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(54) **TOE SHOE WIDENER**

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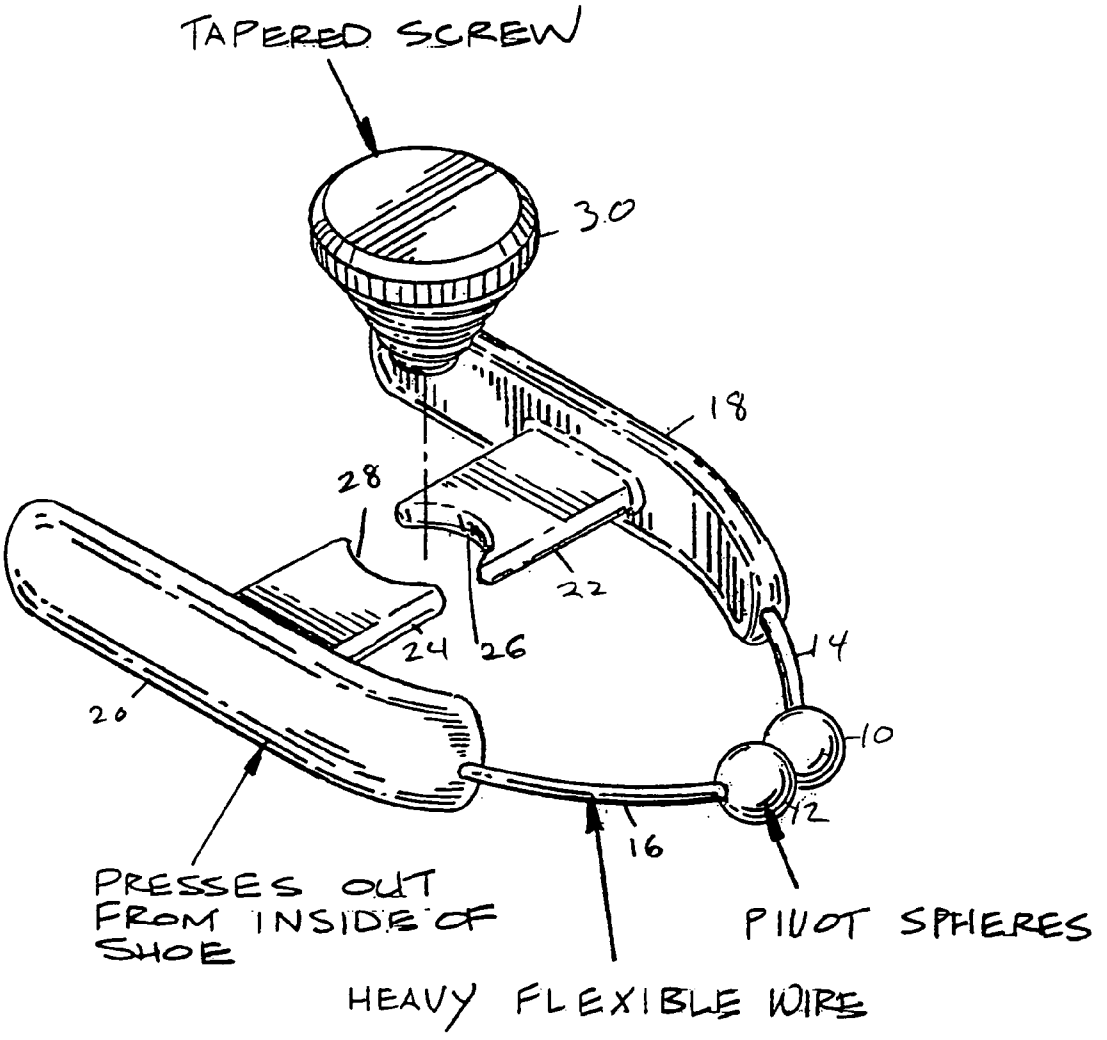
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(57) **ABSTRACT**

A toe shoe widener is provided in the form of an A-shaped insert with independent halves. On each half, a swiveling ball is attached to a wire curved to fit the contours of a shoe's toe shoe and further attached to a curved side panel. A plate extends at right angles from each side panel, with the flat side placed horizontally. After placing the two halves in a toe shoe, the user inserts a tapered screw into cutouts in the adjoining plates, so that the threads of the screw can turn against the edges of the plates. The screw can then be twisted into the plates to open the plates wider, causing the side panels to push outward on the toe shoe. The plates may also be aligned through a metal sleeve or placed vertically for access from the rear of a shoe closed at the top.



