

H. W. VICKERS.

SPLINT.

APPLICATION FILED MAY 7, 1917.

Patented Aug. 28, 1917.

2 SHEETS—SHEET 1.

1,238,224.

Fig. 1.

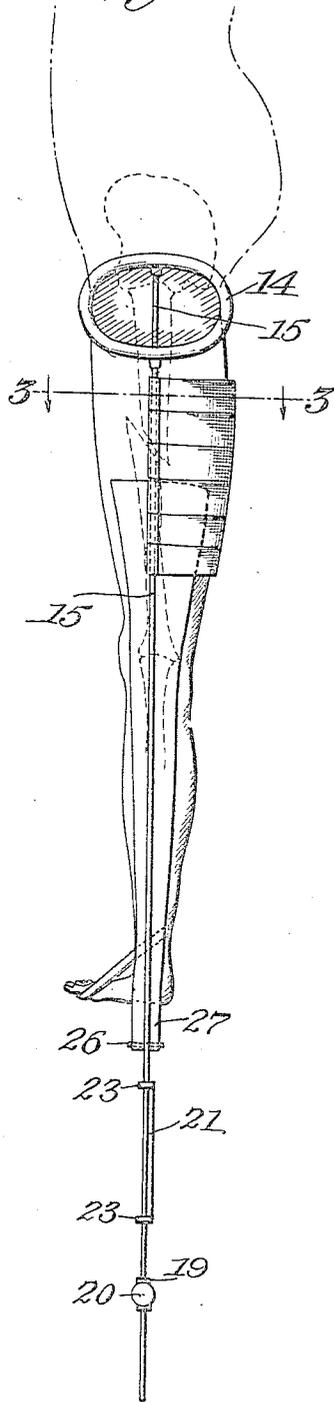


Fig. 2.

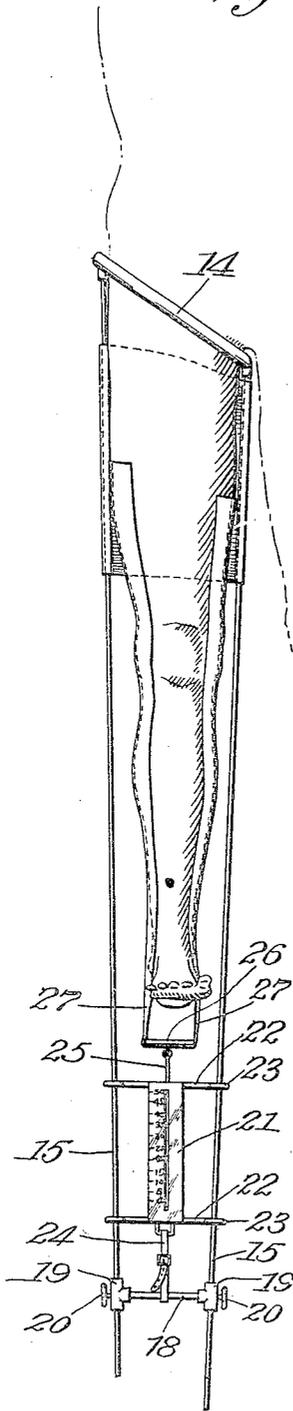


Fig. 4.

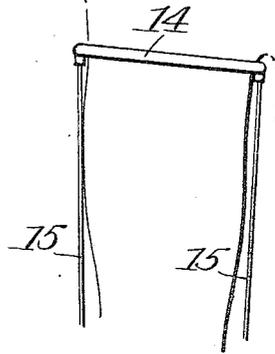
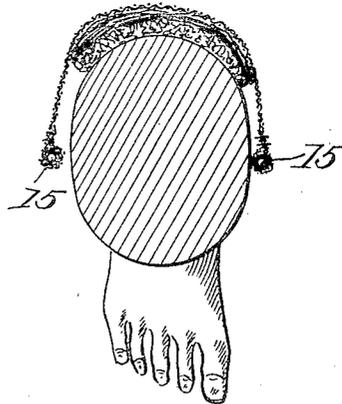


Fig. 3.



