

(No Model.)

2 Sheets—Sheet 1.

A. HANNIBALL.

MANUFACTURE OF BOOTS OR SHOES.

No. 313,727.

Patented Mar. 10, 1885.

Fig. 4.

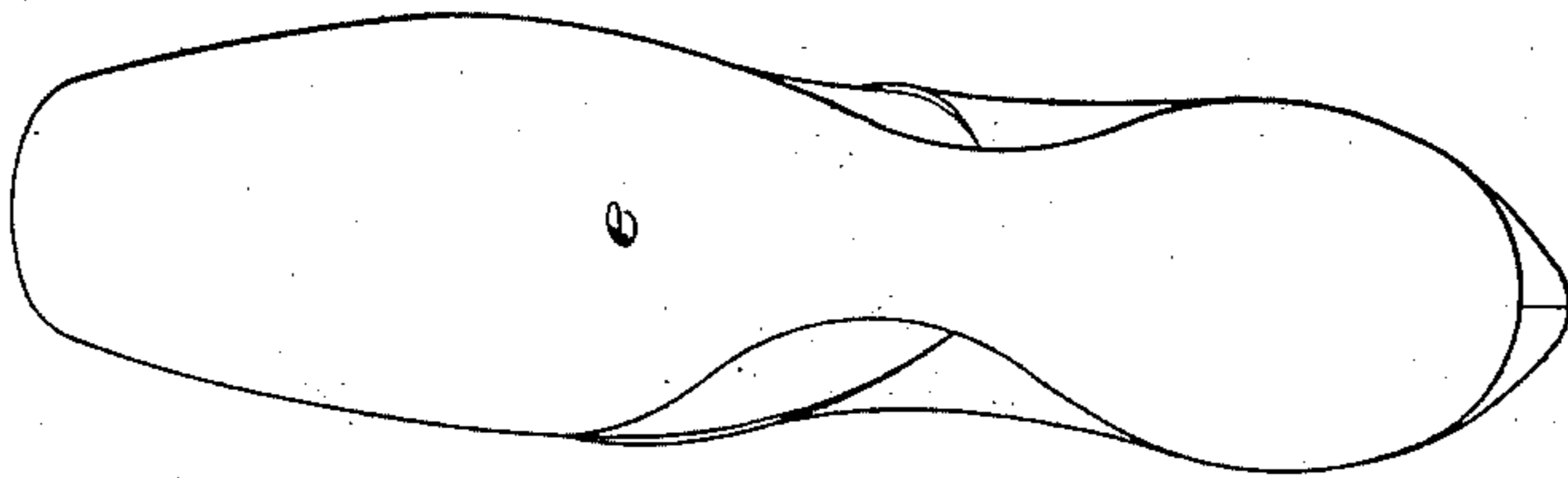


Fig. 3.

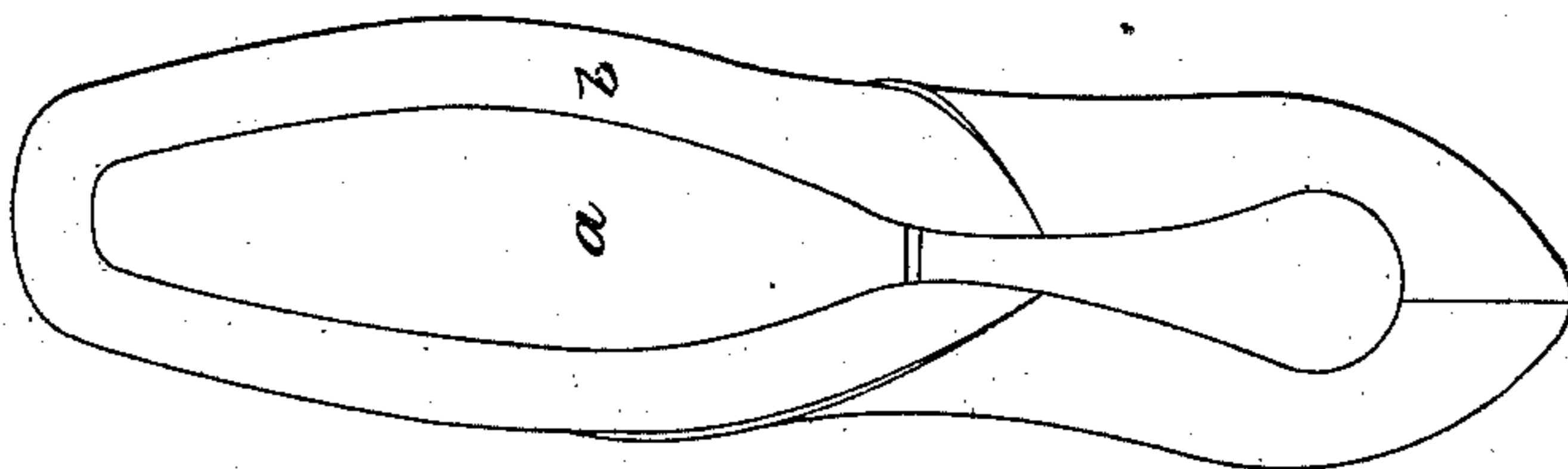


Fig. 2.

