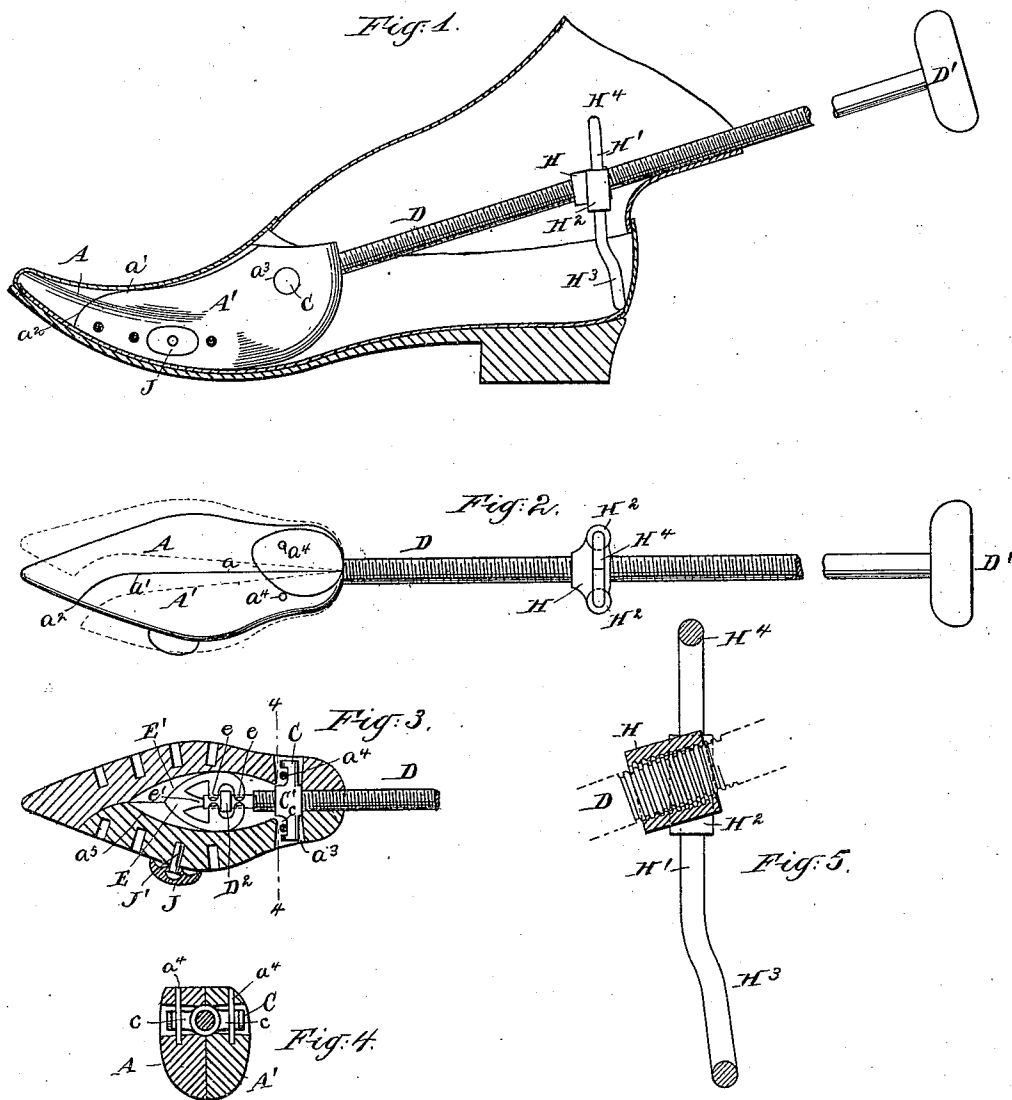


(No Model.)

E. J. LEIGHTON.
STRETCHER FOR BOOTS OR SHOES.

No. 549,271.

Patented Nov. 5, 1895.



Witnesses:
R. P. Schuyler
Chas. E. Patterson

Inventor:
Edward J. Leighton,
by his attorney,
Charles R. Searle.

UNITED STATES PATENT OFFICE.

EDWARD J. LEIGHTON, OF BOSTON, ASSIGNOR TO HIMSELF, AND GEORGE C. BELCHER, OF STOUGHTON, MASSACHUSETTS.

