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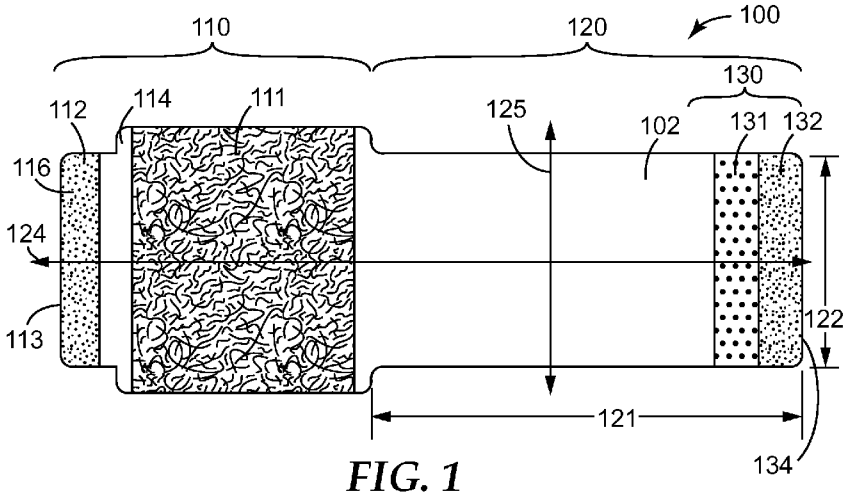


FIG. 1

(57) Abstract: The present disclosure provides a series of user-adjustable dressings and other medical articles particularly well suited for treating animals. The medical articles can include a series of fasteners that allow for both temporary and at least semi-permanent attachment to a non-skin facing surface of a backing. The dressing may also include two or more backing materials, at least two of which possess different degrees of permissible stretch to aid in reliably securing the dressing to the body.

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ADJUSTABLE WOUND DRESSING

Summary

Many traditional solutions for care of wounds and other skin abrasions involve the use of a gauze pad and a conformable, elastic wrap to hold the gauze near the skin. Such dressings and bandages have proven difficult to secure and maintain, particularly when used in treating an animal. Selecting the appropriate tightness of the dressing relative to the body and ensuring the appropriate tension throughout treatment are also often challenging with non-sedentary wearers. Domestic animals, in particular, will frequently attempt to remove or compromise the articles in the absence of cumbersome (e.g., cone collars) or unduly punitive treatments.

Others have attempted to address these issues through use of multi-step closure systems, including those described in US Publication No. 2011/0319798 (DiGrazia). Exemplary bandages include an absorbent pad minimally secured to a flexible backing and at least two mechanical fasteners, each disposed on different sides of the backing. Though ostensibly designed to prevent removal, dressings and bandages featuring mechanical fasteners (e.g., Velcro® or similar hook and loop systems) tend to suffer from partial release of the fastener from the surface of the backing during use, providing an easy target "flag" for the animal to grasp and remove. Furthermore, the design and stretch of the flexible backing cannot easily accommodate a variety of body portions and disparate body types.

The present disclosure provides dressings and other medical articles that are repeatedly adjustable, while still providing enhanced capability to limit ease of wearer removal prior to the completion of treatment. The articles disclosed herein allow the user precise and selectable control over the tension delivered via the dressing. In certain implementations, the articles feature portions exhibiting enhanced stretch and elastic recovery, allowing the article to be wrapped about a wide variety of anatomical areas. Furthermore, the inventive articles can be provided with a plurality of fasteners to at least reduce and preferably prevent flags and other vehicles for unwanted removal.

In one aspect, the present disclosure provides a medical article usable as a dressing, the article comprising: a conformable backing having a top surface and a skin-facing surface, wherein the backing defines a frame including a strap and a treatment area; an absorbent material coupled to the skin-facing surface of the treatment area; a temporary fastener disposed on the skin-facing surface proximate an edge of the strap; an edge fastener disposed on the skin-facing surface adjacent the temporary fastener, wherein the edge fastener has a greater adhesion to the top surface than the temporary fastener.

In another aspect, the present disclosure provides a medical article usable as a dressing, the article comprising: a conformable backing having a top surface and a skin-facing surface, wherein the backing includes a strap, a treatment area, and a closure tab, and wherein the strap comprises an at least partially stretchable material and the treatment area comprises a substantially non-stretchable material; an

absorbent material coupled to the skin-facing surface of the treatment area; and at least one fastener disposed on the skin-facing surface of the closure tab.

In another aspect, the present disclosure provides a medical article usable as a dressing, the article comprising: a conformable backing having a top surface and a skin-facing surface, wherein the backing includes a strap and a treatment area, wherein strap includes a stretchable material; an absorbent material coupled to the skin-facing surface of the treatment area; a fastener disposed on the skin-facing surface of the strap; and a stretchable tab comprising a portion of the strap, wherein the tab is at least partially separable from the strap.

The terms "comprises" and variations thereof do not have a limiting meaning where these terms appear in the description and claims.

The words "preferred" and "preferably" refer to embodiments of the invention that may afford certain benefits, under certain circumstances. However, other embodiments may also be preferred, under the same or other circumstances. Furthermore, the recitation of one or more preferred embodiments does not imply that other embodiments are not useful, and is not intended to exclude other embodiments from the scope of the invention.

As recited herein, all numbers should be considered modified by the term "about".

As used herein, "a," "an," "the," "at least one," and "one or more" are used interchangeably. Thus, for example, a pressure pad comprising "a" protrusion can be interpreted as a pressure pad comprising "one or more" protrusions.

Also herein, the recitations of numerical ranges by endpoints include all numbers subsumed within that range (e.g., 1 to 5 includes 1, 1.5, 2, 2.75, 3, 3.80, 4, 5, etc.).

The above summary of the present disclosure is not intended to describe each disclosed embodiment or every implementation of the present invention. The description that follows more particularly exemplifies illustrative embodiments. In several places throughout the application, guidance is provided through lists of examples, which examples can be used in various combinations. In each instance, the recited list serves only as a representative group and should not be interpreted as an exhaustive list.

Brief Description of the Drawings

The disclosure will be further described with reference to the drawings, wherein corresponding reference characters indicate corresponding parts throughout the several views, and wherein:

Figure 1 depicts a top view of the skin-facing side of an adjustable dressing according to one implementation of the disclosure.

Figure 2 is a cross-sectional view of the dressing of Figure 1.

Figure 3 is an illustration of the dressing of Figure 1 secured to a portion of a wearer's anatomy.

Figure 4 is a top view of the skin-facing side of an adjustable dressing according to another implementation of the disclosure.

Figure 5 is a cross-sectional view of the dressing of Figure 4.

Figure 6 is a top view of the skin-facing side of an adjustable dressing according to another implementation of the disclosure.

Figure 7 is an illustration of the dressing of Figure 6 secured proximate a joint of a wearer.

Figure 8 is a top view of the skin-facing side of an adjustable dressing according to another implementation of the disclosure.

Figure 9 is a perspective view of the adjustable dressing of Figure 8, depicting the movement of an integral tab relative to the dressing.

Layers in certain depicted embodiments are for illustrative purposes only and are not intended to absolutely define the thickness, relative or otherwise, or the absolute location of any component. While the above-identified figures set forth several embodiments of the disclosure other embodiments are also contemplated, as noted in the description. In all cases, this disclosure presents the invention by way of representation and not limitation. It should be understood that numerous other modifications and embodiments can be devised by those skilled in the art, which fall within the scope and spirit of the principles of the invention.

Detailed Description of Illustrative Embodiments

The present disclosure provides adjustable dressings and other medical articles that may be temporarily secured, allowing a user to repeatedly adjust tension of the article about a portion of the wearer's body. In addition, the adjustable dressing can feature a multi-stage closure system that reduces inadvertent or undesired removal. Adjustable dressing may also feature a variety of materials having different stretch capabilities, providing enhanced control over the tightness and security experienced by the wearer.

An adjustable dressing 100 according to one exemplary embodiment is shown in Figures 1 and 2. The dressing 100 includes a generally planar and conformable backing 102. As shown in FIG. 2, the backing 102 has two major surfaces: a top surface 104 and a bottom, skin-facing surface 106. The dressing 100 further includes a treatment region 110 and an elongate strap 120 extending from an edge of the treatment region 110 and terminating in a closure tab 130.

The backing 102 is typically comprised of a material that is breathable and capable of transmitting moisture. Useful backing materials include nonwoven fibrous webs, woven fibrous webs, knits, foams, films, composites, laminates and the like. Suitable backings include elastomeric polyurethane, polyester, or polyether block amide films. Particularly suitable backings include elastomeric films laminated or coupled to non woven webs. In certain circumstances, the backing

material may be at least partially stretchable. As used herein, a "partially stretchable" material exhibits a percent elongation greater than 25 % under ambient conditions. The backing 102 is generally conformable to anatomical surfaces. As such, when the backing 102 is applied to an anatomical surface, it conforms to the surface even when the surface is moved. The backing 102 is also conformable to animal anatomical joints. When the joint is flexed and then returned to its unflexed position, the backing102 typically stretches to accommodate the flexion of the joint, but is resilient enough to continue to conform to the joint when the joint is returned to its unflexed condition.