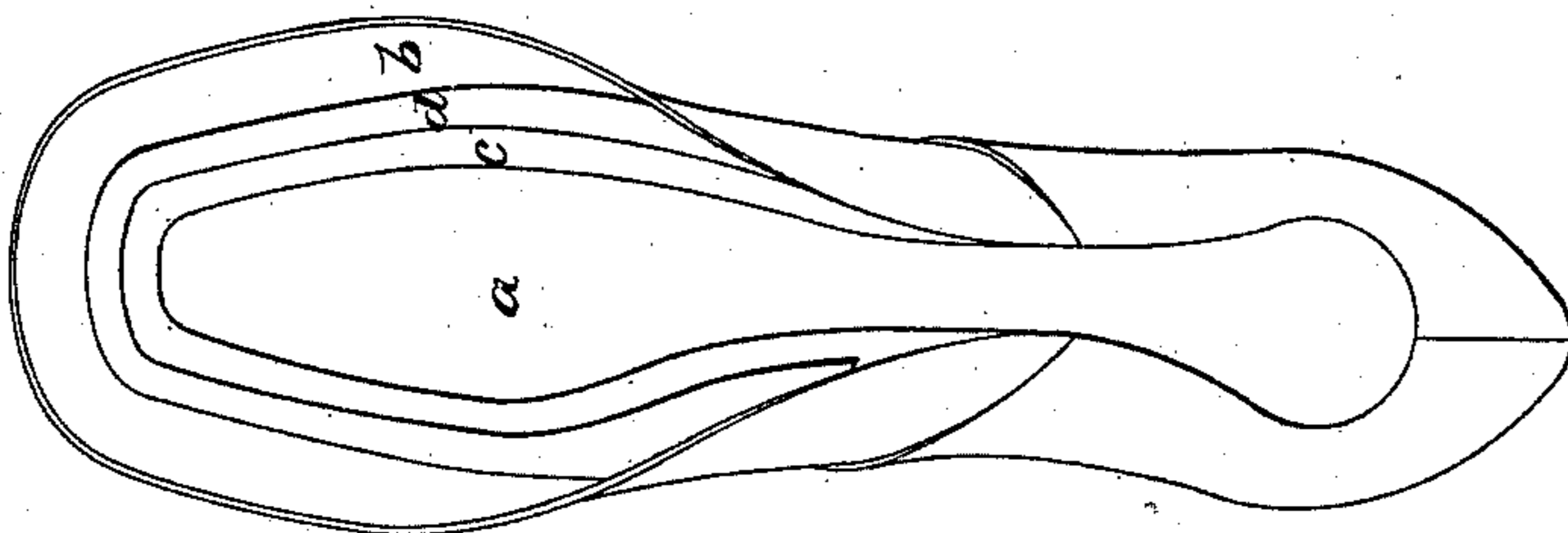
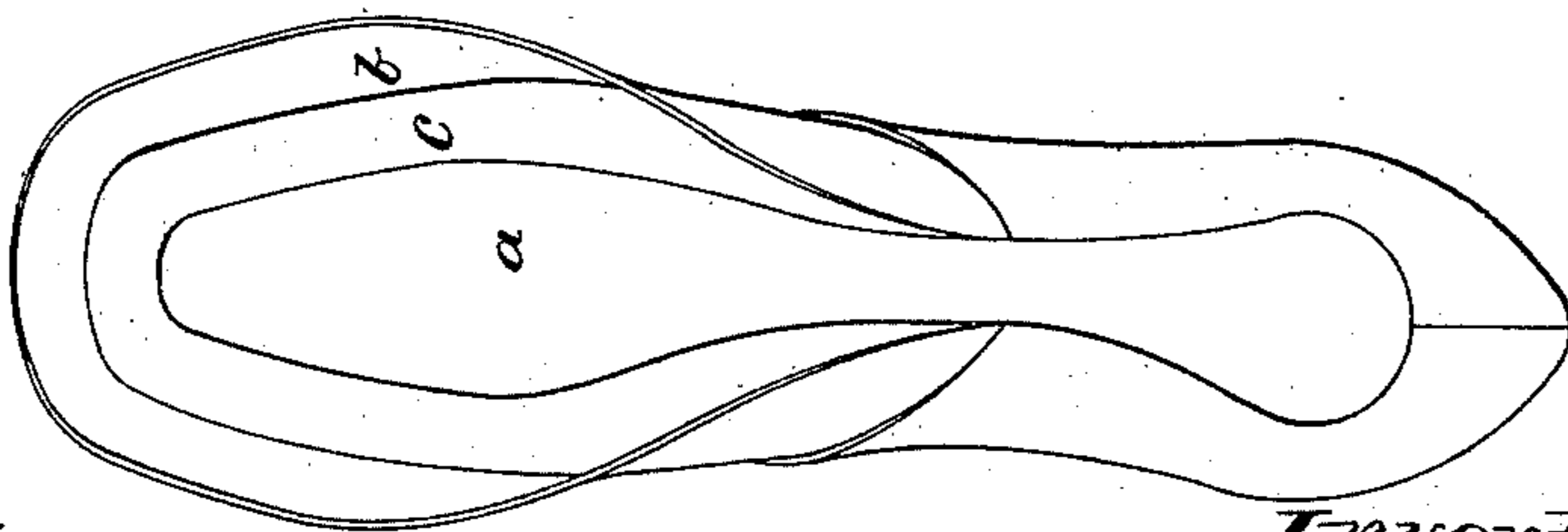


