

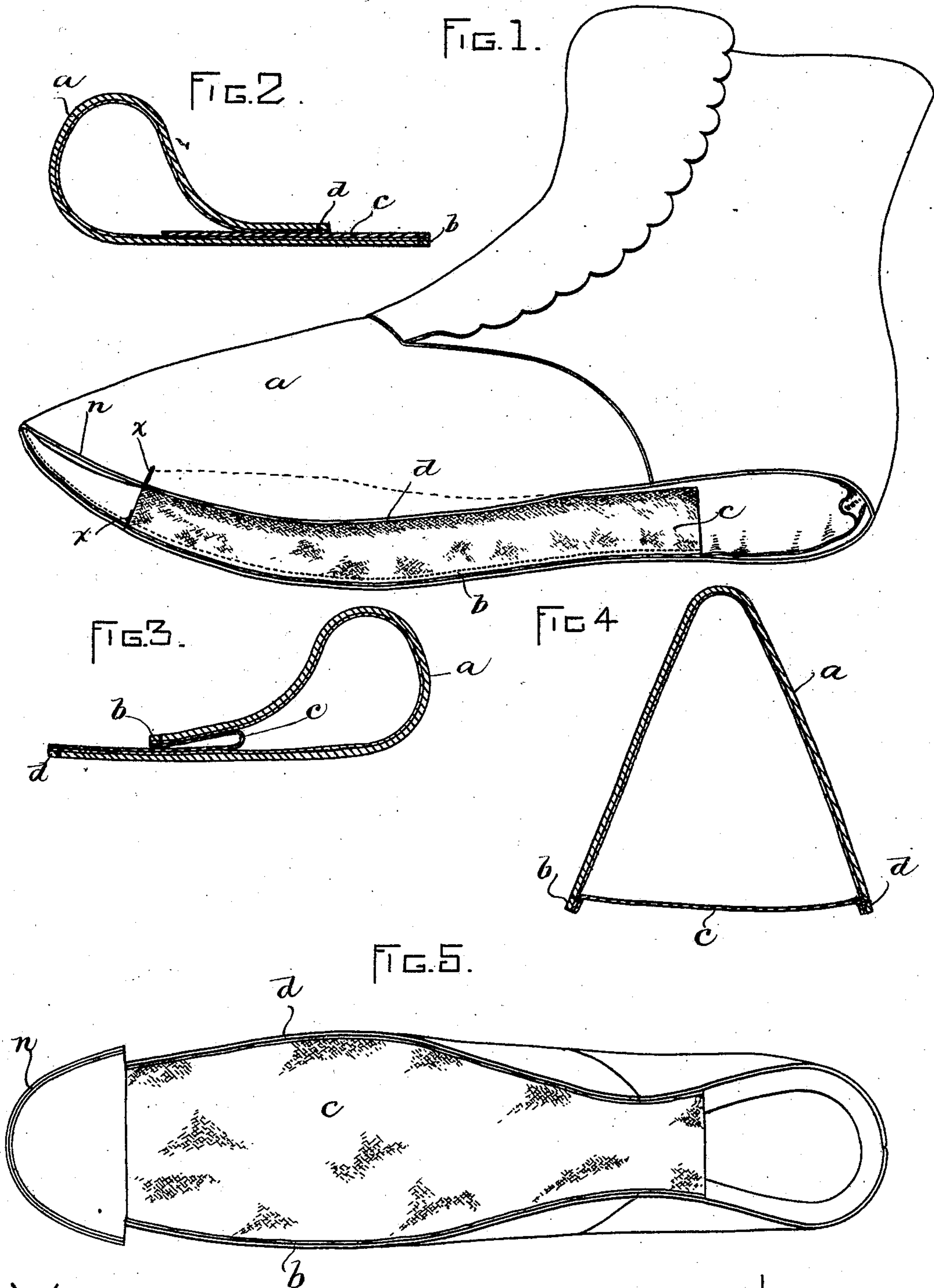
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3 Sheets—Sheet 1.

B. A. NORWOOD.  
METHOD OF LASTING BOOTS OR SHOES.

No. 503,062.

Patented Aug. 8, 1893.



