Jan. 30, 1951 M. M. TEARE 2,539,677

SURGICAL SLING

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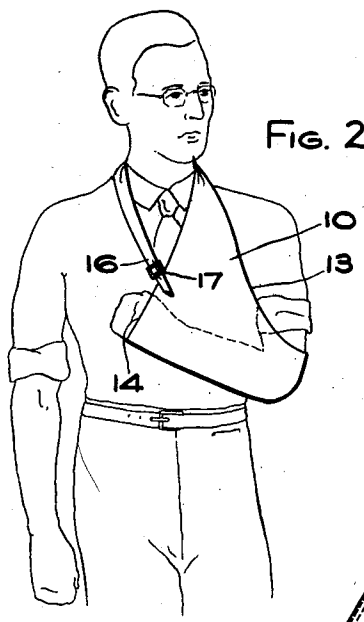


FIG. 2.

FIG. 1.

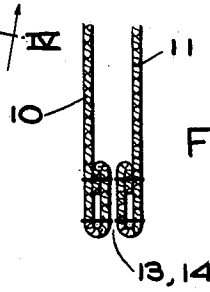


FIG. 3.

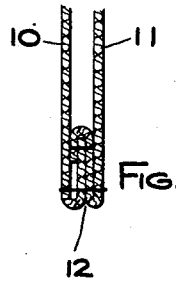


FIG. 4.

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SURGICAL SLING

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5 Claims. (Cl. 128—94)

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This invention relates to surgical arm slings or supports of the kind employed in cases of fractures or dislocations of the shoulder, collar bone or arm.

Despite various proposals of special arm slings or supports no practical substitute has replaced the long conventional arm sling which consists merely of a triangular cloth or bandage which gives inadequate support to the forearm and is subject to many other objections, particularly as concerns the convenience of the patient in applying or adjusting the sling. The failure of any of the various substitutes to find any considerable degree of adoption or use in itself testifies to their inadequacy and impracticality.

I have devised an arm sling which meets the most important requirement of a satisfactory device of this character, namely, the comfort of the user, by reason of the fact that his arm is supported in a wholly natural position with complete support at all points where support is required to result in order to produce complete comfort. It will be noted particularly that my improved arm sling provides adequate support for the user's elbow and wrist, thus providing complete support throughout the length of the forearm.

Further, the arm sling of my invention is so arranged that it can easily be put on or taken off by the user without assistance and can likewise be adjusted properly to the user's needs without assistance. The arrangement, moreover, is such that the arm sling will remain in proper adjustment, both as to size and position with respect to the arm and body, during periods of use.

In constructing the arm sling of my invention consideration is given to the relative degrees of yieldability of woven fabrics when pulled on the bias and when pulled in the direction of the threads, so that the resultant sling is neither too flexible nor too inflexible but has just the right degree of resilience without failing to afford sufficient support to the arm.

In addition to the foregoing, the arm sling of my invention is simple to manufacture, and its arrangement is such that each size may be used throughout a considerable range of body and arm dimensions, so that a very few different sizes will cover all normal requirements.

It is to be understood that the scope of the present invention is limited only as defined in the appended claims and that, within such limits, various changes and modifications may be made in the specific arm sling which is illustrated in

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the accompanying drawing and described in detain in the following specification by way of example.

In the drawing:

Fig. 1 is an elevational view of one form of the arm sling of my invention lying open and flatwise;

Fig. 2 shows the arm sling of Fig. 1 in position of use upon a wearer;

Fig. 3 is a fragmentary cross sectional view of the edge of the device of Fig. 1 taken at either of the lines III—III of Fig. 1; and

Fig. 4 is a fragmentary cross sectional view of the edge of the device of Fig. 1 taken along any of the lines IV—IV of Fig. 1.