Fig. 1.



Witnesses.

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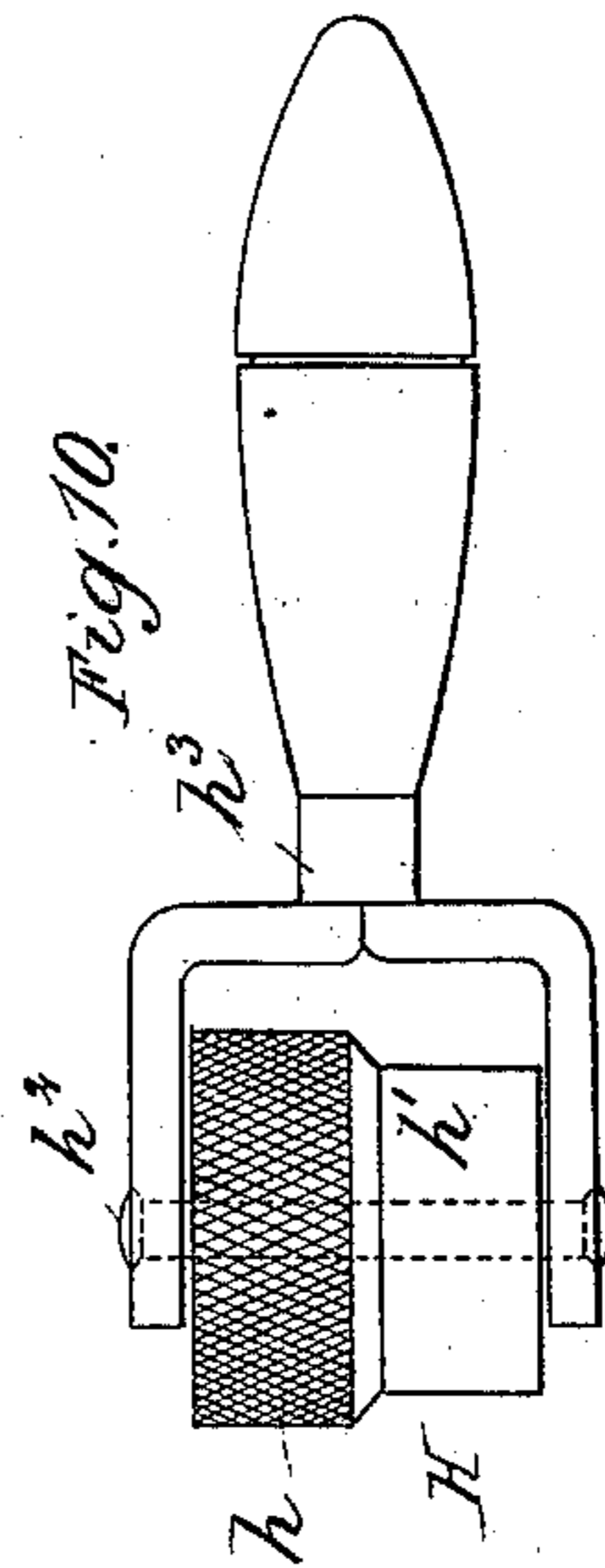
