Feb. 10, 1925. 1,525,614

T. F. LEAHEY

SHOE TREE

Filed Oct. 5, 1921

Fig. 1,

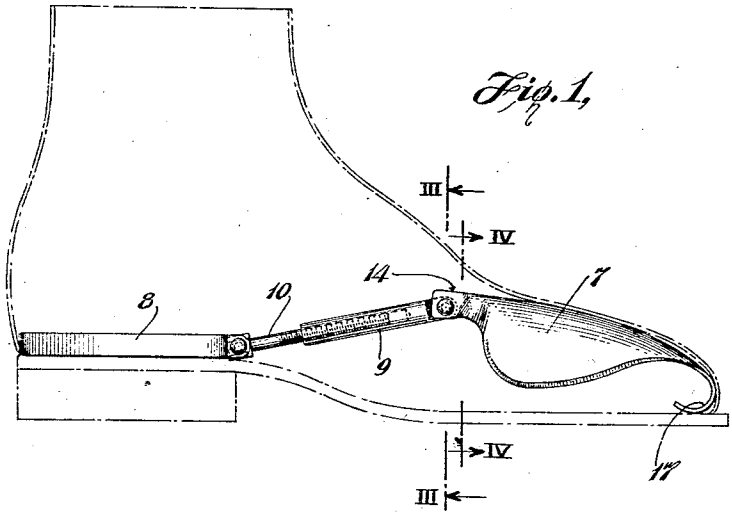


Fig. 2,

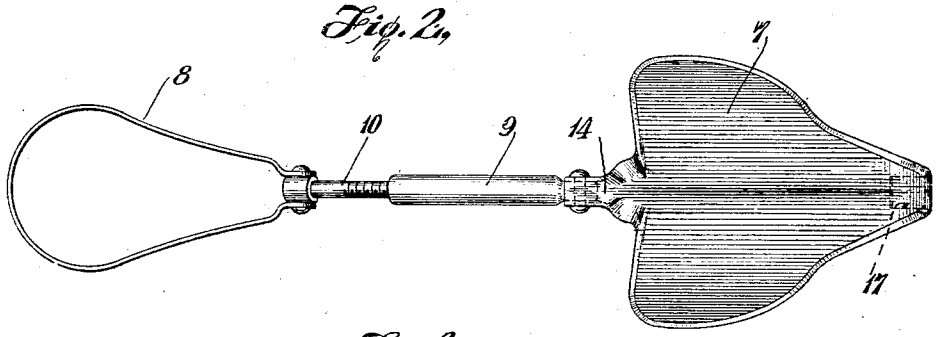


Fig. 3,

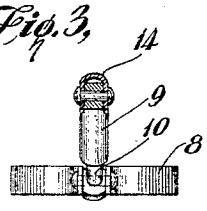


Fig. 4,

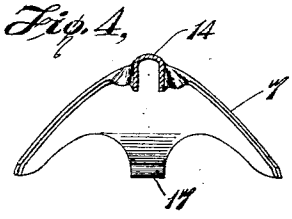


Fig. 5,

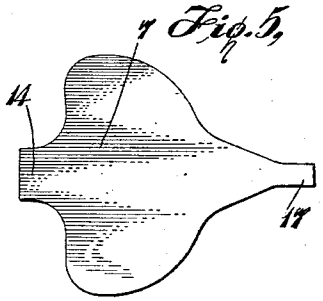
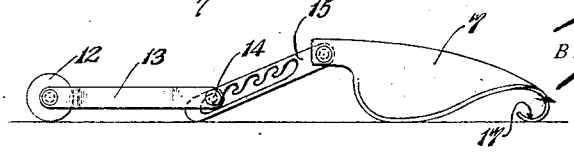


Fig. 6,



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UNITED STATES PATENT OFFICE.

THOMAS F. LEAHEY, OF POUGHKEEPSIE, NEW YORK.

SHOE-TREE.

Application filed October 5, 1921. Serial No. 505,482.

To all whom it may concern:

Be it known that I, THOMAS F. LEAHEY, a citizen of the United States, residing in Poughkeepsie, New York, have invented the following described Improvements in Shoe-Trees.

