

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 January 2012 (19.01.2012)

(10) International Publication Number
WO 2012/009370 A2

- (51) International Patent Classification:
A61F 13/02 (2006.01) A61M 39/10 (2006.01)
- (21) International Application Number:
PCT/US2011/043730
- (22) International Filing Date:
12 July 2011 (12.07.2011)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/363,437 12 July 2010 (12.07.2010) US
- (71) Applicant (for all designated States except US): **MARTIN LONG MEDICAL PRODUCTS, LLC** [US/US];
5013 Colleyville Blvd., Colleyville, Texas 76034 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **LONG, T** [US/US];
7448 Los Padres Trails, Fort Worth, Texas 76137 (US).
- (74) Agent: **MANNING, Guy**; 1407 Texas Street, Suite 102,
Fort Worth, Texas 76102 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: PROTECTIVE WOUND SHIELD

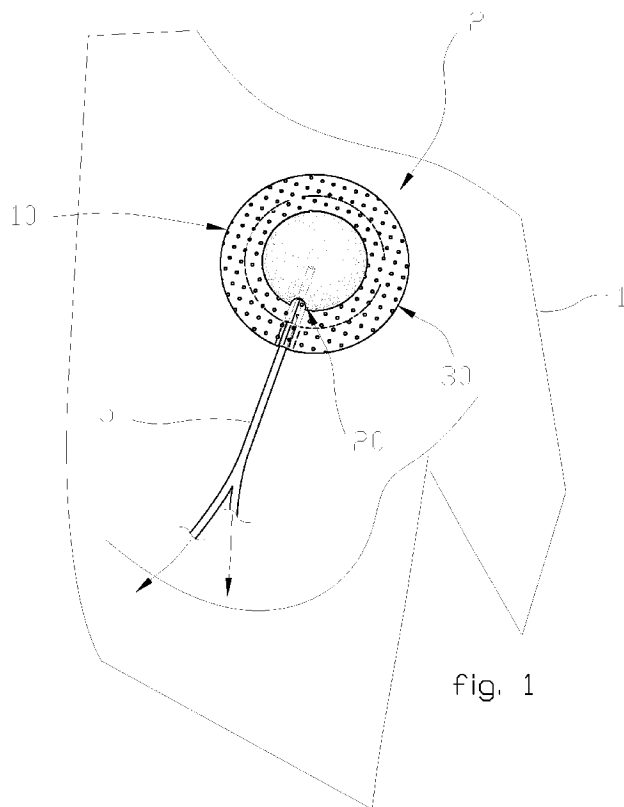


fig. 1

(57) Abstract: A light-weight, semi-rigid wound shield protects wounds and intradermal therapy ports from impacts between therapy sessions. The wound shield comprises a domed cover forming a concave cavity above the wound or therapy port. A flange surrounding the cavity presses against the patient's skin to deflect and distribute the force of impacts. The flange may include a self-adhesive layer on its bottom, or it may be secured with medical tape or a fitted bandage that overlaps the flange and the surrounding skin. A peel-away membrane covers the adhesive layers. A tunnel through the flange may connect to the cavity to accommodate a therapy tube which remains in place while the shield is worn. In an alternate embodiment, a base coextensive with the flange adheres to the patient's skin and the wound shield removably couples to the base by its flange. The assembly comes in a sterile envelope or package.

WO 2012/009370 A2

Published:

- *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

PROTECTIVE WOUND SHIELD

BACKGROUND OF THE INVENTION

1. Field of the Invention:

This invention relates generally to medical wound dressings, and particularly to wound dressings for covering intradermal chemotherapy and other treatment ports adapted for periodic reuse. More particularly, this invention relates to a flanged, rigid or semi-rigid, domed cover adapted to protect such ports or wounds from impact.

2. Description of Related Art:

Chemotherapy and other ongoing treatment patients often have intradermal access ports installed to permit periodic injections of therapeutic treatment fluids. These can be very sensitive, and impacts upon them, even slight, can be very painful. Especially with physically active patients, or with access ports located in certain places on patients' bodies, the likelihood of an impact event is high. A need exists for a sterile protective cover which shields such intradermal treatment ports from most impacts.

Some wounds also can be very sensitive while healing. The typical gauze bandage, while effective for keeping such wounds sanitary and sterile, provides little or no impact resistance. A need exists for a protective cover for shielding wounds from impacts.

SUMMARY OF THE INVENTION

A light-weight, rigid or semi-rigid wound shield protects wounds and intradermal therapy ports from painful and potentially injurious impacts while the patient goes about his daily life between therapy sessions. The wound shield comprises a truncated-dome-shaped cover that forms a concave cavity above the wound or therapy port. A flange surrounding the cavity presses against the patient's skin to deflect and distribute the force of impacts. The flange may include

an adhesive layer on its bottom side that renders the wound shield self-adhesive. Additionally, or alternately, the wound shield may be secured with medical tape or with a fitted, adhesive web disposed atop the flange and overlapping onto the surrounding skin. A peel-away membrane covers the adhesive layers. A tunnel through the flange may connect to the cavity to accommodate a therapy tube which remains in place while the shield is worn. In an alternate embodiment, a base coextensive with the flange adheres to the patient's skin and the wound shield removably couples to the base by its flange. The assembly comes in a sterile envelope or package.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the present invention may be set forth in appended claims. The invention itself, however, as well as a preferred mode of use and further objects and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

Figure 1 shows in perspective view a preferred embodiment of the protective wound shield of the present invention in place on the shoulder of a patient.

Figures 2 - 4 depict in top plan, front and right side elevation views, respectively, of the preferred embodiment of the invention as in Figure 1, including a tube tunnel through the planar flange surrounding the dome.

Figures 5 and 6 show top plan and elevation views, respectively, of a circular, first alternate embodiment of the present invention having no tube tunnel.

Figures 6A - 6C show perspective and front and side elevational views, respectively, of an embodiment of the present invention having a curved flange.

Figures 7 and 8 depict in perspective views an oval-shaped, second alternate

embodiment, and a rectangular-shaped, third alternate embodiment, respectively, of the present invention.

Figures **9A**, **9B** depict in plan and partial cross section views respectively the second alternate embodiment of Figure 7 bearing an adhesive layer surmounting the bottom of, and co-extensive with, the flange, including a peel-away layer for protecting same while in storage.

Figure **10A**, **10B** depict in plan and partial cross section views respectively the preferred embodiment of Figure 1 bearing a self-adhesive bandage surrounding and surmounting the flange.

Figures **9C**, **11** show in bottom perspective view the preferred and second alternate embodiments of the present invention with a peel-away membrane covering and protecting the bottoms of the provided adhesive layers while the invention is in storage.

Figure **9D**, **12** depict in bottom perspective views the preferred and second alternate embodiments of the peel-away layers of Figures 9C, 11 wherein the peel-away layers cover the dome cavities as well.

Figure **13** shows the preferred embodiment of Figure 1, bearing the self-adhesive bandage as shown in Figure 9, enclosed in a sterile envelope packaging.

Figure **14** shows another alternate embodiment of the present invention having a base that adheres to a patient's skin and surmounted by a flanged dome similar to that of Figure 5 coupled to the base by a flexible hinge.

Figure **15** depicts the alternate embodiment of Figure 14 in plan view

Figure **16** details in elevational cross section as indicated in Figure **15** the alternate embodiment of Figure 14, showing the base and adhesive layers of this embodiment.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to Figures 1 - 6, shield 10 of the present invention is shown in Figure 1 in place on site 2, in this case the chest, of user patient 1 and held in place by circular bandage 30. Protruding from beneath bandage 30, tube 5 extends through tunnel 20 to beneath shield 10 where it may connect to a therapy port (not shown).

Shield 10 comprises a dome 11 forming upwardly concave cavity 12 above site 2. Cavity 12 at its apex preferably rises at least one-half ($\frac{1}{2}$ in.) inch above the plane of site 2 and provides space into which may extend any therapy port couplings, bandages or other objects (not shown) associated therewith. Dome 11 thereby provides a protective roof over site 2 adapted to reduce or eliminate contact with site 2 by clothing, stray hands or unexpected impacts which may impinge upon site 2.

Surrounding and extending radially outward from dome 11, flange 13 integrates with dome 11 at its perimeter to provide a widened engagement surface for shield 10 to bear upon the skin of patient 1 in the vicinity surrounding site 2. For most applications, flange 13 preferably measures approximately one-half ($\frac{1}{2}$ in.) inch in width, but one having ordinary skill in the art will recognize that the width of flange 13 may vary for larger and smaller shields 10.

Further, preferably and for most applications, flange 13 is substantially flat, occupying a single plane. One having ordinary skill in the art will recognize, however, that for specific applications, such as on patient 1's leg or another more curved body site 2 (not shown), flange 13 may be curved along any major or minor axis to match more accurately the curvature of said other body site 2. For example, Figures 6A - 6C depict an embodiment of the invention wherein flange 13 is convexly curved along its major axis A while concavely curved along its transverse minor axis B. Such a configuration would work well on a patient's arm (not shown) which may not be flat enough where wound site 2 is located.

