I. W. LITCHFIELD.

SHOE TREE.

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976,194. Patented Nov. 22, 1910.

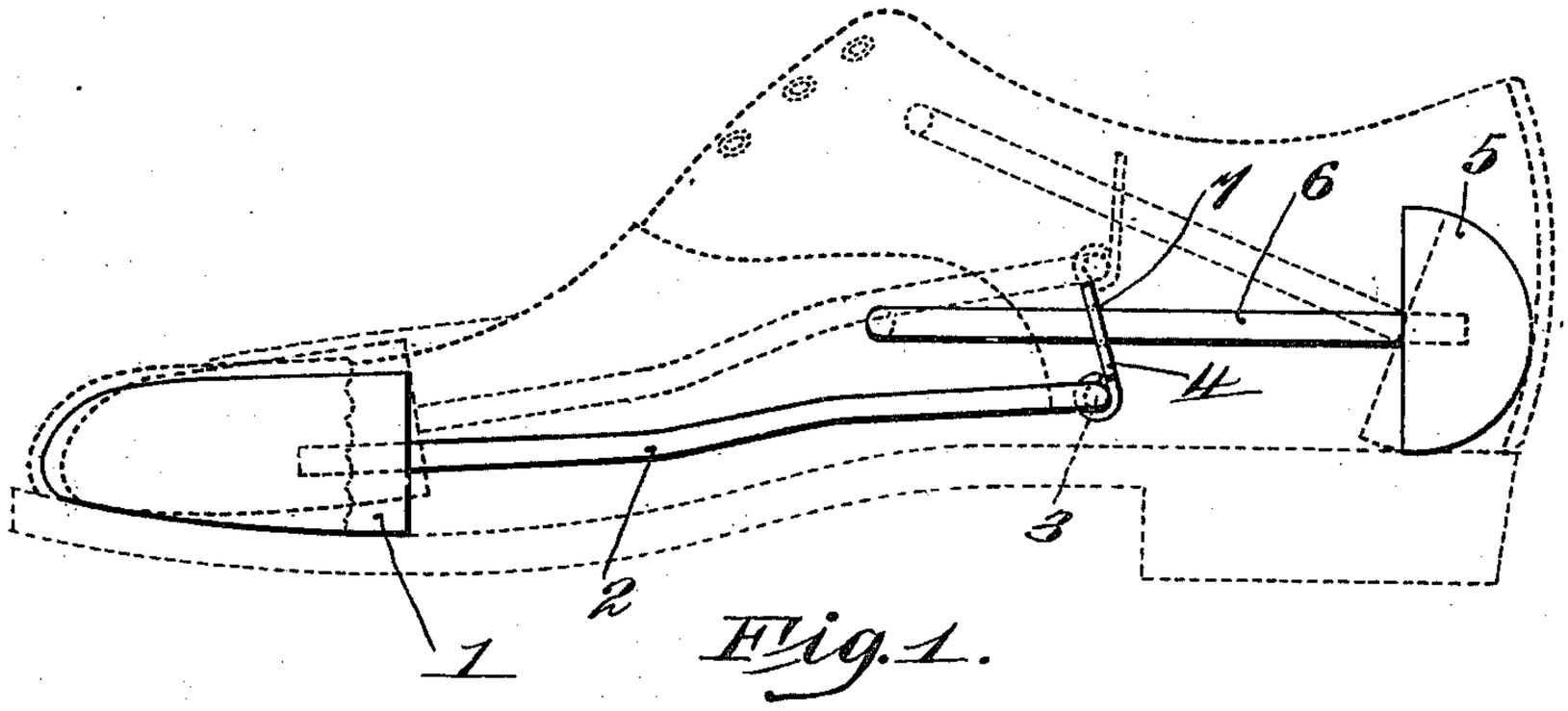

Fig. 1.

