

[54] **NEEDLE ASSEMBLY HAVING A FOLDED BANDAGE HANDLE**

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[21] Appl. No.: **298,282**

Related U.S. Application Data

[63] Continuation of Ser. No. 42,713, June 2, 1970, abandoned.

[52] U.S. Cl. **128/214 R; 128/155; 128/DIG. 26**

[51] Int. Cl. **A61m 5/00; A61m 25/02**

[58] Field of Search **128/82, 82.1, 155, 133, 128/172, 214, 214.4, 221, 314, 347-351, 2.1 R, 2.06, DIG. 4**

[56] **References Cited**

UNITED STATES PATENTS

2,821,194	1/1958	Simmons.....	128/214 R
3,046,984	7/1962	Eby.....	128/214 R
3,194,235	7/1965	Cooke.....	128/214 R
3,463,152	8/1969	Sorenson.....	128/214.4
3,589,361	6/1971	Loper et al.....	128/214.4

3,630,195 12/1971 Santomieri..... 128/133

Primary Examiner—Richard A. Gaudet

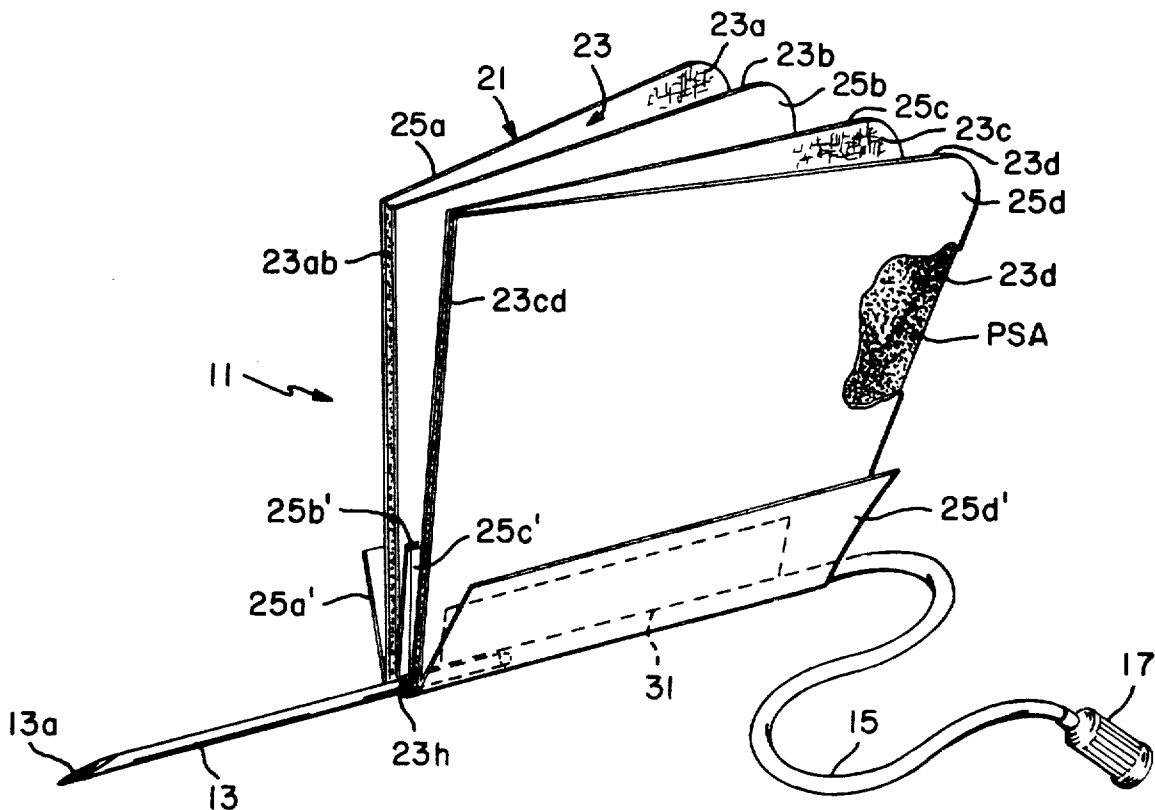
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[57] **ABSTRACT**

A needle assembly including a needle having a pointed end, the needle being removably secured to a flexible air breathable bandage which is folded, the needle extending from one corner thereof in the cross-folded form. The needle is provided with a flexible connecting tube and a connector for attachment to a user device. The flexible bandage forms a manipulable winged handle in the initial folded form, and serves to enable the insertion of the needle into a patient's body, after which the bandage is unfolded and is adhered to the skin of the patient's body, preferably by adhesion of a pressure sensitive adhesive surface on one face of the bandage. In the unfolded form the bandage covers the puncture site, and after needle use the needle may be removed while leaving the bandage in place, leaving the puncture site covered by the bandage.

35 Claims, 22 Drawing Figures



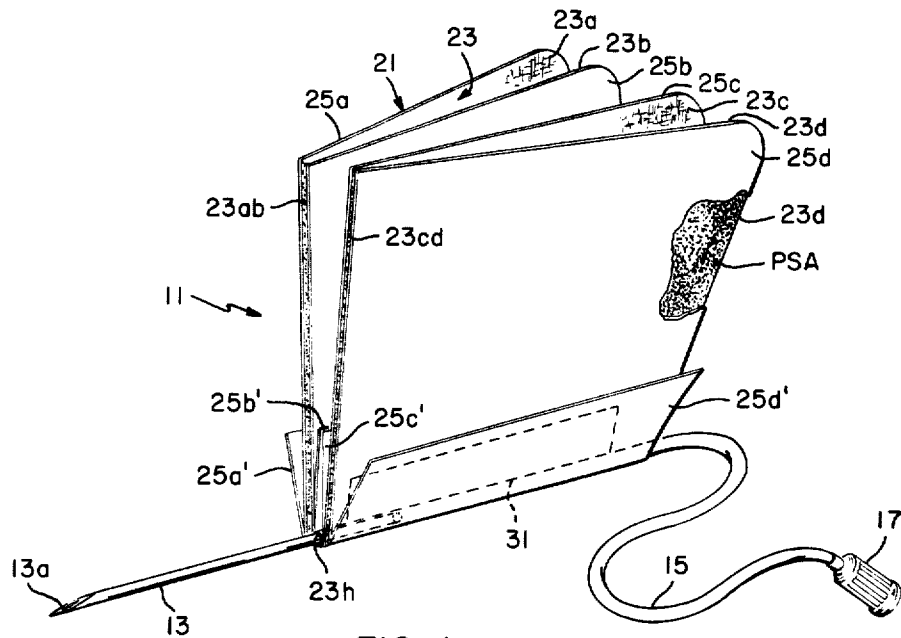


FIG. 1

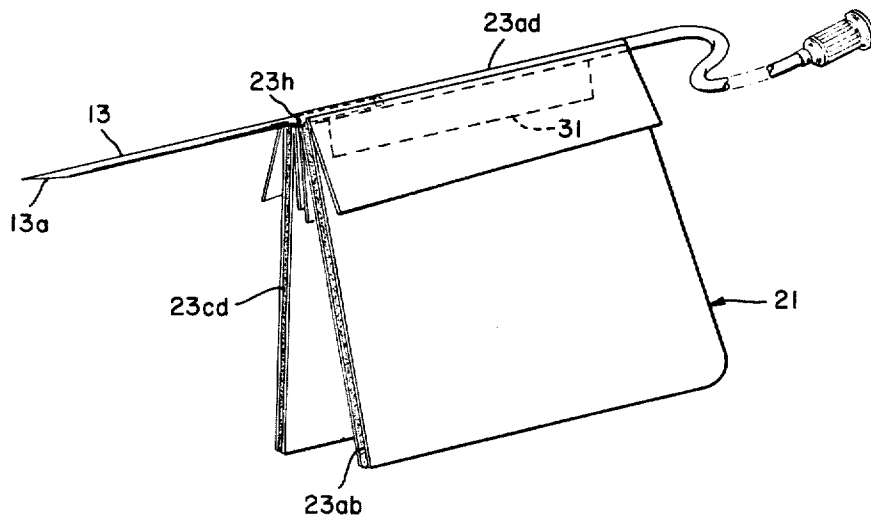


FIG. 2

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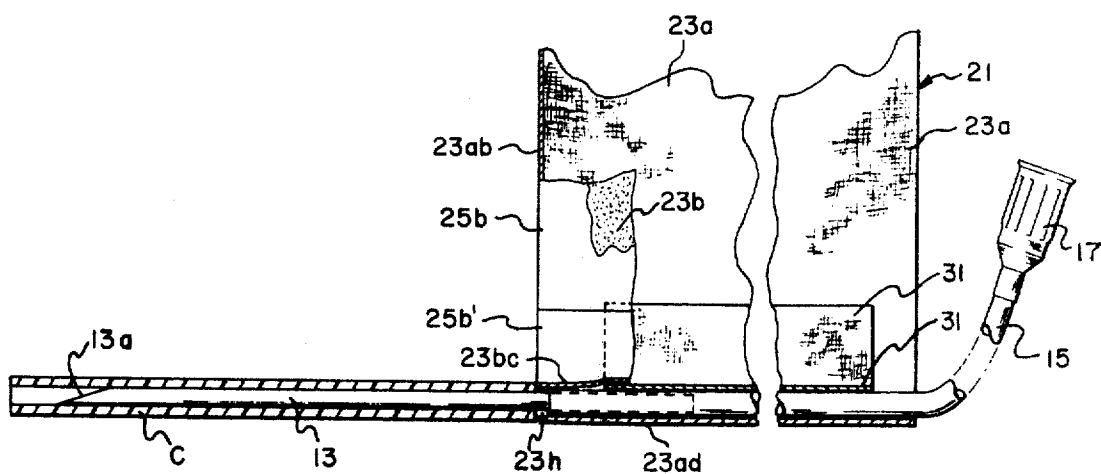


