Feb. 17, 1948. I. L. LESAVOY 2,436,313

SHOE TREE

Filed Nov. 10, 1945

Fig. 1

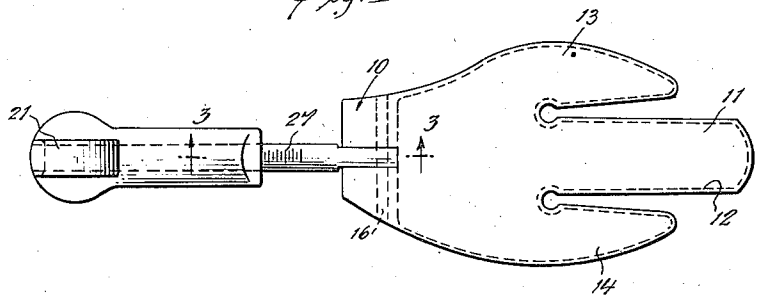
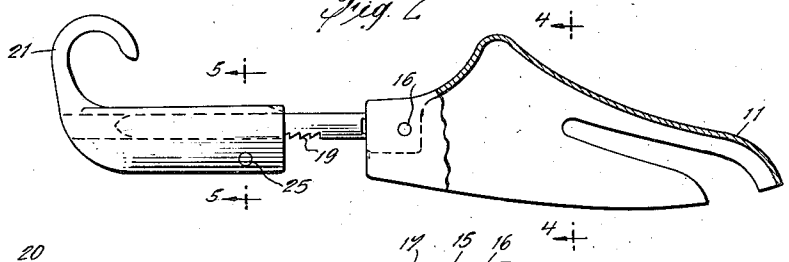


Fig. 2



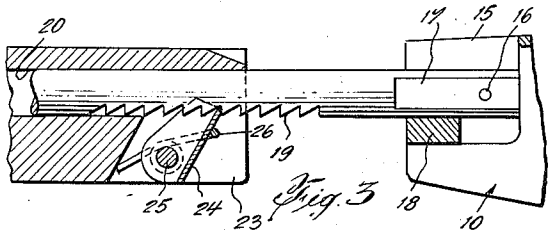


Fig. 3

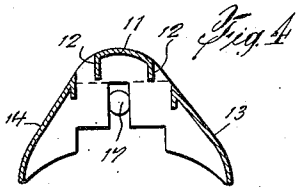


Fig. 4

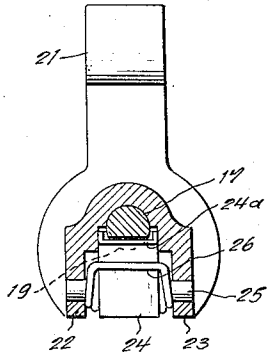


Fig. 5

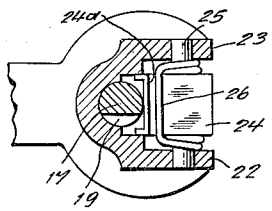


Fig. 6

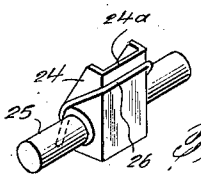


Fig. 7

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SHOE TREE

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5 Claims. (Cl. 12—128.6)

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This invention relates to new and useful improvements in shoe trees, and has particular reference to that type of well known tree which can be longitudinally adjusted to adapt itself to various lengths of shoes.

An object of the invention is to provide a simple, compact, efficient, economical tree which can be applied to various sizes of shoes to snugly fit therein, and adapt itself to various shapes of shoe toes.

A further object is to provide a tree in which the adjustment of the parts to match various sizes of shoes can be made with the utmost ease and accuracy.

A still further object is to provide a tree of material which is inherently flexible and economical to make, involving generally the simple steps of molding to desired shapes.

Yet another object is to provide a tree in which the parts are few and simple in construction and association so that they will stand wear and tear throughout a long span of time, and are capable of being manufactured and assembled at low cost.

Further and more specific objects, features and advantages will more clearly appear from a consideration of the specification hereinafter especially when taken in connection with the accompanying drawings which illustrate a present preferred form which the invention may assume and which form part of the specification.

In brief and general terms, the invention comprises a shoe tree having a toe portion with a plurality of spaced, forwardly-divergent, flexible fingers.

It further comprises a tree which has a tie-rod pivotally connected to the toe portion, a heel portion having a bore in which the tie-rod rides, latching means on the rod and heel portions to latchingly engage the same, the heel portion adapted to be axially twisted to engage and disengage the latching means.

Preferably, although not necessarily, the toe portion is made of thermo-plastic material, and the heel portion is made of thermo-setting material.

Hitherto shoe trees have been made which are longitudinally adjustable, but the toe portions are not of themselves adaptable to fit into various types and sizes of shoes to snugly engage therein, and in adjusting the trees to length, the adjusting mechanism has hitherto been difficult to adjust and set, and quite frequently gets out of order and soon becomes defective.

The type herein shown involves the toe portion

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having the flexible divergent fingers, plus a heel portion which can, by a mere twist of the wrist, be disengaged, and then smoothly slid along the tie-rod to a new position, after which a reverse twist will restore the parts to latching relation in the new position.

