Feb. 10, 1931. J. F. FISHER 1,792,155

FOOT AND ANKLE BRACE

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FIG. 1.

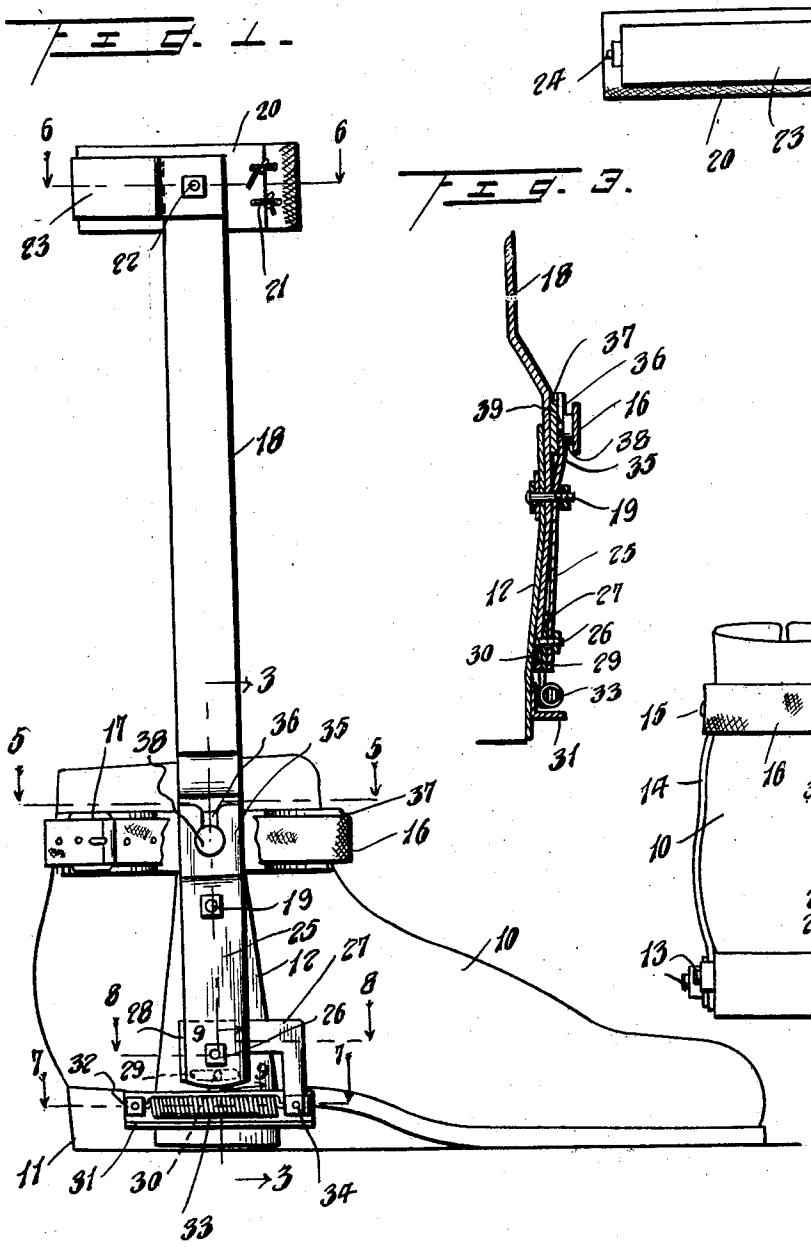


FIG. 2.

FIG. 3.

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Fig. 4.

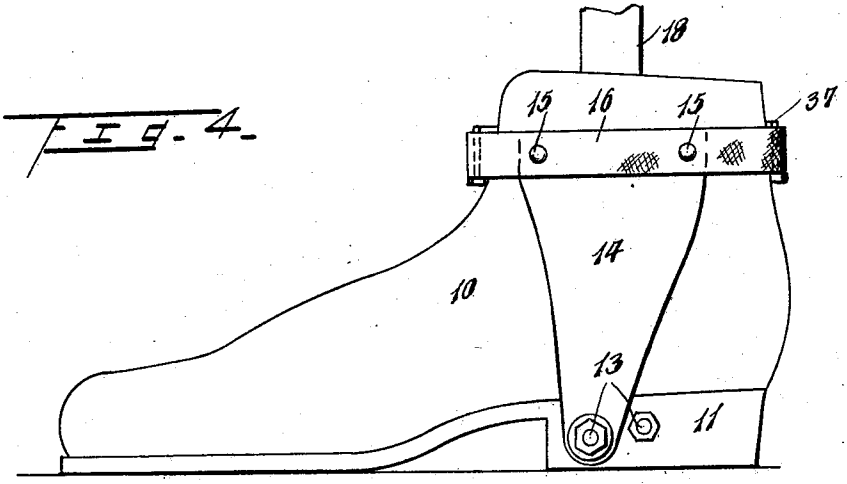


Fig. 5.

