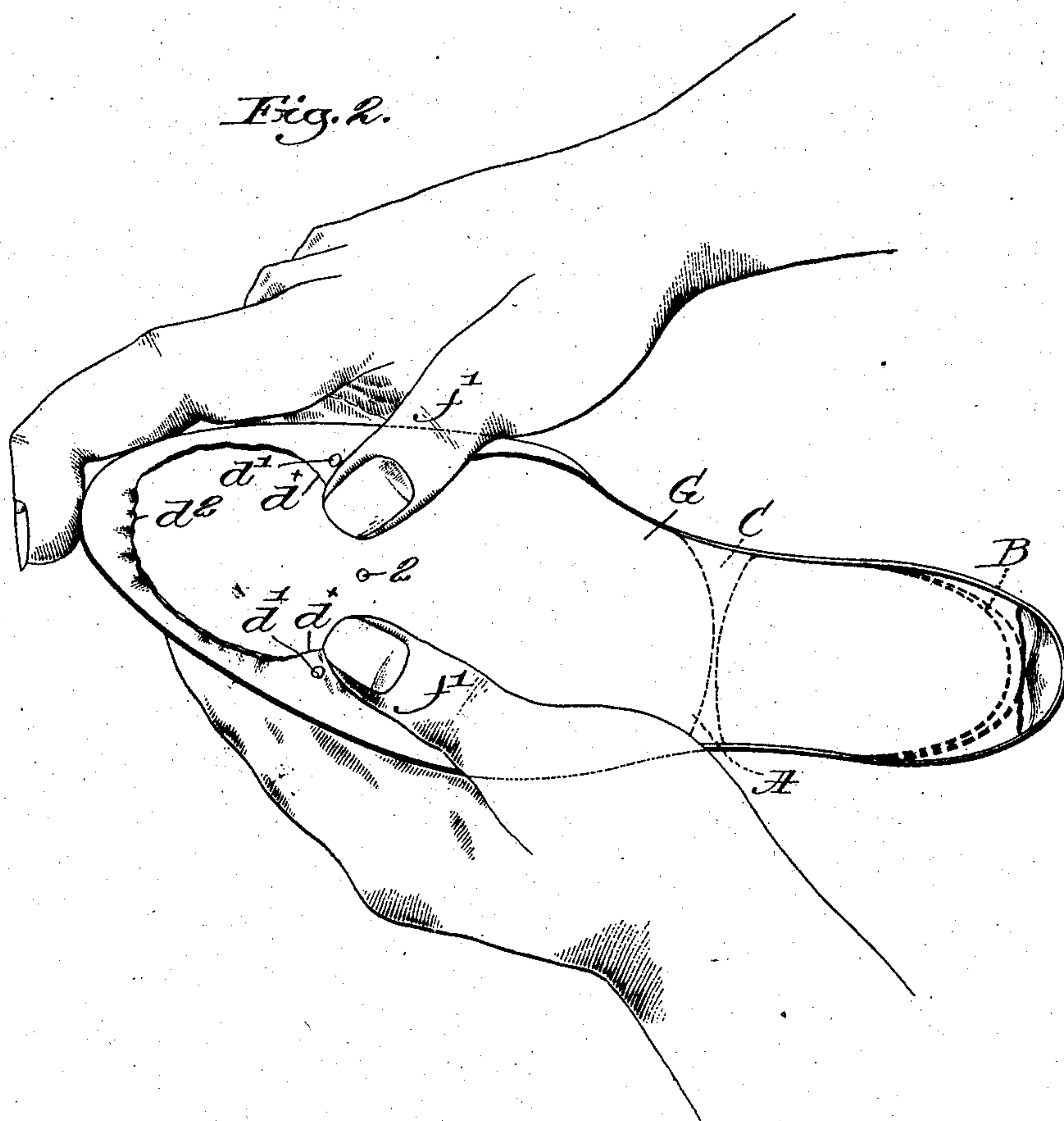
