

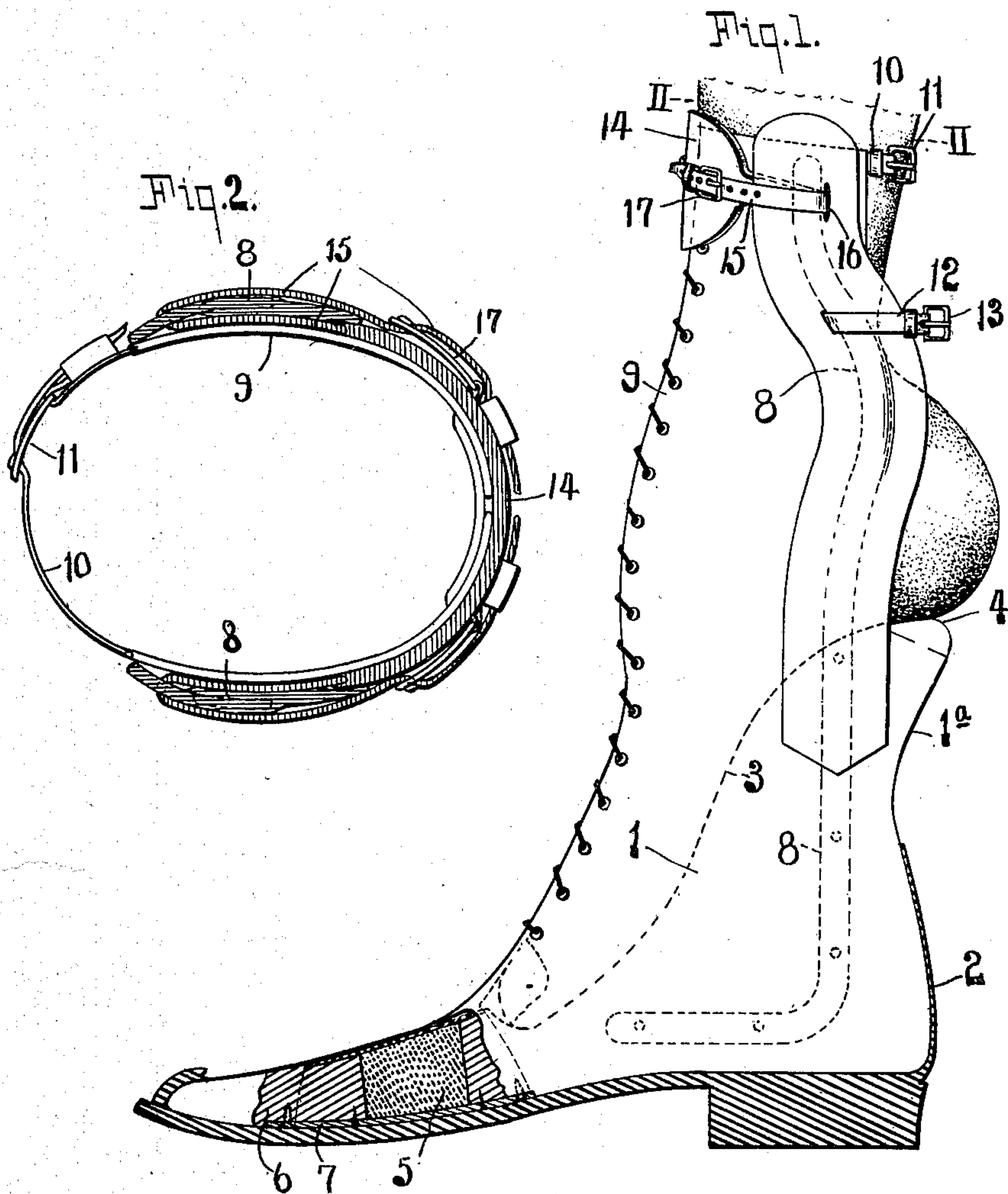
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J. F. WIREBACK.  
EXTENSION SHOE.

APPLICATION FILED MAY 6, 1903.

NO MODEL.



**WITNESSES**

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## UNITED STATES PATENT OFFICE.

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## EXTENSION-SHOE.

SPECIFICATION forming part of Letters Patent No. 736,186, dated August 11, 1903.

Application filed May 6, 1903. Serial No. 155,829. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH F. WIREBACK, a citizen of the United States of America, and a resident of the city of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented certain new and useful Improvements in Extension-Shoes, of which the following is a specification.

