C. C. WILLIS.

SURGICAL DRESSING.

APPLICATION FILED JAN. 12, 1918.

1,263,723. Patented Apr. 23, 1918.

Fig. 1.

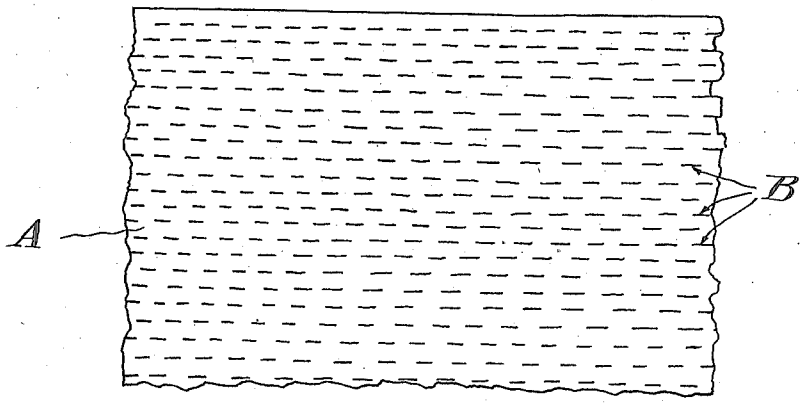


Fig. 2.

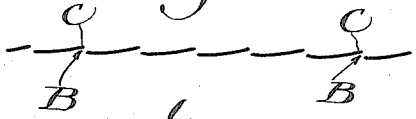


Fig. 3.



Fig. 4.

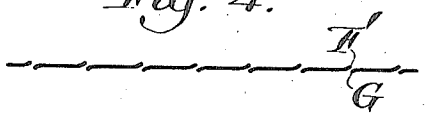


Fig. 6.

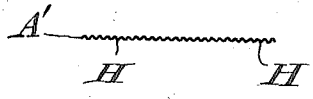
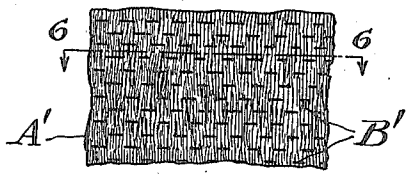


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES C. WILLIS, OF FRAMINGHAM, MASSACHUSETTS, ASSIGNOR TO DENNISON MANUFACTURING COMPANY, OF FRAMINGHAM, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS; WHICH COMPANY HAS DEDICATED ENTIRE RIGHT TO THE PEOPLE OF THE UNITED STATES OF AMERICA.

SURGICAL DRESSING.

1,263,723. Specification of Letters Patent. Patented Apr. 23, 1918.

Application filed January 12, 1918. Serial No. 211,517.

To all whom it may concern:

Be it known that I, CHARLES C. WILLIS, a citizen of the United States of America, and resident of Framingham, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Surgical Dressings, of which the following is a specification.

This invention relates to surgical dressings and has for its object the provision of a dressing, pad or bandage which is soft and yielding, which will absorb liquid rapidly and in large quantities, which may be applied in a loose and open manner so as to afford ventilation and freedom of movement or which may be compressed tightly in the manner of an ordinary cloth dressing, and which possesses other characteristics peculiarly adapting it to surgical dressings.

In one aspect the invention comprises a sheet of absorbent paper or other bibulous material with a plurality of perforations formed therein so that the power of absorption of the material is increased. The material is preferably formed at least in part of fibers with the fibers extending predominantly in a certain direction and the perforations are preferably produced in the form of slits extending transversely of the fibers so that the strength of the material will not be unduly weakened either longitudinally or transversely of the fibers and so that the ends of the fibers will be exposed at the slits to absorb by capillary action. The material is also struck-up or raised on one or both sides of each perforation so that the edges of the material at each perforation will be exposed, and when striking up the opposite edges of the perforations the opposite edges are preferably struck-up in opposite directions so that the opposite edges will be exposed on opposite sides of the material.

In a more limited aspect the invention consists in further treating the material by forming crinkles or corrugations therein as by crimping or rumpling the material so as to produce a rimose or rimulose formation. When so treated the crinkles may be formed either transversely of the perforations or transversely of the fibers of the material. When the crinkles are formed transversely of the perforations liquid entering the perforations will pass more readily along the troughs or crevices in the material and therefore will be absorbed more rapidly. When the crinkles are formed transversely of the fibers the elasticity of the material is somewhat increased so that it will retain its crinkled formation more tenaciously and so that it may be stretched more tightly without flattening.