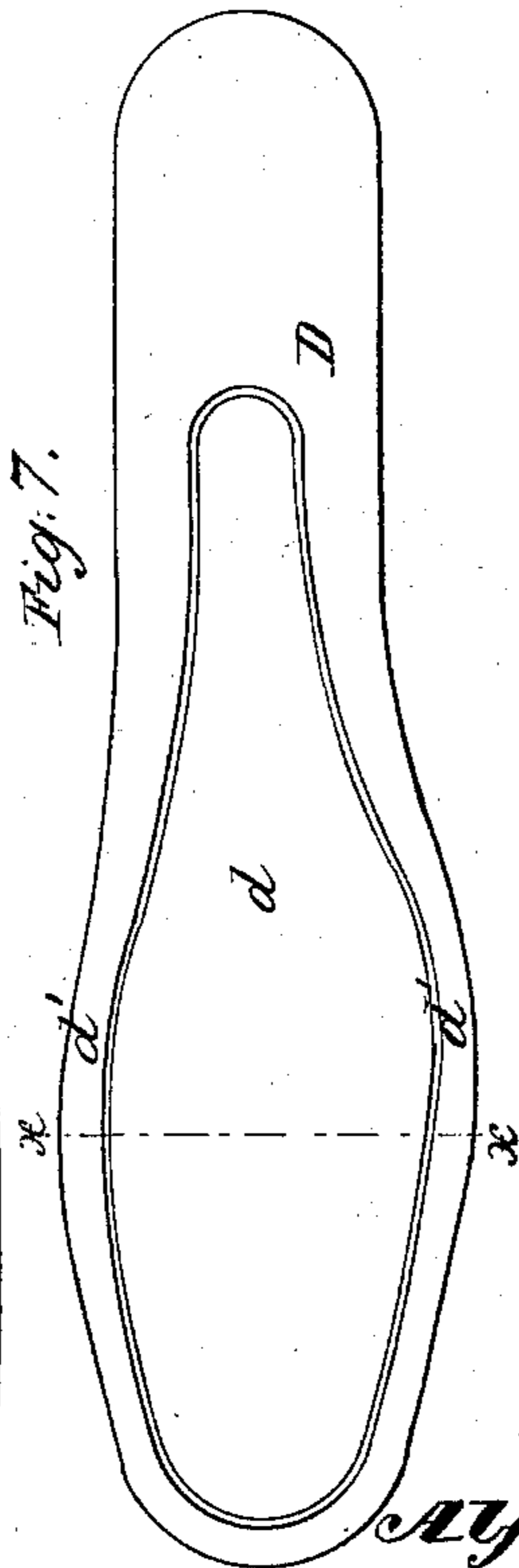
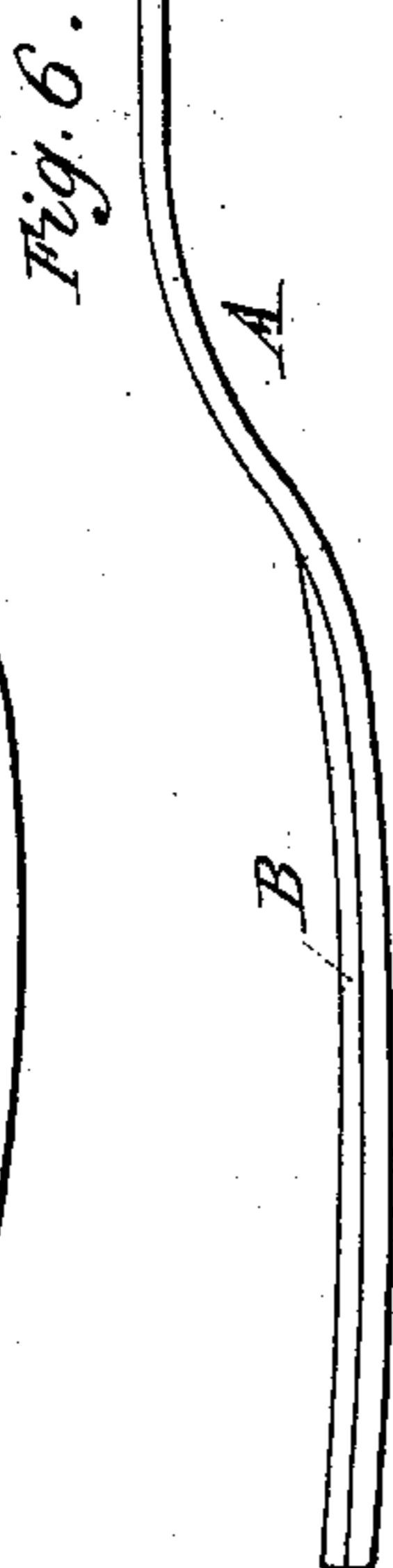
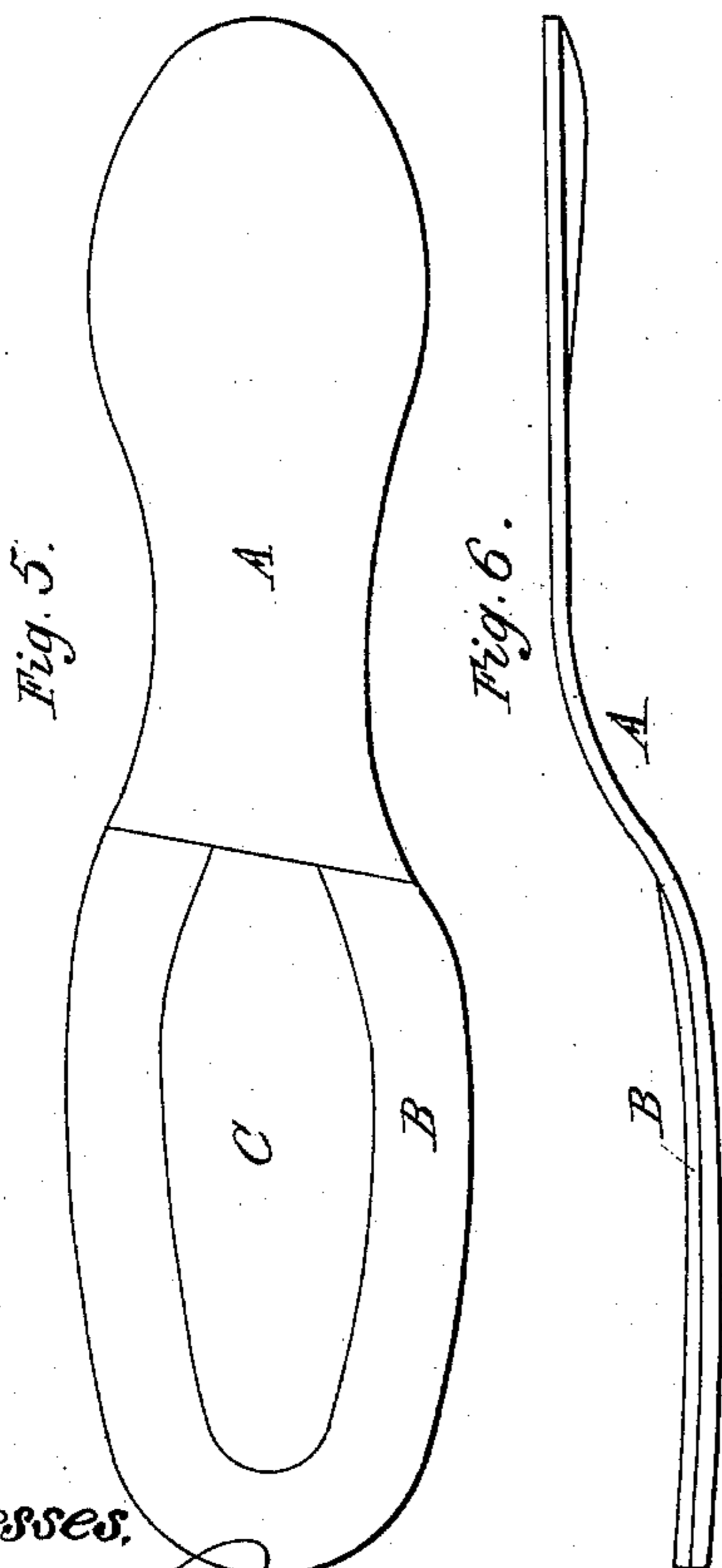