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 2 SHEETS—SHEET 2.

Fig. 5.

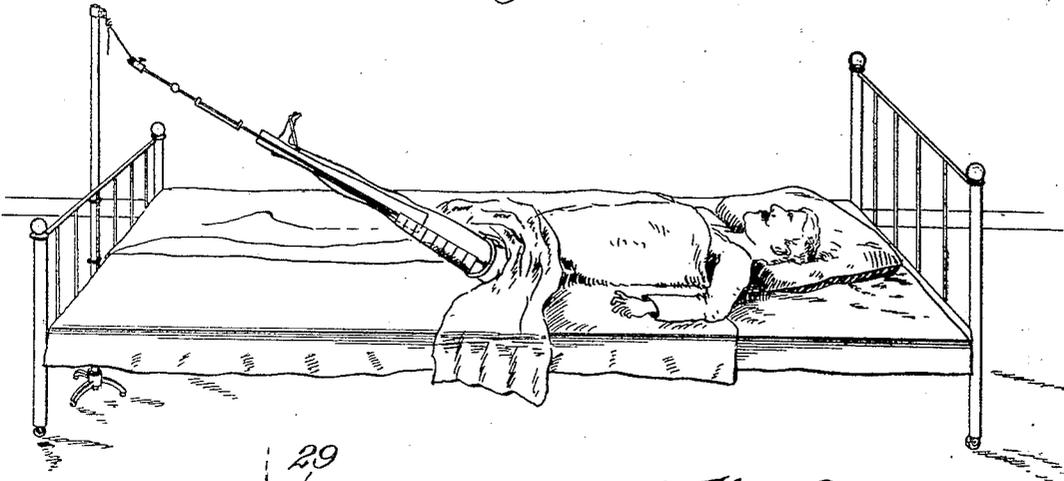


Fig. 7.

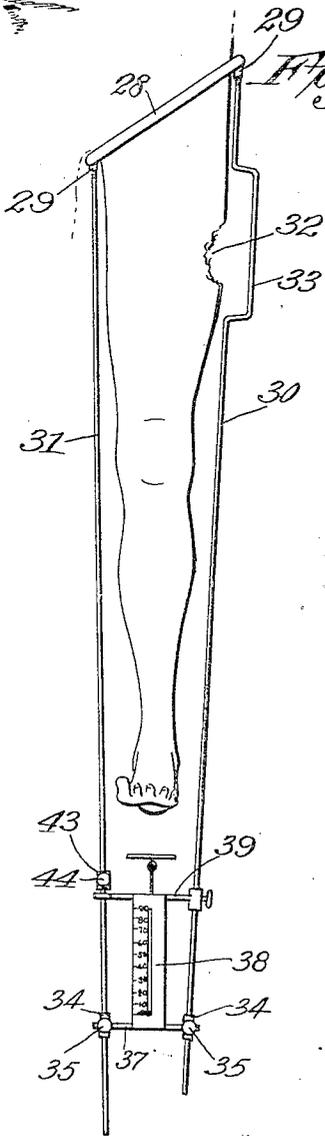


Fig. 6.

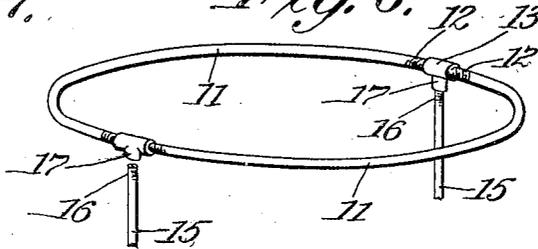


Fig. 8.

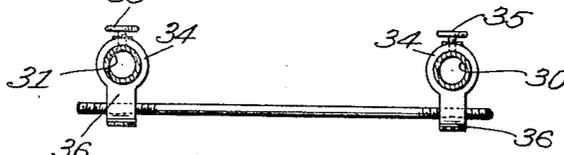


Fig. 9.