On object of my invention is to provide an improved and inexpensive shoe-tree of attractive appearance and that is adjustable to suit shoes of different sizes. Another object is to provide a shoe-tree capable of exerting abundant pressure for stretching the shoe-upper and pressing down the toe but without danger of injuring the latter. This part of my invention is particularly applicable to those shoe-trees in which the expanding pressure is positively applied as by the commonly used toggle, and especially to those trees that are adjustable to different shoe sizes. In such trees, my invention prevents injury to the shoe by the repeated application of trees that are carelessly adjusted too long for the shoe. It also permits insertion even if over adjusted without undue strain on the hands.

In the accompanying drawing, Fig. 1 is an elevation of a shoe-tree embodying my invention shown in place in a shoe. Figure 2 is a top plan of the same tree removed. Figures 3 and 4 are respectively sections of the tree on lines III—III and IV—IV of Fig. 1. Figure 5 is a plan view of the blank from which the vamp or fore member of the tree is shaped. Figure 6 illustrates a somewhat different style of tree.

In the shoe-tree shown in Figures 1 to 5, the fore member 7 comprises a plate of sheet metal or other sheet material curved downwardly at both sides to fit the vamp of the shoe and narrowed toward the toe. The heel member 8 is a simple loop or bow. The expansion member between the two for crowding the vamp member forward into the shoe, comprises complementary threaded members 9 and 10 hinged respectively to the vamp and heel members. At the heel piece the hinge is formed by a bolt passed through the end of the screw 10 and the two ends of the bow, while the hinge at fore-member 7 is preferably formed on a rearwardly extending tab 14 left integral with the center of the rear edge of the plate when it is formed (Fig. 5). Each side of the tab is drawn down with a quarter turn, in opposite directions, to bring its sides into parallel vertical planes (Fig. 4) and the forward end of the screw 9 is placed between these tab sides, being preferably somewhat flattened at both sides as shown, and a bolt or rivet is passed through all three completing the hinge. Such a connection, that is to say, one in which a portion of metal integral with the vamp plate is bent or crimped so as to engage the side of the expansion member, will be found adequately strong even though the metal be of light gauge. When the vamp piece has been placed in the forward end of the shoe, the rear of the heel piece is dropped into the heel of the shoe, as will be understood, while the rear hinge is held elevated. As the hinge is now pressed down a toggle is formed by the expansion means 9—10 and the heel piece 8 and the vamp piece positively forced forward a definite distance and against the inside of the shoe, the appropriate pressure being thus brought to bear to straighten out the shoe. When the rear hinge has been pushed down against the insole and thus beyond a dead center between the forward hinge and the rear end of the heel piece, the pressure of the shoe on the device holds the device expanded until the hinge is again raised by hand. Before insertion the device may be manually adjusted in length to suit different shoes by rotating the heel part and thus turning the screw 10 in its companion 9 as will be apparent.

The shoe tree of Figure 6 differs from that of the preceding figures principally in the substitution of expansion members that are adjustable step-by-step. The heel piece 12 is a suitably shaped block to which two parallel links 13 are hinged at its opposite sides. These are joined at their forward ends by a pin 14 adapted to engage in any one of the notches provided in the slot of a link 15 hinged to the fore member 7. Prior to the insertion of the tree into the shoe, the pin is placed in the most appropriate notch, depending on the length of the shoe in question; as before, the fore and heel pieces are then inserted while the joint at the pin 14 is held elevated and the latter is subsequently pressed down to the insole.

In both trees it will be observed the extreme forward end of the vamp piece (the vamp piece as a whole being substantially rigid) is bent or loosely curled at 17 about

an axis transverse to the length of the shoe, thus forming a spring tip which is preferably sufficiently narrow to enter the shoe toe and bear against the extreme front wall thereof as shown in Fig. 1. As the fore member is forced forward therefore, in the manner before described, the curled toe-end is forced against the front wall of the shoe and into circumferential contact therewith and also more or less downwardly; the curl is designed to have sufficient resiliency to yield to this pressure before the pressure becomes sufficiently great to injure the front wall or toe of the shoe; it therefore permits the fore member 7 to extend with safety into the extreme forward end of the toe of the shoe, as shown. As the curl thus yields in the direction of the length of the shoe when the expansion members are actuated to separate the fore and rear members, it limits the pressure that may be brought to bear on the end wall of the shoe; that is, no greater pressure can be brought to bear on this wall than is necessary to force the curled portion 17 farther back on itself. While this pressure may be made to be sufficient to stretch the shoe to the desired extent, by providing the spring or curl with sufficient resistance, by the same means this pressure may be kept low enough to prevent the end of the fore member pushing through the toe of the shoe, even after repeated applications, or deforming it or otherwise injuring it, even though the tree be initially somewhat too long for the shoe. When the tree is removed from the shoe the spring curl returns it to its original shape. It will be apparent that the spring member 17 also automatically accommodates the tree to shoes of different lengths, and in trees that are adjustable in length, such for example as shown in both Figs. 1 and 6, it compensates for any over-extension of the tree; furthermore, trees that are adjustable by definite steps only (Fig. 6) are rendered adjustable by this curl, to substantially the same fine degree as trees provided with the threaded members 9 and 10 and similar expansion devices.