Suitable backing materials may be translucent or transparent polymeric films including polyurethanes (e.g., ESTANE), polyether polyesters (e.g., HYTREL), polyether amides (e.g., PEGAX) as well as polyolefins (e.g., ENGAGE). Commercially available examples of potentially suitable backing materials may include the thin polymeric film backings sold under the tradenames TEGADERM (3M Company), BIOSITE (Johnson & Johnson Company), OPSITE (Smith & Nephew), and COBAN (3M Company). In dressings featuring nonwoven webs, high-loft nonwovens are particularly suitable, as they can offer greater bonding area for temporary and edge fasteners, as further described below.

The backing 102 is typically kept relatively thin to, e.g., improve conformability, but can be made at a robust thickness to, for example, reduce the ability of an animal to chew through the dressing. For example, it may be preferred that the backings be formed of materials with a thickness of 800 micrometers or less, or 600 micrometers or less, potentially 450 micrometers or less, or even 250 micrometers or less.

If desired, the backing 102 can be coupled to or reinforced with a metal mesh (e.g., steel, alloys) in order to dissuade an animal from biting or trying to remove the dressing. In other implementations, the backing may be coated or impregnated with a bitterant to create a bitter taste when consumed. This bitter taste can be caused due to bitterness of the bitterant itself or by a reaction with another substance in the mouth or by a reaction with another substance in the dressing 100. Suitable bitterants include, but are not limited to, denatonium, sucrose octaacetate, quercetin, brucine, quassin, Quassia Wood extract, Gentian Root extract, Areca catechu extract, and denatonium benzoates sold under the BITREX brand.

The treatment region 110 includes an absorbent material 111 and a skin-contacting fastener 112. The absorbent material 111 is typically designed, among other functions, to both protect and remove moisture from the target site in order to promote healing. Examples of potentially suitable absorbent materials may include, but are not limited to, hydrophilic foams, woven materials (e.g., gauze), nonwoven materials, etc. and combinations thereof. In the depicted and presently preferred embodiment, the absorbent material 111 is provided in the form of a pad having the same width as the treatment region 110, though other constructions and dimensions are within the scope of the disclosure.

The absorbent material 111 may be secured to the backing using a variety of known attachment methods, including but not limited to tapes, adhesives, thermal point bonding, and ultrasonic welding. At least one edge of the absorbent material 111 is typically fixed to the backing 102 to avoid curling or other

damage to the material 111 during use. In certain implementations, it can be desirable to secure two or more edges of the absorbent 111. Alternatively, an entire surface of the absorbent material 111 may be fixed to the backing 102. In certain implementations, the absorbent material 111 is removably fixed to the backing (by, e.g., a removable adhesive or adherent structure) such that it can be removed after treatment and the dressing 100 can be reused with a new absorbent.

A skin-contacting fastener 112 is disposed on skin-facing surface 106 of the backing 102 proximate the absorbent 111 and adjacent dressing edge 113. The skin-contacting fastener 112 is configured to be removably secured to the wearer's skin (including fur or hair) proximate the target site. The skin contacting fastener 112 can be provided on a tab 116 to assist in removal. The primary axis of the skin contacting fastener 112 is typically oriented substantially perpendicular (e.g., within 5 degrees) to the longitudinal axis 124 of the strap 120, as described below. In the depicted embodiment, the skin-contacting fastener 112 is a continuous layer extending the width of the treatment region 110. In other implementations, the skin-contacting fastener 112 may be patterned on the skin-facing surface of the backing 102 or otherwise extend less than the full width.

The skin-contacting fastener 112 is designed to create a frictional, mechanical, or adhesive bond to the skin of the wearer to allow other components of the dressing 110 to be subsequently or near simultaneously secured about a portion of the anatomy. Suitable skin-contacting fasteners 112 include pressure sensitive and removable adhesives, mechanical fasteners (e.g., hook structures or exposed threads of a rubberized material), and frictional surface strips as described in US Publication No. 2011/0319798 (DiGrazia). In presently preferred implementations, the fastener 112 is a pressure sensitive adhesive. Suitable adhesives exhibit a 180 degree peel adhesion to steel of at least 2 ounces/inch and no greater than 25 ounces/inch, as tested according to ASTM D 3330 (2010). An exemplary implementation of dressing 100 for use with animals includes an adhesive with a peel adhesion of a least 10 ounces/inch and no greater than 15 ounces/inch. An adhesive with an adhesion below 2 ounces/inch may not provide sufficient engagement with skin or fur, while those adhesives having a peel adhesion over 25 ounces/inch can, in certain circumstances, result in excessive attachment with the expense of a potentially painful removal. If an adhesive is used, the skin contacting fastener 112 can be provided with one or more release liners to protect the adhesive and prevent premature adherence by the user.

As depicted in Figure 1, a gap 114 exists between the absorbent material 111 and fastener 112. The gap 114 is designed to reduce actual or perceived contamination of the target site, particularly a wound, by an adhesive composition, if such is used as fastener 112. The gap 114 may also reduce the likelihood of inadvertent affixation to the target site and subsequent pain or discomfort during dressing removal. In addition, the gap 114 can assist in making a release liner, if provided, easier to remove. Alternatively, the gap 114 may include a low adhesion backsize coating, such that an adhesive skin-contacting fastener 112 can be provided as folded and secured to the backing. In other implementations, however, the skin-contacting fastener 112 may extend to the edge of the absorbent material 111.

The strap 120 extends from the side of treatment region 110 opposite the skin-contacting fastener 112 and typically comprises an at least partially elastic material. Though the strap 120 is depicted as having a width 121 less than the width of the treatment region 110, other configurations and relative dimensions are contemplated and should be appreciated by one skilled in the art. The length 122 of the strap 110 is typically long enough so that strap 110 can be wrapped at least once about a portion of the wearer's anatomy proximate the target site and provide desired tension and/or security to the dressing 100. In an exemplary embodiment, the strap has a length 122 of about six inches. The strap 120 may be stretchable along one or both of its longitudinal 124 and lateral 125 axes. Advantageously, the strap 120 may be stretched to both apply additional tension and enable the dressing 100 to encircle various areas of the body among a wide variety of potential wearers.

The length of the strap 120 can define at least 50 percent of the total length of dressing 100. In other implementations, the strap 120 comprises at least 65 percent, in other embodiments 75 percent, in other embodiments 80 percent and in yet other embodiments at least 85 percent of the total length of the dressing 100.

The strap 120 terminates in a closure tab 130 featuring a plurality of fasteners, including both an edge fastener 131 and temporary fastener 132. The fasteners 131, 132 are designed to secure the strap 120 to the top, non-skin surface 104 of the backing 102. The temporary fastener 132 is configured to removably engage with the backing material(s), or corresponding structures affixed to the backing 102, so as to enable multiple adjustments without deleteriously affecting the integrity of the backing 102. The temporary fastener 132 thus provides temporary mounting of the strap 120 to backing 102, allowing a user to repeatedly adjust the tension provided by the strap 120 and determine the desired level of tightness for the dressing 100. The primary axis of the temporary fastener 132 is oriented substantially perpendicular (i.e., within 5 degrees) to the longitudinal axis of the strap 120.

Suitable temporary fasteners include, but are not limited to repositionable and removable adhesives, as well as mechanical fasteners. In one implementation, the temporary fastener 132 includes a series of hook elements with high shear strength, acting as the male fastening element in a hook and loop fastening system. Suitable temporary fasteners typically exhibit a peel adhesion to backing 102 according to the Peel Adhesion Test outlined below of at least 25 g/inch, in some embodiments at least 50 g/inch, and in some embodiments at least 75 g/inch. Temporary fasteners typically exhibit a peel adhesion to backing 102 according to the Peel Adhesion Test described below of no greater than 500 g/inch, in some embodiments no greater than 400 g/inch, in some embodiments no greater than 300 g/inch. Exemplary fasteners include adhesive backed hook structures available from 3M Company, St. Paul MN. Other suitable male fastening elements can be used such as those that are currently marketed, for example by 3M Co., Velcro USA Inc., Gottlieb Binder, Aplix, and Paiho.

The male fastening elements (e.g., hooks) may be formed with a curved shape or they may be substantially upright stems that are deformed to include, for example, a head in the shape of mushroom.

Some methods, which have varying degrees of versatility and complexity, are available to control the shape of loop-engaging heads. See, e.g., U. S. Pat. Nos. 3,192,589 (Pearson); 5,953,797 (Provost et al.); 6,132,660 (Kampfer); 6,558,602 (Melbye et al.) and 6,708,378 (Parellada et al.). Other potentially suitable male fastening elements and systems are described in US Publication No. 2012/046424 (Petersen).

The edge fastener 131 is disposed proximate the end 134 of closure tab 130 and continuously extends over a width thereof. In other implementations, the edge fastener 131 may be patterned on the skin-facing surface of the backing 102 or otherwise extend less than the full width of the closure tab 130. As depicted in Figures 1 and 2, the edge fastener 131 is disposed directly adjacent both the temporary fastener 132 and end 134, though gaps may be created on either side. The primary axis of the edge fastener 131 is oriented substantially perpendicular (e.g., within 5 degrees) to the longitudinal axis of the strap 120.

The edge fastener 131 has a greater adhesion to the backing than the temporary fastener 132. The edge fastener 131 may be an adhesive or include structures that engage with the backing 102 surface (e.g., a hook structure similar to temporary fastener 132, but typically capable of a stronger bond with the backing material or with a corresponding structure secured to backing 102). Suitable adhesives include, but are not limited to pressure sensitive adhesives, such as the adhesive featured in 3M Medical Transfer Adhesive 1524, available from 3M Company, St. Paul, MN and/or other repositionable adhesives. In certain implementations, the edge fastener 132 and skin-contacting fastener112 comprise the same adhesive composition. The edge fastener 131 can also be provided with a release liner.

