April 1, 1969 M. BISK 3,435,475

SHOE TREE

Filed Feb. 28, 1968 Sheet 1 of 2

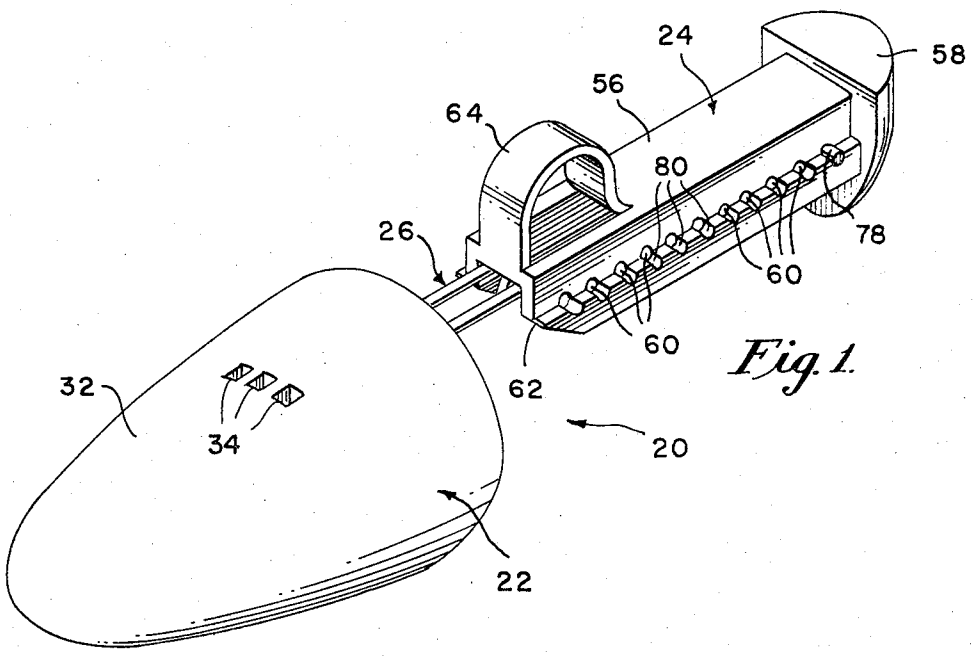


Fig. 1.

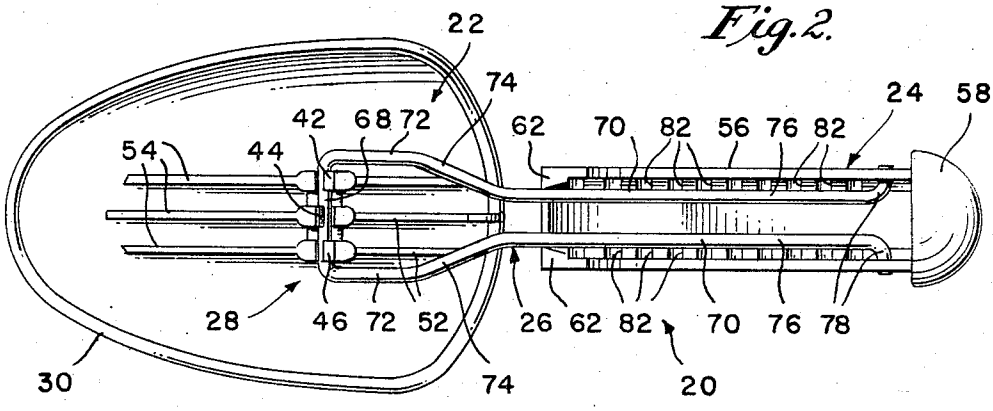


Fig. 2.

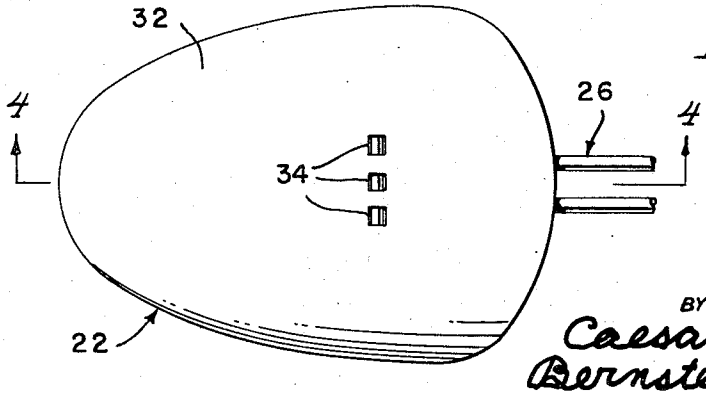


Fig. 3.

