

(No Model.)

J. W. HATCH.

METHOD OF MANUFACTURING BOOTS AND SHOES.

No. 378,445.

Patented Feb. 28, 1888.

Fig. 1.

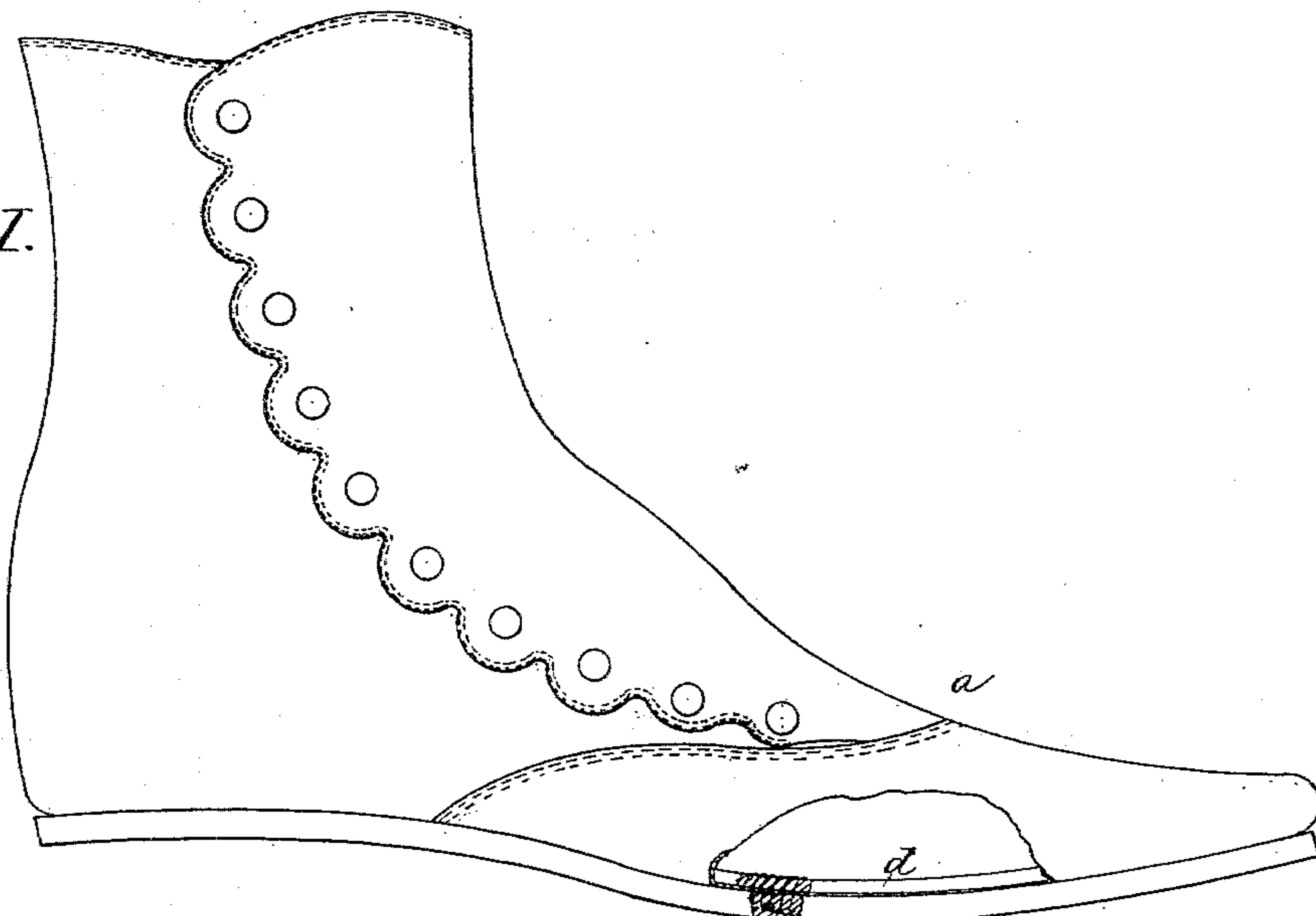


Fig. 2.

