

(No Model.)

J. F. ROWLEY.  
FRACTURE APPARATUS.

No. 491,271.

Patented Feb. 7, 1893.

Fig. 1.

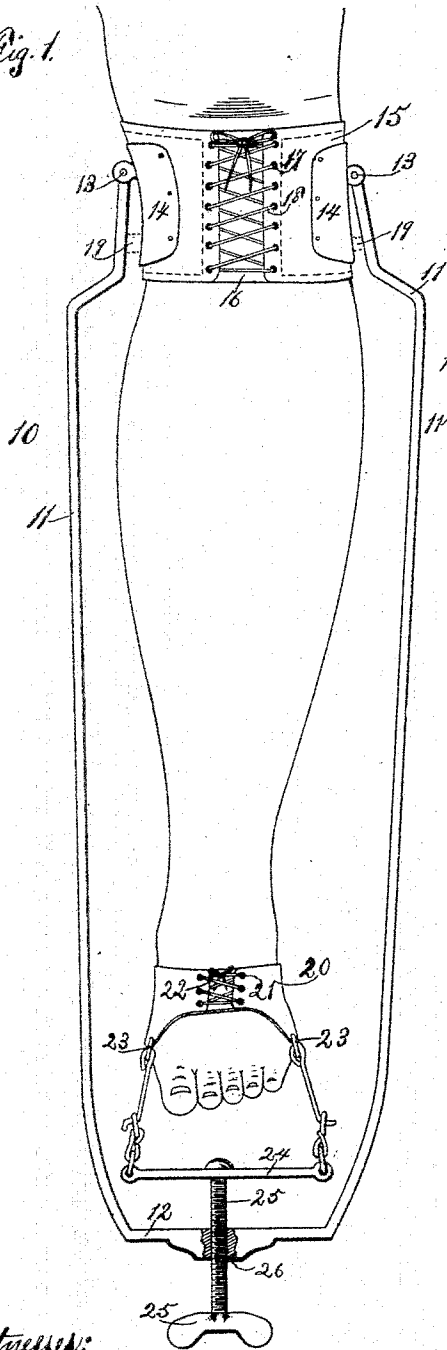


Fig. 2.

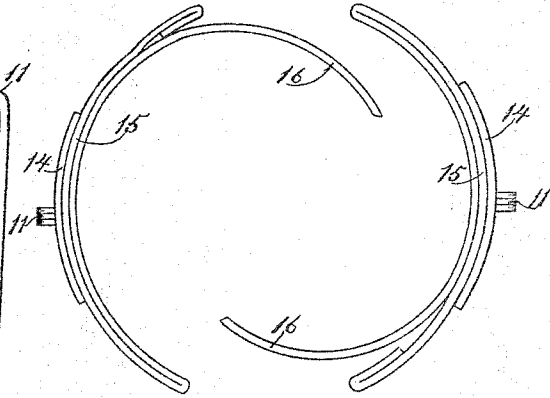
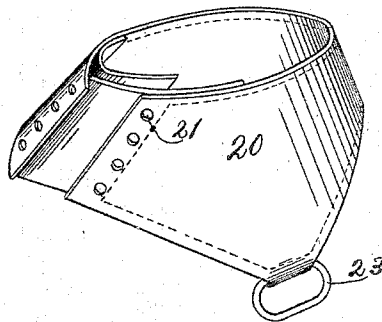


Fig. 3.



Witnesses:  
F. C. Tate.  
G. R. Green.

Inventor:  
James F. Rowley,  
by *J. H. Webb*  
his Atty.

# UNITED STATES PATENT OFFICE.

JAMES F. ROWLEY, OF DES MOINES, IOWA, ASSIGNOR OF ONE-HALF TO  
A. M. LINN, OF SAME PLACE.

## FRACTURE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 491,271, dated February 7, 1893.

Application filed March 26, 1892. Serial No. 426,619. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. ROWLEY, a citizen of the United States of America, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Fracture-Brace, of which the following is a specification.

The object of my invention is to provide means for reducing a fracture of the tibia or fibula or both without the use of splints and is especially adapted for use in cases of oblique fractures of said bones, since in said oblique fractures the contraction of the muscles surrounding and overlying said bones causes the fractured ends to overlap and slip past each other, in aggravated cases rendering the proper setting of the bones impossible and resulting in a shortening of the injured limb.

A further object of my invention is to be found in the provision of means for reducing a dislocation of the ankle joint.

The objects of my invention are attained by the use of devices for extending the limb between the knee and the foot, which devices comprise a frame inclosing the foot and reaching to the knee, means for fastening said frame to the limb near the knee, a collar encircling the foot, a screw device secured to the frame below the foot and connections between said screw device and the collar, whereby upon the withdrawal rotation of said screw that portion of the limb below the knee will be extended.

