M. D. TOUART.

SURGICAL SPLINT.

APPLICATION FILED DEC. 14, 1912.

1,131,295.

Patented Mar. 9, 1915.

2 SHEETS—SHEET 1.

Fig. 1,

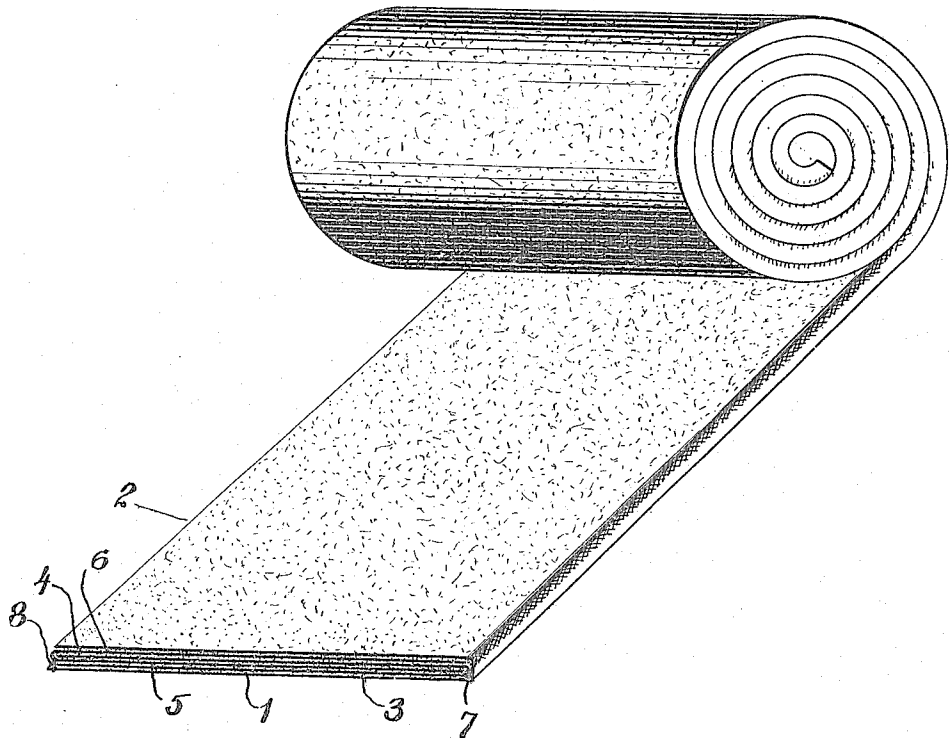
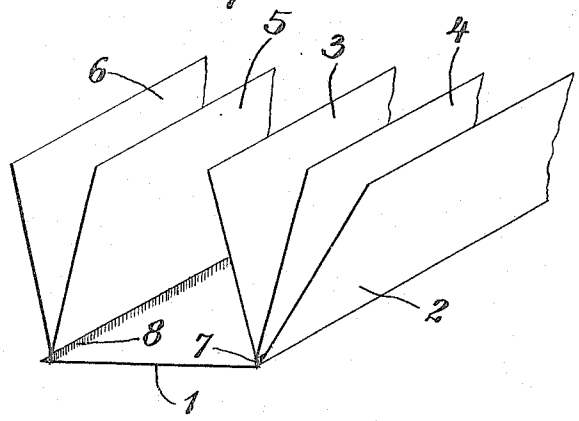


Fig. 2,



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2 SHEETS—SHEET 2.