The edge fastener 131 preferably has a peel adhesion to the backing 102 of at least 400 g/inch, according to the Peel Adhesion Test outlined below. As described above, the temporary fastener has a peel adhesion to backing of at least 25 to 400 g/inch, though preferred at 50 to 275 g/inch. In certain circumstances, the edge fastener has a peel adhesion to backing at least twice the peel adhesion of the temporary fastener. In implementations of the dressing 100 used to treat animals, it can be desirable for the edge fastener to exhibit a peel adhesion to backing at least 3 times the peel adhesion of the temporary fastener, and in other embodiments at least 4 times the peel adhesion.

In certain circumstances, particularly when the dressings of the present invention are used to treat animals, the presence of both an edge and temporary fastener can be advantageous. The temporary fastener 132 provides sufficient hold for a user/wearer to modify and select the desired tension of the strap 120. The relatively low level of adhesion allows the user/wearer to repeatedly engage the backing 102 until the desired tightness is achieved without fear of damaging the dressing 100. Once the desired tension is achieved, the enhanced adhesion of the edge fastener 131 at least reduces and preferably prevents "flagging" of the closure tab 130. The absence of a graspable flag reduces the likelihood that an animal or other non-compliant wearer can easily remove that bandage by simply releasing the closure tab

130 from the backing 102. Furthermore, the lack of a flag reduces the likelihood that the bandage can be removed inadvertently by, for example, brushing the dressing 100 against a surface.

In use, the dressing 100 is positioned near the target site (e.g., wound). The user may then place the absorbent material 111 over the target site and secure the skin-contacting adhesive 112 to the skin in an area proximate the target site. Once the treatment region 110 is secured, the strap 120 is wrapped about a portion of the body near the target site, such as the wearer's leg in Figure 3. Depending on the location of the target site, the strap 120 may be stretched to accommodate the size of the body portion. The closure tab 130 is then brought proximate to or into contact with the top surface of the backing 102. The user may then choose to secure the temporary fastener 132 to the backing 102 to test the tightness of the strap 120. If needing adjustment, the temporary fastener 132 can be swiftly removed and reengaged at a different position on the backing 102 surface, after the strap 120 is stretched or released. Once the appropriate tension is selected, the user can engage the edge fastener 131 to the backing 102, creating a more lasting attachment. If a release liner is provided on the edge fastener 131, it can be removed prior to or after the temporary fastener 132 has been secured. Alternatively, the user may simultaneously or near simultaneously secure the edge fastener 131 and temporary fastener 132 to the backing 102.

Turning to Figures 4 and 5, another implementation of an adjustable dressing 200 according to the present disclosure includes a plurality of backing materials. The adjustable dressing 200 includes an absorbent 211, a skin-contacting fastener 212, a strap 220, and a closure tab 230 featuring a plurality of fasteners 231, 232; certain aspects thereof apply mutatis mutandis to similar aspects in dressing 100. The backing 202 features a plurality of materials having varying levels of elasticity, with the disparate materials attached at one or more weld zones 209.

The treatment region 210 includes a substantially non-stretchable backing material 203. As used herein, a substantially non-stretchable backing material has a lengthwise (i.e., machine direction) percent elongation at break of no greater than 120 percent. In some embodiments, the elastic backing has a lengthwise elongation at break of at least about 50 percent, at least about 85 percent, or at least about 90 percent. Suitable materials for use in the substantially non-stretchable treatment region 210 include, but are not limited to polymeric films, nonwoven webs, laminates, and composites including as those described in Column 3, line 26 to Column 4, line 17 of US Patent No. 5,861,074 (Wu) and others well known in the art. Suitable polymeric films include, but are not limited to, poly(ethylene-butene), poly(ethylene-hexene), poly(ethylene-octene), poly(ethylene-propylene),poly(styrene-butadiene-styrene), poly(styrene-isoprene-styrene), poly(styrene-ethylene-butylene-styrene), poly(ester-ether), poly(ether-amide), poly(ethylene-vinylacetate), poly(ethylene-methylacrylate), poly(ethylene-acrylic acid), poly(ethylene butylacrylate), polyurethane, poly(ethylene-propylene-diene), and ethylene-propylene rubber. Exemplary nonwovens may comprise fibers of polyethylene, polypropylene, polyesters, rayon, cellulose, nylon, and blends of such fibers. Particularly suitable substantially non-stretchable backing materials include polypropylene spunbond nonwovens available from Polymer Group, Inc., Charlotte,

NC. In certain presently preferred implementations, the spunbond fibers have a basis weight of around 25 to 100 gsm, in other circumstances 30 to 70 gsm. In implementations featuring a nonwoven, the backing material is preferably oriented within the dressing such that the non-woven layer coincides with top surface 204 in order to facilitate attachment of at least one of the fasteners 231, 232.

A substantially non-stretchable treatment area 210 can be beneficial in limiting attachment failure between the absorbent 211 and backing 203 when the strap 210 is stretched to wrap about a portion of the body. In a similar vein, the use of a substantially non-stretchable material may reduce or limit stretching of and subsequent damage to the absorbent material 211. The substantially non-stretchable material may also provide for enhanced bonding of the absorbent 211 and skin-contacting adhesive 212.

Like the treatment area 210, the closure tab 230 can also include a backing material 205 that is substantially non-stretchable. One skilled in the art will appreciate that the backing material 205 can be the same as or a different substantially non-stretchable material from the backing material 203. In other implementations of an adjustable dressing, the closure tab 230 can be an extension of the strap 220 and include a stretchable, elastic material as described below.

The strap 220 includes backing 207 that comprises a stretchable, potentially elastic material and is coupled to the substantially non-stretchable, treatment area backing 203 and closure tab backing 205 at weld zones 209. Elastic materials can be useful in constructing the strap 220, as they can be stretched to encircle a portion of the body and/or dressing, and exhibit substantial recovery to provide desired tension. Suitable stretchable materials for backing 205 exhibit a percent elongation of at least 50, in other embodiments at least 75, and in other embodiments at least 100. In certain desirable implementations, the stretchable material exhibits a percent elongation of less than 900, in other embodiments less than 450, and in yet other embodiments less than 250. Exemplary elastic materials useful as stretchable backing preferably have an elastic recovery of at least about 60 percent, at least about 70 percent, at least about 80 percent, at least about 90, or at least about 99 percent based on an elongation of 100 percent.

Percent elongation = $(L_s - L_o)/L_o \times 100$ where L_o is original length L_s is stretched length.

Percent recovery (after a defined period of time) = $[(L_s - L_r)/L_o] \times 100$, where L_o and L_s are as defined above and L_r is length after relaxation from stretch.

In some embodiments, the elastic backing has a lengthwise elongation at break of at least about 50 percent, at least about 150 percent, or at least about 350 percent. In some embodiments, the lengthwise elongation at break is at most about 1,200 percent, at most about 900 percent, or at most about 700 percent. In exemplary embodiments, the lengthwise elongation at break is about 50 to about 1,200 percent.

Suitable elastic materials include a laminate composite web having an elastic core layer and at least one skin layer which is less elastic than the core layer, and at least one pre-bonded staple fiber nonwoven layer as disclosed in US Publication No. 2010/0104830 (Jaeger et al.). A presently preferred laminate composite web includes a thermoplastic, elastomeric polymer core, two or more olefinic skins, and a carded, polyolefin nonwoven web secured to the skin enveloped core. The laminate composite web is typically pre-stretched in the cross-direction during the initial manufacturing process. Other suitable stretchable materials include the elastomer/nonwoven films, composites and laminates sold under the FLEXAIRE brand by Tredegar Film Products Co. (Richmond, VA). Other suitable elastic backing materials include the multi-layer, elastomer/nonwoven composites activated as described in US Patent Nos., 8,177,766 (Mansfield) and 6,537,930 (Middlesworth et al.). A material made of melt blown microfiber webs may also be used as a stretchable, elastic backing material. The melt blown microfiber webs may be composed of a variety of thermoplastic elastomers including polyurethane, polybutylene, styrene-isoprene block copolymer, styrene-butadiene block copolymer, (KRATON polymer, Shell Oil Company, Belpre, Ohio) and blends of these elastomers with polyolefins such as polypropylene and polyethylene. Other useful stretchable, elastic backing materials include the porous elastic substrates described in US Patent No. 5,939,339 (Delmore).

In implementations wherein the backing 207 includes an elastomer/nonwoven composite or continuous film, the elastic material can be made breathable or more breathable by perforations, fenestrations, slits, or other apertures.

The length of the elastic backing 207 can define at least 40 percent of the total length of dressing 200. In other implementations, the elastic backing 207 comprises at least 50 percent, in other embodiments 60 percent, in other embodiments 70 percent and in yet other embodiments at least 80 percent of the total length of the dressing 200.

The weld zones 209 define a length 209a of overlap between the backing materials sufficient to adequately join the materials. A combination of force and thermal/fusion energy, such as ultrasonic welding, thermal contact welding, and/or point welding, can be used to couple the elastic 207 and non-elastic backings 203, 205 at weld zones 209. Alternatively, the disparate backings may be attached by adhesive (e.g., PSA, hot-melt), sewing, stapling, or other known bonding technique. The shear-weld strength of the weld zones 209 is typically at least 2 lbs/inch to avoid failure when the dressing 200 is stretched and handled during use; weaker bonds may be used for applications wherein the dressing requires less stretching to apply. The weld zones 209 may also include product markings, dyes, colors, and/or other indicia to inform or delight a user.