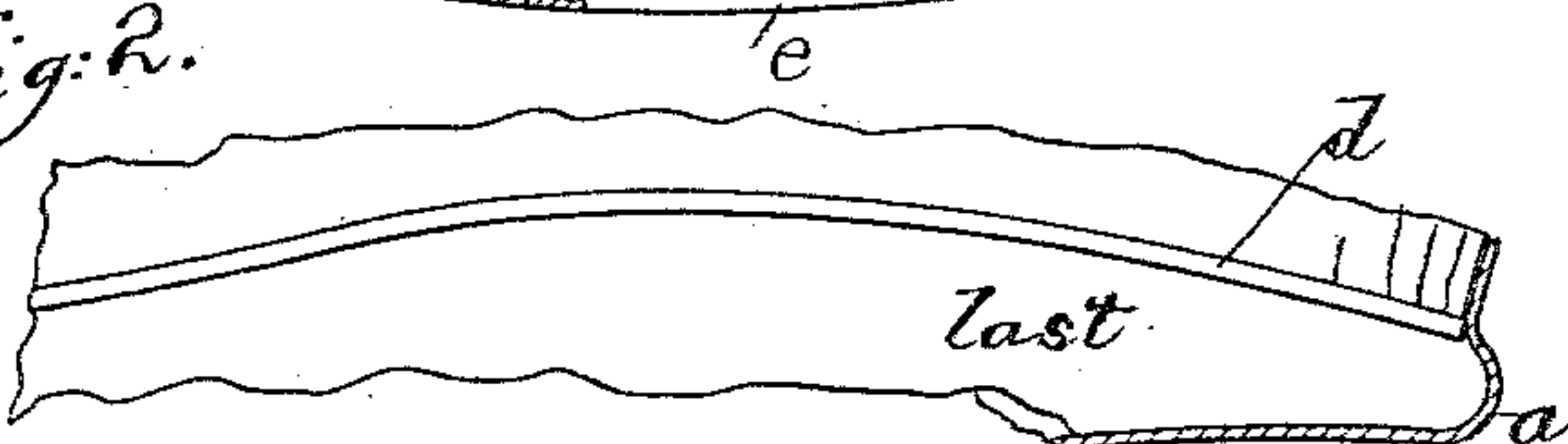
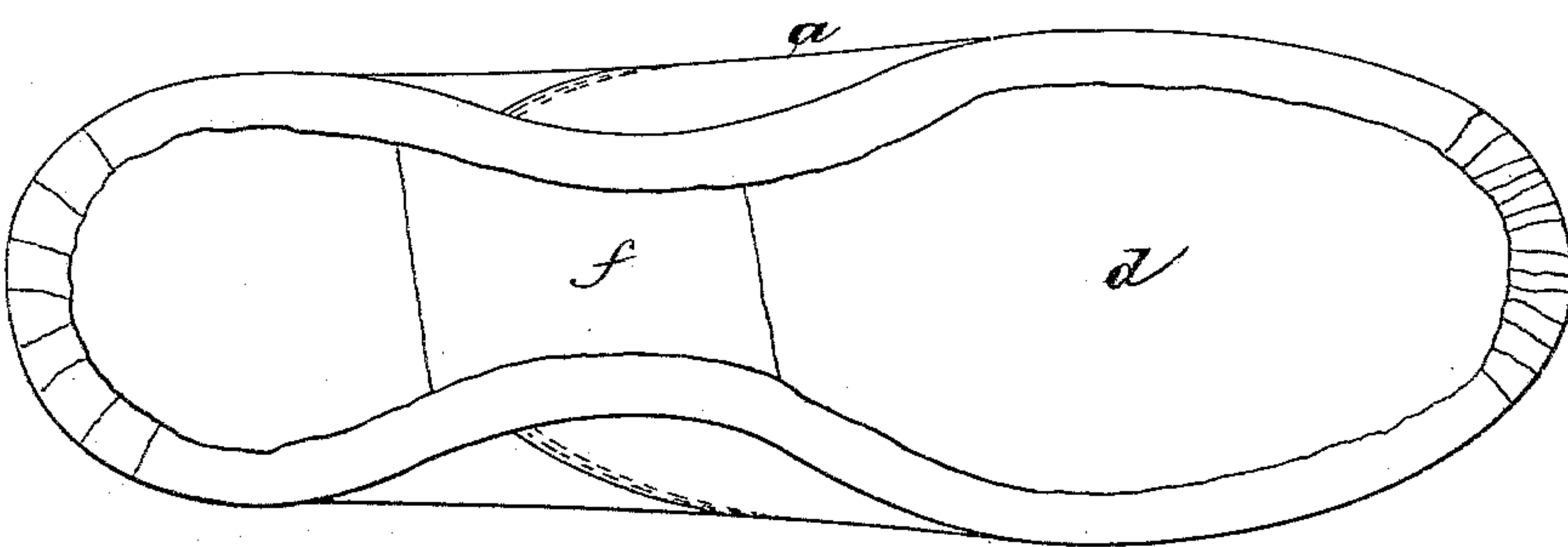


