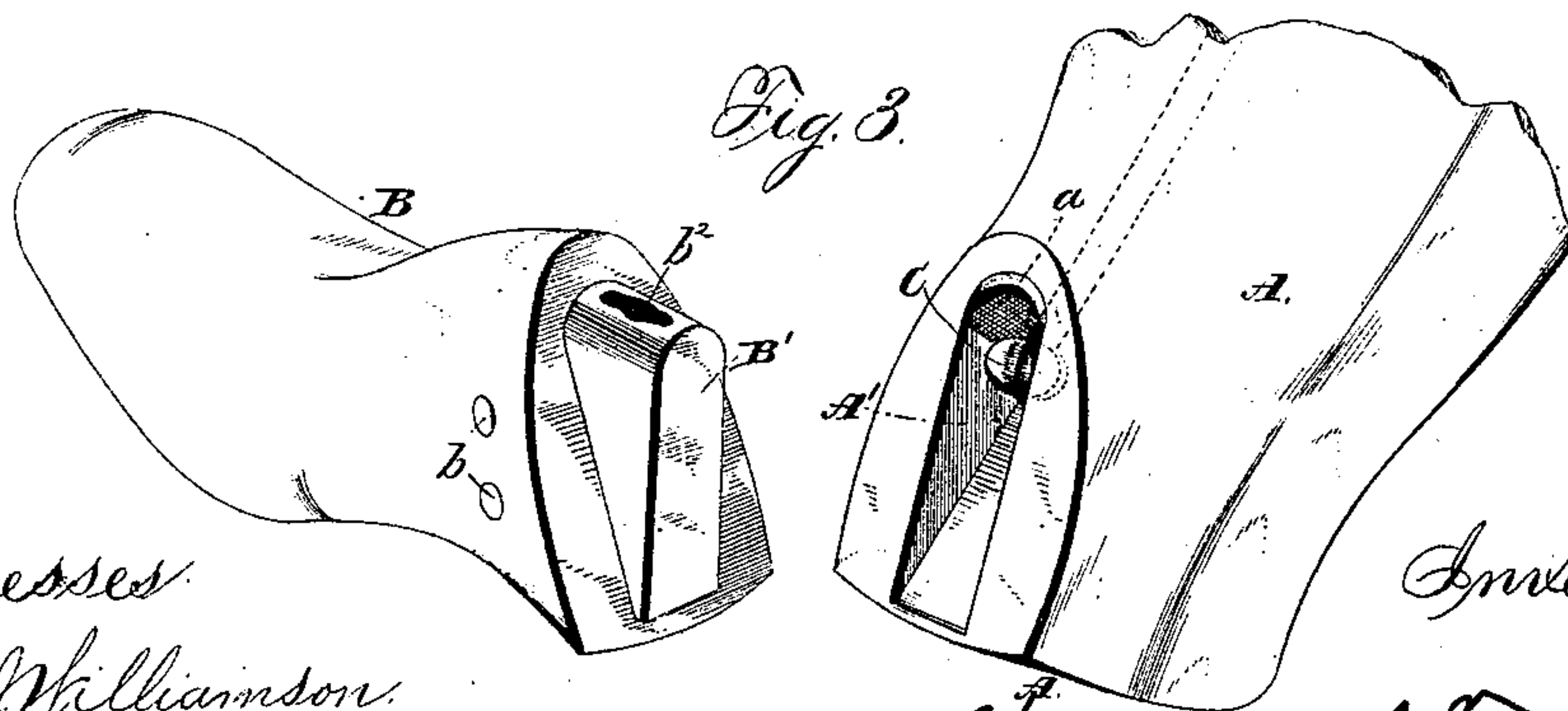