In an alternative implementation, the dressing may comprise a single backing material that is engineered to include regions of different elasticity. For example, the backing may comprise a single non-elastic composite web that is elastically activated over at least a portion of the length of the strap. Methods of imparting stetchability/elasticity to non-elastic materials include so called ring-rolling, which

utilizes corrugated interengaging rolls which incrementally stretch in the machine or cross-machine direction and permanently deform the material. Suitable ring rolling methods are disclosed in U.S. Pat. Nos. 4,116,892 (Schwarz); 4,834,741 (Sabee); 5,143,679 (Weber et al.); 5,156,793 (Weber et al.); 5,167,897 (Weber et al.); 5,422,172 (Wu); 5,518,801 (Chappell et al.); and 8,177,766 (Mansfield). Other methods of activating a non-elastic material include those described in US Patent No. 6,537,930 (Middlesworth et al.), which involve the creation of thin membranes in the material that tear when stretched to impart elasticity and breathability. In such embodiments, the strap may be substantially non-elastic/non-stretchable until stretched by a user prior to or during application of the dressing.

In another embodiment, the dressing may comprise a single stretchable backing material that is treated to create non-stretchable zones. For example, the treated area of the backing may be subjected to heat and pressure to anneal polymer chains in order to substantially reduce elasticity of the stretchable backing material (e.g., subjecting the material to welding or calendering conditions). Other implementations feature a portion to the backing laminated or otherwise fixed to a section of non-stretchable material.

When a dressing includes regions and/or backing materials of varying elasticity, it is typically preferable for the fasteners disposed on the closure tab to be capable of adequately bonding to top surface of both the non-elastic and elastic backing materials. In such implementations, the user can provide desired tension by securing the closure tab to any portion of the backing.

Figures 6 and 7 demonstrate another embodiment of an adjustable dressing 300 featuring additional tension control. The dressing 300 includes a treatment area 310, an absorbent 311, a skin-contacting fastener 312, and a strap 320; certain aspects thereof apply mutatis mutandis to similar aspects discussed above and need not be repeated here. The dressing 300 may include a single backing material or multiple backing materials as discussed above. The strap 320 includes two independent leg segments 321 and 322, each terminating in a closure tab 330, 334. As depicted, each leg segment includes a temporary fastener (332, 336) and an edge fastener (331, 335). Alternatively, the first leg segment 321 can include a temporary fastener and the second leg segment 322 an edge fastener, and vice versa.

The leg segments 321, 322 may be created by assembling all components to dressing 300 and using, for example, rotary cutting methods to separate a section of the backing 302 into distinct elements. In other embodiments, the leg segments 321, 322 can be created in the backing 302 prior to attaching the absorbent 311, skin contacting fastener 312, and/or the edge and temporary fasteners. The leg segments 321, 322 could alternatively be separate constructions attached to the dressing 300 via welding, adhesives, or other known methods for bonding elastomeric films and/or composites. A leg segment can further include a weld zone, such that the closure tab 330 includes a separate backing from strap 320. As depicted the leg segments 321, 322 are directly adjacent, though other implementations can include a gap between the inner edges 321a and 322a.

In a potentially desirable embodiment, the dressing 300 can be provided to the user with a series of perforations or other line of weakness between the leg segments 321, 322. The user-separable segments provide a choice of whether and to what extent separation of the leg segments 321, 322 is needed. If perforations are used, the perforations may be shaped in accordance with any of the accepted perforation patterns including linear, angled, Y-shaped, V-shaped, dual-angled offset, sinusoidal, etc. Adjustable dressings of the present disclosure may be provided with a single perforation line as previously depicted, or can include a plurality of lines of weakness allowing for three or more leg segments.

The multiple leg segments 321, 322 enable the user to initially tension and attach the bandage with one leg segment, then adjust or tighten the bandage wrap with the second leg in order to achieve the proper fit. As shown in Figure 7, the independently adjustable leg segments 321, 322 aid in positioning the dressing 300 around joints or other angled sections of the user's anatomy 350. Though depicted as secured to distinct sections of backing 302, one leg segment may be secured to a portion of the other. For example, in embodiments featuring a temporary fastener and edge fastener on separate leg segments, the edge fastener may be secured to the backing of both the other leg segment and the treatment area.

Another implementation of an adjustable dressing 400 is depicted in Figure 8 and includes an integral tab 440 that can be separated from backing 402 and used to adjust desired tension. Like the dressings discussed above, the adjustable dressing 400 includes an absorbent 411, a skin-contacting fastener 412, a strap 420, and a closure region 430 featuring a temporary fastener 432 and an edge fastener 431. Adjustable dressing 400 can, like those adjustable dressings discussed above, include one or more backing materials having varying levels of elasticity. In certain circumstances, it is desirable for at least the strap 420 to include an elastic backing material.

An integral tab 440 unique in the depicted embodiment includes a portion of the backing 402 at least partially separated from the remainder of the strap 420 at the tab periphery 441. The leading edge 442 of the tab 440 terminates proximate the distal end of strap 420, near edge fastener 431, and includes a portion of the temporary fastener 432. The tab 440 accordingly includes a temporary fastener on its skin-facing surface. The tab 440 preferably extends into the temporary fastener 432 less than the full length 432a thereof, such that the closure tab 430 may still be temporarily attached to the top surface of backing 402 when the tab 440 is separated from the strap 420 (See Figure 9). In addition, the tab width 443 extends only a portion of the width 426 of the strap 420, such that the integrity of the dressing 400 is not materially compromised when the tab 440 is separated.

The tab 440 may be created by assembling all components to dressing 400 and using, for example, die-cutting methods to define the tab periphery 441 and separate the effected regions of backing material. In other embodiments, the tab 440 can be created in the backing 402 prior to attaching any of the dressing components (e.g., absorbent, fasteners, etc.). The tab 440 could alternatively be a separate construction attached to the dressing 400 via welding, adhesives, or other known material bonding

technique. In such bonded embodiments, the tab is preferably an elastic material having a different elastic modulus than the strap 420.

In use, the tab 440 can be used to provide additional tension once the closure tab 430 has been secured to backing 402. The tab 440 can be separated from the strap 420 (see Figure 9) and stretched to create the desired tension. The fastener on skin-facing surface of the tab 440 (e.g., temporary fastener 432) may be then be secured to a top surface of the backing 402, including the closure tab 430.

In certain implementations (not shown), the closure region of the strap includes a single, temporary fastener disposed proximate the edge of the strap. The integral tab can extend adjacent to, but not include, the temporary fastener. A portion of the skin-facing surface of the integral tab can be provided with a more adherent edge fastener. In yet other implementations, the integral tab could be provided with both a temporary fastener and an edge fastener, thereby allowing the use to incrementally and selectively determine the desired tension provided by the integral tab.

Absorbent materials

An absorbent material is typically used in conjunction with the adjustable dressings described herein. The absorbent materials can be manufactured from any of a variety of materials including, but not limited to, woven or nonwoven cotton or rayon, and cellulose fibers. Other useful absorbent materials include superabsorbent polymers (SAPs) disposed in polymer netting. In particular, absorbent pads can be useful for containing/delivering a number of active agents further described below, but optionally including antimicrobial agents (e.g., benzalkonium chloride), anesthetics, coagulants, drugs for transdermal drug delivery, chemical indicators to monitor hormones or other substances in a patient, and combinations thereof and the like. Other potentially useful agents delivered via absorbent can include honey and sugar to promote natural osmotic healing.

The absorbent material may include one or more reservoirs. The reservoirs can be created in the absorbent by, for example, embossing or gravure printing methods known in the art. Potential embossing patterns and methods may be found in, for example, US Patent No. 6,432,527 (Perez et al.). Alternatively, the reservoir may be created by binding multiple layers of absorbent in non-uniform patterns. In particular implementations, the reservoir may define a sealed or semi-sealed cavity for retaining active agents.

The absorbent may include a hydrocolloid composition, including the hydrocolloid compositions described in U.S. Patent No. 5,622,711 (Chen), and International Application Serial No. PCT/US14/23557 entitled HYDROCOLLOID COMPOSITION WITH INCREASED WVTR, WOUND DRESSINGS, AND METHODS. The hydrocolloid absorbent may comprise, for example, a natural hydrocolloid, such as pectin, gelatin, or carboxymethylcellulose (CMC) (Aqualon Corp., Wilmington, Del.), a semi-synthetic hydrocolloid, such as cross-linked carboxymethylcellulose (X4ink CMC) (e.g., Ac-Di-Sol; FMC Corp., Philadelphia, Pa.), a synthetic hydrocolloid, such as cross-linked polyacrylic acid

(PAA) (e.g., CARBOPOL™ No. 974P; B.F. Goodrich, Brecksville, Ohio), or a combination thereof. Absorbent materials may also be chosen from other synthetic and natural hydrophilic materials including polymer gels and foams.

The absorbent, and other components including the temporary fastener, may be affixed to the backing using the methods described in US Publication No. US2012/318454 (Biegler et al.). Such methods include impinging, heated fluid that may be introduced and removed to heat a surface of a substrate e.g., so that the substrate can be melt-bonded to another substrate.

