

Jan. 12, 1965

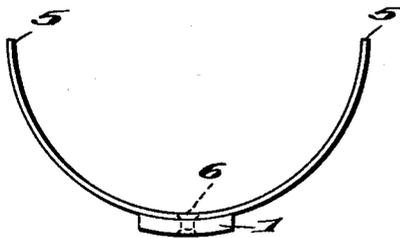
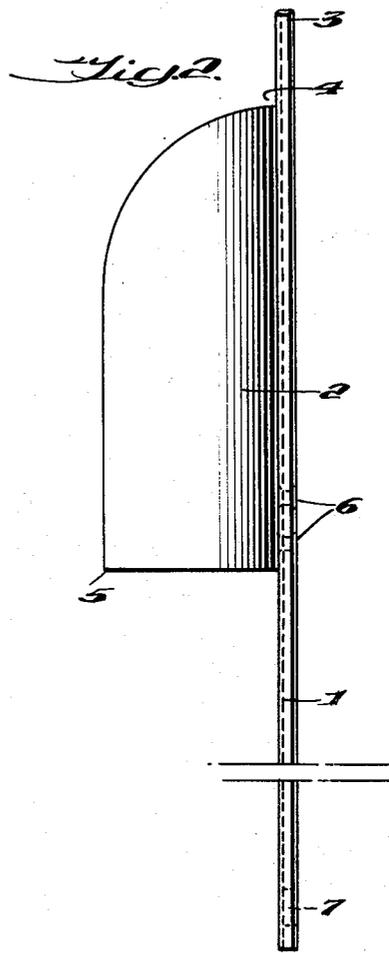
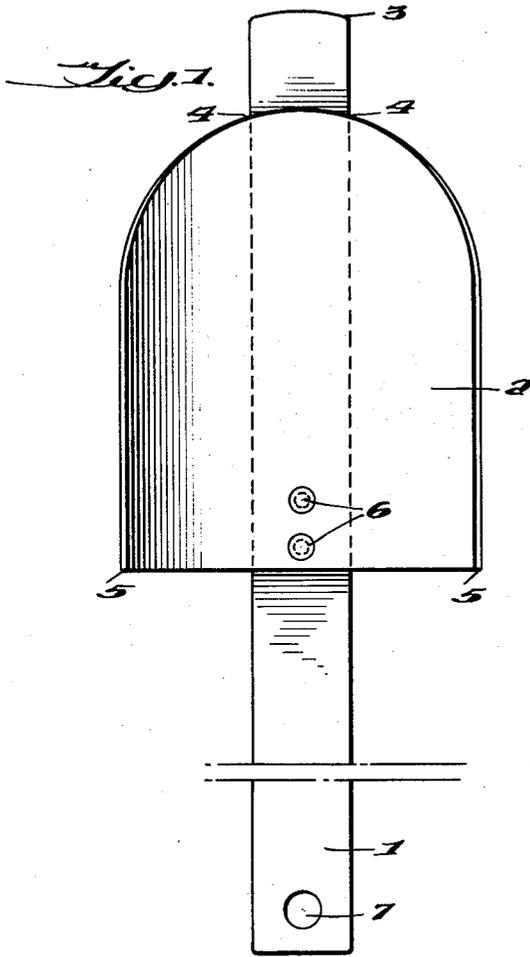
O. F. STEARNS