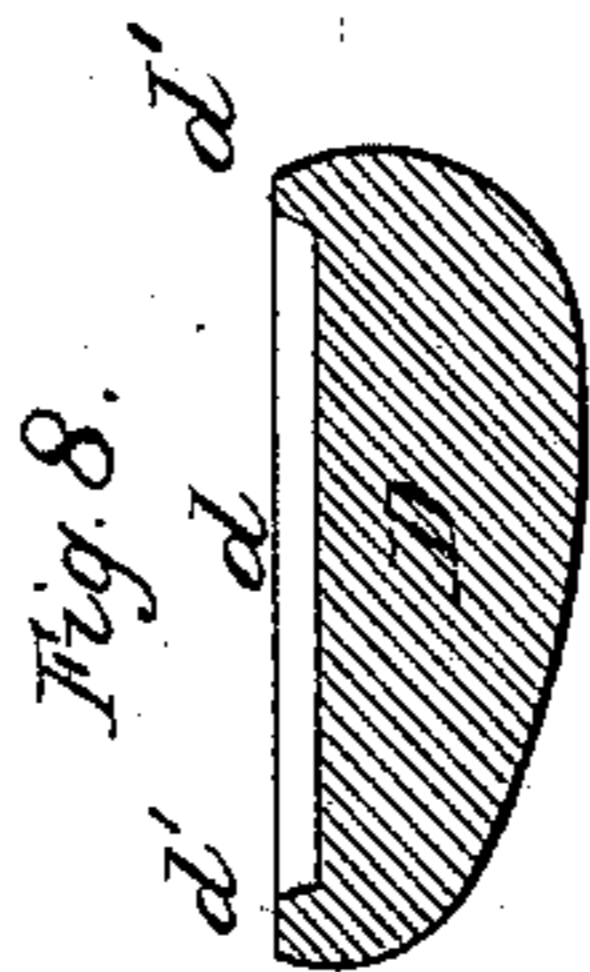
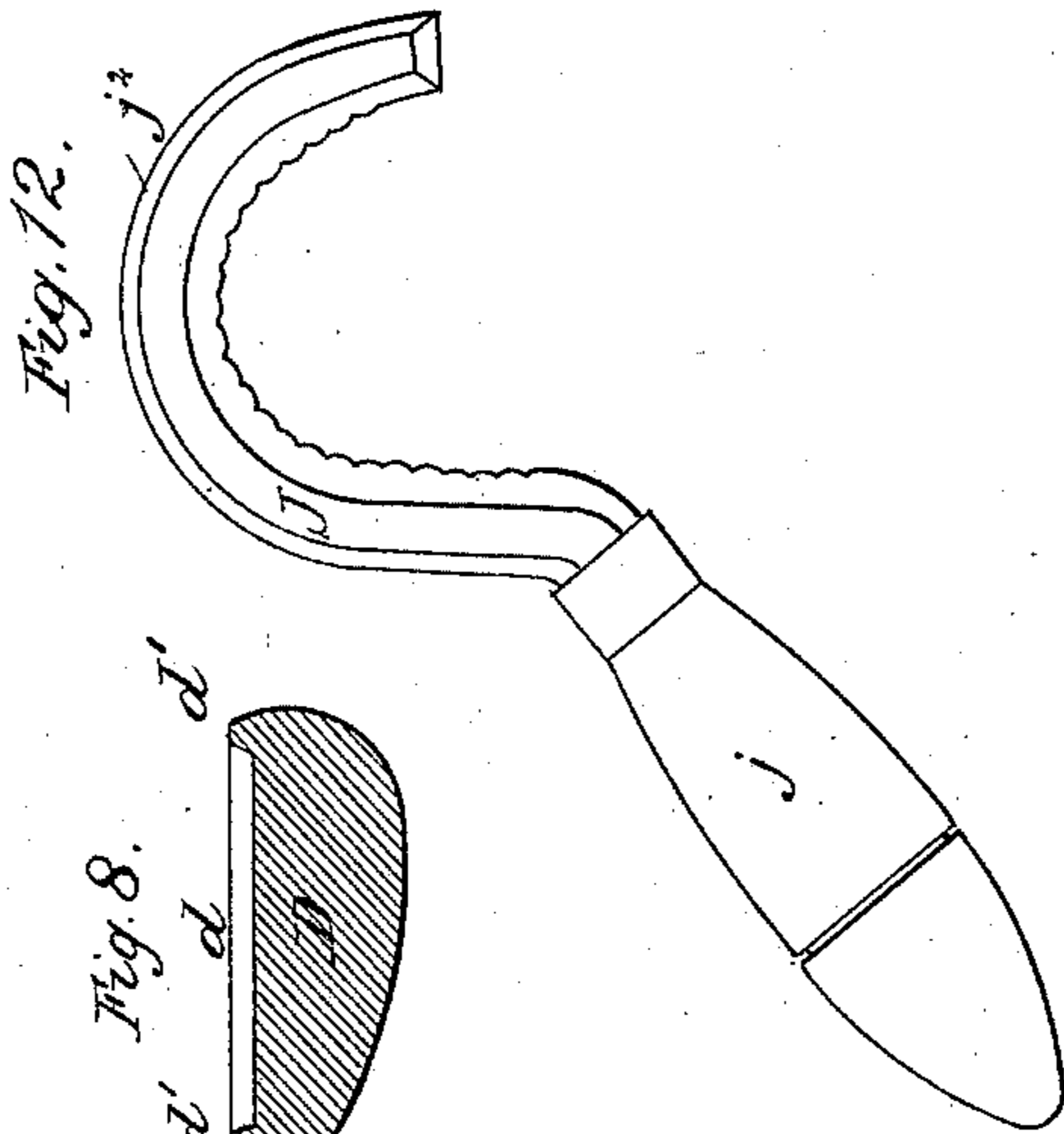