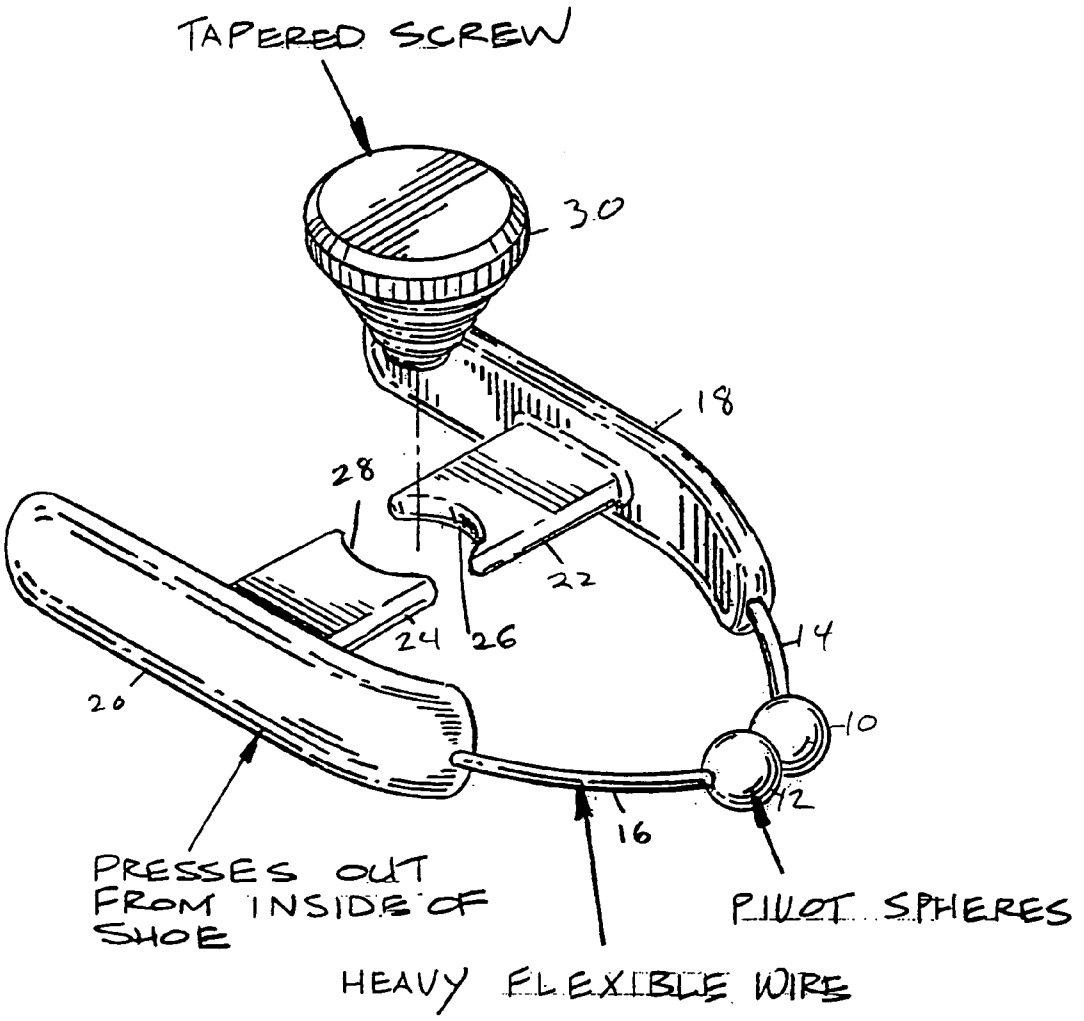
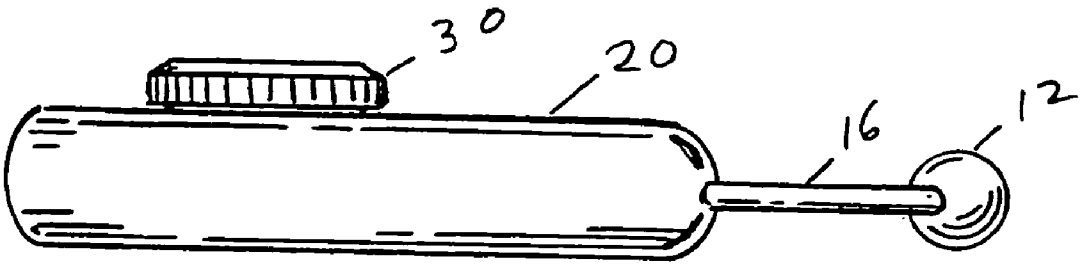

