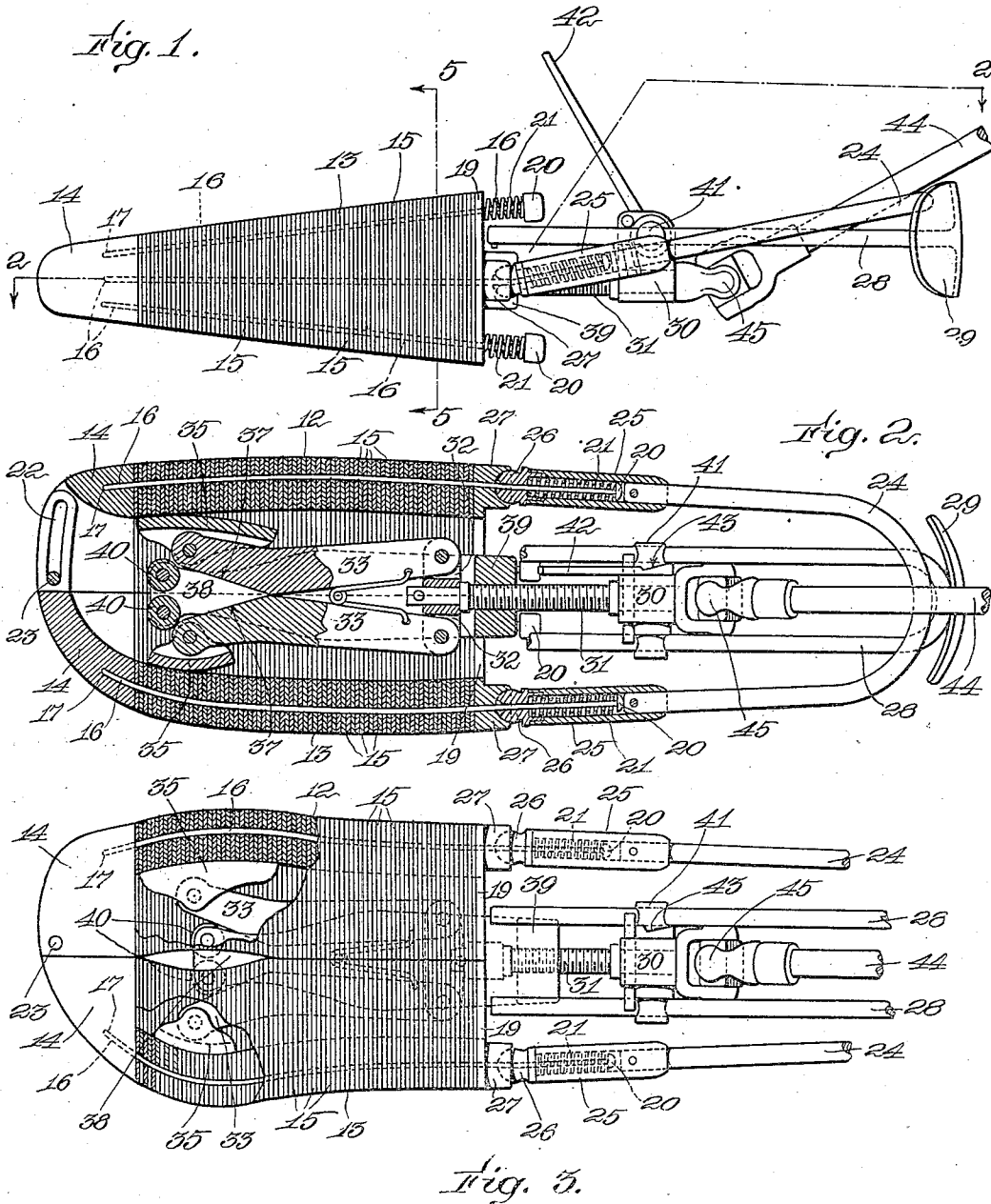


L. D. JANNELL.
SHOE STRETCHER.
APPLICATION FILED MAR. 29, 1909.

935,988.

Patented Oct. 5, 1909.