INVENTOR.
MAX BISK
BY
Caesar, Rivise, Bernstein & Cohen
ATTORNEYS.

April 1, 1969 M. BISK 3,435,475

SHOE TREE

Filed Feb. 28, 1968 Sheet 2 of 2

Fig. 4.

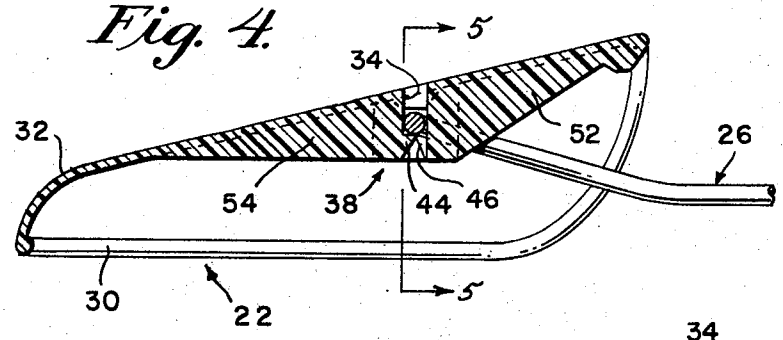


Fig. 5.

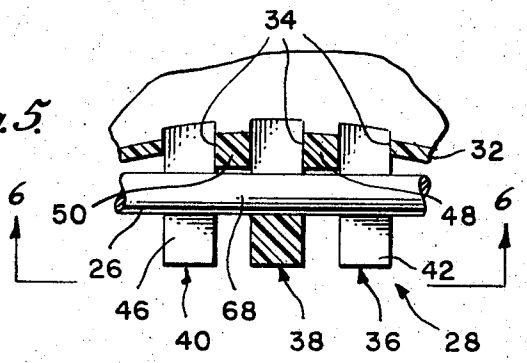
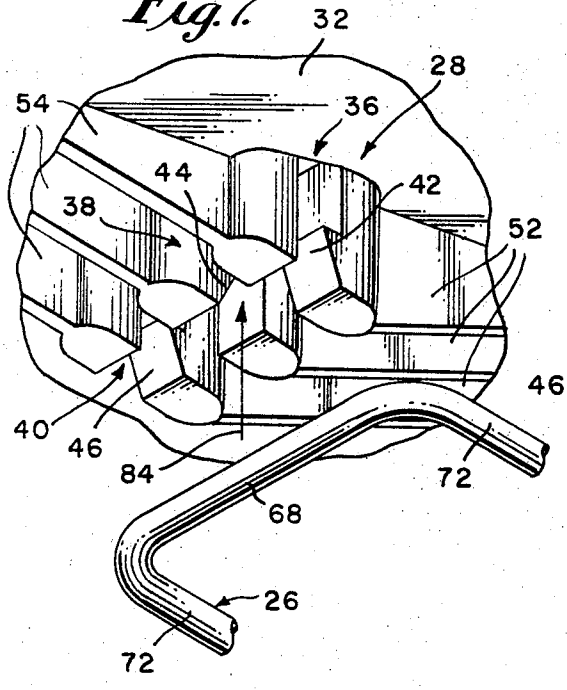


Fig. 7.



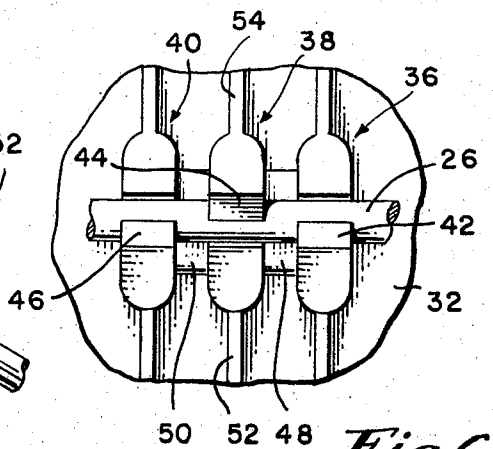


Fig. 6.

INVENTOR.
MAX BISK

BY
Caesar, Rivise,
Bernstein & Cohen
ATTORNEYS.