Active Agents

The medical dressing may optionally include at least one of a number of actives including for example, medicaments, anti-infective agents, antimicrobials, antiseptics (for example polyhexamethylene biguanide (hereinafter, "PHMB")), chlorhexidine, silver, iodine, an iodophor, benzalkonium chloride, hydrogen peroxide as well as the antiseptics disclosed in the following patents and pending applications: US Patent Nos. 8,512,723 (Scholz et al.) and 8,198,326 (Scholz) US; US Publication Nos. 2006/0051385 (Scholz) and 2006/0051384 (Scholz et al.) Suitable actives further include antibiotics, analgesics, local anesthetics, anti-inflammatory agents, healing factors, vitamins, growth factors, enzyme inhibitors such as matrix metalloproteinase (MMP) inhibitors, and nutrients and/or one of a microbead packing and/or absorbent foam. Such actives may be introduced by elution off of any portion of the wound dressing including the backing, adhesive, or absorbent or from a separate storage chamber that allows controlled introduction of the medication into a wound space. Alternatively, medication may be introduced as taught in U.S. Patent No. 6,867,342 (Johnston et al.) or by injecting the medication directly through the dressing.

The active agents may be provided as a fluid and/or may be carried within a fluid that is delivered to an internal volume of, e.g., a reservoir. Some potentially suitable active agents may include, e.g., antimicrobials, antibiotics, analgesics, coagulants, healing factors such as vitamins, growth factors, nutrients, pheromones, and the like. Examples of other potentially suitable agents may be found in U.S. Patent No. 6,867,342.

Skin-Contacting and Edge Fastening Adhesives

Suitable adhesive for use as skin contacting and/or edge fastening adhesives include any adhesive that provides acceptable adhesion to skin and is acceptable for use on skin and/or fur (e.g., the adhesive should preferably be non-irritating and non-sensitizing). Suitable adhesives are typically pressure sensitive and in certain embodiments have a relatively high moisture vapor transmission rate to allow for moisture evaporation. Suitable pressure sensitive adhesives include those based on acrylates, urethane, hydrogels, hydrocolloids, block copolymers, silicones, rubber based adhesives (including natural rubber, polyisoprene, polyisobutylene, butyl rubber etc.) as well as combinations of these adhesives. The

adhesive component may contain tackifiers, plasticizers, rheology modifiers as well as active components including for example an antimicrobial agent.

The pressure sensitive adhesives that may be used in the wound dressings may include adhesives that are typically applied to the skin such as the acrylate copolymers described in U.S. Patent No. RE 24,906, particularly a 97:3 isooctyl acrylate:acrylamide copolymer. Another example may include a 70:15:15 isooctyl acrylate: ethyleneoxide acrylate:acrylic acid terpolymer, as described in U.S. Patent No. 4,737,410 (Kantner) (Example 31) . Other potentially useful adhesives are described in U.S. Patent Nos. 3,389,827 (Abere et al.); 4,112,213 (Waldman); 4,310,509 (Berglund et al.); and 4,323,557 (Rosso et al.). Inclusion of medicaments or antimicrobial agents in the adhesive is also contemplated, as described in U.S. Patent Nos. 4,310,509 and 4,323,557.

Silicone adhesive can also be used. Generally, silicone adhesives can provide acceptable adhesion to skin while gently removing from skin. Exemplary suitable silicone adhesives are disclosed in International Publication Nos. WO2010/056541 (Liu et al.) and WO2010/056543 (Liu et al.), as well as US Patent No. 8,541,481 (Determan et al.). Presently preferred silicone adhesives include one or more poly diorganosiloxanes, such as radiation cured gels comprising a crosslinked poly diorganosiloxane material, a noncrossedlinked polydiorganosiloxane fluid, and a silicate resin tackifier, as well as polydiorganosiloxane polyamide containing adhesives featured in US Publication No. 2009/0242048 (Sherman et al.).

For animal treatment applications, it can be desirable in certain circumstances to use an adhesive with a greater adhesion to skin, including fur. In such implementations, it can be desirable to include an adhesive having a peel adhesion to steel of at least 5 ounces/inch, and in other implementations at least 10 ounces/inch.

Release Liners

Release liners may be supplied with the medical dressings to protect the pressure sensitive adhesive used to attach the dressings to the patient. Release liners that may be suitable for use in the medical dressing can be made of supercalendered kraft paper, glassine paper, polyethylene, polypropylene, polyester or composites of any of these materials.

The liners are preferably coated with release agents such as fluorochemicals or silicones. For example, U.S. Patent No. 4,472,480 (Olson) describes low surface energy perfluorochemical liners. The liners may preferably be in the form of papers, polyolefin films, polyolefin coated paper or polyester films coated with silicone release materials. Examples of commercially available silicone coated release liners are POLY SLIK™ silicone release on polyolefin coated papers, FL2000™ silicone release on film, and STICK-NOT™ silicone release on supercalendered kraft paper, all available from Loparex Inc., (Willowbrook, IL); silicone coated supercalendered kraft paper from Akrosil, (Menasha, WI); and

silicone release film from Huhtamaki Florchheim, (Florchheim, Germany). Another potential liner is silicone coated (1630) low density polyethylene available from Huhtamaki.

The selection of a specific release liner may be made in conjunction with the selection of a pressure sensitive adhesive. Those skilled in the art will be familiar with the processes of testing a new adhesive against different liners or a new liner against different adhesives to arrive at the combination of qualities desired in a final product. U.S. Patent No. 4,472,480 describes considerations pertinent to the selection of a perfluoropolyether release liner.

Carrier Films

In the alternative, or in addition to, release liners covering the fastener, the dressing may be provided on a carrier film. The carrier film may be separate from or integrated into packaging provided with the dressing. Carrier films suitable for use with the adjustable dressings can be made of kraft papers, polyethylene, polypropylene, polyester or composites of any of these materials. The films are preferably coated with release agents such as fluorochemicals or silicones. For example, U.S. Pat. No. 4,472,480 describes low surface energy perfluorochemical liners. The liners are papers, polyolefin films, or polyester films coated with silicone release materials. Examples of commercially available silicone coated release papers are POLY SLIK™, silicone release papers available from Rexam Release (Bedford Park, Ill.) and silicone release papers supplied by Loparex Inc. (Willowbrook, IL).

Embodiments

1. A medical article usable as a dressing, the article comprising: a conformable backing having a top surface and a skin-facing surface, wherein the backing defines a frame including a strap and a treatment area; an absorbent material coupled to the skin-facing surface of the treatment area; a temporary fastener disposed on the skin-facing surface proximate an edge of the strap; an edge fastener disposed on the skin-facing surface adjacent the temporary fastener, wherein the edge fastener has a greater adhesion to the top surface than the temporary fastener.

2. The medical article of embodiment 1 and further comprising skin-contacting fastener disposed adjacent the absorbent material on the skin-facing surface.

3. The medical article of embodiment 2, wherein the skin-contacting fastener comprises a first adhesive.

4. The medical article of embodiments 1-3, wherein the strap comprises an elongate portion of the backing extending from the treatment area, and wherein the temporary fastener is disposed between the treatment area and the edge fastener.

5. The medical article of any of the preceding embodiments, wherein the edge fastener extends to a boundary of the strap.

6. The medical article of any of the preceding embodiments, wherein the temporary fastener is disposed directly adjacent the edge fastener.

7. The medical article of any of the preceding embodiments, wherein edge fastener comprises a pressure sensitive adhesive.

8. The medical article of any of the preceding embodiments, wherein the temporary fastener comprises a mechanical fastener.

9. The medical article of any of the preceding embodiments, wherein the edge fastener exhibits an adhesion to the backing of at least 250 g/inch.

10. The medical article of any of the preceding embodiments, wherein the temporary fastener exhibits an adhesion to the backing of at least 25 g/inch and no greater than 450 g/inch.

11. The medical article of embodiment 10, wherein the temporary fastener exhibits an adhesion to the backing of at least 50 g/inch and no greater than 270 g/inch.

12. The medical article of any of the preceding embodiments, wherein the edge fastener exhibits a first peel adhesion to the backing, the temporary fastener exhibits a second peel adhesion to the backing, and wherein the first peel adhesion is at least twice the second peel adhesion.

13. The medical article of embodiment 12, wherein the first peel adhesion is at least three times greater than the second peel adhesion.

14. The medical article of any of the preceding embodiments, wherein the backing includes one or more backing materials, and wherein the strap comprises an at least partially stretchable backing material.

15. The medical article of any of the preceding embodiments, wherein the treatment area comprises a substantially non-stretchable backing material.

16. The medical article of any of the preceding embodiments, wherein the strap terminates in a closure tab and wherein the closure tab comprises a substantially non-stretchable backing material.

17. The medical article of embodiments 14-16, wherein the strap comprises an at least partially stretchable backing material, wherein the treatment area comprises a substantially non-stretchable backing material, and wherein the elastic backing material is fixed to the non-stretchable backing material in proximate to the absorbent.

18. The article of embodiments 15-17, wherein the substantially non-stretchable material comprises a non woven web.

19. The article of embodiment 18, wherein the substantially non-stretchable material includes a polypropylene spunbond nonwoven.

20. The medical article of embodiment 14, wherein the at least partially stretchable backing material exhibits a percent elongation of at least 50 and no greater than 500.

21. The medical article of any of the preceding embodiments, wherein the strap includes a plurality of separable leg segments, each leg segment including at least a portion of a closure tab.

22. The medical article of embodiment 21, wherein the leg segments are defined by a line of weakness extending a portion of the length of the strap.

23. The medical article of embodiment 22, wherein the line of weakness comprises perforations.

24. The medical article of embodiment 21 and comprising a first leg segment and a second leg segment, and wherein the first leg segment includes only a temporary fastener, and wherein the second leg segment includes only an edge fastener.