FIG. 3

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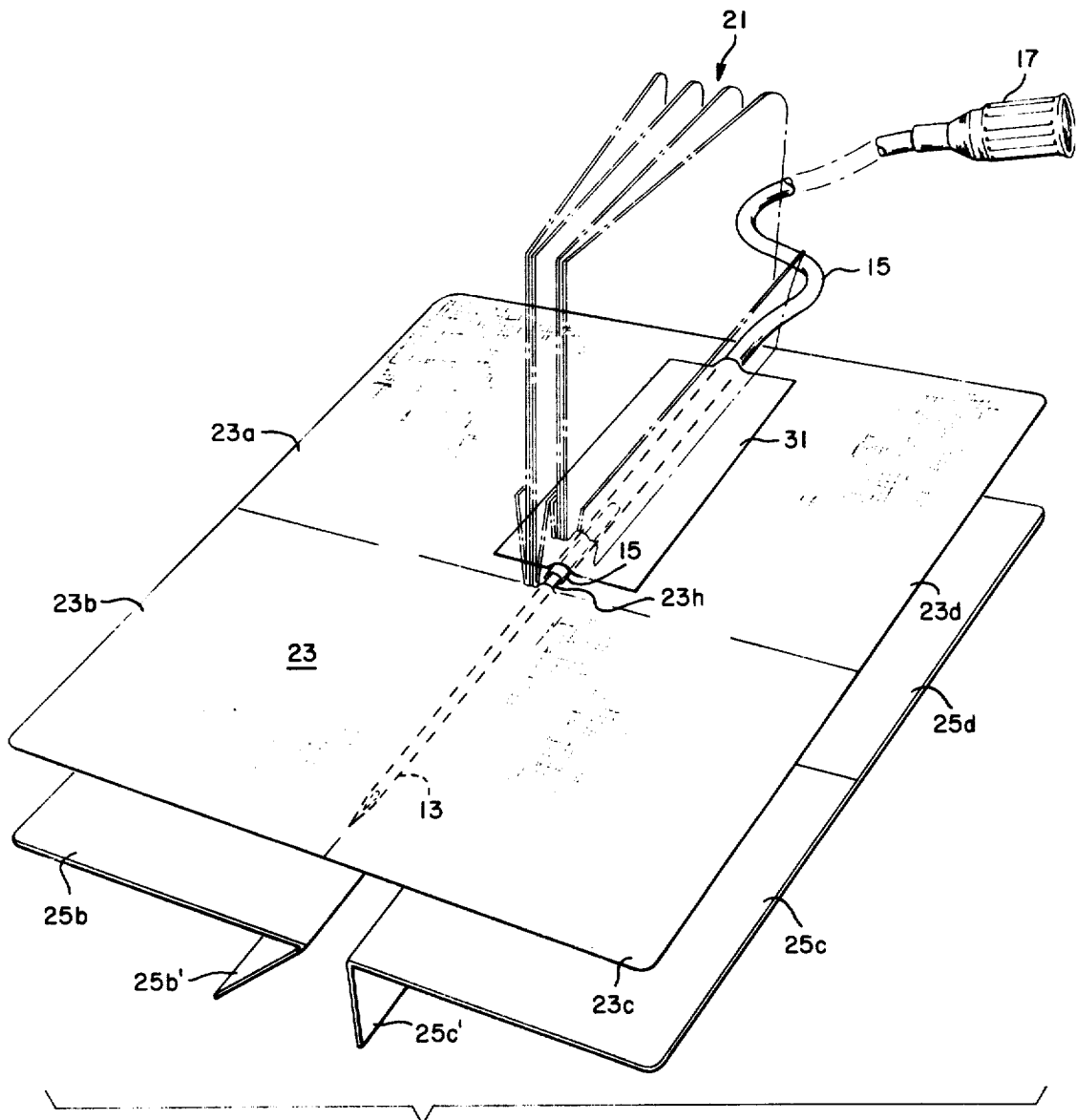


FIG. 4

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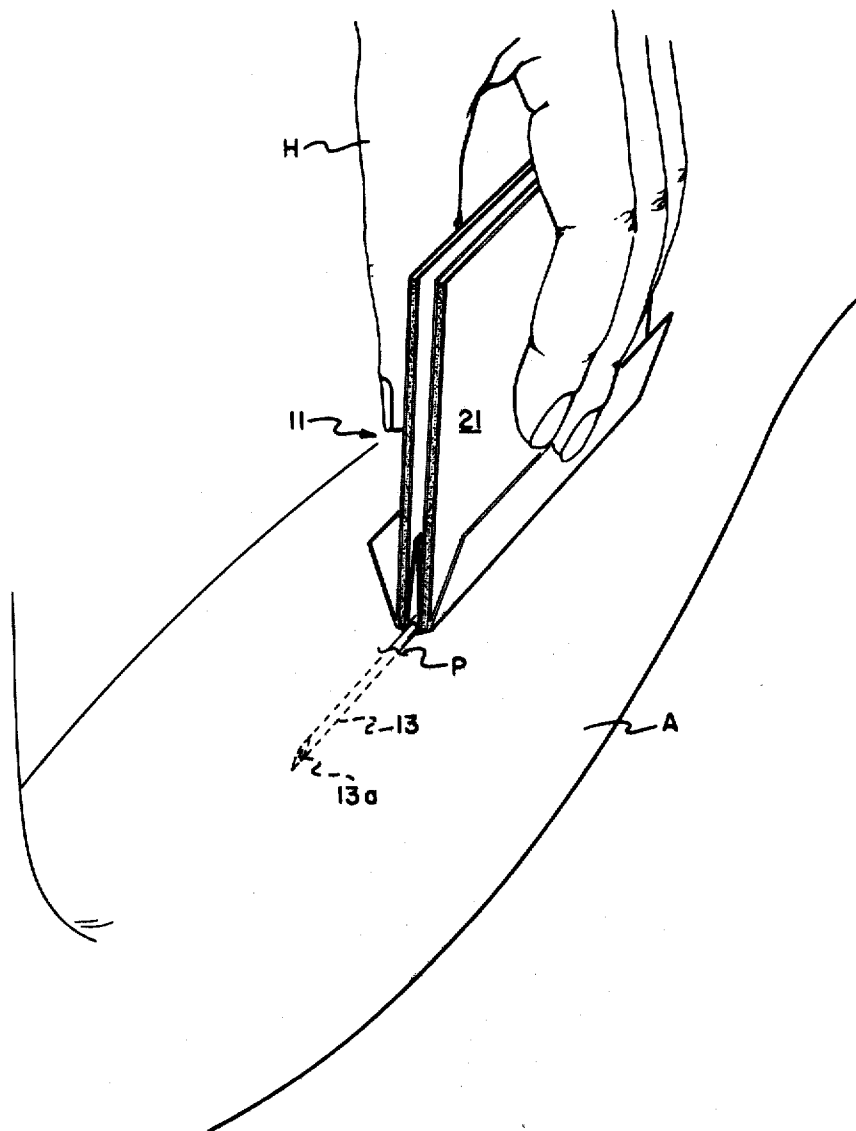


FIG. 5

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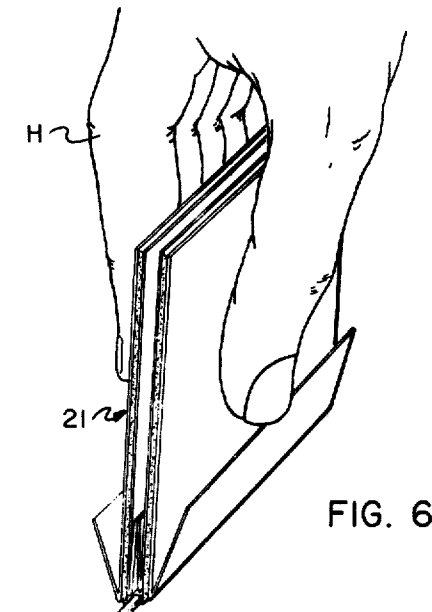