United States Patent Office 3,435,475 Patented Apr. 1, 1969

3,435,475

SHOE TREE

Max Bisk, 1100 Elbridge St., Philadelphia, Pa. 19111

Filed Feb. 28, 1968, Ser. No. 708,978
Int. Cl. A43d 3/14
U.S. Cl. 12—117.4 10 Claims

ABSTRACT OF THE DISCLOSURE

In a shoe tree, a hinge integrally formed in the toe member and a heel pivotably secured to said toe member. The hinge comprises a plurality of pairs of posts which depend from the toe member. The posts are aligned transversely along the toe member with each of the posts of each pair being spaced from each other and facing each other. One of said posts of each of said pair having a laterally extending projection which faces the opposite facing post. The heel member is secured to the toe member between the posts by the projections.

This invention relates generally to shoe trees and more particularly to a shore tree having an integrally formed hinge in the toe member for pivotably securing and connecting the heel and toe members of the shoe tree.

In heretofore existing shoe trees, one of the expensive steps in the manufacture thereof, is the connection of the toe member to the heel member. The toe member and the heel member must be pivotably secured to each other yet the pivotable securement therebetween must be strong enough to enable the heel and toe members to be urged against the respective portions of the shoe in a straightened position when the shoe tree is maintaining the shape of the shoe.

Conventional shoe trees typically utilize a stiff wire member which is detachably secured to the heel member and which is pivotably secured between the toe member and the heel member. Conventional hinges for the stiff wire member typically comprise U-shaped brackets which require permanent fasteners for securing the hinge about the wire member. Securement of such hinges is either very time consuming for the worker or extremely expensive to consummate in an automatic operation.

It is therefore an object of the invention to overcome the aforementioned disadvantages.

Another object of the invention is to provide a new and improved shoe tree having an integrally formed hinge which enables quick securement of the toe member to the heel member.

Another object of the invention is to provide a new and improved shoe tree which is inexpensive to manufacture but which is superior to conventional shoe trees.

Another object of the invention is to provide a new and improved shoe tree comprised of a material having a deodorizing and fungicide material molded therein.

These and other objects of the invention are achieved by providing a shoe tree comprising a toe member and a heel member. A hinge is integrally formed in the toe member for pivotably securing the heel member to the toe member and comprises a plurality of pairs of posts depending from the toe member. The posts are aligned transversely along the toe member with each of the posts of each pair being spaced from each other and facing each other. One of the posts of each of the pairs has a laterally extending projection. The projecting extends towards the opposite facing post so that the heel member is secured to the toe member between the posts by the projections.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. 1 is a perspective view of the shoe tree embodying the invention;

FIG. 2 is a bottom plan view of the shoe tree embodying the invention;

FIG. 3 is a fragmentary top plan view of the toe member of the shoe tree embodying the invention;

FIG. 4 is an enlarged sectional view taken along the line 4—4 in FIG. 3;

FIG. 5 is a fragmentary enlarged sectional view taken along the line 5—5 in FIG. 4;

FIG. 6 is a fragmentary bottom plan view taken along the line 6—6 in FIG. 5; and

FIG. 7 is an exploded perspective view taken below the toe member of the hinge embodying the invention.

Referring now in greater detail to the various figures of the drawing wherein similar reference characters refer to similar parts, a shoe tree embodying the invention is shown generally at **20** in FIG. 1.

The shoe tree **20** basically comprises a toe member **22** and a heel member **24**. The heel member **24** includes a stiff wire member **26** for pivotably securing the toe member to the heel member. The stiff wire member **26** is secured to the toe member **22** via a hinge **28** which is integrally formed in the toe member **22**.

Toe member **22** is best seen in FIGS. 1 and 4 and is preferably comprised of a thermoplastic resin and is formed in the shape of the top surface of the toe of a shoe. The toe member **22** as well as heel member **24** is molded with a deodorizing and fungicidal material mixed in with the thermoplastic resin to help maintain an odor-free shoe.

The toe member is predominantly a hollow shell or top wall **32** and includes an enlarged rib **30** which extends around the periphery of the arcuately formed toe member to stiffen the toe member. The top wall **32** of the toe member is thus shaped to conform to the top surface of the toe of a shoe.

A plurality of rectangular openings **34** are formed in the top wall **32** of the toe member and, as will hereinafter be seen, enables the formation of the hinge **28** during the molding thereof. The hinge **28** is best seen in FIGS. **6** and 7 and basically comprises a plurality of pairs of posts **36**, **38** and **40** which are transversely aligned in pairs facing each other. Each of the pairs of posts **36**, **38** and **40** depend from the top wall **32** of the toe member **22**. One post of each of the pairs of posts includes a laterally extending projection **42**, **44** and **46** in pairs **36**, **38** and **40**, respectively.