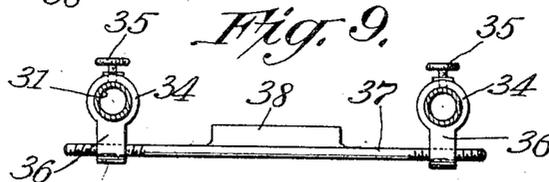
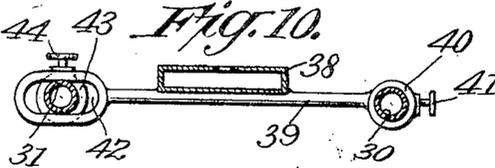


Fig. 10.



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UNITED STATES PATENT OFFICE.

HARRY WM. VICKERS, OF LITTLE FALLS, NEW YORK.

SPLINT.

1,238,224.

Specification of Letters Patent.

Patented Aug. 28, 1917.

Application filed May 7, 1917. Serial No. 167,023.

To all whom it may concern:

Be it known that I, HARRY W. VICKERS, a citizen of the United States, residing at city of Little Falls, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Splints, of which the following is a specification.

The present invention is particularly intended for use in connection with fractures of the lower limb, though possibly of utility in other relations.

One of the primary objects is to produce an exceedingly simple structure that can be readily placed in position, is open to a wide range of adjustments, is easily applicable, and when in place will not materially interfere with treatment.

While the structure may be embodied in various ways, two forms of construction that are at present considered preferable, are illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the splint indicating the same in position on a patient.

Fig. 2 is a plan view thereof.

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a detail view of the limb-encircling ring and associated parts illustrating how its relation to the side rods can be altered.

Fig. 5 is a perspective view showing an application of the device.

Fig. 6 is a detail perspective view of the limb-encircling ring with the padding removed.

Fig. 7 is a plan view of a slightly modified form of construction.

Figs. 8, 9 and 10 are detail cross sectional views.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment disclosed a limb-encircling member in the form of a ring is employed which, as illustrated in detail in Fig. 6, preferably consists of semi-circular rod sections 11 of metal having terminals 12 that are respectively provided with right and left hand threads. These threaded ends are connected by unions comprising socket members 13 that thus constitute not only sections between the ring sections 11, but are also rotatably or pivotally associated with

the ring. This ring is preferably covered with suitable padding as indicated at 14.

Side rods 15 are detachably mounted in the socket elements 13 by having their threaded ends 16 screwed into the nipples 17 of said elements. These side rods are of considerable length and extend along the opposite sides of the limb of the patient as illustrated. Their free ends are connected by a transverse spacing bar 18 which, as shown in Figs. 1 and 2, is provided with terminal collars 19 through which the rods 15 pass and in which they are secured by suitable set screws 20. This connection therefore serves not only to hold the side rods 15 in a predetermined spaced relation, but also prevent their relative longitudinal movement.

A tension device 21 is located between the free ends of the side rods 15, and may be an ordinary and well known type of spring balance. This device preferably has at its ends cross bars 22 provided with terminal eyes 23 slidable upon the side rods. The tension device is secured to the spacing bar 18 by any suitable means, as for instance, a strap 24, and the yielding member thereof has the usual projecting stem 25 to which is attached a plate 26. This plate serves as means for connecting bands 27 thereto.

It is believed to be unnecessary to describe the various methods of bandaging, etc., that may be employed as these depend upon the character of the fracture or injury. The manner of using the device, however, can be made clear to those skilled in the art. The limb-encircling ring 14 is placed upon the thigh and the side rods 15 engaged in the socket elements 13. The ring is then adjusted by tilting it to the desired angle so that it will fit against the thigh. Where the limb is of relatively great diameter, the ring is placed at substantially right angles to the side rods, as illustrated in Fig. 4, or it may be tilted as shown in Fig. 2. When properly positioned, the set screw 20 may be tightened, whereby the parts are rigidly held against relative movement, the bandaging may then be applied in the desired manner, and the proper tension placed on the limb by adjusting the device 21 along the rod and securing it through the medium of the strap 24.