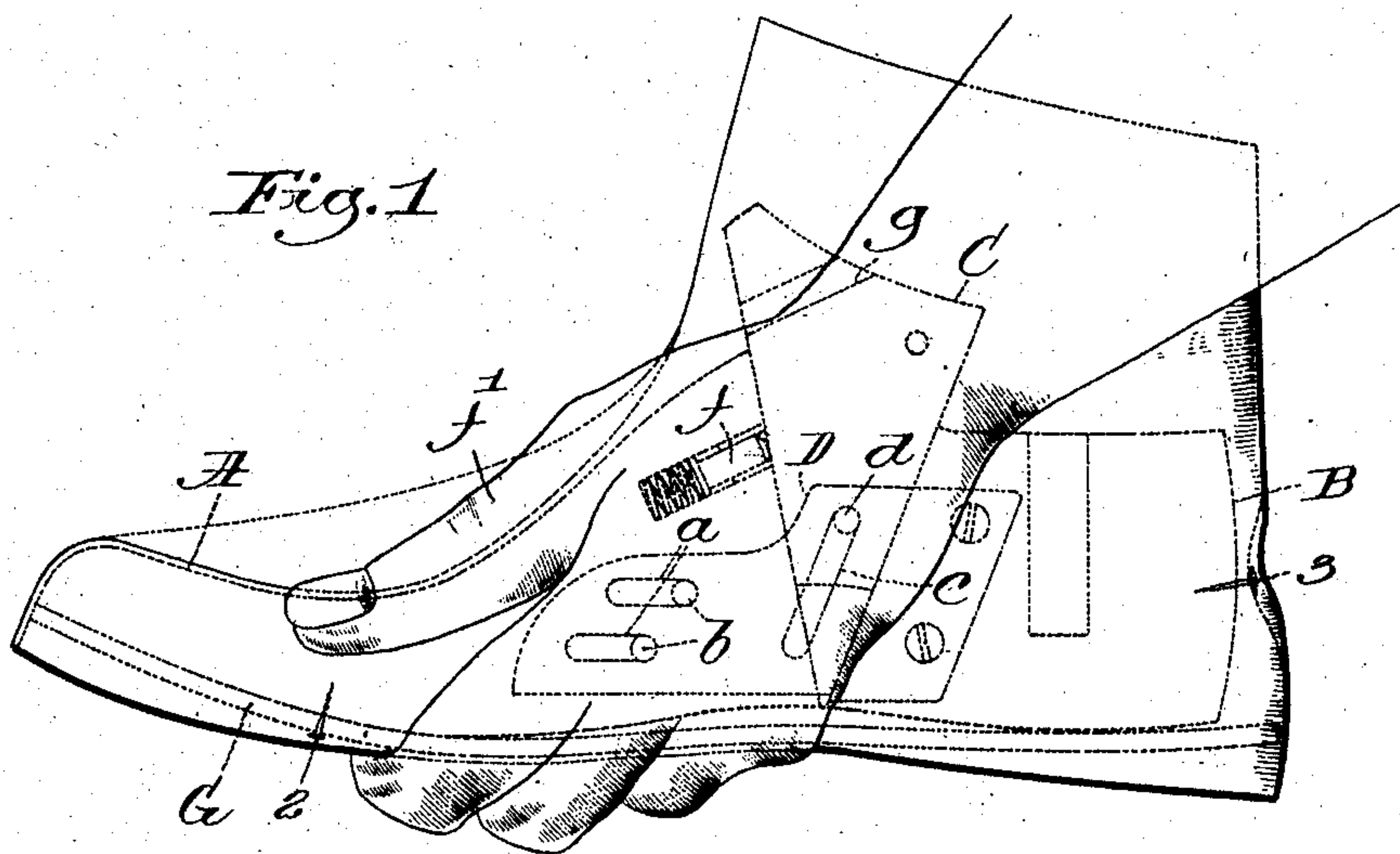