WITNESSES:

H. Brown  
H. A. Hall.

INVENTOR:

Benj. A. Norwood  
By J. H. Brown & Co.  
attys

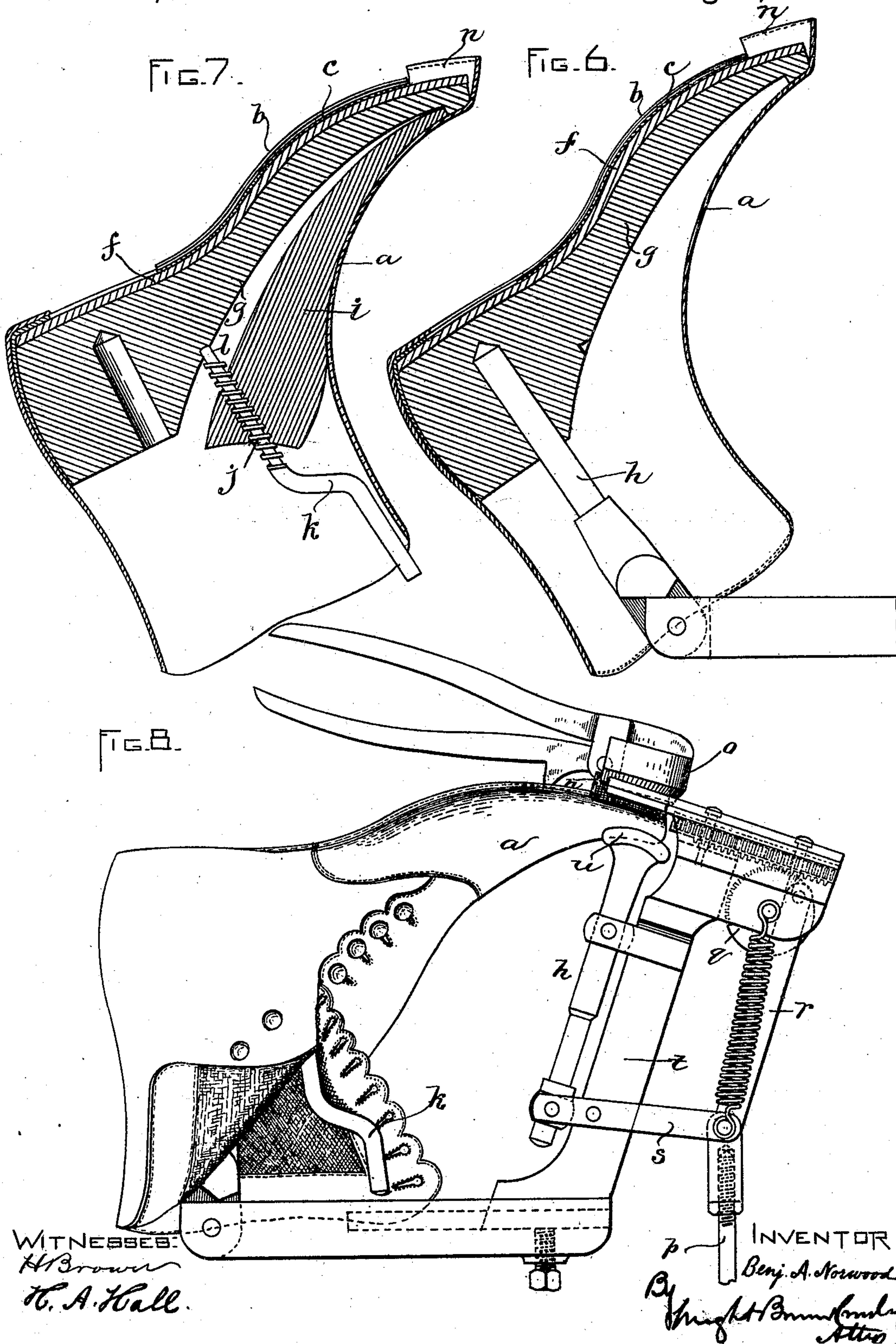
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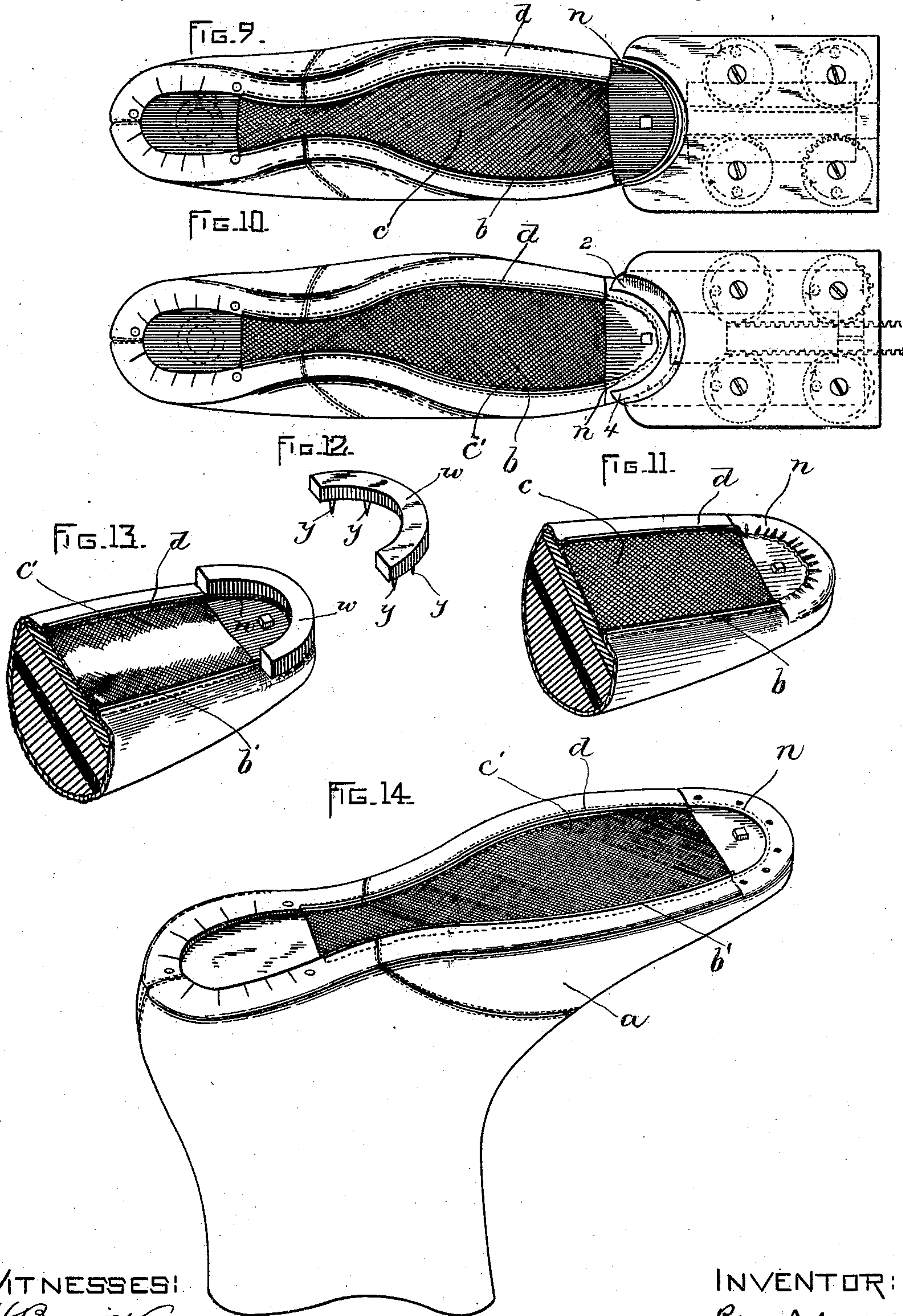
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*H. Brown*  
*H. A. Hall.*

