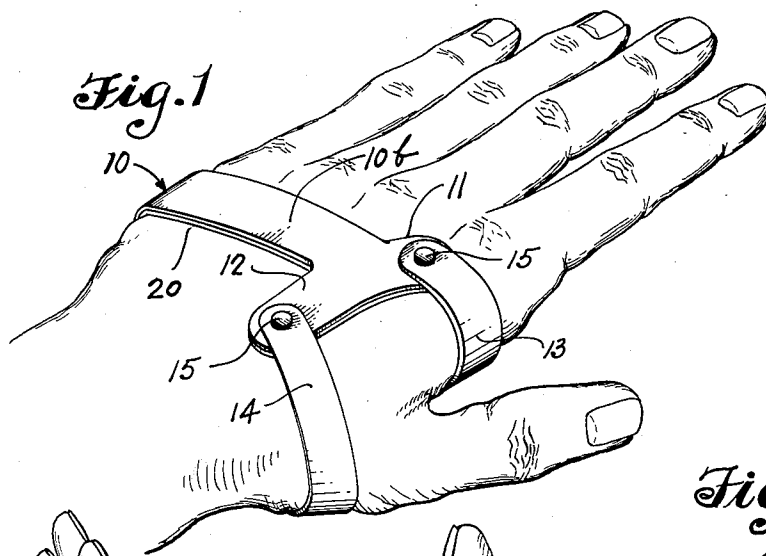
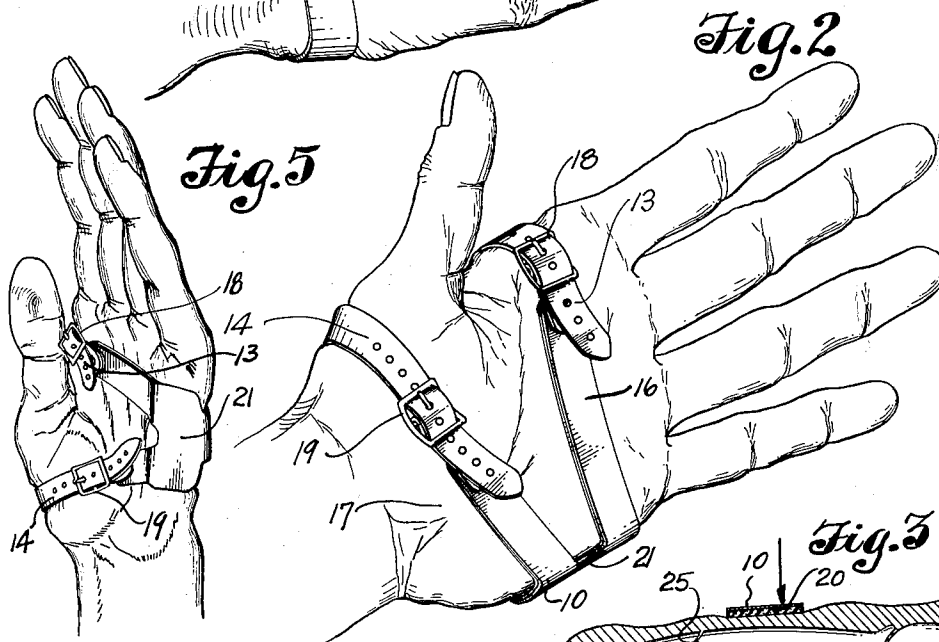
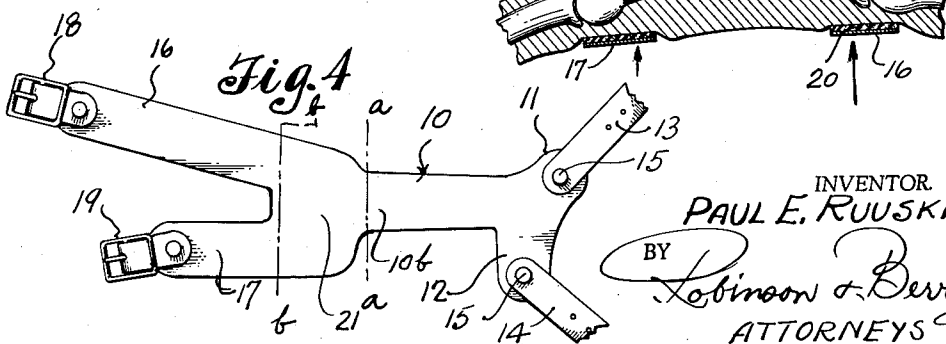
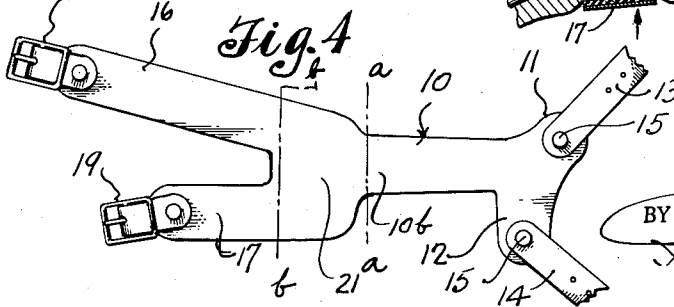


