No. 810,125. PATENTED JAN. 16, 1906.

W. R. GREEN.

ABSORBENT BANDAGE.

APPLICATION FILED JUNE 10, 1904.

Fig. 1.

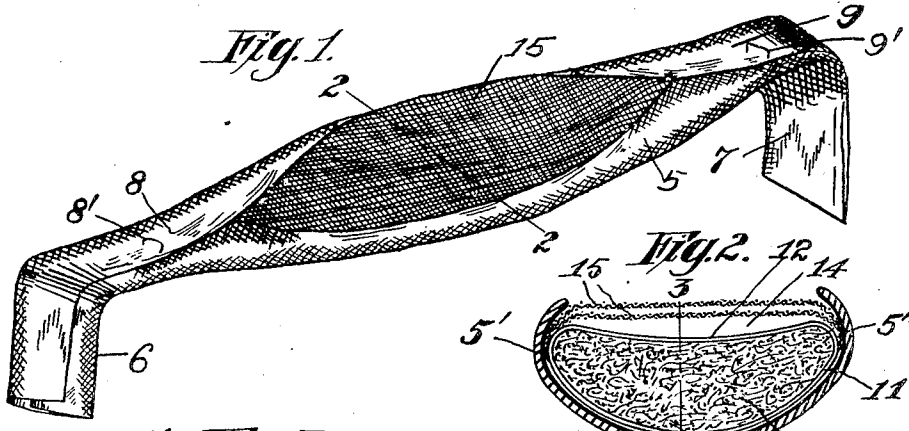


Fig. 2.

Fig. 3.

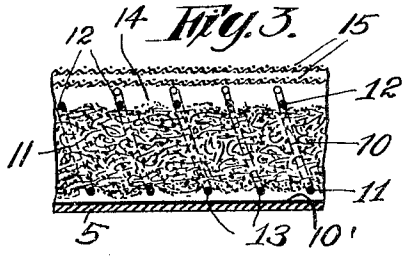


Fig. 4.

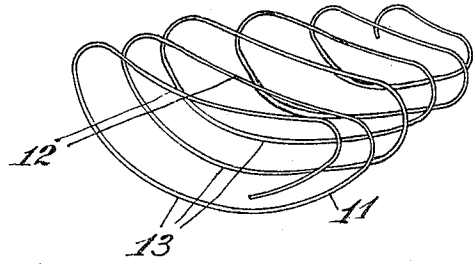
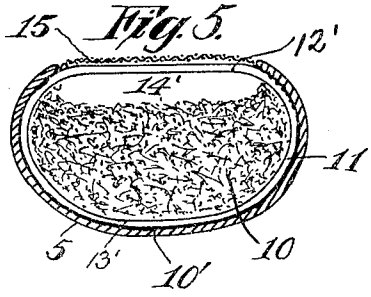


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLARD R. GREEN, OF MUSCATINE, IOWA, ASSIGNOR TO THE AMERICAN ABSORBENT FIBER COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

ABSORBENT BANDAGE.

No. 810,125. Specification of Letters Patent. Patented Jan. 16, 1906.

Application filed June 10, 1904. Serial No. 211,934.

To all whom it may concern:

Be it known that I, WILLARD R. GREEN, a citizen of the United States, residing in Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Absorbent Bandages, of which the following is a specification.

The present improvements relate to absorbent bandages of the kind known in a general way as "surgical" bandages, the object being to provide a flexible and relatively non-compressible bandage adapted for holding and applying absorbent material in a relatively loose condition and also adapted to be made of such materials as will produce the bandages at low cost, while obtaining a high degree of efficiency.

In the drawings accompanying and forming a part of this specification, Figure 1 is a perspective view of a bandage made in accordance with my present improvement. Fig. 2 is a cross-sectional view taken in line 2 2, Fig. 1. Fig. 3 is a partial longitudinal section, somewhat diagrammatic in character, taken in line 3 3, Fig. 2. Fig. 4 is a perspective view of a portion of one of the members of the bandage in a preferred form thereof. Fig. 5 is a view similar to Fig. 2, illustrating certain modifications in the specific construction of the article.