TAPERED SCREW
30
18
28
22
24
26
14
20
10
12
16
PRESSES OUT FROM INSIDE OF SHOE
PIVOT SPHERES
HEAVY FLEXIBLE WIRE

Fig. 1



SIDE VIEW

Fig. 2

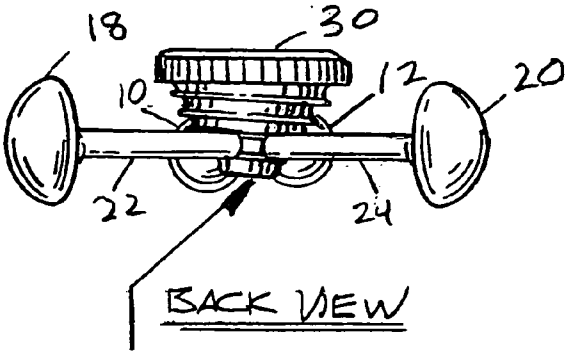

18
30
10
12
20
22
24
BACK VIEW
TAPERED SCREW
TURNS TO DESIRED
WIDTH

Fig. 3

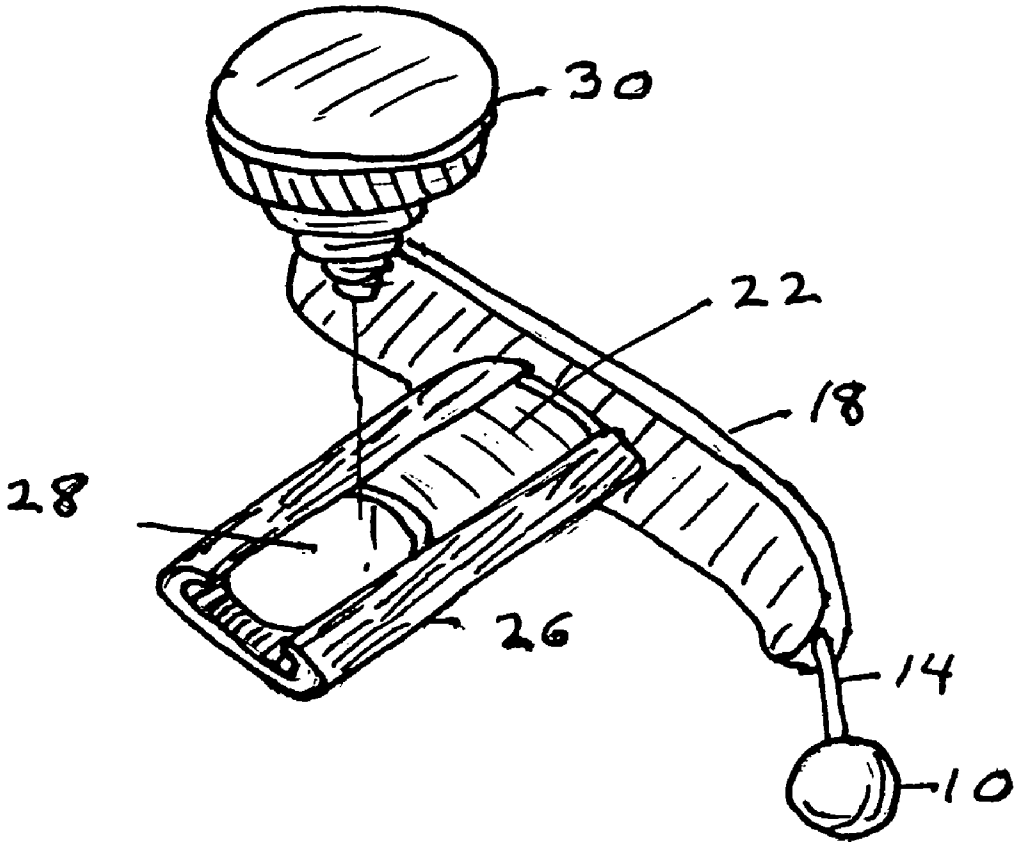


Fig. 4

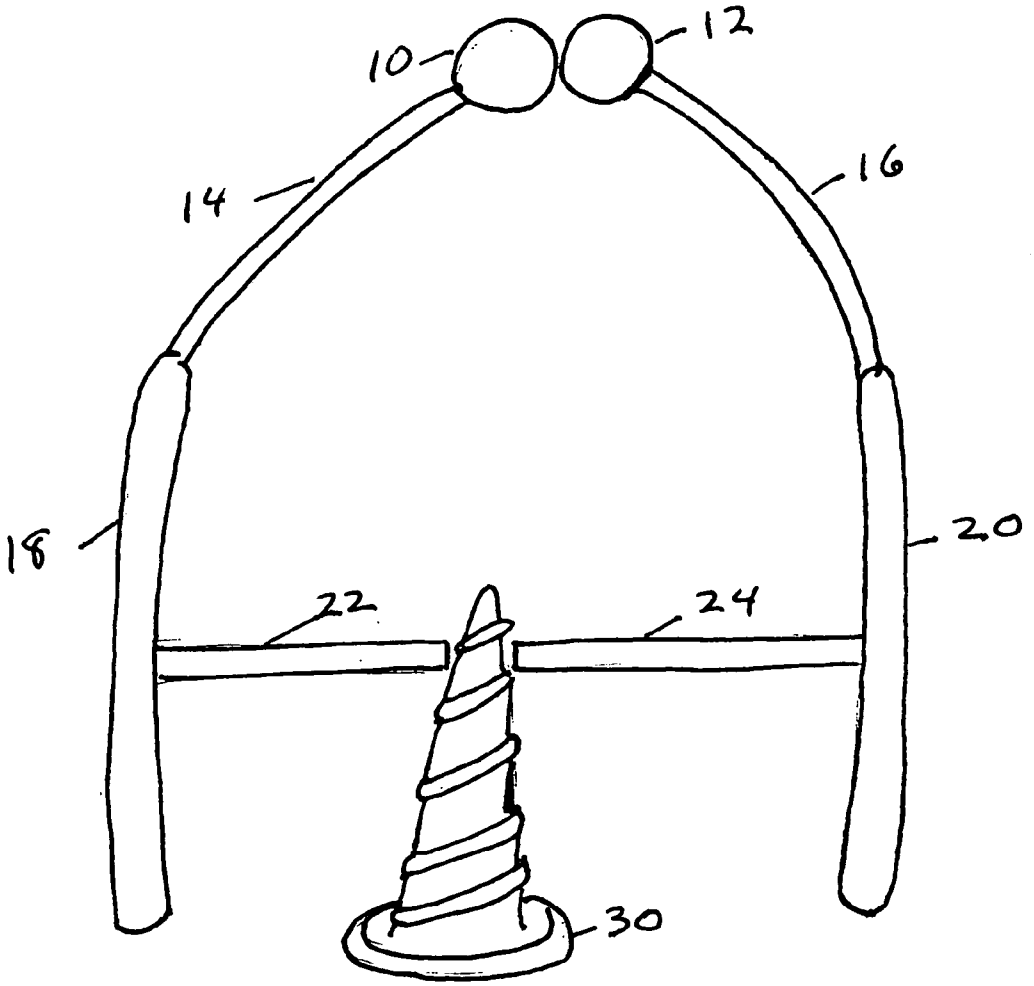


Fig. 5

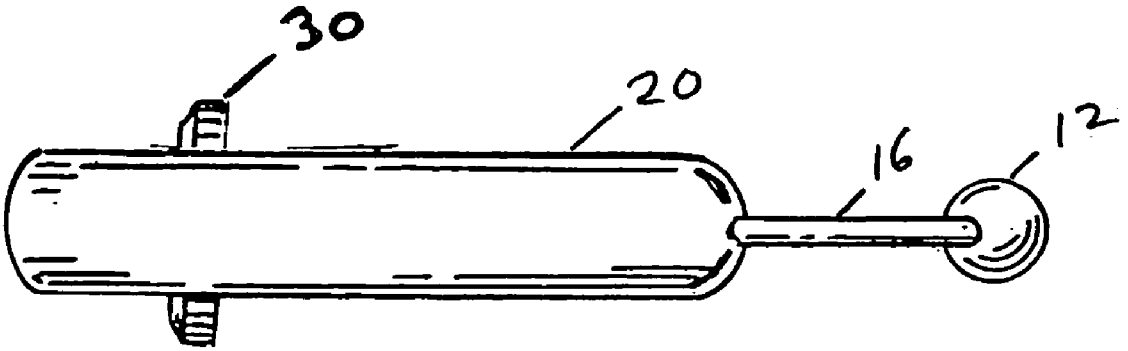


Fig. 6

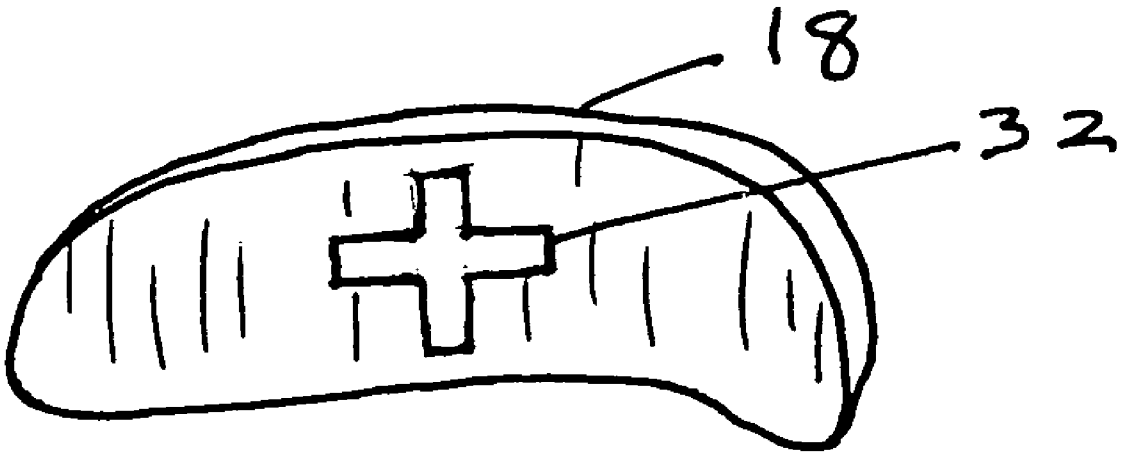


Fig. 7

TOE SHOE WIDENER

FIELD OF THE DISCLOSURE

[0001] The present invention relates to apparatuses for stretching shoes, and more particularly to such an apparatus specifically designed for stretching the toes of shoes.

BACKGROUND

[0002] Shoes are mass produced inexpensively in a great variety of sizes and styles, comprising for example dress shoes, sports shoes, boots, and multiple other types. Few customers choose the more expensive alternative of having their shoes hand crafted to the specific size and shape their feet by individual cobblers.

[0003] However, since feet come in an infinite variety of shapes and sizes, not every foot will fit into a mass-produced shoe even when that shoe is the correct size in general for the foot. People with particularly wide feet, for example, may not be able to find shoes that fit them exactly, and may have to buy shoes that are too long or to try to force their feet into shoes that are too narrow. Sometimes a customer may also find a shoe comfortable in a store only to realize after later use that the shoe is too tight in the toes or other areas. Moreover, a shoe may shrink in areas over time, after getting wet for example. On the other hand a foot may increase in size in areas, for example if its owner puts on weight or for medical reasons. Anyone who has worn a shoe that is too tight knows the annoyance and pain that can cause. Often these problems result from tightness in a shoe's toe area, hereafter called the "toe shoe."