March 10, 1964

P. E. RUUSKA
ADJUSTABLE SPLINT

3,124,127

Filed March 19, 1962



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3,124,127
ADJUSTABLE SPLINT
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Filed Mar. 19, 1962, Ser. No. 180,494
3 Claims. (Cl. 128—89)

This invention relates to fracture immobilizing splints. More particularly it relates to an improved form of immobilizing splint, especially designed for the treatment of fractures of the metacarpals of the human hand.

Specifically stated, this invention resides in the provision of a novel form of readily adjustable splint for the treatment of fractures of the neck portion of the fifth metacarpal; which may be molded or shaped to suit the particular size and shape of the hand on which it is to be used and then so applied to the hand as to properly exert gentle and firm immobilizing pressure or support at the desired places. Furthermore, a splint that will permit the hand to which it is applied to be used in a near normal manner while the splint is in place.

It is the primary object of this invention to provide a light weight, durable, easily shaped and readily applied splint, for immobilization and support of the fragments of a fracture of the fifth metacarpal while healing; that is moldable to suit hands of various shapes and sizes; to accommodate various conditions of swelling and which may be shaped to apply yieldable, three point immobilizing pressure to the fractured bone for the most advantageous treatment.

Further objects of the invention reside in the details of formation of the various parts of the splint; in the mode of its application to the hand; in its means for securement thereto and in the specific design and relationship of its parts.

In accomplishing the above mentioned and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein:

FIG. 1 is a perspective view showing the splint of the present invention as functionally applied to a hand.

FIG. 2 is a similar view showing the palm side of the hand and the pressure applying leg portions of the splint at that side.

FIG. 3 is a diagrammatic illustration of a broken metacarpal in the hand and a showing of the points of application of pressure as effected by the splint for treatment and immobilization of the fracture.

FIG. 4 is a view of the present splint in its flattened condition, prior to its being shaped for use.

FIG. 5 is a perspective view showing the splint as shaped and applied to the hand.

Referring more in detail to the drawings:

The present splint, before being shaped for use, is in the flattened condition shown in FIG. 4 wherein it is designated in its entirety by numeral 10. In order that it may be readily bent or molded into a desired shape for immobilization of a specific fracture, the splint is made from a single flat strip of stiff but readily bendable metal, such as aluminum. Normally, the strip would be approximately eight inches long and seven-eighths inch wide and as herein shown, it terminates at one end in short, oppositely and laterally directed arms or branches 11 and 12, to the outer ends of which, respectively, short lengths of flexible leather strap material 13 and 14 or the like are pivotally secured by rivets 15. At the end that is opposite the arms 11 and 12, the strip 10 terminates in two laterally spaced and slightly angularly diverging branches or leg portions 16 and 17 and to the outer ends of these, respectively, buckles 18 and 19 are secured in proper position for the ready application thereto

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and adjustable securement therein of the ends of the straps 13 and 14, as shown in FIG. 2.