2 SHEETS—SHEET 1.



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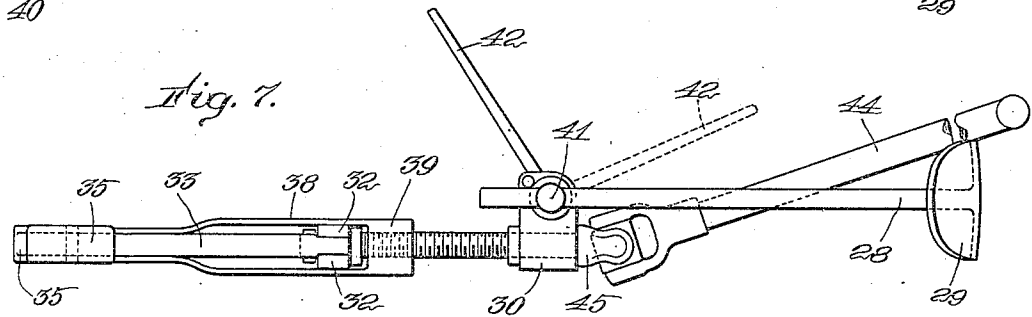
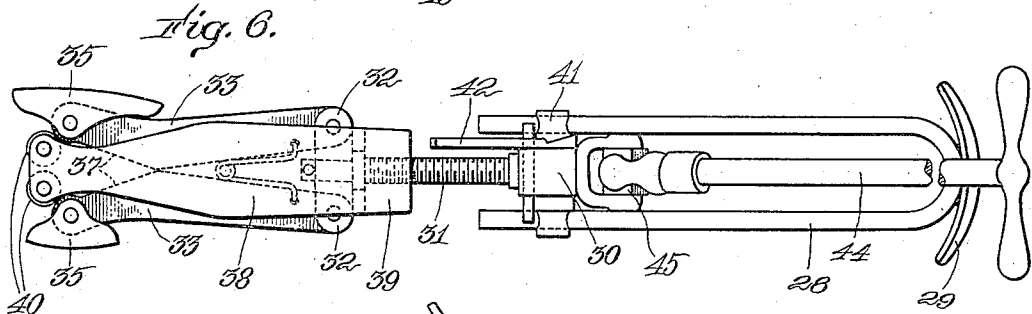
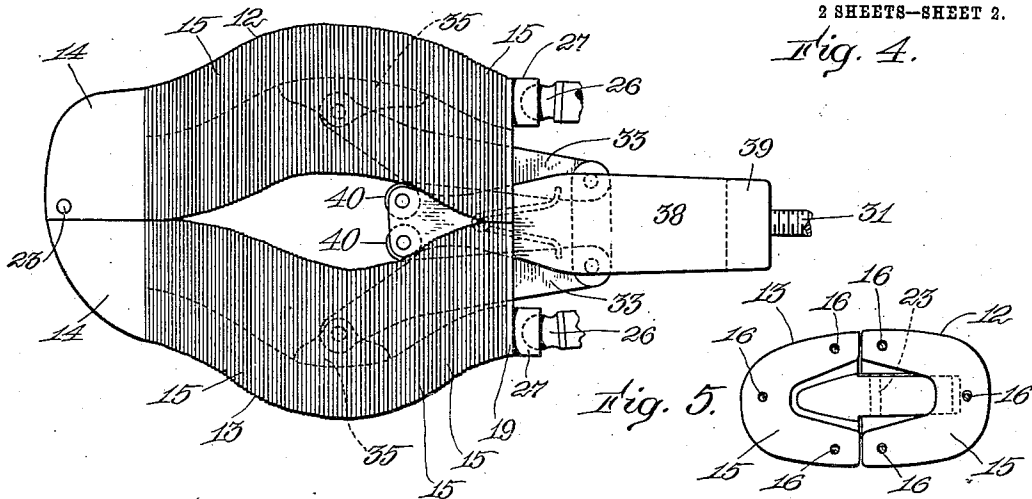
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

LESLIE D. JANNELL, OF RUMFORD, MAINE, ASSIGNOR TO S. J. GONYA, OF RUMFORD, MAINE.

SHOE-STRETCHER.

935,988.

Specification of Letters Patent.

Patented Oct. 5, 1909.

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To all whom it may concern:

Be it known that I, LESLIE D. JANNELL, of Rumford, in the county of Oxford and State of Maine, have invented certain new and useful Improvements in Shoe-Stretchers, of which the following is a specification.

