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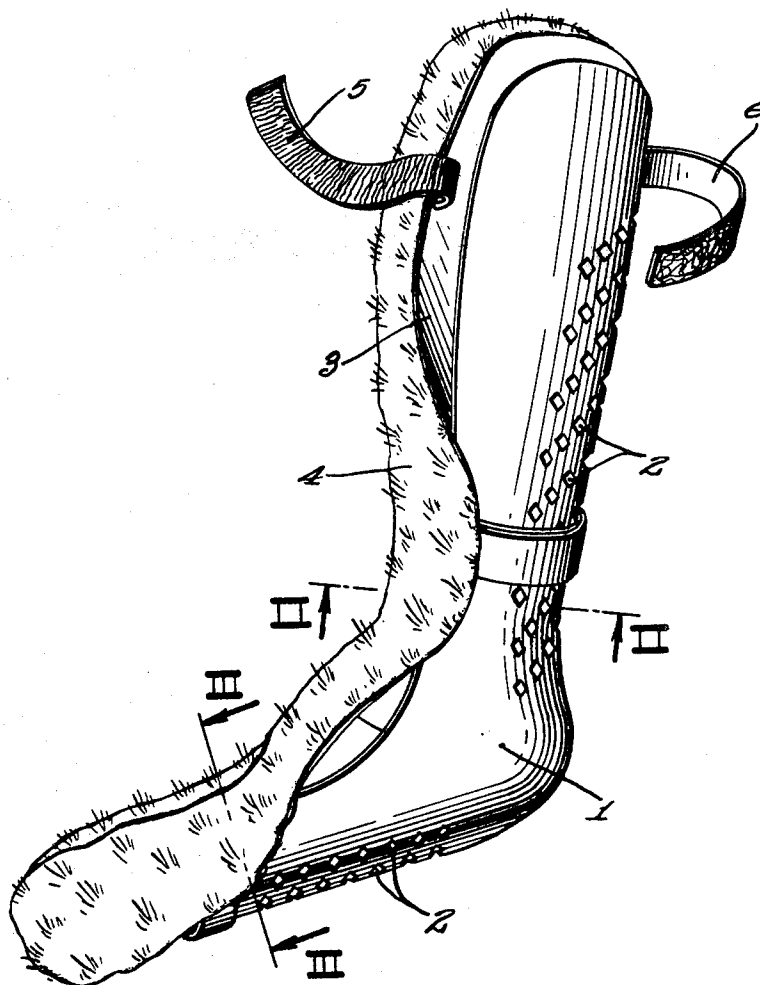
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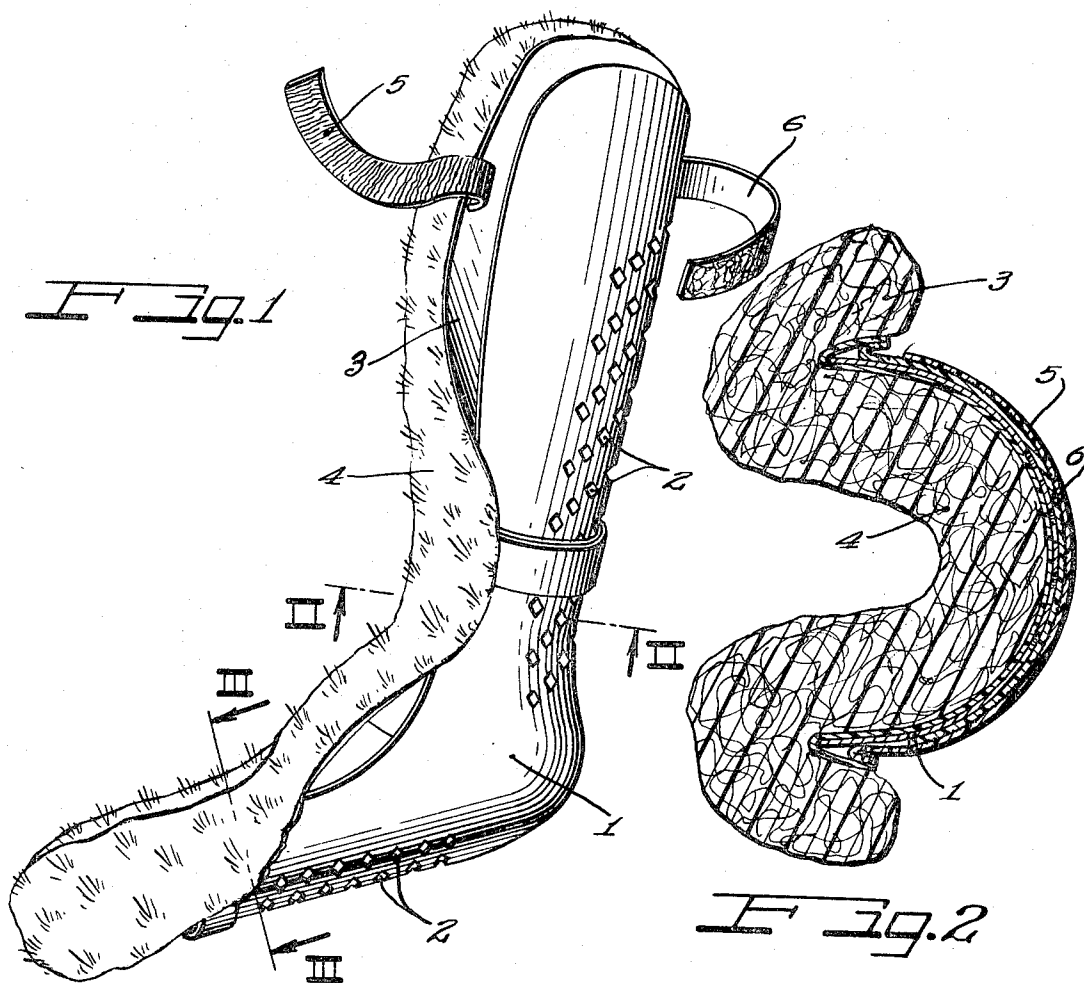
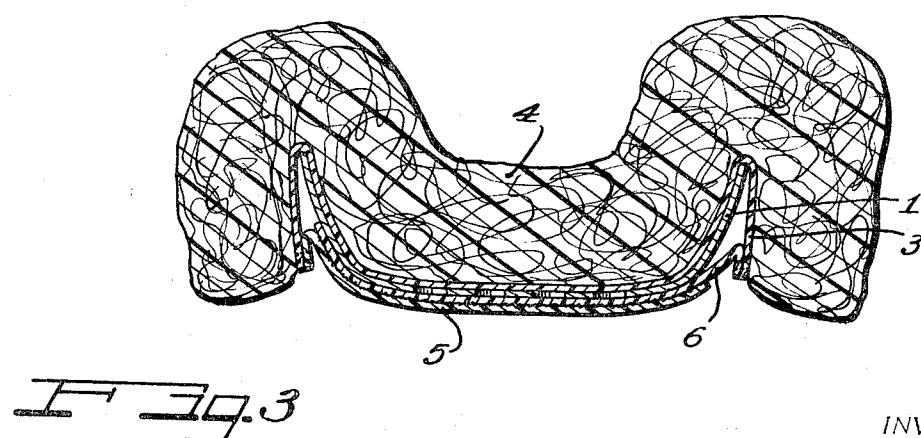
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[54] **SPLINT LINER**
5 Claims, 7 Drawing Figs.
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 128/156
 [51] Int. Cl..... A61f 5/04
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 88, 90, 91, 92, 93, 85, 86, 82, 83, 149, 132, 153,
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ABSTRACT: A soft cushioning liner for surgical splints, especially metallic splints used in cases of fracture, lacerated or incised wounds, severe burns and other afflictions, the liner being easily sterilized and reusable.