Throughout the drawing like characters of reference denote like parts. The construction of the arm sling shown in the drawing can best be described by describing the way in which it is made. Two substantially identical blanks, an outer one designated 10 and an inner one designated 11, are employed. The outline of Fig. 1 is a faithful scale reduction facsimile of the flat shape of the present arm sling and the sling itself may be made by merely enlarging that outline accurately to the required size. The outline shown is important since any material departure therefrom will to some degree sacrifice the ideal support and comfort of the device. Each of these blanks is of the shape of the outline of Fig. 1 plus enough additional marginal material for seams and hems.

The edges of the two blanks or panels 10 and 11 are connected to each other by inturned seams 12, as shown in Fig. 4, at all edges of the blanks excepting only those portions included in the brackets designated 13 and 14, which portions are merely separately hemmed as shown in detail in Fig. 3. The opening 13 thus provides for entry of the upper arm of the user into the sling and the opening 14 permits his hand to extend from the sling as shown in Fig. 2.

The reduced upper extension of the joined blanks or panels comprises a securing strap portion 16 which is adjustably secured into a buckle or other fastener 17, which in the form illustrated is associated with the device by means of a cloth loop 18, the ends of which are sewed into seam 12 of the blanks 10 and 11 at a point just above the opening 14. The manner in which the upper portion of the assembled sling passes about the neck and shoulders of a user appears clearly in Fig. 2.

Since the blanks 10 and 11 are initially identical and they are joined in a manner which

leaves them fully reversible and interchangeable, a given sling may be used with equal facility and efficacy for supporting either the right or the left arm of a user.

The lines at A on Fig. 1 indicate the direction of extent of the warp and weft threads of the fabric. This is an important feature in the construction of the present arm sling, since the manner in which the weave extends, with respect to the blanks, gives just the right compromise between too much and too little resilience.

The shade lines on Fig. 1 fragmentarily illustrate the direction of extent of the threads. The material used in the actual reduction to practice of the present invention is a good quality unbleached muslin although other materials having comparable physical properties may be found suitable. It will be noted that the blanks are cut generally on the bias. However, the seams at opposite sides of the strap portion 16 and extending downwardly to the openings 13 and 14 partly counteract the normal yieldability of the fabric on the bias and the device as a whole, as a joint result of the disposition of the fabric in cutting the blanks and the proportioning and construction of the device, is found to possess just the right qualities, from the standpoint of both firm support and a desired moderate degree of yieldability.

What is claimed is:

1. A surgical arm sling comprising a pair of opposed substantially identical fabric panels, each panel comprising a base portion having an angular bottom corner at one end and an upwardly curving convex edge at the other end, each panel having a concave edge extending inwardly and upwardly from the upper end of said upwardly curving convex edge, each panel having an edge extending upwardly from said corner and cooperating with said concave curving edge to form an upwardly extending continuous strap-like extension of each panel, said panels being secured to each other along their bottom edges and the upwardly curving convex edges at said other end to form an elbow supporting pocket, said panels being disjoined along the lower portions of their concave curving edges sufficiently to freely accommodate a user's upper arm there between, said panels being disjoined along their upwardly extending edges at said one end to permit emergence of a user's hand therebetween, said panels being secured to each other continuously along their edge portions upwardly of said two disjoined portions to form an upper strap-like extension, a strap receiving fastener secured to said panels immediately above the disjoined hand-receiving edge portions, and said upper strap-like extension being of sufficient length to pass about the neck and shoulder of a user and have its end engaged with said fastener in position of use.

2. A surgical arm sling comprising a pair of opposed substantially identical fabric panels, each panel comprising a base portion having an angular bottom corner at one end and an upwardly curving convex edge at the other end, each panel having an edge extending inwardly and upwardly from the upper end of said convex upwardly curving edge, each panel having an edge extending generally upwardly from said corner and cooperating with said inwardly and upwardly extending edge to form an upwardly extending continuous strap-like extension of each panel, said panels being secured to each other along their bottom edges and the upwardly curving convex edges at said other end to form an elbow supporting pocket, said panels being disjoined along the lower portions of their inwardly and upwardly extending edges sufficiently to freely accommodate a user's upper arm therebetween, said panels being disjoined along their upwardly extending edges at said one end to permit emergence of a user's hand therebetween, said panels being secured to each other continuously along their edge portions upwardly of said two disjoined portions to form an upper strap-like extension, a strap receiving fastener secured to said panels immediately above the disjoined hand-receiving edge portions, and said upper strap-like extension being of sufficient length to pass about the neck and shoulders of a user and have its end engaged with said fastener in position of use.