In Figures **1 - 6**, shield **10** is depicted as being substantially round, and dome **11** is represented as a sphere truncated by the plane occupied by flange **13**. One having ordinary skill in the art will recognize, however, that shield **10** may comprise any number of other shapes, such as oval **110** or square **210** (see Figures **7 - 9**) without departing from the spirit and scope of the present invention. In such case, flanges **113, 213**, respectively, will match the shape of the perimeter of domes **111, 211** respectively.

Similarly, one having ordinary skill in the art will recognize that shields **10, 110, 210** may be any size necessary to cover site **2** sufficiently to protect the wound or therapy port (neither shown) therein. Preferably, shield **10, 110, 210** for most applications will be approximately five (5 in.) inches in diameter, including flange **13, 113, 213**. Where larger or smaller domes **11, 111, 211** are needed for different applications, flange **13, 113, 213** preferably will remain approximately one-half ($\frac{1}{2}$ in.) inch wide surrounding the perimeter of dome **11, 111, 211**.

NOTE: henceforth herein, all shapes of shields considered to be in conformity with the present invention will be referred to using reference numerals for the preferred embodiment of shield **10**, including all corresponding components thereof bearing other reference numbers. Only where the particular shape of an alternate embodiment such as shields **110, 210** requires it will particular references to those embodiments or components thereof be used. One having ordinary skill in the art will recognize that such discussions apply equally to each of such alternate embodiments absent specific indication to the contrary.

As shown in Figures **1 - 4, and 7 - 10**, tunnel **20** disposed in at least one location around the perimeter of dome **11** provides access for tube **5** through flange **13** into cavity **12**. One having ordinary skill in the art will recognize that, especially in the case of therapy ports (not shown), tubing **5** sometimes must remain in place while patient **1** goes about daily activities between or even during therapy sessions. For example, sometimes chemical therapy fluids periodically are injected into said therapy port throughout the day from a source therefor, such as a portable machine (not shown) carried or worn by patient **1**. In other cases,

tubing **5** may be left in place and strapped to the torso of patient **1** for subsequent therapy treatments from fixed machinery or facilities (neither shown). In all such cases, tubing **5** remains in place, extending from said therapy port beneath cavity **12**, and is secured in place on patient **1**'s torso with medical tape or other means (neither shown) so it won't move and irritate site **2**.

As depicted in Figures **5 - 6**, shield **10** is surrounded by continuous flange **13** which has no tunnel **20** interrupting flange **13**. Shield **10** merely covers site **2** without providing access to cavity **12**. Such a configuration might be used, for example, for covering of simple wounds which, though they may be particularly painful or sensitive, do not require leaving tubing **5** in place. In such cases, cavity **12** serves as described above to ward off undesired contact by clothing or other unwanted impacts. In other applications, however, where tubing **5** must be left in place, an embodiment of shield **10** having tunnel **20** will prove more useful. One having ordinary skill in the art also will recognize, however, that shield **10** as depicted in Figures **5, 6** and lacking tunnel **20** also could be used with tubing **5** by simply running tubing **5** beneath flange **13**. This arrangement, however, would risk collapsing tube **5** under flange **13** and could cause flange **13** to be disengaged from patient **1**'s skin for a spaced distance on either side of tubing **5**, requiring further taping or other sealing measures to assure the sterility integrity of cavity **12**.

Tunnel **20** preferably is formed as a downwardly concave channel open at its bottom side flush with bottom **15** of flange **13**. Tunnel **20** extends radially outward from cavity **12** to the perimeter of flange **13**, thereby forming a gap in flange **13** wide enough for tubing **5** to fit through. Arch **21** formed by tunnel **20** necessarily extends above flange **13** to intersect dome **11** radially inward toward the center of shield **10** to the extent that curvature of dome **11** requires. Arch **21** integrates seamlessly with dome **11** at such intersection point to assure the integrity of cavity **12**.

The shape of arch **21** and tunnel **20** may vary. For example, arch **21** may be a full semicircle having a radius equal to twice the outside diameter of tubing **5**. This permits tubing **5** and the bottom of flange **13** to lie flush against the skin of patient **1** and keeps flange

13 fully engaged with said skin without tubing **5** depressing it appreciably. Such arrangement in some cases may be important for deterring discomfort to patient **1**. One having ordinary skill in the art will recognize, however, that this arrangement leaves a peripheral gap on either side of tubing **5** between it and the widest part of arch **21** and tunnel **20**. Such peripheral gap compromises the integrity of cavity **12**, and if the sterile integrity of cavity **12** is to be maintained, must be sealed with medical tape by a nurse (not shown) or other user such as patient **1**.

Alternately, arch **21** may have a radius substantially equal to the outside diameter of tubing **5**, but be disposed above flange **13** by the same distance, the resulting vertical separation being closed by vertical tunnel walls (not shown) extending downward from arch **21** to intersect flange **13**. This configuration greatly decreases, but does not eliminate, the peripheral gap between tube **5** and tunnel **20**, thus still requiring taping, though perhaps not as much. The benefit of such arrangement is that tubing **5** and flange **13** remain flush with the skin of patient **1**, maximizing closure of cavity **12** even without using medical tape.

As another alternate, tunnel **20** could be integral with or disposed above flange **13** (neither shown) while of appropriate diameter for tubing **5** to be inserted through tunnel **20** from within cavity **12** before flange **13** is engaged with patient **1**'s skin. Still further, tunnel **20** could comprise a short segment of tubing affixed to flange **13** and extending into cavity **12** to couple to therapy port couplings (not shown). Such a tunnel **20** further could have a nozzle (not shown) extending outward beyond the radius of flange **13** to provide a place to which tubing **5** may be coupled. One having ordinary skill in the art will recognize that all such configurations for tunnel **20** are considered to be within the spirit and scope of the present invention.

In any shape, size or tunnel **20** configuration, shield **10** must adhere to site **2** so that it doesn't slip off and therefore fail to provide the protection for which it is intended. This may be accomplished by simply taping shield **10** to site **2** using strips of any of a number of readily available medical tapes adapted to secure bandages to patient **1**'s skin. A plurality of said strips of tape (not shown) would be placed in chordal positions around the perimeter of

flange **13** and overlapping onto the skin of patient **1** in the vicinity of site **2**. The width and type of said tape so employed is not of particular specification, except that it preferably comprises a standard medical tape of appropriate size and adapted to adhere, but be readily removable from without causing injury, to the skin of patient **1**.

Turning now also to Figures **9A - 9D**, an alternative to said medical tape appears. Disposed beneath flange **13** such that it would engage the skin of patient **1** when flange **13** is placed around site **2**, flange adhesive **17** surrounds the perimeter of dome **11** substantially coextensive with flange **13**. Thus equipped, shield **10** may be used alone as a self-adhesive protection for site **2**. Peel-away membrane **18** protects flange adhesive **17** from contamination and retains its adhesive quality until used at site **2**, as discussed in more detail below for the preferred embodiment employing bandage **30**.

Another optional alternative to medical tape depicted in Figures **10A - 12** comprises bandage **30** disposed atop flange **13** and overlapping onto patient **1**'s skin to secure shield **10** in place around site **2**. Preferably, bandage **30** comprises a flexible web **31** of a suitable plastic or fabric material shaped to the size and shape of flange **13**. Where flange **13** is round, bandage **30** has an inside diameter substantially equal to the inner diameter of flange **13** such that bandage **30** lies juxtaposed to dome **11** around its entire perimeter but leaving dome **11** uncovered. The outside perimeter of bandage **30** extends beyond the outside perimeter of flange **13** by at least the width of flange **13**, thus overlapping onto the skin of patient **1** by that amount. Bandage adhesive **35** coats the entire bottom surface **34** of web **31** such that, where it is disposed atop flange **13**, it adheres thereto to hold bandage **30** securely onto shield **10**. The portion of bandage **30** extending beyond flange **13** engages patient **1**'s skin with bandage adhesive **35** to secure the whole device in place above site **2**.