As best seen in FIGS. 4 and 7, the projections are triangular in shape having their largest projection at the bases thereof which are provided at the position most spaced from the end of the post. The projections are thus tapered towards the end thereof.

As best seen in FIG. 6, the projections are provided alternately on opposite sides of the posts. Thus, projections **42** and **46** are provided on the rear post with respect to the toe facing towards the forward post of the respective pairs **36** and **40**. Projection **44** is provided on the forwardmost post of pair **38** and faces the rear post of the pair. By providing the projections on alternate sides of the posts, the ability of the projections to retain wire **26** within the posts is increased.

Depending members **48** and **50** are provided from top wall **32** of the toe member between the pairs of posts **36** through **40**. The depending members **48** and **50** act as shoulders to constrict the movement of the wire member **26** within the hinge **28**. Additional support is provided to the posts by ribs **52** and ribs **54**. Ribs **52** are provided

adjacent and integral with the rear posts of pairs of posts **36**, **38** and **40**. The ribs **52** are triangularly shaped, planar and depend vertically from the top wall **32**. Ribs **54** are also triangular, planar, provided integrally with the forward posts of the pairs of posts **36**, **38** and **40**, and depend vertically from top wall **32**. The ribs are also formed integrally with the toe member **22**.

The heel member **24** is best seen in FIGS. 1 and 2 and basically comprises an elongated body member **56**, which is comprised of generally U-shaped cross-section and an enlarged heel portion **58** which is secured to body member **56** and which acts to engage the heel of the shoe when the shoe tree is placed in a straightened position.

The body member **56** of heel member **24** includes a plurality of openings **60** which are formed in the side walls of the body member and which extend transversely. Openings **60** are provided on each side of the body member **56** and are aligned with each other and act to enable detachable securement with the wire member **26** for varying the size of the shoe tree. Provided at the forwardmost end of the body member **56** is a pair of inwardly extending projections **62** which act as beads to snap the wire member **26** into a straight position when the shoe tree is inserted into a shoe.

On the top surface of the forwardmost end of the body member **56**, a U-shaped handle **64** is provided which projects upwardly and which is adapted to enable a finger to be inserted for pulling the shoe tree out of the shoe.

As best seen in FIG. 2, the wire member **26** is generally U-shaped and has a transversely extending straight web **68** and a pair of bent legs **70**. The legs **70** basically comprise a pair of bottom portions **72** which are straight and which extend transversely to the web portion **68**. The legs further include an inwardly extending pair of straight portions **74** which are betn inwardly of integral straight portions **72** and which are integral with an elongated pair of straight sections **76** which extend parallel to each other substantially along the length of the body member **56**. Portions **72** and **74** are bent upwardly from straight sections **76** so that the web portion **68** is elevated to reach the hinge **28** of the toe member.

At the end of each portion **76** of legs **70** is an outwardly extending portion **78** which extends perpendicular to straight portion **76**. The end portions **78** of the legs **70** are insertable in openings **60** along the length of body member **56** and are pivotably secured therein. To remove the end portions **78** from openings **60**, the legs **70** are squeezed together thereby enabling the end portions **78** to be telescoped out of the openings **60**.

To vary the size, the legs **70** are squeezed together and the end portions **78** aligned with the desired opening **60** and pressure is then released enabling the posts to enter the desired openings. The openings **60** have aligned therewith semicircular channels **80** on the outer face of the side walls of the elongated body member **56** and similar semicircular channels **82** on the inner wall of the elongated body member. These semicircular channels facilitate alignment of the end portions **78** with the openings **60** to enable quick insertion thereof. The legs are thus squeezed together, the end portions **78** are placed in the channels aligned with the openings **60** and pressure released thereby enabling the channels to guide the end portions into the openings.

To assemble the heel member to the toe member, the web **68** of the wire member **26** is aligned between the ends of the pairs of posts **36** through **40**. As best seen in FIG. 7, the web **68** is moved in the direction of arrow **84** into the center of the pairs of posts. The tapered projections **42**, **44** and **46** enable the web **68** to wedge into the posts. The posts are thereby spread slightly so that the web **68** may enter therebetween. As soon as the web **68** passes the projections **42**, **44** and **46** of the pairs of posts **36** through **40**, the posts snap together and the transversely extending bases of the projections **42**, **44** and **46** act as shoulders to prevent removal of the web **68**.

The web **68** of wire member **26** is thereby pivotably connected between the posts, the depending members **48** and **50** and projections **42**, **44** and **46** which form the hinge **40**. The shoe tree is thus assembled and ready for use in a shoe tree.