[0004] Consequently, various apparatuses have been devised to maintain the original size of shoes or to stretch them, for the comfort of their wearers. Shoe trees, for example, are a simple means of maintaining shoes' size and general shape and even of stretching shoes to a limited extent. However, mass-produced shoe trees are not typically wide enough or effective enough in design to significantly increase the size of shoes or to expand specific areas of shoes, such as the toe shoe.

[0005] Other apparatuses for stretching shoes typically employ levers expanded through large screws, in conjunction with heat applied to the shoe. For example, U.S. Pat. No. 5,875,504 for Tambling provides a stretcher for ski boots that uses a spreader screw and extender levers to expand a curved heel element, shaped to fit the heel of a ski boot, and a curved toe element, shaped to fit the toe of a ski boot, in conjunction with an external heat source used on the ski boot. Thus this apparatus can be used to stretch a ski boot from front to back. It can also be used to stretch a ski boot from and from top to bottom and in specific areas such as the toe shoe, through by detaching the heel and toe elements, attaching alternate elements and if necessary extender parts. But this apparatus comprises a complicated system with multiple elements and other parts, making it expensive and difficult to use. It is not specifically designed for easy, effective use for stretching toe shoes, and moreover requires use of a heating element for the shoe. Furthermore the various heel, toe, and other elements need to fit the areas of specific ski boots and other shoe designs and may not work with all designs

[0006] Therefore there is a need for an apparatus that provides a simpler, more effective, and less expensive method for stretching the toe area of shoes without requiring additional use of a heating element for the shoe.