This invention has for its object to provide, principally for the use of retail boot and shoe dealers, an upper stretcher adapted to be inserted in the fore-part of the upper of a boot or shoe, and exert local outward pressure on the interior of the upper at opposite sides of the same, the locality of the pressure being adjustable so that different portions of the fore-part of the upper may be stretched according to the requirements of the owner of the shoe.

The invention is embodied in a shoe stretcher comprising a laterally expansible fore-part last, longitudinally divided into hollow flexible sections, and means for exerting local outward pressure on the inner sides of said sections, the flexibility of the sections being such that their outer surfaces are adapted to bulge outwardly and form protuberances at such localities as may be desired, so that the upper may be stretched locally, the stretching being confined to the particular part of the shoe where greater ease is required, without being unnecessarily extended.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a side elevation of a stretcher embodying my invention. Fig. 2 represents a longitudinal section on line 2—2 of Fig. 1. Figs. 3 and 4 represent plan views of the stretcher showing different adjustments of the same. Fig. 5 represents a section on line 5—5 of Fig. 1. Fig. 6 represents a top plan view of the pressing mechanism removed from the fore-part last. Fig. 7 represents an edge view of the pressing mechanism. Fig. 8 represents a perspective view of one of the layers of which the body portions of the sections of the fore-part last are composed. Fig. 9 represents a perspective view of the locking lever, hereinafter referred to.

The same reference characters indicate the same parts in all the figures.

My improved stretcher includes a fore-part last adapted to occupy and conform approximately to the interior of the fore-part of a boot or shoe upper, said last being

longitudinally divided into two longitudinal sections 12 and 13, which are movable toward and from each other to increase and diminish the width of the fore-part last. Each section is of flexible construction so that its outer surface may be flexed and caused to bulge outwardly at any locality between its ends, means being employed, as hereinafter described, for bulging the outer surfaces of the said sections outwardly to form protuberances, either at end portions of the sections, or at the central portions thereof.

The preferred construction of the sections whereby they are rendered flexible and are adapted to be bulged outwardly, is as follows:—Each section is composed of a rigid toe portion 14 and a body portion of laminated construction, and composed of thin layers 15, preferably of metal or other suitably strong, rigid material. The layers 15 are formed as indicated in Figs. 5 and 8, so that they collectively form body portions which are hollow, the cavities formed by the recessed inner surfaces of the layers 15 constituting a chamber which receives the pressing mechanism, hereinafter described. The layers 15 are adapted to slip edgewise upon each other, and are flexibly connected by flexible longitudinal rods or ligatures 16 which are preferably pieces of spring wire rigidly attached at 17 to the toe sections 14, and pass through orifices 18 (Fig. 8) formed for their reception in the layers 15, and through binding layers 19 forming the rear ends of the sections, the rear ends of the rods 16 being provided with heads 20 between which and the binding layer 19 are interposed springs 21, which exert pressure on the layers, and yieldingly confine them in contact with each other. The toe portions 14, which are not of flexible construction, are loosely connected by means of a slotted ear 22 attached to one of the portions 14, and projecting into the cavity in the other portion, the latter having a pin 23 which passes through the slot in the ear 22, and is free to slide therein. The said ear and pin permit the necessary movements of the sections 12 and 13 in widening and narrowing the last, and prevent endwise movement of one section relatively to the other. The rear ends of the sections 12 and 13 are flexibly connected by means of a U-shaped connecting member 24 which is adapted to occupy the rear portion of the upper when the de-

vice is in use, and is provided with tubular end portions 25 having ball-shaped ends 26 which are free to turn in sockets 27 formed on the binding layer 19. Two of the flexible rods 16 are extended through the ball and socket connections 26 and 27, and into the tubular end portions 25, the heads 20 of said extended portions being yieldingly supported by springs 21 interposed between said heads and the ball-shaped ends 26. The U-shaped connecting member 24 has sufficient resilience to normally hold the rear ends of the sections 12 and 13 yieldingly in contact with each other, the arms of said member being adapted to yield outwardly to permit the separation of the rear ends of the sections. The member 24 also serves as a handle by which the fore-part last may be inserted in and removed from a boot or shoe upper.

