

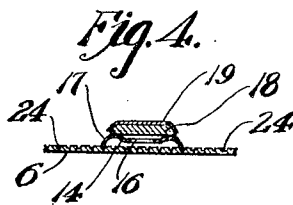
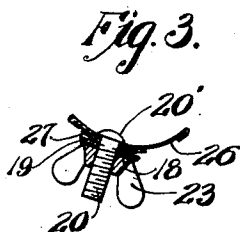
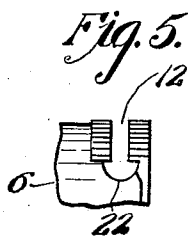
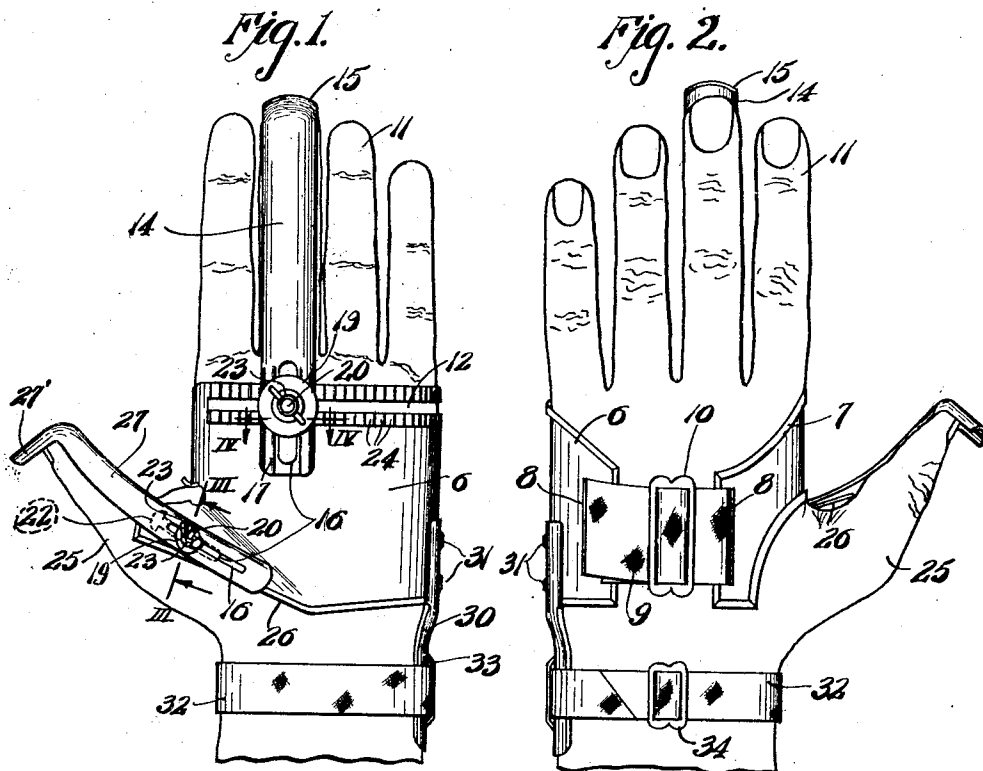
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SURGICAL SPLINT

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SURGICAL SPLINT

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The present invention relates to splints for surgical use, and aims to provide a novel and improved device of this character adapted for use as a splint for either the thumb or any one of the fingers of a hand and which will permit of any required range of adjustment of the splint elements as well as afford efficient bracing function for the purpose of securely bracing and holding the splint elements in correct position.

Accordingly, for carrying out this general purpose of my invention, I have devised a splint structure which comprises a body or cuff portion for the support of the splint elements and provided with means for securely fastening the cuff to the palm of the hand, together with means whereby the several splint elements may be variously adjusted in accordance with the length and position of the members to which they are applied.

It is also sought to provide a splint device having as a novel feature the provision of an extension or wing designed to conform to the base or fleshy portion of the thumb of the hand for bracing the splint structure and counteracting any thrust in the direction of any one of the fingers to which splint elements may be applied.

It is further sought to provide a novel splint structure of this general character in which the means of attachment for the several splint elements will include fastening members permitting of ready attachment or removal as well as the required adjustment of the same within suitable range.

With the foregoing general objects in view, the invention will now be described by reference to the accompanying drawings illustrating one form of construction which I have devised for embodying my proposed improvements, after which the novel features thereof and combinations will be set forth and claimed.

In the drawings—

Figure 1 is a plan view of a hand fitted with a surgical splint embodying the present features of improvement;

Figure 2 is a similar view showing the opposite side of the device as well as the

means for securing the same at the back of the hand;

Figures 3 and 4 are enlarged sectional detail views, representing sections taken on the lines III—III and IV—IV, respectively, of Figure 1; and

Figure 5 is a fragmentary detail view, showing one of the slots along which the splint elements are adjusted, and illustrating the enlarged end of the slot permitting removal of the adjusting and clamping bolt.

Referring now to the drawings in detail, this illustrates the improved splint device as comprising a body portion 6, which is designed to be molded or stamped from suitable material, such as metallic, fiber or other appropriate material adapted to be conformed substantially to the contour of the palm of the hand, the margin of the blank being suitably rolled or beaded as indicated at 7 to give a more finished appearance as well as strengthen the device along the margin. At each end of the body portion at the back of the hand is provided a slot 8 for the passage of a strap 9 having a suitable buckle or equivalent fastening member 10 for securing the body portion 6 in its position of use, as clearly illustrated in Figure 2.