SUMMARY OF THE DISCLOSURE

[0007] The following explanation describes the present invention by way of example and not by way of limitation.

[0008] It is an aspect of the present invention to provide an apparatus for stretching the toe area of shoes, shoes comprising any type of footwear.

[0009] It is another aspect of the present invention to provide an apparatus for stretching the toe shoe area of shoes that is simple and inexpensive in design.

[0010] It is another aspect of the present invention to provide an apparatus for stretching the toe shoe of shoes that is easy to use.

[0011] It is another aspect of the present invention to provide an apparatus for stretching the toe area of shoes that is capable of operating on most types of shoes.

[0012] It is another aspect of the present invention to provide an apparatus for stretching the toe area of shoes that does not require heating the shoe.

[0013] It is another aspect of the present invention to provide an apparatus for stretching the toe area of shoes that open at the top.

[0014] It is another aspect of the present invention to provide an apparatus for stretching the toe area of shoes that do not open at the top.

[0015] These and other aspects, features, and advantages are achieved according to the present invention.

[0016] In an embodiment of the present invention, a toe shoe widener is provided in the form of an A-shaped insert four inches in overall length, one inch in height, and three inches in overall width. The insert is specifically designed to widen toe shoes and comprises

[0017] two steel balls (pivot spheres) that can be swiveled,

[0018] two durable metal wires curved to fit the contours of a shoe's toe shoe,

[0019] two curved metal side panels,

[0020] two metal plates two and a half inches long, and

[0021] a tapered screw.