Mechanism is provided for exerting outward pressure on the inner sides of the flexible body portions of the sections 12 and 13 to bulge the same outward locally and form protuberances at any desired location between the ends of the flexible body portions, as indicated in Figs. 3 and 4. The preferred pressure-exerting means here shown for purposes of illustration, comprise a U-shaped brace 28 having a heel plate 29 adapted to bear against the interior of the heel portion of the upper, a bearing 30 adjustably secured to the forward portions of the arms of the U-shaped brace 28, a spindle 31 journaled to rotate in the bearing 30, said spindle having a screw-threaded portion, a head 32 having a bearing in which the forward end portion of the spindle 31 is journaled, levers 33 pivoted at 34 to ears on the head 32, pressers 35 pivoted at 36 to the swinging ends of the levers 33, and adapted to bear on the interior of the flexible portions of the sections 12 and 13, said levers having oblique inner edge faces 37, and a slide 38 having an end portion 39 formed as a nut engaging the threaded portion of the spindle 31, said slide having antifriction rolls 40 bearing on the oblique faces 37 of the levers 33.

The spindle 31 is journaled in the bearing 30, and in the head 32, so that its rotation is not accompanied by endwise movement relatively to said bearing and head. The screw-threaded portion on the spindle 31 and the portion 39 of the slide engaged therewith, are located between the bearing 30 and head 32. It will be seen, therefore, that when the spindle is rotated, the slide 38 with its friction rollers will be moved endwise relatively to the levers 33. When the movement of the slide is in the direction indicated by the arrow in Fig. 6, the friction rolls 40 acting on the oblique faces 37 of the levers, will force the levers and pressers 35 outwardly, causing the pressers to bear simultaneously on the inner sides of the sec-

tions 12 and 13, and bulge outwardly the portions of said sections against which they bear, as indicated in Figs. 3 and 4. The locations of the outwardly bulging portions of the sections may be varied by varying the distance between the pressers and the heel end of the upper, this being accomplished by adjusting the brace 28 to move its bearing plate 29 either toward or from the pressers. As here shown, the arms of the brace 28 are movable in sockets formed for their reception in a stud 41 which passes through the bearing 30. On one of said studs is mounted a locking and releasing lever 42, the hub of which has cam faces 43 bearing against the inner side of one of the arms of the brace 28. When the lever 42 is in the position shown by full lines in Figs. 6 and 7, the cam faces 43 bind upon the adjacent arm of the brace 28 and hold the same in firm frictional engagement with the wall of the socket in the stud 41 through which it passes, thus locking the brace to the stud and bearing. When the lever 42 is moved to the position shown by dotted lines in Fig. 7, the cam faces 43 retreat from the arm of the brace 28, and release the latter, so that it is free to slide in the stud 41.

44 represents an operating rod flexibly connected with the spindle 31 by a gimbal joint 45, the rod 44 being adapted to stand at an angle with the spindle 31, as indicated in Fig. 7, so that the handle end of the rod 44 projects above the upper of the shoe when the device is in operation. In stretching a shoe with the described device, the pressers 35 and their supports are introduced into the chamber formed by the inner surfaces of the sections 12 and 13, the brace 28 being adjusted to locate the pressers at the desired distance from the heel end of the upper, and then locked to the bearing 30. When the sections 12 and 13 are closed or in contact with each other, the rolls 40 are at the outer end portions of the oblique faces 37, as indicated in Fig. 2. By now rotating the spindle 31 in such manner as to move the slide 38 in the direction indicated by the arrow in Fig. 2, the rolls 40 are caused to act on the inclines 37 in such manner as to force the levers 33 and the pressers 35 outwardly, thus causing the sides of the flexible portions of the sections 12 and 13 to bulge outwardly, as indicated in Figs. 3 and 4, Fig. 3 showing the location of the bulging portions when the pressers are adjusted to bear on the flexible portions of the sections 12 and 13 adjacent to the toe end, while Fig. 4 shows the position of the bulging portions when the pressers have been adjusted toward the heel end. Various other forms may be imparted to the flexible portions of the sections 12 and 13 by other adjustments of the pressers.

The sections 12 and 13 are not intended

to conform accurately to all parts of the interior of the upper, and the top and bottom surfaces of said sections have only a rough approximation to the inner sole and top portion of the upper, the form of the sections being such that when they are closed together, they are adapted to be easily inserted in and removed from the upper, and when in place in the upper they may be laterally bulged at various points to exert local stretching pressure on the upper.