No. 790,129.

PATENTED MAY 16, 1905.

D. HAVERON.  
LASTING BOOTS OR SHOES.  
APPLICATION FILED MAY 13, 1904.

2 SHEETS—SHEET 1.



Witnesses:  
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2 SHEETS—SHEET 2.

Fig. 3.

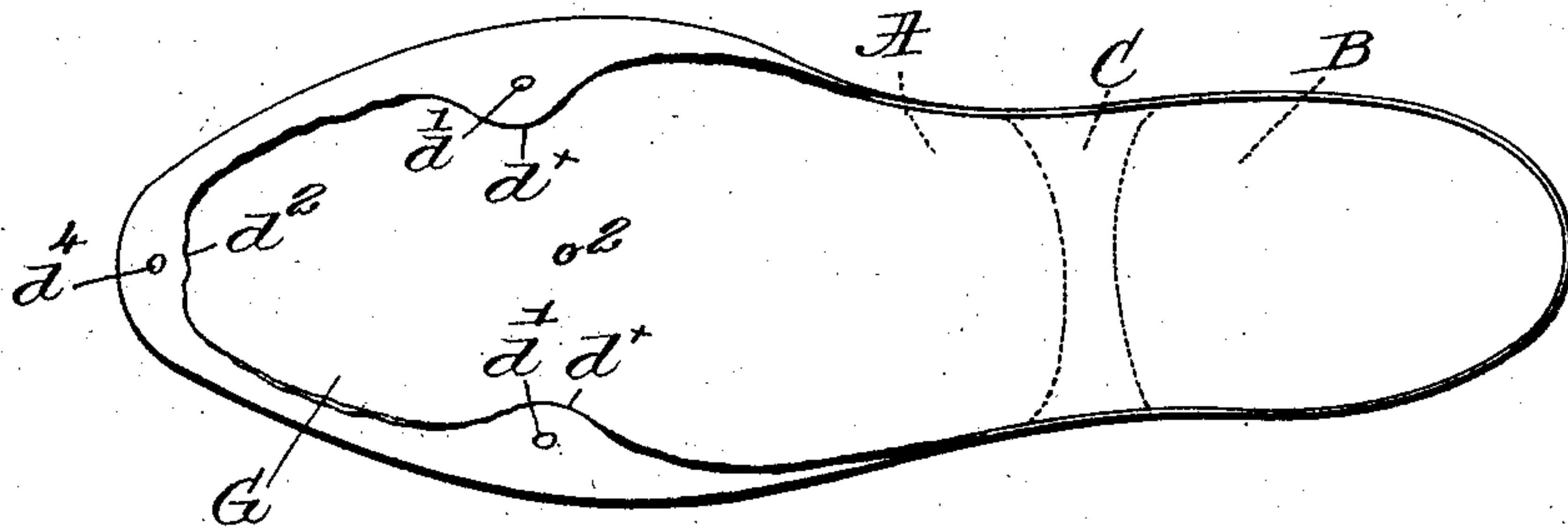
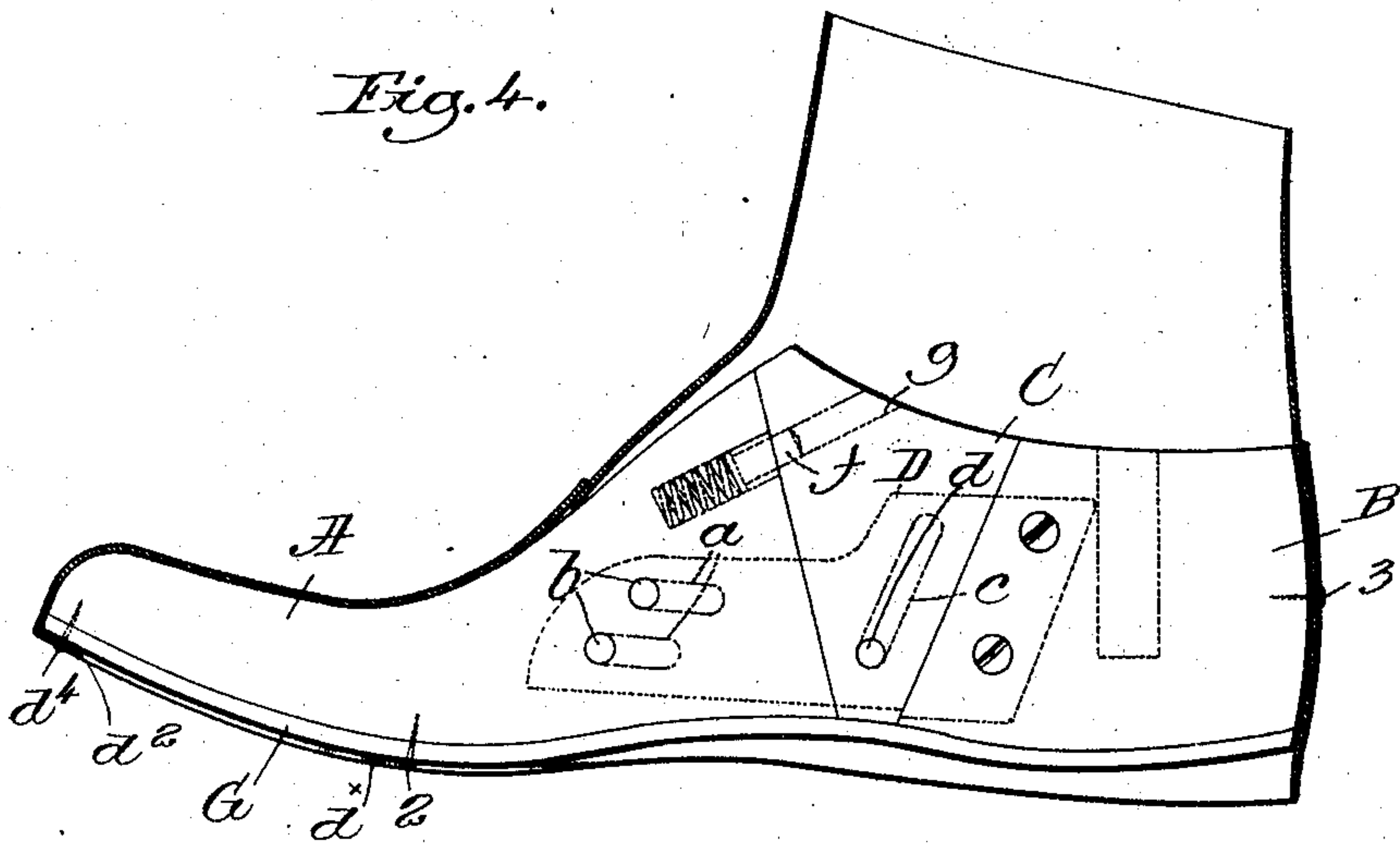