[0022] The balls form the front end of the insert, and each ball is attached to one of the wires, which are curved to fit the shape of shoes. Each wire is attached to the end of one of the side panels, which are also curved to fit shoes, and a plate extends at right angles from each of the side panels, with the flat side of the plates placed horizontally. The insert thus comprises two independent halves, the plates of which meet roughly in the center.

[0023] After placing the insert in a toe shoe, the user inserts the screw into a circle formed by cutouts in the adjoining plates, so that the threads of the screw can turn against the edges of the plates. The screw can then be twisted into the plates to exert pressure to open the plates wider, causing the side panels to push outward on the material of the toe shoe, thus widening the side area of the toe shoe for

the user's toes. The balls swivel to hold the halves of the apparatus in place as the sides of the toe shoe are opened. After the insert has been expanded to stretch the toe shoe to the desired width, the insert can be left in place until the toe shoe has been sufficiently widened for the comfort of the user of the shoe. Subsequently the insert can be used in the same way on the other shoe.

[0024] With its simplicity of design, the insert is inexpensive, easy to use, and applicable to a wide variety of footwear.

[0025] In another embodiment, a metal sleeve curved on each side may be attached to one side panel and further attached around the plate extending from that side panel, as a guiding track into with the other plate can be inserted. The metal sleeve serves to hold the two halves of the insert in proper alignment. In addition, the metal sleeve contains a slot in its center to allow the screw to pass freely through the sleeve.

[0026] Note that the embodiments described above are useful for open shoes, which can be opened at the top to allow access to the screw on the insert. In another embodiment, means may be used to attach the plates vertically to the side panels, so that the screw is accessible from the back of shoes that are closed at the top. In still another embodiment, means may be used to attach the plates either horizontally or vertically as desired by the user, for use with open shoes or for closed shoes. For example, plus-shaped (+) grooves may be cut in the side panels so that the plates may be fitted into the side panels in either position. In a further embodiment, a metal sleeve may be attached on one of the side panels and that panel's vertical plate to act as a guide for the alignment of the other plate.

[0027] In an embodiment, if the shoe to be widened is leather, the user may apply a cream or liquid to soften the leather to assist the insert's action.

[0028] In other embodiments, the insert can be in other sizes useful for shoes. For example, another useful size for the insert may be six inches in overall length, one inch in height, and five inches in overall width.

[0029] In still another embodiment, elements with a curved surface may be used instead of the balls.

[0030] In other embodiments, one or more elements of the insert may be made of other materials than metal, for example wood, plastic, glass, or of combinations of such materials. For example, the side panels could be made of plastic.

[0031] Moreover, in other embodiments the design of the insert can be adapted for the special requirements of particular applications, for example for use with specific types of boots, athletic shoes, or men's and women's dress shoes.

[0032] These and other embodiments of the present invention will become readily apparent upon further review of the following specification and associated drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] The following embodiment of the present invention is described by way of example only, with reference to the accompanying drawings, in which:

[0034] **FIG. 1** illustrates a top view of an embodiment of a toe shoe widener with horizontal plates in accordance with the present invention.

[0035] **FIG. 2** illustrates a side view of an embodiment of a toe shoe widener with horizontal plates in accordance with the present invention.

[0036] **FIG. 3** illustrates a rear view of an embodiment of a toe shoe widener with horizontal plates in accordance with the present invention.

[0037] **FIG. 4** illustrates a top view of an embodiment of a toe shoe widener with horizontal plates and a guiding sleeve in accordance with the present invention.

[0038] **FIG. 5** illustrates a top view of an embodiment of a toe shoe widener with vertical plates in accordance with the present invention.

[0039] **FIG. 6** illustrates a side view of an embodiment of a toe shoe widener with vertical plates in accordance with the present invention.

[0040] **FIG. 7** illustrates a side view of a panel on a toe show widener, the panel containing plus-shaped (+) grooves for the ends of plates.

DETAILED DESCRIPTION OF THE DRAWINGS

[0041] The following description of drawings is offered to illustrate the present invention clearly. However, it will be apparent to those skilled in the art that the concepts of present invention are not limited to these specific details. Commonly known elements are also shown in diagrams for clarity, as examples and not as limitations of the present invention.

[0042] **FIG. 1** illustrates a top view of an embodiment of an insert that is a toe shoe widener with horizontal plates in accordance with the present invention. For the left half of the insert, ball (pivot sphere) **10** is attached to a heavy, flexible wire **14** that is curved to fit the contours of a toe shoe. Wire **14** is attached to a side panel **18** that is also curved to fit the contours of a toe shoe. Plate **22** is attached horizontally to side panel **18** and contains a semicircular end **26**.