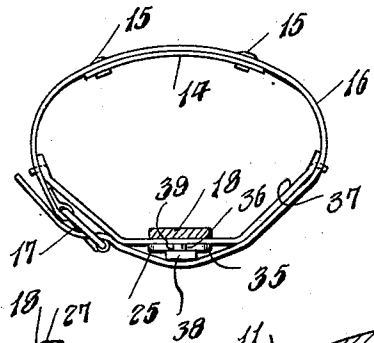
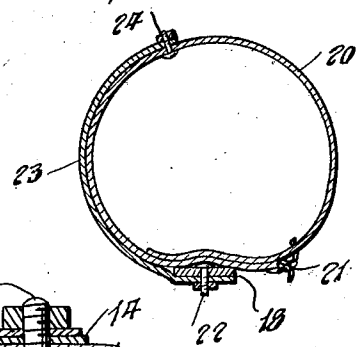


Fig. 6.



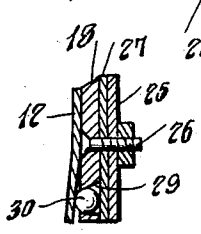


Fig. 8.

Fig. 7.

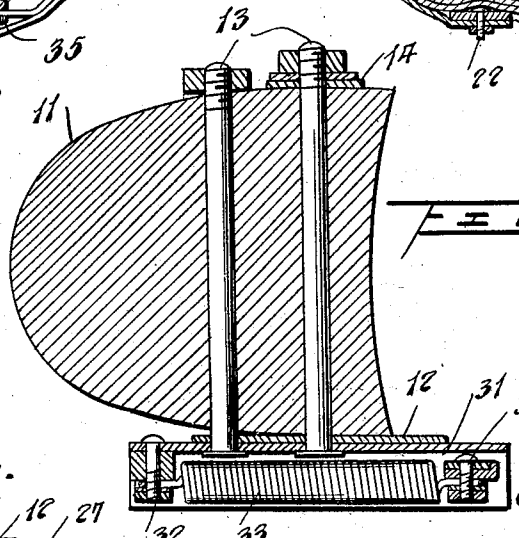
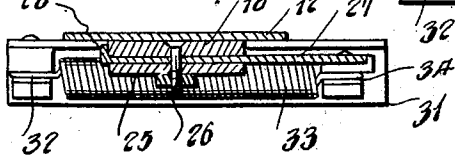


Fig. 9.



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UNITED STATES PATENT OFFICE

JOHN F. FISHER, OF FAYETTEVILLE, NORTH CAROLINA

FOOT AND ANKLE BRACE

Application filed May 3, 1928. Serial No. 274,832.

This invention relates to a foot and ankle brace and generally is an improvement over the construction disclosed in my pending application for an invention of similar title, Serial No. 238,624, filed December 8, 1927.

It is definitely aimed to provide a construction wherein friction and rubbing is overcome at the top of the leg bar and at the back of the leg; wherein the ankle is protected by a rigid element capable of attachment and detachment at will so as to cause no inconvenience in lacing or unlacing the shoe; to provide a leg bar adapted to move from an axis to the ankle joint to avoid rubbing on the leg; to provide a construction wherein the leg bar has the proper rigidity and may pivotally move with minimum friction; a construction wherein foot "flop" is prevented by a novel spring means, and a construction wherein such spring means is protected and a construction wherein a fallen ankle is supported.

It is further aimed to provide a brace which is fully flexible and reversible so as to work equally well on either side of the foot.

With the foregoing and additional objects and advantages in view, such as will appear from a consideration of the description following taken in connection with accompanying drawings, the invention has been embodied in one operative form.

In said drawings:—

Figure 1 is a view in side elevation showing my improvement as applied to a shoe;

Figure 2 is a rear elevation of the parts of Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a fragmentary elevation taken opposite to Figure 1;

Figure 5 is a sectional view taken on the line 5—5 of Figure 1;

Figure 6 is a sectional view taken on the line 6—6 of Figure 1;

Figure 7 is a sectional view taken on the line 7—7 of Figure 1;

Figure 8 is a sectional view taken on the line 8—8 of Figure 1; and

Figure 9 is a detail sectional view taken on the line 9—9 of Figure 1.