3,165,246

SHOE HORNS

Filed May 31, 1962

2 Sheets-Sheet 1



*Orlo F. Stearns* INVENTOR

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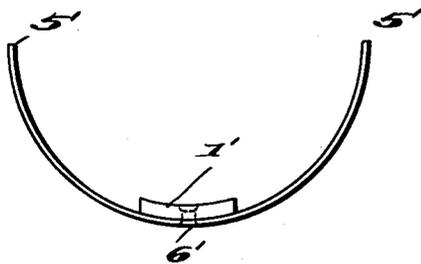
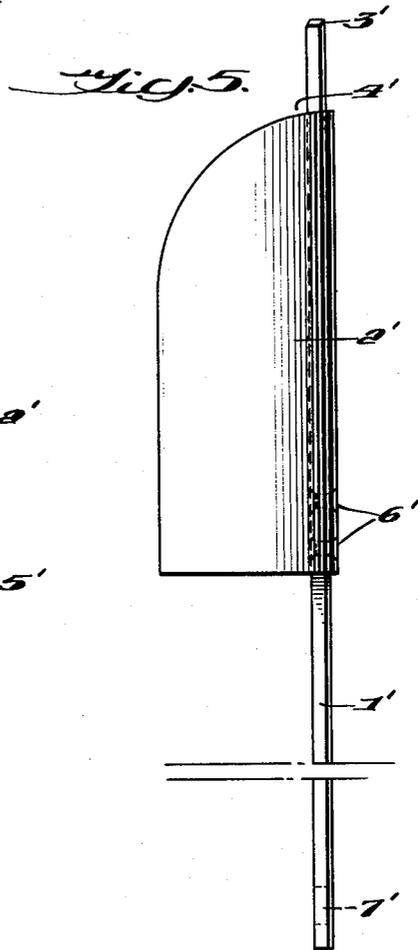
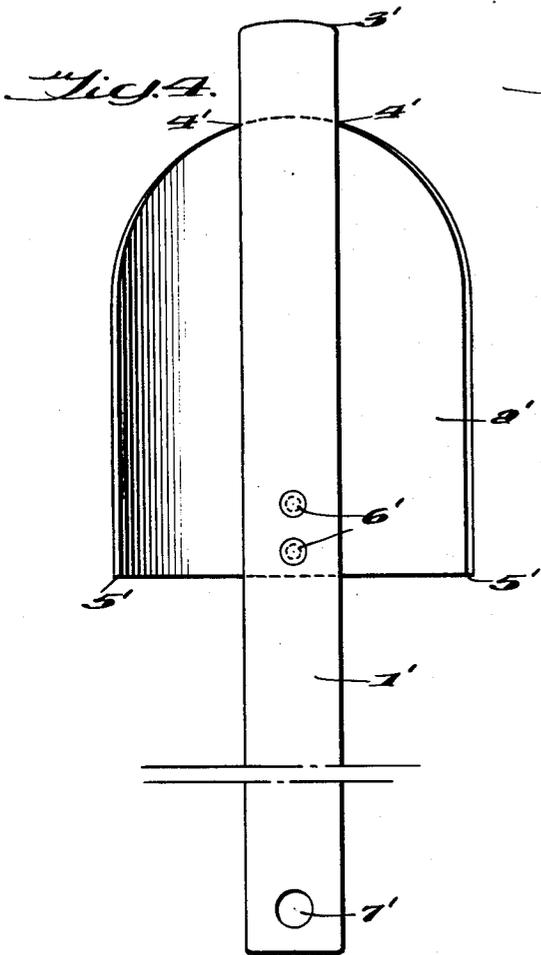
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2 Sheets-Sheet 2



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1

3,165,246

SHOE HORNS

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9 Claims. (Cl. 223—118)

This invention relates to putting on shoes and especially to men's low laced shoes.

This invention relates to putting on and removing shoes and especially to men's low laced shoes.

The object of this invention is a shoe horn with which one may put on to the feet laced shoes from a standing position. The shoe properly laced as tightly as desired may be put upon the foot although so tight that a boot-jack is required to remove it readily. A laced shoe may be removed by pressing on the heel with the toe of the other foot but it is advisable to use a jack to keep the shape of the shoe and not hurt the toe or damage the leather of the shoe.

This horn is adapted to be used in dressing with men's low shoes having 4 to 6 eyelets on each side while the shoe laces are tied without disturbing the tongues or touching the shoes with one's hands.

The form of the horn is shown in the drawing.

FIG. 1 is a front view, FIG. 2 is a side view from the point 5 to the middle of the horn. FIG. 3 is an end elevation from a vertical position above as the horn would be inserted in a shoe.

FIGS. 4, 5 and 6 are a modification of FIGS. 1, 2 and 3 which is the preferred form.

The primed numbered parts in FIGS. 4, 5 and 6 correspond to like parts in FIGS. 1, 2 and 3.

The guide 2 is preferably made of smooth or polished moderately thin metal. It must be smooth in all parts to enable it to slide out of the shoe and to ease the foot in and not at any time tear a sock or abrade the shoe.

