March 2, 1943. M. S. CORBETT 2,312,523

ADJUSTABLE TENSION SPLINT

Filed July 13, 1942 3 Sheets-Sheet 1

Fig. 1

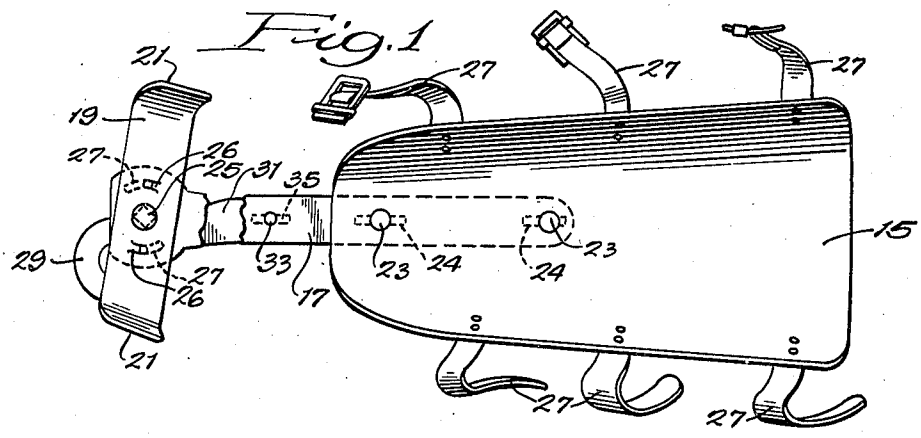


Fig. 2

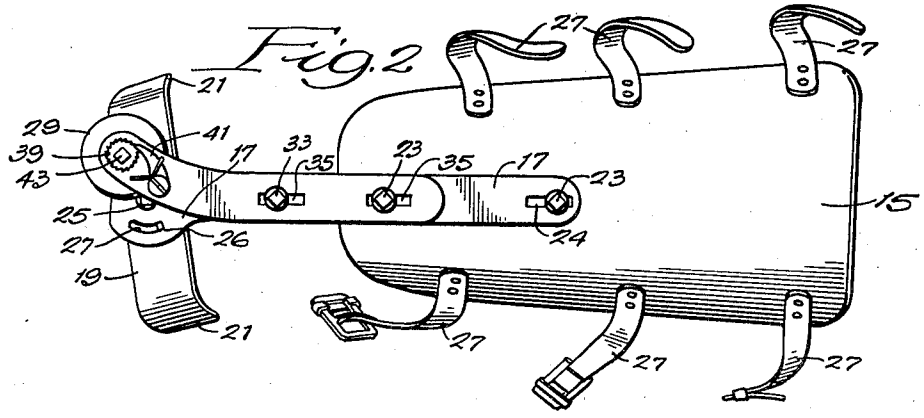


Fig. 3

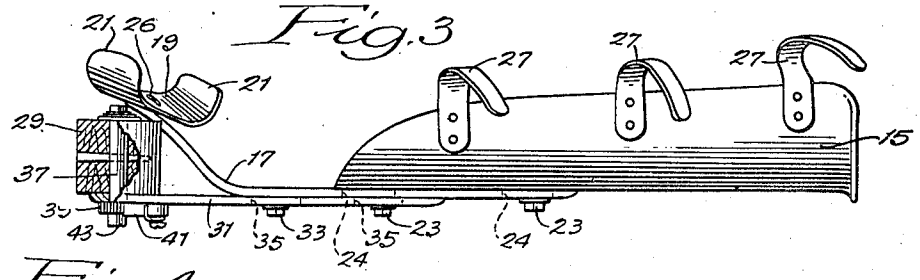
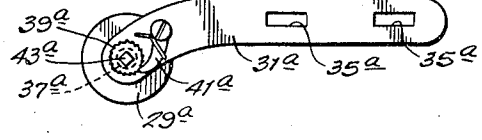


