

May 29, 1928.

1,671,096

A. R. ANDERSON
FOOT AND LEG EXERCISER

Filed Oct. 16, 1926

2 Sheets-Sheet 1

Fig. 1.

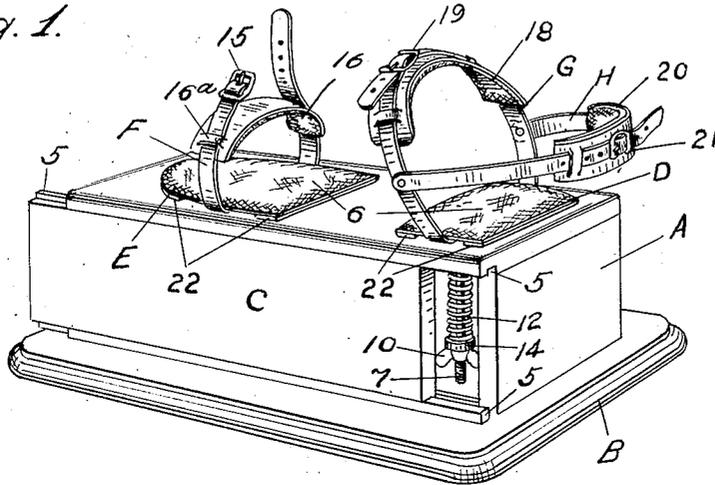
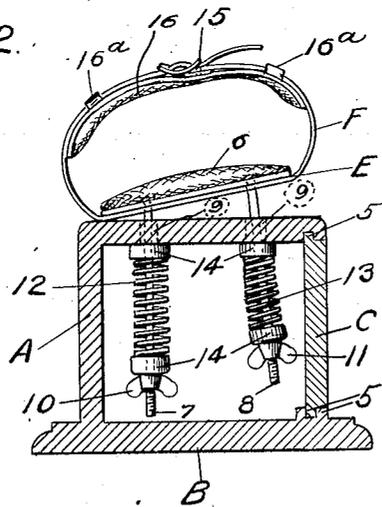


Fig. 2.



Inventor

ALF. R. ANDERSON

By

Attorney

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Fig. 3.

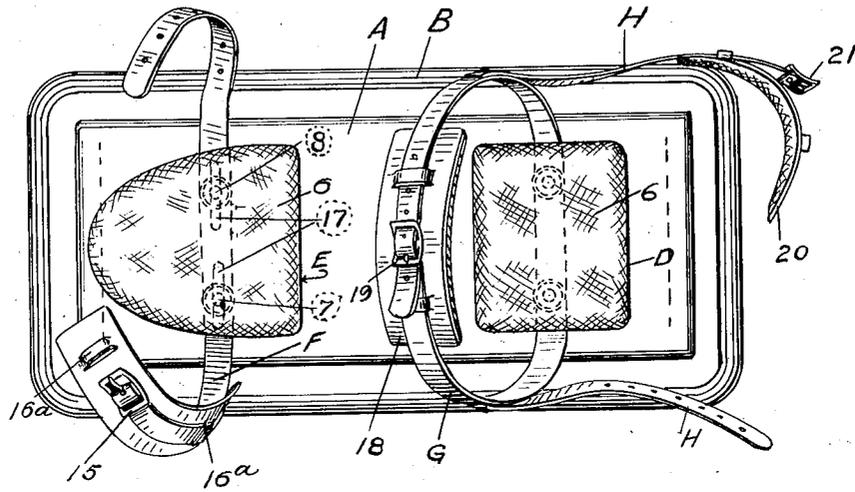
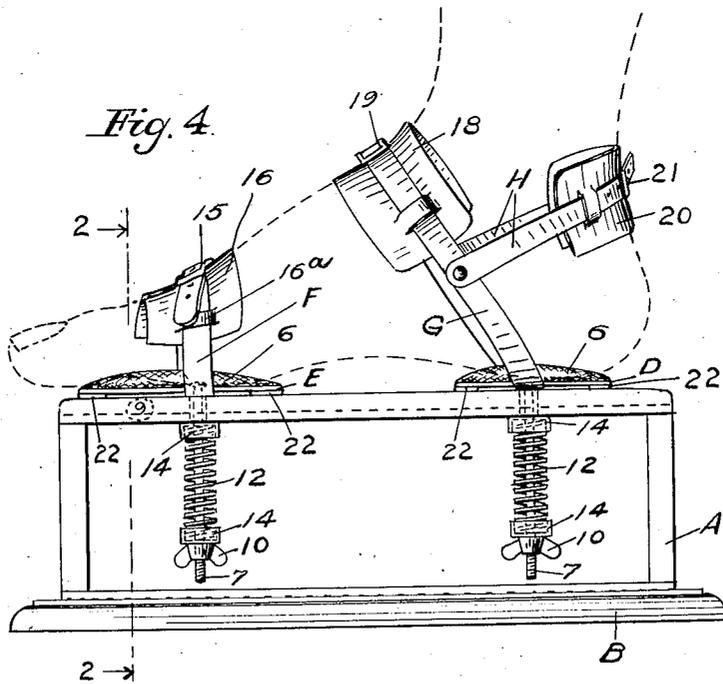


Fig. 4.



