April 6, 1948. A. R. RICHARDS 2,439,100

ORTHOPEDIC DEVICE

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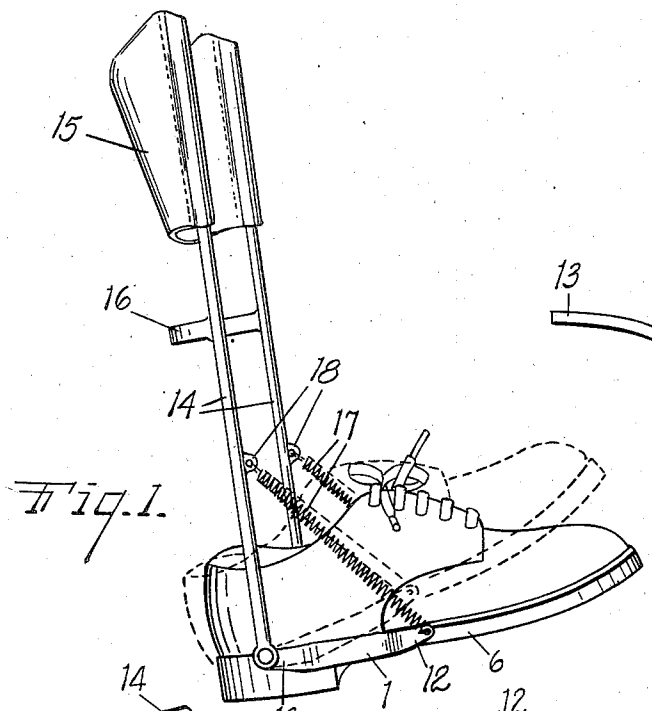


Fig. 1.

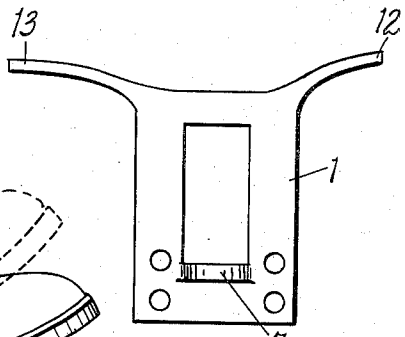


Fig. 4.

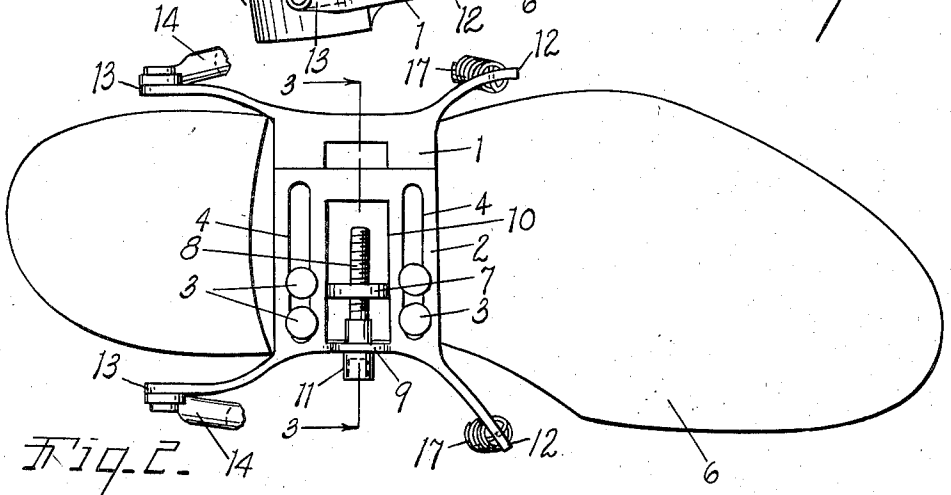


Fig. 2.

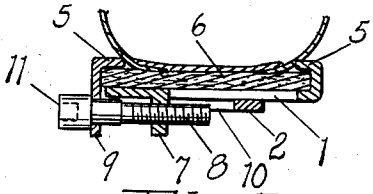


Fig. 3.

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UNITED STATES PATENT OFFICE

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ORTHOPEDIC DEVICE

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1 Claim. (Cl. 128—80)

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This invention relates to improvements in an orthopedic device.

The principal objects of this invention are:

First, to provide an orthopedic device for mechanically raising or tilting the toe of a shoe relative to the leg of the wearer who through injury or sickness has lost the use of the muscle normally raising the front part of the foot.