Fig. 4



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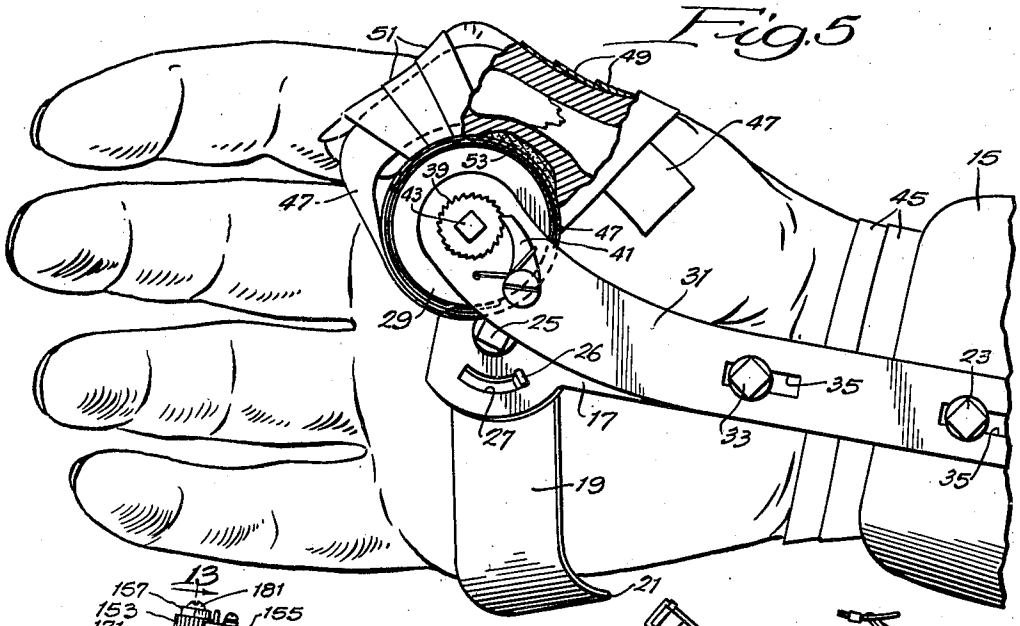
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ADJUSTABLE TENSION SPLINT

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Fig. 5



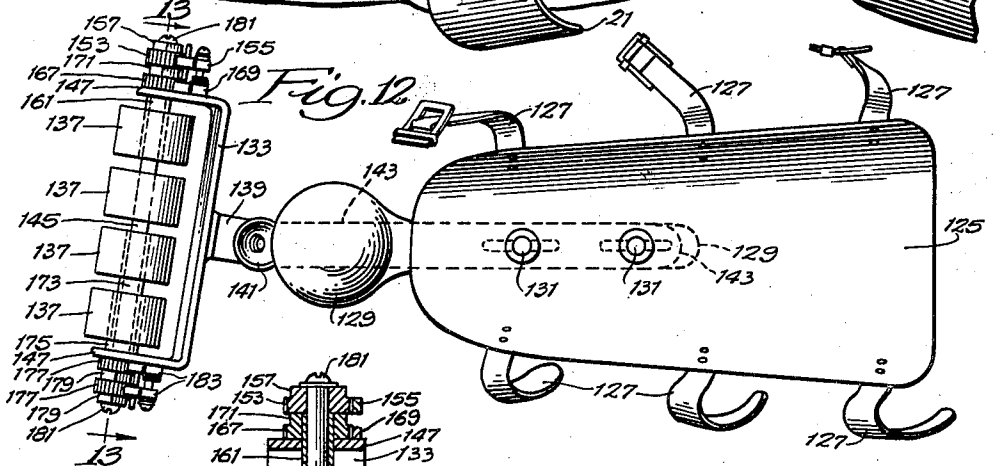
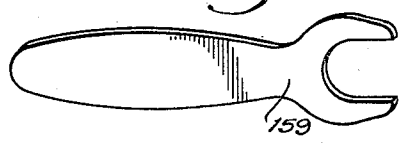


