

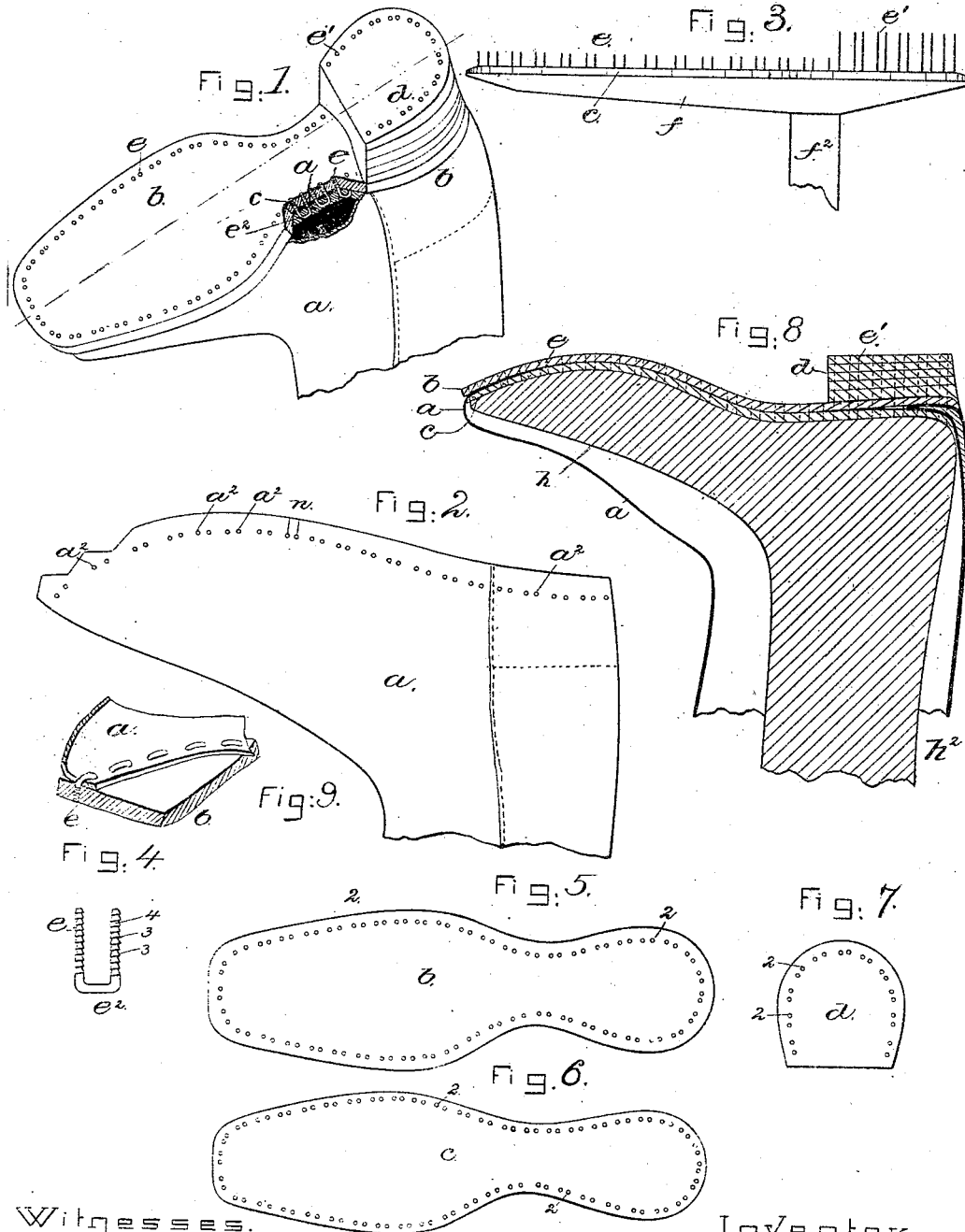
(No Model.)

H. R. ADAMS.

MANUFACTURE OF BOOTS OR SHOES.

No. 262,552.

Patented Aug. 15, 1882.



Witnesses.

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MANUFACTURE OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 262,552, dated August 15, 1882.

Application filed February 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, HIRAM R. ADAMS, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Boots or Shoes, of which the following description, in connection with the accompanying drawings, is a specification.

My invention consists in a boot or shoe having its upper and its outer and inner soles united by means of metallic staples, such as hereinafter described, extended through holes made in the inner sole, and thence out through the upper and outer sole, the projections on the legs of the staples being so shaped as to permit the leather to be forced easily upon them, and thereafter to practically prevent the leather from being pulled from the staples.