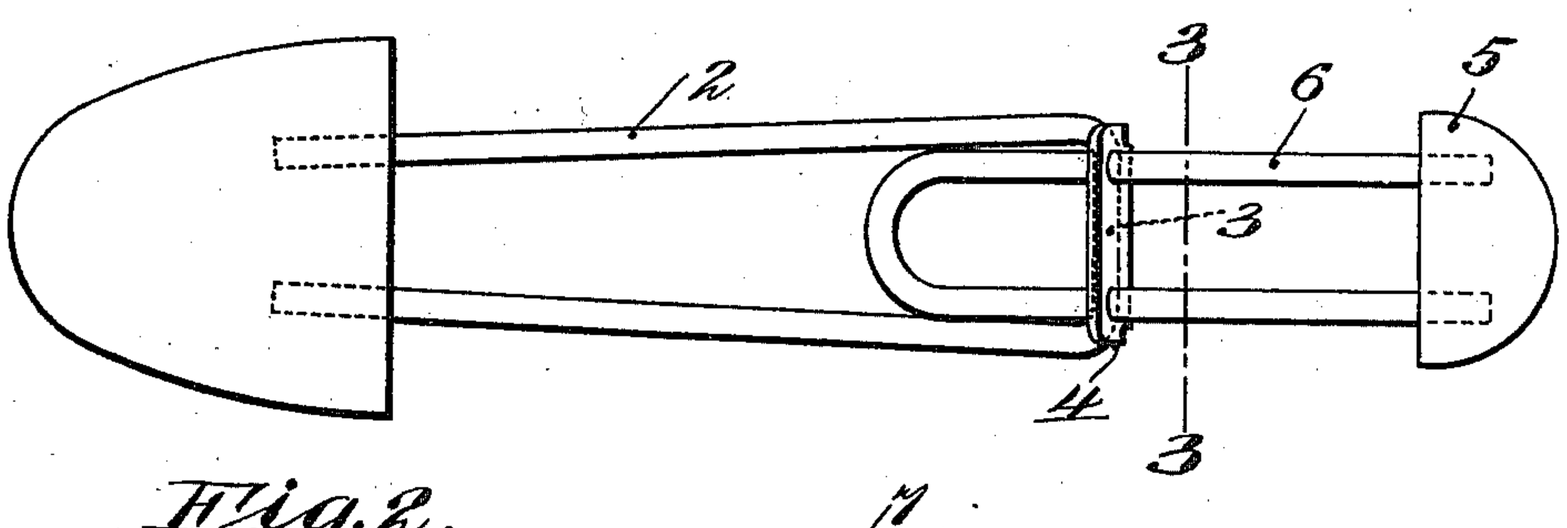

Fig. 2.

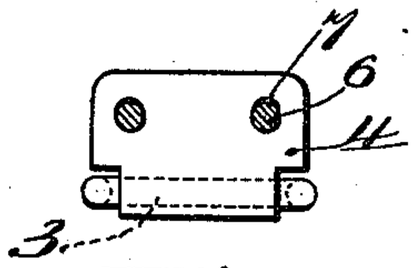

Fig. 3.

