

April 19, 1949.

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2,467,907

CORRECTIVE AND PROTECTIVE KNEE BRACE

Filed Nov. 30, 1946

2 Sheets-Sheet 1

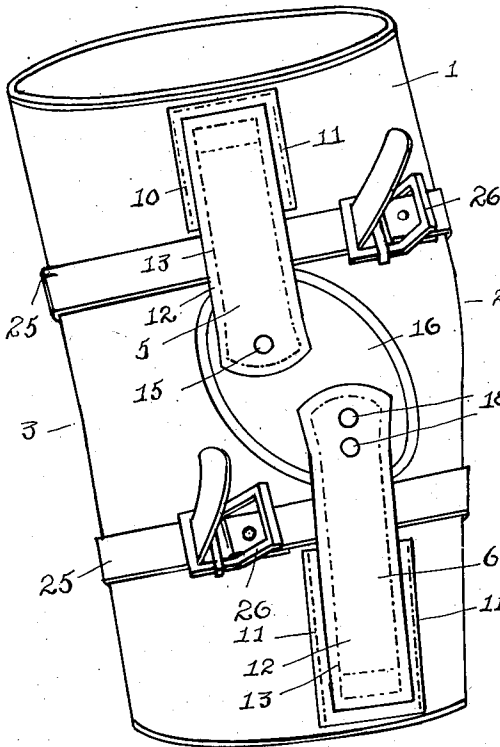


Fig 1

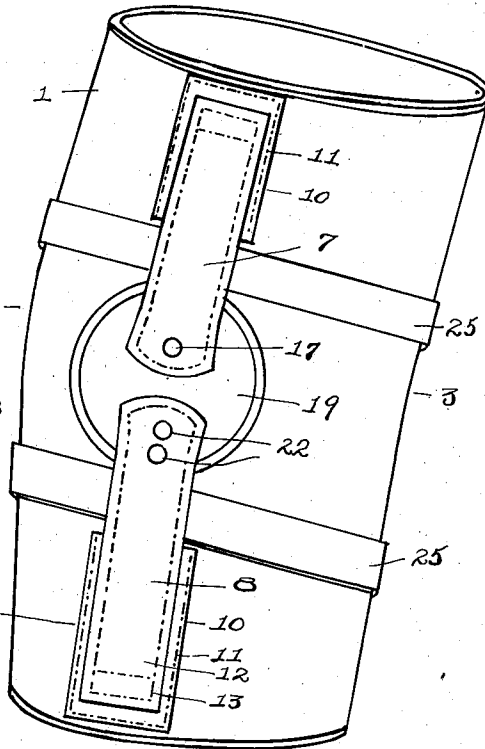


Fig 2

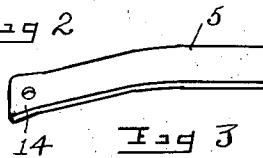


Fig 3

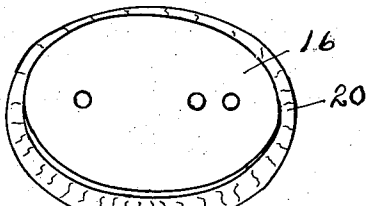


Fig 4

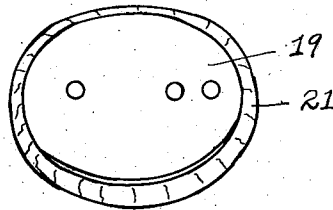


Fig 5

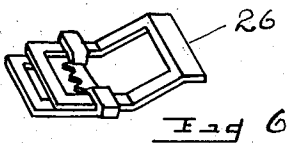


Fig 6

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2 Sheets-Sheet 2

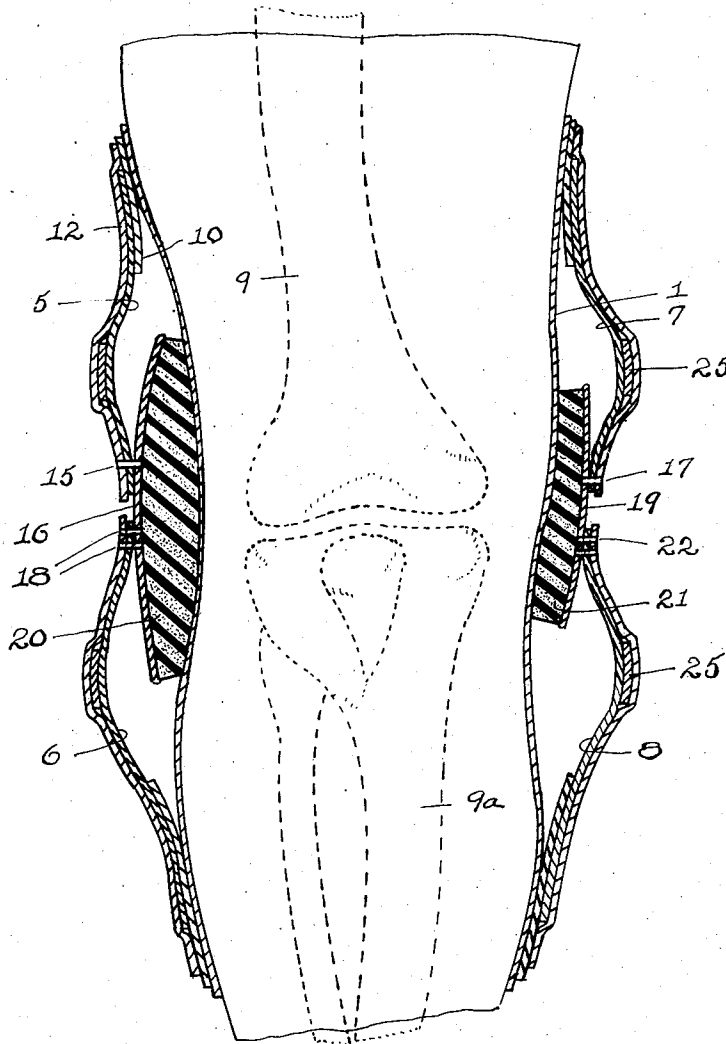


Fig 7

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UNITED STATES PATENT OFFICE

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CORRECTIVE AND PROTECTIVE KNEE BRACE

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3 Claims. (Cl. 128-88)

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My invention relates to a corrective and protective knee brace, and I declare the following to be a full, complete, concise and exact description thereof sufficient to enable anyone skilled in the art to which it appertains to make and use the same reference being had to the accompanying drawings in which like reference characters refer to like parts throughout the specification.

The object of the invention is to provide a brace that will when applied to a person's knee joint prevent lateral movement and rotation between the femur and tibia bones at the knee of a person suffering from a weak knee joint. To this end the brace will hold the joint rigidly from side bending in or out or from rotating when the person walks.

The brace will be understood by referring to the drawings in which:

Fig. 1 is a perspective view showing one side of the brace.

Fig. 2 is a perspective view showing the opposite side of the brace.

Fig. 3 is a perspective view of a spring employed in the brace.

Fig. 4 is a detail view showing a perspective view of a pad employed in the brace.

Fig. 5 is a detail view showing a perspective of another pad employed in the brace.