STRETCHER FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 549,271, dated November 5, 1895.

Application filed April 20, 1895. Serial No. 546,464. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. LEIGHTON, a citizen of the United States, residing in Boston, county of Suffolk, in the State of Massachusetts, have invented a certain new and useful Improvement in Stretchers for Boots or Shoes, of which the following is a specification.

The invention relates to that class of shoe-stretchers in which is used a split last divided longitudinally, the two sections thus formed being hinged at the rear and adapted to be spread apart by the advance of a wedge driven by a screw. As ordinarily constructed the sections are hinged together positively and the force exerted in spreading the last is concentrated at two opposite points at the toe of the shoe instead of being distributed over the whole interior of the forward portion.

The object of my invention is to provide a last in which the sections are hinged together in such manner that they may separate laterally on parallel lines to a limited extent and may roll a little relatively to each other, while being held against longitudinal displacement, and at the same time spread angularly, as usual, thus allowing the last to fill the shoe and bring the pressure to bear equally on all parts. A "holdfast" of simple construction is also provided to engage inside the counter at the heel and hold the last in position while distended in the shoe. It holds reliably and is easily and quickly adjusted.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation showing the stretcher in place in a shoe. Fig. 2 is a view from above. Fig. 3 is a horizontal section. Fig. 4 is a cross-section on the line 4 4 in Fig. 3, and Fig. 5 is a vertical section of a portion.

Similar letters of reference indicate the same parts in all the figures.

The last shown is formed to match to a shoe having a very narrow toe. It is divided

longitudinally on the line a , extending forward centrally from the rear nearly to the toe, thence curving at a' to the side, and ending at a^2 , leaving the extreme point of the last undivided, for the reason that the shoe need not be stretched at that narrow extended forward portion, and as the last separates more at the front than rear its engagement in that part of the shoe interferes with its proper action on the remaining portions. The point is on the right in a last for the left foot and on the left side in a right last. The two sections are marked $A A'$. The sections are hinged together by a shackle a little distance forward from the extreme rear edge of the last. The connection consists of a cylindrical bar C , having a central enlargement or boss C' , drilled and tapped to receive a screw-threaded rod D , to be presently described. The bar C on each side of the boss is cut away on the forward side to form a rectangular notch c . It is received in a transverse conical hole a^3 in each section and is engaged to the latter by a pin a^4 , driven nearly through each from above and passing within the corresponding notch c in that end of the bar. Thus connected each section $A A'$ is free to move laterally to the limited extent allowed by the notch c , and the sections may swing apart to an angle limited by the same means and by the contact of the interior rear edges of each, as is plainly indicated by the dotted lines in Fig. 2. Longitudinal movement of one section relatively to the other is prevented by the pin a^4 filling the entire depth of the notch and leaving no room for play in that direction.

The rod D is screw-threaded nearly its entire length and is provided at the outer or rear end with a suitable hand-wheel D' , by which it may be turned. On the inner end it carries a wedge or "heart" E , of malleable cast-iron, the function of which is to separate the sections when advanced by the screw by acting against the inclined surfaces a^5 in the grooves formed on the interior of the sections. The heart is a flat malleable-iron casting having the contour indicated by its

name. It lies in a horizontal plane, with its point forward, and is finished on its inclined sides E' to ride smoothly on the inclined surfaces a^5 in the last. Lugs e , formed as projecting spurs, receive between them a collar D^2 on the reduced forward portion D^3 of the rod and are bent down in place by suitable dies or other tools to engage the collar loosely and inclose the reduced portion of the rod. The latter is finished true on the end and delivers the thrust to a correspondingly-finished surface on a spur e' , projecting rearwardly from the front in the open interior space of the heart, thus relieving the collar D^2 and its inclosing lugs e from all strain during the severe forward motion, depending on them to effect the withdrawal of the heart when the screw-threaded rod D is turned in the reverse direction.