INVENTOR:

*By* *Benj. A. Norwood.*  
*Hugh B. Mumfry*  
*Attor*



# UNITED STATES PATENT OFFICE.

BENJAMIN A. NORWOOD, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE EUREKA PROCESS LASTING COMPANY, OF SAME PLACE.

## METHOD OF LASTING BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 503,062, dated August 8, 1893.

Application filed October 3, 1892. Serial No. 447,675. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN A. NORWOOD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Methods of Lasting Boots or Shoes, of which the following is a specification.

This invention has for its object to provide an improved method of lasting boot or shoe uppers, and it consists in the series of operations which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification, Figure 1 represents a perspective view of the upper of a woman's button boot. Figs. 2, 3, and 4 represent sectional views of the same hereinafter explained. Fig. 5 represents a bottom view hereinafter described. Fig. 6 represents a sectional view of a lasted shoe and a portion of a lasting jack, the last being shown without the instep block. Fig. 7 represents a sectional view of a lasted shoe with last block in position. Fig. 8 represents a side elevation of a lasted shoe in position upon a jack. Figs. 9, 10, 11, 12, 13 and 14 represent different steps in the method of lasting embodying my improvements.

The same letters and figures of reference indicate the same parts in all the figures.

In carrying out my invention I take the upper *a* of a boot or shoe, and connect the edges thereof by a thin lasting sole *c* which does not extend to the toe and heel, said lasting sole being preferably a strip of cloth (see Fig. 1) attached at its edges to the upper *c* by first crowding back one edge *d* of the upper as shown in Fig. 2, and stitching the strip to said edge, thus reversing the position of the upper, crowding back the edge *b* and attaching the opposite edge *e* of the strip *c* to the opposite edge *d* of the upper as shown in Fig. 3, thus attaching the cloth strip to both edges of the upper as shown in Figs. 4 and 5. The cloth strip *c* serves to connect the upper in the subsequent operations of lasting the shoe and constitutes a lasting sole which retains the upper in position during the subsequent operation of expanding and forming the upper by internal outward pressure, as hereinafter described. After inserting the counter and

securing the same, I apply an ordinary sole *f* to the bottom of a last *g*, and gum the outer face of said sole. I then place the last on a suitable jack *h* without a last block and draw the upper over the last as shown in Fig. 6. I then remove the last and shoe from the jack and insert the block *i* (Fig. 7) which block is provided with an adjusting screw *j*, the lower end of which is or may be provided with a crank *k* whereby the screw may be rotated, the upper end *l* of the screw bearing against the last. After inserting the block *i* I button several buttons of the shoe preferably about four, or if the shoe has lacing eyelets I connect a corresponding number of the latter and then rotate the screw in the direction required to force the block away from the last, and thus exert internal outward pressure on the upper, said pressure taking up the slack of the upper and causing it to snugly fit the last as shown in Fig. 8.

