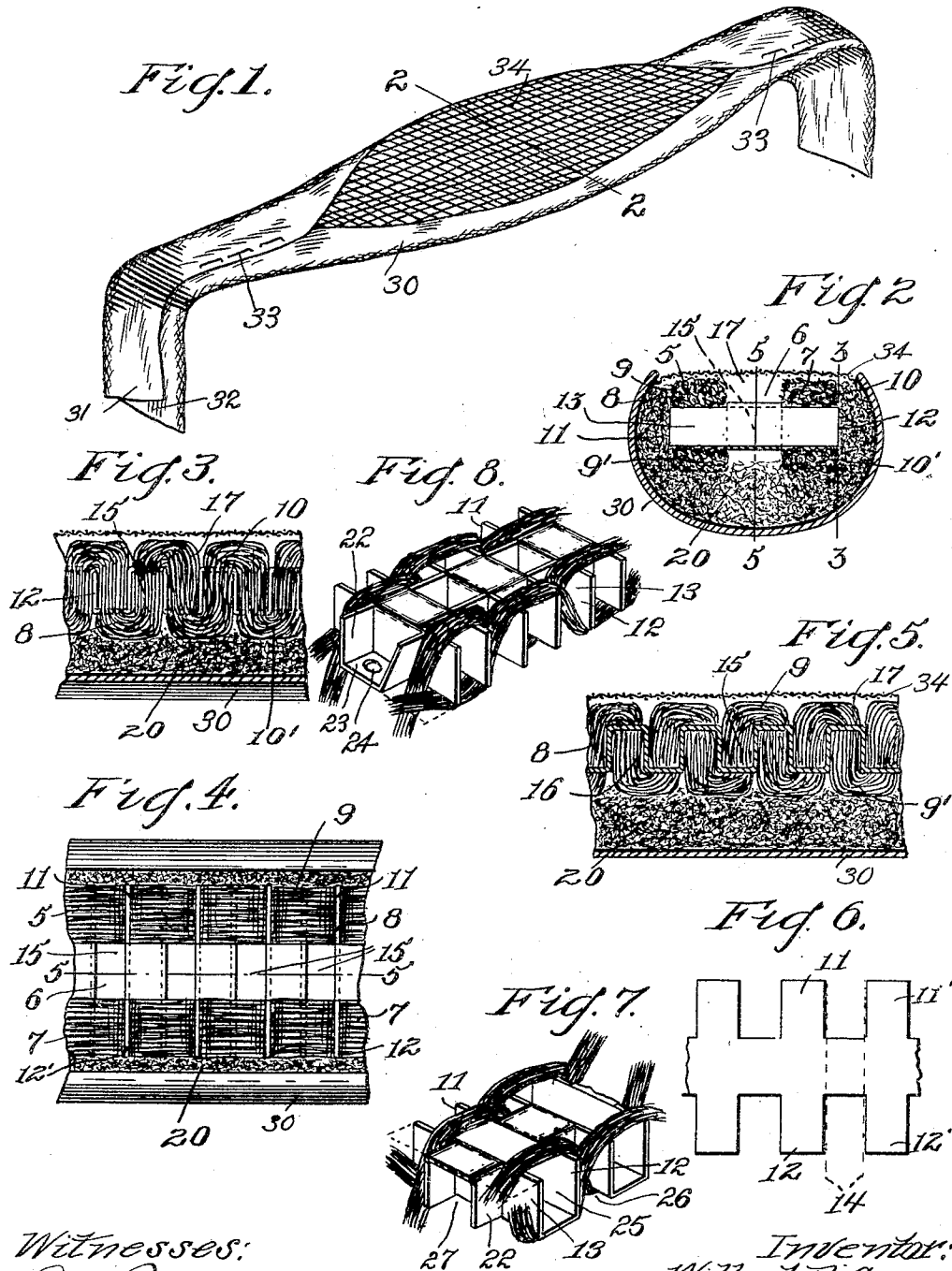


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W. R. GREEN.
ABSORBENT BANDAGE.
APPLICATION FILED JUNE 10, 1904.



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UNITED STATES PATENT OFFICE.

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ABSORBENT BANDAGE.

No. 810,128.

Specification of Letters Patent.

Patented Jan. 16, 1906.

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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.

This invention relates to absorbent bandages; and 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 or size, I employ such a construction of the component members of the bandage as will secure a considerable proportionate amount of open space in the nature of chamber-space or cell-space, these spaces serving in part as receptacles for the quick reception of a considerable amount 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 considerable quantities of material which would otherwise have to be taken up by the absorptive or fibrous portions of the bandage.