Peel-away protective layer **37** disposed on the under side of bandage **30** keeps adhesive layers **17, 35** unexposed until such time as bandage **30** is needed. Protective layer **37** could take several forms. Where shield **10** is provided with no adhesive means **17**, or where only flange adhesive **17** is provided thereon, bandage **30** could be provided separately as an optional alternative to medical tape. In such case, protective layer **37** preferably would

be coextensive with and would line the bottom of bandage **30**. Alternately, where shield **10** is provided with bandage **30** already installed (as in Figures **1, 7, 10**; see also Figure **13** discussed in more detail below), flange adhesive **17** may or may not be employed at all. Where flange adhesive **17** is present, peel-away protective layer **37** may extend only over the portion of web **31** outside the perimeter of flange **13**, with flange adhesive protective layer **18** covering flange adhesive **17**. Preferably in such case, however, protective layer **37** extends across both bandage adhesive **35** and flange adhesive **18** in a continuous lamination, as depicted in Figures **11** and **12**, that easily may be removed with one motion. As shown in Figure **11**, such peel-away layer **37** is coextensive with bandage **30** and flange **30**, but does not cover cavity **12**. Alternatively, peel-away layer **37** could cover cavity **12**, as shown in Figure **12**, thereby further assuring the sterile integrity of cavity **12** while shield **10** is being stored. One having ordinary skill in the art will recognize that all such configurations are considered to be within the spirit and scope of the present invention.

Turning now also to Figure **13**, packaging for shield **10** preferably comprises a sterile envelope adapted to contain a single shield **10**. Package **50** comprises two, preferably coextensive, laminations **51, 53** of a suitable web material adapted to be sealed together around their mutual perimeters to enclose entirely one shield **10**. Preferably, at least one of said laminations **51, 53** comprises a transparent material through which shield **10** is visible. Package **50** may include resealing means **55** which permits opening and closing package **50**, but preferably, package **50** provides a sterile storage environment for shield **10** which is opened only upon usage. One having ordinary skill in the art will recognize that all reasonable packaging arrangements, including bulk, unsterile packaging (not shown) is considered to be within the spirit and scope of the present invention.

Turning now to Figures **14 - 16**, another optional feature of the present invention includes hinged protective cover **60** comprising base **63** adapted to adhere to patient **1**'s skin with adhesive layer **17**, as discussed above for the preferred and alternate embodiments **10, 110, 210**. Coupled to base **63** by hinge **61**, flange **13** surrounding dome **11** is substantially coextensive with base **63** and is adapted to mate therewith and cover wound site **2**, as described above. Second adhesive later **65** affixes the bottom of flange **13** to the top of base

63 to keep dome **11** in place while patient **1** goes about his daily life. Cover **60** provides means whereby site **2** may be repeatedly accessed without the need to completely remove the present invention and replace it each time. By lifting flange **13** away from base **63** at its edge opposite hinge **61**, a user causes second adhesive layer **65** to disengage from base **63** and permit dome **11** and flange **13** to swing out of the way (as in Figure **14**). A tab (not shown) might be provided on flange **13** opposite hinge **61** to aid in separating flange **13** from base **63**. Once the purpose for which access to site **1** is accomplished, simply pressing flange **13** against base **63** again causes second adhesive later **65** again to adhere and retain dome **11** over and protecting site **1**.

Cover **60** has been discussed above as having hinge **61** and second adhesive layer **65** for accomplishing the desired result of making site **2** repeatedly accessible without having to reinstall cover **60** each time. One having ordinary skill in the art will recognize that other means could be employed to make dome **11** temporarily removable, such as replacing second adhesive layer **65** with a hook-and-loop layer (commonly known as Velcro), with or without eliminating hinge **61**, without departing from the spirit and scope of this embodiment of the present invention, and that all such temporary adherence means are considered to be within the spirit and scope of the present invention.

Shield **10** preferably is fabricated from a rigid or semi-rigid thermoplastic material readily moldable through conventional injection molding processes into the desired shapes described above. More preferably, shield **10** is fabricated from a medical grade polyester which itself is capable of being sterilized and does not emit or sluff off its own contaminants which might derogate from the integrity of cavity **12**. Such material preferably is approximately forty-three thousandths (0.043") inches in thickness. Still more preferably, shield **10** is transparent or translucent to provide visible feedback while positioning shield **10** over site **2**, as described below. A suitable polyester for shield **10** comprises model Prime PETG 6763, or PETG 14471, both available from Primex Plastics Corporation of Richmond, Indiana, USA. Adhesives **17**, **35** preferably are made from hypoallergenic medical adhesives designed for sustained contact with human skin, commonly used on bandages and medical tape. Likewise, bandage **30** may be made of a flexible polyethylene plastic or woven fabric

commonly employed to fabricate such self-adhesive bandages. A suitable product for bandage **30**, including adhesive **35**, is available as Product No. DM-6001 from DermaMed Coatings Company, LLC, of Tallmadge, Ohio, USA. A suitable primary adhesive **17** for flange **13** and base **63** is available as Product No. 9943 from 3M Medical Specialties Company of St. Paul, Minnesota, USA. A suitable secondary adhesive **63** for interface between flange **13** and the top of base **63** is available as Product No. 9833 from 3M Medical Specialties Company of St. Paul, Minnesota, USA. Peel-away layers **37**, **18** also preferably are fabricated from flexible, polyethylene plastic and fabricated in two parts to overlap one part over the other to provide convenient means for a user to remove them when needed.

In operation, shield **10** of suitable size and shape for application to site **2** is selected and removed from package **50**. Peel away layer **37** is removed and cavity **12** inverted above site **2** so that all portions of flange **13** are disposed substantially equidistant from the wound or therapy port at site **2**. Where tubing **5** must be left in place, it is taped into position extending from site **2**. Then, a suitable shield **20** having tunnel **20** through flange **13** is selected and tunnel **20** is oriented to straddle tubing **5**. Shield **10** then is secured in place by pressing it onto patient **1**'s skin until adhesive **35** bonds sufficiently therewith to hold shield **10** in place. If desired, the user may supplement bandage **30** and flange adhesive **17** with strips of medical tape to assure that shield **10** remains in place even under physical impacts from sports activities.

Thus, shield **10** as described herein in its preferred and alternate embodiments provides a light-weight, rigid or semi-rigid cover for wounds and therapy ports for patient **1** to employ while going about his daily life. Shield **10** prevents or dramatically softens impacts on or around site **2** and gives patient **1** a less stressful and less painful experience while undergoing therapy for which the patient needs the therapy port, or simply while a significant wound is healing.

While the invention has been particularly shown and described with reference to preferred and alternate embodiments, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and

scope of the invention. For example, though shield **10** is described above as being transparent, it could be preferable in some cases that it be opaque to conceal the therapy port and/or wound. Also, bandage **30** has been described herein as surrounding dome **11** without covering it. However, bandage **30** could instead cover dome **11** partially or entirely (neither shown) so that shield **10** better resembles a conventional, self-adhesive bandage having perhaps a more conventional and desirable aesthetic appearance and at least partly concealing shield **10** and the therapy port or wound beneath it. Still further, bandage **30** has been described herein as continuous around the perimeter of dome **11**, but instead it could comprise strips of bandage material (not shown) adapted to be placed across flange **13** in selected locations around dome **11** without entirely covering flange **13**.

Dome **11** also has been discussed herein as continuous and serving among other things to seal off wound site **2** from environmental contaminants. Dome **11** could, however, include one or more breathing holes to allow evaporation of perspiration and to allow fresh air to reach wound site **2**.

I claim:

1. A protective wound shield for covering a wound site on a patient's skin, said shield having a longitudinal major shield axis and a transverse minor shield axis and comprising
a flange having a flange bottom surface and an opposite flange top surface, said flange further having a flange outer perimeter surrounding a flange inner margin adapted to surround said wound site;
a concave dome having a dome margin coupled to said flange inner margin and spanning said wound site to define an interior shield cavity; and
adhesive means for adhering said wound shield to said patient's skin.
2. The protective wound shield of Claim 1 wherein said adhesive means comprises an adhesive layer disposed on at least a portion of said flange bottom surface.
3. The protective wound shield of Claim 1 wherein said adhesive means comprises a bandage adapted to at least partially surround said dome margin and to overlap said flange and said patient's skin, said bandage having a bandage lower surface bearing an adhesive layer adapted to adhere to both of said flange top surface and said patient's skin surrounding said flange outer perimeter.
4. The protective wound shield of Claim 1 and further comprising
at least one tunnel means communicating between said inner shield cavity and said flange outer perimeter, said tunnel means adapted to admit medical tubing into said shield cavity said wound shield is in place over said wound site.

5. The protective wound shield of Claim 4 wherein said tunnel means comprises a portion of said flange deviating upward from said flange top surface to form an aperture extending inward beneath said flange and into said shield cavity, said aperture sized and adapted to receive snugly and to surround at least a portion of said medical tubing.

6. The protective wound shield of Claim 4 wherein said tunnel means is disposed coaxial with one of said major or minor shield axes.

7. The protective wound shield of Claim 1 wherein said flange is convexly curved along at least one of said major and minor shield axes.

8. The protective wound shield of Claim 1 wherein said flange is concavely curved along at least one of said major and minor shield axes.

9. The protective wound shield of Claim 1 wherein said flange is convexly curved along one of said major and minor shield axes and concavely curved along another one of said major and minor shield axes.