In the drawings,—

Figure 1 is an elevational view of a piece of my improved dressing;

Figs. 2, 3 and 4 are sections taken transversely of the perforations showing three ways in which the material may be struck-up adjacent the perforations;

Fig. 5 is an elevational view of a modified form of my improved dressing; and

Fig. 6 is a section taken on line 6—6 of Fig. 5.

The embodiment of my invention illustrated in Fig. 1 comprises a sheet of absorbent paper A having a plurality of slit-like perforations B therein, the perforations preferably being arranged in a plurality of rows to facilitate their formation although this arrangement is not essential. The paper which I prefer to employ is thin and soft and is made of wood pulp with the fibers extending predominantly in a direction transverse to the perforations.

In addition to the perforations I preferably strike-up or otherwise raise the material on one or both sides of each perforation for reasons which will appear elsewhere herein. In Fig. 2 the material is illustrated as being raised at C on the left-hand side of each perforation B so that the edges of the material on opposite sides of the perforations are exposed on opposite sides of the material. As shown in Fig. 3, the material is raised on both sides of each perforation so that the edges D and E on opposite sides of the perforations are exposed on the same side of the material. In Fig. 4 the material is shown as struck-up in opposite directions on opposite sides of the perforations so that the opposite edges F and G are exposed on opposite sides of the material as in Fig. 2.

In the modified form of my invention illustrated in Figs. 5 and 6 the material A′ is not only perforated at B′ as in Fig. 1, but is also provided with crinkles or corrugations H, the crinkles preferably extending trans-

versely of the perforations. In this connection reference is made to the application of James R. Armington, Sr. No. 211,640, filed January 12, 1918, which fully discloses a crinkled formation suitable for the purpose of the present invention.

Of the many advantages pertaining to my improved surgical dressing I deem the following of greatest importance: By providing perforations in the material the dressing is rendered more absorbent inasmuch as liquid will pass rapidly into the material at the perforations and will be taken up in large quantities. Moreover, when employing a number of layers of the material in superposition liquid will penetrate through the several layers more rapidly and completely on account of the perforations. When the fibers of the material are arranged predominantly in a given direction and when the perforations are formed transversely thereof the rate of absorption is still further increased owing to the capillary action along the fibers extending from the perforations. A still further advantage is obtained by forming the perforations transversely of the predominant direction of the fibers inasmuch as the material is stronger longitudinally of the fibers and is substantially as strong in this direction after the perforations are formed as it is transversely of the fibers, whereas if the perforations are cut longitudinally of the fibers the material is unduly weakened transversely of the fibers. By striking up the material adjacent the perforations the edges of the material at the perforations are more completely exposed, especially where the perforations are in the form of slits, and the above mentioned advantages are still further accentuated. The struck-up portions of the material also tend to prevent the material from packing too tightly when several sheets are employed together. When the material is also crimped liquid entering at the perforations will spread from the perforations more readily, this advantage being of particular importance when the several sheets of the material are superposed.

I claim:—

1. A surgical dressing comprising a sheet of bibulous material having a plurality of slit-like perforations distributed therein.

2. A surgical dressing comprising a sheet of absorbent paper having a plurality of slit-like perforations distributed therein.

3. A surgical dressing comprising a sheet of bibulous material having a plurality of perforations distributed therein, the material being struck-up at each perforation so that the edges of the perforations are exposed.

4. A surgical dressing comprising a sheet of bibulous material having a plurality of perforations distributed therein, the material being struck-up in opposite directions on opposite sides of each perforation so that the opposite edges of each perforation are exposed on opposite sides of the sheet.

5. A surgical dressing comprising a sheet of absorbent paper having a plurality of slit-like perforations extending predominantly in a certain direction and having a plurality of juxtaposed crinkles extending predominantly in a different direction.

6. A surgical dressing comprising a sheet of bibulous material having a plurality of slits distributed therein in parallelism.

Signed by me at Framingham, Massachusetts, this ninth day of January, 1918.

CHARLES C. WILLIS.