FIG. 6

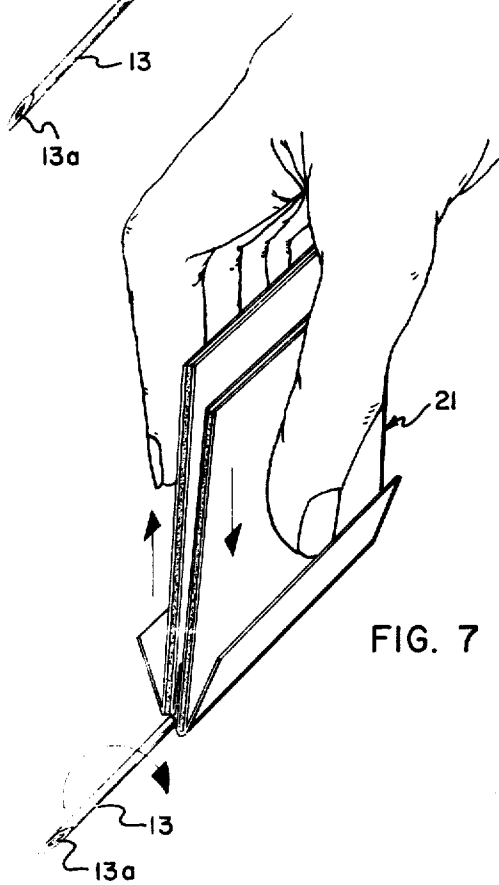


FIG. 7

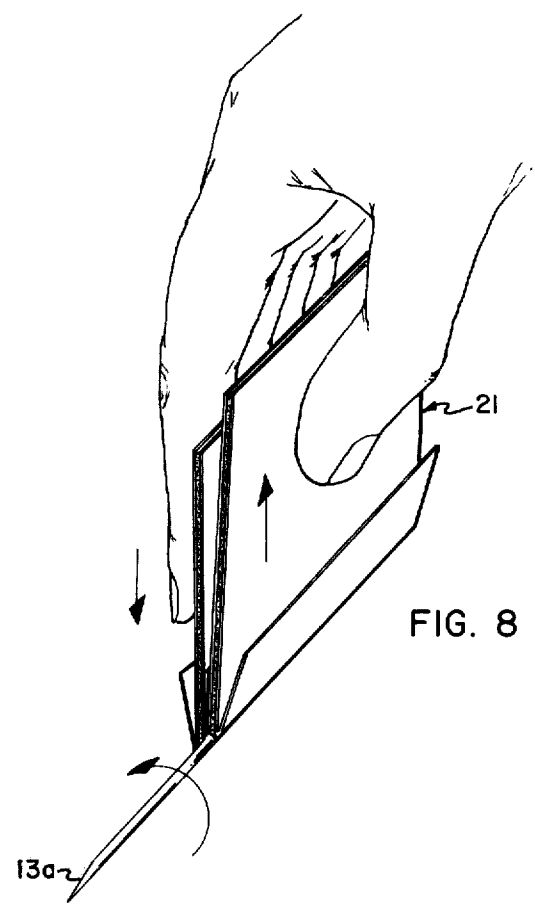


FIG. 8

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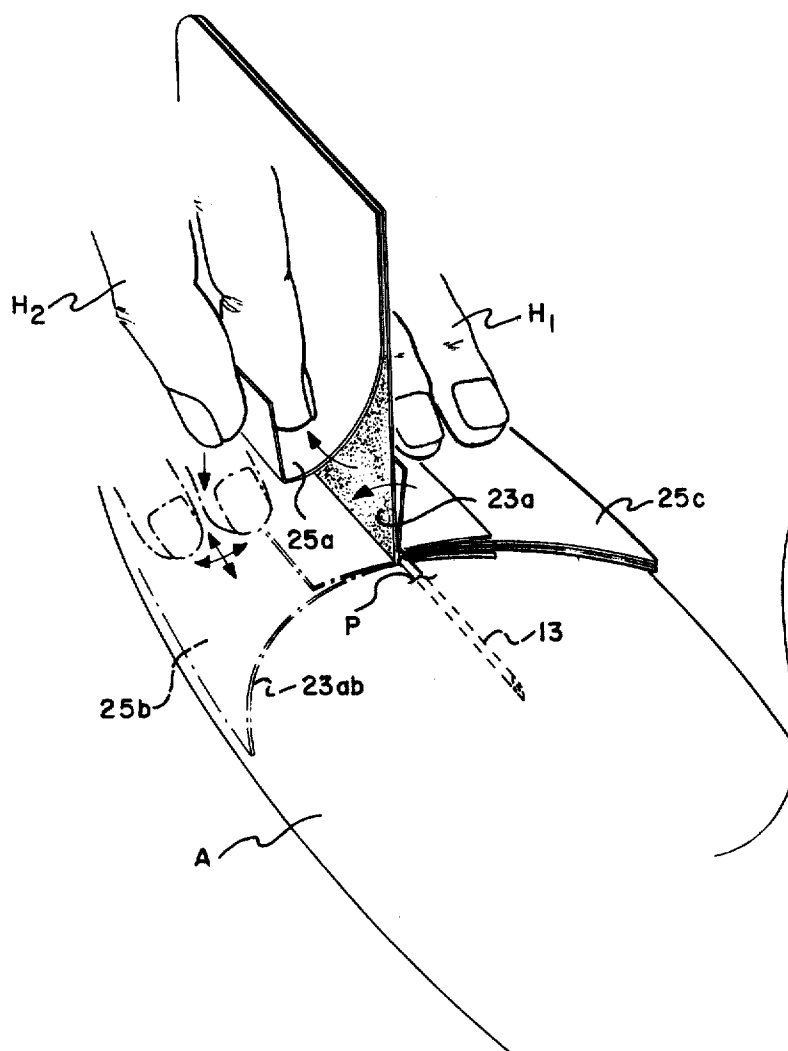


FIG. 9

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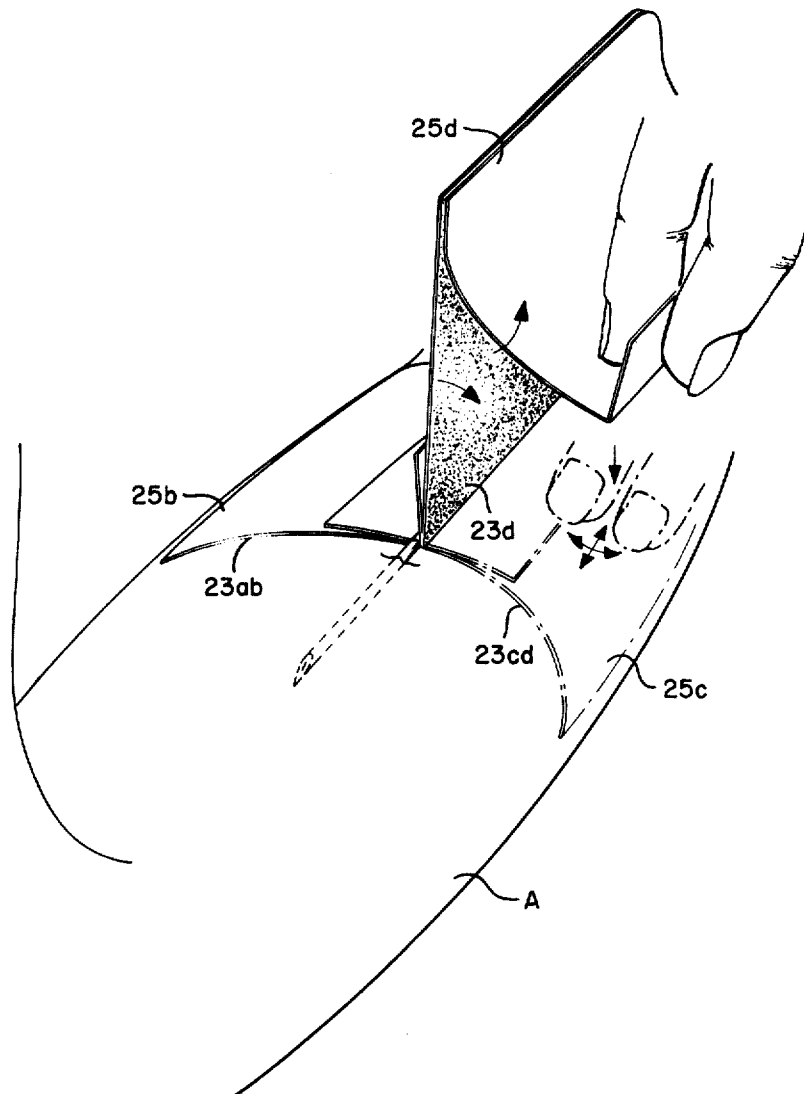


FIG. 10

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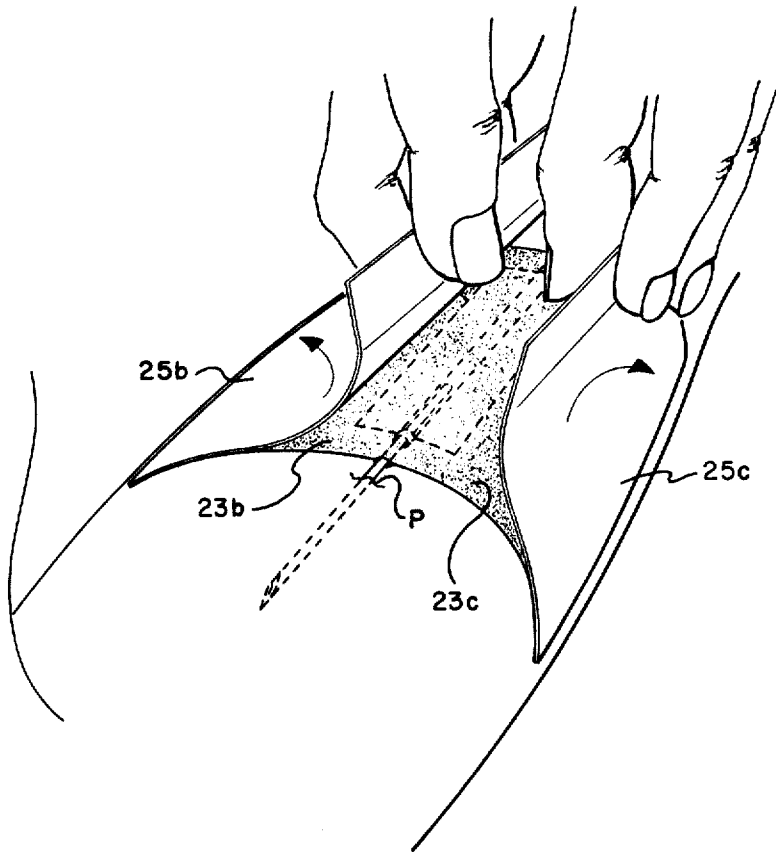


FIG. 11

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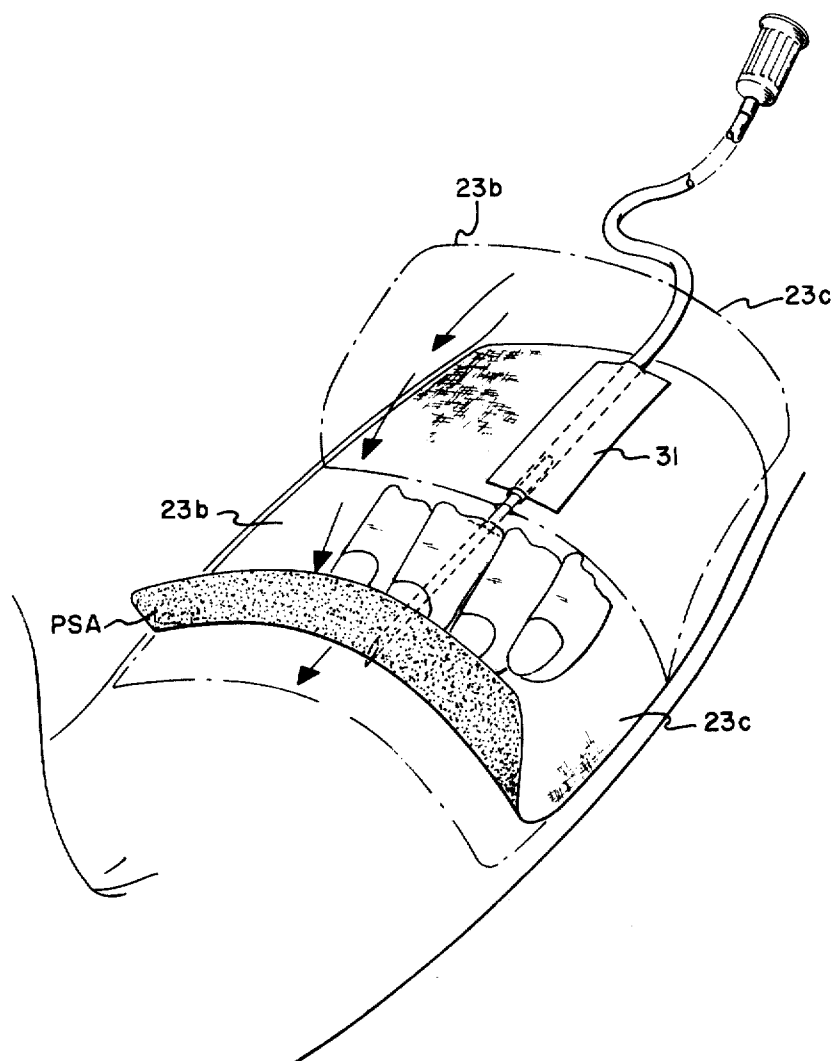