10. The protective wound shield of Claim 1 and further comprising
a base congruent with said flange and disposed between said flange and said patient's skin, said base having a base upper surface, a base lower surface and a base outer perimeter surrounding a base inner margin;
adhesive means for adhering said base to said patient's skin; and
closure means for closing said shield cavity by affixing said flange to said base.

11. The protective wound shield of Claim 10 and further comprising
a hinge coupled between said base and said flange.

12. The protective wound shield of Claim 10 wherein said closure means comprises
an adhesive lamination disposed on at least a portion of said flange bottom surface and adapted to removably adhere to a corresponding portion of said base upper surface.

13. The protective wound shield of Claim 10 wherein said adhesive means comprises
a bandage adapted to at least partially surround said base inner margin and to overlap said base and said patient's skin, said bandage having a bandage lower surface bearing an adhesive layer adapted to adhere to both of said base upper surface and said patient's skin surrounding said base outer perimeter.

14. A protective shield for an intradermal access port site on a patient's skin, said shield having a longitudinal major shield axis and a transverse minor shield axis and comprising
- a flange having a flange bottom surface and an opposite flange top surface, said flange further having a flange outer perimeter surrounding a flange inner margin adapted to surround said access port site;
 - a concave dome coupled to said flange inner margin and spanning said access port site to defining an interior shield cavity;
 - at least one tunnel communicating between said inner shield cavity and said flange outer perimeter, said tunnel adapted to receive medical tubing extending into said shield cavity to said access port site
 - an annular base disposed between said flange and said patient's skin, said base having a base upper surface, a base lower surface and a base outer perimeter surrounding a base inner margin;
 - adhesive means for adhering said base to said patient's skin;
 - a hinge coupled between said base and said flange; and
 - closure means for closing said shield cavity by affixing said flange to said base.
15. The protective shield of Claim 14 wherein said closure means comprises
- an adhesive layer disposed on at least a portion of said flange bottom surface and adapted to removably adhere to a corresponding portion of said base upper surface.

16. The protective shield of Claim 14 wherein said adhesive means comprises a bandage adapted to overlap said base and said patient's skin, said bandage having a lower surface bearing an adhesive layer adapted to affix said bandage to both of said base upper surface and said patient's skin surrounding said base outer perimeter.

17. The protective shield of Claim 14 wherein said flange and said base are curved congruently with each other and along at least one of said major and minor shield axes.

18. An improved method of protecting an intradermal access port site on a patient's skin, the intradermal access port adapted periodically to provide access through said patient's skin for therapy injections administered through medical tubing coupled to said access port site, the improved method comprising

providing a substantially rigid shield adapted to cover said access port site, said shield having

an annular flange sized to surround said access port site, said annular flange having a flange lower surface and a flange upper surface and a flange inner margin and a flange outer margin;

a concave dome coupled to said flange inner margin and spanning said access port site to define an interior shield cavity;

adhesive means for adhering said rigid shield to said patient's skin; then

placing said rigid shield atop said patient's skin with said annular flange surrounding said access port site; then

employing said adhesive means to affix said rigid shield to said patient's skin.

19. The improved method of claim 18 wherein

said rigid shield further comprises

at least one radially disposed tunnel communicating between said interior shield cavity and said flange outer margin, said tunnel adapted to receive said medical tubing extending into said shield cavity from outside said flange outer margin while said shield is in place over said access port site;

and wherein

said improved method includes the additional steps of

coupling said medical tubing to said intradermal access port site; and

extending said medical tubing through said radially disposed tunnel

20. The improved method of Claim 18 wherein
said rigid shield further comprises

an annular base substantially congruent with said annular flange and having a base top surface and a base bottom surface, said annular base adapted to be disposed between said annular flange and said patient's skin;

a hinge coupled between said annular base and said annular flange; and

an adhesive layer disposed between said base top surface base and said flange lower surface, said adhesive layer adapted to removably affix said annular flange to said annular base;

and wherein

said improved method includes the additional steps following the employing step of repeatedly

urging said annular flange upward from said base top surface until said adhesive layer releases said annular flange to provide temporary access to said interior shield cavity; then

urging said annular flange back atop said annular base to cause said adhesive layer again to removably affix said annular flange to said annular base, thereby resealing said interior shield cavity.