In the preparation of the upper for the lasting process I cut slits *x x* (Fig. 1) in the upper on each side near the toe end of the cloth sole, said slits permitting the toe *n* to project as shown in Figs. 6 and 7. After the shoe has been lasted and placed upon the jack, I gum or cement the underside of the upper of the heel and toe. I then take a pair of pinchers *o* having semicircular jaws designed to grasp the projecting toe and pull said toe over the last in the manner shown in Fig. 8, and while retaining the pinchers in position I depress a treadle (not shown) connected to the jack, which treadle is suitably connected with a rod *p* Fig. 8, said rod being suitably connected with a gear wheel *q* by a rod *r* and with an arm *s* which is pivotally secured to the supporting frame *t* of the jack, said arm *s* supporting a toe rest *u* which supports the toe of the shoe in the position shown in the above mentioned figure. The depression of the treadle causes a partial rotation of gear *q*, and a sufficient elevation of the toe rest to bring the shoe at the required height to permit the engagement with the projecting toe piece *n* of a wiping device *v* adapted to be projected by the rotation of the gear *q*. Said wiping device as here shown consists of metal plates 2, 3, 4, preferably three in number suitably connected



with the gear *q* by mechanism intermediate of the wiping plate and said gear so as to be projected and retracted to wipe the toe piece *n* over the innerside, as shown in Fig. 10. The outside plates are arranged to be moved longitudinally and laterally at the same time by suitable means as described in another application for Letters Patent filed by me concurrently with this. While the toe of the upper is being wiped down, the toe rises slightly, its upward motion being sufficient to cause it to co-operate with the wipers in exerting a gradually increasing compressive pressure on the toe portion of the upper, the pressure thus obtained being sufficient to compress the wiped over portion and flatten down the wrinkles or corrugations thereof. The described action of the wipers leaves the toe of the shoe as shown in Fig. 11, with the inner edge evenly corrugated and projecting under the wipers as seen in Fig. 10. In this position before removing pressure from the treadle I place a semicircular plate *w*, Fig. 12, having sharp pointed projections *y* upon its under side upon the projecting outer edge of the toe piece or lip *n* as shown in Fig. 13, driving the projecting points into the inner sole and smoothing the wrinkles or corrugations substantially as shown in Fig. 13. I prefer to let the semicircular retaining piece remain in the position shown until the cement has "set" sufficiently to hold the wiped over portion of the toe in the position shown in Fig. 14. After attaching the toe retaining piece I release the pressure upon the treadle and the wipers are retracted by the spring *c'* acting to raise the treadle to its normal position. The shoe is removed from the jack and the last detached from the shoe and the shoe laid aside to give time for the cement to firmly set prior to the process of laying the sole.

I do not limit myself to the application of the described method to the toe of the shoe, as I may employ the same in the treatment of the heel portion without departing from the nature or spirit of the invention. Neither

do I limit myself to the described means of performing the several operations described, and may use any other suitable means for stitching and shaping the upper for wiping the toe (or heel) portion of the upper over upon the inner sole and for transversely retaining the toe portion while the cement is setting. The wiped over portion of the upper may be secured by lasting tacks while held as shown in Fig. 10, in which case the use of cement and of the temporary fastening device shown in Figs. 12 and 13 will not be required.

I claim—

1. The improved method of lasting hereinbefore described, the same consisting in placing an upper having the described lasting sole on an inner sole, suitably mounting the same, then stretching and shaping the upper by applying outward pressure to the inner surface of the upper, the direction of such pressure being substantially at right angles with the sole, then wiping the toe portions of the upper over upon the exposed portion of the inner sole, and securing said toe portion to the inner sole.

2. The improved method of lasting hereinbefore described, the same consisting in placing an upper having the described lasting sole on an inner sole, then stretching and shaping the upper by internal pressure, then wiping the toe portion of the upper over the exposed toe portion of the inner sole and cementing the wiped over portion to the inner sole, and then temporarily attaching the wiped over portion of the upper to the inner sole while the cement is setting, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of September, A. D. 1892.

BENJAMIN A. NORWOOD.

Witnesses:

C. F. BROWN,  
M. W. JACKSON.