Second, to provide an orthopedic device for raising the toe of the wearer which is light and easily attached to the shoe of the wearer.

Third, to provide an orthopedic device for tilting the toe of the wearer's shoe which requires no strapping or attachment to the leg of the wearer.

Fourth, to provide an orthopedic device for lifting the toe of the shoe of the wearer which is readily interchangeable on the shoes of the wearer and requires no special type of shoe.

Other objects and advantages pertaining to the details and economies of the invention will be apparent from the following description and claim.

The drawings, of which there is one sheet, illustrate a preferred form of my device.

Fig. 1 is a side elevational view of the orthopedic device applied to an ordinary shoe.

Fig. 2 is a bottom view of the device illustrated in Fig. 1, parts of the leg rods and springs being broken away.

Fig. 3 is a cross sectional view along the line 3—3 in Fig. 2.

Fig. 4 is a bottom view of the outer sole plate shown in Figs. 1, 2 and 3.

My device consists of an outer sole plate 1 and an inner sole plate 2 which are lapped upon each other and secured together by metal studs 3 slidable in slots 4 formed in the inner sole plate. The outside edges of the sole plates are provided with inturned hook flanges 5 which are arranged to be clamped around the sole 6 of the wearer's shoe just forwardly of the heel. The outer sole plate is slotted in the center and provided with a downturned ear 7 defining a threaded aperture for receiving the threaded end of the clamp screw 8 which extends through a downturned ear 9 on the inner edge of the inner sole plate 2. The flange 7 extends downwardly through a slot 10 in the inner sole plate. The clamping screw 8 is provided with a socket head 11 by means of which a wrench may be applied to the screw for easily clamping the flanges 5 to the soles.

Each of the sole plates 1 and 2 are provided with forwardly and outwardly extending arms 12 and rearwardly and outwardly extending pivot

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arms 13 which terminate on each side of the shoe approximately opposite the center of the heel of the shoe. The pivot arms 13 are pin connected to a pair of leg rods 14 which extend upwardly on each side of the leg of the wearer and are connected at their upper ends by a rearwardly extending saddle 15 which is conveniently made of leather and provided with elongated sockets along its forward edges arranged to receive the upper ends of the leg rods 14. A U-shaped permanent metal connecting band 16 is provided below the saddle 15 to permanently connect the leg rods together.

The forwardly extending spring arms 11 are connected to the lower ends of upwardly and rearwardly extending coil springs 17, the upper ends of which are connected to eyes 18 carried on the leg rods below the connecting band 16.

The device may be easily attached to any standard shoe which the wearer may provide and requires no straps or other clamping members to be passed around the wearer's leg. Thus the wearer may put on any shoe and slip the sole plates under the arch of the shoe with the leg rods extending upwardly on each side of the leg. The saddle 15 will abut against the calf of the wearer's leg and the springs 17 will act to raise the arms 11 and the front of the shoe upwardly about the pivotal connections to the leg rods. Thus, a wearer who has the normal use of his leg muscles with the exception of the muscles which raise the toe and foot may walk in the normal manner and perform such other operations as driving an automobile which requires that the toe and forward portion of the foot be raised or tilted with respect to the leg. The device is light and inconspicuous and requires no special fitting to the wearer other than determining the proper length of the leg rods 14 to bring the saddle 15 in a comfortable position behind the calf of the wearer's leg.

I have described a highly practical embodiment of my device and have not attempted to illustrate various modifications thereof as it is believed that such minor changes as are desired can be made without further disclosure.

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

Clamp structure for attaching an orthopedic device to the shoe of the wearer comprising, a first plate having a hook flange on one edge thereof and having an ear struck downwardly from the body of said plate, longitudinally spaced headed studs on said first plate positioned on

opposite sides of said ear, a second plate having an upwardly turned hooked flange on one edge thereof and having an ear struck downwardly from the body of said plate, said second plate defining a transverse slot arranged to receive said ear on said first plate and further defining parallel guide slots slidably receiving the shanks of the studs on said first plate, a screw member rotatably engageable with said ears to draw said hook flanges on said plates into clamping engagement with the edges of the sole of the shoe of the wearer, and brace attaching portions extending forwardly and rearwardly from the edges of said plates and generally in the plane of said plate whereby said attaching portions lie along the plane of the sole of the shoe of the wearer.

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