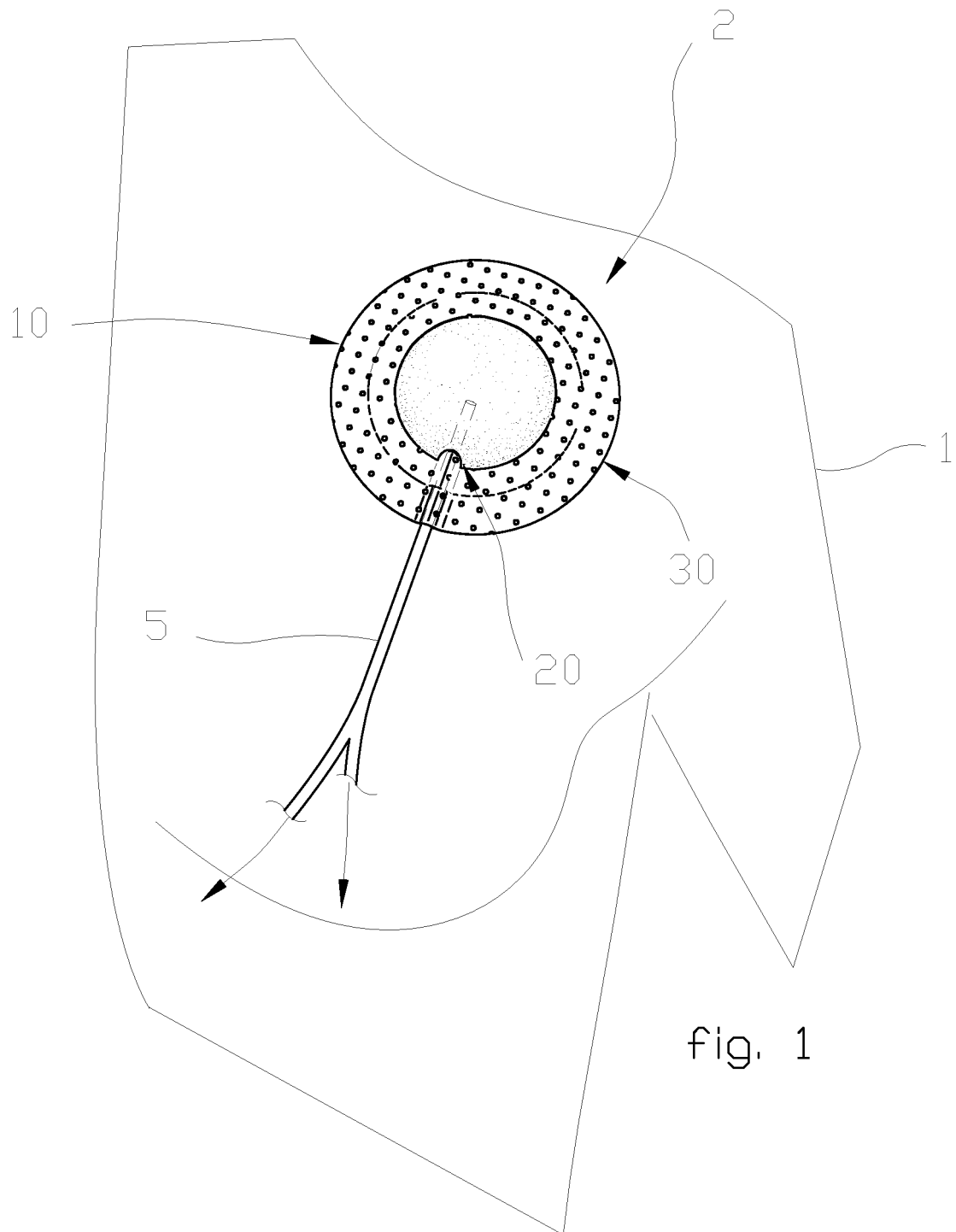


fig. 1

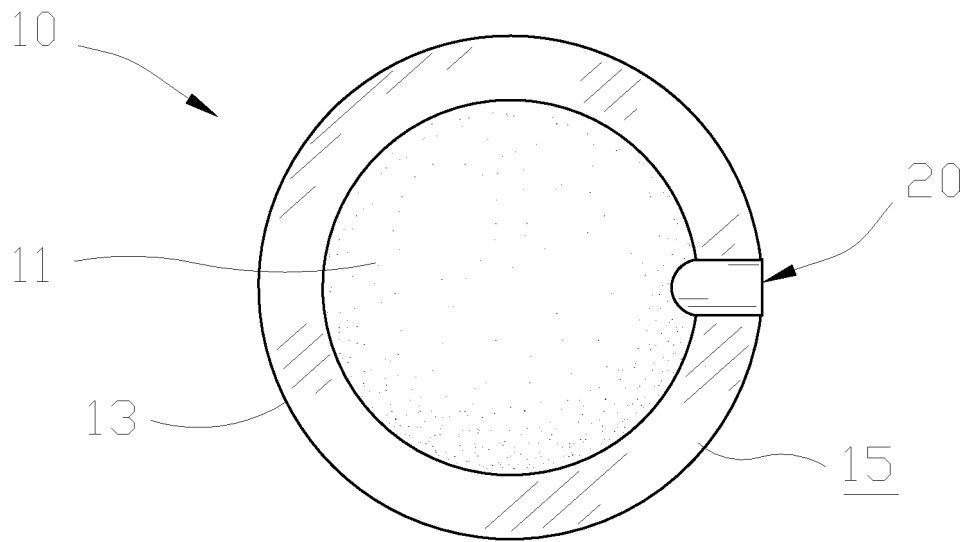


fig. 2

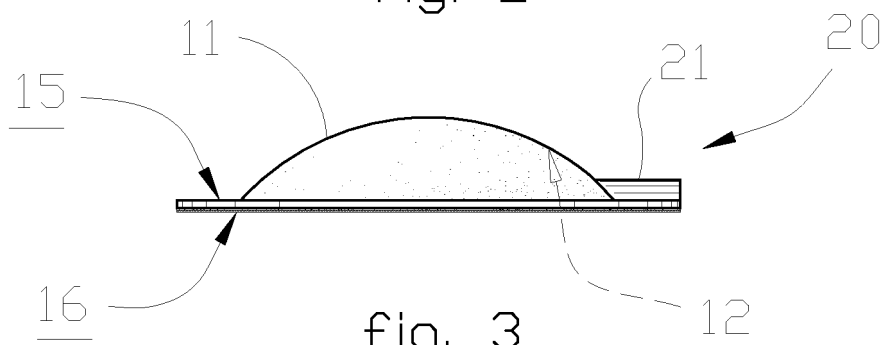


fig. 3

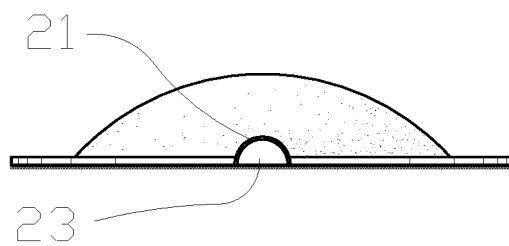


fig. 4

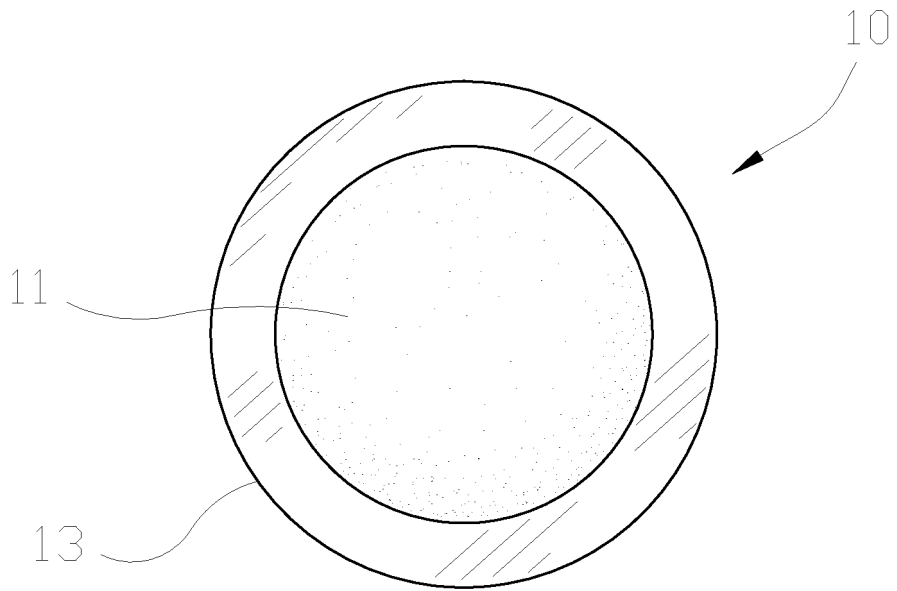


fig. 5