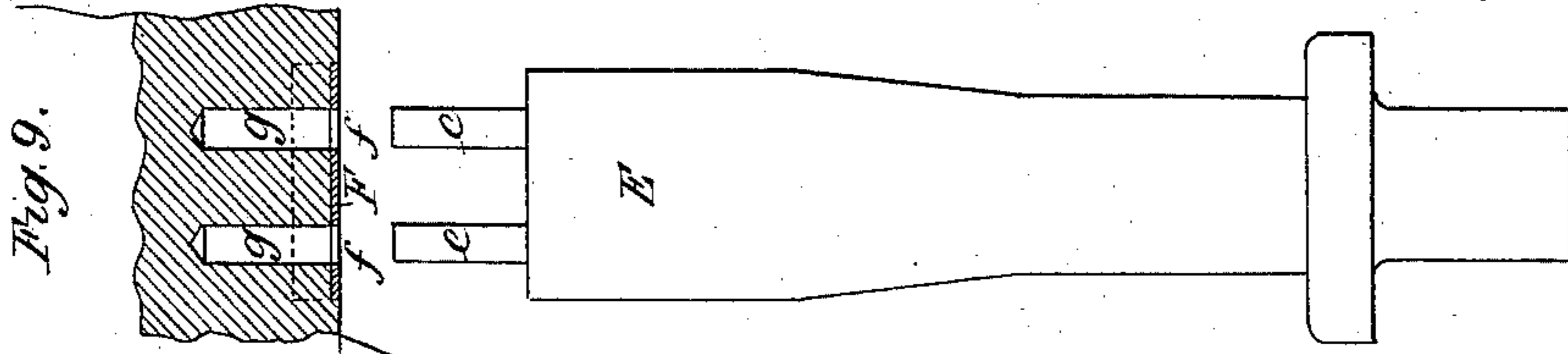
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MANUFACTURE OF BOOTS OR SHOES.

