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PACKAGED FOLDED ADHESIVE SHEETS

Filed June 2, 1960

FIG. 1

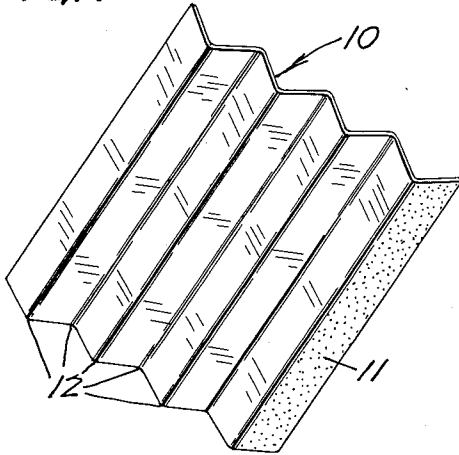


FIG. 5

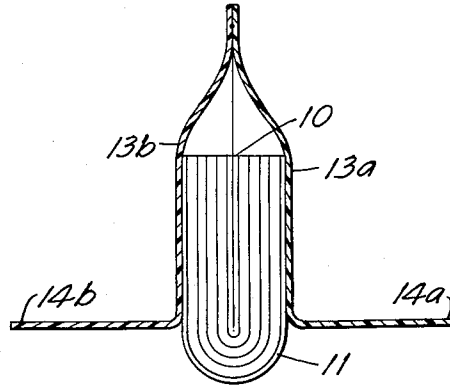


FIG. 2

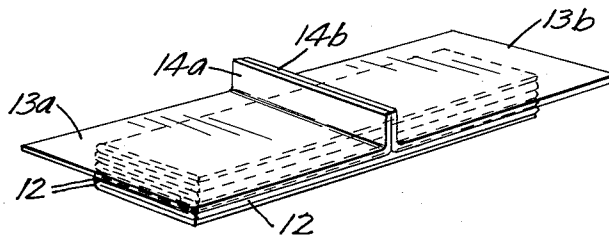


FIG. 3

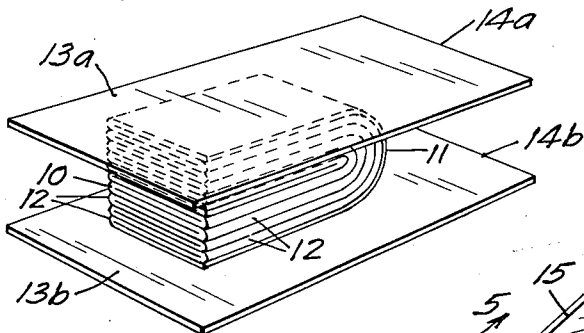
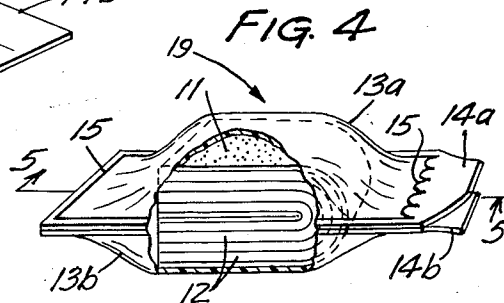


FIG. 4



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## PACKAGED FOLDED ADHESIVE SHEETS

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1 Claim. (Cl. 206—63.2)

This invention relates to packaged folded adhesive sheets, including such materials as adhesive patches or bandage strips. An especially useful embodiment of this invention is a unit package containing folded adhesive-coated plastic surgical drapes.

One object of the invention is to provide a compact, structurally simple, adhesive sheet unit package which is easy to open, requires no separate adhesive liners and is convenient to apply. Another object is to provide a package unit wherein the central portion of the adhesive is exposed first as the package is opened and package manipulation during opening enables a bandage or drape effectively to be "rolled on" the desired area to be protected without handling of the drape. Other objects and advantages will become apparent as the description proceeds.

My invention will be better understood by reference to the attached drawings in which like numbers refer to like parts in the several views and in which:

FIGURE 1 shows a surgical drape in the process of being accordion-folded for packaging;

FIGURE 2 shows the surgical drape of FIGURE 1 accordion-folded and with packaging panels in preliminary position;

FIGURE 3 shows the assembly of FIGURE 2 in an intermediate stage of forming a package;

FIGURE 4 is an isometric view of a packaged surgical drape, with a portion of the packaging envelope broken away to better illustrate the folded drape itself; and

FIGURE 5 is a cross-sectional view of the product illustrated in FIGURE 4 taken along the section lines 5—5 and showing the package as it would appear when initially opened by a user.

In the drawings, a surgical "towel" drape having a backing 10 of suitable material (e.g., polyethylene) is coated along an area adjacent one edge with adhesive 11. The drape is then accordion-folded along fold line 12, adhesive surface 11 being exposed. This accordion-folded drape is then packaged by placing in overlapping relationship on adhesive surface 11 envelope panels 13a and 13b as shown in FIGURE 2, and medially folding the assembly, as shown in FIGURE 3. If the folded drape is extremely long, or if a long adhesive strip is being packaged instead of a drape, the end portions opposite the medial fold, together with the panel portions adhered thereto, may be turned in to reduce the length of the proposed package still further.