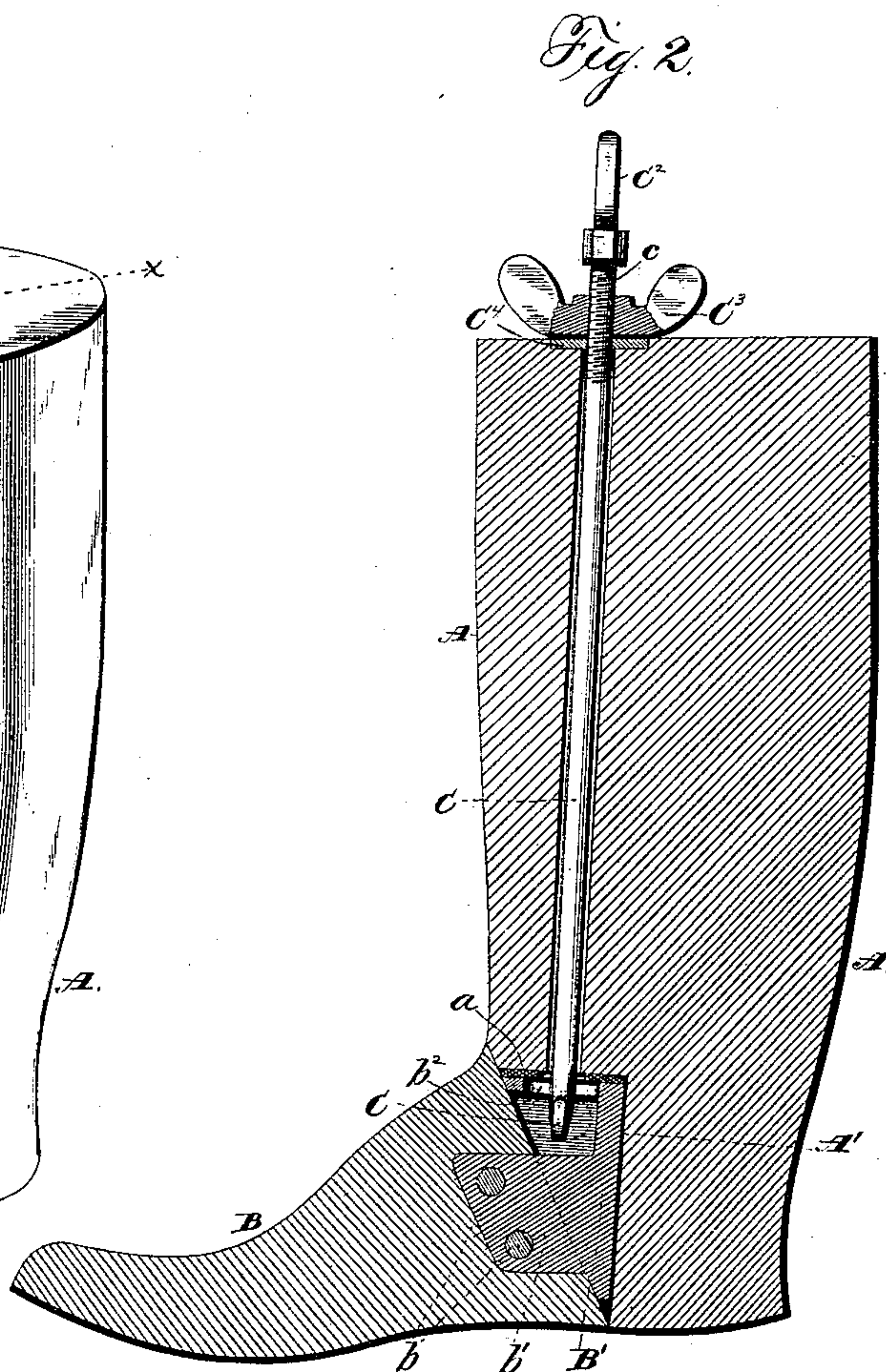