Fig. 3.



Witnesses.

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METHOD OF MANUFACTURING BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 378,445, dated February 28, 1888.

Application filed May 13, 1887. Serial No. 238,089. (No model.)

To all whom it may concern:

Be it known that I, JESSE W. HATCH, of Rochester, county of Monroe, and State of New York, have invented an Improvement in the Method of Manufacturing Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object to improve the method of lasting or putting together the parts of a shoe without the employment of tacks or driven fastenings and the application to the lasted shoe of a shank-piece and outer sole preparatory to the insertion of the fastenings employed to hold the upper and the inner and the outer soles in place.

20 Figure 1 in side elevation represents a shoe embodying my invention, the upper and sole being partially broken out to show the fastenings and the interior of the shoe. Fig. 2 is a side elevation, partially broken out, of the upper drawn up to and with its edges about the bottom of the last and the inner sole thereon, the shank-piece being shown in position; and 25 Fig. 3 is a view showing the inner sole with the edges of the upper laid over upon it ready for the reception of the outer sole.

30 The inner sole, *d*, and the outer sole, *e*, to be employed will be coated, the former upon its outer side and the latter upon its flesh side, with a cement containing india-rubber or equivalent material dissolved in naphtha, or what is known commercially as "india-rubber cement." The soles so prepared are laid away 35 in a dark or shady place until they become dry, or substantially so, the cement so applied forming an elastic rubber-like surface or coating for one side thereof.

40 The upper *a* employed will preferably have its lining stitched to it along the ball of the shoe, and so, also, the quarter-lining and heel-stiffener will be stitched together, as fully described in my application Serial No. 227,659, 45 to which reference may be had. The upper and lining at their inner edges from the heel-seat around the fore part and toe are coated with cement, in order that the edges so cemented may adhere to the coated face of the 50 inner sole.

With the parts so prepared the upper, it having had cement applied to its inner side

along its edges, the cement having been permitted to partially dry, will be applied to a last, and the last will be supported upon a 55 suitable spindle, and the operator by means of pinchers will grasp the toe of the upper and will pull the same up above the bottom of the last to form guides by which to position the inner sole, after which, by means, preferably, 60 of a power-actuated vamp and toe-wiper, such as described in my application Serial No. 239,749, the operator will wipe the vamp from at or near the ball of the last forward to the toe of the last, thus stretching and fitting the 65 upper to the last, and the upper will be held in such stretched position. The operator then places upon the last the inner sole, *d*, prepared as stated, with its cemented side outermost, and by pinchers grasps the edge of the upper 70 at one side the shoe, draws the same over upon the inner sole, and holds the same firmly in such position by the thumb of his other hand, while he removes the pinchers, and by them or other suitable hammer strikes the over- 75 turned edge of the upper a blow, to thus cause the cemented surface of the upper to adhere to the cemented surface of the inner sole. The operator then goes through the same operation at the opposite side of the last, after 80 which, preferably by means of a toe-crimping slide and toe-jaws, such as described in my application Serial No. 239,749, the operator causes the toe of the upper, and then the edges just beyond the toe, to be laid in succession 85 over upon the inner sole, the toe-crimping slide and toe-jaws being located in position to exert pressure upon the upper until the cement sets, that being almost instantly. Then the operator by his pinchers draws in the up- 90 per at first one and then at the opposite side of the shank, as described with relation to the upper, about the ball of the last, and thereafter by means of a heel-crimping slide and heel-jaws, preferably such as described in my ap- 95 plication Serial No. 239,749, the edges of the upper about the quarter, together with the stiffener, are crowded over and laid upon the heel end of the inner sole.