In the drawings accompanying and forming a part of this specification, Figure 1 is a perspective view of an absorbent bandage made in accordance with my present improvements. Fig. 2 is a cross-sectional view taken in line 2 2, Fig. 1. Fig. 3 is a longitudinal sectional view taken in line 3 3, Fig. 2, showing the parts as seen from the right hand in Fig. 2. Fig. 4 is a plan view of a portion of the bandage with the surface sheet or sheets removed. Fig. 5 is a view similar to Fig. 3, taken in line 5 5, Figs. 2 and 4. Fig. 6 is a view illustrating a preferred construction of one of the component members of the bandage. Fig. 7 is a perspective view illustrating the application of an absorbent to one of the members, and Fig. 8 illustrates a different form thereof.

Similar characters of reference designate

corresponding parts throughout the several figures.

The bandage may be made up by having a suitable cover-sheet 30, in which the receiving and absorption materials and members are placed, and which cover-sheet may have its end portions 31 32 folded one upon the other and secured by some suitable securing means—as, for instance, fasteners or stitches, designated in a general way by 33—which ends may form securing members to secure the bandage in place or to the part to which it has been applied. The cover-sheet is so disposed upon the bandage as to leave a suitable receiving-opening, which may, if desired, be covered with some suitable material or fabric (designated in a general way by 34) which is readily penetrable by the material for absorption.

In absorbent bandages of this class it is desirable in some cases to provide a chamber-space within the body of the bandage and to so construct the bandage as to normally maintain said chamber-spaces free of obstructions other than the fluids or semifluids which may be taken up by the bandage. In accordance with my present improvement this object is attained by an improved organization and construction of the bandage, of which a preferred form is illustrated in the drawings.

In a general way the bandage (see Figs. 2 and 4) may be said to be divided longitudinally into three principal zones 5, 6, and 7. The middle zone 6 consists principally of open chamber-spaces, while in the adjacent side zones 5 and 7 are located the principal absorbent or receiving members of the article. The preferred construction and arrangement of one of these longitudinal receiving members is indicated in Fig. 3. The absorbent material of suitable fiber stock of the proper proportion and consistency in a strand or band, preferably of a flat shape, as indicated at 8, Fig. 2, is bent or folded upon itself upwardly and downwardly, the alternate bends 9 and 10 coming to the upper side of the bandage, while the alternate immediate bends 9' and 10' come to the lower side, and the strand 8 so folded is separated and supported by the individual members or elements 11 and 12, thereby holding said receiving member normally in proper form and supporting the same against undue com-

pression or collapsing within the bandage. For the purpose of preventing the sidewise collapsing of the bandage said supporting members 11 and 12 may be extended across
 5 the bandage to the opposite side thereof, as indicated at 13, Fig. 2. A further feature relates to the manner in which these individual side-bracing members 11 and 12 may be connected together in a series. The manner in which I prefer to accomplish this result when this feature is to be embodied in the bandage is illustrated in Fig. 6, showing a strip preferably cut from a sheet of paper-stock of suitable thickness and texture—
 15 such, for instance, as so-called "soda-stock," this being of a relatively firm but absorbent quality. In some cases, however, a thinner and more firm paper or sheet material may be employed, and the stability of the same
 20 may be maintained by suitably waterproofing—as, for instance, by treatment with an asphaltum preparation. By bending or folding the blank represented in Fig. 6 along the dotted lines 14 this member will then, as seen in edged view, take the form represented in
 25 Fig. 5. Comparing Fig. 3 with Fig. 2, it will be seen how the folding of the blank for the side-bracing and chamber-forming member will bring the projecting ends 11' and 12' in
 30 Fig. 6 into the positions indicated in Figs. 2, 3, 4, and 5 and at the same time form with the longitudinal middle portion of such member a series of open chambers 15 and 16, the alternate chambers 15 of which will open toward the top of the bandage, while the intermediate alternate chambers 16 will open toward the bottom of the bandage. This arrangement also provides an open space 17 along the top of the bandage connecting with
 40 the alternate upwardly-opening chambers 15.

The several parts of the bandage assembled as above described constitute a combined receiving and distributing member having absorptive portions and chamber-space portions, these chamber-spaces communicating directly with the vertically-disposed folds of the absorbent member. In addition to the portions just described I prefer to employ in practice an outer layer of
 50 absorbent fibrous material—such, for instance, as vegetable fiber of a loose formation—for inclosing the receiving and distributing member at the bottom and along the sides thereof. This additional absorbent
 55 material is indicated at 20.

The member constituting the side brace and chamber-forming member has absorbent material at the sides or between its edges and the sides of the bandage to act as pads.

60 In Figs. 3, 4, and 5 the absorbent material 8 is shown as having its bends pass around each projecting end 11 and 12, so that the strands of such absorbent will occupy each of the cell or chamber spaces at the edges of the

cell-space member. In Figs. 7 and 8, however, the strands pass through each alternate chamber, thus leaving intermediate chambers which are not filled or partially filled with the absorbent material, thus leaving
 70 chamber-spaces for the reception of the materials for absorption and receptacles in which the unabsorbed portions may remain.