FIG. 12

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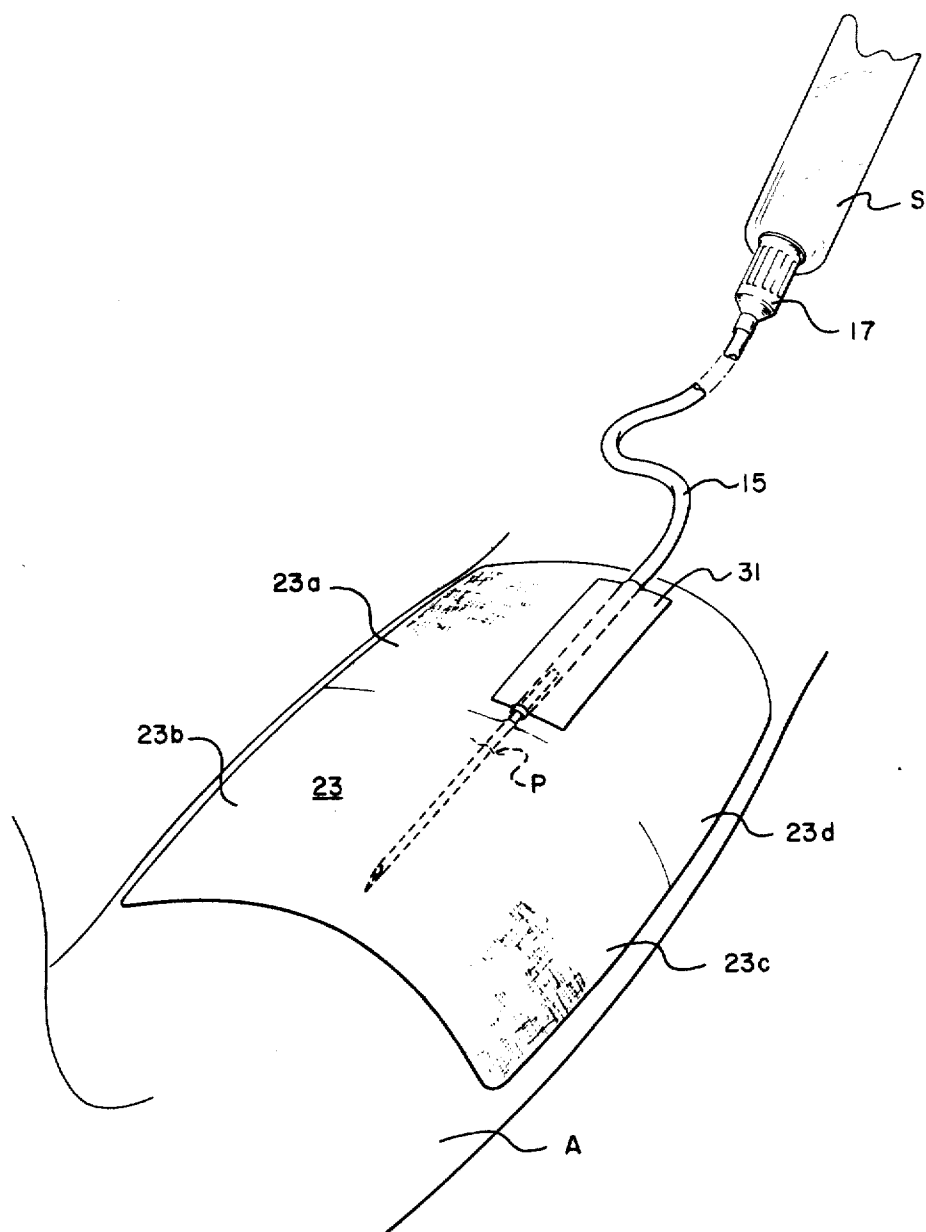


FIG. 13

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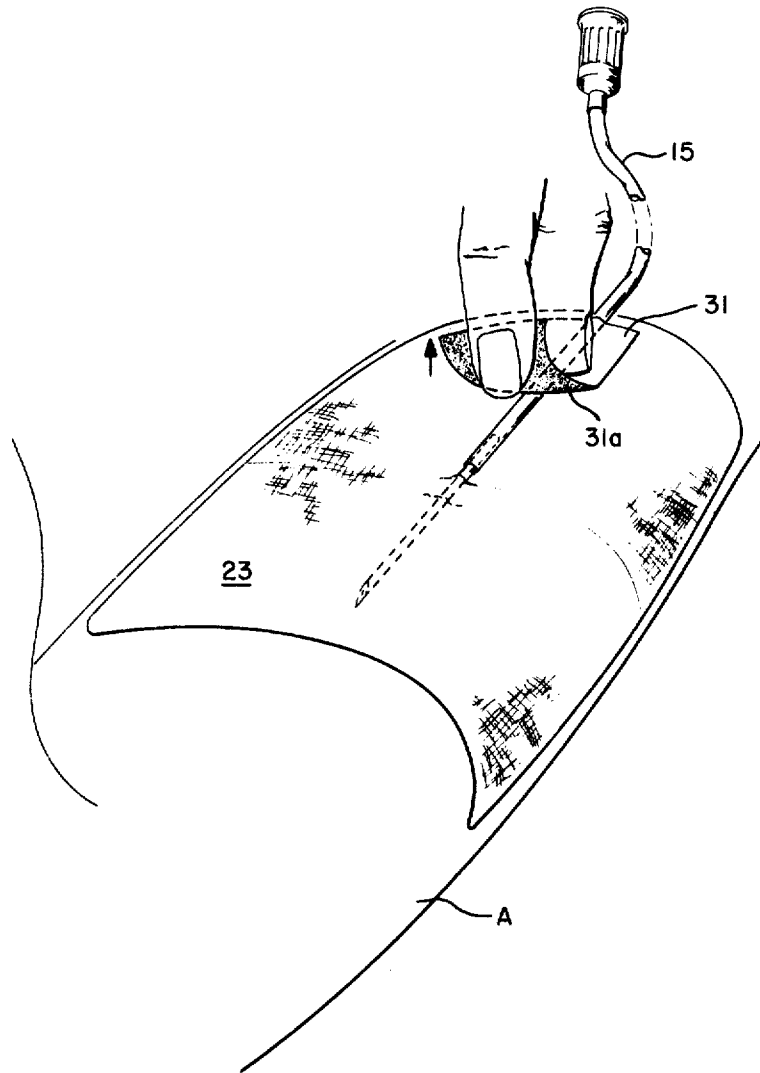


FIG. 14

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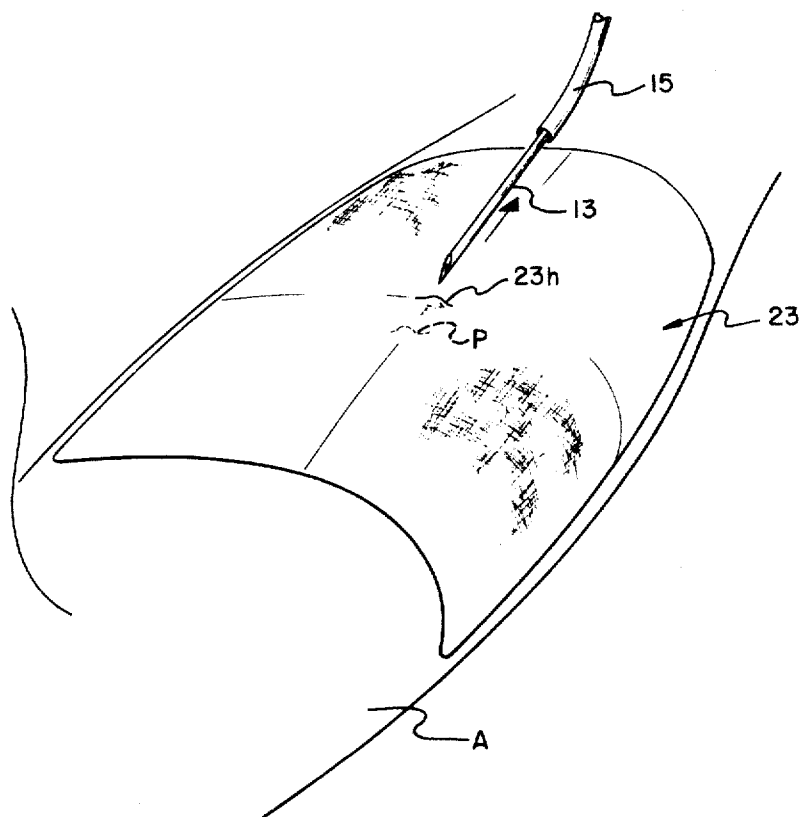


FIG. 15

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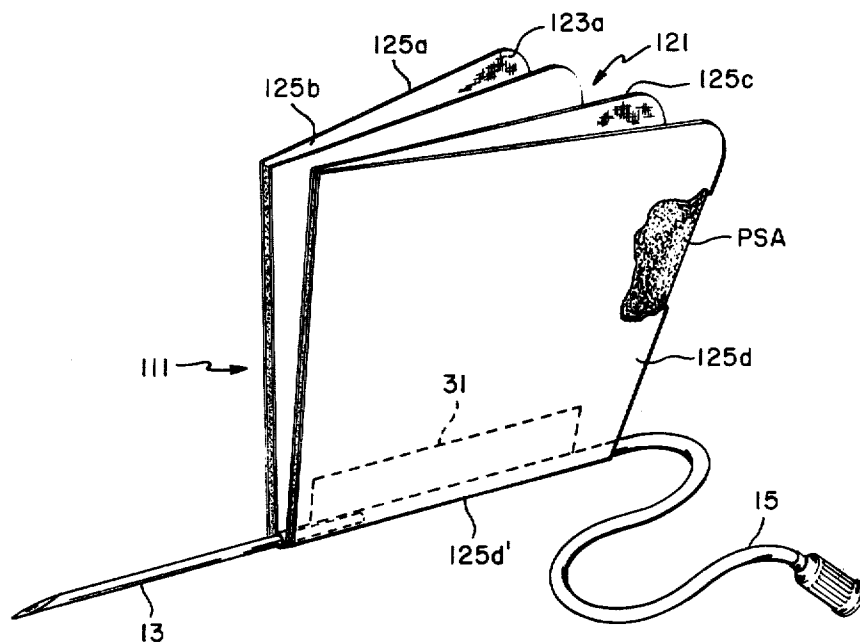