It will be apparent now that the spring member may assume other forms than that shown, and also that it may be located elsewhere than at the toe of the device under some circumstances, so long as it is adapted to yield in the direction of the length of the shoe when the expansion means act to expand the tree in position, my invention broadly comprehending the formation of a yielding and resilient section in a shoe tree having positively acting expansion means. The ring-shape form of this member shown is particularly easy to provide however, especially when the fore member is of sheet metal, and whatever its form and nature and the form and nature of the expansion means, I prefer the location at the toe of the device for simplicity as well as otherwise. It will be obvious however that the nature of the expansion means used in conjunction with the spring member, is immaterial except that the spring is particularly applicable to trees having positively acting expansion means, and especially those that are adjustable step-by-step, examples of which are illustrated in the drawing. The invention is not limited to the particular device shown in the drawings and specifically described herein, but comprehends various modifications thereof as set forth in the following claims:

1. A shoe-tree comprising fore and rear members, the fore member being adapted to engage the toe end-wall of the shoe, positive expansion means, and resilient means adapted to yield in the direction of the length of the shoe as said expansion means are actuated to separate the fore and rear members when the tree is in position, thereby automatically accommodating the tree to the shoe.

2. A shoe-tree comprising fore and rear members, said fore member being arranged to engage the toe end wall, adjustable expansion means and resilient means adapted to yield in the direction of the length of the shoe as the tree is expanded in a shoe.

3. A shoe-tree comprising a vamp plate, a rear heel-engaging member, positive expansion means, and resilient means on the vamp plate to engage the front end wall of the shoe and adapted to yield in the direction of the length of the shoe as the expansion means are actuated to expand the shoe-tree.

4. A shoe-tree having a rigid vamp member, the toe end-wall-engaging portion of which is resilient and adapted to yield in the direction of the length of the shoe.

5. A shoe-tree comprising rigid fore and rear members, positive manually-adjustable expansion means, and resilient means on the fore member to engage the front end wall of the shoe and yield as the fore member is pushed forward.

6. A shoe-tree comprising fore and rear members, means for separating the same, and a curled metal element on the fore member disposed to engage the front end wall of the shoe and yield as the fore member is forced forward.

7. A shoe-tree comprising a vamp member, a heel member, positive adjustable expansion means, and a curled metal element on the vamp member to engage the front end wall of the shoe and yield as the expansion member is actuated in the insertion of the tree.

8. A shoe-tree comprising a metallic vamp plate-member, the forward end of which is curled and adapted to seat against the front

wall of the shoe and yield as the vamp member is pushed forward, a heel member, and toggle expansion means to separate the vamp and heel members.

9. A shoe-tree comprising a fore member consisting of a metal plate provided with an integral rearwardly extending tab at the center of the rear edge of the plate, the two sides of the tab being bent downwardly a quarter turn, a rear member consisting of a metal bow, and complementary threaded members, one hinged to the ends of the bow and the other hinged between said two portions on the fore member.

10. An expansible shoe-tree having a fore piece formed from a blank of sheet material, the central part of said blank being downwardly curved or bent at the sides, the forward end thereof being narrowed and transversely curled to form a resilient ring-shaped shoe-tree-tip and the rear end being provided with hinge means, a rear member, and expansion means hinged to said rear member and said hinge means.

11. The expansible shoe-tree of claim 10 characterized by the rear end of the fore piece being crimped or folded to form the said hinge means.

12. The expansible shoe-tree of claim 10 characterized by the rear end of the fore member being crimped or folded to embrace the expansion member and hold it in longitudinal alignment.

13. The expansible shoe-tree of claim 10 characterized by the ring-shaped-tip being arranged to engage the front wall of the shoe on its circumference.

In testimony whereof, I have signed this specification.

THOMAS F. LEAHEY.

Witnesses:
JOHN F. TYNAN,
HENRY P. MURPHY.