My invention consists further in the construction, combination and arrangement of parts, hereinafter set forth and pointed out in my claims, reference being now had to the accompanying drawings, in which:

Figure 1 is a front view showing my device applied as required for practical use. Fig. 2 is a top view of the knee band. Fig. 3 is a perspective view of the ankle band.

In the construction of the device as shown the numeral 10 designates a three sided frame, comprising side bars 11 and a cross piece or end 12. The upper end portions of the side bars 11 are hinged by means of pivots 13 to curved metal plates 14, 14, which latter are riveted to, and on the outside of the knee band 15.

The knee band 15 is formed of leather in two parts or pieces, adapted to fit opposite

sides of the limb below the knee, each of said pieces having a flap 16, 16, secured thereto. Eyelets 17 are provided in the mating edges of the pieces forming the band 15, and the said pieces are secured and drawn together by means of laces 18. The pivots 13 are located above the transverse center of the knee band and yielding, elastic or compressible pads 19 may be interposed between the bars 11 and the plates 14 below said pivots if desired.

The ankle band 20 is formed of leather shaped so as to fit the instep and upper portion of the heel and is provided with eyelets 21 and a lace 22 by means of which it is secured. Rings 23 are fixed to the lower edge and on opposite sides of the band 20, which rings are detachably connected with a swivel plate 24. The plate 24 is swiveled on the upper end of an adjusting screw 25 which latter passes through a screw seat 26 formed in the cross piece or end 12 of the frame 10.

In the practical use of my invention the knee band 15 is secured and firmly laced upon the limb slightly below the knee and is prevented from slipping upward by the natural enlargement of the limb above the point of application. The ankle band is then adjusted upon the foot and connected to the swivel plate. The adjusting screw is then rotated in the manner required to withdraw the same from its seat, thus exerting a downward strain upon the ankle which extends the limb and forces the fractured bones into their natural positions. A slight bandage wrapped about the injured limb for a time will prevent a transverse movement of the fractured bones relative to each other until the process of knitting has commenced, after which said bandage may be removed. Antiseptic cotton may be interposed between the limb and the bands to prevent inflammation by said bands if necessary. Owing to the band 15 being laced both in front and behind said band is adapted for both left and right limbs, thus obviating the necessity of having more than one style of brace for this kind of work.

It is obvious that the knee band 15 must be securely fastened upon the limb at a point below the knee, since were said band located above the knee the strain incident to the ex-

pansion between the knee and ankle bands would dislocate the knee joint, and since said strain must be continued for a considerable length of time, permanent injury to said knee joint would result. It is obvious further that when the brace is applied to the limb the patient must occupy a recumbent position with the limb extended, and since the anterior curve of the tibia is in its formation entirely unlike the posterior curve of the head of the fibula, it is apparent that the portion of the brace adapted to fit the tibia cannot in any manner be caused to conform to the shape of the fibula, and therefore necessarily the shape of the brace is such as to preclude the possibility of its use interchangeably on the right and left limbs in the same position relative to the vertical, said brace when changed from one limb to the other must be inverted, and were it not for the provision of front and back lacings, it would be necessary to turn the patient over or elevate the injured limb to permit of lacing the band at the rear thereof. Thus it will be seen that the provision of front and back lacings is a material advantage both in the added convenience to the operator and the comfort of the patient.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent of the United States therefor, is:

1. A fracture brace, comprising a rigid frame adapted to inclose the foot and extend upward on either side of the limb to a point below and in proximity to the knee, a band secured to one end of said frame and adapted

to encircle the limb at a point adjacent to and below the knee, a band adapted to be mounted upon the foot adjacent to the ankle, and means for increasing the distance between said bands.

2. A fracture brace comprising a U-shaped frame, a band secured to said frame and adapted to be laced upon the limb at a point adjacent to and below the knee, and an adjusting screw, carrying a swivel plate, seated in the end of said frame opposite to said band and adapted to produce extension between the knee and foot.

3. In a fracture brace the combination with a U-shaped frame extending, from a point in proximity to and below the knee, around the foot and on both sides of the limb, of a band hinged to said frame and adapted to encircle the limb below and adjacent to the knee, and screw devices mounted on said frame acting in conjunction with the ankle band to extend the limb between the knee band and the said ankle band.

4. In a fracture brace, the combination with a frame and extension devices, of a band adapted to encircle the limb in contiguity to and below the knee, which band is laced on two opposite sides, thus adapting the brace for both the right and left limbs.

In testimony whereof I hereunto have set my hand this 3d day of March, 1892.

JAMES F. ROWLEY.

In presence of—

G. H. HUTTENLOCHER,  
S. C. SWEET.