It is also to be observed in FIGS. 1 and 3 that the metal strip 10 is lined or faced on its under or inside surface with a lining 20 of sponge rubber or a like material of about 1/8 inch thickness and of suitable cushioning value; this lining being adhesively secured thereto.

In the use of this particular splint, the lined metal strip 10 is first bent in such manner as to best suit it for the size of hand to which it is to be applied. For this it is bent in a rather sharp arcuate curve on a transverse line located slightly within the joining end portions of the two diverging legs 16 and 17, with the strip, as for example, at the dash line *a-a* in FIG. 4. Thus, the flat, body portion 10*b* of the splint, hereinafter designated as the "back portion" is adapted to be flatly applied across the back of the hand as in FIG. 1, with the two laterally directed arms 11—12 overlying the hand along the first and second metacarpals outwardly of the juncture of the thumb and forefinger and with the widened inner end joining portion 21 of the two leg portions 16 and 17 extending along and engaging flatly against the side of the hand along the fifth metacarpal.

The two leg portions 16 and 17 are then bent inwardly along the transverse dash line *b-b* in FIG. 4, in such manner as to extend across and lie flatly against the palm side of the hand, as has been illustrated in FIG. 2. The securing straps 11 and 12 are then extended to and through the buckles 18 and 19 for effecting proper adjustment and securement of the splint to the hand.

It is to be noted, in FIG. 2, that the leg portion 16 is of such length as to extend substantially all the way across the hand to afford better support for the splint, but the leg 17 is substantially shorter in order that it shall not interfere with action or use of the thumb. The widened joining portion at the inner ends of legs 16 and 17 bears protectively against the side edge of the hand over the fifth metacarpal.

With the splint so applied and secured to the hand, its inturred leg portions 16 and 17 can be bent or molded inwardly or outwardly to such angulation as to apply a desired amount of immobilizing pressure against the palm of the hand to cause the splint to sustain the fracture fragments at the desired place. For instance in reference to their showing in FIG. 3, a bone fracture is indicated at 25. The distal fragment of the broken bone is quite short in comparison with the other portion. Pressure as provided by the splint is applied at three points indicated by the arrows adjacent thereto thus to best serve its purpose.

A splint of this kind gives comfortable immobilization to the fracture without restricting the movement of the fingers or thumb and permits the hand to be used in a near normal manner within a few days after the injury.

Such splints may be easily and readily bent or molded to suit the size and shape of the hand on which they are to be used and can be readjusted to overcome looseness as swelling recedes. Also, such splints may be readily removed from the hand for hand bathing and then reapplied by the patient. They are to be made in rights and lefts.

X-ray examination of the hand and fracture may be made with satisfaction while the splint is in place.

What I claim as new is:

1. A splint for treatment of a fracture of the human hand, said splint comprising a flat, substantially rigid strip of bendable metal and a pair of securing straps interconnecting the opposite ends of said strip, said strip including a back portion to overlie the back of the hand and extend a substantial distance thereacross, a palm portion to extend a substantial distance across the palm of the hand and an intermediate portion interconnecting said

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back and palm portions and engageable with the side of the hand opposite the thumb, said back and palm portions extending in substantially parallel relationship when applied to the hand, said palm portion terminating at its free end in diverging legs and said straps being attached at their opposite ends respectively to said legs and the free end of said back portion.

2. A splint according to claim 1 wherein said back portion includes laterally and oppositely directed arms at the free end thereof and said straps are attached to said arms.

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3. A splint according to claim 1 wherein one of said legs is substantially longer than the other leg.

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