FIG. 16

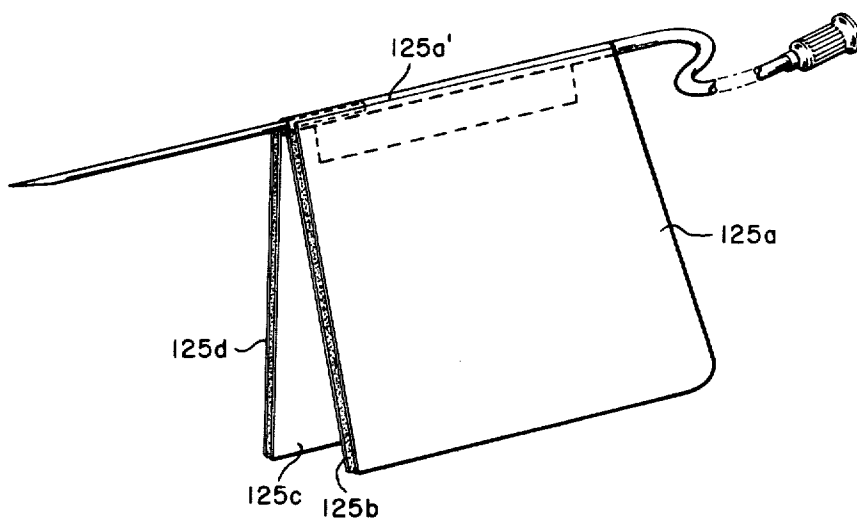


FIG. 17

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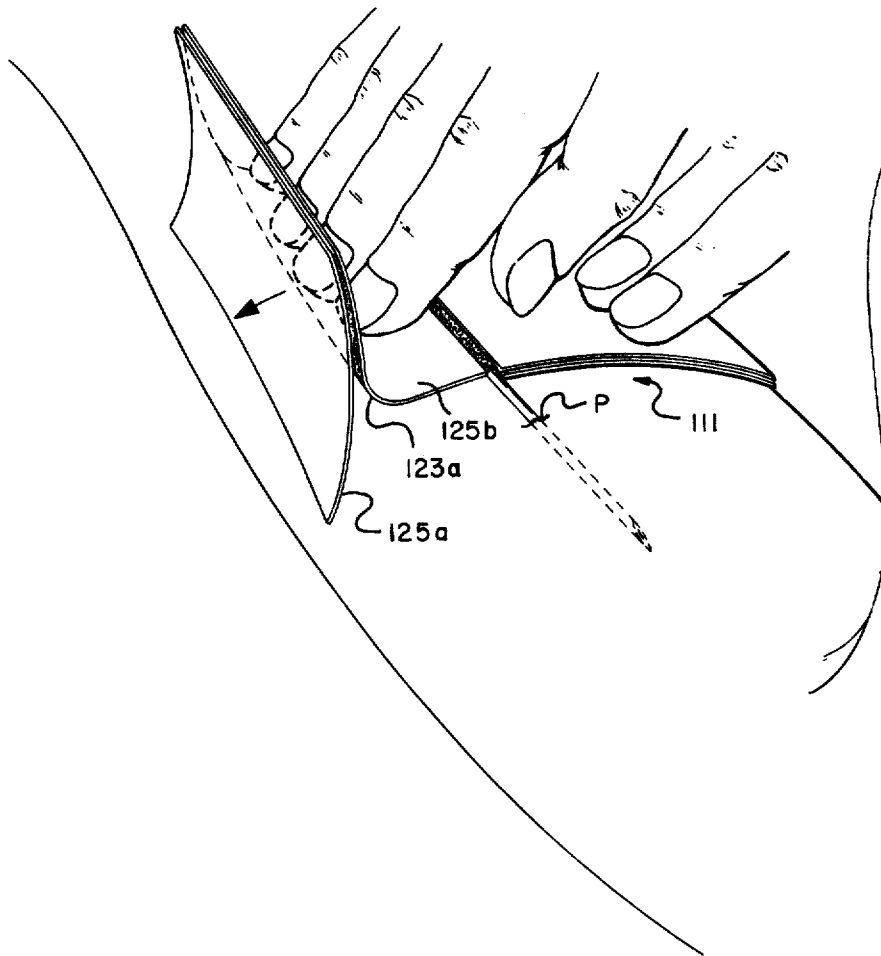


FIG. 18

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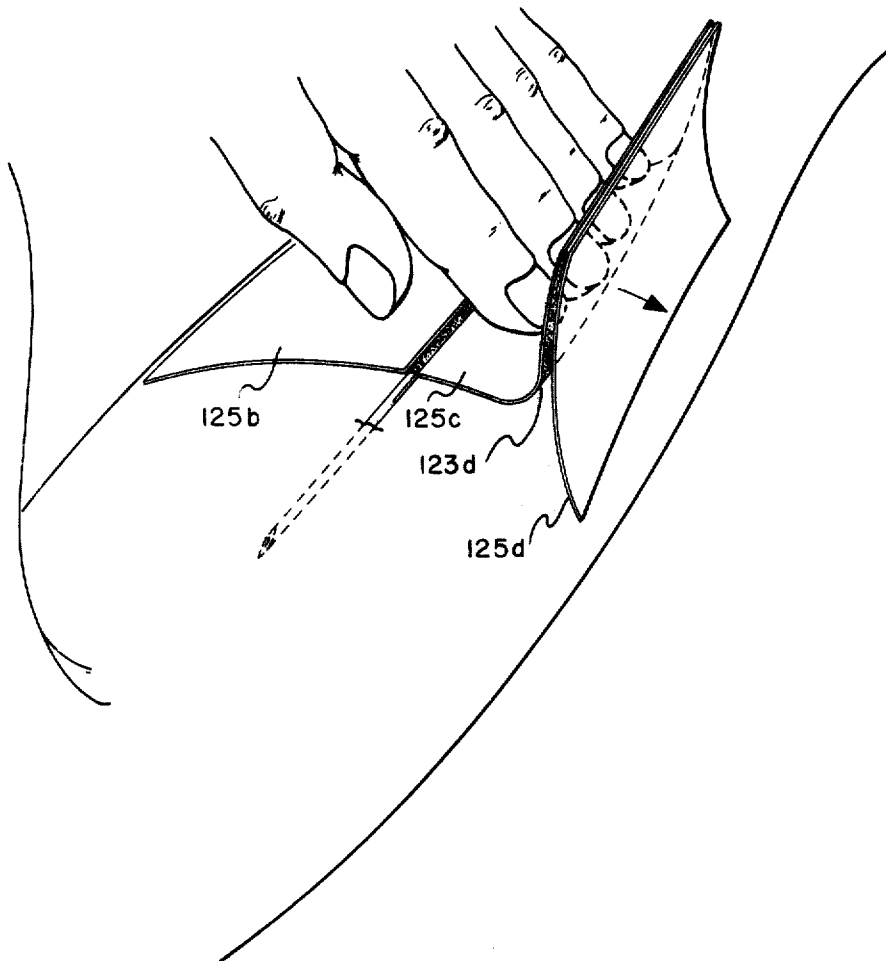


FIG. 19

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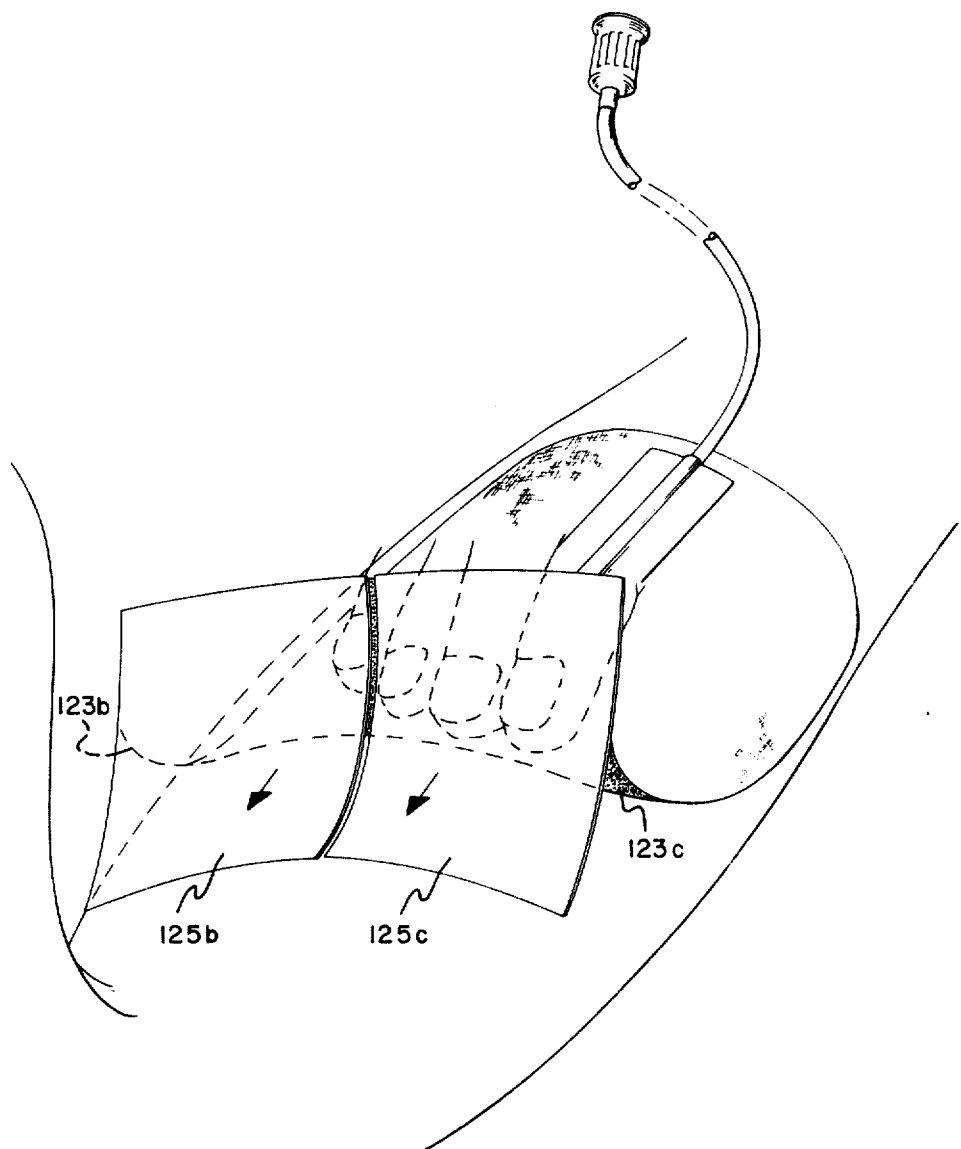


FIG. 20

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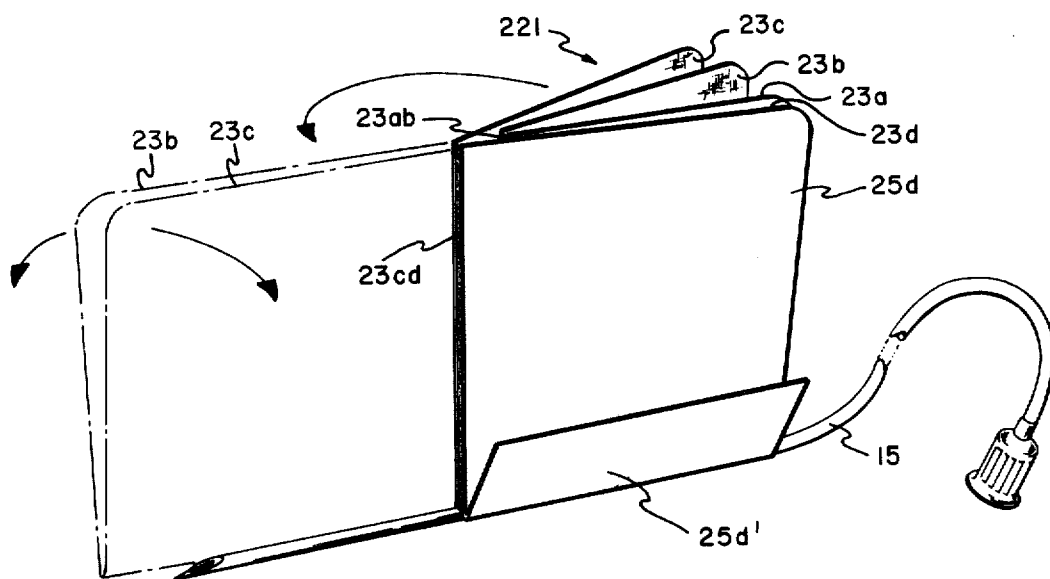