The structure illustrated in Figs. 7-10 is a slightly modified form of the same construc-

tion. The ring member is designated 28 and the socket elements 29 are pivotally associated therewith and detachably receive the side rods 30 and 31. In Fig. 7 there is illustrated at 32 an injury to the soft tissues, and the side rod 30 may therefore be formed with an offset portion 33 to bridge this injury and be spaced far enough therefrom to avoid any irritation and also permit the proper dressing of the wound.

In this embodiment, also the rods 30 and 31 are adjustable toward and from each other. To this end, as illustrated in Fig. 9, each rod is provided with a collar 34 that is adjustable longitudinally of the rod and can be held in any desired position by a set screw 35. Each collar has an offset ear 36 into which is threaded the end of a transverse spacing rod 37 provided with right and left hand threads. Connected to the transverse rod 37 is the tension producing member 38 having at its inner end a cross bar 39. One end of this cross bar has a collar 40 slidable upon one of the rods and adapted to be held by a set screw 41. The other end has a slot 42 through which the other rod 31 passes. This slot permits the lateral adjustment of the rod 31, and in order to prevent its longitudinal movement, a collar 43 is slidable upon the rod 31 and can be held by a set screw 44. The said collar 43 constitutes an abutment for the slotted end 42 of the cross rod. It will be evident that the action of this device is exactly the same as the structure already defined.

It will be evident that with this splint, a combined traction and counter-traction effect of any desired power can be obtained, that the device is definitely adjustable, is quickly applicable, and that elevation and abduction are available. Mechanically the splint is inexpensive to make, is light, and the parts can be detached and packed into a relatively small space. They furthermore can be easily assembled without the necessity of a special tool.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or scope of the invention.

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

1. In a splint, the combination with a limb-encircling member, of a tension mem-

ber having a pivotal connection therewith to permit the ring being tilted to different angular relations with respect thereto, and strain producing means mounted on the tension member. 65

2. In a splint, the combination with a limb-encircling member, of spaced tension rods having pivotal connections therewith to permit the member being tilted to different angular relations with respect to said rods, means connecting the ends of the rods, and strain producing means located between said rods. 70

3. In a splint, the combination with a limb-encircling ring, of socket elements carried by the ring and pivotally mounted thereon, side rods detachably engaged in said socket elements, means connecting the side rods to maintain them in relative relation, and tension producing means connected to the side rods. 75

4. In a splint, the combination with a limb-encircling ring, of socket elements pivotally mounted thereon, side rods detachably engaged in said socket elements, a cross bar detachably connecting the free ends of the side rods and adjustable longitudinally of the same, and yielding tension producing means connected to the cross bar and slidably mounted on the side rods. 80

5. In a splint, the combination with a limb encircling ring comprising sections and unions connecting the terminals of the sections and having transverse sockets, of side rods having their ends engaged in the sockets, a strain producing member, and means for mounting the strain producing member on the side rods. 85

6. In a splint, the combination with side rods, of a cross rod adjustably connected to the free end portions of the side rods for holding them at different distances apart, and a strain producing member having slidable mountings on the side rods, said mountings permitting the lateral adjustment of the side rods toward and from each other. 90

7. In a splint, the combination with a limb-encircling ring, of side rods connected thereto at one end, a cross rod adjustably connecting the free ends of the side rods to hold them at different distances apart, and a strain producing member having outstanding ears slidable upon the side rods, said ears permitting the lateral adjustment of the side rods toward and from each other. 100

In testimony whereof, I affix my signature in the presence of two witnesses. 110

HARRY WM. VICKERS.

Witnesses:

EARL D. GOODRICH,
FRED H. GILMAN. 115