Fig. 6 is a perspective view showing a buckle employed in the device.

Fig. 7 is a front elevation showing a vertical section with parts in full and other parts in dotted line.

Referring more particularly to the drawings the brace embodies a sleeve 1 made preferably of woven, knitted or one or two way stitch fabric and shaped to conform to the contour of a person's leg at the knee joint. For this purpose it has a bulge at 2 and a corresponding depression at 3 to accommodate the front of the knee and the pit or under side thereof respectively.

Four arched shaped flat strap like springs made substantially alike, 5, 6 and 7 and 8 are mounted in pairs at diametrically opposite sides of sleeve 1. Springs 5 and 6 are disposed on the right hand side of sleeve 1 and springs 7 and 8 on the left hand side thereof. Spring 5 will lie in parallel relation to the femur bone 9 shown in dotted lines in Fig. 7 and on the right side thereof, whereas spring 6 will lie in parallel relation to

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the tibia bone 9a also shown in dotted lines in Fig. 7 and on the right side thereof. Spring 7 will lie in parallel relation to spring 5 and on the left side of the femur bone 9. Likewise spring 8 will lie in parallel relation to spring 6 and on the left side of the tibia bone 9a.

Each of the springs 5, 6, 7 and 8 is mounted to sleeve 1 in the same manner that is by means of a pocket made of two pieces preferably of leather or other suitable material. Piece 10 of the pocket is seamed directly to the upper part of sleeve 1 and on a location corresponding to the lateral side thereof when the brace is in position upon the knee joint. It is seamed along the broken line 11 and forms the under side of the pocket. Piece 12 forms the other side of the pocket and is seamed to piece 10 and to sleeve 1 therebeneath along the broken line 13. Piece 12 is extended to cover the entire length of the said springs 5, 6, 7 and 8 in each instance.