In the accompanying drawings, Figure 1 is a side elevation of my improved extension-shoe, showing the foot of the wearer in position, the outer shoe being partly cut away and the toe portion being partly in section for the sake of clearness; and Fig. 2 is a plan view in section along the line II II in Fig. 1, the position of the shoe being reversed, however.

My invention, briefly stated, consists in certain new and useful improvements in extension-shoes intended for wear by persons afflicted with shortened limbs. The end in view is to provide a shoe which would not only compensate for the shortness of limb, but also do away with the stiff ankle motion so frequently present in devices of this general character, so that a firm steady step is possible and the foot may easily accommodate itself to uneven surfaces. By means of my improved flexible toe I closely simulate the action of a well foot, and the posture of the wearer's foot is such that there is no distortion of the wearer's garments; but to the casual observer both feet appear normal.

The following is a description of the accompanying drawings:

1 is an extension-platform, upon which the foot of the wearer rests, and is made of a height sufficient to compensate for the shortness of the limb. Said extension may be made of wood or other suitable material combining sufficient strength with lightness and is fashioned so as to fit into a shoe 2, the counterpart or mate of the shoe worn on the well foot of the wearer. The upper surface 3 of said extension upon which the foot presses is shaped to fit the particular natural attitude of the foot—as, for instance, if the degree of shortness be slight the general nature of the surface will be more nearly horizontal, while the same will tend toward the vertical as the degree of shortness to be compensated for increases. By this means the foot is maintained

within the lines required to prevent distortion of the dress of the wearer. The rear portion of said surface 3 is rounded off, as at 4, thus producing a bearing-surface upon which the front portion of the wearer's heel may bear, as shown in Fig. 1, thus preventing, where the character of the surface 3 tends toward the vertical, the foot from slipping downward and cramping the toes of the wearer. I also prefer to curve the rear of extension upwardly toward the rear, as shown in said figure at 1<sup>a</sup>, thereby setting the foot farther back and maintaining the neat appearance of the trousers or dress of the wearer.

The toe part of the extension-platform 1 is composed of a flexible ball portion 5 and a rigid portion 6, and may be conveniently constructed as follows: I form the extension-platform with a toe-and-ball part complete and integral therewith. I then cut out the ball portion in a section narrower at the inside of the foot and flaring toward the outside thereof to simulate closely the bending action of the human foot, which it will be observed is confined to a comparatively limited section at the inside, while it expands to relatively broad section at the outer side of the foot. I have indicated in dotted lines the flaring character of the cut-away portion in Fig. 1, the view being from the inner side of the foot. Exactly in counterpart of this removed section I form a section or false ball, of rubber or similar flexible material 5, which I then introduce between the rigid toe portion 6 and the extension-platform, as shown in Fig. 1, and attach to the bottom surface of the three parts above named a piece of sole-leather or similar material, which is preferably sunk into the under surface of the parts to retain a smooth under surface for the shoe. I attach the sole-leather 7 to the toe portion 6, the ball portion 5, and the extension-platform 1 by means of tacks or other convenient means, so that the parts are held together in operative relation.

It will of course be understood that I do not limit myself to the exact method of assembling the parts of my toe device shown, but any convenient means for effecting the same end may be substituted.

Extending upward above the ankle from either side of extension-platform 1 are braces



8, which are preferably bent at an angle or upward curve at the bottom and firmly attached by screws or other suitable means to said extension-platform. Said braces are  
5 curved forward toward the upper extremities to fit the posture of the leg of the wearer and are suitably incased in leather.

9 is an upper incasing the extension, which extension is preferably also incased with an  
10 inner cover of tightly-stretched rawhide, which serves to hold the parts, including the flexible toe device, properly in position. Said upper 9 is extended upward somewhat above the ankle of the wearer and is preferably  
15 sewed to the leather incasing braces 8 up to a point substantially opposite to the ankle-joint of the wearer, above which point the leather cases containing braces 8 are separate from and exterior to said upper 9. Said  
20 upper 9 incases the front of the foot of the wearer, but does not extend, preferably, to the rear of the braces 8, but at the top the sides of the upper 9 are connected together by strap 10, adapted to pass around the rear  
25 of the wearer's leg, said strap being fitted with a suitable buckle 11. The front of said upper is preferably split down as far as the foot of the wearer extends and fitted with a suitable lace, thus allowing the upper to be  
30 properly adjusted to the size of the foot of the wearer.