Inventor
ALF R ANDERSON

By

Attorney

UNITED STATES PATENT OFFICE.

ALF R. ANDERSON, OF MINNEAPOLIS, MINNESOTA.

FOOT AND LEG EXERCISER.

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This invention relates to foot exercising devices and the primary object is to provide a practical, efficient and comparatively simple construction, which, especially when employed under proper supervision and instructions, may be used to great advantage in strengthening the many muscles of the foot and lower leg, stimulating circulation, decreasing fat tissues (especially those about the ankle), building up and strengthening the various ligaments, tendons, and similar parts, and for other purposes, such as correcting foot deformities, and relieving tension such as caused by too much standing on the feet. Further and more specific objects will be disclosed in the course of the following specification, reference being had to the accompanying drawings, in which:

Fig. 1 is a perspective view of the device, the sliding door thereof being in a partly open position.

Fig. 2 is a transverse sectional elevation about as on the line 2—2 in Fig. 4.

Fig. 3 is a top or plan view of the device.

Fig. 4 is a side elevation of the device, with the sliding door removed, and illustrated by dotted lines the operating position assumed by the foot.

Referring to the drawing more particularly and by reference characters, A designates a box like body member having a base B and a sliding door C. The base B extends considerably beyond the box proper, so as to effect greater stability and prevent tipping during manipulation of the device. The door C is slidably secured in any suitable manner, as by tongues and grooves 5, so that it may readily be opened to permit adjustments to be conveniently made within the box A.

Suitably arranged upon opposite ends of the box is a pair of yieldingly liftable foot plates D and E, the former of which may be conveniently termed a heel plate and the latter the fore-plate. The faces of these plates are preferably padded, as at 6, so as to more comfortably engage the heel and ball portions of the foot with which they come in contact. Each plate is provided with a pair of depending draw bolts 7 and 8, which extend through holes 9, in the top of the box A, and are provided, at their lower, threaded ends, with thumb nuts 10 and 11, respectively. Tension or compression springs 12 and 13 surround the bolts 7 and 8, respectively,

and are interposed between the top of the box A and the adjusting nuts 10 and 11 in such a manner as to press the bolts 7, 8 downward, and thus keep the plates D and E in a yieldingly downward position upon the box C. Small cups 14 are arranged upon the bolts and over the ends of the springs for the purpose of supporting the springs in their proper operating positions.

Extending transversely under the fore plate E is a strap F, having a suitable buckle 15, at one end, adapted to receive the other end, and form a fastening loop over the meta-tarsal portion of the foot, as shown in Fig. 4. This strap is provided with a pad member 16, for direct engagement over the foot, and this pad is provided, at its ends, with a pair of integrally formed loop strips 16^a, through which the opposite ends of the strap F are inserted before being joined by the buckle 15. As the strap F preferably passes under the plate E it is provided with a pair of aligned slots 17, through which the bolts 7 and 8 pass. Thus, the draw bolts secure the strap against longitudinal movement, with respect to the box, and prevent its removal from the plate, and yet permits a limited turning or transverse adjustment of the strap as may at times become necessary.

A similarly constructed but larger strap G, having a pad 18 and buckle 19, is suitably secured to the heel plate D, but is slightly inclined forwardly, so as to conveniently conform to the shape or contour of the upper portion of the foot, as shown in Fig. 4. This strap is provided with a rearwardly looped heel strap H, which extends about or immediately above the heel of the foot, in such a manner that it will co-operate with the strap G to firmly clamp the rear portion of the foot down upon the plate D. This strap H is also provided with a pad 20 and a buckle 21. It may be noted that when the heel of the foot is lifted up, against the resistance of the heel plate springs 12 and 13, the straps G and H, or their pads, will not effect a cutting or slipping action against the flesh, as would be the case, for instance, with an ankle strap or collar having a direct or vertical connection with the heel plate. On the other hand the position and arrangement of the straps G and H, as I have shown them places the strain upon the foot where it can best stand it, and, during the exercising movements, effects a resistance at a

lower point (than the ankle), and where the straps or pads will not have any injurious rubbing or cutting contact with the foot.