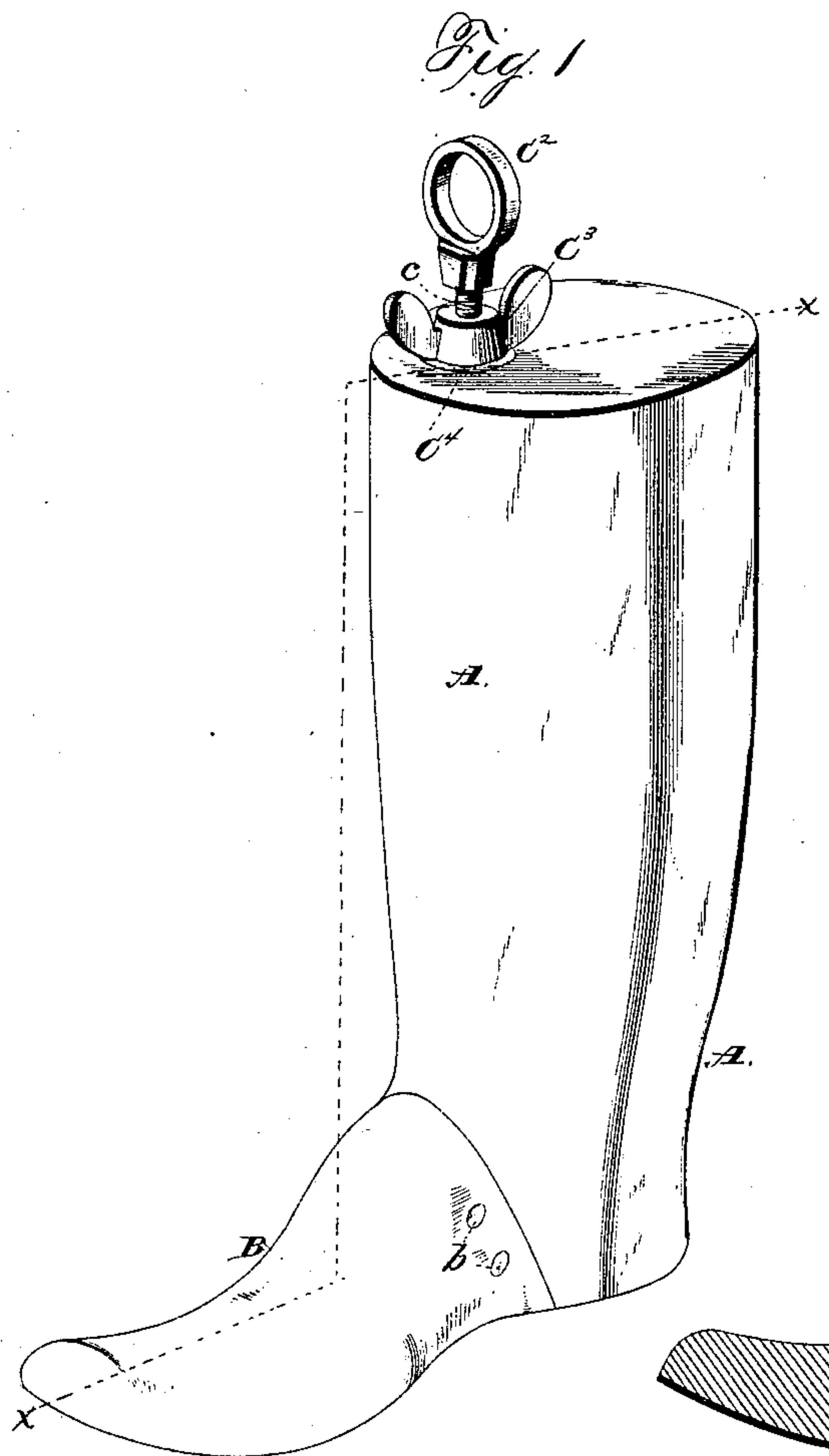