Nearly every shoe needs a shank-piece, and 100 herein the shank-piece *f*, composed of leather, paper, or other suitable material, preferably coated, as described, with india-rubber cement, is laid upon the shank of the inner sole, and

thereafter the outer sole, cut or shaped in usual manner and previously coated, as described, upon its flesh side with india-rubber cement, which has been permitted to dry, has
 5 its coated side laid against the previously-cemented but substantially-dry face of the inner sole, and in such position the outer sole is struck a sharp quick blow by means of a hammer, I having found in practice that a
 10 sharp quick blow upon one piece of leather coated with india-rubber cement and dried, or nearly so, in a dark or shady place, when laid upon another piece of leather similarly treated, causes the two rubber-coated surfaces to adhere together so firmly as to prevent any side
 15 motion or twist of one part upon the other, the adhesion caused by forcing the two soles together closely and sharply being amply sufficient to hold the outer sole in position to be manipulated in a sewing-machine or other
 20 machine employed to secure the outer sole, the said outer sole retaining its position without the aid of last, tacks, or nails, this process obviating what is called "tacking on the outer sole" preparatory to placing them in a machine to sew or nail the outer sole in position.

If it is desired to make a shoe more nearly water-proof than the one so far described, the operator, before applying the outer sole, as
 30 stated, and striking it at several places throughout its length by a hammer, will coat with india-rubber cement the edges of the upper previously laid or drawn over upon the inner sole, the cement so applied filling in the space
 35 ordinarily left between the flesh side of the inner sole and the upper where it embraces the inner sole.

Usually in the manufacture of ladies' shoes the flesh side of the outer sole is coated with
 40 an oil preventive, to obviate passing of oil from the upper through the outer sole to stain the outer face thereof. In my invention I make the coating of rubber cement applied to the flesh side of the outer sole serve this double
 45 purpose.

I am aware that outer soles have been applied to inner soles of lasted shoes by means of a cement containing india-rubber, the surfaces which are to be held together by the india-rubber being put together when wet and
 50 being held pressed together by strong pressure until the rubber sets; but in practice this method of joining together the different parts is very slow and lacks strength.

55 By drying the cemented upper and the cemented inner and outer soles in a dark or

shady place out of the reach of the sun I find that the surfaces formed will remain in such condition for days and weeks; that when put together and subjected to a blow the parts will
 60 adhere closely and firmly, or will not slip one on the other; but if dried in the sun it is necessary to wet or moisten the cemented surfaces.

I claim—

1. That improvement in the art or method of lasting shoes which consists in applying to a last an upper the edges of which have been previously cemented and partially dried, drawing the edges of the said upper above the bottom of the last, laying upon the bottom of the last, within the drawn-up cemented edges of the upper, an inner sole previously cemented at its outer side and dried, laying the said drawn-up edges of the upper over upon the inner sole, with their cemented surfaces in contact, then applying to the upper and inner sole, over upon which the edges of the upper have been laid, as stated, an outer sole previously cemented and dried, and forcing the cemented surfaces of the outer sole and inner sole closely together, thus uniting them, substantially as described.

2. That improvement in the art or method of lasting shoes which consists in applying to a last an upper the edges of which have been previously cemented and partially dried, drawing the edges of the said upper above the bottom of the last, laying upon the bottom of the last, within the drawn-up cemented edges of the upper, an inner sole previously cemented at its outer side and dried, coating with india-rubber cement the outer edge of the overturned portion of the upper immediately overlying the inner sole, laying the said drawn-up edges of the upper over upon the inner sole, with their cemented surfaces in contact, then applying to the upper and inner sole over upon which the edges of the upper have been laid, as stated, an outer sole previously cemented and dried, and forcing the cemented surfaces of the outer sole and inner sole closely together, thus uniting them, substantially as described.

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

JESSE W. HATCH.

Witnesses:

C. M. CONE,
 F. L. EMERY.