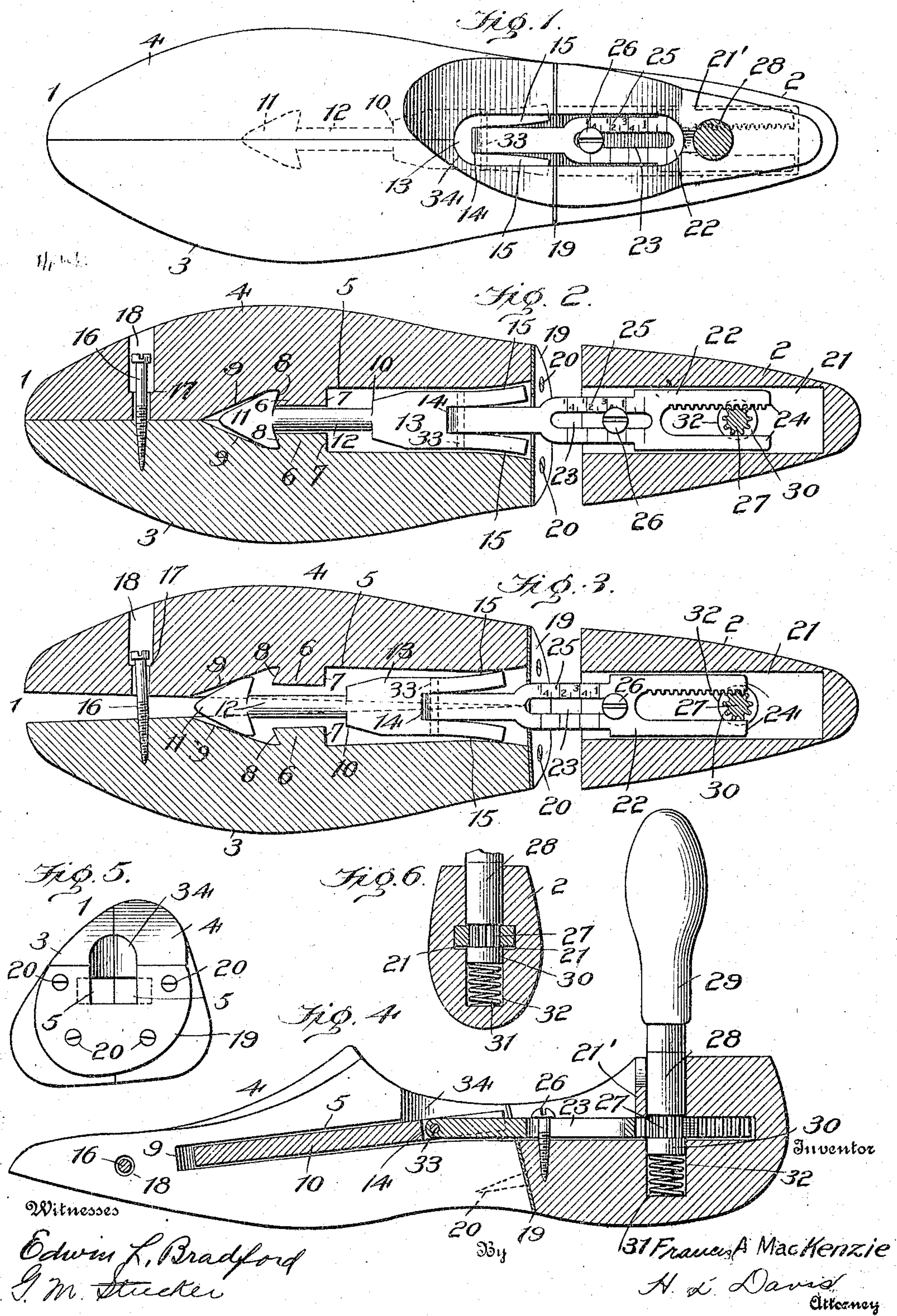


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PATENTED MAR. 26, 1907.