Part 1 is a firm inflexible reinforcing midrib for a thin easily flexible guide 2 which comprises a generally concave or arcuate shape for inserting the foot into a shoe. Part 1 is extended long enough for anyone to manipulate the guide or horn from a standing position. Numeral 7 indicates a hole for hanging when not in use. Obviously other such means or other attachments may be added. Obviously part 1 may be of different size and shape above the top of the shoe. The essential features are below it. This horn may also be used for shoes which have elastic sides. The length of the guide 2 is such that, when inserted into the shoes as far as the reinforcement 1 permits it to go, the edge 5, 5 is above the shoe top.

Part 1 extends a short distance of about one-eighth to one-half inch below or beyond guide 2. Part 2 is easily flexible by one's fingers so as to be shaped to the inside of the shoe when in use. The vertical curved edges of the guide 2 may be in the form of a parabola when in sheet form before bending to the shape of the shoe but the straight sides should begin at the top edge or slightly below the top of the shoe. FIGS. 3 and 6 show the top edge which is generally approximately a half circumference of a circle but normally conforms to the contour of the stiffening or stiffener (technically known as counter) in the shoe. The horizontal distance from part 1 to edge 5, 5 of the guide should be the height of a shoe stiffener in a size 9 or 10 shoe, but may also be half the distance from the top of the stiffener at part 1 to the top of the shoe laces. This distance for a six hole laced shoe is practically the same as the middle of the ankle joint of the normal wearer and may be considered to mean the same. By selecting these measurements it may be used in any low-laced shoe for men. A smaller one but based on the same standard would be required for women's shoes. Part 1 should not be more than one

2

and one half inches in horizontal cross section but may be less so long as it reinforces the guide 2. One half inch is the practical minimum cross-section desired.

As shown, part 1 is on the back of guide 2 but may be on the inside as shown in FIG. 4. It is preferable to have part 1 on the back of guide 2 since this provides a continuous smooth uniform surface for guide 2. It is obvious that the part 1 may be round or other shapes.

To use the thin guide 2 without the reinforcement or part 1 results in the end being cracked, overlapping and tearing socks or stockings.

The edges of part 1, tip 3 and the corners and edges of guide 2 should be rounded and smooth. The edges 4 and 4' should remain in contact with part 1.

Flat and smooth headed rivets which may be at any practical distance apart, secure guide 2 to the part 1.

The parabola is a plane curve having the formula  $y^2=2px$ , where  $p$  is the distance from the directrix to the focus. It is obvious that the inside vertical line measurement at the middle of the heel of a shoe at the usual rear vertical seam is an  $x$  value and the distance horizontally along the top of the upper from the same mid point to where the guide extends is a  $y$  value. Then the value of  $p$  can easily be determined and the form drawn upon the sheet material by a known method.

The parabola is a conic section and it follows that other conic sections are useful. As a corollary, if one chose an arc of a circle, it would obviously be useful and the horizontal distance from one forward front of the guide to the other forward front is a chord and the vertical distance at the heel is the perpendicular to the circumference.

The ellipse and hyperbola are blunter and more complex to compute. They are not to be considered essential for this invention.

A parabola was chosen for the shape of guide 2 because this shape makes the guide easily insertable into a shoe. The vertical sides of the guide above the top of the shoe are not required, but permit easier access of the foot into the guide.

The material as stated above is preferably metal. Plastic has been tried but is not practical for it is not actually as smooth as metal may be made to be and it must be made thicker to be useful for a long period of time. Plastic also does not have the property of remaining in adjustable shape even if bent for a particular size. In other words it is not adapted to be automatically adjusted in use. Although it might be changed by heat treatment to fit a shoe it may not remain so but revert to its original contour.

A plastic suitable for the guide 2 is non-rigid polyvinyl chloride acetate and for the midrib 1 the same kind of material in rigid condition may be used. Likewise non-rigid polyvinyl chloride is suggested for part 2. Tip 3 extends below the edge of the guide 2 and maintains the lower edge of guide 2 away from the bottom surface of the shoe so that when a wearer's foot is inserted into the shoe the flexible guide will conform to the inside surface of the heel of the shoe and the wearer's foot. Then as the wearer forces his foot into the shoe and flexes the guide 2, the midrib 1 will prevent the guide 2 from cracking or overlapping and thus allow it to assume the curved form similar to the curved form of the inner surface of the heel of the shoe. The foot can then be readily guided into the shoe since the heel of the wearer is properly engaged. Other plastics as polystyrene or phenol-formaldehyde may be used for part 1. Other plastics of low flexural strength may be used for part 2, such as polyethylene or viscose.