Referring specifically to the drawings, 10 designates a conventional shoe, to the heel 11 of which the improved foot and ankle brace is attached. A vertical anchor plate is shown at 12 being fastened in place detachably so as to be applied to either side of the shoe desired, as by means of removable bolts 13 passing transversely through the said heel 11.

One of the bolts 13, as best seen in Figure 4, passes through a brace 14 adapted to support a fallen ankle and which brace 14 may be of leather or other flexible material. Fastened to the top of the brace 14 as by means of rivets 15, is a strap 16 whose ends are separable and adjustable through the medium of a buckle 17. The strap 16 thus surrounds the shoe at the ankle of the wearer.

A leg brace or bar 18, of metal, is pivotally connected as by a bolt 19 to the anchor plate 12 which is also of metal. The bolt 19 is horizontally disposed and is located opposite the ankle joint of the wearer so that the bar 18 may move in simulation with the leg when worn.

Said bar 18 at the top carries a strap 20 of leather or the like adapted to surround the leg of the wearer and be connected at its ends adjustably as by means of lacings 21 or any other approved means. Rigidly fastened to the top of the bar 18, as at 22, is an arcuate metallic brace 23, whose end opposite to bar 18 has the strap 20 fastened thereto as at 24. By providing this rigid element 23 at this point, friction and rubbing at the back of the leg of the wearer is avoided.

Bolt 19 also fastens an outer plate or bar 25 of metal against the bar 18 and the bar 25 is connected to the bar 18 to move therewith, further by a removable bolt 26. Bolt 26 fastens a bracket 27 in place as it passes through the latter which has a portion located between the bars 18 and 25 and an inturned flange 28 which overlaps an edge of the bar 18 so that the bracket 27 cannot turn. Bar 18 adjacent its lower end has a laterally elongated slot 29 of such shape as to retain a ball bearing 30 which is in constant en-

gagement with the plate 12, and thus minimizes friction incidental to swinging movement of the bar 18 on the axis 19.

The bolts 13, as best shown in Figure 7, connect an angle member 31 to the shoe at one end of which as at 32, a contractile coil spring 33 is fastened which spring at its other end as at 34 is fastened to the adjacent end of the bracket 27, the spring thus tending to normally hold and urge the bar 18 to a vertical position and thus tending to prevent "flop" of the foot.

The bar or plate 25 at its upper end has an outwardly deflected or offset bifurcated portion 35 whose slot is designated 36. An arcuate metallic bar 37 is provided with an attaching button 38 having a reduced shank 39 which is slidable into and out of the slot 36, the adjacent portion of bar 37 being received friction tight between said terminal or bifurcated portion 35 and bar 18. The arcuate bar 37 thus occupies a position under the strap 16, so as to prevent rubbing and inconvenience by the latter.

It will be realized that the brace is flexible and will yield with the foot and leg. At the same time the structure is reversible and will work equally well on either side of the foot.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:—

1. A brace of the class described comprising a leg bar, means to secure the same in place on the leg, an anchor plate attachable to a shoe, means pivotally connecting the leg bar and anchor plate, an outer plate engaging said leg bar having an offset bifurcated portion, means to secure the device about the ankle, a plate engageable by the strap and disposable between said offset portion and bar, the first mentioned plate having a button engageable in said bifurcation, a bracket secured to and between said outer plate and leg bar, an angle member, a spring secured to the angle member, a flange of the angle plate protecting the spring from below, and said spring being secured to said bracket.

2. A brace of the class described comprising a leg bar, a shoe having an anchor member secured thereto, means pivotally connecting the bar to said anchor member, a plate on said bar, said plate having an offset bifurcated portion, a strap to secure the device about the ankle, an arcuate plate engageable by said strap and disposable between said offset portion and bar, said arcuate member having a button engageable in said bifurcation, a bracket secured between said bar and plate, a ball bearing carried by the bar and in engagement with the anchor plate, and a spring connected to the bracket and said anchor plate tending to urge the leg bar to vertical position.

3. A brace of the class described comprising a leg bar, a shoe having an anchor member secured thereto, means pivotally connecting the bar to said anchor member, a plate on said bar, said plate having an offset bifurcated portion, a strap to secure the device about the ankle, an arcuate plate engageable by said strap and disposable between said offset portion and bar, said arcuate member having a button engageable in said bifurcation, a bracket secured between said bar and plate, and spring means tending to urge the leg bar to vertical position.

In testimony whereof I affix my signature.

JOHN F. FISHER.