F. A. MacKENZIE.
BOOT TREE AND STRETCHER.
APPLICATION FILED NOV. 8, 1906.



UNITED STATES PATENT OFFICE.

FRANCIS A. MACKENZIE, OF LOUISVILLE, KENTUCKY.

BOOT TREE AND STRETCHER

No. 848,038.

Specification of Letters Patent.

Patented March 26, 1907.

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To all whom it may concern:

Be it known that I, FRANCIS A. MACKENZIE, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Boot Trees and Stretchers, of which the following is a specification.

This invention relates to boot trees and stretchers, and aims to provide in a manner hereinafter set forth an adjustable combined boot tree and stretcher adapted for use for various shapes and sizes of boots or shoes.

The invention further aims to provide a boot tree or stretcher with means hereinafter set forth which will enable the stretching of a boot or shoe at any part of the vamp thereof, both as to length and width.

The invention further aims to provide in a manner hereinafter referred to an adjustable boot tree and stretcher adapted to fit the boot or shoe like the original last and, further, when stretching to gradually apply the pressure, so as to prevent straining the stitches or leather of the boot or shoe.

The invention further aims to provide in a manner hereinafter set forth an adjustable boot tree and stretcher which by its use will enable any undue pressure of the shoe upon the wearer being removed, so that the shoe will fit in a satisfactory manner.

The invention further aims to provide a boot tree and stretcher which shall be simple in its construction, strong, durable, efficient in its use, and comparatively inexpensive to manufacture and having great capacity of adjustment.

With the foregoing and other objects in view the invention consists of the novel combination and arrangement of parts hereinafter described, and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention; but it is to be understood that changes, variations, and modifications can be resorted to which come fully within the scope of the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, wherein like characters of references denote corresponding parts throughout the several views, and in which—

Figure 1 is a plan view; Fig. 2, a longitudinal horizontal sectional view showing one ad-

justment of the parts; Fig. 3, a similar view showing a different adjustment of parts; Fig. 4, a longitudinal vertical sectional view; Fig. 5, a view looking at the rear end of the fore-part section; Fig. 6, a vertical sectional view through the heel-section.

Preliminarily to a more detailed description it may be stated that in the embodiment of my improvements herein shown I construct the combined tree and stretcher of two hinged sections, one of which is formed of two laterally-adjustable members, each of the said sections adapted to the other for the purpose of insertion within a boot or shoe, and connecting the said sections are adjusting devices of special construction and organization, whereby the fore-part section formed of two members can be adjusted to the width of the boot or shoe, so as to fit the same like the original last or be adjusted to greater width to stretch the vamp at any point desired or to fit shoes of different width, and so that one section can be adjusted or extended relatively to the other to enable the combined tree and stretcher to be used for boots or shoes of various lengths. The said adjusting devices are so constructed and arranged as to permit of the members of one of the fore-part sections when adjusted to be firmly held in any position of adjustment. The said construction also comprises effective means whereby the combined tree and stretcher may be withdrawn in its entirety from the boot or shoe whenever desired after performing its function as a tree or as a stretcher.

Referring to the drawings by reference characters, 1 denotes the forward section, and 2 the rear section. The former is constructed of two movable members 3 4, which when in normal position are adapted to abut against each other, so as to constitute what may be termed a "form" or "last." Each of the movable members has the inner face substantially centrally thereof provided with a longitudinally-extending groove 5, which extends from the rear end of and terminates at a point removed from the forward end of the member. The groove 5 near the forward end is formed with an offset 6, forming thereby a pair of shoulders 7 and 8, the latter being inwardly beveled. Forwardly of the shoulder 8 the inner wall of the groove 5 is beveled, as at 9. The wall of the groove 5 of

one of the members opposes the wall of the groove 5 of the other member, and seated in the grooves is a longitudinally-shiftable arm 10, the function of which is to spread the members 3 4 to stretch the boot or shoe when used as a stretcher or so that the section 1 may fit shoes of greater width. The arm 10 has its forward end in the form of a spear or arrow head, as at 11, and the said end 11 is connected by an intermediate cylindrical shank 12 to an enlarged rear portion 13, the latter being bifurcated, as at 14, and beveled, as at 15.