I claim:

1. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into flexible sections adapted to occupy the fore-part of the interior of a boot or shoe upper, and means for exerting local outward pressure on the inner sides of said sections to cause their outer surfaces to bulge outwardly against portions of the upper.

2. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into flexible sections adapted to occupy the forepart of the interior of a boot or shoe upper, pressers bearing against the inner sides of said sections, and means for moving said pressers laterally to cause the outer surfaces of the sections to bulge outwardly.

3. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into flexible sections adapted to occupy the fore-part of the interior of a boot or shoe upper, and means for exerting local outward pressure on the inner sides of said sections to cause their outer surfaces to bulge outwardly against portions of the upper, said pressing means being adjustable longitudinally of the flexible sections, to permit the bulging of different portions of said sections.

4. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into sections, each of which has a body portion composed of transverse layers which are free to move edgewise independently of each other, and flexible connections between said layers.

5. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into sections, each of which has a rigid toe portion and a body portion composed of transverse layers which are free to move edgewise independently of each other, and flexible connections between said layers.

6. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into sections, each of which has a rigid toe portion and a body portion composed of transverse layers which are free to move edgewise independently of each other, and flexible connections between said layers, the rigid toe portions of the sections having connecting members which permit independent lateral movements and prevent independent longitudinal movement of the sections.

7. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into sections, each of which has a body portion composed of transverse layers which are free to move edgewise independently of each other, and flexible connections between said layers, said connections extending through the rear ends of the sections and having springs which bear yieldingly on the rear end layer.

8. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into sections, each of which has a body portion composed of transverse layers which are free to move edgewise independently of each other, flexible connections between said layers, and a resilient U-shaped member connecting the rear ends of the sections and flexibly engaged therewith.

9. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into flexible sections adapted to occupy the fore-part of the interior of a boot or shoe upper, and means for exerting local outward pressure on the inner sides of said sections to cause their outer surfaces to bulge outwardly against portions of the upper, said pressing means including two pressers, a screw-threaded spindle, and means operated by the rotation of the spindle for forcing the pressers outwardly.

10. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into flexible sections adapted to occupy the fore-part of the interior of a boot or shoe upper, and means for exerting local outward pressure on the inner sides of said sections to cause their outer surfaces to bulge outwardly against portions of the upper, said pressing means including two pressers, a screw-threaded spindle, a bearing and a head in which the spindle is journaled, a slide engaged with the threaded portion of the spindle and movable endwise by the rotation thereof, mechanism operated by an endwise movement of the slide, for moving the pressers outwardly, a brace adjustably connected with the bearing and adapted to bear against the heel portion of an upper, and means for rotating the spindle.

11. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into flexible sections adapted to occupy the fore-part of the interior of a boot or shoe upper, and means for exerting local outward pressure on the inner sides of said sections to cause their outer surfaces to bulge outwardly against portions of the upper, said pressing means including two pressers, a screw-threaded spindle, a bearing and a head in which the spindle is journaled, a slide engaged with the threaded portion of the spindle and movable endwise by the rotation thereof, mechanism operated by an endwise movement of the slide, for moving

the pressers outwardly, a brace adjustably connected with the bearing and adapted to bear against the heel portion of an upper, and an operating rod having a flexible connection with the spindle.

- 5 12. A shoe stretcher comprising a laterally expansible fore-part last longitudinally divided into flexible sections adapted to occupy the fore-part of the interior of a boot
10 or shoe upper, and means for exerting local outward pressure on the inner sides of said sections, said means comprising a brace adapted to bear on the heel portion of the upper, a bearing adjustably connected with
15 said brace, a spindle journaled at one end in said bearing, and having a screw-threaded

portion, a head engaged with the opposite end of the spindle, levers pivoted to said head and having oblique inner faces, pressers mounted on the swinging ends of said levers, and a slide engaged with the threaded portion of the spindle and movable endwise by the rotation thereof, the slide having antifriction rolls bearing on the oblique faces of the levers.

In testimony whereof I have affixed my signature, in presence of two witnesses.

LESLIE D. JANNELL.

Witnesses:

LOUIS H. VEILLEUX,
ARTHUR J. LANDRY.