Fig. 12

Fig. 13

Fig. 14

Fig. 15



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ADJUSTABLE TENSION SPLINT

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Fig. 7

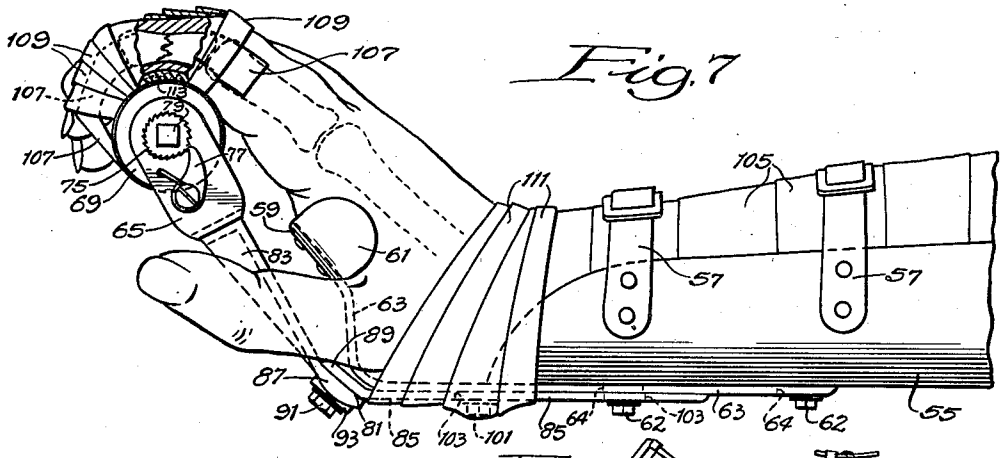


Fig. 6

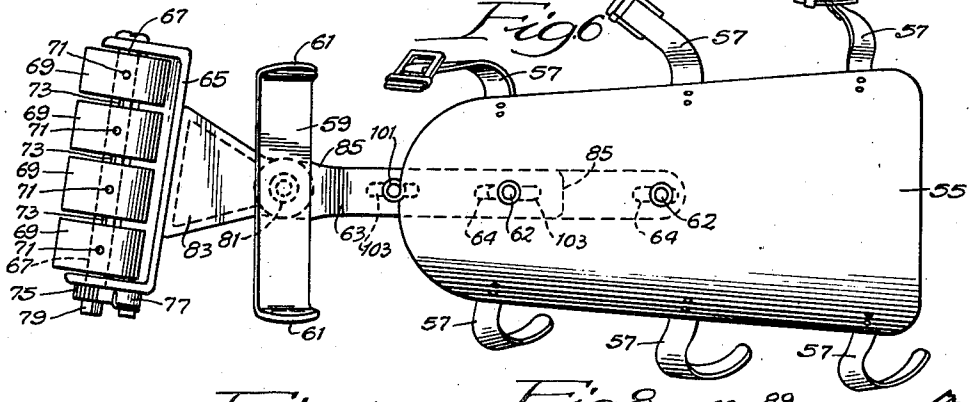


Fig. 10

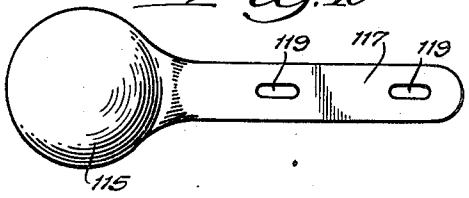


Fig. 8

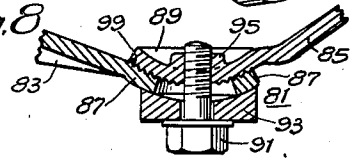


Fig. 9

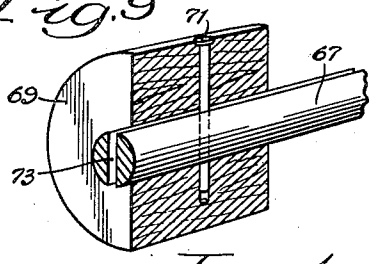
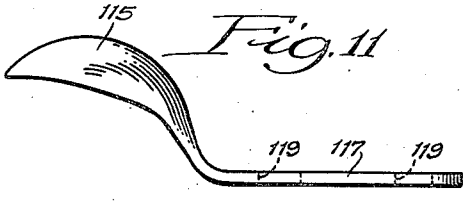


Fig. 11



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Patented Mar. 2, 1943 2,312,523

UNITED STATES PATENT OFFICE

2,312,523

ADJUSTABLE TENSION SPLINT

Mitchell S. Corbett, Oak Park, Ill.

Application July 13, 1942, Serial No. 450,653

9 Claims. (Cl. 128—85)

The present invention relates generally to traction splints, and particularly to traction splints for the treatment of fractures of the proximal phalanges of the thumb and fingers and the middle phalanges of the fingers.

The proximal and middle phalanges of the digits of the hand are often injured in industrial and other accidents, and because of the anatomical peculiarities of the members involved, satisfactory treatment of these fractures is very difficult. Especially is it difficult to obtain proper immobilization of the members while maintaining adequate traction along the longitudinal axis of the digit to obviate permanent loss or impairment of function.

Various splints have been devised for use in the treatment of digital fractures. None, however, has proven entirely satisfactory, particularly for the treatment of fractures of the proximal and middle digital phalanges, and the principal object of the present invention is to provide an improved traction splint for the treatment of fractures of this type. It is also an object of the invention to provide an improved traction splint for the treatment of fractures of the stated type which shall not only produce better results, with less discomfort to the patient, than the splints heretofore known to the art, but which, in addition, shall be of simple construction and inexpensive to manufacture in order that the splint may be made available to hospitals, first aid stations, and practitioners generally.