Fig. 4.



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# UNITED STATES PATENT OFFICE.

DANIEL HAVERON, OF CAMPELLO, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO ELLERY C. WRIGHT, OF CAMPELLO, MASSACHUSETTS.

## LASTING BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 790,129, dated May 16, 1905.

Application filed May 13, 1904. Serial No. 207,732.

*To all whom it may concern:*

Be it known that I, DANIEL HAVERON, a subject of the King of Great Britain, residing at Campello, in the county of Plymouth and State of Massachusetts, have invented an Improvement in Methods of Lasting Boots or Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object to improve the method of lasting boots and shoes, whereby the upper may be better fitted to the last, with less liability of improperly stretching the same.

In boots and shoes as now ordinarily lasted the upper is laid upon a last incapable of longitudinal extension, and the laster having laid the inner sole on the last engages the toe of the upper by pincers and draws the toe of the upper over the toe of the last and onto the inner sole, and the toe of the upper is secured to the inner sole by one or more tacks. The operator then engages the upper along the sides of the ball of the last or between the ball and toe and draws the upper over the inner sole on the last and tacks the same in place. In drawing the side edges of the upper over the inner sole after tacking the upper at its toe end to the inner sole if the upper is delicate it is apt to be unduly strained, and also where the toe of the upper is first tacked to the inner sole, as described, it is very difficult, if not quite impossible, to lay the upper firmly in contact with the upper side of the last.

In accordance with my invention I employ a last capable of longitudinal extension, and when I start to last a shoe the last is contracted in its length so that it occupies its shortened position. With the inner sole laid on the bottom of the last and secured only to the bottom of the fore part of the last by one or more tacks I insert the same bottom side up, preferably into the upper. This done, I turn the last, with the upper thereon, over so that the inner sole is concealed from view and the upper is exposed on the top of the fore part of the last, and I drive a nail in the

heel end of the upper to attach it to the movable heel end of the last. I then with the hand press on the fore part of the upper and seat the same on the top of the last, and then with the thumbs of both hands I wipe the upper from the median line of the last outwardly toward the edges of the last until the upper is laid firmly on the top of the last, and any wrinkles therein are wiped up toward the edge of the last. Having fitted the upper snugly to the top of the last, I then turn over the last and upper, again bringing the inner sole uppermost, and by pincers or otherwise I engage the side edges of the upper, lay the same over the inner sole, and drive a tack therein to confine the sides of the upper to the inner sole along the sides of the last, preferably at a point between the ball of the last and the toe end thereof. I then with pincers engage the toe end of the upper and draw the same over the toe end of the last and secure the same by a tack or tacks, and I then extend the last in the direction of its length, causing the upper to be stretched between its toe and heel ends, and in this way I get a firm contact of the interior of the upper with the exterior of the last.

Figure 1 in side elevation represents part of an upper, a last in its contracted condition, an inner sole, and the hand of the operator holding the shoe and last. Fig. 2 shows the last and upper overturned and tacks driven into the upper at the sides of the last. Fig. 3 represents the bottom of the last with the upper connected with the inner sole at the sides of the last and at the toe, the last being supposed to be in its expanded position; and Fig. 4 represents in section a lasted shoe on a last, the last being extended.

The last shown comprises a toe part A, a heel part B, and an expanding device C. The toe part and heel part of the last are united by a connection D, (represented as a piece of metal,) firmly pinned to the heel part and extended forwardly in a slot of the toe part. The forward end of the connection is slotted, as at *a*, to receive studs *b*, said slots coacting with said studs determining the two positions of the last—that is, determining the length of



the last in its shortened condition and the length of the last when elongated. The connection also has a slot *c*, that receives a pin *d*, carried by the expanding device, and suitable means will be employed—as, for instance, a spring-pressed pin *f*—to enter a hole *g* in the expanding device when the latter has been driven into the space between the toe part and the heel part to elongate the last.

The last herein shown is more fully described in application Serial No. 207,731, filed on the 13th day of May, 1904.