My invention also consists in that improvement in the art or method of manufacturing boots and shoes which consists in providing the outer and inner soles and the upper of the boot or shoe with a series of holes to receive the sole-fastenings, placing the sole-fastenings in the inner sole with their pointed ends extended beyond what is to be the under side of the inner sole, placing the upper provided with holes over the ends of the said fastenings, applying the perforated outer sole or soles to the said fastenings, and forcing the outer sole and upper down upon the said fastenings, as will be hereinafter described.

My invention has for its object the production of a most serviceable and strong boot and shoe in a novel, simple, expeditious, and cheap manner, without the necessity of skilled labor or extensive machinery.

Figure 1 represents part of a boot made in accordance with my invention, a portion of the same being broken out to show the fastenings; Fig. 2, the upper provided with a series of holes near its edge; Fig. 3, the inner sole, with staples or fastenings set in it, the sole being placed on a suitable support; Fig. 4, one of the staples or fastenings enlarged, and having its legs provided with projections in accordance with my invention; Figs. 5, 6, and 7, the outer sole, the inner sole, and heel, provided with holes for the reception of the staples or fastenings; Fig. 8, a longitudinal section of the boot, its soles and heel all being

placed on a jack to be pressed or molded into close contact on the staples and to shape or mold the soles; and Fig. 9, a modification to be referred to.

In the practice of my invention I prefer to take the upper *a* for the boot or shoe, and crimp it, as in United States Patent No. 243,422, granted to me June 28, 1881, to which reference may be had, wherein it will be seen that the upper, as it is crimped, is marked or creased to designate where it should be pierced or punctured to receive the sole-fastenings, and thus insure uniformity in shape and size of all boots made on any one form. Having crimped and marked the upper *a*, as described in the said patent, I next punch through it a series of holes, the latter being made preferably for best work in the irregular or waved crease or marked line made in crimping.

The outer sole, *b*, inner sole, *c*, and heel *d* will be properly shaped in dies. The outer sole and inner sole for each boot or shoe are superimpressed one on the other, and, if desired, the heel may also be placed in its proper position in the same pile, and the soles and heel will then be punched with holes 2 for the reception of the legs of the staples *e* or sole-fastenings, to be hereinafter described, one of such staples being shown in detail, Fig. 4, on a large scale, to clearly illustrate the peculiar form of the projections of the legs. The holes are made in the soles or soles and heel at one operation by means of a gang of awls suitably actuated, as I shall describe in another application for United States patent to be made by me. The sole-fastenings, preferably staples *e*, such as shown, are then inserted through the holes 2 in the inner sole, *c*, from what is to be its upper or tread face. The staples *e'*, inserted in a like manner through the heel end of the inner sole, (see Fig. 3,) are longer than those inserted through the shank and forepart of the inner sole, to thus enable the heel to be united to the shoe by staples. The inner sole, having been set with staples, will be placed upon a rigid but thin supporting-plate, *f*, (see Fig. 3,) at the top of the post *f'*. This plate *f* is thin, and very much smaller in cross-section than would be a last to fill the upper, as when lasting in the usual manner, so that when the

upper *a*, provided with holes *a*², is placed outside of or about the support *f* and inner sole, the perforated parts *a*² of the upper may be readily placed over the legs of the staples.

5 The heel-stiffener, if used, will also be provided with a series of holes for the staples. The upper having been applied to the staples *e e'*, while the inner sole is sustained by the supporting-plate *f*, the outer sole, *b*, will be applied to the legs of the staples *e e'*, and then

10 the heel *d*, provided with holes, will be placed on the longer staples, *e'*, after which the outer sole and heel will be crowded well down upon the legs of the staples. The boot or shoe thus

15 partially united will be placed on a stiff iron last, *h*, having its shank *h*² properly supported, and by blows upon the outer sole and heel, or by strong pressure against the outer sole and heel by a suitable roll, form, or die, the outer

20 sole and heel will be forced completely down on the staples, uniting the inner sole, upper, and outer sole by means of fastenings extending from the tread-face of the inner sole outward through the upper and through or into

25 the outer sole. While on the last *h* or subsequently the sole will be molded.