These and other objects and the various advantages of the invention will be made more apparent by reference to the accompanying drawings and the following description of certain preferred embodiments thereof. In the drawings:

Fig. 1 is a top plan view of a traction splint, in accordance with the present invention, designed for treating fractures of the proximal phalange of the thumb of the right hand;

Fig. 2 is a bottom plan view of the splint of Fig. 1;

Fig. 3 is a side elevational view, partially in section, of the splint of Figs. 1 and 2;

Fig. 4 is a bottom plan view of an interchangeable spool and ratchet mechanism which may be used to convert the splint of Figs. 1, 2 and 3 for use on the left hand;

Fig. 5 is a fragmentary bottom plan view showing the thumb splint of Figs. 1, 2, and 3 in use;

Fig. 6 is a top plan view of a traction finger splint constructed in accordance with the present invention;

Fig. 7 is a fragmentary side elevational view of the finger splint of Fig. 6 in use in the treatment of a fracture of the proximal phalange of the index finger of the right hand;

Fig. 8 is a fragmentary sectional view showing the details of a swivel connection forming a part of the splints illustrated in Figs. 6 and 7;

Fig. 9 is a fragmentary perspective view, partially in section, showing the details of the spool locking means forming a part of the splints illustrated in Figs. 6 and 7;

Figs. 10 and 11 are respectively plan and side elevational views of a cock-up hand support which may be used in connection with the splints of the present invention;

Fig. 12 is a top plan view, similar to Figure 6, of another traction finger splint constructed in accordance with the present invention;

Fig. 13 is an enlarged sectional view on the line 13—13 of Fig. 12;

Fig. 14 is an enlarged end view of the spool unit constituting a part of the splint illustrated more completely in Fig. 12; and

Fig. 15 is a perspective view of a wrench for use in connection with the spool unit which is illustrated particularly in Figs. 12 and 13.

The thumb splint illustrated particularly in Figs. 1, 2, 3 and 5 includes a curved, forearm engaging portion 15 which is preferably made of heavy sheet metal, such as aluminum, or of plastic. Rigidly attached to the forearm engaging portion 15 of the splint is an adjustable hand support which includes an upwardly curved, longitudinally extending part 17 and a transversely extending, hand engaging part 19 having upstanding ends 21 for aiding in holding the hand of the patient in position. The longitudinally extending part 17 of the hand support is attached to the forearm engaging portion 15 of the splint by screw or other fastenings 23, and slots 24 are provided so that the position of the hand support may be adjusted longitudinally relative to the forearm engaging portion 15. The transversely extending, hand engaging part 19 is adjustably supported on the longitudinal part 17 by means of a screw fastening 25.

Motion of the hand engaging part 17 about the screw fastening 25 is limited in either direction by means of a pair of downwardly extending, punched out, projections 26 which engage suitable arcuate slots 27 formed in the adjacent, underlying portions of the longitudinally extending part 17, as illustrated.

The forearm engaging portion 15 should be quite stiff and may be conveniently supplied with straps 27 whereby it is fastened in place. The

shape of this member should be such that it will engage the volar or inner surface of the forearm with a comfortable fit.

During use of the splint, the thumb is held in place and traction is applied thereto by means of a spool and ratchet assembly which is supported on the under side of the arm engaging portion 15 so as to be adjustable lengthwise thereof. The spool and ratchet assembly includes a cylindrical spool 29 and a main supporting arm 31 therefor which is attached to the arm engaging portion 15 of the splint and to the longitudinally extending support part 17 for the hand support element by means of one of the screw fastenings 23 and an additional screw fastening 33, as illustrated. Adjustment of the position of the spool and ratchet assembly relative to the other elements of the splint is made possible by the provision of slotted openings 35 for cooperating with the screw fastenings 23 and 33.

The cylindrical spool 29 may be constructed of wood or other material. It is supported upon and keyed to a suitable stub shaft 37 (Fig. 3) which in turn is supported for rotative movement upon the spool support arm 31. The stub shaft 37 is provided at its lower end with a ratchet gear 39 which is adapted to engage and coact with a suitable spring pressed pawl 41 supported adjacent thereto. The spool supporting stub shaft 37 terminates at its lower end in a square portion 43 which is adapted to be engaged by a wrench or key during the use of the split. The axis of rotation of the spool 29 extends substantially at right angles to the arm engaging portion 15 of the splint. For convenience in making fluoroscope or other X-ray examinations during use of the splint, it is desirable that the various parts of the spool and ratchet assembly and the hand support shall be made of aluminum or other material which is transparent to X-rays.

The thumb splint illustrated in Figs. 1, 2, 3, and 5 is particularly designed for use in the treating of fractures of the proximal phalange or second joint of the thumb of the right hand. When the splint is to be used, a local anesthetic is administered to the patient so as to provide a digital nerve block. The distal phalange or first joint of the thumb is then cleaned and an antiseptic applied thereto. A stockinette bandage such as is illustrated at 45 in Fig. 5 should then be placed on the forearm from the wrist to the elbow. Next, two strips 47 of adhesive tape about ½ inch wide and several inches long are attached to the medial and lateral aspects (the two sides) of both the distal and the proximal phalanges, as illustrated particularly in Fig. 5. These strips 47 should extend beyond the interphalangal or second joint of the thumb and are reinforced and held in place by adhesive tape wrappings as illustrated at 49 and 51.