No. 313,727.

Patented Mar. 10, 1885.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALFRED HANNIBALL, OF LONDON, ENGLAND.

MANUFACTURE OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 313,727, dated March 10, 1885.

Application filed June 12, 1884. (No mod. l.) Patented in England September 10, 1883, No. 4,332.

To all whom it may concern:

Be it known that I, ALFRED HANNIBALL, a subject of the Queen of Great Britain, residing at London, England, have invented new and useful Improvements in the Manufacture of Boots or Shoes, and in Apparatus Therefor, for which I have obtained a Patent in Great Britain, No. 4,332, bearing date 10th September, 1883, of which the following is a specification, reference being had to the accompanying drawings.

The present invention has for its object to furnish a boot or shoe which will be water-proof, pliable, and therefore yielding readily to the natural movements of the foot and insuring a great degree of comfort to the wearer.

The invention consists in the method of manufacture hereinafter described and claimed.

In the drawings, Figure 1 is a face view showing an inner sole laid on a last, the upper with the lining partially attached to it placed thereon, and the lining secured to the inner sole. Fig. 2 shows the second stage of the process, in which a piece of canvas or woven fabric is placed around the toe and along the edges of the sole to the waist or shank portion of the shoe. Fig. 3 shows the upper drawn down over the lining and folded over the inner sole and united to the same above the lining. Fig. 4 is a face view showing the boot or shoe with the outer sole secured to it. Fig. 5 is a plan view showing an outer sole and a clamp or middle sole secured together. Fig. 6 is an edge view of the same. Figs. 7 and 8 are plan and sectional views of a metallic last that may be used in carrying out my method of manufacture. Fig. 9 is a side elevation, partly in section, of a wooden last and its stand or support. Figs. 10, 11, and 12 represent tools that may be used in carrying out my method of manufacture.

Like letters indicate corresponding parts throughout the drawings.

In making a machine-sewed boot or shoe without nails, pegs, or the like, I proceed as follows—that is to say, I first lay the inner sole, *a*, upon the last. I then place the upper *b*, with the lining *c* partially attached thereto, on the last, and draw the edges of the said lining over the lower face of the inner sole. I then turn back the upper and secure the edges of the lining to the inner sole by means of