The forward ends of the members 3 4 are connected through the medium of a stop-screw 16, the latter being fixed at one end to the member 3 and loosely engaging in the member 4. The screw 16 is of less length than the combined width of the members 3 4, so that the forward end of the members can be spread when the arm 10 is shifted forwardly, and the head of the screw 10 limits the spreading movement of the members. A shoulder 17 is provided in the wall of the opening 18, in which a portion of the screw 16 plays. The shoulder acts as an abutment for the head of the screw 16 when the members are spread. The rear ends of the members 3 4 are connected together by a spring-plate 19, retained in position by the holdfast devices 20. There is sufficient resiliency in the plate 19 to allow of the spreading of the members at an angle with respect to each other when the arm 10 is shifted forwardly. The rear or what may be termed the "heel-section" 2 is cut away to form a chamber 21, divided by a bridge-piece 21' into a forward and rear section. Within the chamber 21 is positioned a slidable actuating-bar 22, which is slotted, as at 23, and has a toothed bifurcated rear end 24. The bar 22 is provided with graduations 25, so that the movement thereof can be regulated, and the said bar 22 is retained upon the bottom of the chamber 21 by the bridge-piece 21' and further by a headed holdfast device 26, which also acts as a stop for limiting the movement of the bar 22 in either direction, as the holdfast device 26 extends through the slot 23, the end walls of the latter forming abutments for the holdfast device. The bar 22 is shifted in either direction through the medium of a pinion 27 engaging the toothed bifurcated end 24 of said bar 22. The pinion 27 extends through the rear end of the bar 22 and is preferably formed by toothing a cylindrical member 28, carried on the lower end of an operating-handle 29. The cylindrical member 28 is positioned in the rear section of the chamber 21, and the portion 30 thereof, which is of greater diameter than the pinion 27, is held against the lower face of the bifurcated end 24 of the bar 22 by a compression-spring 31, seated in a recess 32, which is formed in the bottom of the chamber 21. From the foregoing con-

struction it is evident that when the handle 29 is rotated in one direction it will cause the shifting of the bar 22 and the forward section 1, pivoted thereto, forwardly, and when rotated in the opposite direction the bar 22 and forward section 1 will be returned to their normal position.

The rear section 2 is hinged to the forward section 1 by means of pivotally connecting the forward end of the bar 22 to the bifurcated end 14 of the arm 10, as at 33. To permit of the swinging of the rear section with respect to the forward section, the latter is cut away, as at 34, and by such an arrangement it will be evident that either of the sections can be swung upon the pivot 33 upwardly, but that the downward movement of either of the sections will be limited, as the forward section will act as an abutment for the rod 22 or arm 10. The slidable actuating-bar 22 and pinion 27 not only provide means for adjusting the forward section 1 with respect to the section 2 for varying sizes of shoes or boots, but also provide means for shifting the arm 10 and cause the spreader or arrow-head 11 thereof to stretch the boot or shoe to cause the forward section 1 to fit boots or shoes of various widths.

It is thought that the operation of the combined boot tree and stretcher can be fully understood from the foregoing description, taken in connection with the accompanying drawing; but it will be stated that after the sections have been adjusted to the length desired and inserted in the boot or shoe if it be desired to stretch the latter or if it be desired to increase the width of the forward section to fit the handle is rotated, so as to cause the bar 22 to move forwardly, which in turn will shift the arm 10 in the same direction, the beveled side portions 15 will ride against the walls of the grooves, and the spear-shaped end 11 of the arm 10 against the bevels 9 and cause the members 3 4 to spread, thereby increasing the width of the forward section 1 and stretching or fitting the boot or shoe, as the case may be. The members 3 4 will remain in their adjusted position until the handle is rotated in the opposite direction, which will withdraw the bar 22, the latter carrying the arm 10 herewith.