[0043] For the right half of the insert, ball (pivot sphere) **12** is attached to a heavy, flexible wire **16** that is curved to fit the contours of a toe shoe. Wire **16** is attached to a side panel **20** that is also curved to fit the contours of a toe shoe. Plate **24** is attached horizontally to side panel **20** and contains a semicircular end **28**.

[0044] The insert is inserted, as shown in FIG, **1** into a toe shoe, so that ball **10** and ball **12** touch the front tip of the shoe and plates **22** and **24** meet or nearly meet, depending on the width of the toe shoe. Tapered screw **30** is then inserted through the top of a shoe that opens at the top into the hole formed by horizontal semicircular ends **26** and **28**, so that the threads of tapered screw **30** can turn against the edges of ends **26** and **28**.

[0045] When tapered screw **30** is turned clockwise, it is forced downward so that a wider portion of tapered screw **30** exerts outward pressure on plates **22** and **24**. Plates **22** and **24** in turn push side panels **18** and **22** outward against the material of the toe shoe, stretching that material wider. As that material stretches wider, balls **10** and **12** swivel to hold the halves of the insert in place.

[0046] Tapered screw **30** can thus be turned until the material of the toe shoe is stretched to a desired width, and the insert can then be left in place until the material of the toe shoe has stretched enough to remain at the desired width. After one toe shoe has been stretched sufficiently, the insert can be removed from that shoe and placed in the toe shoe of the other shoe for further stretching.

[0047] Note that the design is simple and flexible enough to fit into a wide selection of toe shoes of different sizes, styles, and shapes.

[0048] **FIG. 2** illustrates a side view of an embodiment of an insert that is a toe shoe widener with horizontal plates in accordance with the present invention. The total overall length of the insert in this position is four inches and the height of side panel **20** is one inch. In other embodiments the length and height may vary as is useful.

[0049] **FIG. 3** illustrates a back view of an embodiment of an insert that is a toe shoe widener with horizontal plates in accordance with the present invention. It shows how the edges of plates **22** and **24** fit into the threads of tapered screw **30**, so that tapered screw **30** can be turned to push plates **22** and **24** wider, to expand side panels **18** and **20** and stretch the material of a toe shoe. The overall width between side panels **18** and **20**, before expansion, is approximately three inches. In other embodiments the width may vary as is useful.

[0050] As mentioned above, in other embodiments one or more elements of the insert may be made of other materials than metal, for example wood, plastic, glass, or of combinations of such materials. For example, the side panels could be made of plastic.

[0051] Plastic elements of the insert could be formed with the use of plastic molding techniques such as injection molding or blow molding. Injection molding is a process that has been is use since the 1920s and provides versatility almost unmatched the mass production of any material. It requires that melted plastic be forcefully injected into relatively cool molds. As the plastic begins to harden, it takes on the shape of the mold cavity and when cool requires few post/molding operations. Other advantages of this process include its speed of production and its ability to allow multiple parts to be molded simultaneously.

[0052] Blow molding in the production of plastic shapes is a form of extrusion, a major technique in the plastics industry. Extrusion is used to push a molten tube, called a parison, into a bottle-shaped mold. Compressed air then forces the parison against the cold walls of the mold, hence the term "blow molding."

[0053] Molds are generally side fed, with the thickness controlled by a tapered mandrel (core) or a variable-orifice die. Continuous extrusion of the plastic is possible through the use of multiple blow molds.

[0054] **FIG. 4** illustrates a top view of an embodiment of a toe shoe widener with a guiding sleeve **26** welded to a horizontal plate **22** and a side panel **18**. The opposite plate can be inserted into the curved open ends of the sleeve **26** to properly align the both plates of the insert. The sleeve **26** further contains a slot **28** in its center to allow the tapered screw **30** to pass freely through the sleeve.

[0055] **FIG. 5** illustrates a top view of an embodiment of an insert that is a toe shoe widener with vertical plates in accordance with the present invention. For the left half of the insert, ball (pivot sphere) **10** is attached to a heavy, flexible wire **14** that is curved to fit the contours of a toe shoe. Wire **14** is attached to a side panel **18** that is also curved to fit the contours of a toe shoe. Plate **22** is attached vertically to side panel **18** and contains a semicircular end **26**.

[0056] For the right half of the insert, ball (pivot sphere) **12** is attached to a heavy, flexible wire **16** that is curved to fit the contours of a toe shoe. Wire **16** is attached to a side panel **20** that is also curved to fit the contours of a toe shoe. Plate **24** is attached vertically to side panel **20** and contains a semicircular end **28**.