FIGURE 4 shows the folded drape sealed between panels 13a and 13b along seal line 15, which forms a continuous closure adjacent the coincident periphery of the panels, thereby providing a dustproof package. The panels may be autogenously sealed by means of pressure and heat or solvents, or sealed by means of a suitable adhesive. At the end of the envelope adjacent the medial fold of the surgical drape, seal line 15 is spaced from the corresponding ends of panels 13a and 13b, thereby providing opening tabs 14a and 14b.

When polyethylene panels are employed, I have found that one very satisfactory technique for heat-sealing envelope panels involves printing with infra-red absorptive ink a line along which sealing is to be effected, interposing the drape between the liner-panels and the back-panel, and passing the unsealed package through a machine which simultaneously compresses it and briefly exposes it to infra-red radiation. The radiation is selectively

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absorbed by the ink, thereby sufficiently softening the polyethylene to permit sealing to take place on both sides of the printed line, the ink itself preventing firm adhesion directly to the line. This double-seal resists accidental rupture of the package by a force exerted at right angles to the seal line, but it can be readily opened by force exerted parallel to the seal line. The seal line adjacent tabs 14a and 14b preferably has peripherally directed scallops, sharp points, or some other irregular form to localize and concentrate stresses which otherwise would be exerted at right angles to it during the preliminary stages of opening the envelope.

Sealed packages of the type illustrated are preferably sufficiently gas-permeable that they can be sterilized by 12 hours of exposure to a 150° F. atmosphere containing 20% ethylene oxide and 80% carbon dioxide, the contents thereafter remaining sterile until the package is opened. When a packaged surgical drape of the type shown is to be applied, the user grasps tabs 14a and 14b, one with each hand, and moves them apart. This action ruptures the seal adjacent the tab ends, the sawtooth shape of seal line 15 near tabs 14a and 14b helping this objective. As tabs 14a and 14b are moved apart, the medial fold line of the drape and adhesive surface 11 are progressively exposed. While still holding tabs 14a and 14b, the user may place the medial fold of the drape in the desired location, where it will adhere, and as tabs 14a and 14b are spread further apart, adhesive surface 11 is effectively rolled out and held firmly and tautly in position. The drape may then be unfolded and restored to its original flat condition.

Although it is generally most convenient to employ separate envelope panels in packaging surgical drapes, it is also possible to use envelopes formed from a single strip of material. For example, the end of the envelope opposite tabs 14a and 14b may be continuous with panels 13a and 13b.

It will be readily appreciated that my invention is not primarily concerned with the materials from which either folded adhesive sheet 10 or envelope 19 is fabricated. Thus, backing 11 of adhesive sheet 10 may be of either plastic or cloth material of conventional types. The shape of the packaged adhesive sheet, and the location of the adhesive surface are only incidental, provided the sheet is folded so that an adhesive surface is exposed on each side of the fold line. Similarly, envelope panels 13a and 13b may be made of any material which can be satisfactorily sealed together, which can be sterilized without distortion and which will provide the desired degree of protection for the enclosed adhesive sheet. Suitable panel materials include polyvinyl chloride films, laminates of polyethylene film to polyethylene terephthalate films, cellophane, "Mylar" polyester films, cellulose acetate and cellulose acetate butyrate films, both high and low density polyethylene films, polypropylene films and vinyl-coated aluminum foil. The envelope materials must either inherently be sealable to each other or be adhered or otherwise affixed in some manner during the fabrication of the unit package. Envelope panels 13a and 13b must be of material which can be removed from adhesive 11, which is sufficiently flexible to be bent back on itself, and which is strong enough to sustain the force required to rupture the seal. For all-around use I have found that .004 inch low density polyethylene film is highly satisfactory.

What I claim is:

A packaged surgical drape unit wherein an adhesive-coated surgical drape is enclosed in an envelope which functions both as a sterile protector for said sheet and as a removable liner for said adhesive, said unit comprising in combination: a surgical drape having an adhesive coating over a portion of one surface, said drape being accordion-folded and thereafter medially folded at right

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angles to the accordion folds, so that adhesive is exposed on both sides of the medial fold line, a first substantially rectangular envelope panel removably adhered to the adhesive exposed on one side of said medial fold line and a second envelope panel of substantially the same dimensions as the first envelope panel removably adhered to the adhesive exposed on the other side of said medial fold line, the coincident peripheries of said panels being continuously sealed together along both sides of the folded drape and along the end of the package opposite the medial fold line, said panels also being openably sealed together along a line adjacent to but spaced from that pair of their corresponding edges nearest said medial fold line to form a

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dustproof envelope, the portions of said panels lying beyond the seal line adjacent said medial fold providing envelope-opening tabs.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |             |                |
|-----------|-------------|----------------|
| 2,565,887 | Salfisberg  | Aug. 28, 1951  |
| 2,574,710 | Rodgers     | Nov. 13, 1951  |
| 2,648,463 | Scherer     | Aug. 11, 1953  |
| 2,954,116 | Maso et al. | Sept. 27, 1960 |

##### FOREIGN PATENTS

|         |               |              |
|---------|---------------|--------------|
| 691,409 | Great Britain | May 13, 1953 |
|---------|---------------|--------------|