(No Model.)

W. H. FARNHAM.  
BOOT TREE.

No. 436,079.

Patented Sept. 9, 1890.



Witnesses:  
Chas. Williamson.  
Henry C. Hazard.

Inventor  
William H. Farnham  
by Prindle and Russell  
his attorneys



# UNITED STATES PATENT OFFICE.

WILLIAM H. FARNHAM, OF STONEHAM, MASSACHUSETTS.

## BOOT-TREE.

SPECIFICATION forming part of Letters Patent No. 436,079, dated September 9, 1890.

Application filed August 27, 1888. Serial No. 283,880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. FARNHAM, of Stoneham, in the county of Middlesex, and in the State of Massachusetts, have invented certain new and useful Improvements in Boot-Lasts; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my improved boot-last; Fig. 2, a vertical central section of the same on line *xx* of Fig. 1; Fig. 3, a detail perspective view of the parts of the last separated, so as to show the connecting means.

The object of my invention is to provide certain improvements in boot-lasts; and to this end my invention consists in the boot-last and in the means for detachably fastening the parts of the last together, as hereinafter specified.

My invention relates especially to lasts for making rubber boots, though my improved last can be advantageously used in the making of other boots.

In the lasts for rubber boots as heretofore made and used the leg and heel portion have been made in one piece with a rabbet on the forward side of its lower end to receive the rear portion of the foot part of the last. Such rabbet has been made with an upright rear wall and with its upper or overhanging side substantially at a right angle to the rear wall. The foot portion of the last has been correspondingly shaped to fit this recess or rabbet, and has been provided with a nut or block with threaded hole to be engaged by the threaded end of a screw-rod, which extended through the leg portion of the last and had a turning head on its upper end. With the last made in this way when it was being put together the screw-rod had to be turned until the top of the foot portion of the last was pulled up against the top of the recess or rabbet in the leg portion. This screwing together of the parts of the last and the necessary subsequent unscrewing to remove the last from the boot were slow operations, consuming much time. The difficulty of making the screw end properly enter the threaded nut was also to be encountered. With any wear of the parts it was difficult, also, to insure such a tight and smooth joint between

the two parts of the last as is desirable. In order to avoid all these objections to the boot-lasts as heretofore made, I have devised the last and connecting or fastening devices for the parts thereof, as will be described and shown hereinafter.

In the drawings, A designates the leg and heel portion of the last, and B the foot portion thereof. These two parts of the last are divided, not by a cut in two directions at right angles to each other, as heretofore, but on a transverse plane extending at an angle downward and rearward, as shown in the drawings. The dividing-cut begins at or a little above the point where the curve of the instep-top joins the line of the front of the leg portion of the last, so that there will be no forwardly-extending lip or portion on the leg part of the last to interfere with its withdrawal from a boot.

Extending rearward from the inclined face on the foot part of the last is a tongue or block B', and in the corresponding face of the other part of the last is a correspondingly-shaped recess A' to receive and fit the tongue.

The sides of the tongue and recess are preferably made vertical, as indicated in the drawings.

The top of the block and recess are shown as arched or rounded; but I do not limit myself to such construction. I prefer it, however, as giving, with the straight-sided tongue and recess, the firmest and steadiest bearing to prevent any side movement or play of the parts of the last with reference to each other.

As the rounded upper end of the tongue is drawn up against the correspondingly-shaped upper end of recess A', the foot part of the last will necessarily be drawn into proper central position with reference to the recessed inclined face of the leg part of the last.

The tongue B' can be formed on or made in one piece with the foot part of the last; but, as indicated in the drawings, I prefer to make it separately and then attach it in place in any desired way, as by pins *b b*, passing through a projecting portion *b'* of the tongue.

In the top of the tongue or projecting block B' is a slot or opening *b<sup>2</sup>*, adapted to admit the passage of a cross-head C on the lower end of the rod C', extending up through the leg portion of the last. The slot *b<sup>2</sup>* corresponds in shape with the cross-head-provided end of



the rod, so as to let such cross-head be passed down through it when the rod is in one position, but to prevent its passage when the rod is turned through a quarter-turn.

5 Below its slotted top the tongue B' is provided with an opening or under-cut to allow the turning of the rod cross-head after it has been passed down through slot  $b^2$ .

10 The upper end of the rod C' is provided with a ring or other piece C<sup>2</sup>, by which it can be moved longitudinally and rotated as desired. Below this ring or turning head the rod is threaded, as shown at c, and upon this threaded portion is the thumb-nut C<sup>3</sup>, provided with  
15 the usual wings, by which it can be turned quickly to screw it up or down on the rod.