3. A surgical arm sling comprising a pair of opposed substantially identical fabric panels, each panel comprising a base portion having an angular bottom corner at one end and an upwardly curving convex edge at the other end, each panel having a concave curving edge extending inwardly and upwardly from the upper end of said upwardly curving convex edge, each panel having an edge extending upwardly from said corner and cooperating with said concave curving edge to form an upward extension of each panel, said panels being secured to each other along their bottom edges and the upwardly curving convex edges at said other end to form an elbow supporting pocket, said panels being disjoined along the lower portions of their concave curving edges sufficiently to freely accommodate a user's upper arm therebetween, said panels being disjoined along their upwardly extending edges at said one end to permit emergence of a user's hand therebetween, said panels being secured to each other along their opposite edge portions upwardly of said two disjoined portions, a strap receiving fastener secured to said panels immediately above the disjoined hand-receiving edge portions, and an upper strap portion extending from said panels and being of sufficient length to pass about the neck and shoulders of a user and have its end engaged with said fastener in position of use.

4. A surgical arm sling comprising a pair of opposed substantially identical fabric panels, each panel comprising a base portion having an angular bottom corner at one end and an upwardly curving convex edge at the other end, each panel having an edge extending inwardly and upwardly from the upper end of said upwardly curving convex edge, each panel having an edge extending upwardly from said corner and cooperating with said inwardly and upwardly extending edge to form an upwardly extending continuous strap-like extension of each panel, said panels being secured to each other along their bottom edges and the upwardly curving convex edges at said other end to form an elbow supporting pocket, said panels being disjoined along the lower portions of their inwardly and upwardly extending edges sufficiently to freely accommodate a user's upper arm therebetween, said panels being disjoined along their upwardly extending edges at said one end to permit emergence of a user's hand therebetween, said panels being secured to each other continuously along their edge portions upwardly of said two disjoined portions to form an upper strap-like extension following a line generally at right angles to the bottom of the base portion adjacent to the

end thereof having the angular bottom corner, a strap receiving fastener secured to said panels immediately above the disjoined hand-receiving edge portions, and said upper strap extension being of sufficient length to pass about the neck and shoulders of a user and have its end engaged with said fastener in position of use.

5. A surgical arm sling comprising a pair of opposed substantially identical woven fabric panels, each panel comprising a base portion having an angular bottom corner at one end and an upwardly curving convex edge at the other end, each panel having an edge extending inwardly and upwardly from the upper end of said upwardly curving convex edge, each panel having an edge extending upwardly from said corner and cooperating with said inwardly and upwardly extending edge to form an upwardly extending continuous strap-like extension of each panel, said panels being secured to each other along their bottom edges and the upwardly curving convex edges at said other end to form an elbow supporting pocket, said panels being disjoined along the lower portions of their inwardly and upwardly extending edges sufficiently to freely accommodate a user's upper arm therebetween, said panels being disjoined along their upwardly extending edges at said one end to permit emergence of a user's hand therebetween, said panels being secured to each other continuously along their edge portions upwardly of said two disjoined portions to form an upper strap-like extension, a strap receiving fastener secured to said panels immediately above the disjoined hand-receiving edge portions, and said upper strap-like extension being of sufficient length to pass about the neck and shoulders of a user and have its end engaged with said fastener in position of use, said panels being cut from woven fabric with the direction of extent of said strap-like extension substantially on the bias of the fabric.

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