The legs of the staples are so grooved or cut as to present a series of cones the apices of which are turned toward the points of the legs

30 of the staples, as shown fully in Fig. 4. This construction of the staple enables the leather to be easily forced upon the staples, and the projecting annular portions 3 of the bases of the cones 4 act as shoulders to prevent the return or movement of the outer sole from the

35 ends of the legs of the staples. Staples of the kind described hold the material of the boot or shoe together more positively and securely than were the staples made with plain legs or

40 simply corrugated. Wear and blows against the sole and heel in walking act to crowd the sole and heel farther on the staples, and the staples, shaped as shown in Fig. 4, keep all the "settle" of the stock, and the tendency of the

45 staple is to work outwardly with relation to the inner sole rather than to be worked through the inner sole toward the boot, as with a common nail or screw driven into the inner sole from the outer sole. A staple having its legs

50 shaped as shown does not need to have its ends clinched or riveted. When a staple is employed I am enabled to use, if desired, a thinner and cheaper inner sole than can be practically used when nails and screws are inserted

55 through the outer sole and upper and clinched or driven into the inner sole. The cross-bar *e*² of each staple will be embedded in the tread face of the inner sole, and will present a surface less objectionable to the stocking and foot

60 than the surface left by the points of fastenings driven into it from the direction of the outer sole.

In Figs. 1, 3, and 8 I have considered it unnecessary to represent the exact construction

65 of the staples. In Fig. 8 the staples are shown in dotted lines.

A machine for punching holes in the upper will form the subject-matter of another application.

My novel process herein described might 70 be practiced with good results by sole-fastenings or staples of other shapes or construction than that specifically shown at Fig. 4; but I do not herein claim a boot or shoe except when united and held together by a staple substantially such as shown and described in Fig. 4.

By the process described, boots and shoes may be assembled and united together very rapidly by means of unskilled labor, and the boot or shoe herein described will be so 80 securely held together that its soles cannot separate in wear or be pulled off or detached with any usual strain.

By employing the thin support *f* the upper may be lifted and moved freely in any desired 85 direction when applying its perforated portions upon the legs of the staples set up in the inner sole. I have notched the upper to reduce plaits at the toe.

By my process I avoid the usual so-called 90 "lasting" operation.

If a tap-sole should be desired, the staples *e* about the ball and toe of the boot or shoe in front of the shank would be provided with staples of a length sufficient to extend through 95 all the soles to be used.

I am aware that the soles of boots and shoes have been held together outside the upper by staples, and also that the soles and upper have been united by common staples driven through 100 them, first into the outer sole, then into the upper and inner sole. The larger ends 3 of the conical portions of the legs of the staples form holding-projections to prevent the escape of the leather from the staples.

105 Instead of using round wire for the staples, I might employ square or other many-sided wire, providing it, however, in all instances with shoulders made larger or most abrupt nearest the cross-bar of the staple, so as to enter the leather as wedges, and present abrupt 110 corners or shoulders to prevent escape of the stock from the staples.

Instead of the round holes in the upper, I might slot the upper from the said holes to its 115 edges to facilitate the placing of the perforated parts of the upper over the staples. I have shown two of the said holes provided with slots, as at *n*.

If the material of which the upper is composed is of sufficient strength, I may insert the legs of the staples through the holes in the inner sole from the inner face of the upper, and then place the perforated part of the outer sole upon the legs of the said staples, as in the de- 125 tail, Fig. 9.

I claim—

1. As an improved article of manufacture, a boot or shoe having an outer sole, inner sole, and upper united by staples having holding- 130 projections 3 thereon, such as described, and inserted through the soles and upper with the

cross-bar of the staple next the inner sole, substantially as described.

2. That improvement in the art or method of manufacturing boots and shoes which consists in first perforating the outer sole, inner sole, and upper for the reception of the sole-fastenings, inserting the sole-fastenings through the holes in the inner sole from its upper or tread face, then placing the perforated portions of the upper and the outer sole over the projecting ends of the sole-fastenings, and forcing or pressing the soles and upper closely together, substantially as described.

3. The herein-described method of connecting the inner and outer soles and upper of a boot or shoe, which consists in punching holes in the said soles and upper for the reception

of the metallic fastenings, and subsequently inserting the metallic fastenings into the inner sole, placing the latter, with its inserted fastenings, upon a thin form, *f*, placing the perforated portions of the upper over the fastenings, applying the outer sole to the said fastenings, and then hammering or pressing the outer sole upon the fastenings and forcing the soles together, substantially as shown and described.

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

HIRAM R. ADAMS.

Witnesses:

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G. W. GREGORY.