25. A medical article usable as a dressing, the article comprising: a conformable backing having a top surface and a skin-facing surface, wherein the backing includes a strap, a treatment area, and a closure tab, and wherein the strap comprises an at least partially stretchable material and the treatment area comprises a substantially non-stretchable material; an absorbent material coupled to the skin-facing surface of the treatment area; and at least one fastener disposed on the skin-facing surface of the closure tab.

26. A medical article according to embodiment 25, and further comprising a first skin-contacting fastener coupled to the skin-facing surface of the treatment area and disposed adjacent the absorbent material.

27. The medical article of embodiment 26, wherein the skin-contacting fastener comprises an adhesive.

28. The medical article of any of embodiments 25-27, wherein the closure tab includes a substantially non-stretchable material.

29. The medical article of any of embodiments 26-28, wherein the treatment area is fixed to the strap at a location proximate the absorbent material.

30. The medical article of any of embodiments 25-29, wherein the substantially non-stretchable material is bonded to the stretchable material.

31. The medical article of embodiment 30, wherein a bond between the substantially non-stretchable material and the stretchable material is created by a combination of force and thermal energy.

32. The medical article of embodiment 30, wherein the bond is created by an adhesive.

33. The medical article of any of the preceding embodiments, wherein the closure tab includes an edge fastener disposed on the skin-facing surface adjacent a temporary fastener, wherein the edge fastener has a greater adhesion to the top surface than the temporary fastener.

34. The medical article of any of the preceding embodiments, wherein the strap includes a plurality of separable leg segments, each leg segment including at least a portion of the closure tab.

35. The medical article of embodiment 34, wherein the leg segments are defined by a line of weakness extending a portion of the length of the strap.

36. The medical article of embodiment 35, wherein the line of weakness comprises a series of perforations in the backing.

37. The medical article of any of the preceding embodiments, wherein the dressing includes a total length measured from an edge of the treatment area to an edge of the closure tab, and wherein a length of the strap is at least 65 percent of the total length of the dressing.

38. The medical article of any of the preceding embodiments, wherein the strap has a width that is less than a width of the treatment area located underneath the absorbent material.

39. The medical article of any of the preceding embodiments, wherein the absorbent material comprises an absorbent, gauze pad.

40. The medical article of any of the preceding embodiments, wherein the dressing includes one or more active agents.

41. The medical article of embodiment 34, wherein the pad includes a reservoir, and wherein the one or more active agents are located in the reservoir.

42. The medical article of embodiment 35, wherein the active agent includes at least one of an antimicrobial, an antibiotic, an analgesic, a coagulant, a vitamin, a growth factor, a nutrient, and a pheromone.

43. A medical article usable as a dressing, the article comprising: a conformable backing having a top surface and a skin-facing surface, wherein the backing includes a strap and a treatment area, wherein strap includes a stretchable material; an absorbent material coupled to the skin-facing surface of the treatment area; a fastener disposed on the skin-facing surface of the strap; and a stretchable tab comprising a portion of the strap, wherein the tab is at least partially separable from the strap.

44. The medical article of embodiment 43, wherein the strap includes a periphery defining a frame, and wherein the stretchable tab is disposed within the frame.

45. The medical article of embodiment 44, wherein the tab includes a portion of the fastener.

Test Methods

Peel Adhesion Test I

Samples can be tested for 180° peel adhesion using a constant rate of extension tensile tester (Model 5500 Series, commercially available from Instron Engineering Corp. Canton, Mass.) at a rate of 12 inches per minute, with a peel distance of 1.5 inches. A 0.5 inch thick strip of fastener material is fixed lengthwise to an 8-1/2" X 11" paper; the assembly is then cut into 0.5 inch strips. The backing material is cut into 1" X 4.0" strips. The paper-backed fasteners samples are affixed to the backing material samples by rolling a 2 kilogram (4.5 pounds) roller over the surface of the fastener sample opposite the backing material for one cycle (once forward and back). A 500 gm weight is secured to one end of the fastener via a Boston clip and the assembly is raised and held for ten seconds. The end of the fastener sample opposite the weight is manually separated from the backing and the backing is placed in the lower jaw of the tensile tester. The backing and/or the assembly is inserted into the upper jaw. The assembly is then run in a 180-degree angle until the fastener and the backing are completely separated. Peel force is measured in

N/25mm and converted to g/inch. The tests can be run at 23°C (plus/minus 2°) and 50% (plus/minus 5%) relative humidity.

The complete disclosures of the patents, patent documents, and publications cited herein are incorporated by reference in their entirety as if each were individually incorporated. Various modifications and alterations to this invention will become apparent to those skilled in the art without departing from the scope and spirit of this invention. It should be understood that this invention is not intended to be unduly limited by the illustrative embodiments and examples set forth herein and that such examples and embodiments are presented by way of example only with the scope of the invention intended to be limited only by the embodiments set forth herein as follows.

What is claimed is:

1. A medical article usable as a dressing, the article comprising:

a conformable backing having a top surface and a skin-facing surface, wherein the backing defines a frame including a strap and a treatment area;

an absorbent material coupled to the skin-facing surface of the treatment area;

a temporary fastener disposed on the skin-facing surface proximate an edge of the strap;

an edge fastener disposed on the skin-facing surface adjacent the temporary fastener, wherein the edge fastener has a greater adhesion to the top surface than the temporary fastener.

2. The medical article of claim 1 and further comprising skin-contacting fastener disposed adjacent the absorbent material on the skin-facing surface.

3. The medical article of claim 2, wherein the skin-contacting fastener comprises a first adhesive.

4. The medical article of claims 1-3, wherein the strap comprises an elongate portion of the backing extending from the treatment area, and wherein the temporary fastener is disposed between the treatment area and the edge fastener.

5. The medical article of any of the preceding claims, wherein the edge fastener extends to a boundary of the strap.

6. The medical article of any of the preceding claims, wherein the edge fastener exhibits an adhesion to the backing of at least 250 g/inch.

7. The medical article of any of the preceding claims, wherein the temporary fastener exhibits an adhesion to the backing of at least 25 g/inch and no greater than 450 g/inch.

8. The medical article of any of the preceding claims, wherein the edge fastener exhibits a first peel adhesion to the backing, the temporary fastener exhibits a second peel adhesion to the backing, and wherein the first peel adhesion is at least twice the second peel adhesion.

9. The medical article of claim 8, wherein the first peel adhesion is at least three times greater than the second peel adhesion.

10. The medical article of any of the preceding claims, wherein the backing includes one or more backing materials, and wherein the strap comprises an at least partially stretchable backing material.

11. The medical article of any of the preceding claims, wherein the treatment area comprises a substantially non-stretchable backing material.

12. The medical article of any of the preceding claims, wherein the strap terminates in a closure tab and wherein the closure tab comprises a substantially non-stretchable backing material.

13. The medical article of claims 10-12, wherein the strap comprises an at least partially stretchable backing material, wherein the treatment area comprises a substantially non-stretchable backing material, and wherein the elastic backing material is fixed to the non-stretchable backing material in proximate to the absorbent.

14. The medical article of claim 10, wherein the at least partially stretchable backing material exhibits a percent elongation of at least 50 and no greater than 500.

15. The medical article of any of the preceding claims, wherein the strap includes a plurality of separable leg segments, each leg segment including at least a portion of a closure tab.

16. The medical article of claim 15, wherein the leg segments are defined by a line of weakness extending a portion of the length of the strap.

17. A medical article usable as a dressing, the article comprising:

a conformable backing having a top surface and a skin-facing surface, wherein the backing includes a strap, a treatment area, and a closure tab, and wherein the strap comprises an at least partially stretchable material and the treatment area comprises a substantially non-stretchable material;

an absorbent material coupled to the skin-facing surface of the treatment area; and

at least one fastener disposed on the skin-facing surface of the closure tab.

18. A medical article according to claim 17 and further comprising a first skin-contacting fastener coupled to the skin-facing surface of the treatment area and disposed adjacent the absorbent material.

19. The medical article of any of claims 17-18, wherein the closure tab includes a substantially non-stretchable material.

20. The medical article of any of claims 17-19, wherein the substantially non-stretchable material is bonded to the stretchable material.

21. The medical article of claim 20, wherein a bond between the substantially non-stretchable material and the stretchable material is created by one of force, thermal energy, adhesive and combinations thereof.

22. The medical article of any of the preceding claims, wherein the closure tab includes an edge fastener disposed on the skin-facing surface adjacent a temporary fastener, wherein the edge fastener has a greater adhesion to the top surface than the temporary fastener.

23. The medical article of any of the preceding claims, wherein the strap includes a plurality of separable leg segments, each leg segment including at least a portion of the closure tab.

24. The medical article of claim 23, wherein the leg segments are defined by a line of weakness extending a portion of the length of the strap.

25. The medical article of any of the preceding claims, wherein the absorbent material comprises an absorbent, gauze pad.

26. The medical article of any of the preceding claims, wherein the dressing includes one or more active agents.

27. The medical article of claim 26, wherein the pad includes a reservoir, and wherein the one or more active agents are located in the reservoir.

28. A medical article usable as a dressing, the article comprising:

a conformable backing having a top surface and a skin-facing surface, wherein the backing includes a strap and a treatment area, wherein strap includes a stretchable material;

an absorbent material coupled to the skin-facing surface of the treatment area;

a fastener disposed on the skin-facing surface of the strap; and

a stretchable tab comprising a portion of the strap, wherein the tab is at least partially separable from the strap.