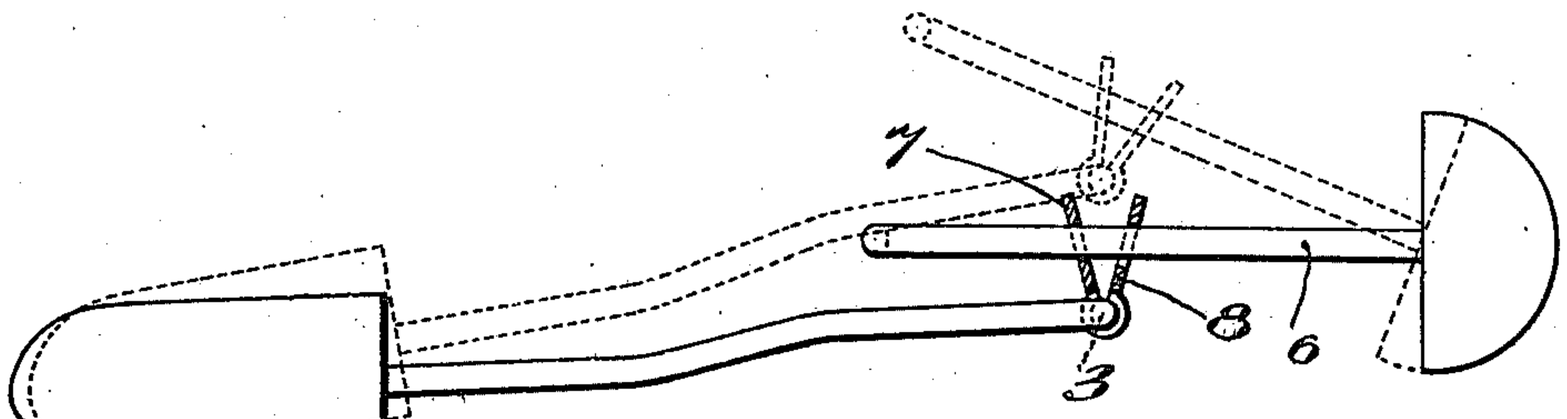

Fig. 4.

Witnesses

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SHOE-TREE.

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To all whom it may concern:

Be it known that I, ISAAC W. LITCHFIELD, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Shoe-Trees; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to shoe trees or forms such as are commonly used to restore or preserve the shape of shoes when not in use upon the foot of the wearer, or when they are to be used as display samples by traveling salesmen or retail dealers.

The object of the invention is to provide an improved shoe tree of simple and durable construction which may be readily and conveniently adapted to the size of the shoe in which it is to be used, and which will firmly and rigidly support the shoe when it is in position therein.

To this end the invention contemplates the provision in a shoe tree provided with heel and toe members of a plate pivoted on one of the members and provided with gripping shoulders for engaging opposite sides of a bar which extends longitudinally from the other member and passes between the shoulders. The shoulders on the gripping plate are separated a distance slightly greater than the thickness of the bar which passes between them, so that they will firmly grip the bar when the plate is tilted with relation to the bar, and prevent movement of the bar through the plate, and at the same time will allow the bar to be moved freely through the plate when the plate is not thus tilted. With this construction the heel and toe members may be readily adjusted with relation to each other to adapt the tree for any length of shoe, and then the gripping plate may be tilted to grip the bar passing through it, after which the gripping plate forms a pivot joint between the heel and toe members for enabling the tree to be inserted into the shoe in a broken condition, and to then be straightened to stretch and support the shoe in the usual manner.

A further feature of the invention contemplates providing a plate or other device for normally holding the bar and clamping plate above referred to in such position that the gripping plate will resist movement of the bar through it in one direction, while allowing the bar to be moved through it in the other direction.

The features of the invention above referred to, as well as the further features relating more particularly to the preferred form of the invention, will be readily understood from an inspection of the accompanying drawings and the following detailed description of the construction shown therein.

In the drawings Figure 1 shows a shoe tree embodying the invention, and the manner in which it is inserted in a shoe; Fig. 2 is a plan view of the shoe tree shown in Fig. 1; Fig. 3 is a sectional detail on line 3—3, Fig. 1, looking toward the left; and Fig. 4 is a side elevation of the preferred form of the invention provided with a spring plate for retaining the clamping plate and bar of the heel piece in position to prevent forward movement of the heel piece.

In the construction illustrated in the drawings, the gripping plate is pivoted upon the toe piece of the tree, and the longitudinal bar coöperating with the gripping plate is on the heel piece. It will be understood, however, that while this arrangement is provided, it is not essential and may be reversed without departing from the invention. The tree shown in Figs. 1 to 3 consists of a toe piece 1 adapted to fit within the toe of a shoe, and provided with a rearwardly extending bar which in the construction shown comprises a wire rod 2 bent into U-shape, and having its ends secured in the toe piece 1. The base of the U at the rear end of the bar 2 forms a pivot rod 3 upon which a gripping plate 4 is pivotally mounted. This plate may be conveniently formed of sheet metal, the lower end of which is bent to surround the pivot rod 3. The heel piece comprises a block 5 which is adapted to bear against the heel of the shoe, and a longitudinally extending bar which in the form shown consists of a wire rod 6 bent into U-shape and having its ends secured in the block 5. The arms of the U pass through holes 7 formed in the gripping plate 4, the holes being slightly larger in diameter than the diameter of the wire rods 6. The upper and lower edges of the holes 7 form gripping shoulders on opposite sides of the rods 6 which will grip the rods and prevent their forward