The free ends of the strips 47 of adhesive tape are now affixed to the spool 29, the axis of which is horizontal, the splint being away from the patient with the spool end thereof nearest the patient and with the concavity of the forearm engaging portion 15 extending toward the under surface or dorsum of the forearm. The spool 29 is now rotated so that the ends of the adhesive tape strips 47 will be wound up thereon, this operation causing the splint to be drawn toward the patient, and when the unwound part of the strip 47 is about one to one and a half inches long, the splint is swung approximately 180° in a horizontal plane so as to bring the concave arm engaging portion 15 thereof against the under surface of the forearm. If found necessary, the relative positions of the hand support and the spool and ratchet assembly can be adjusted longitudinally of the splint by loosening the screw fastenings 23 and 33 and sliding the member 15 and the supporting arm 31 in the slots 24 and 35. The crosswise position of the hand support may also be adjusted at this time. The thumb will be found to be naturally flexed over the spool substantially as shown in Fig. 5. In most instances it will be found desirable to insert a small piece 53 of wool felt or similar material, which may be beveled at the edges, between the lower surface or palmar aspect of the thumb and the spool. This piece of felt 53 acts as an elevator in raising the bone fragments into proper position. At the same time, it protects the adjacent tissue from excessive pressure resulting from the tensioning of the digit which follows.

The splint is now fastened on the forearm of the patient by the straps 27 which are placed over the upper surface or dorsal aspect of the forearm, or the splint may be affixed in place with a plain bandage. The spool 29 is then tightened against the ratchet 39 and pawl 41 so that traction is applied along the longitudinal axis of the fractured bone. The thumb should be X-rayed for position and immediate manual reduction made or additional traction applied if that be necessary. Adjustment of the position and size of the elevator 53 may also be made if necessary. The management of the fracture after application of the splint is simple, and usually consists of three to four weeks of immobilization. X-ray examinations are desirable during the healing period.

As previously stated, the splint illustrated in Figs. 1, 2, 3, and 5 is designed for treating fractures of the proximal phalange of the thumb of the right hand. The splint may be readily adapted for treatment of fractures of the proximal phalanage of the thumb of the left hand by replacing the right hand spool and ratchet assembly illustrated in Figs. 1, 2, 3, and 5 with a left hand unit such as is illustrated in Figure 4. To replace one unit with the other it is necessary merely to release one of the two screw fastenings 23 and the single screw fastening 33 and readjust the cross arm part 19 of the hand support.

The left hand spool and ratchet unit is structurally almost identical with the right hand unit. It includes a spool 29*a* which is supported upon and keyed to a stub shaft 37*a*. The stub shaft is journaled upon a support arm 31*a* which is similar to the arm 31 except that it curves in the opposite direction. There is a ratchet 39*a*, a spring pressed pawl 41*a*, and a squared end portion 43*a* on the shaft similar to the corresponding parts of the right hand unit, and the support arm 31*a* is provided with slots 35*a* for engaging the screw fastenings 23 and 33.

The mechanical principles which have been described in the foregoing are equally useful in connection with splints for the treatment of fractures of the proximal and middle phalanages of the fingers, and a splint embodying these principles and designed for this purpose is shown particularly in Figs. 6 and 7. This splint includes a curved arm engaging portion 55 preferably made from heavy sheet metal, and provided with straps 57 for fastening the splint to the arm of the patient. Because of the fact that this splint is designed for use on either hand, the hand rest is of the universal type. It may comprise a simple transversely extending cross piece

59, having upturned edges 61, which is supported upon the arm engaging portion of the splint by a suitable, rigid longitudinal support 63, as illustrated in Figs. 6, 7, and 8, or it may comprise a rest of the type described in connection with the thumb splint illustrated in Figs. 1, 2, 3, and 5. The longitudinal element 63 of the hand support is fastened to the arm engaging portion 55 of the splint by suitable screw fastenings 62 and is made adjustable relative to the arm engaging portion 55 through the provision of slots 64.

The fingers are supported and tension is applied thereto by means of a multiple spool support mechanism which includes a yoke 65 having a shaft 67 journaled thereon. The shaft 67 in turn supports four cylindrical spools 69. The spools 69 are rotatable upon the shafts 67, and means is provided whereby one or more of the spools can be keyed thereto. In the particular structure illustrated in the drawings, this keying means includes, as is shown particularly in Fig. 9, a removable pin 71 which is adapted to extend through a suitable opening formed in each of the spool members to engage a slot 73 which is milled in the shaft 67 along the full length thereof. Suitable bearing supports are provided in the yoke for the ends of the shaft 67, and a ratchet wheel 75 is keyed to one end thereof. The ratchet wheel 75 coacts with a spring pressed pawl 77 supported on the yoke 65, as illustrated, and the shaft 67 terminates in a square end portion 79 to facilitate the turning thereof when the splint is in use.