paste or cement, and I insert the heel-stiffener in the proper position between the lining and the upper. A piece of canvas or other stout woven fabric, *d*, cut “on the cross” or diagonally—say, from one inch to one inch and a half in width—is then placed around the toe and along the edges of the sole to the waist, so as to form the side lining and the “toe-puff.” This piece of canvas or other fabric *d* prevents the formation of rucks or folds in the lining *c*, and keeps the same perfectly smooth, and may, if desired, be coated with an india-rubber or other water-proof solution. A thin coating of an india-rubber or other water-proof solution is placed upon the inner sole, so as to render the same damp-proof. The upper is then drawn down over the lining, and its edges are folded over the inner sole and united to the same above the lining by means of paste or cement. The cemented or pasted portion is then pressed by means of a special tool or implement, hereinafter described, to insure the proper union of the surfaces by means of the paste or cement. A few tacks or nails are driven temporarily through the portions of the upper and lining, that are folded over the inner sole into the last, or into a piece of leather or other suitable material fitted therein, as hereinafter described, for the purpose of retaining the upper and lining in the proper position until the paste or cement has become set or dry enough to hold the said parts, whereupon the said tacks or nails are removed. As the portion of the upper folded over the inner sole does not entirely cover the bottom thereof, a recess or cavity is left which I fill up with cork, felt, or other suitable material before the outer sole is put on.

Before applying the outer sole to the boot or shoe I thoroughly block or shape the same, so that it will exactly correspond with sole portion of the last. For this purpose I put the said outer sole in a screw or other press between two shaping-blocks, of steel, iron, or other suitable material, so as to give it the form shown in Figs. 5 and 6, (in which *A* indicates the said outer sole,) and make it ready for securing to the inner sole. I thus gain a great practical advantage by obviating the necessity for the usual blocking upon the last. When a “clump” or middle sole is used, I se-

cure the said clump or middle sole (marked B in Figs. 5 and 6) to the outer sole, A, by means of paste or cement, and fill up the recess or cavity left within the said clump with a piece, C, of cork or other suitable material, which is also secured by paste or cement to the outer sole. These parts are then put in a press between shaping-blocks, before the paste or cement has set or hardened, and are pressed into their proper shape, as shown, before they are placed upon the last. It will be necessary to employ two pairs of these blocks, one for the right foot, and the other for the left foot.

In applying two inside soles I secure the lining and upper to a very thin inner sole in the manner above described, and after the outer sole, has been put on and the boot or shoe has been sewed by the "Blake" or other machine I place a sock of thin material—such as leather or woven fabric—upon a second leather inner sole to which it is secured by stitching around the edges. This second inner sole is then placed in the boot or shoe upon the first inner sole, with the grain side downward—that is to say, in contact with the upper surface of the first inner sole—the two soles being united by means of paste or cement. This arrangement effectually prevents the curling up of the edges of the inner sole, and insures a great amount of pliability or suppleness in the boot or shoe.

In carrying out my method of manufacture, I employ a last into which the tacks for temporarily securing the upper and lining thereto can be driven, and for this purpose I preferably use an iron last constructed in the manner shown in Figs. 7 and 8, in which D is the last, and *d* a recess or cavity therein filled with leather or other material suitable for holding the points of tacks or nails for temporarily securing the upper and lining, as heretofore stated. When a wooden last is used, there is provided a stand or support, E, (shown in Fig. 9,) having two or more prongs, *e*, and a cap or shield, F, placed on the last G, has two holes, *f*, coinciding with two holes in the last, and adapted to receive the prongs *e* for preventing the last from turning.

A tool is used for pressing the edges of the

upper and lining upon the inner sole; and it consists of a roller, H, made with a roughened portion and a smooth portion, *h'*, as is shown in Fig. 10. This roller is carried by a pin secured in a forked handle, *h³*, in such a manner that said roller will be free to rotate. In using this tool the upper *b* and lining *c* are pressed down, first by the roughened portion *h*, and then by the smaller smooth portion *h'*.

In carrying out my method I also use a cramping-hook for drawing or pressing the toe and heel portions of the upper and lining over the inner sole. Said hook is shown in Figs. 11 and 12, and consists of a hook-shaped piece, J, having a handle, *j*, and preferably grooved or roughened on its under side, as is shown at *j'*. In using this tool it is held in the left hand, and the curved or hook-shaped piece J is placed against the upper at the heel or toe of the boot or shoe. The said piece is then tapped with a hammer, first on its beveled edge *j²*, and then on its upper side, to fold the upper and lining over the last and lay them smoothly thereon.

What I claim is—

The method of manufacturing boots and shoes, consisting in first laying the inner sole upon the last, then placing the upper with the lining partially attached thereto on the last and drawing the lining over the lower face of the sole and securing it thereto with the upper turned back and the heel stiffener in place between the lining and upper, then applying a fabric around the toe and along the edges of the sole to form the side lining and toe-puff, then drawing the upper down over the lining and cementing or pasting it to the inner sole, and then attaching the outer sole, which has been blocked or shaped before being applied, substantially as described.

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

ALFRED HANNIBALL.

Witnesses:

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JNO. DEAN,

Both of 17 Gracechurch Street, London, E. C.