The shoe tree **20** is insertable in conventional fashion into a shoe. The heel member **24** and toe member **22** are bent with respect to each other. The body member **56** is pivoted to an angle with respect to the elongated portions **76** of legs **70** of the wire member. The toe member **22** and the heel **58** of heel member **24** are first inserted into the shoe. The handle **64** is pressed downwardly and the heel **58** and toe member **22** are urged against the respective portions of the shoe.

When the wire member **26** is substantially parallel to the body member **56** of the heel member **24**. The legs **70** of the wire member coact with projections **62** to snap and maintain the shoe tree **20** in the straight position.

The shoe tree **20** is removed from the shoe by pulling handle **64**. The heel member **24** pivots about the ends **78** of wire member **26** and the shoe tree slips easily out of the shoe.

It can therefore be seen that a new and improved shoe tree has been provided. The shoe tree is easily made and comprises only three pieces. The toe member **22** is so constructed that it is formed in a single molding operation and thereby obviates the requirement for further assembling operations to add hinges to receive the wire member **26**. The heel member **24** is also formed in a single operation and includes an integral handle **64**. The openings **60** are also formed during the holding of the handle. The associated channels **80** and **82** enable the formation of opening **60** and facilitate alignment of the end portions **78** of the wire member **26** with opening **60** prior to insertion thereof. The channels further act as journals to maintain end portions **78** in a transversely extending disposition.

The formation of the hinge in the integral manufacture of the toe member **22** obviates further operations on the toe member **22**. Thus, a simple operation of pressing the web **68** of the wire member **26** into the hinge **28** is all that is required to assemble the shoe tree. Moreover, only one heel member is required for a plurality of shapes of toe members. Since toe members vary in width in accordance with the size of the shoe used, the toe member may be snapped into various sizes of toe members **22** which are provided with the integrally formed hinge **28**. The openings **34** enable the formation of the projections on the inner portions of the posts. The use of a thermoplastic resin to construct the toe member **22** enables impregnation therein of an odor, fungus and germ killing material.

Without further elaboration, the foregoing will so fully illustrate my invention that others may, by applying current or future knowledge, readily adapt the same for use under various conditions of service.

What is claimed as the invention is:

1. In a shoe tree comprising a toe member and a heel member, a hinge, for pivotably securing said heel member to said toe member, said hinge being integrally formed in said toe member and comprising a plurality of pairs of posts depending from said toe member, said posts being aligned transversely along said toe member with each of said posts of each pair being spaced from each other and facing each other, one of said posts of each of said pair having a laterally extending projection, said projections extending toward said opposite facing post so that said heel member is secured to said toe member between said posts and projections.

2. The invention of claim **1** wherein only one of said posts of said pairs of posts includes a laterally extending projection, said projections being on alternate ones of said aligned pairs of posts.

3. The invention of claim **1** wherein said heel member includes a pivotably secured wire member, said wire mem-

ber including a transversely extending end piece for securement within said hinge of said toe, said heel member being secured to said toe member by snapping said transversely extending section of said wire member into said hinge.

4. The invention of claim 3 wherein said heel member includes a pair of side walls having a longitudinally extending row of openings on each wall, said wire member including transversely extending end members for insertion into said openings for varying the size of said shoe tree.

5. The invention of claim 4 wherein said heel member includes a plurality of transversely extending channels aligned with openings in the walls of said heel member, said channels enabling alignment of said wire member for inserting said wire member into said heel member.

6. The invention of claim 1 wherein three pairs of said posts are provided, the end pairs of said posts having the projections on said posts on one side, the central pair of posts having a projection on the post on the other side.

7. The invention of claim 1 wherein said projections

taper towards the ends of said posts so that said shoe tree is easily assembled.

8. The invention of claim 7, wherein said projections include flat bases which extend transversely to said posts to prevent loosening of the connection between said toe member and said heel member.

9. The invention of claim 8 wherein said toe member further includes vertically depending ribs which are secured integrally with said posts to provide additional support therefor.

10. The invention of claim 1 wherein said toe member is comprised of a thermoplastic resin having a deodorizing and fungus killing material impregnated therein.

References Cited

UNITED STATES PATENTS

1,862,168	6/1932	Weiskotton	12—117.4 X
2,436,313	2/1948	Lesavoy	12—117.4
2,510,315	6/1950	Malberg	12—117.4

PATRICK D. LAWSON, *Primary Examiner.*