FIG. 21

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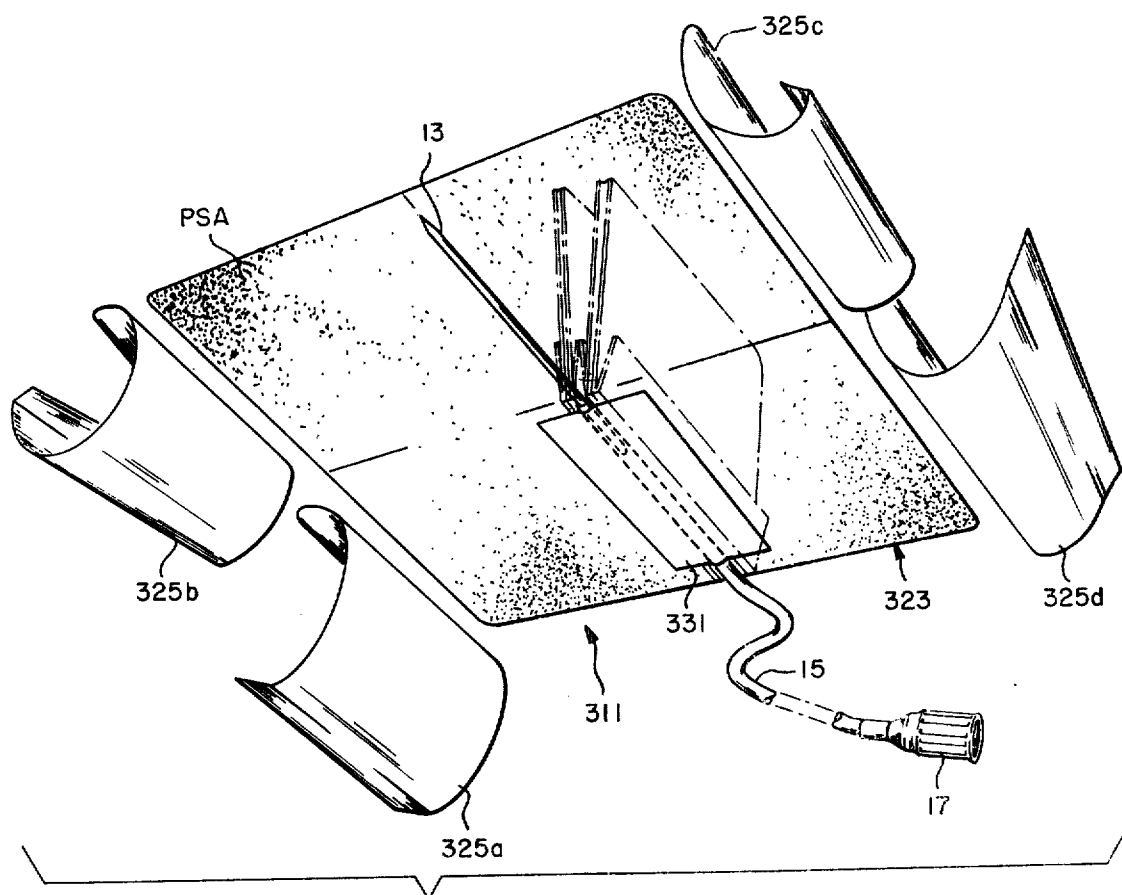


FIG. 22

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NEEDLE ASSEMBLY HAVING A FOLDED BANDAGE HANDLE

This is a continuation, of application Ser. No. 42,713 filed June 2, 1970, now abandoned.

This invention relates to an attachable needle assembly for removable attachment to a body member, and more particularly to a manually manipulable needle assembly for insertion into and attachment to a patient's body, such as for intravenous therapy or testing (using a hollow needle and fluid connection thereto), or for electrical signal.

In the art of intravenous therapy it is necessary to insert a needle into the vein of a patient, and to retain the needle in place for an extended period of time, the time varying with the particular intravenous therapy or testing involved. It has been previously proposed and practiced to insert such intravenous needles manually into the vein, as by holding the needle or needle holder and puncturing the body, after which a strip of adhesive may be applied to the needle to hold such in place. This method requires the operator to have ready a strip of adhesive, and to thereupon apply the adhesive while holding the needle in place. While such is to some degree satisfactory, it has been found desirable to provide better methods and arrangements for needle insertion and attachment to the body.

One such prior arrangement is shown in U.S. Pat. No. 3,064,648, which includes a needle with a semi-flexible plastic wing section permanently connected to the needle and having weakened portions which enable the plastic wing sections to be elastically folded to form a manual handle. This device readily enables the manual insertion of the needle. The subsequent securing of the needle to the patient's body is accomplished by the employment of a strip of adhesive tape which appears to be placed directly over the down-folded wings to cover the wings and adhere to a portion of the body adjacent the wings. This device does have the advantage of providing a handle for the hand of the operator, but has a number of distinct disadvantages, including the requirement for the additional securing tape to be added thereto to secure the needle assembly to the patient's body. In addition, this needle assembly provides no self-contained portion for covering the puncture site, and this leaves it to the operator to decide whether to cover this site, although such in fact is desirable as an aid to prevention of contamination. The device also tends to prevent skin breathing in the zone over which the down-folded wings lie, as the wings are formed of solid or continuous plastic material. There are also distinct pressure points or zones at the edge junction of the wings with the secure surface, and this edge junction also forms a bacteria collection point inasmuch as the skin is depressed along this zone by the tape-down of the plastic wings to the patient's skin. The device also requires the removal or release of the adhesive tape securing strip and the removal of the entire attachable needle assembly, including the needle and plastic wings, in order to remove the needle from the patient.

It is an object and feature of the present invention to provide an attachable needle assembly which enables an operator to manually manipulate, insert and secure the needle in place without touching the needle, and which incorporates a multi-use bandage which serves both as a manually manipulable handle for needle insertion and as a needle securing bandage and site-covering bandage after insertion of the needle.

It is still a further object and feature of the invention to provide a manually manipulable needle and bandage assembly which enables the ready manual insertion of the needle, the self-contained securing of the needle to the body and the covering of the puncture site by the bandage which initially enables manual manipulation and insertion of the needle.

It is a further object and feature of the invention to provide a manually manipulable wing-forming self-adhering bandage and needle assembly which enables covering of the needle puncture site and subsequent removal of the needle without removal of the bandage from its covering of the needle puncture site, whereby the bandage can be left in place and continue to provide effective cover for the puncture site.

It is an additional object and feature of the invention to provide a needle and bandage assembly, in which the bandage serves as a manual handle in a folded form thereof, and subsequently serves as a self-contained needle securing means in unfolded condition, and in which the bandage has a pressure sensitive adhesive thereon for ease of self-adhering attachment to a patient's body, the bandage being formed of air breathable material for patient comfort and minimization of skin irritation.

Still a further feature of the invention is the provision of a combined needle and bandage arrangement which enables the bandage to be adhered to a body to hold the needle in place after puncture of the body by the needle with the aid of the bandage as a manual handle, and which enables the needle to be easily removed from the puncture site without requiring the bandage to be removed, either simultaneously or prior to the removal of the needle, thereby materially reducing the likelihood of vein damage which might otherwise result from bandage arrangements where removal of the needle requires removal of the adhered bandage.

Still other objects, features and attendant advantages will become apparent to one skilled in the art from a reading of the following detailed description of a preferred embodiment constructed in accordance with the invention, taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view of one physical embodiment constructed in accordance with the invention.

FIG. 2 is a view similar to that of FIG. 1, illustrating the device in an upsidedown position for clarity of illustration of certain parts.

FIG. 3 is a fragmentary longitudinal section view of FIG. 1 with a cover sheath added.

FIG. 4 is a partially exploded view of the unfolded arrangement of FIG. 1.

FIGS. 5 and 9-13 illustrate steps in the insertion and securing of the needle assembly to a patient's arm.

FIGS. 6-8 illustrate optional pre-insertion manipulative steps.

FIGS. 14 and 15 illustrate steps in removal of the needle from the patient's arm while leaving the bandage in place.

FIGS. 16 and 17 are perspective views of a modification of the arrangement of FIG. 1.

FIGS. 18-20 illustrate steps in the securing of the modified arrangement of FIGS. 16 and 17 to a patient's arm.

FIG. 21 is a perspective view of a further embodiment according to the invention.

FIG. 22 is a partially exploded view of further embodiment according to the invention.

Referring now in detail to the figures of the drawing, in the embodiment of FIG. 1, a bandage and needle assembly 11 is provided according to the invention, including a tubular needle 13 having a point 13a which may have a beveled point configuration or otherwise as may be desired, the needle being suitably connected at its rear end to a length of flexible tubing 15 to which is also attached a suitable connector 17 which may be employed for effectively connecting the needle 13 and flexible tubing 15 to a desired user device, such as a syringe, bottle, etc.

Needle 13 may be connected to flexible tubing 15 in any suitable manner, as by frictional retention within the end of the tubing at the junction therebetween, as indicated more particularly in FIG. 3. The exposed portion of the needle 13 may be suitably protected against damage or premature contact, as by a tubular sheath cover C slidably removably fitted thereover as indicated in FIG. 3.

Secured to the needle 13 and flexible tubing 15 is a multi-folded bandage generally indicated at 21, which in its multi-folded form serves as a handle for manual manipulation and insertion of the needle 13 into a patient's body as may be desired. The bandage 21 includes a flexible securing sheet 23 which in its initial multi-folded configuration has four quadrant portions 23a-23d forming a winged handle.

The securing sheet 23 is preferably formed of air breathable sheet material, which also preferably has a pressure sensitive air breathable adhesive coating thereon, such as the pressure sensitively adhering air breathable adhesive tape manufactured by 3M Company and sold under the brand name Micropore.

The four quadrant sections of the bandage securing sheet 23 are indicated at 23a, 23b, 23c and 23d, the pressure sensitive adhesive surface thereof being indicated by the reference character PSA.

In the embodiment and configuration of FIG. 1 the multi-folded bandage 21 is cross-folded, first along a line transverse to the needle 13, and thereupon along a line extending longitudinal of the needle 13, the resulting multi-fold construction providing two major wings which are themselves hinged at their forward ends to form two sub-wings. The folds forming the sub-wings are indicated at 23ab and 23cd, connecting respectively the quadrants 23a and 23b and the quadrants 23c and 23d of the securing sheet 23.

Removably adhered to the adhesive face of each of the quadrant sections 23a, 23b, 23c and 23d of the bandage securing sheet 23 are protective release sheets 25a, 25b, 25c and 25d respectively. These protective release sheets may take any suitable form, but are preferably formed of material which is relatively rigid as compared to the highly flexible securing sheet 23. This difference in flexibility enables the securing sheet 23 to readily conform to the varying external configuration of the body portion of the person, without causing discomfort, whereas the more rigid protective release sheet construction 25a-25d enables the multi-folded bandage 21 to be employed as a relatively rigid handle for manipulation of the needle 13 prior to and during insertion into the body of the patient. In addition, in certain of the embodiments the more rigid construction of the protective release sheets aids in the removal thereof from the securing sheet 23 while simulta-

neously adhering the securing sheet to the body of the patient.