On the top of the last, in position to be engaged by the under side of the thumb-nut, is the bearing-plate C<sup>4</sup>, up through which the  
20 rod passes.

I contemplate providing the upper end of the recess A' with a facing of leather or other elastic or semi-elastic material, as indicated at a, for the top of the tongue B' to be drawn  
25 up against when the parts of the last are fastened together. This yielding facing on the seat for the upper end of the tongue B' allows the parts of the last to be drawn together, so that their abutting faces shall be forced most  
30 closely in contact with each other.

My last, constructed as shown and described, can be most quickly made up or put together for making a boot. The two parts are brought together with the tongue B' entering the recess H', and the rod C' is turned  
35 to bring its cross-head C into position to be passed down through the undercut slot  $b^2$  in the tongue B'. After the rod end and head have been passed down through said slot the  
40 rod is given a quarter-turn, so that its cross-head cannot pull up through the slot. The two parts of the last can then be quickly drawn firmly together by turning the thumb-nut C<sup>3</sup> to screw it down on the rod C'.

45 If desired, the two parts of the last can be drawn together quite closely by pulling upon the rod C'. The thumb-nut C<sup>3</sup> can then be turned most quickly to run it down on the rod, and then but a few additional turns of it  
50 will be necessary to draw the tongue on the foot part B up into its recess in part A, so as to bring the inclined abutting faces on the two parts most closely together.

When the last is to be withdrawn from a  
55 boot, all that it is necessary to do to disconnect the parts of the last is to loosen the thumb-nut slightly and then give the rod C' a quarter-turn to bring the arms of the cross-head on the rod end in line with the slot in the tongue  
60 or block B'. The leg part of the last is then free to be drawn out by the rod or in any other way.

65 I have described the rod C' as being provided with a cross-head; but I do not intend to limit myself to such construction with lugs or arms extending from opposite sides of the rod so as to form together a cross-head.

If desired, a single lug or arm projecting from one side of the rod end could be used. Such arm or lug could be brought under and  
70 in engagement with a side of the undercut slot  $b^2$  on tongue B' by a quarter-turn of the rod and would give a good hold upon the tongue; but I prefer the cross-head formed by lugs extending from both sides of the rod  
75 end. These lugs or arms are preferably made rounded or inclined downward and outward on their upper sides, as indicated in the drawings.

Having thus described my invention, what  
80 I claim is—

1. In a boot-last, in combination with the leg and foot parts thereof having inclined abutting faces, a rod connected with the foot part and extending up through the leg part  
85 and a rotary nut for drawing up the rod screwed on the upper portion of the latter and engaging a bearing on the leg part, substantially as and for the purpose specified.

2. In a boot and shoe last, in combination  
90 with the leg and foot parts thereof having inclined abutting faces, a tongue on the foot part entering a recess in the leg part, a rod detachably connected with the foot part and extending up through the leg part, and a rotary  
95 nut for drawing the rod upward screwed on the latter and engaging a bearing on the leg part, substantially as and for the purpose shown.

3. In a boot-last, in combination with the  
100 foot part provided with a tongue having an undercut slot, the leg part having the recess, the rotary and longitudinally-movable rod on the leg part having on its end one or more side lugs or projections, substantially as and  
105 for the purpose described.

4. In a boot-last, in combination with the foot part having the tongue with undercut slot, the leg part provided with the tongue-receiving recess, the rod provided on its lower  
110 end with side lugs or arms and having its upper portion threaded, a nut on such threaded portion, and a suitable bearing on the leg part of the last to be engaged by the nut, substantially as and for the purpose shown.  
115

5. In a boot-last, in combination with the two parts thereof formed with inclined abutting surfaces, the tongue on the foot part entering a recess in the leg part and provided with an undercut slot, the rotary and recip-  
120 rocable rod provided with one or more side lugs or arms on its lower end, the nut tapped upon a threaded portion of the rod, and a suitable bearing on the leg part of the last to be engaged by the nut, substantially as and  
125 for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of August, 1888.

WILLIAM H. FARNHAM.

Witnesses:

GEORGE W. DAY,  
ELMER P. HOWE.