In order to obtain traction along the proper axis of any finger of either hand which may be fractured, the finger support mechanism should be adjustable in at least laterally and preferably in both a lateral and a horizontal plane. This adjustment is provided in the splint shown in Figs. 6 and 7 by means of a swivel connection 81 intermediate the end portion 83 of the yoke 65 and the longitudinally extending support member 85 which serves to connect the end portion 83 of the yoke to the arm engaging portion of the splint.

The details of the swivel connection 81 are shown particularly in Fig. 8. As illustrated in that figure, the connection includes cooperating spherically shaped members 87 and 89, one of which is integral with the end portion 83 of the yoke and the other of which is integral with the forward end of the support member 85. The spherically shaped members 87 and 89 are movable relative to each other and are adapted to be held in position by means of a clamping bolt 91, a concave pressure disc 93, and a nut 95 which may be integral with the member 89. A moderately large hole 97 in the member 87 makes possible sufficient relative movement between the spherical members 87 and 89 to accomplish necessary adjustment of the finger support mechanism. If desired, the engaging cylindrical surfaces of the two spherical members 87 and 89 may be serrated or knurled as illustrated at 99 in order to obtain positive, rigid locking of the swivel parts in position.

Longitudinal adjustment of the finger support mechanism or spool unit relative to the arm engaging portion 55 is made possible by the provision of slotted openings 103 for the screw fastenings 101 and 62.

The procedure of using the above described finger splint is substantially similar to the procedure followed in connection with the thumb splint, previously described. Anesthetic is administered locally or otherwise so as to provide a digital nerve block. The distal or first phalange of the finger is cleaned and a suitable antiseptic applied thereto. A stockinette bandage should be placed on the forearm from the wrist to the elbow as shown at 105. Two strips 107 of adhesive tape about one-half inch wide and several inches long are attached to the medial and lateral aspects (the two sides) of the finger as illustrated. The strips of tape 107 should extend beyond the second joint of the finger if a fracture of the proximal phalange is being treated and beyond the third joint if a fracture of the intermediate phalange is being treated.

The tape strips 107 are fastened in place by suitable bindings or wrappings 109 which may also be of adhesive tape, and the extending ends of the tape are wrapped around the appropriate spool 69 of the multiple spool mechanism, that spool being keyed to the shaft 67 by one of the pins 71. When this operation is being carried out, the splint will be pointed toward the patient with the spool mechanism foremost and the arm engaging portion 55 inverted from the position shown in Figs. 7 and 8. Once the ends of the tape 107 have been wrapped about the proper spool 69, the splint should be rotated in place so as to bring the concave arm engaging portion 55 thereof into contact with the volar or under surface of the arm of the patient. The finger will be found to be naturally flexed over the spool as shown, and if not, the necessary adjustment of the spool support means can be carried out by means of the swivel connection 81 provided for that purpose. The arm portion of the splint should then be fastened in place by tightening the straps 57, and it is desirable that the wrist be further restrained in position by means of a bandage such as illustrated at 111, this being especially useful when treating fractures of the middle phalange.

The spool 69 with the ends of the tape 107 thereon may be tightened against the ratchet 75 to apply the desired traction to the finger, and where required, an elevator which may comprise a piece of felt 113 similar to the piece of felt 53 used in connection with the thumb splint may be inserted between the spool and the surface of the finger. Checking and adjusting the position of the bone fragments by X-ray will, of course, be required.

Some practitioners prefer to maintain the palm of the hand in an upwardly curved position during the treatment of fractures of the phalanges of the thumb or fingers, and a hand support which is known in the profession as the "cock-up" type is commonly employed for this purpose. If desired, a cock-up type hand support may be used in connection with the splints of the present invention, and such a support is illustrated in Figs. 10 and 11. The device shown in those fingers includes a curved hand support portion 115 which may be of metal, and a suitable longitudinally extending support member 117 which is provided with spaced, slotted openings 119 to permit the support being adjustably connected to the arm receiving portion of the splint in place of the hand supports previously described. The use of a cock-up type hand support does not, of course, involve any difference in the treatment procedure.