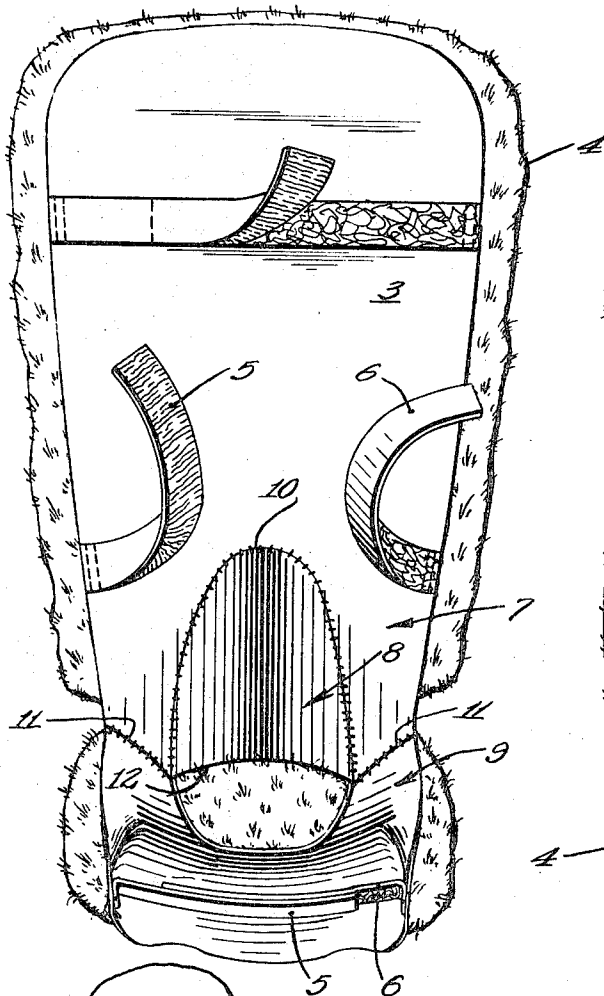
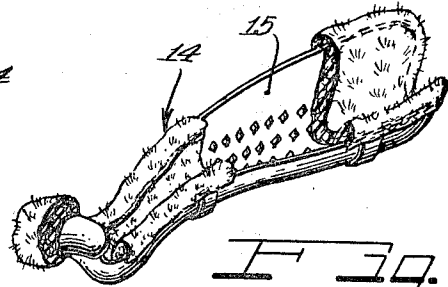