Fig. 3

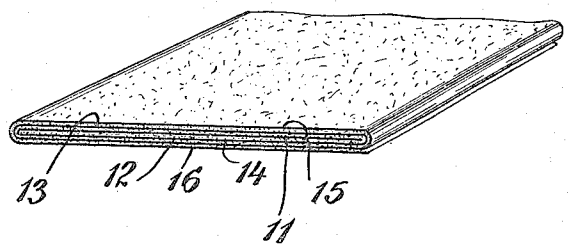


Fig. 4,

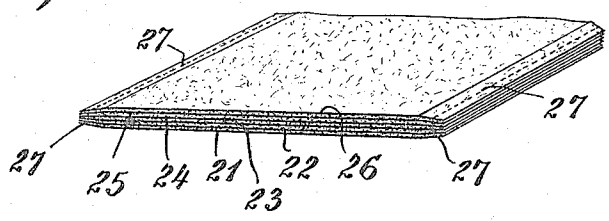


Fig. 5,

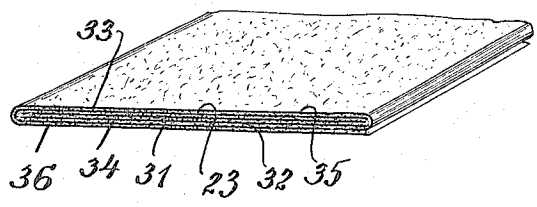
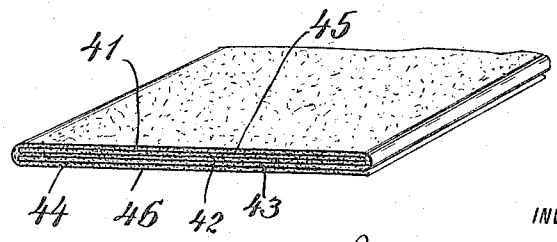


Fig. 6.



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UNITED STATES PATENT OFFICE.

MAXIMIN D. TOUART, OF NEW YORK, N. Y.

SURGICAL SPLINT.

1,131,295. Specification of Letters Patent. Patented Mar. 9, 1915.

Application filed December 14, 1912. Serial No. 736,682.

To all whom it may concern:

Be it known that I, MAXIMIN D. TOUART, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Surgical Splints, of which the following is a specification.

My invention relates to improvements in surgical splints such as are used for dressing and setting broken or fractured limbs, or the like, or for correcting abnormal conditions or disfigurations of various parts of the body.

One object of my invention is to provide a splint which contains plaster of Paris or other equivalent hardening material and which will hold the plaster of Paris so that no material portion of the latter will be lost in the manipulation of the splint, and which has a sufficient number of layers of strengthening gauze or the like, suitably secured and placed to properly reinforce the plaster of Paris when applied and dried.

Further objects, features and advantages will more clearly appear from the detailed description given below taken in connection with the accompanying sheets of drawings which form a part of this specification.

In the drawings, Figure 1 is a perspective view of a roll of surgical splint constructed according to my invention in its best form; Fig. 2 is a diagram illustrating the method of folding or placing the various layers of the splint; and Figs. 3, 4, 5 and 6 illustrate modifications.

Referring to Figs. 1 and 2, the splint shown may be constructed in the following manner. Three long strips of woven fabric of organic material such as gauze are taken and folded lengthwise substantially along the center thereof to form layers 1 and 2 of one strip, 3 and 4 of another strip, and 5 and 6 of the third strip. The strip comprising layers 3 and 4 is then stitched to the strip comprising layers 1 and 2 along the line of folding common to both as shown at 7. The third strip comprising layers 5 and 6, is then, along the line of its folding, stitched to the opposite parallel edge of the layer 1 as shown at 8. Then the layers 2, 3 and 4 are folded back to the right (Fig. 2) and the layers 5 and 6 folded back to the left. A layer of plaster of Paris is then spread upon the layer 1. Then the layer 3 is turned over and laid down upon this layer of plaster of Paris, and a second layer of plaster of Paris spread upon the layer 3. Then the layer 5 is brought over and laid down on this second layer of plaster of Paris and a third layer of plaster of Paris spread upon the layer 5. Then the layer 4 is folded over on the line of stitching and laid down on this third layer of plaster of Paris and a fourth layer of plaster of Paris spread upon the layer 4. Then layer 6 is folded over along the line of stitching upon this fourth layer of plaster of Paris and a fifth layer of plaster of Paris spread upon the layer 6. Then the last layer of gauze 2 is folded over upon the fifth layer of plaster of Paris and a thin layer of plaster of Paris may be spread upon the top of this layer 2. The strips thus form a plaster of Paris bandage which may be rolled up and is then ready for the market. The plaster of Paris is not only held in place by the layers of gauze but permeates the interstices of the gauze so that when wet, and then applied and dried in the usual manner, practically a single integral plaster of Paris splint is formed with the threads of the gauze passing therethrough to increase the tensile strength of the splint. Yet by the method of folding there is little chance for any material quantity of plaster of Paris being lost out of the splint at the edges or elsewhere, during the manipulation thereof in preparing or applying the same. Also the splint has the necessary thickness and the necessary reinforcement of gauze without any folding at the time it is applied. Also the various layers are suitably secured together either by stitching or by being integral so that they will not fall apart during the manipulation of the splint.

In the modification shown in Fig. 3, six layers of gauze 11, 12, 13, 14, 15 and 16 are placed one above another with plaster of Paris held by and between the layers. Each layer of gauze is secured to another layer at one edge thereof by being integral therewith so that all of the layers are secured together and held in place. When applied and dried the various layers of gauze and especially the inner layers 11, 12, 13 and 14 form a sort of network reinforcement for the plaster of Paris much in the same way as concrete is reinforced by iron or steel rods or network.