It sometimes happens that more than one finger will be crushed in a single accident. In such instances it is necessary to treat two or more phalanges on the same hand at the same time. While this may be accomplished by the use of a

splint of the type illustrated in Figs. 6 and 7, it is preferable to use a splint having means whereby the finger supporting spools can be individually tightened. A structure of this type is illustrated in Figs. 12, 13, and 14. This splint includes a curved arm engaging portion 125 which is similar to the arm engaging portions 15 and 55 of the previously described embodiments. Straps 127 are provided for attaching the arm engaging portion 125 to the arm of the patient, and a hand support 129 of the cock-up type illustrated in Figs. 10 and 11 is supported upon the arm engaging portion 125 by suitable screw fastenings 131 so as to be adjustable longitudinally thereof.

The spool unit, which is the most important part of this embodiment of the invention, includes a main supporting yoke 133 for the four finger supporting spools 137. The yoke 133 is adjustably supported on the arm engaging portion 125 by means of a bracket 139, a swivel connection 141, which may be similar to the swivel connection 81 previously described, and a longitudinally extending support member 143 which is not illustrated in detail but which may be similar to the longitudinally extending member 85 of the previously described embodiment. The support 143 is attached to the arm engaging portion 125 by the screw fastenings 131, as illustrated, and should be provided with elongated slots similar to the slots 35 and 103 in order to permit longitudinal adjustment of the spool unit relative to the arm engaging portion 125.

The means which makes possible individual tensioning adjustment of the spools 137 of this unit includes a central shaft 145 which extends between the two side portions 147 of the yoke and which is keyed to the second spool 137 (from the top of Figs. 12 and 13) by a suitable keying pin 149 which engages a slot 151 formed in the shaft 147. The slot 151 permits limited adjustment of the spool longitudinally of the shaft. A ratchet gear 153 is keyed to the shaft 145 at the upper end thereof (Figs. 12 and 13), and a suitable spring pressed pawl 155 is provided for cooperating therewith. The ratchet gear 153 has a square, integral head portion 157 for engagement by a suitable wrench, such as that illustrated at 159 in Fig. 15, to effect rotation of the ratchet, the central shaft 145 and the spool which is keyed thereto.

A cylindrical tube 161 is positioned about the central shaft 145, as illustrated in Figs. 12 and 13, and is rotatable relative thereto. The tube 161 serves as the supporting and operating means for the uppermost spool 137, and is keyed to that spool by means of a keying pin 163 which engages a suitable slot 165 formed in the tube 161. The slot 165, like the slot 151 in the central shaft 145, permits limited adjustment of the upper spool longitudinally of the spool unit. The tube 161 is provided with a ratchet gear 167 similar to the ratchet gear 153, and a second pawl 169 is provided at the upper end of the spool unit for cooperating with this ratchet gear. The ratchet gear 167 is also provided with a square head portion 171 for engagement by the wrench 159 or other operating member.

The two lower spools 137 are similarly supported for independent rotative movement upon the central shaft 145 by means of a pair of concentric tubes 173 and 175, each of which terminates in a ratchet gear 177 having a square head 179, and the whole assembly is held together by suitable screw fastenings 181 which engage the central shaft 145. Pawls 183 are provided for cooperating with the ratchet gears 177, and the dimensions of the central shaft 145, and the tubes 173 and 175 are such that those members are independently rotatable. The lower spools 137 are keyed to the tubes 173 and 175 by means of suitable keying pins 185 which engage slots 187 formed in the tubes, thereby permitting adjustment of the spools longitudinally of the spool unit.

It will be evident that this arrangement provides a finger tensioning splint wherein the individual finger supporting spools can be tightened independent of the others and in addition can be individually adjusted transversely of the splint (longitudinally of the spool unit). The splint is, therefore, particularly adapted for treatment of multiple fractures. It may, of course, be used for the treatment of single fractures. The use of a swivel joint between the spool unit and the arm engaging portion of the splint makes possible a completely universal type of splint which can be readily adjusted for use on either hand.

In the foregoing, I have described the features of an improved splint particularly suited for use in the treatment of fractures of the proximal phalanges of the thumb, and fingers and of the middle phalanges of the fingers. Various embodiments of the invention have been specifically described. It will be apparent, however, that other structural arrangements, utilizing the principles which I have disclosed in the foregoing, will be suggested to those skilled in the art. Accordingly, it is my desire that the accompanying claims shall be accorded the broadest reasonable construction consistent with the language appearing therein and the prior art.

I claim:

1. A splint of the class described comprising, a forearm engaging member curved to fit the volar surface of the forearm, a hand rest supported on said forearm engaging member, and means, which includes a rotatable spool and means for latching said spool in adjusted position, supported on said forearm engaging member for positioning and tensioning the digit which is being treated.

2. A splint, particularly adapted for treating fractures of the proximal and middle phalanges of the digits of the hand, comprising, a relatively rigid, forearm engaging member curved to fit the volar surface of the forearm, a hand rest, which includes a transverse support for the palm of the hand, supported on said forearm engaging portion, and a digit supporting and tensioning means which includes a rotatable spool and a ratchet for holding said spool in predetermined tensioning position, said spool and ratchet being mechanically connected to said forearm engaging portion by a rigid support means.