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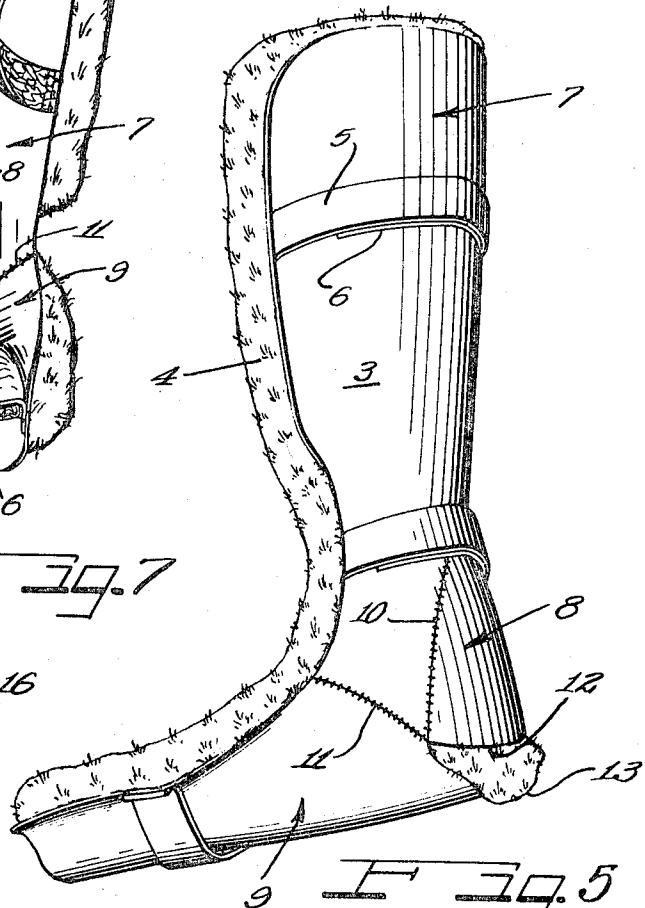
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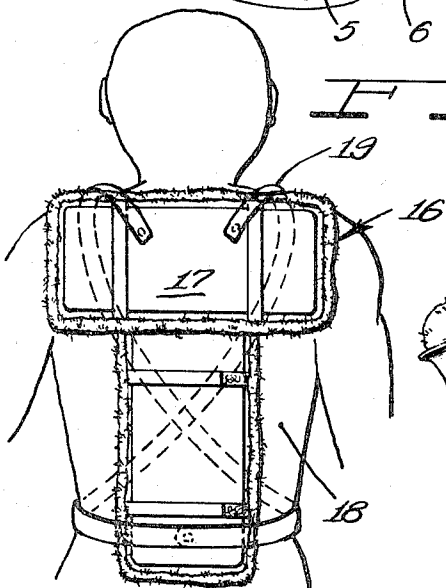
F 39.4