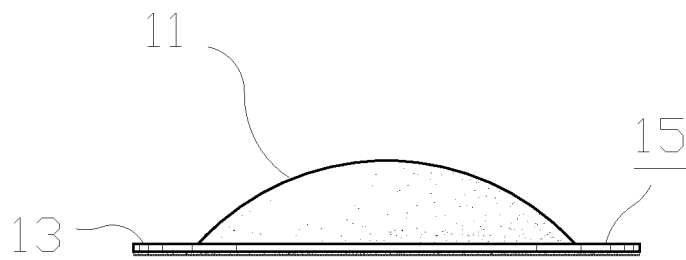


fig. 6

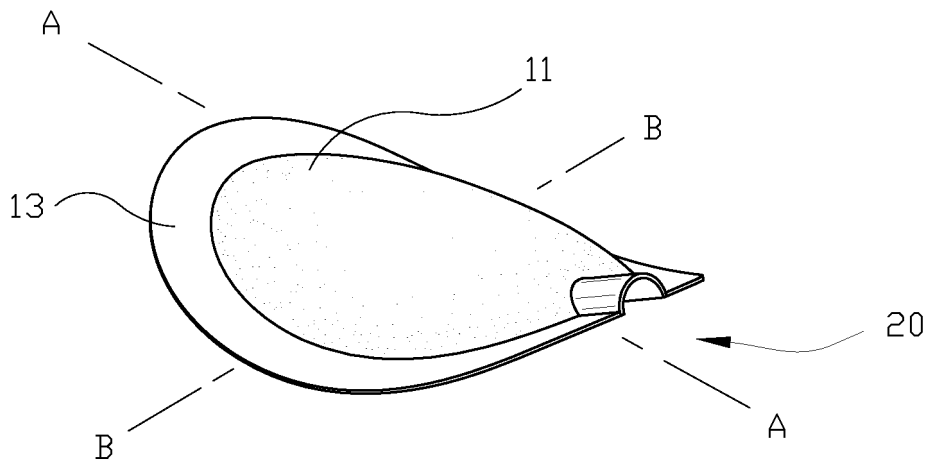


fig. 6A

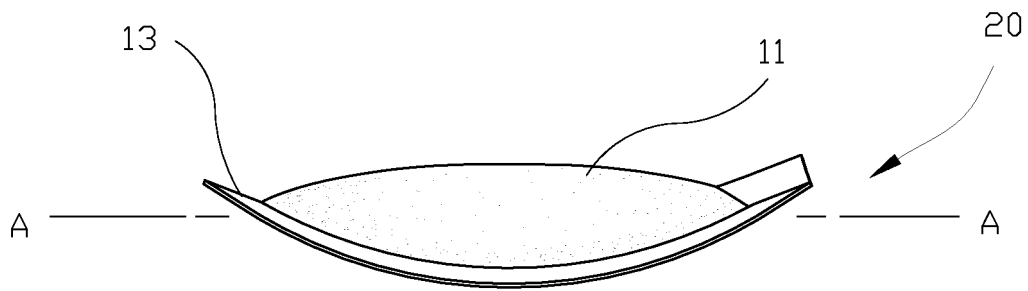


fig. 6B

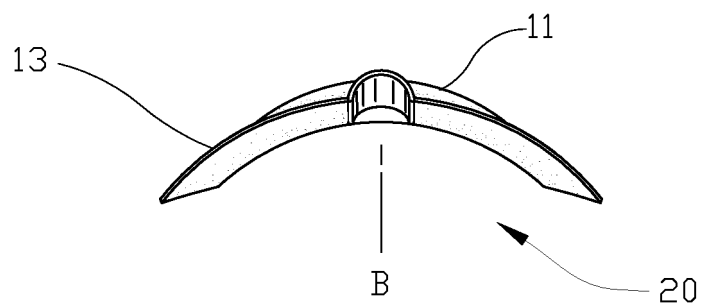
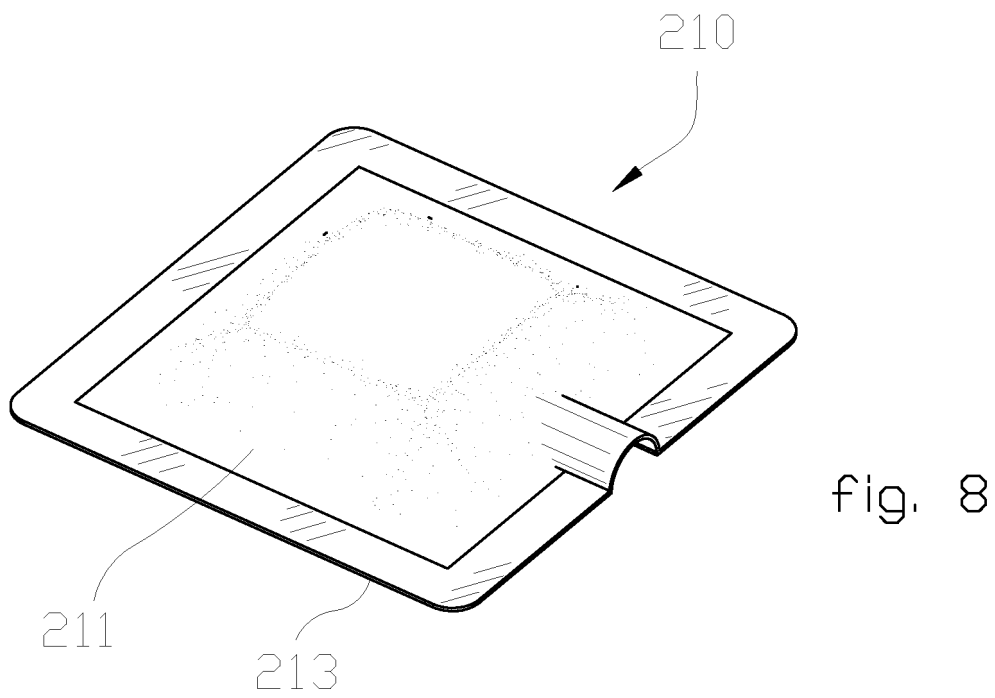
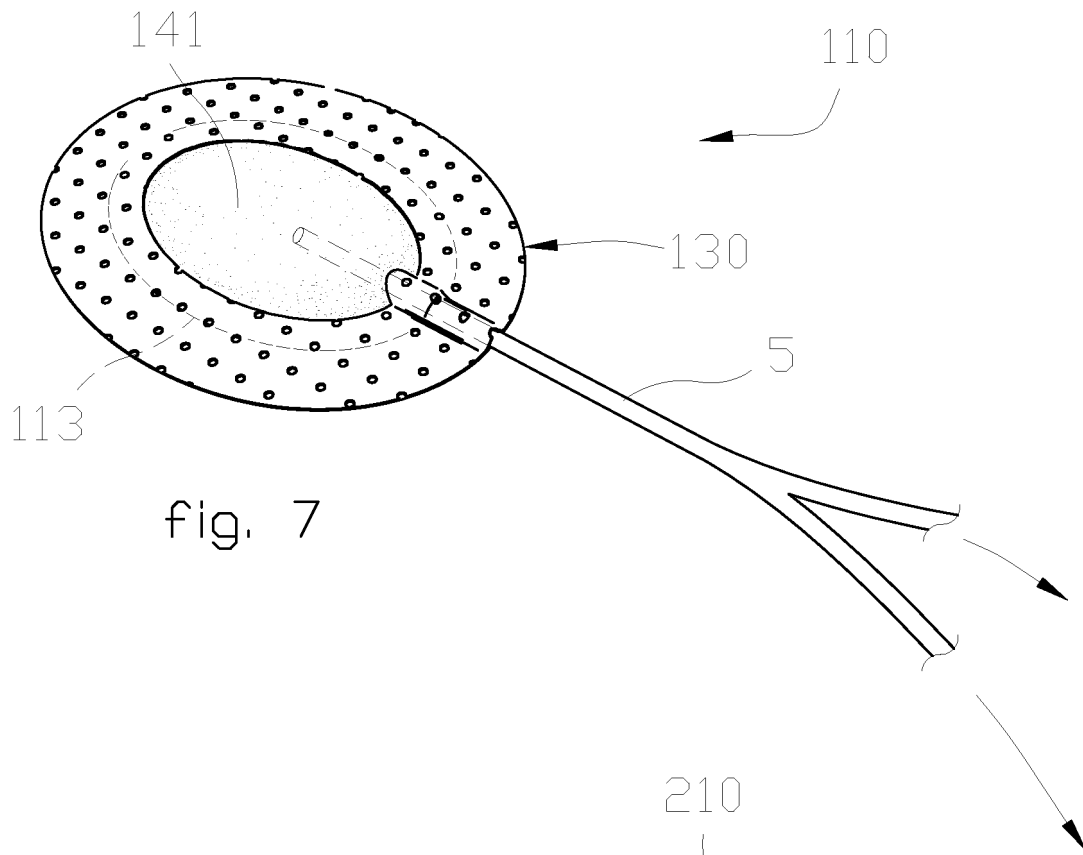