3. A splint, particularly adapted for treating fractures of the proximal phalange of the thumb, comprising a rigid, forearm engaging member curved to fit the volar surface of the forearm, a hand support which includes a cross piece for engaging the hand of the patient and means for mechanically connecting said cross piece to said forearm engaging member, and a combination thumb support and thumb tensioning means which includes a rotatable spool, ratchet means for holding said spool against rotation and for permitting adjustment of the tension applied to the thumb of the patient during the use of said splint, and means for supporting said spool and ratchet means on said forearm engaging member, the axis of rotation of said spool extending generally at right angles to said hand support member and said arm engaging member.

4. A splint, for use in the treatment of fractures of the proximal and middle phalanges of the fingers comprising a rigid, forearm engaging member which is curved to fit the volar surface of the forearm, a rigid, hand support affixed to said forearm engaging member, and means for supporting and tensioning the fractured phalange which is to be treated comprising a plurality of spool members, a shaft upon which said spool members are rotatably supported, means for keying said spool members to said shaft, means for latching said shaft in a fixed rotative position, and means for supporting said shaft, said spools and said latching means on said forearm engaging member.

5. A splint, particularly adapted for treating fractures of the proximal and middle phalanges of the fingers, comprising a forearm engaging member which is curved to fit the volar surface of the forearm, a hand rest rigidly supported on said forearm engaging member, and a digital supporting and tensioning means comprising a yoke, a shaft supported on said yoke, a plurality of spool members rotatably supported on said shaft, means for selectively keying individual spools to said shaft, ratchet means whereby said shaft and any spool which is keyed thereto can be held in a fixed rotative position, and means including a connection which permits adjustment of said digital supporting and tensioning means in a lateral and a vertical plane for supporting said digital supporting and tensioning means on said forearm engaging member.

6. A splint, particularly adapted for treating fractures of the proximal and middle phalanges of the fingers, comprising a rigid, forearm engaging member which is curved to fit the volar surface of the forearm, a hand support which includes a transverse hand support member and means for rigidly supporting said member on said forearm engaging member, and a digital tensioning and support means including a yoke, a shaft supported upon said yoke, a plurality of spools supported on said shaft, means for selectively keying individual spools to said shaft, a ratchet for locking said shaft and any spool which is keyed thereto in predetermined position, and means including a swivel for adjustably supporting said digital support and tensioning means upon said forearm engaging member.

7. A splint, particularly adapted for treating fractures of the proximal and middle phalanges of the fingers, comprising a forearm engaging member which is curved to fit the volar surface of the forearm, a hand support which is adapted to engage the hand of the patient and which is supported on said forearm engaging member, and a combination digital tensioning and support means which includes a shaft, a plurality of spool members supported upon said shaft so as to be rotatable thereon, ratchet means for individually latching each of said spool members in predetermined tensioning position during the use of said splint, and means for supporting said spool, ratchet, and shaft assembly on said forearm engaging member.

8. A splint, particularly adapted for treating fractures of the proximal and middle phalanges of the fingers, comprising a rigid, forearm engaging member which is curved to fit the volar surface of the forearm, a hand support which is adapted to engage the hand of the patient and which is supported upon said forearm engaging member, and a combination digital tensioning and support means which includes a shaft, a plurality of tube members supported upon said shaft so as to be rotatable independently of said shaft and of each other, a plurality of spool members, one of which is supported upon and keyed to said shaft and to each of said tube members, ratchet means for cooperating with said shaft and said tube members for individually latching each of said keyed spool members in predetermined tensioning position during the use of said splint, and means for supporting said shaft, spool, and ratchet assembly on said forearm engaging member.

9. A splint, particularly adapted for treating fractures of the proximal and middle phalanges of the fingers, comprising a rigid, forearm engaging member which is curved to fit the volar surface of the forearm, a hand support which is adapted to engage the hand of the patient and which is supported on said forearm engaging member, and a combination digital tensioning and supporting means which includes a shaft, a plurality of tube members supported on said shaft so as to be rotatable independently of said shaft and of each other, a plurality of spool members, one of which is supported upon and keyed to said shaft and to each of the tube members, said keying means permitting limited adjustment of each of said spools longitudinally of the associated supporting shaft or tube member, ratchet means individually associated with said shaft and each of said tube members for individually latching each of said keyed spool members in predetermined tensioning position during the use of said splint, and means including a yoke and a swivel for adjustably supporting said shaft, tube, spool, and ratchet assembly on said forearm engaging member.

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