F 39.6



F 39.5



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SPLINT LINER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention or discovery relates to the art of lining surgical splints, each liner being shaped in accordance with a particular type of surgical splint to give soft, cushioning protection to pressure-sensitive areas and insure a high degree of absorbency, and each liner is provided with means for readily and quickly securing it to a splint, which means permit ready removal of the liner from the splint for sterilization and reuse.

2. Description of the Prior Art

Insofar as I am aware, readymade liners for various types of surgical splints have not heretofore been manufactured. Accordingly, in hospitals, clinics, and other places of surgical treatment, it was necessary for a nurse or doctor to fabricate a lining for a splint, especially for metal splints and particularly perforated splints. This was accomplished by spreading cotton in the splint, folding up a soft cloth such as a light blanket and placing it in the splint, and in similar ways, all of which required an expenditure of time and delayed attention to the injury of the patient. Such a fabricated lining also added to the difficulty of properly applying the splint to the body of the patient without causing the lining to become maladjusted. The procedure was not only laborious and time consuming, but also expensive since in most cases the lining was discarded after use.

SUMMARY OF THE INVENTION

The problems previously existing, as above outlined, have effectively been solved by the provision of the instant invention namely a readymade contour-shaped splint liner of soft material that is both cushioning and absorbent. The splint liner is shaped to fit a particular type of splint, in each instance, may be applied and secured to the splint prior to the arrival of a patient, and the splint and liner handled as a single unit with not danger of maladjustment of the liner. After usage the liner may quickly be removed from the splint, autoclaved or otherwise sterilized and reused again and again.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of a metal splint showing a liner embodying principles of the instant invention partially applied to the splint;

FIG. 2 is an enlarged bottom plan sectional view taken substantially as indicated by the line II-II of FIG. 1, looking in the direction of the arrows;

FIG. 3 is a vertical sectional view, also enlarged, taken substantially as indicated by the line III-III of FIG. 1;

FIG. 4 is a rear view of the liner alone illustrating the construction of the same;

FIG. 5 is a side view of the liner alone;

FIG. 6 is a fragmentary perspective view of a liner associated with a different type of metallic splint; and

FIG. 7 is a rear view of still another form of splint equipped with a liner embodying principles of the instant invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGS. 1, 3 and 3 the liner is shown associated with a posterior tibia and fibula aluminum splint 1, contoured to receive the foot and fit over the ankle and calf of the leg. Such splints are also made in hip length as well as knee length. The splint is preferably perforated in the portion partially embracing the leg and also below the sole of the foot as indicated at 2 for ventilation and possibly drainage purposes if the affliction so requires.

The liner itself comprises a fabric backing 3 of cotton, triacetate, or other suitable material carrying on one surface thereof a dense high pile of fibers which are secured to the backing substantially the same as the pile of a carpet is secured to its backing. The backing 3 is preferably stiffened to

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some extent in a known manner. The pile 4 is preferably of synthetic fibers, polyester fiber being highly satisfactory and the pile constitutes approximately seven-eighths of the composite fabric. Synthetic material, such as polyester fiber and triacetate backing are preferable in that they are mildew proof and will not support bacterial growth so that only a minimum amount of care is necessary for the liner. The pile 4 is quite high so that the liner has the general appearance and feel of lambswool or sheepskin, and the uniformity of the pile provides a smooth, nonirritating surface, designed to prevent pressure buildup and also assure a high degree of absorbency. Further, the pile is soft and gives cushioning protection to pressure-sensitive areas. The liner will not mat, bunch up, wrinkle or adhere to the skin of the patient.