Similar characters of reference indicate like parts in all the figures of the drawings.

In the drawings the absorbent material, with the receiving and retaining members shown in connection therewith, are represented as being contained in and supported by a suitable cover-sheet, as 5, the ends of which sheet may be folded over to form extensions for attaching the bandage for holding the same in place. This is indicated in Fig. 1, in which the folded end portions 6 and 7 are represented as being attached together at 8 and 9, respectively, by some suitable attaching device there indicated. In practice the folded-over portions of the cover-sheet may be stitched in any convenient manner or a metallic staple or fastening device, as 8′ and 9′, may be employed.

One of the principal features of the present improvement is the employment in connection with the mass of absorbent material, as 10, of a flexible device of the nature of a cage or framework in which the absorbent material, or at least the principal portion thereof, may be inclosed. In Fig. 2 such a device or framework in a preferred form thereof is indicated by 11. The illustration in Fig. 4 indicates how this framework may be built up of coils or windings of wire of suitable size and flexibility. By means of this construction the framework 11 may be given a high degree of flexibility in vertical and lateral directions and also a high degree of compressibility longitudinally of the bandage with a relatively slight compressibility transversely of the bandage.

In Figs. 2 and 4 the upper transverse portions of the successive coils are indicated by 12 and the lower portions are indicated by 13, said upper portions being shown downwardly curved for the purpose of providing a space at 14 above the absorbent member (this being considered as comprising in the present instance the flexible framework with its contained absorbent material 10) and within the receiving-surface layer or layers 15. This space is an advantage in furnishing a more complete ventilation, while providing for the depression of said receiving-surface sheet or sheets 15, and at the same time the upper portions of the absorbent mass 10 will naturally extend in loosely-formed irregular undulations upwardly to some extent between the successive upper member 12 of said framework, so as to partially fill said upper space 14, but much more loosely than the space within the line of the framework cross-beams referred to. By this means a very efficient and desirable organization of members is produced, while at the same time the construction and arrangement is simple and effective, and at the same time the device as a whole is capable of being manufactured by the use of materials of low cost, thereby permitting the bandages to be manufactured with rapidity and economy.

The upper portion of the retaining member being depressed, as indicated in Figs. 2, 3, and 4, the surface sheet or sheets, as 15, are then preferably stretched across directly above the retaining member, and the edges of said surface sheets are joined to the cover-sheet 5 at the points 5′ and 5″, Fig. 2, along the edges of said retaining member. When said surface sheets are so combined with the other members of the bandage and said sheets are also formed of suitable textile material, the edges thereof constitute a kind of

cushioning intermediate the cover-sheet and the side-bracing portions of said retaining member.

In the sectional view Fig. 3 the features just referred to in connection with Fig. 2 are also shown, the successive cross members 12 of the frame 11 being shown located at a considerable distance apart. In practice this distance may be largely reduced, especially if the wire or analogous material used for making the retaining member shall be of relatively small size. The loosely-formed mass of absorbent material is diagrammatically represented in Figs. 2 and 3 by the character of the lines or shading representing the said mass. This material may consist of some suitable fiber-like substance—as, for instance, vegetable fiber in the form of threaded strands or yarn; but I prefer to use small woody strands loosely mingled together and moderately compacted so as to form interior spaces of varying sizes, of which a substantial portion shall be small enough to act in a capillary manner for absorbing and retaining the fluid and semifluid materials for the absorption of which the bandage may be employed.

In the form of modification represented in Fig. 5 it will be observed that the member or framework 11 is represented with its upper transverse member located at the top of the bandage with the surface sheet 15 lying directly thereon, the whole being contained in the cover-sheet 10. It will also be observed in this view that the space 14′, corresponding to the space 14 shown in Figs. 2 and 3, is here represented as lying within the upper and lower transverse portions 12′ 13′ of the framework member, while the mass of absorbent material does not entirely fill the interior space or chamber of said member. This arrangement is deemed to have advantages for use in some cases.