H is a yoke having an opening drilled or otherwise produced in the central portion, through which the rod D passes. It is tapped to match to the pitch of the screw-threads; but the diameter of the opening is larger than the rod so that the yoke may slide freely on the latter without being turned thereon. It has tubular guides H^2 , one on each side, the axes of which are at right angles to the rod. These guides receive the parallel arms H' of a loop H^3 of heavy wire, the bight of which extends downward to abut against the interior of the shoe at the heel. The upper ends of the arms are bent inward at H^4 to complete the loop and prevent its dropping through the guides and also to serve as a handle by which it may be drawn upward.

J is a convex cast-metal attachment or "bunion-piece," having a round shank J' , formed by setting an ordinary rivet in the mold and flowing the metal around the head. It may be set in either of a series of holes on the outside surface of each section and serves its usual function of increasing the strain and correspondingly enlarging the shoe at the point required.

In using the stretcher the yoke H is slid forward on the rod D sufficiently to allow the loop H^3 to enter the heel portion when the last is thrust into the shoe. The last is then pushed forward as far as required and the yoke slipped back until its loop is in contact with the counter in the interior at the heel. It is held by the engagement of its screw-threads with the threads on the rod and the cramping due to the strain. The hand-wheel D' is then turned in the direction to force the heart E forward between the inclined inner surfaces on the sections A, A' , turning in the yoke without releasing the latter. The sections yield and separate and by reason of the looseness of the shackle connection bear fairly and equally on the interior of the shoe, distributing the strain to all parts and insuring a uniform stretching.

The distended last may be left in the shoe indefinitely without relaxing the strain on the latter, as the tendency to slip rearward is reliably resisted by the holdfast.

Modifications may be made in the forms and proportions within wide limits.

Instead of the pointed last shown standard lasts split centrally from the rear to the toe may be employed.

The bar C may be set farther forward or rearward in the sections.

Other forms of the loose hinge connection may be used. I prefer the whole as shown.

I claim as my invention—

1. In a stretcher for boots and shoes, a last in sections, connected together by a loose hinge, as the bar C having notches c , engaged by a pin a^4 in each section, so that the said sections may separate laterally on parallel lines and also swing toward and from each other while held against longitudinal movement, in combination with means as the heart E and screw D adapted to force the sections apart, all substantially as herein specified.

2. In a stretcher for boots and shoes, a last divided longitudinally into sections A, A' , on a line extending centrally from the rear nearly to the point and thence to one side, so that the undivided point is carried on one of said sections, in combination with means as the heart E and screw D for separating the sections, all substantially as and for the purposes herein specified.

3. In a stretcher for boots and shoes, the heart E and lugs e thereon, the screw D and collar D^2 engaged between the lugs, in combination with each other and with the last sections A, A' , and screw-threaded boss C' engaged therewith, all substantially as herein specified.

4. In a stretcher for boots and shoes, the heart E and lugs e thereon, the screw D and collar D^2 thereon engaged between said lugs, in combination with each other and with the bearing surface E' in the heart, adapted to receive the end thrust of the screw and relieve the strain on said lugs and collar, all substantially as herein specified.

5. In a stretcher for boots and shoes, the last sections A, A' , the bar C having the boss C' and notches c , pins a^4 in the sections engaged in said notches, in combination with the screw D received in said boss and carrying a heart E adapted to separate the sections when the screw is turned, and with means as the yoke H and loop H^3 carried by the said screw and adjustable thereon, substantially as herein specified.

6. In a stretcher for boots and shoes, the last sections A, A' , hinged together and adapted to be separated by the turning of the screw rod D , in combination with the latter and with the yoke H and loop H^3 adapted to engage the interior of a shoe at the rear, the said yoke having an opening h larger

than the said rod and screw-threaded to
match to the pitch of the threads thereon,
so that the yoke will slide freely on the rod
and engage therewith when required by the
5 interlocking of the screw-threads on each,
all substantially as herein specified.

In testimony that I claim the invention

above set forth I affix my signature in pres-
ence of two witnesses.

EDW. J. LEIGHTON.

Witnesses:

J. A. BAILEY, Jr.,
WILFRED BOLSTER.

It is hereby certified that the name of the assignee in Letters Patent No. 549,271, granted November 5, 1895, upon the application of Edward J. Leighton, of Boston, Massachusetts, for an improvement in "Stretchers for Boots or Shoes," was erroneously written and printed "George C. Belcher," whereas said name should have been written and printed *George E. Belcher*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 19th day of November, A. D. 1895.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.