fig. 6C



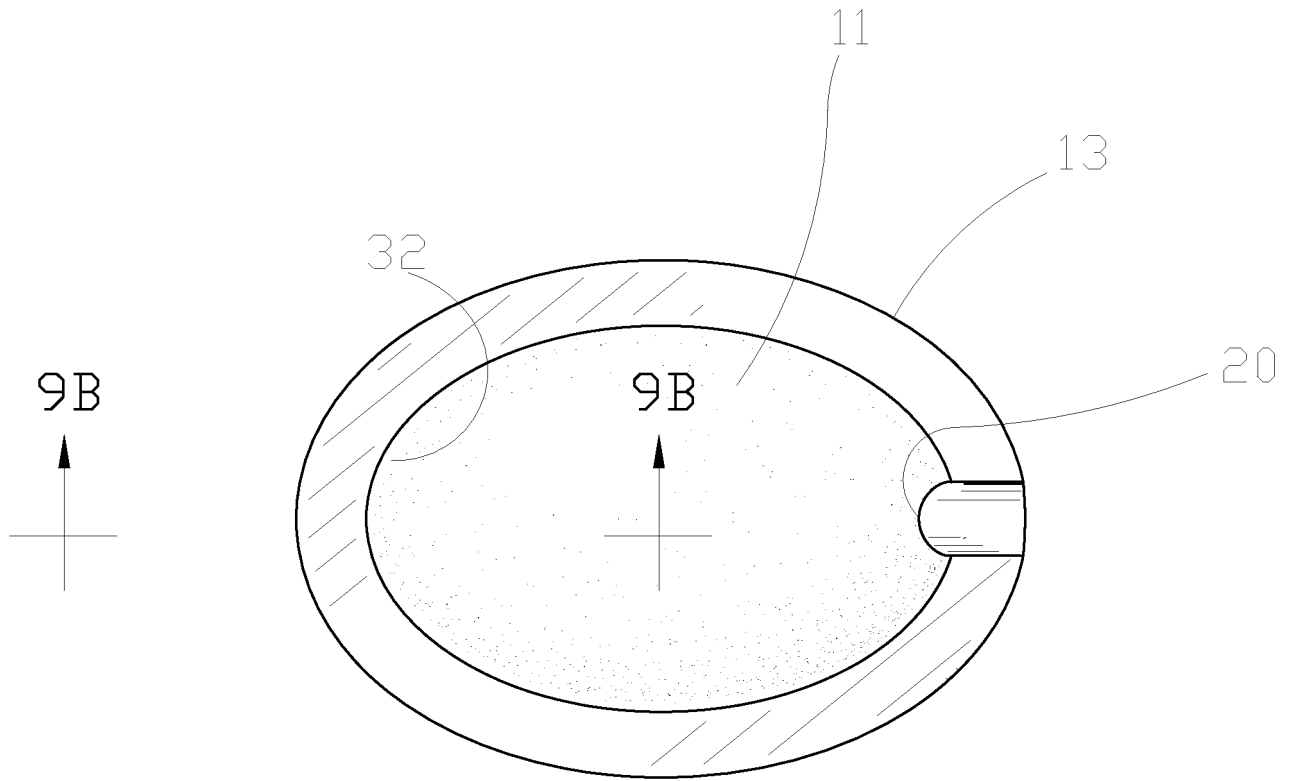


fig. 9A

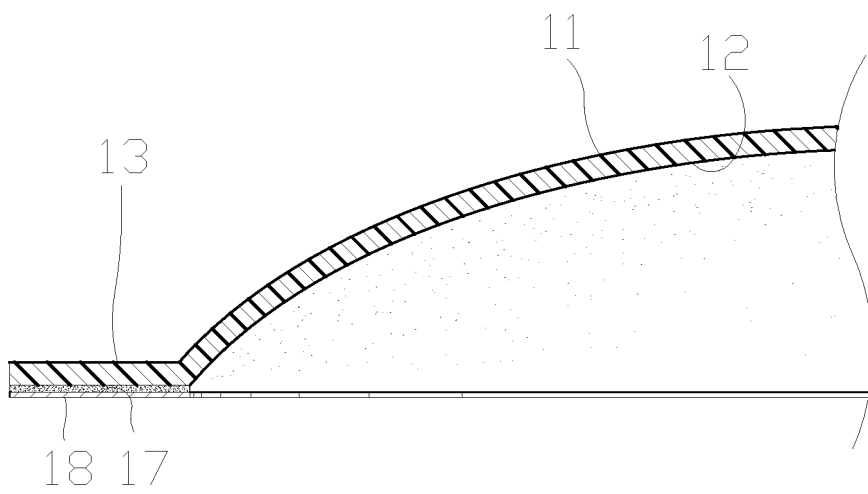
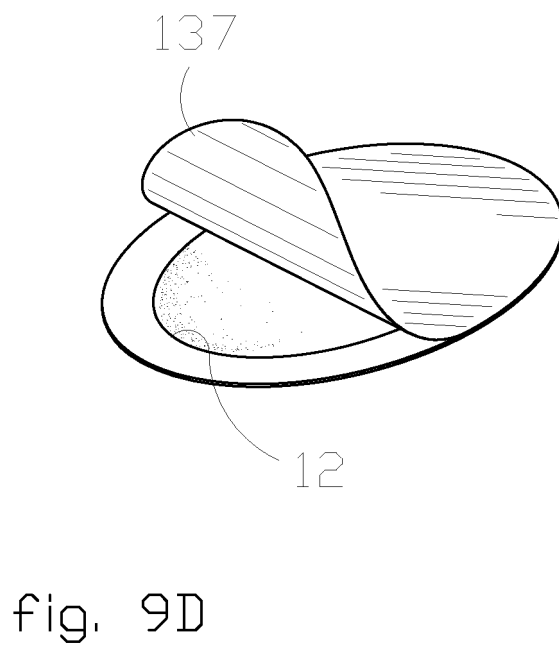
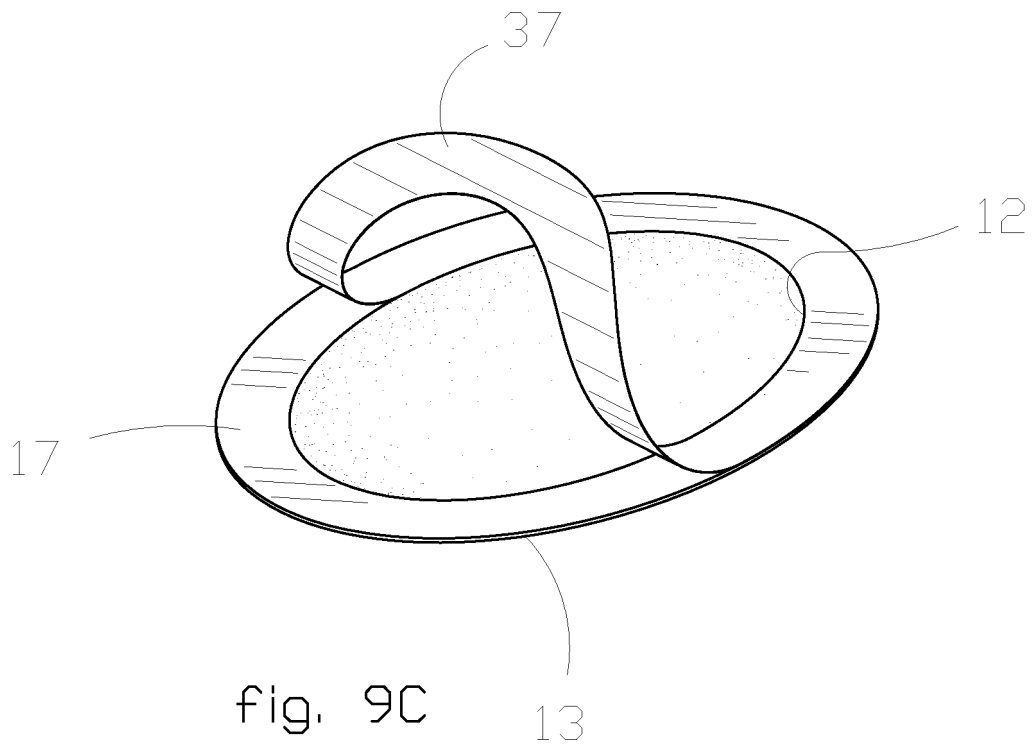