Preferably just above the rounded portion of the wearer's heel I provide a strap 12, surrounding the braces and adapted to buckle  
35 around the rear of the leg by means of a suitable buckle 13.

14 is a bearing-pad or wide strap against which the front of the wearer's leg bears, said strap being provided with a pair of se-  
40 curing-straps 15, adapted to pass around the braces 8 through holes 16, cut through the leather cases of said braces, which straps are buckled in buckles 17 on bearing-straps 14.

The manner of using my invention is as  
45 follows: The foot of the wearer is inserted in the extension from the rear, said extension having prior to this been inserted into a shoe, the mate of the one worn on the well foot. After the wearer's foot has assumed the posi-  
50 tion shown in Fig. 1 the upper is fastened at the rear by means of strap 10 and buckle 11. The laces in the front of the upper are previously adjusted, so that said upper fits comfortably on the foot without cramping. Strap  
55 12 is also buckled. The shoe is now in place for use. The fact that the upper is not attached to braces above the ankle of the wearer allows the leg of the wearer to be advanced forward for a step without cumber-  
60 ing the action of the wearer's ankle by the stiffness of the braces, and the foot may be placed on the ground in a natural manner. When the well foot is advanced for a second step, the body is of course in advance of  
65 the lame foot; but the freedom of the upper from the braces allows the lame leg to tilt forward until the leg bears against the strap

14, thus transferring the leverage from said strap to the ball of the foot and thence to the flexible toe-and-ball device. Thus the ex- 70 tension produces a natural motion, and the shoe rises gracefully with the foot. It will readily be seen that the ankle motion is produced not in the ankle of the wearer, which would be too high and destroy the action, 75 but rather adjacent to the ball of the wearer's foot, assisted by strap 14, which enables the shoe to rise in a natural manner. If the ankle of the wearer were relied upon to lift the extension-shoe and take the step, a 80 dragging motion would be the result. Again, if the upper were sewed to the braces for the full length thereof it would be necessary to lace the upper very tightly around the wear- 85 er's foot and ankle, as the lifting and advancing of the shoe in taking a step would in such case be accomplished entirely with the aid of the upper. This would be uncomfortable and would require a very heavy upper to prevent it from tearing away from the 90 braces. The tightness of the upper and its attachment to the braces would also result in the stiff ankle motion above referred to and inability on the part of the wearer to accom- 95 modate his steps to unevenness of walking-surface, insomuch as the ankle, being tightly incased in the upper, and thus bound to the braces, would be forced to assume the same plane as the shoe, so that the wearer would either have to avoid planting his foot flat on 100 the ground or have his ankle twisted out of the vertical. My improved flexible-toe device gives a natural and easy motion to that part of the extension, the action being closely simulated to that of the ball of a natural 105 foot.

Any style of shoe corresponding to that worn on the normal foot may be used to in- case the extension 1 and the same may be re- 110 placed with different styles at pleasure, said shoe being laced or buttoned over the extension portion snugly enough to hold it on and at the same time not to interfere with the movement of the extension-platform in the process of walking. 115

Although I have described my invention with great minuteness for the sake of clear- ness, I do not wish to limit myself thereby, but claim broadly—

1. In extension-shoes, the combination of 120 an elevated platform for the foot of the wearer, an upper incasing said platform and the major portion of the foot of the wearer but open in the rear, an upwardly-extending brace fixed to said platform on each side 125 thereof and a strap connecting said braces adjacent to their upper extremities and passing in front of the leg of the wearer.

2. In extension-shoes, the combination of an elevated platform for the foot of the 130 wearer, an upper incasing said platform and a portion of said wearer's foot but open in the rear, an upwardly-extending brace fixed to said platform on each side thereof and unat-



tached to said upper for a portion of its length, and a strap attached to said braces adapted to bear against the front of the wearer's leg.

3. In extension-shoes, the combination of  
5 a platform for the foot of the wearer, a rigid toe-piece and a flexible ball-piece relatively narrow at the inner side of said shoe but flaring to a greater width toward the outer side of said shoe.

10 4. In extension-shoes, the combination of an elevated platform for the foot of the wearer, an upper incasing said platform and a portion of said wearer's foot but open in

the rear, an upwardly-extending brace fixed to said platform on each side thereof and un- 15  
attached to said upper for a portion of its length, a strap attached to said braces and adapted to bear against the front of said wearer's leg and means for fastening the sides of said upper together at the rear. 20

Signed by me at Trenton, New Jersey, this  
2d day of May, 1903.

JOSEPH F. WIREBACK.

Witnesses:

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