29. The medical article of claim 28, wherein the strap includes a periphery defining a frame, and wherein the stretchable tab is disposed within the frame.

30. The medical article of claim 29, wherein the tab includes a portion of the fastener.

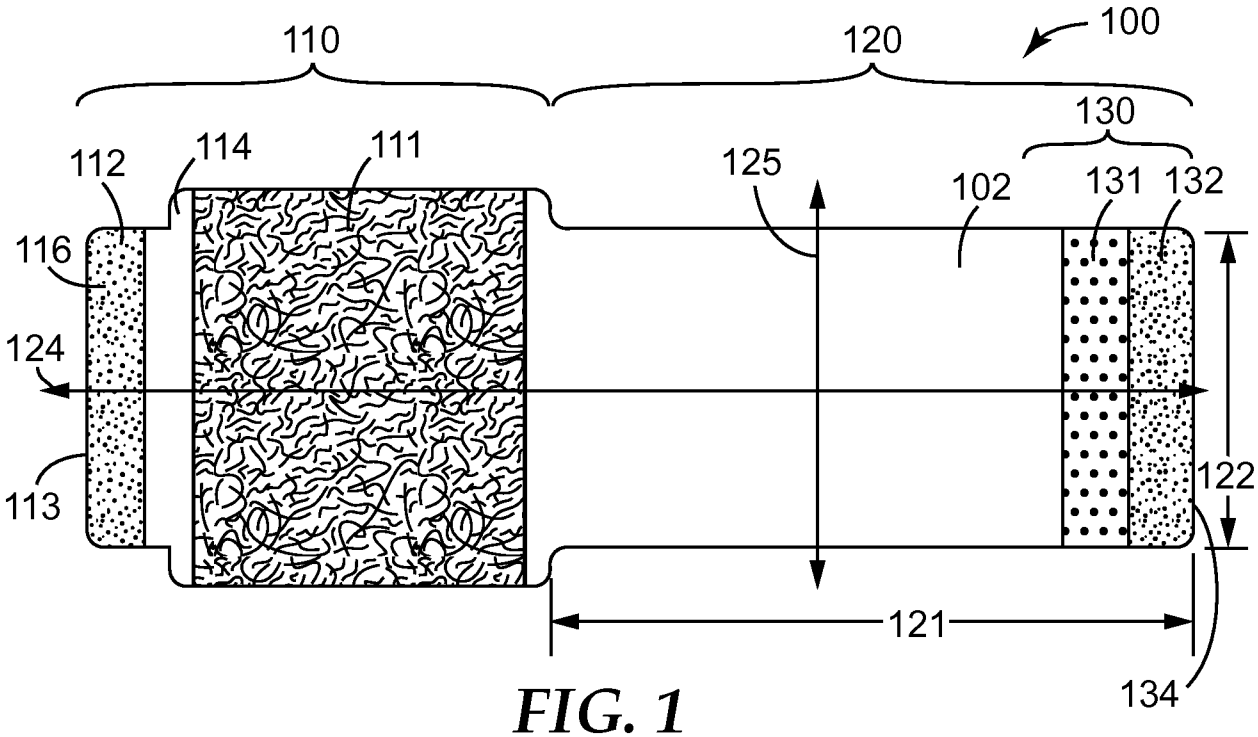


FIG. 1

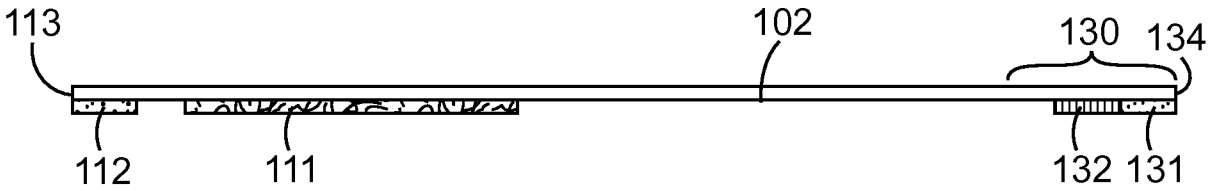


FIG. 2

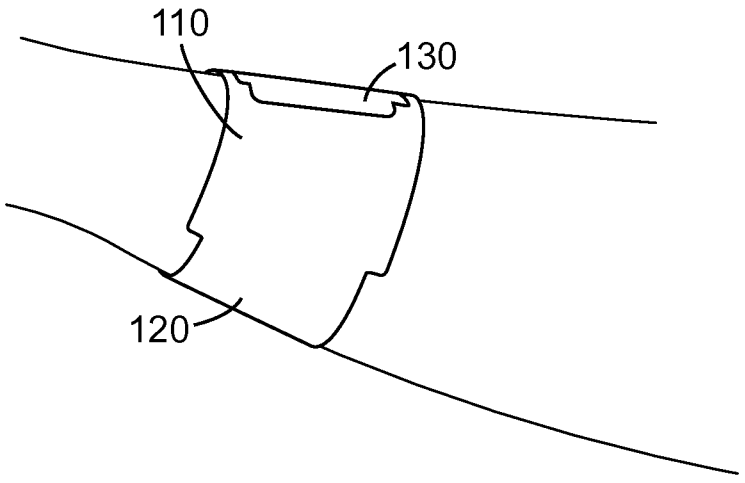


FIG. 3

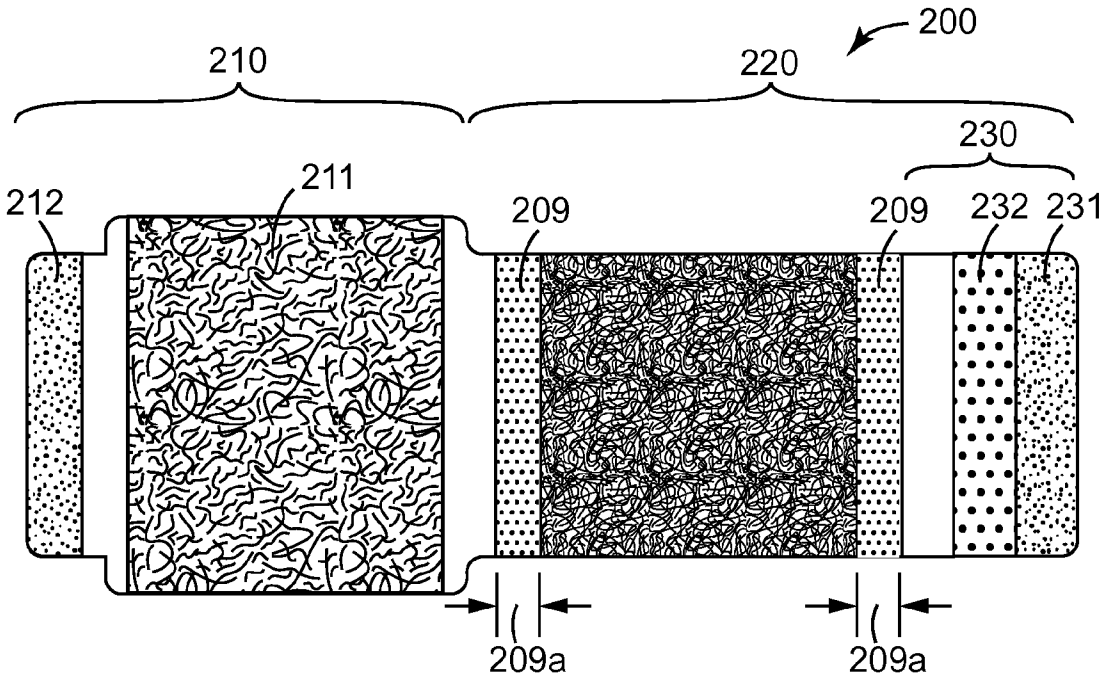

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FIG. 4

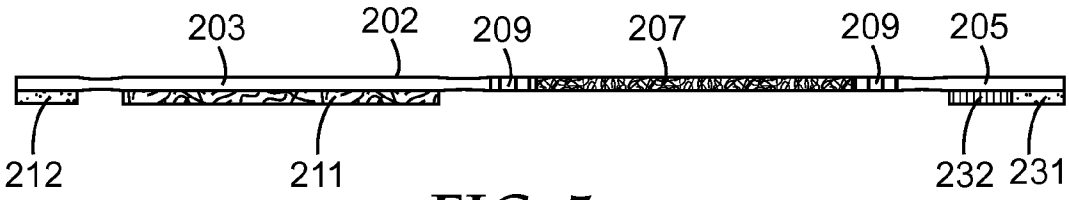

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FIG. 5

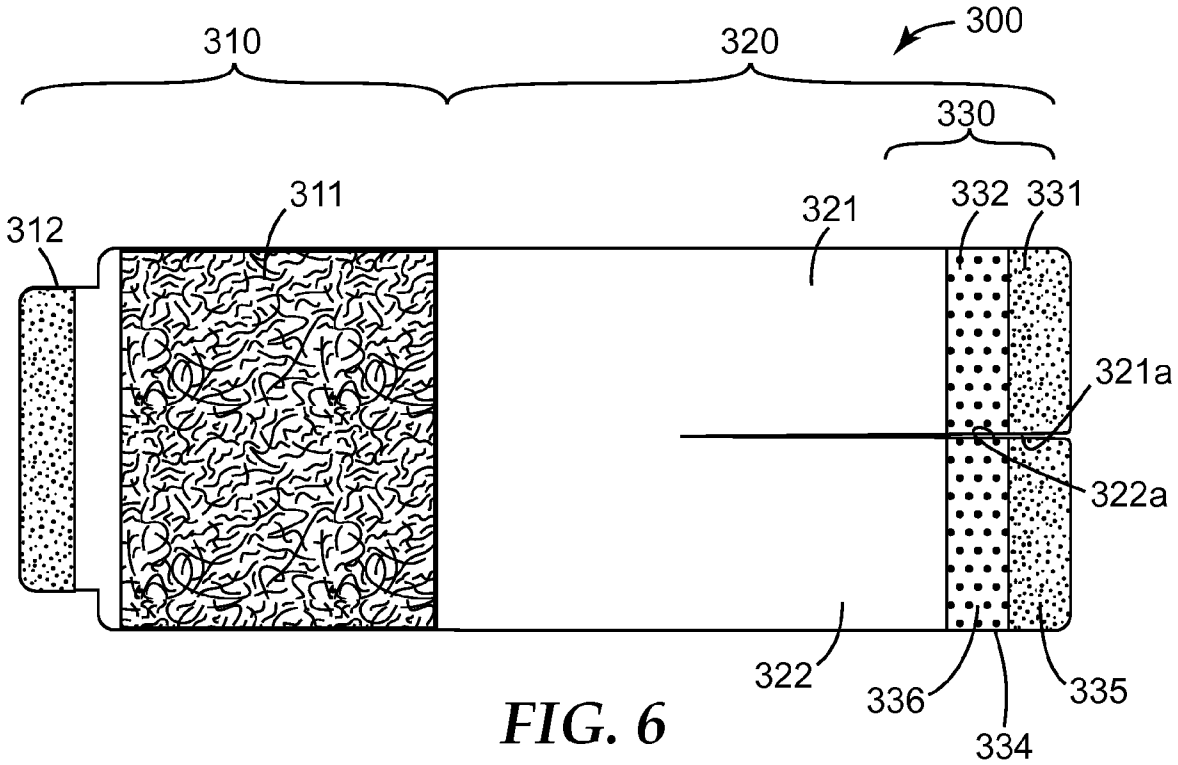

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FIG. 6

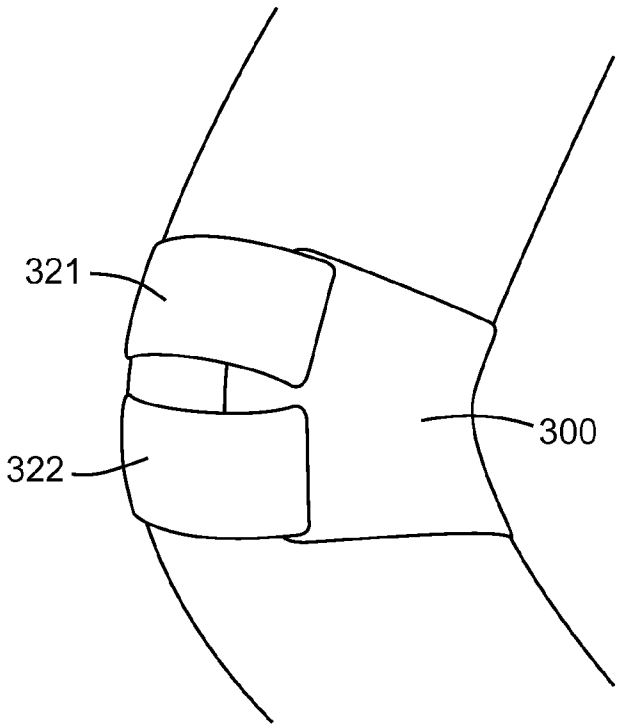

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FIG. 7

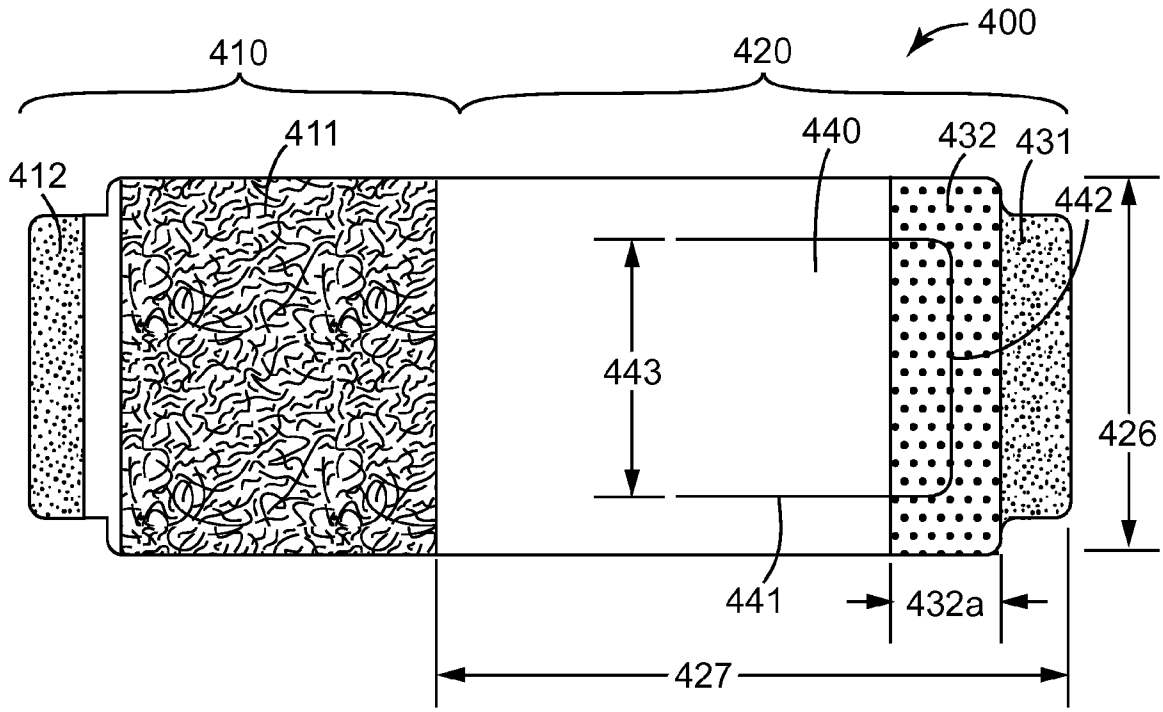

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FIG. 8

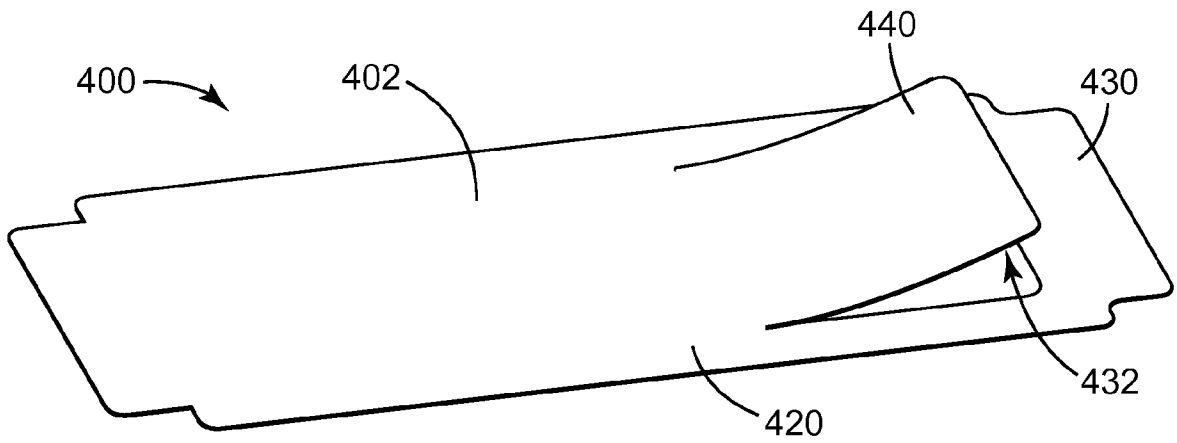

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FIG. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/046982

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61F13/00 A61F13/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/319798 A1 (DIGRAZIA JENNIFER [US]) 29 December 2011 (2011-12-29) cited in the application paragraphs [0008] - [0018], [0155] - [0173], [0186] - [0187]; figures 6a,6b,6c,7b,10b,11b	1,17,28
Y	WO 2013/009725 A1 (3M INNOVATIVE PROPERTIES CO [US]; HOLM DAVID R [US]; LUNDQUIST KEVIN G) 17 January 2013 (2013-01-17) page 3, line 31 - page 6, line 26	2-16, 18-27, 29,30
Y	US 2008/039760 A1 (LESKO JOSEPH JOHN [US]) 14 February 2008 (2008-02-14) paragraphs [0009], [0013] - [0017]	2-16, 18-27, 29,30

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
2 October 2014	14/10/2014

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Lanniel, Geneviève

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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 904 763 A1 (MEDIGAM EURL ENTPR UNIPERSONNE [FR]) 15 February 2008 (2008-02-15) page 2, lines 1-17; figures 1,4,6 page 3, line 16 - page 5, line 20 -----	1-30

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2014/046982

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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WO 2013009725 A1	17-01-2013	CN 103648452 A	19-03-2014
		EP 2731563 A1	21-05-2014
		JP 2014520631 A	25-08-2014
		WO 2013009725 A1	17-01-2013
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FR 2904763 A1	15-02-2008	NONE	