In practice the cover-sheet 10 is preferably waterproofed on the inner side thereof and through the middle portion of its length, this feature being indicated at 10′ by a heavy line on the inner side of the cover-sheet. This sheet is preferably made of a light fabric, such as muslin or other light woven material, and the waterproofing may be applied thereto in the usual well-known manner employed for similar purposes in the manufacture of ordinary waterproof goods made of fabrics.

The protecting member or framework 11 constitutes a side-bracing member for preventing the lateral collapse or undue compression of the bandage by pressure applied to the edges thereof. Said member 11 also comprises a chambered member in connection with its functions as a side-bracing member. When the absorptive material is contained within said member 11, said member becomes not only a containing member for the absorptive material, but also constitutes a protecting device for preventing the undue compacting of said material, and thus provides a means for maintaining the absorptive capacity of the material as well as for preventing the discharge of its contents by subjecting said material when saturated to undue compression. By thus preventing compression of the absorptive mass the proper ventilation of said mass by the aid of the open spaces 14 14′, either below or above the upper transverse member of said framework 11, is maintained and improved, especially in connection with the receiving sheet or sheets 15 when these are made of woven fabrics of relatively open mesh, which is deemed the preferable material therefor. By using two such surface sheets applied one directly upon the other by making the meshes relatively open—that is, with the meshes distinctly larger than the size of the threads or yarns employed in the manufacture of the same—there is on the bending of the bandage or the application of varying pressures thereto a kind of abrading or scraping movement as between any plurality of such surface-sheets, by which means the receptivity of the bandage is improved with a corresponding reduction in the liability of the surface to become clogged or sealed by semifluid or coagulative substances. This feature and certain other features herein illustrated and described but not claimed constitute in part the subject-matter of separate applications for improvements in absorbent bandages, which applications are concurrently pending herewith.

One of the objects and advantages sought to be obtained by means of the present improvement is to provide for the manufacture of the bandages at a low cost and for the use in such manufacture of materials of a low cost and employed in a minimum quantity. For this purpose and also to provide for a high degree of receptivity and distributive capacity, but especially to reduce the amount of absorptive material which would otherwise be required in a bandage of a given and proper bulk and size, I employ such a construction of the component members of the bandage as will secure an open space in the nature of chamber-space or cell-space, these spaces serving in part as receptacles for the quick reception of fluid or semifluid material and also serving as distributive means for transmitting the same more gradually to the absorptive portions of the bandage. Also such space or spaces will in general serve to finally receive and retain portions of material which would otherwise have to be taken up by the absorptive or fibrous portions of the bandage.

The form of the cage herein shown and described is not claimed broadly herein, since it constitutes in part the subject-matter of

my copending application, Serial No. 211,932, filed June 10, 1904.

Having thus described my invention, I claim—

1. In an absorbent bandage, the combination of a body of absorbent material, a covering therefor, and an absorbent-retaining and bandage side-bracing member located between the covering and said absorbent material.

2. An absorbent bandage comprising a cover-sheet, a coil-formed cage located therein, and absorbent material located within said cage, the organization being such that the cage incloses the absorbent material and the cover-sheet incloses the cage.

3. An absorbent bandage comprising a cover-sheet having an opening, a coil or helically-formed cage within said cover-sheet, absorbent material substantially all of which is located within said cage, the upper surface of which cage is of different formation from the under surface, and one or more surface sheets extending across the opening of the cover-sheet.

4. In an absorbent bandage, a retaining member comprising a plurality of flexible coils formed with their upper portions depressed, combined with an absorbent mass all substantially contained within said retaining member, and a surface sheet extending over the retaining member, whereby an open space is normally formed between said surface sheet and said retaining member with the absorbent material therein.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 7th day of June, 1904.

WILLARD R. GREEN.

Witnesses:
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JOHN O. SEIFERT.