fig. 9B



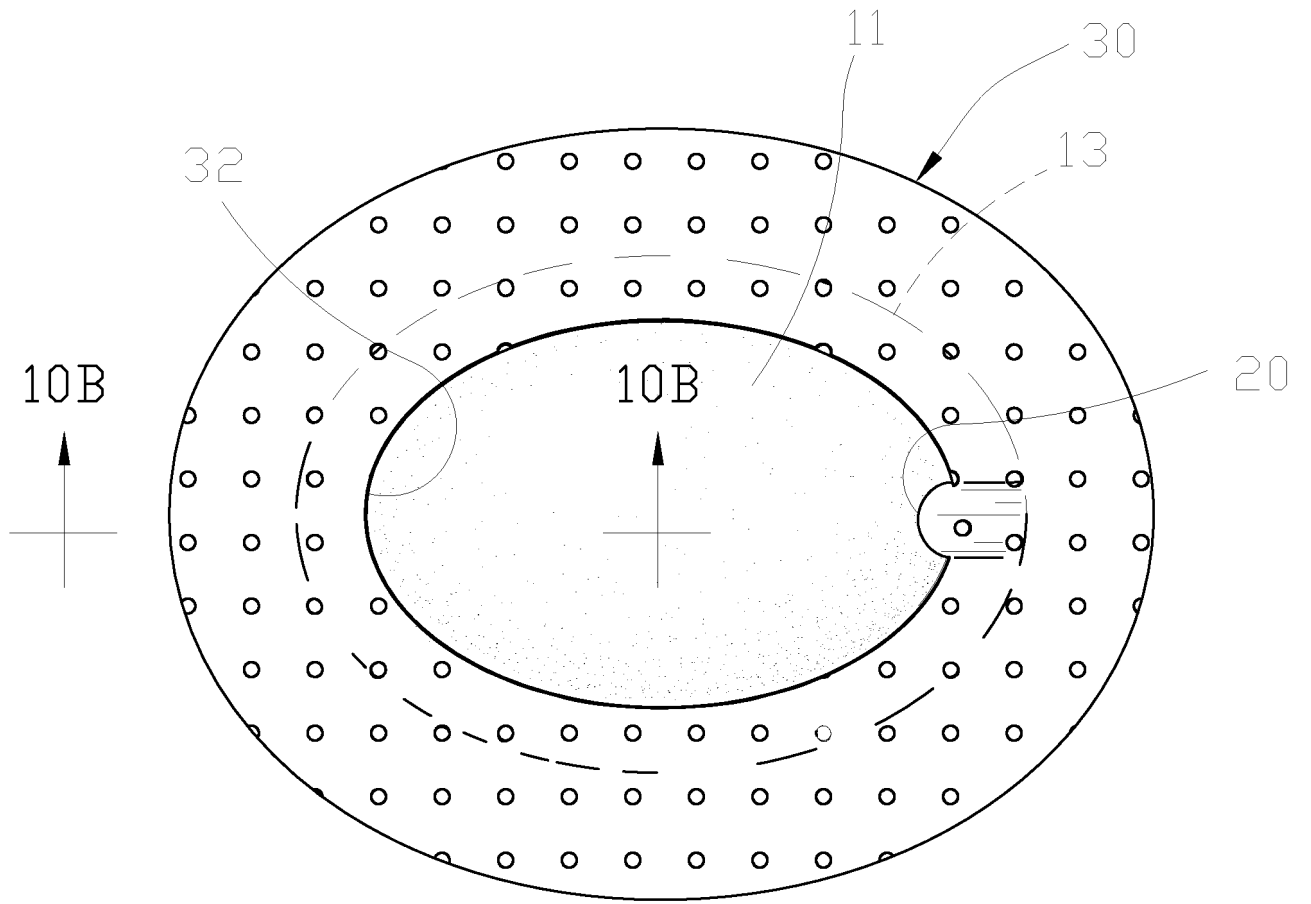


fig. 10A

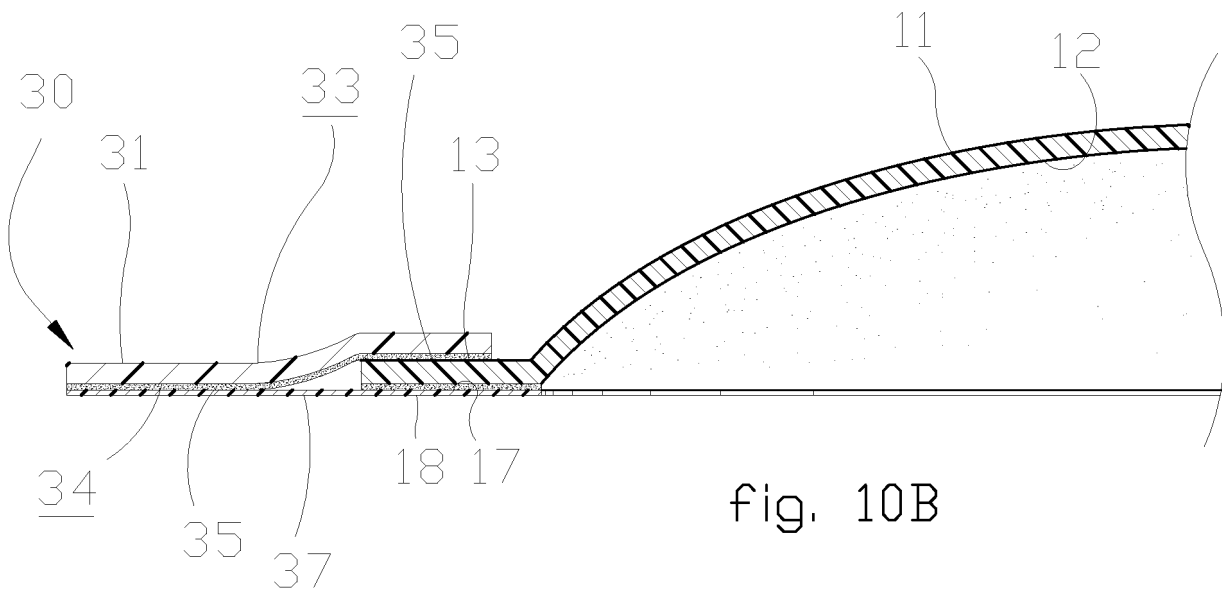


fig. 10B

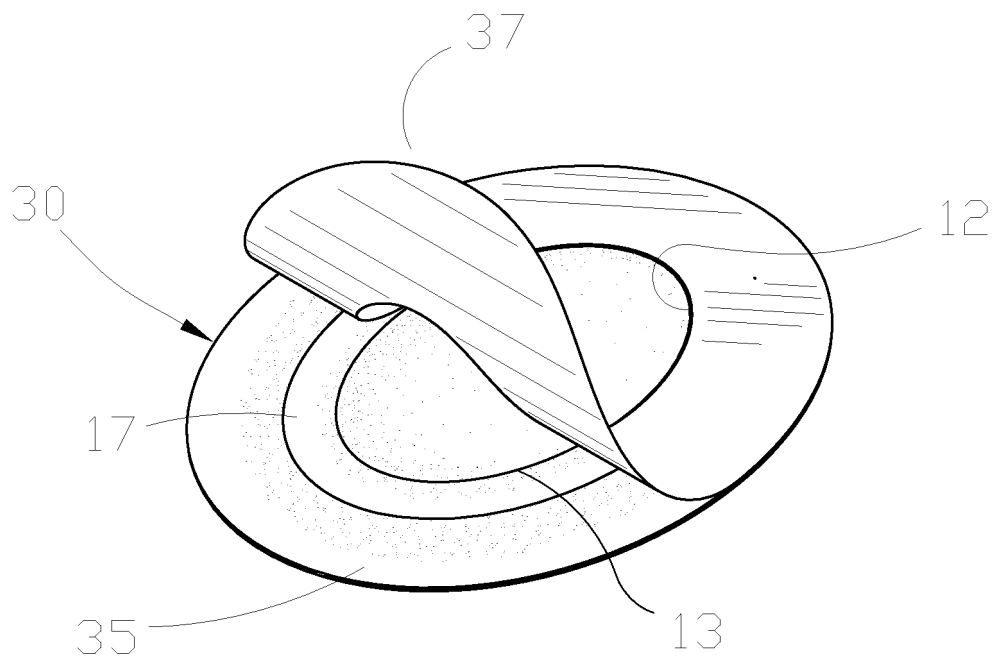


fig. 11

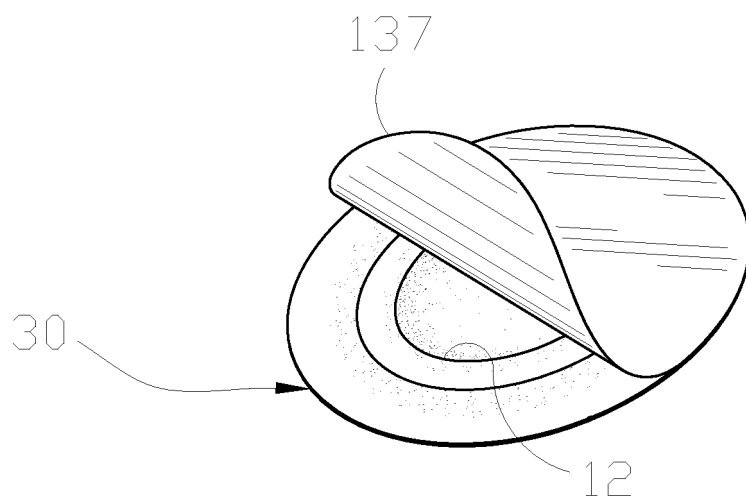


fig. 12

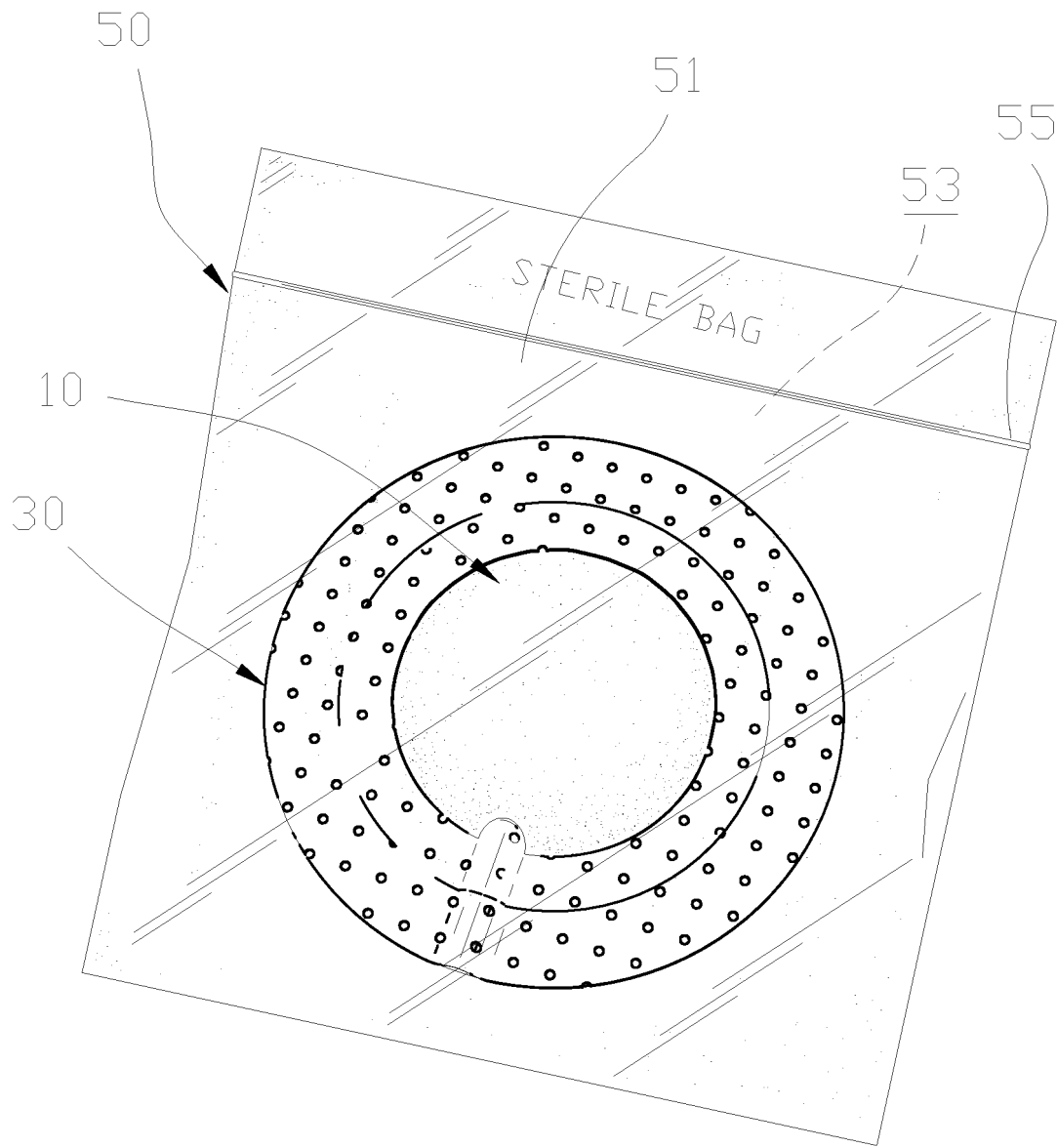


fig. 13