movement through the gripping plate when the plate is tilted into the position shown in either the full or dotted lines in Fig. 1. If the plate is tipped slightly toward the right with relation to the rods 6, however, the rods may be moved freely in either direction through the plate. Even when the plate is tilted into the position indicated, the rods 6 may be readily pushed through the plate toward the right in adjusting the tree to the shoe in which it is to be inserted.

In inserting the tree into a shoe the tree is broken or the parts swung into the position indicated in dotted lines, and the toe part is inserted into the toe of the shoe. The heel piece is then moved toward the right in Fig. 1 to bring it firmly against the heel of the shoe, and the gripping plate 4 tilted into gripping position, as indicated in dotted lines. The tree is then forced down into the position indicated in full lines. The forward pressure on the rods 6, and rearward pressure on the pivot of the plate 4, tend to bind the gripping shoulders on the plate more firmly against the rods 6, so that a rigid connection between the plate and rods 6 is maintained. The tree, therefore, acts when it is in position in the shoe, to support the shoe with the same rigidity and firmness that it would if the plate 4 and rods 6 were integrally connected.

In Fig. 4 a modified construction is shown, in which a spring plate 8 is arranged to engage the rods 6 and maintain the rods and gripping plate 7 normally in gripping relation. With this construction it is not necessary for the user to hold the gripping plate and rods 6 in gripping relation in inserting the tree into the shoe. The retaining plate 8 does not, however, interfere with the rearward movement of the heel piece in adjusting the tree in accordance with the length of the shoe in which the tree is to be inserted. If it is desired to shorten the tree, the retaining plate 8 may be readily sprung toward the gripping plate 7, so that the rods 6 may be slid forward through the gripping plate. The spring retaining plate may conveniently be formed integrally with the gripping plate by bending a sheet metal plate about the pivot rod 3, as indicated in Fig. 4, although this construction is not essential.

While it is preferred to employ the specific construction and arrangement of the parts shown and described, it will be understood that this construction and arrangement may be varied and modified without departing from the broader scope of the invention.

Having explained the nature and object of the invention, and specifically described constructions of shoe trees in which the invention may be embodied, what I claim is:—

1. A shoe tree, having, in combination, heel and toe members, a longitudinally extending bar on one member, and a plate pivoted on the other member provided with gripping shoulders for engaging opposite sides of the bar, substantially as described.

2. A shoe tree, having, in combination, heel and toe members, a longitudinally extending bar on one member, a plate pivoted on the other member provided with a hole through which the bar passes which is larger than the bar, whereby movement of the bar through the hole will be prevented when the plate is tilted with relation to the bar, substantially as described.

3. A shoe tree, having, in combination, heel and toe members, and a plate pivoted on one of the members and provided with holes, and longitudinally extending rods on the other member passing through the holes in the plate, substantially as described.

4. A shoe tree, having, in combination, heel and toe members, U-shaped rods having their ends secured in the members, a gripping plate pivoted on the base bar of one of the U-shaped rods and provided with holes through which the arms of the other rod pass, substantially as described.

5. A shoe tree, having, in combination, heel and toe members, a longitudinally extending bar on one member, a plate pivoted on the other member provided with gripping shoulders for engaging opposite sides of the bar, and a device for normally holding the bar and plate in gripping relation, substantially as described.

6. A shoe tree, having, in combination, heel and toe members, a longitudinally extending bar on one member, a plate pivoted on the other member provided with gripping shoulders for engaging opposite sides of the bar, and a spring retaining plate engaging the bar and holding it in gripping relation to the gripping plate, substantially as described.

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