A liner is simply and easily attached to a splint by tying the liner around the splint in separate locations, but preferably by one or more sets of nylon tape fasteners comprising overlapping strap members 5 and 6. Such fasteners are sold on the open market under the registered trademark "Velcro," and the outer strap 5 has a series of relatively stiff cut loops extending from the backing, while the other strap member 6 is covered with a shallow nylon pile. When overlapped the hook-like ends of the loops on the strap 5 anchor within the pile on the strap 6 and firmly hold the liner attached to the splint against any accidental dislodgement. Thus, the liner and the splint may be handled as though it were all in one piece and the liner cannot become maladjusted during use.

Each liner is preferably contoured generally in keeping with the shape of the particular type of splint for which it is designed. To this end, the liner for a posterior tibia and fibula splint is preferably made of three initially separate pieces, generally indicated by numerals 7, 8 and 9, best seen in FIGS. 4 and 5. These separate pieces may be die cut or otherwise provided from a sheet of liner material comprising both the backing 3 and the pile 4. The piece 7 is generally shaped to accommodate the liner behind the calf of the leg and near the bottom thereof has a section removed which is filled by piece 8 connected to the piece 7 by a line of stitching 10. The piece 8, generally triangular in shape, is wider than the original notch cut in the piece 7 so that the piece 8 will project rearwardly from the piece 7 toward the heel of a foot. The piece 9 is shaped in general to fit the foot portion of the splint and is joined to the piece 7 by a pair of like seams 11-11 running from the ends of the seam 10 outwardly. The pieces 8 and 9 are so cut that when the assemblage is made, a generally oval opening 12 remains between the pieces 8 and 9 permitting the liner to bend easily and be inserted intimately into the heel portion of the splint. Due to the height and density of the pile 4 this pile will actually project through the opening 12 as seen at 13 in FIG. 5. When placed inside the splint, therefore, the liner has a front appearance of being only a single piece, the seams 10 and 11 and the opening 12 being invisible while the liner is in the splint.

The splint equipped with a liner may be prepared ahead of time and be instantly ready when a patient arrives. The liner is quickly attached to the splint by means of the fastening elements 5 and 6 and as readily removed from the splint. After usage, the liner is removed from the splint, laundered, and sterilized in an autoclave or otherwise, ready for reuse on another patient. Accordingly, much labor and time is saved by the use of the instant invention and cleansing, sterilizing and the like between reusages over a considerable length of time does not detract in any manner from the liners' property of providing the advantages mentioned hereinabove, resulting in added economy and efficiency.

Another example of the instant invention is illustrated in FIG. 6, where a liner, generally indicated by numeral 14, made in the manner described above is shown in operative position on a hand cockup and forearm splint 15.

Still another example of the instant invention is shown in FIG. 7, wherein a liner, generally indicated by numeral 16, and constructed of the same material and generally in the same manner as above described is shown in operative posi-

tion on a Zimmer Clavicular cross splint 17 illustrated in position upon the body of a patient 18.

The liner of FIG. 6 may be attached to the splint in the same manner as described in connection with FIGS. 1 to 5, and also in the case of the splint of FIG. 7, even though an over-the-shoulder and around-the-waist form of strapping 19 is utilized to hold the splint itself. It will also be understood that liners for various types of splints will vary in the number of originally separate or due cut pieces but the general mode of construction will be the same as previously described.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim:

1. The combination of a preformed splint liner and a preformed splint contoured to fit a particular portion of a body, the improvement being in said liner which is shaped

complementally to the contour of the splint and comprises a soft cushioning fabric embodying a fabric backing and a dense pile of fibers secured thereto and covering one face thereof, means for removably securing said liner to said splint, and said liner being sterilizable and reusable.

2. The splint liner of claim 1 wherein said fibers constitute in excess of three-fourths of the composite fabric.

3. The splint liner of claim 1 wherein said pile of fibers comprises synthetic fibers.

4. The splint liner of claim 1 shaped to fit a posterior tibia and fibula splint and comprises a plurality of composite fabric pieces stitched together in a manner to provide an opening opposite the heel portion of the splint.

5. The splint liner of claim 4 wherein said pile of fibers extend across said opening so the appearance from the front is that of a one-piece liner.

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