The present preferred form of the invention is shown in the drawings, of which—

Figure 1 is a plan view of the tree;

Figure 2 is a side view thereof, partly in section;

Figure 3 is a partial section taken on the line 3—3 of Figure 1;

Figure 4 is a vertical transverse section taken on the line 4—4 of Figure 2;

Figure 5 is a vertical cross section taken on the line 5—5 of Figure 2;

Figure 6 is a similar section showing the parts in a disengaged relation; and,

Figure 7 is a perspective view of the latch pawl and its operating spring.

As shown in the drawing, the present preferred form of the invention comprises a shoe tree having a toe portion which consists of a main body portion 10, from which forwardly extends a central finger 11 having downwardly turned flanges 12. This finger, generally speaking, extends forwardly and downwardly into the forward or toe portion of the shoe, as shown, and tends to press forwardly and upwardly into the same. Preferably the toe portion, as a whole, is made of flexible material of any sort, but generally is made of thermo-plastic material of any desired type.

On opposite sides of the central finger 11, there are disposed lateral fingers 13 and 14, also flanged, but these not only extend forwardly and downwardly, but also laterally to press forward, upward, and laterally against the forward and toe portion of the shoe. Thus we have a multi-fingered toe portion which is flexible and adapted to fit snugly into various sizes of shoes automatically by reason of the resiliency of the fingers thereof.

At the rear the body portion 10 is provided with a slot 15 cut therein in which is pivoted by a pin 16 a tie-rod 17 capable of being moved pivotally upwardly out of the slot, but the downward movement of which is limited by a cross stop bar 18. This tie-rod is provided with teeth 19 along one portion of it. The tie-rod is also circular in shape, as seen in Figure 5.

A heel portion of any suitable material, preferably thermo-setting material, has a bore 20 in which the tie-rod 17 rides. It is provided with a convenient upwardly curved operating handle

21. At its front end it has dependent wings 22 and 23 spaced apart to permit of the location therebetween of a pivoted U-shaped pawl member 24, the upper portion 24a of which is adapted to engage the teeth 19 to latch the heel portion in any desired position on the tie-rod. This pawl is pivotally mounted on a cross pin 25 journalled at its ends in the wings 22 and 23. A U-shaped spring 26 wrapped around the pin has the base of its U-bearing against the back of the pawl to tend to press it into engagement with the teeth of the tie-rod at all times.

Now it is obvious that due to the circular shape of the tie-rod and the circular bore of the heel portion, the heel portion may at any time be grasped in the hand, twisted axially to disengage the pawl from the teeth, and then be slid along the tie-rod to a new position. To facilitate this adjustment, I have provided a graduated scale of shoe sizes on the top of the tie-rod so that the accurate adjustment of the parts to the desired size of shoe is an extremely easy matter. After the heel is thus moved along the tie-rod, it can then be twisted reversely so that the pawl is then swung back into engagement with the teeth, this being the normal operating relation of the parts. The normal engaged relation of the pawl and teeth is shown in Figure 5 and the offset twisted relation, wherein the heel portion can be slid along the tie-rod, is shown in Figure 6.

While the invention has been described in detail and with respect to a present preferred form thereof, it is not to be limited to such details and form, since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence it is desired to cover any and all forms and modifications of the invention which may come within the language or scope of any one or more of the appended claims.

What I claim as my invention is:

1. A shoe tree comprising a body portion adapted to fit the forward part of a shoe constituted of a relatively thin wall of resilient material shaped as an open-bottom shell, the upper surface thereof sloping forwardly towards the forward end of the shell body and laterally to define the sides thereof, said shell body bulging laterally along its said sides and having a pair of slots extending forwardly from a substantially medial point thereof to form a central finger portion and a pair of lateral finger portions, said bulging sides of the shell body and slots intersecting at the tapered ends of the lateral finger portions, said central finger portion extending forwardly beyond the said tapered ends of the lateral finger portions, said lateral finger portions being flexed inwardly, and said central finger portion being flexed downwardly, by the shoe about their respective junctures with the main body of the shell.

2. The shoe tree according to claim 1 wherein the shell body is provided with enlarged apertures at the closed end of the said pair of slots to increase the flexibility of the said finger portions.

3. The shoe tree according to claim 1 wherein the sides of the said pair of slots defining the inner longitudinal edge of the lateral finger portions are flared outwardly to increase the taper of the said finger portions and to increase the flexibility thereof.

4. A shoe tree comprising a body portion adapted to fit the forward part of a shoe constituted of a relatively thin wall of resilient material shaped as an open-bottom shell, the upper surface thereof having a ridge near its rear end sloping forwardly therefrom towards the forward end of the shell body, said upper surface slopping laterally to define the sides of the shell body, said shell body bulging laterally along its said sides and having a pair of slots extending forwardly from a point forward of the said ridge to form a central finger portion and a pair of lateral finger portions, said bulging sides of the shell body and slots intersecting at the tapered ends of the lateral finger portions, said central finger portion extending forwardly beyond the said tapered ends of the lateral finger portions, said lateral finger portions being flexed inwardly, and said central finger portion being flexed downwardly, by the shoe about their respective junctures with the main body of the shell.

5. The shoe tree according to claim 1 wherein the said shell body is provided along edges of the said pair of slots with short, inwardly projecting flanges.

I. LAWRENCE LESAVOY.

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