In the modification shown in Fig. 4, six layers of gauze are placed one above another with intervening layers of plaster of Paris

and the layers of gauze secured together by stitching them along the long edges of the bandage as shown at 27.

In the modification shown in Fig. 5, the two inner layers of gauze 31 and 32 are secured in place by having the outer layers 33, 34, 35 and 36 formed of an integral piece of gauze and wrapped about the inner layers 31 and 32. Plaster of Paris is carried by the various six layers in the manner above described.

Fig. 6 illustrates a modification similar to that shown in Fig. 1, but in which the inner layers 41, 42 are folded in a somewhat different manner while the layers 44, 45 and 46 are folded about these inner layers.

In each of the examples, however, there are shown outside layers secured together and wrapped about a plurality of inside layers which act to reinforce the splint when applied and dried.

I am aware that it has been suggested to construct a surgical splint of a plurality of layers of cotton-batting with intervening layers of plaster of Paris. Such a splint or bandage however has the disadvantages that the various layers of fabric are in no way secured in place; hence difficult to keep in place and liable to become displaced and fall apart, and also the cotton-batting does not have the texture necessary to give to the splint the desired tensile strength when applied and dried. I am further aware that it has been suggested to make a bandage by placing plaster of Paris in a bag and then sewing the bag crosswise to form pockets containing the plaster of Paris. Such an arrangement not only makes the splint weak at the points where sewed crosswise but no textile fibers are provided running lengthwise of the bandage in the plaster to give the same the necessary tensile strength. I am also aware that it has been suggested to form a splint by placing a thin layer of plaster of Paris between two layers of tulle gauze and providing the same with a reinforcement of wire netting. But not only does this have the disadvantage that the parts are not easily kept in place and are liable to fall apart, but the wire netting forms an awkward, corrosive, weighty, cumbersome and expensive reinforcing means which renders the bandage very difficult to manufacture and to manipulate.

By my improvements all of the above-mentioned disadvantages are overcome and a sanitary surgical splint provided which is simple and cheap in construction, noncorrosive and easy of manipulation, and in which the parts are not easily misplaced in transportation or use.

Although I have described my improvements in great detail, I do not desire to be limited to such details except as clearly pointed out in the appended claims since many modifications and changes may well be made without departing from the spirit and scope of my invention in its broader aspects.

Having fully and clearly described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. A surgical splint comprising three or more layers of woven fabric of organic material such as gauze secured in place one above another with intervening layers of plaster of Paris or equivalent hardening material carried by and between said layers of woven fabric.

2. The combination of three or more strips of fabric folded lengthwise to form each two layers of fabric secured together along the line of folding, one strip being stitched to another strip along the line of folding common to both, and a third strip being stitched to the first strip at one of its edges, one layer of each strip lying directly above a layer of another strip, and plaster of Paris or equivalent hardening material carried by and between the layers.

3. A surgical splint comprising a plurality of strips of fabric folded lengthwise to form each two layers of fabric secured together along the line of folding, one layer of each strip lying directly above a layer of another strip, and plaster of Paris or equivalent hardening material carried by and between the layers.

4. A surgical splint comprising a plurality of strips of woven fabric of organic material stitched together and folded along the line of stitching to form a plurality of layers thereof, one above another, and plaster of Paris or equivalent hardening material between said layers.

5. A surgical splint comprising a plurality of strips of woven fabric of organic material stitched together along two longitudinal substantially parallel lines, said strips being folded along the lines of stitching to form a plurality of layers thereof one above another, and plaster of Paris or equivalent hardening material between said layers.

6. A surgical splint comprising a plurality of strips of woven fabric of organic material stitched together along two longitudinal substantially parallel lines, said strips being folded alternately inwardly along the lines of stitching to form a plurality of layers thereof one above another, and plaster of Paris or equivalent hardening material between said layers.

7. A surgical splint comprising one or more inside layers of flexible woven fabric of organic material, adapted to reinforce the splint when applied and dried and top and bottom outside layers of woven fabric secured together and wrapped about the inside layer or layers, and plaster of Paris or

equivalent hardening material, carried by and between said layers.

8. A surgical splint comprising a plurality of inside layers of flexible woven fabric of organic material, adapted to reinforce the splint when applied and dried, and top and bottom outside layers of flexible woven fabric of organic material secured together and wrapped about the inside layers, whereby the latter are properly held in position, and plaster of Paris or equivalent hardening material carried by and between said layers.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

MAXIMIN D. TOUART.

Witnesses:

JOHN S. BAKER,

R. H. LANGLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."