Each of the said pockets for housing the ends of springs 5, 6, 7 and 8 is made alike and is disposed adjacent the top and bottom portions respectively of sleeve 1 and on the opposite lateral sides thereof.

The ends of each of the said springs is slightly enlarged at 14. The lower ends of springs 5 and 7 are pivoted at 15 and 17 to the oval shaped plate 16 and to round plate 19 respectively to allow for rotary movement relative thereto. Plates 16 and 19 are made of any suitable hard material. Said pivot 15 is located on an imaginary line normal to the major axis of plate 16 and about a third of the way from its periphery, whereby spring 5 can rotate on its pivot 15 relative to said plate 16 to allow for the natural bending of the knee joint of the person using the device when walking. Whereas spring 6 is fastened by two rivets 18, 18 to oval shaped plate 16 nearly normal to the major axis thereof and about the third of the distance from the perimeter of said plate 16 and does not allow for a rotary movement relative to said plate 16.

The lower end of spring 7 is pivoted to round plate 19 at 17 and allows for a rotary movement of spring 7 relative to plate 19 to correspond with the action of spring 5. Pivot 17 is located about a third of the distance from the perimeter of plate 19. The upper end of spring 8 is fastened by rivets 22, 22 to round plate 19 about a third

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of the distance from the perimeter thereof. Said rivets 22, 22 do not allow for a rotary movement of spring 8 relative to said plate 19 and in this respect correspond to the assembly and function of spring 6.

Pads 20 and 21 are made of sponge rubber or other suitable material and are cemented to the under slightly concaved sides of plates 16 and 19 respectively and to the outer lateral adjacent surfaces of sleeve 1.

The means for forcing the ends of springs 5, 6, 7 and 8 inward, whereby they will exert a pressure on plates 16 and 19 respectively and in turn on the knee joint to prevent it from side bending in or out or rotating when the person walks contemplates fabric straps 25, 25, provided with buckles 26, 26. Straps 25, 25 are disposed one above and the other below pads 20 and 21, respectively. Furthermore, they are located underneath leather pieces 12 and above springs 5, 6, 7 and 8 and across the arched portions thereof, whereby the tightening of said straps 25, 25 will exert a pressure on about the middle or arched portion of said springs to force the ends thereof resting on said pads 20 and 21 inward and thereagainst as stated above.

In operation, the patient will slip his foot with the bad knee joint through sleeve 1 and then pull it up in position above said knee joint in such position that the pads 20 and 21 will lie opposite the joint. Next he will tighten straps 25, 25 to hold the brace in correct position as above stated. Moreover, the tightening of straps 25, 25 will not only hold the knee brace in correct position about the knee joint but will also force the ends of arched springs 5, 6, 7 and 8 inward to create a pressure from opposite directions on said joint. This pressure will hold the knee joint rigidly in place and prevent its bending in and out or rotating when the person walks.

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

1. In a corrective and protective knee brace, a sleeve for covering said knee joint, plates

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carrying pads attached to said sleeve, arch shaped springs pivotally mounted to said plates, other arch shaped springs attached to said plates, and straps engaging said springs, whereby the tightening of said straps will force said pads against the knee joint to prevent lateral and rotary motion thereof.

2. In a corrective and protective knee brace, a sleeve conforming to the contour of a person's leg at the knee joint, plates carrying sponge rubber pads attached to said sleeve on opposite sides thereto, arch shaped springs pivotally mounted to said plates, whereby to allow for rotary movement relative thereto, other arch shaped springs immovably attached to said plates, straps engaging said springs and encircling said sleeve, whereby the tightening of said straps will force said pads against the knee joint to prevent lateral and rotary motion thereof.

3. In a corrective and protective knee brace, a sleeve conforming to the knee joint, an oval shaped plate carrying a sponge rubber pad attached to one side of said sleeve, a round shaped plate carrying a sponge rubber pad attached on the opposite side of said sleeve, arch shaped springs pivotally mounted to said plates, whereby to allow for rotary movement relative thereto, other arch shaped springs attached to said plates, pockets formed in said sleeves to hold the ends of said springs, straps engaging said springs, whereby the tightening of said straps will force said pads against the knee joint to prevent a lateral and rotary motion thereof.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
891,181	Mitchell -----	June 16, 1908
1,510,408	Lychou -----	Sept. 30, 1924
1,601,659	Van Harlinger -----	Sept. 28, 1926
2,308,776	Peckham -----	Jan. 19, 1943