Although rivets have been used and are shown, the parts may be soldered or brazed together in which case no rivets would appear.

Part 2 may best be made of aluminum sheet or other metal of about one-fiftieth of an inch thick or it may be tinned metal up to one thirty-second of an inch or thereabout, as long as it be untempered and readily adjustable to the contour of the shoes in which it is to be used. The thickness of part 1 in the shoe should not be over five thirty-seconds of an inch in order not to take up too much room for proper adjustment of lacing. It may be for instance, three sixty-fourths of an inch as long as it is sufficiently rigid. A section of sheet copper of such thickness has been found to be useful.

Part 1 may be made of rigid copper sheet or nickel plated metal cut to shape and soldered to the untempered tinned sheet metal with its extension above the shoe top soldered to an extension of adaptable zinc coated metal or otherwise attached. In short the essential features of this horn are below the shoe top.

In order to prepare the shoes for use with this horn, it is necessary to sew the tongues on one side to the shoe upper. This in no way restricts their use. It may be necessary to punch two holes in the tongue of the shoe in line with the direction of one end of a shoe string to the top hole that is preferably on the side not sewn. A small piece of leather might be sewn near the top of the tongue to form a tunnel for the said passage of said shoe string. It is preferable that the tongue should extend above the top of shoe but this is not essential. When shoes are laced to the right tension for a desired thickness of sock or arch support they may be taken off and put on continuously without unlacing. The lacing may be so tight as to necessitate riding down on the horn.

It is surprising that this type of horn does not damage the leather or break down the stiffening. This horn is not only useful for handicapped people but also saves time, energy and wear of shoe strings. Uses with other shoes may appeal to people in need.

The guide part 2 is shaped like a scoop and may be termed scoop-shaped. It is in the form of the curved portion of a kitchen or grocery scoop, having a flat end part where the handle is attached.

Having described my new horn I now define it by the appended claims.

1. A shoe horn having a thin, smooth, flexible guide of sheet material of arcuate shape and having upper and lower edges to be placed inside at the heel of low laced shoes, a rigid midrib narrower than said guide attached to said guide being and in contact with said guide along its entire length for reinforcing the guide, said midrib extending beyond the lower edge of the guide.

2. A shoe horn as in claim 1, wherein the guide has the shape of a scoop.

3. A shoe horn as defined in claim 1, wherein the guide has an edge on each side in the form of a parabola in plane form before shaping.

4. A shoe horn as defined in claim 1, wherein the guide extends during use forward to about the middle of the ankle joint of the wearer and the midrib extends about one-half inch beyond the guide.

5. A shoe horn as defined in claim 1, wherein the parts are of polished metal.

6. A shoe horn as defined in claim 1, wherein the guide is aluminum and the midrib is nickel-plated metal.

7. A shoe horn as defined in claim 1, wherein the guide is made of non-rigid polyvinyl chloride acetate and the midrib is made of rigid plastic of the same name.

8. A shoe horn as defined in claim 1 wherein the midrib is made of polystyrene and the guide is made of a plastic having low flexural strength.

9. A shoe horn as in claim 1 in which the midrib is curved concavely forward.

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JORDAN, FRANKLIN, *Primary Examiner.*  
THOMAS J. HICKEY, *Examiner.*

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**UNITED STATES PATENT OFFICE**  
**CERTIFICATE OF CORRECTION**

Patent No. 3,165,246

January 12, 1965

Orlo F. Stearns

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, lines 9 and 10, strike out "This invention relates to putting on and removing shoes and especially to men's low laced shoes."; column 4, line 5, for "being and" read -- and being --.

Signed and sealed this 15th day of June 1965.

(SEAL)

Attest:

ERNEST W. SWIDER  
Attesting Officer

EDWARD J. BRENNER  
Commissioner of Patents