Along the principal margin of the body portion 6, corresponding to the proximal ends of the fingers, I provide a slot 12 of appropriate length for the adjustment of one or more finger splints 14 in proper position for application to any one or more of the fingers 11 of the hand, as shown in Figure 1. Each splint member 14 is of slightly concave contour in cross-section, as shown in Figure 4, and formed with a terminal portion 15 extending laterally in position for protecting the distal end of the finger. The opposite end of each splint member 14 is formed with a longitudinal adjusting slot 16 at opposite sides of which are stamped parallel ribs 17 against which is adapted to be clamped a friction disk 18 mounted within a washer 19 carried by a bolt 20. This bolt 20 is adjustable along the slot 12, one end of which is formed with an enlarged opening 22 for permitting the head 20' of the bolt to be conveniently inserted or removed from the slot 12

without the necessity of removing the wing clamping nut 23 from the shank of the bolt 20, it being understood that the head 20' of the bolt operates to secure the splint in any adjusted position by engagement with the underside of the slot 12, as represented in Figure 3. Both margins of the slot 12 are formed with the registering corrugations 24 properly arranged and spaced for the seating of the opposite inturned edges of the splint elements 14, as represented in Figure 4, whereby when the nut 23 is turned down to clamp the splint, the latter is securely and rigidly held against any tendency to turn in either direction about the axis of the bolt 20.

At the back of the hand, the margin of the body portion 6 is cut away at one side to accommodate the base of the thumb 25, as shown in Fig. 2, while at the opposite or palm side of the hand the body portion 6 is formed with an angular extension or wing 26 which may be bent to conform substantially to the base or fleshy portion of the thumb, as represented in Figure 1. By this means, the body portion of the device is securely braced against this base portion of the thumb, to counteract any thrust transmitted by the action of the splint members 14.

It is also a part of the invention to utilize this wing extension 26 for the support of a thumb splint 27 of the same general nature as the finger splints 14, and having the distal terminal 27' as well as the longitudinal adjusting slot 16' for adjustably securing the splint 27 to the wing extension 26 by means of a bolt 20 and nut 23, the head of the bolt being received within an opening 22 of a slot 12', which features of the construction are in all essential respects similar to that described for the securing and adjustment of the splint 14. The splint 17 is also curved in cross-section, fitting the curvature of the wing 26 (Fig. 3), thus preventing any turning movement of the splint.

In the use and operation of the device as a thumb splint, there is always a tendency for the opposite side of the body support 6 to be forced away from the hand, and to counteract this tendency, I provide a bracing extension 30 secured, as by rivets 31 or the like, to the body portion 6, and extending downward in position for being strapped to the wrist portion of the arm, as by means of a strap element 32 extending through a slot 33 formed in said extension 30, and having a suitable buckle 34 or other equivalent fastening device for fastening the strap in place as shown in Figs. 1 and 2.

It will thus be apparent that I have devised a practical and efficient device for carrying out all the desired objects of my invention, the same being adapted to be economically constructed from appropriate material by molding or stamping the same therefrom, the material preferably being of compara-

tively light gage when metal is employed to permit the metal to be readily conformed to the size and shape of the hand by light pressure and bending. After the body or cuff portion has been thus conformed and strapped to the hand, the splint elements 14 may be quickly attached and adjusted into their correct position, and if a thumb splint is used, this also may be applied and adjusted and secured in the same manner. With the strap 32 also drawn and secured by means of the buckle element 34, the device will thereafter remain securely held and braced for maintaining the several splint elements in their proper rigid relation for effecting the required supporting and bracing functions which characterize devices of this kind.

While I have illustrated and described what I now regard as the preferred form of construction for embodying my proposed improvements, I desire to reserve the right to make all such changes or modifications as may fairly fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A surgical splint structure comprising a body portion having means for securing the same to the palm of the hand, and a finger splint element adjustably secured to said body portion, said body portion also having a wing extension disposed at an angle to the major plane of said body portion, and conforming to the base of the thumb for bracing engagement therewith.

2. A surgical splint structure comprising a body portion having means for securing the same to the palm of the hand, and a finger splint element secured to said body portion and having provision for both lateral and longitudinal adjustment, said body portion having an extension disposed at an angle to the major plane of said body portion, and conforming to the base of the thumb for bracing engagement therewith and also a brace extension provided with means for securing the same to the wrist.

3. A surgical splint structure comprising a body portion provided with a wing extension disposed at an angle to the major plane of said body portion, and conforming to the base of the thumb for bracing engagement therewith, means for securing said body portion to the palm of the hand, and a splint adjustably secured to the body portion.

4. A surgical splint structure comprising a body portion provided with a wing extension disposed at an angle to the major plane of said body portion, and conforming to the base of the thumb for bracing engagement therewith, and also with a brace extension provided with means for securing the same to the wrist, and a thumb splint adjustably secured to said angular extension.

5. A surgical splint structure comprising a body portion provided with a wing extension disposed at an angle to the major plane of said body portion, and conforming to the base of the thumb for bracing engagement therewith, and also with a brace extension at the opposite side of said body portion from said wing extension, means for securing said brace extension to the wrist, and a thumb splint adjustably secured to said angular wing extension.

6. A surgical splint structure comprising a body portion having means for securing the same to the palm of the hand, and a finger splint element secured to said body portion and having provision for both lateral and longitudinal adjustment, said body portion having an extension disposed at an angle to the major plane of said body portion, and conforming to the base of the thumb for bracing engagement therewith and also a brace extension provided with means for securing the same to the wrist, and a thumb splint adjustably secured to said angular wing extension.

In witness whereof I hereunto affix my signature.

JOHN R. SIEBRANDT.