[0057] The insert is inserted as shown in FIG, **1** into a toe shoe, so that ball **10** and ball **12** touch the front tip of the shoe and plates **22** and **24** meet or nearly meet, depending on the width of the toe shoe. Tapered screw **30** is then inserted from the back of a shoe that does not open at the top into the hole formed by vertical semicircular ends of vertical plates **22** and **24**.

[0058] When tapered screw **30** is turned clockwise, it is forced forward so that a wider portion of tapered screw **30** exerts outward pressure on plates **22** and **24**. Plates **22** and **24** in turn push side panels **18** and **22** outward against the material of the toe shoe, stretching that material wider. As that material stretches wider, balls **10** and **12** swivel to hold the halves of the insert in place.

[0059] Tapered screw **30** can thus be turned until the material of the toe shoe is stretched to a desired width, and the insert can then be left in place until the material of the toe shoe has stretched enough to remain at the desired width. After one toe shoe has been stretched sufficiently, the insert can be removed from that shoe and placed in the toe shoe of the other shoe for further stretching.

[0060] **FIG. 6** illustrates a side view of an embodiment of an insert that is a toe shoe widener with vertical plates and shows how tapered screw **30** appears in this position. **FIG. 7** illustrates a side view of a panel **18** on a toe show widener, the panel **18** containing plus-shaped (+) grooves **33** for the ends of plates. The opposite panel of the insert contains similar, aligned plus-shaped grooves. Thus the ends of the plate can be inserted horizontally or vertically, for use with shoes that open from the top or that are close at the top.

[0061] In the preceding detailed description, reference has been made to the accompanying drawings that form a part hereof, and in which are shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments, and certain variants thereof, have been described in sufficient detail to enable those skilled in the art to practice embodiments of the present invention. It is to be understood that other suitable embodiments may be utilized and that changes may be made without departing from the spirit or scope of such inventive disclosures. To avoid unnecessary detail, the description omits certain information known to those skilled in the art. The preceding detailed description is, therefore, not intended to cover such alternatives, modifications, and equivalents, as can be reasonably included within the spirit and scope of the appended claims.

What is claimed is:

1. An apparatus for widening the toe shoe area of shoes, comprising

an insert with two independent halves, each half comprising

a guiding end attached to a curved wire attached to a curved side panel attached

to a central plate with a curved slot on one end; and

a tapered screw.

2. The apparatus of claim 1 wherein the guiding end of each insert is a steel ball that swivels to hold the halves of the apparatus in place as the sides of the toe shoe are opened.

3. The apparatus of claim 1 wherein the guiding end of each insert is an element with a curved surface.

4. The apparatus of claim 1 wherein the central plate of each half of the insert is attached horizontally to the side panel.

5. The apparatus of claim 1 wherein a guiding sleeve is attached to the side panel and central plate of one half of the insert.

6. The apparatus of claim 1 wherein the central plate of each half of the insert is attached vertically to the side panel.

7. The apparatus of claim 1 wherein each side panel contains plus-shaped grooves into which the ends of the plates can be inserted either horizontally or vertically.

8. The apparatus of claim 1 wherein the curved slot on the end of each central plate fits the threads of the tapered screw.

9. The apparatus of claim 1 wherein the insert is A-shaped.

10. The apparatus of claim 1 wherein:

the insert is four inches in overall length, one inch in height, and three inches in overall width; and

the central plates are each two and a half inches long.

11. An apparatus for widening the toe shoe area of shoes, comprising

an A-shaped insert four inches in overall length, one inch in height, and three inches in overall width, with two independent halves, each half comprising

a swiveling ball;

a durable wire curved to fit the shape of shoe and attached to the swiveling ball;

a side panel curved to fit the shape of a shoe and attached on one end to the wire;

a central plate two and a half inches long, attached horizontally on one end to the side panel, and with a curved slot on the other end, the curved slot fitting the threads of a tapered screw; and

a tapered screw whose threads fit the curved slots in the end of the central panels.

12. The apparatus of claim 11 wherein:

a guiding sleeve is attached to the side panel and central plate of one half of the insert.

13. An apparatus for widening the toe shoe area of shoes, comprising

an A-shaped insert four inches in overall length, one inch in height, and three inches in overall width, with two independent halves, each half comprising

a swiveling ball;

a durable wire curved to fit the shape of shoe and attached to the swiveling ball;

a side panel curved to fit the shape of a shoe, attached on one end to the wire, and containing plus-shaped grooves;

a central plate two and a half inches long that on one end can be attached horizontally or vertically into the plus-shaped grooves to a side panel and with

a curved slot on the other end, the curved slot fitting the threads of a tapered screw; and

a tapered screw whose threads fit the curved slots in the end of the central panels.

14. The apparatus of claim 13 wherein:

a guiding sleeve is attached to the side panel and central plate of one half of the insert.

* * * * *