In getting ready for lasting the upper *D* of a boot or shoe I withdraw the expanding device into the position Fig. 1, insert the last into the upper, and lay the inner sole *G* upon the bottom of the last. I next secure the inner sole to the bottom of the toe part of the last by a tack 2, and I insert a tack or nail 3 through the heel-covering part of the upper into the heel part of the last. I next turn the last, with its upper, over, so that the sole is concealed from view and the upper is exposed to view, as indicated in Fig. 1. In this condition there is usually considerable space between the inner side of the upper and the top of the fore part of the last. With the hand on the upper I force the under side of the same against the top of the fore part of the last, and with the thumbs *f* of both hands, one at one side and the other at the opposite side of the last, I move the fingers downwardly and outwardly from the median line of the last toward the outer edges of the last, and in so doing I fit the upper snugly to the last, remove any wrinkles, and prepare the same to have its edges laid over on the inner sole. Having done this, I turn over the last and upper to expose the inner sole, as shown in Fig. 2, and by the aid of the hands and fingers and with pincers, if desired, I lay the edges of the upper over on the bottom of the inner sole of the last, as represented at *d*<sup>x</sup>, at points preferably between the ball of the last and the toe end thereof, and I drive tacks, as at *d*<sup>1</sup>, to confine the edge of the upper to the inner sole. I then with the hands and fingers or by pincers turn over the toe end of the upper from the position Fig. 1 into the position Fig. 2, and I secure the edge *d*<sup>2</sup> of the toe end of the upper to the toe end of the inner sole by a suitable tack *d*<sup>4</sup>. (See Fig. 3.) During this operation it will be remembered that the heel end of the upper has been anchored and fixed relatively to the last, and the upper when being manipulated by the hands and thumbs to lay the same on the top of the last is free to adapt itself to the contour of the top of the last irrespective of any irregularities thereof. With the side edges of the upper and the toe end secured to the inner sole I then drive the expanding device *C* into the last from the position Fig. 1 into the position Fig. 4, such elongation of the last causing the upper to be fitted snugly

to the last, and in this movement the heel end of the heel portion of the last moves on the heel end of the inner sole to which it is unattached from the position Fig. 1 into the position Fig. 4. Thereafter I may drive a tack through the heel end of the inner sole into the heel part of the last. The shoe treated as described and the last elongated is ready to have an outer sole laid on the same in any usual way, and the upper needs no further manipulation to fit the same to the last. Thereafter other portions of the edge of the upper between the points *d*<sup>x</sup> *d*<sup>x</sup> and the heel end thereof are engaged by pincers and drawn over upon the inner sole and tacked thereto.

Heretofore in all lasting methods it has been customary, so far as I am aware, to draw the toe end of the upper over on the inner sole of the last and tack the same thereto before engaging the edges of the upper to draw the same over the sides of the last to lay the same on the inner sole, and where the tack is first inserted in the toe end of the upper to confine it to the inner sole there is always left a considerable space between the top of the toe of the last and the crown of the last, and the upper is thus stretched from its heel end to its toe end on the last in its extended condition. Now it will be obvious that having tacked the toe end of the upper first the upper must be pulled sometimes very hard at its side edges in order to cause the inner side of the upper to contact with the top of the fore part of the last, and this straining operation when the upper is delicate material is very liable to break or injure the upper. By tacking the side edges of the upper to the inner sole on the bottom of the last before tacking the toe of the upper to the bottom of the last and by applying the upper to a last in its shortened condition it is possible to last with the greatest accuracy uppers of any material, and especially delicate uppers, such as used for ladies' and gentlemen's work, without any liability whatever of damaging the same, and at the same time it is possible to secure a better fit of the upper to the contour of the top of the last than by any method heretofore known to me, wherein the toe end of the upper was first attached to the inner sole.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of lasting comprising the herein-described steps, viz., applying the upper to a shortened last having an inner sole, fitting the upper to the top of the fore part of the last behind the toe end thereof, drawing the opposite edges of the upper across the last behind its toe end, laying the edges of the upper onto the inner sole, confining the side edges of the upper to the inner sole, drawing the toe end of the upper over the toe of the last and the inner sole thereon, securing the toe end of the upper to the toe end of the in-



ner sole, and then elongating the last to stretch the upper between the toe and heel end thereof.

2. The method of lasting comprising the herein-described steps, viz., applying the upper to a shortened last having an inner sole, tacking the heel end of the upper to the heel part of the last, fitting the upper to the top of the fore part of the last behind the toe end thereof, drawing the opposite edges of the upper across the last behind its toe end, and laying the edges of the upper onto the inner sole, confining the side edges of the upper to the inner sole, drawing the toe end of the upper

over the toe of the last and the inner sole thereon, securing the toe end of the upper to the toe end of the inner sole, and then elongating the last to stretch the upper between the toe and heel end thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL HAVERON.

Witnesses:

GEO. W. GREGORY,  
MARGARET A. DUNN.