To this end, the protective release sheets 25a-25d may be suitably formed of stiff paper preferably having a surface which will enable light securing thereof to the pressure sensitive adhesive surface PSA, but which will enable ease of release therefrom as by peeling action. For example, the paper may be suitably coated with a polyethylene, wax, or other suitable surface coating which will enable ease of removal. Obviously, however, various protective release sheet materials, other than these particular materials, may be employed within the general ambit of the invention.

The protective release sheets 25a-25d may be provided with manual gripping flaps 25a'-25d', respectively, if so desired, in order to aid in direct manual removal of the releasable protective cover sheets from the securing sheet 23.

Needle 13 extends outwardly from the cross-folded bandage 21 through a hole 23h formed at the corner of the bandage securing sheet 23 formed by the intersecting cross-folds 23ab, 23cd, 23bc, and 23ad. The point 13a of the needle 13 extends out a substantial distance beyond the hole 23h, and the needle 13 and flexible connecting tube 15 are removably secured to the bandage 21 through the medium of a removable pressure sensitive tape 31, which is likewise preferably formed of air breathable tape, such as Micropore tape. Removable securing tape 31 is placed over the tube 15 and is in adhesive engagement with the upper surface of the securing sheet 23 on both lateral sides of the tube 15, this upper surface being the non-adhesive face of the sheet 23 opposite the adhesive securing surface PSA. The hole 23h, preferably only a small slit, may be pre-formed, or may be formed by direct insertion of the needle 13 therethrough, with or without the protective needle cover sheath C thereon, as may be desired.

In operation the operator will grasp the handle formed by the cross-folded bandage 21, as indicated in FIG. 5, and will manipulate the needle 13 to effect insertion of the needle into the body of the patient, which in this illustration is an arm as indicated at A. The needle will normally be inserted at a shallow angle through a puncture hole, indicated at P, formed by pressing the point 13a against the skin surface of the body portion involved.

It is normally desirable that the needle be oriented to dispose the bevel forming the point 13a in a direction away from the skin surface, thereby presenting the sharp point directly adjacent the skin surface. The present invention enables the operator to effect this orientation of the needle 13 easily, without requiring manual contact with the needle. This orientation manipulation of the needle is illustrated in FIGS. 6-8, in which it will be noted that the needle may be rotated clockwise or counterclockwise by manually sliding the two major wing sections of the bandage 21 in opposite directions respectively toward and away from the needle 13 axis, the clockwise rotation being illustrated in FIG. 7 and the counter-clockwise rotation being illustrated in FIG. 8. Thus, the desired rotational orientation of the needle may be obtained for a given geometrical insertion requirement.

Upon insertion of the needle 13 into the desired section of the patient's body, as for instance into a vein, the needle may be anchored in place through the succeeding bandage unfolding and securing steps shown in

FIGS. 9-12 to adhere the bandage securing sheet 23 to the skin surface surrounding and overlying the wound puncture site P. As shown in FIG. 9, after insertion of the needle 13 into the patient's body to a desired extent, the protective release sheets are sequentially removed, as by grasping each with the fingers of one hand and peeling such from the pressure sensitive adhesive surface of its respective quadrant fold, the first removal of such release sheet being effected while holding down the opposite major wing section of the bandage with the fingers of the other hand H1. Thus, the protective release sheet 23a is peeled off with one hand H2 while holding the needle and bandage securely in place, with the other hand H1 and thereupon quadrant 23a is smoothed into self-adhering contact with the skin of the arm as by smoothing with the fingers of the hand H2 in contact with the remaining protective release sheet 25b on the overlying quadrant section 23b.

Thereupon, the operator may grasp the protective release sheet 25d and peel such back from the quadrant segment 23d of the securing sheet, and smooth this quadrant 23d into self-adhering contact with the skin on the opposite side of the needle 13 and tube 15, as illustrated in FIG. 10. The remaining two quadrant segments 23b and 23c of the securing sheet may now be secured to the skin surface, by removal of the protective release sheets 25b, 25c as indicated in FIG. 11, and thereupon incrementally rolling the two quadrant segments 23b and 23c simultaneously forwardly into contact with the skin on both sides of the needle puncture zone and the zone of disposition of needle beneath the skin, as indicated in FIG. 12. It will be noted that the puncture site P is thereby covered by the bandage cover sheet 23, as illustrated in FIG. 13, and that the needle 13 and tube 15 are secured in place, the needle being retained at a relatively shallow angle, and the connecting tube 15 being substantially parallel with respect to the skin surface of the arm A in the zone of securement. In this respect, it will be noted that the tube 15 is retained in place in this condition by the removable tape 31, and as this tape 31 is overlying a part of the securing sheet 23a it is preferable that the tape 31 be likewise formed of pressure sensitive material which is air breathable, and which may be similar to that material forming the adhesive cover sheet 23.

Upon anchoring of the needle and bandage assembly 13, 15, 23, the operator may thereupon connect the needle 13 and tubing 15 to a user device, such as a syringe S, by mating connection with the connector 17. Insertion or withdrawal of fluid or other materials may be thereupon accomplished over such period of time as may be desired.

After accomplishment of the desired operation with the needle 13 in place, the needle assembly may be removed in its entirety without necessitating removal of the bandage cover sheet 23. It is only necessary for the operator to pull the pressure sensitive tape 31 from its anchoring contact with the outer surface of the cover sheet 23, as shown in FIG. 14, thereby releasing the needle 13 and tube 15 from its anchored relation with the cover sheet 23. The needle may thereupon be withdrawn as indicated in FIG. 15, by grasping the tube 15 at the zone of connection thereof with the needle 13 and pulling on the needle along its longitudinal axis, thereupon removing the needle from the puncture site P and through the hole 23h. The operator may thereupon smooth down the needle-outline ripple remaining

in the bandage surface between the zone of the puncture P and the hole 23h, thus adhesively securing the cover sheet 23 around the total periphery of the puncture P and providing continuing bandaged protection for the puncture wound, for such time as may be desirable. At any time as may be desired, the bandage cover sheet 23 may be removed by peeling such from the skin surface.

A modified arrangement 111, without pickup flaps 25a' - 25d', is shown in FIGS. 16 and 17, which provides less bulkiness to the bandage handle in the cross-folded initial form and which enables simpler manufacture of the bandage portion of the unit, thus providing some advantages over the first embodiment, although the advantages of pickup flaps 25a' - 25d' are to some extent sacrificed and must be compensated for during application. In this embodiment, the cover sheet 23, needle 13, tube 15, connector 17 and removable securing strip 31 may be identical to the counterparts illustrated and described in the foregoing embodiment of FIG. 1. The protective release sheets 125a-125d are, however, modified so as not to include a folded flap thereon as indicated at 25a' - 25d' in the first embodiment. This elimination of these flaps provides substantially less bulkiness in the fold zone along the enfolded longitudinal extent of the needle and tube, to some extent renders the accomplishment of the needle orientation manipulation of FIGS. 6-8 easier, renders manufacture of the bandage 121 easier, as the extra fold flaps need not be formed and permits the protective release sheets 125a-125d to be of thicker and/or more stiff material.

In this embodiment, after insertion of the needle 13 into the patient's body, one of the two major dual quadrant wing sections of the handle formed by the bandage 121 is unfolded down against the skin and held in place by one hand, while the other hand is used to incrementally roll the opposite major dual quadrant wing of the bandage away from the line of the needle and tube. In this respect, it is to be remembered that the protective release sheets 125a-125d are formed of readily releasable material, such as polyethylene coated or other suitably coated paper or other material which enables ease of release from the pressure sensitive adhesive surface, and in addition the protective release sheets 125a-125d are relatively stiff as compared to the highly flexible adhesive securing sheet 123. In view of this differential stiffness of the bandage securing sheet 123 and the protective release sheets 125a-125d, flexing of the bandage near the edge of the release sheet will tend to separate the protective release sheet from the securing sheet adhesive surface. Accordingly, by initially flexing the free end of the combined dual quadrant wing made up of securing sheet quadrants 123a, 123b and protective release sheets 125a, 125b, laterally toward the opposite held-down wing section, the protective release sheet 125a will be separated from the adhesive surface of the cover sheet quadrant 123a in the zone adjacent the tube and needle. Thereupon the operator may incrementally roll-bend the wing section laterally away from the needle and tube, to incrementally remove the protective release sheet 125a from the respective quadrant 123a pressure sensitive adhesive surface. The protective release sheet 125a is thereby effectively removed while at the same time the operator is smoothing the cover sheet quadrant 123a into adhesive contact with the skin. Next, the opposite secur-

ing sheet quadrant 123d is adhered to the skin in the same manner, while incrementally removing the protective release sheet 125d during the smoothing and adhering action of the securing sheet quadrant 123d to the skin surface, as shown in FIG. 19. Thereupon, as shown in FIG. 20, the protective release sheets 125b and 125c are removed while incrementally rolling and smoothing of the respective quadrants 123b and 123c into adhesive contact with the skin, around, over and beyond the puncture site P. It will in this respect be appreciated that inasmuch as these two quadrant-covering protective release sheets 125b and 125c are simultaneously removed in the step of FIG. 20, such may be formed as a single sheet, instead of as two sheets as shown. After completion of removal of the protective release sheets 125b, 125c, and adhering of the corresponding bandage cover sheet quadrants 123b, 123c to the skin surface, the needle and bandage assembly is in the secured condition as previously shown at FIG. 13.

A further modification is illustrated in FIG. 21, in which the initial folded condition of the first embodiment is modified. In this modified folded arrangement, the two major wing sections of the bandage 221 forming the handle for the needle and bandage assembly are folded about an axis which is transverse to the length of the needle, whereas in the first and second embodiments the fold axis of the two major wings of the bandage handle extends longitudinally with the needle. Thus, in this embodiment the quadrants are first folded about a fold line extending longitudinal of the needle, and are thereupon folded about a fold line normal to the needle, to assume the configuration shown in FIG. 21. While this embodiment is satisfactory from the standpoint of enabling the bandage 221 to serve as a handle for insertion of the needle into the patient's body, it will be appreciated that this embodiment is materially less advantageous than the prior embodiment in rendering it substantially more difficult to rotate the needle about its longitudinal axis by manipulation of the folded bandage wings. After insertion of the needle of this embodiment, the quadrants are secured to the skin of the patient by first unfolding the wing sections 23b, 23c in a counter-clockwise direction as shown in FIG. 21 to bring such into substantial parallelism with the needle and the other two quadrants 23a, 23d. Thereupon, the quadrants may be sequentially secured to the skin in paired relation 23c, 23d and 23a, 23b.

