As shown in FIG. 1, the laterally folded sheet includes at least one fold section 46 extending from an end edge 26 such that the side panels 34 face outwardly from the folded sheet, and in one embodiment of the invention, the folded drape may have four fold sections 44. Preferably, the drape is alternately or accordion folded, as shown. As illustrated in FIG. 7, the sheet also may include opening means 41 through which the procedure is performed in the placed drape, and in a preferred embodiment the opening means comprises an opening or fenestration in the central panel 36 of the fold section adjacent the one fold section 46.

The drape 20 also includes adhering means, generally designated 50, on each of the side panels 34 in the one fold section 46 to secure the sheet 22 to the patient's body. The adhering means 50 includes adhesive 52, such as pressure sensitive adhesive, facing outwardly from the laterally folded sheet, and peel strips 54 releasably cover the adhesive 52. In one embodiment of the adhering means 50, as shown in FIGS. 1—3, each of the side panels 34 has an opening 56 in the one fold section 46, and a tape strip 58 having adhesive on one side is adhered to the second surface 30 of the side panels 34 such that the one-sided strips 58 cover the openings 56 with adhesive 52 facing through the openings. Since the strips 58 are adhered to the edges of the side panels 34 around the openings 56, the strips 58 are securely anchored to the side panels, and the position of the adhesive 52 facing through the openings 56 may readily be determined from the second surface 30 of the sheet 22, since the strips 58 are visible on that side of the sheet.

The manner in which the folded drape of FIG. 1 is aseptically placed on the body of the patient is described as follows, which may be at least partially specified on the drape to the user or the person placing the drape by suitable indicia 59, and is preferably performed with sterile gloved hands, as shown. First, the peel strips 54 are removed to expose the adhesive 52 in the adhering means 50, as illustrated in FIG. 4. Next, the edge panels 40 in the one fold section 46 are grasped by the hands, as shown in FIG. 5, and the drape 20 is lifted by the grasped edge panels, as illustrated in FIG. 6, such that the sheet 22 laterally unfolds from its own weight. The drape 20 is then spread by the grasped edge panels 40 to the configuration as shown in FIG. 7 to unfold the sheet 22 about the longitudinal fold lines 32 and 38 such that the adhesive 52 faces away from the body of the person unfolding the drape. Next, the unfolded drape 20 is positioned on the patient's body with the opening means or fenestration 41 located over the region of the body in which the procedure is to be performed. If the body surface on which the drape is placed is horizontally disposed, the edge panels 40 may be released, and the adhering means 50, which, as

noted previously, is visible from the second surface 30 of the sheet 22, may then be pressed against the patient's body to secure the drape.

However, the drapes 20 are frequently placed on a vertically disposed body surface, and if the edge panels are released prior to adhering the drape to the body, the drape may slide from its desired location. Accordingly, the adhering means 50 is positioned sufficiently close to the edge panels in order that the adhering means may be pressed by the user's thumbs while the edge panels are grasped by the user's fingers, after which the edge panels are released.

Thus, during placement, the only portions of the drape which are contacted by the user are the peel strips 54, the edge panels 40 in the one fold section 46, and the adhering means 50 on the second surface of the sheet 22. Accordingly, it is readily apparent that this minimal contact, and the simplified manner of placing the drape according to the present invention, significantly reduces the possibility of contamination to the drape and the physician who may have placed the drape.

Another embodiment of the adhering means 50 is illustrated in FIGS. 9 - 11, in which doubled-faced tape strips 62 are adhered to the first surface 28 of the side panels 34 in the one fold section 46, such that adhesive 52 on one side of the strips, which is releasably covered by peel strips 54, faces outwardly from the folded drape 20. As shown in FIG. 11, indicia 64 on the second surface 30 of the side panels 34 indicates the position of the double-faced strips 62 on the other surface of the sheet 22.

Another embodiment of the adhering means 50 is illustrated in FIGS. 12 and 13, in which tape strips 70 having adhesive 52 on one side are adhered to the second surface 30 of the side panels 34 in the one fold section 46, with a first portion 72 of the strips 70 being adhered to the second sheet surface 30 and a second portion 74 extending beyond the end edge 26 of the sheet. Peel strips 54 releasably cover the adhesive 52 in the second tape portions 74. Since the adhesive 52 in the adhering means 50 of the embodiments of FIGS. 9 - 11 and FIGS. 12 and 13 both face outwardly from the folded drape 20, it is apparent that the peel strips 54 are removed and the adhering means is adhered to the patient's body in a manner similar to that described in connection with the adhering means 50 of FIGS. 1 - 3.