It is desirable in some forms of bandage that the same shall be maintained to some extent from longitudinal compression, and
 75 in carrying out this feature the member carrying the cell-spaces may be made of a strip of some suitable material slitted inwardly from the sides and folded up, as shown in Fig. 8, wherein the portions 22 will be bent
 80 transversely to the portions 23, and so not only produce cells in the center of the member, but will prevent the longitudinal compression thereof and also add to the stability of the structure as a whole. In some cases
 85 it may be desired to perforate certain portions of this cell-space member, as at 24 or otherwise, as occasion may demand, and such cell-space or framework member may be constructed of perforated sheet-form material—such, for instance, as some kind of
 90 paper or veneer stock—or as a suitable sheet material therefor a wire-cloth of medium quality and size of mesh may preferably be employed.

In Fig. 7 it will be noticed that there are provided a series of upwardly - opening
 95 trough-like chambers 25, interspersed by intermediate cell-spaces 26, which are open at the top and bottom and the outer side, and
 100 which cell-spaces have between them other cell-spaces 27, which are closed at the top and open at the bottom—that is, assuming the top and bottom to mean, respectively, the
 105 portion directed toward the opening of the bandage and the portion directed toward the body of absorbent material. In the form shown in Fig. 7 the strands of absorbent pass over and under the trough-chambers 25 and through the cell-spaces 26. Thus a large
 110 amount of receiving and distributing chambers are provided and the structure is materially lightened in weight and the amount of absorbent material necessary to produce a
 115 bandage of a given size reduced or lessened.

In some cases the receiving-sheet may be dispensed with, in which case the receiving-chambers are open to directly receive the material for absorption.

It will be noticed in Fig. 7 that the bracing portions 22 are so disposed that they will prevent the collapsing of the said member at the lower side—that is, the side shown toward the bottom of the present drawings—so that there will be little inclination for collapsing; but as each alternate trough is open at the portion toward the top of the drawings it will be apparent that a transverse
 120
 125

bend in that direction will be greatly facilitated by this form of construction.

I do not claim herein, broadly, absorbent material folded upon itself, with the layers disposed perpendicularly to the bandage, or an absorbent sheet of material folded upon itself in connection with means for separating the several folds, as this constitutes in part the subject-matter of my copending application, Serial No. 212,278, filed June 13, 1904; nor do I claim herein strands running crosswise of each other or twisted strands, as this constitutes in part the subject-matter of my copending application, Serial No. 212,897, filed June 16, 1904; nor do I claim, broadly, herein a side-bracing member, as this constitutes in part the subject-matter of my copending application, Serial No. 211,926, filed June 10, 1904; nor a cellular side-bracing member, as this constitutes in part the subject-matter of my copending application, Serial No. 211,931, filed June 10, 1904.

Having thus described my invention, I claim—

1. A bandage comprising a body of absorptive material, a cover therefor provided with an opening, a member within said opening and provided with a series of cells or chamber-spaces, and absorptive material winding through the same, and presenting portions toward the opening of the bandage and toward the absorptive material respectively.

2. In a bandage, the combination with a cover-sheet, of a body having absorptive material therein, a member comprised of sheet material and bent upon itself to form a series of chamber-spaces, and strands of fibrous absorbent material wound about and through such member whereby some of the said spaces remain open and some of the same are partially filled with such absorbent strands.

3. An absorbent bandage, comprising a cover-sheet having an opening and a cell-spaced member adjacent to said opening, and having three longitudinal zones of cell-spaces, the inner zone of which is open and the cells in the side zones of which are partially closed by absorbent material.

4. A bandage comprising a cover having an opening, a framing member located in said cover, and strands of absorbent material

wound from top to bottom around parts of such framing member.

5. A bandage comprising a cover provided with an opening, a framing member having a series of elongated walls forming cells or troughs located in said cover, and strands of absorbent material wound around some or all of the ends of such framing member from top to bottom.

6. A bandage comprising absorptive material, and a folded framing member therein having a series of alternately-located troughs or cells, some or all of which have a part thereof provided with either a bottom or a top wall.

7. A bandage comprising absorptive material, and a folded framing member therein having a series of alternately-located troughs or cells, some or all of which have a part thereof provided with either a bottom or a top wall, and some or all of which portions having a top or bottom wall are also provided with an end wall or walls.

8. A bandage comprising a cover-sheet having an opening, a mass of absorptive material within said cover-sheet, a member between said absorptive material and said opening and having a number of cells or chambers, some closed toward said opening and open toward the absorptive mass, and some open toward said opening and closed toward the absorptive mass, and some also open toward both the said opening and absorptive mass, and fibrous absorptive material traversing some of said cells or chambers.

9. A bandage comprising a cover-sheet, one or more strands of absorbent material located therein and each folded upon itself a relatively large number of times, and means located between the folds of said strands for separating them.

10. A bandage comprising a cover-sheet, a plurality of strands therein, parts of one strand crossing parts of another, and means for separating one strand from another at various points throughout the length thereof.

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

WILLARD R. GREEN.

Witnesses:

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