FIG. 22 illustrates a further modification which may be employed in some instances, although such is materially less preferred and less advantageous than the other described embodiments. In this embodiment, the needle 13 and tube 15 are secured to the bandage cover sheet 323 by a securing strip 331 adhered to the pressure sensitive surface PSA of the cover sheet 323. Thus, the needle does not pass through a hole in the cover sheet 323, as in the preceeding embodiments of FIGS. 1 and 16. This gives the advantage of providing a continuous bandage over the entire needle and adjoining tube section. However, this arrangement is materially less advantageous than the previously described arrangements of FIGS. 1 and 16, which incorporate a tiny needle-entrant hole in the adhesively secured cover sheet, with a removable securing strip on the upper surface thereof, for with the present embodiment of FIG. 22 the placement of the securing strip 331 on the lower adhesive surfaced face of the cover sheet 323

effectively prevents removal of the needle and tube from the puncture site without substantially simultaneous removal of the adhesively secured cover sheet 323. This is a material disadvantage common to the prior art, and will in most instances render the embodiment of FIG. 22 undesirable, particularly in view of the difficulty in preventing vein damage in removal of the needle of this embodiment.

While the invention has been illustrated and described with respect to several illustrative embodiments, it will be appreciated that various modifications and improvements may be made by those skilled in the art without departing from the scope and spirit of the invention. For instance, the invention may be employed as an adjunct to the application and/or sensing of electrical signals to or from a patient's body, in which instance the needle may be a pointed metal electrode needle, and the flexible tube 15 may be or contain a flexible connecting wire which is capable of conducting electrical signals to or from the needle, and which may be connected to a suitable electrical signal supply and/or sensing apparatus. Also, while the folded bandage is shown and preferred to be cross-folded, and has four relatively equal folds, such is not restricted to cross-folding, four folds, or to equality of the folded segments of the securing sheet. Also, the protective release sheets may take various shapes forms and constructions. In addition, the general method of bandage application for the embodiment of FIG. 16 may also be used with other embodiments, such as with the embodiments of FIGS. 1, 21 and 22 if so desired. Further, while definitely less advantageous and not preferred, the cross-folded bandage and needle arrangement may be employed without self-adhesive thereon, using extra adhesive tape or tapes for securing in place while still providing the material advantage of an initial folded winged handle and the self-coverage of the puncture site after needle insertion and wing unfolding of the bandage. Accordingly, the invention is not to be limited by the particular illustrative embodiments, but only by the scope of the appended claims.

What is claimed is: That which

1. An attachable needle assembly for removable attachment to a body member of a human or animal, comprising

a needle having a pointed end for insertion into a body member,

a flexible bandage including a multipurpose flexible securing sheet having a pressure-sensitive adhesive securing surface adapted to adhere to the skin surface of a needle-penetrable body,

said bandage, including its said securing sheet, being cross-folded to form a folded winged handle for said needle, with four fold-interconnected sections, and means securing said needle to said flexible bandage-securing sheet along a fold of said sheet, said needle extending beyond said winged handle,

said securing sheet fold-interconnected sections each having an adhesive securing surface with removable protective backing thereon, the adhesive securing surface backing of two of said sections facing outwardly away from one another, and the adhesive securing surface backing of two other of said sections facing inwardly toward one another in the cross-folded condition, and being internal sections of said winged handle,

said two sections of said winged handle facing outwardly away from one another being external sections, and their respective removable protective backing forming manual engagement and gripping surfaces.

2. An attachable needle assembly according to claim 1,

said winged handle comprising two wings folded about two lines transverse to one another, one of said lines extending substantially longitudinally of the lengthwise extent of said hollow needle and the other of said lines extending substantially transversely of the length of said needle.

3. An attachable needle assembly according to claim 2,

said fold lines intersecting substantially in the zone of a portion of said needle.

4. An attachable needle assembly according to claim 3,

said fold lines including two adjacent folded layers of said bandage having similar extending fold lines extending longitudinally of said needle and having a fold line transverse to both of said similarly extending fold lines and having a reverse bend in a zone of intersection with said similarly extending lines.

5. An attachable needle assembly according to claim 2,

said removable protective backing comprising a removable protective cover sheet over the pressure-sensitive adhesive securing surfaces of said wings surfaces to enable grasping and handling of said wings as handles for insertion of said needle, and to prevent bandage section inter-surface self-adherence between interfacing section surfaces.

6. An attachable needle assembly according to claim 5,

said removable protective cover sheets being more stiff than said flexible securing sheet to provide a stiff handle while enabling relative ease of conformity of the securing sheet to a patient's body, and to enable ease of removal of said cover sheets prior to or during adhesive securing of said securing sheet to a body.

7. An attachable needle assembly according to claim 2,

said removable protective backing comprising removable protective cover sheets over the pressure-sensitive adhesive securing surfaces of said wings to enable grasping and handling of said wings as handles for insertion of said needle.

8. An attachable needle assembly according to claim 1,

said needle being connected to a flexible connecting tube at its end opposite said pointed end, said needle being secured to said bandage by an overlay strip encompassing a section of said flexible tube and secured to a surface of said bandage.

9. An attachable needle assembly according to claim 8,

said overlay strip encompassing the zone of connection of said needle with said flexible tube.

10. An attachable needle assembly according to claim 9,

said overlay strip being secured to said flexible securing sheet on its surface opposite to said pressure-sensitive surface.

11. An attachable needle assembly according to claim 10,

said overlay strip being a tape removable from said flexible securing sheet without destruction of said flexible securing sheet.

12. An attachable needle assembly according to claim 8,

said overlay strip being secured to the surface of said flexible securing sheet opposite to said pressure sensitive adhesive securing surface, said needle extending through an opening formed in a central zone of said flexible securing sheet, said central zone opening being formed at a fold corner of said folded bandage.

13. An attachable needle assembly according to claim 1,

said needle extending through an opening formed in a central zone of said bandage in unfolded form and lying at a fold corner of said cross-folded bandage.

14. An attachable needle assembly according to claim 1,

said bandage having transverse quadrant-forming folds forming said folded winged handle, said needle extending from a fold corner of said bandage and extending substantially longitudinal of one of said folds.

15. An attachable needle assembly according to claim 14,

said needle being secured to a face of said bandage.

16. An attachable needle assembly according to claim 15,

said needle being secured to a face of said bandage opposite said pressure-sensitive adhesive securing surface, and said needle extending through an opening formed at said fold corner of said bandage.

17. An attachable needle assembly according to claim 15,

and a cover strip securing said needle to said pressure sensitive adhesive securing surface of said bandages.

18. An attachable needle assembly according to claim 14,

said transverse folds forming two double-fold wings.

19. An attachable needle assembly according to claim 18,

said double-fold wings having a common fold line zone longitudinal of said needle.

20. An attachable needle assembly according to claim 18,

said double fold wings having a common fold line zone transverse to said needle.

21. An attachable needle assembly according to claim 1,

said needle being hollow, a hollow tube secured to said needle at a central zone of the unfolded form of said bandage, and means for securing said tube to a fluid-use device.

22. An attachable needle assembly according to claim 1, said needle forming an electrode for transmission of electrical signals to or from a body into which it may be inserted.

23. A portable and manually manipulable needle and bandage assembly unit for insertion in and adhering connection to a body member as a unit, comprising

a folded flexible securing sheet forming a manually graspable handle in its folded form and having intersecting cross-fold lines formed by a first fold along one line and a second fold along a line transverse to and intersecting said first fold forming at least four fold-interconnected sections,
 a pointed needle secured to said sheet and extending through an opening formed in a central zone of said sheet at the intersection of said fold lines and beyond its folded periphery,
 said securing sheet having an adhesive surface on one face thereof and a removable protective backing thereon,
 said needle being removably secured to said foldable flexible securing sheet on the face thereof opposite said adhesive surfaced face.

24. A needle and bandage assembly according to claim 23,
 said removable protective backing comprising plural protective cover backing sheets removably adhered to said adhesive surfaced face of said flexible securing sheet,
 said protective cover backing sheets extending to and along and adjacent at least one of said fold lines.

25. An assembly according to claim 23,
 said flexible securing sheet being of air-breathing form.

26. An assembly according to claim 23,
 and a removable securing strip removably securing said needle to said flexible securing sheet,
 said flexible securing sheet with its said adhesive surface and said removable securing strip being air breathable to enable breathing of a body surface onto which such securing sheet may be attached.

27. An attachable freely manually manipulable and portable needle assembly unit for removable attachment to a body, comprising
 a needle having a pointed end,
 a multifunction flexible bandage secured to said needle,
 said flexible bandage including a flexible body-surface-conformable cover sheet cross-folded transversely of and in the general direction of the longitudinal extent of said needle to form at least four fold-interconnected sections to enable ease of insertion of said needle into a body, and for unfolded covering of a puncture site formed upon insertion of said needle into a body member, as well as for aid in securing of said needle to said body said needle extending beyond said cross-folded sheet.

28. An attachable needle assembly according to claim 27,
 said bandage having two wings folded about two lines transverse to and intersecting one another, one of said lines extending substantially longitudinally of and adjoining the lengthwise extent of said hollow needle and the other of said lines extending substantially transversely of and intersecting the effective lengthwise extent of said needle.

29. An attachable needle assembly according to

claim 27,
 said bandage including two adjacent fold-interconnecting panels each having fold lines extending longitudinally of said needle, and having a further fold line transverse to both of said longitudinally extending fold lines, said further fold line having a rearward bend in a zone of intersection with said longitudinally extending lines.

30. An attachable needle assembly according to claim 27,
 said flexible bandage cover sheet having a surface with pressure-sensitive adhesive material thereon, and releasable protective sheets covering a major portion of said pressure-sensitive adhesive material and being readily releasably adhesively secured thereto.

31. An attachable needle assembly according to claim 30,
 said flexible bandage cover sheet being formed of air breathable porous material.

32. An attachable needle assembly according to claim 27,
 said needle extending from a corner folded portion of said bandage while said bandage is in the cross-folded form.

33. An attachable needle assembly according to claim 32,
 said corner being the intersecting corner for two cross-folds of said bandage.

34. An attachable needle assembly according to claim 30,
 said releasable protective sheets being relatively stiffer than said bandage cover sheet to provide a combined stiff manual handle and a separated relatively more flexible and conformable said bandage cover sheet.

35. An attachable needle assembly for removable attachment to a body member of a human or animal, comprising
 a needle having a pointed end for insertion into a body member,
 a flexible bandage including a multipurpose flexible securing sheet having a pressure-sensitive adhesive surface adapted to adhere to the skin surface of a needle-penetrable body,
 and means securing said needle to said flexible bandage securing sheet,
 said bandage, including its said securing sheet, being cross-folded in at least four panels to form a folded winged handle for said needle,
 said securing sheet folded panels each having an adhesive securing surface with removable protective backing thereon, the adhesive surface backing of two of said folded panels facing outwardly away from one another, and the adhesive backing surface of two other of said folded panels facing inwardly toward one another in the cross-folded condition,
 said needle adjoining a fold zone of said bandage in the folded condition of said bandage.

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