The foregoing detailed description is given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, as modifications will be obvious to those skilled in the art.

We claim:

1. A folded drape comprising:

- a sterile sheet of flexible material including,
 - a pair of side edges extending longitudinally along the sheet,
 - a pair of laterally extending end edges connecting said side edges,
 - a first surface for contacting the body of a patient after placement of the drape,
 - a second surface facing away from the patient after placement of the drape,
 - a pair of side panels defined by a pair of sheet fold lines extending longitudinally along the sheet and spaced from said side edges, said side panels being folded against a central panel extending

between the longitudinal fold lines with the second surface of said side panels facing the second surface of said central panel, and

a plurality of fold sections defined by at least one laterally extending fold line in the longitudinally folded sheet, including at least one fold section extending from an end edge having side panels facing outwardly from the laterally folded sheet; and

sterile adhering means on the side panels of said one fold section to secure the sheet to the patient, said adhering means including adhesive facing outwardly from the laterally folded sheet.

2. The folded drape of claim 1 including opening means in said sheet providing access to the patient's body through the sheet.

3. The folded drape of claim 2 wherein said opening means comprises an opening in the central panel of the fold section adjacent said one fold section.

4. The folded drape of claim 1 including peel strips releasably covering the adhesive in said adhering means.

5. The folded drape of claim 1 wherein said adhering means comprises a strip of adhesive tape on each of said side panels in said one fold section.

6. The folded drape of claim 1 wherein said adhering means comprises an opening in said side panels of the one fold section, tape strips having adhesive on one side, said tape strips being adhered to the second surface of the side panels and covering said openings with the adhesive facing through the openings.

7. The folded drape of claim 1 wherein said adhering means comprises double-faced tape strips adhered to the first surface of said side panels in said one fold section.

8. The folded drape of claim 7 including indicia on the second surface of said side panels indicating the position of said double-faced tape strips.

9. The folded drape of claim 1 wherein said adhering means comprises, tape strips having adhesive on one side and having a first portion adhered to the second surface of the side panels in the one fold section, and a second portion extending beyond the end edge of the one fold section.

10. The folded drape of claim 1 wherein each of said side panels include longitudinally extending panel fold lines adjacent to and spaced from said side edges, said panel fold lines defining a pair of edge panels for grasping and unfolding said sheet, said edge panels being folded with the first surface of the edge panels facing the first surface of said sheet.

11. The folded drape of claim 10 wherein the adhering means is positioned sufficiently close to said edge panels to permit pressing of the adhering means by the thumbs of a user's hands while grasping the edge panels with the user's fingers.

12. The folded drape of claim 10 wherein said pair of panel fold lines are slightly spaced from each other in the longitudinally folded drape.

13. The folded drape of claim 1 wherein said side edges are generally parallel.

14. The folded drape of claim 13 wherein said sheet fold lines are generally aligned with said side edges, and said side panels include longitudinally extending panel fold lines adjacent to and spaced from said edges, said panel fold lines being generally aligned with the side edges and defining a pair of edge panels for grasping

and unfolding said sheet, said edge panels being folded with the first surface of the edge panels facing the first surface of said sheet.

15. The folded drape of claim 13 wherein the lateral fold lines are generally perpendicular to said side edges.

16. The folded drape of claim 1 wherein said sheet has a generally rectangular shape.

17. The folded drape of claim 16 wherein the lateral fold lines are generally aligned with said end edges.

18. The folded drape of claim 17 wherein each of said fold sections has approximately the same shape.

19. The folded drape of claim 1 wherein the longitudinally folded sheet is accordion-folded along said lateral fold lines.

20. The folded drape of claim 19 wherein said sheet includes four fold sections.

21. A method of applying the folded drape of claim 10 to the patient comprising the steps of:
grasping the edge panels in said one fold section;

lifting the drape by said grasped edge panels to laterally unfold the sheet;

spreading the drape by said grasped edge panels to unfold the sheet about said longitudinally extending fold lines;

positioning the drape on the patient's body by said grasped edge panels; and

pressing the adhering means against the patient's body to secure the drape.

22. The applying method of claim 21 wherein said adhering means includes peel strips releasably covering said adhesive, and including the step before said grasping step of removing said peel strips.

23. The applying method of claim 21 including the step before said pressing step of releasing the grasped edge panels.

24. The applying method of claim 21 including the step after said pressing step of releasing the grasped edge panels.

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