It may here be noted that the plates D and E are provided, at their front and rear ends, and upon their under sides, with pads or rubber strips 22, the objects of which are to prevent tilting of the plates upon the straps which pass under them and to soften or check the knock or noise resulting from a quick lowering of the plates to the box A.

The use and operation of the device may be briefly described as follows:

The foot is placed upon the plates D and E, and is there firmly fastened by the three straps F, G and H. It may here be mentioned that once a proper adjustment of the strap G has been made that adjustment need not be disturbed, as long as only one person is using the device, because the foot can be released from this strap by a rearward motion after the strap H has been opened. Similarly the foot may also be withdrawn from the once adjusted strap F, especially if the foot is somewhat tapered at the point of the meta-tarsus.

After the foot has been properly secured, as mentioned, the patient or operator then stands and shifts all, or at least most, of his weight to the strapped in foot. A number of specific exercising movements can now be performed, but their character and duration will depend entirely upon the condition of the foot and leg and the object to be accomplished. Thus, by rising on the toes, to lift the heel plate, will result in extending the strong posterior leg muscles located in the calf, will relieve the rigidity in the anterior meta-tarsal arch, will stretch the contracted muscles and fascia on the bottom of the foot, and will generally strengthen the condition known as "weak foot". Tipping back on the heels, so as to lift the fore-plate E will bring into active motion the numerous flexor and extensor muscles of the foot and leg, will cause a stretching of the calf muscles, which are so often contracted, will reduce rigidity in the ankle joint, and also stretches and builds up the muscle tone on the bottom of the foot. A third very beneficial exercise is to rock the foot transversely, and when this rocking is done, for instance on the outer border of the foot, it relieves the strain on the muscles of the inner longitudinal arch and taxes the muscle of the outer longitudinal arch. Any and all of these exercises, when systematically followed and consistently performed will not only strengthen and relieve the various muscles indicated, but will stimulate the circulation of blood to the foot and toes, will reduce heavy ankles and other fatty tissues, and in a general way will build up and render more healthy the condition and muscle tone of the feet and legs.

As the patient progresses with the exer-

cises and feels that he can subject his muscles to greater resistance, it is a simple matter to slide the door C open so as to permit access to the adjusting nuts 10 and 11 which may then be screwed up or down to increase or decrease the tension of the various springs 12, 13, as occasion may require.

It is understood that suitable modifications may be made in the general design and structural details of the invention as herein shown and described, provided, however, that said modifications come within the spirit and scope of the appended claims.

Having now therefore fully shown and described my invention, what I claim to be new and desire to protect by Letters Patent is:

1. A foot exerciser comprising a suitable body member, a pair of plates arranged upon the body member, compression springs for yieldingly holding the plates down upon the body member, means for gradually adjusting the tension of the springs, and means for securing a foot upon the plates said adjusting means comprising two members one of which screws upon the other.

2. A foot exerciser comprising a suitable body, a fore-plate and a heel plate mounted on the body and yieldingly liftable with respect thereto, a strap carried by the fore-plate for securing the meta-tarsal portion of the foot thereto, a second strap extending up from the heel plate and slightly forwardly to engage over the upper arch of the foot, and a rear strap secured to the second strap for engagement against the foot immediately above the heel, pad members carried by said straps and having end loops through which the straps pass.

3. An exerciser comprising a suitable body member, a pair of foot stirrups carried on the top of the body member, and means below the top of the body member and connected with said stirrups for yieldingly holding the stirrups downwardly, said means comprising compression springs and means for gradually adjusting the same, said adjusting means comprising two members one of which screws upon the other.

4. An exerciser comprising a suitable body member, a pair of foot stirrups carried on the top of the body member, and means below the top of the body member and connected with said stirrups for yieldingly holding the stirrups downwardly, said means comprising draw bolts depending from the stirrups and springs for normally holding the draw bolts depressed.

5. An exercising device comprising a suitable support, a foot member carried thereon and liftable and tilttable with respect thereto, a pair of laterally disposed draw bolts extending from said foot member down into the support, adjusting members at the lower ends of the bolts, and springs interposed

between the adjusting members and the support for yieldingly retaining the draw bolts in their normal downward positions.

5 6. A foot exerciser comprising a hollow body member, a heel plate and a fore-plate arranged thereon, means for releasably securing the foot upon said plates, draw bolts extending from said plates down into the

hollow body member, adjusting nuts at the lower ends of said draw bolts, and spring 10 superimposed upon the bolts and interposed between said adjusting nuts and the body member proper, for yieldingly holding said plates down upon the body member.

In testimony whereof I affix my signature.

ALF R. ANDERSON.