Having thus fully described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A combined boot tree and stretcher embodying a forward and a rear section; said forward section comprising a pair of movable members connected together, each of said members having its inner face provided with a longitudinally-extending groove having a beveled portion and a shoulder, a longitudinally-shiftable spreader-arm seated in said grooves, and adapted to engage the beveled portions and shoulders, a longitudinally-

shiftable actuating-bar seated in said rear section, means for hinging the bar and arm together, and means engaging the bar for shifting it.

2. A combined boot tree and stretcher embodying a forward and a rear section, said forward section comprising a pair of movable members, a longitudinally-shiftable spreader-arm seated in said members, a longitudinally-shiftable toothed actuating-bar seated in said rear section, means for pivotally connecting the arm to the bar, means engaging with said bar for shifting it, and a stop for limiting the movement of the bar in either direction.

3. A combined boot-tree and stretcher embodying a forward and a rear section, said forward section comprising a pair of movable members, longitudinally-shiftable spreader-arm seated in said members, a longitudinally-shiftable toothed actuating-bar seated in said rear section, means for pivotally connecting the arm to the bar, means engaging with said bar for shifting it and a stop for limiting the movement of the bar in either direction, means for connecting the said members together at the rear thereof, and a combined connecting means and stop for the forward end of said members.

4. A combined boot tree and stretcher embodying a forward and a rear section, said forward section comprising a pair of angularly-adjustable members, means for connecting the said members together at the rear thereof a combined connecting means and stop for the forward end of said members, a longitudinally-shiftable spreader-arm seated in said members, a longitudinal shiftable actuating-bar seated in said rear section, means for pivotally connecting the arm to the bar, and means engaging said bar for shifting it.

5. A combined boot tree and stretcher embodying a forward and a rear section, a spreader-arm for the forward section, said arm having a bifurcated rear end, an actuating-bar seated in the rear section and having its forward end extending in and pivotally connected to the bifurcated end of said arm, said bar having a toothed and bifurcated rear end, and means engaging with said rear end of said bar for shifting it in both directions.

6. A combined boot tree and stretcher comprising a forward and a rear section, a spreader-arm for said forward section, said arm having a spear-shape forward end and a bifurcated rear end, an actuating-bar seated in said rear section and having its forward end extending in and pivotally connected to the bifurcated end of said arm, said bar hav-

ing a toothed and bifurcated rear end and means engaging with the rear end of said bar for shifting it in both directions.

7. A combined boot tree and stretcher embodying a forward and a rear section, a spreader-arm for the forward section, said arm having a bifurcated rear end, an actuating-bar seated in the rear section and having its forward end extending in and pivotally connected to the bifurcated end of said arm, said bar having a toothed and bifurcated rear end, and means engaging with said rear end of said bar for shifting it in both directions, and means for limiting the spreading movement of said forward section.

8. A combined boot and tree stretcher comprising a forward and a rear section, a spreader-arm for said forward section, said arm having a spear-shape forward end and a bifurcated rear end, an actuating-bar seated in said rear section and having its forward end extending in and pivotally connected to the bifurcated end of said arm, said bar having a toothed and bifurcated rear end and means engaging with the rear end of said bar for shifting it in both directions, and means for limiting the spreading movement of said forward section.

9. A combined boot tree and stretcher embodying a forward and a rear section, a spreader-arm for the forward section, said arm having a bifurcated rear end, an actuating-bar seated in the rear section and having its forward end extending in and pivotally connected to the bifurcated end of said arm, said bar having a toothed and bifurcated rear end, and means engaging with said rear end of said bar for shifting it in both directions, and a combined stop and retaining means for said bar.

10. A combined boot tree and stretcher comprising a forward and a rear section, a spreader-arm for said forward section, said arm having a spear-shape forward end and a bifurcated rear end an actuating-bar seated in said rear section and having its forward end extending in and pivotally connected to the bifurcated end of said arm, said bar having a toothed and bifurcated rear end and means engaging with the rear end of said bar for shifting it in both directions, and a combined stop and retaining means for said bar.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS A. MacKENZIE.

Witnesses:

HOLLAND M. DILLO
WM. H. STEELE.