F. A. BEACH.
Last

No. 210,744. Patented Dec. 10, 1878.

Fig. 1

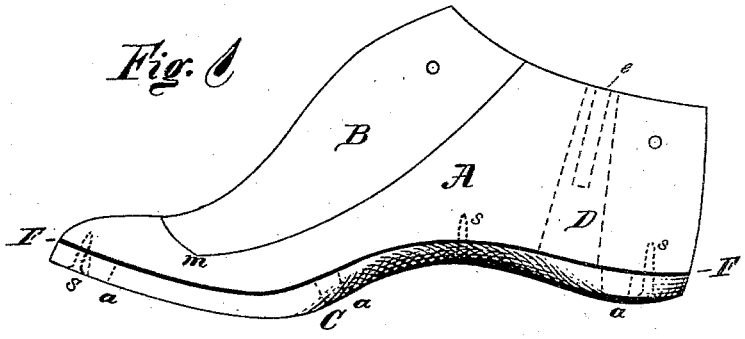


Fig. 2

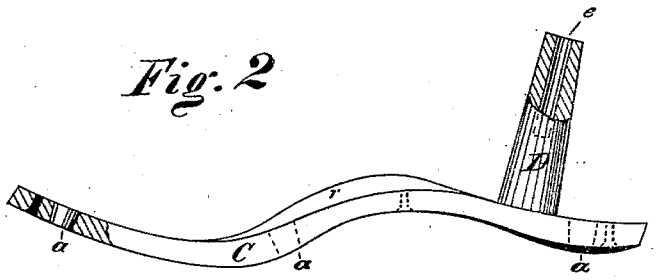
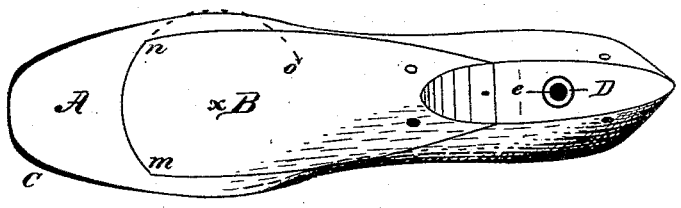


Fig. 3



Witnesses.
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Inventor.
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UNITED STATES PATENT OFFICE.

FLAVEL A. BEACH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE H. VAN PELT, OF SAME PLACE.

IMPROVEMENT IN LASTS.

Specification forming part of Letters Patent No. **210,744**, dated December 10, 1878; application filed March 18, 1878.

To all whom it may concern:

Be it known that I, FLAVEL A. BEACH, of the city of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Lasts, of which the following is a full, clear, and accurate description, reference being made to the accompanying drawings, which form a part of this specification.

My invention mainly relates to lasts specially intended for making nailed shoes.

Heretofore two kinds of lasts have been used for this purpose—first, wooden ones faced on the bottom with thin sheet metal, bent to conform to the previously-shaped wooden bottom, and secured thereto by numerous screws placed near the edges, and, secondly, those wholly of cast-iron. Experience has shown that the former lack the inertia or solidity and also the strength desirable in a last for nailed shoes, and that the latter are unnecessarily and objectionably heavy and cumbersome.

The main object of my invention is to obviate these principal faults in the lasts described. It has, however, other objects, which, with the devices for their attainment, will be set forth more at length below.

My invention consists, primarily, in a two-part last, in which the upper portion is of wood and the lower of iron, forming a complete bottom facing, and also extending upward at the rear of the last to give direct connection with, and to receive immediate support from, the jack. The weight of metal necessary in such a last to give proper rigidity and strength is greatly less than that of an all-iron last, and is at the same time sufficient to give the inertia or resistance desirable in making nailed shoes.

Such a body of cast-iron differs materially from the thin sheet-metal facing above mentioned. For example, in the former the various curves and angles of the last-bottom are determined once for all lasts of a size in the pattern for the casting, while in the latter they are given separately—first, to the wood, and, second, to the facing, of each last. Again, the screw or other fastenings may be fewer and more favorably located for the strength of the last, for the security of the facing, and for the perfect clinching of the nails within the shoe. Further, the metal so far relieves the wood portion from the effects of the constant and severe hammering to which a last is subjected in making nailed shoes that a last thus heavily faced must be far more durable. Still further, the metal bottom may be loosened or removed for the insertion or withdrawal of whatever may be placed between the wood and iron to vary the measurements over the foot.

In the drawings, Figure 1 is a side view of my combined wood and iron last. Fig. 2 is a side view of the metal portion detached; and Fig. 3 is a top view of a last, particularly showing the metal portion extended upward through the wood portion in the form of a stud, and provided with a hole for the reception of the jack-pin.

A is the wooden portion of a last, of which B is the block. C is a heavy cast-iron bottom-facing, forming a considerable portion of the last-body. It is secured to the wood portion A by the screws *s s*, or otherwise.

D is an upward extension of the metal portion at or through the rear of the wood portion, designed to have contact and connection with the jack upon which the last is used. In the larger sizes of lasts, and for heel and toe jacks, D will preferably be in the form of a stud passing through the wood portion, as indicated by dotted lines; but in smaller sizes, or for use on single-support jacks, when greater strength is required, it may form the entire back portion of the last.

E is a layer of straw-board, or other suitable material, cut in proper form to lie flush on all sides between A and C. Its introduction or removal serves to vary the measurements of the last about the foot, and to give different grades of sizes in shoes with the same size of bottom.

The bottom C is provided with two or more holes at *a a*, plugged with wood or other substance, to receive the temporary sole-tacks.

The proximate surfaces of wood and iron at F F are transversely straight, or nearly so, wherefore little fitting is necessary beyond carefully sawing the wood portion in a line of proper longitudinal curvature. If it is necessary to strengthen the bottom at any particular point it may be cast thicker at that point throughout its width; or it may be longi-

tudinally ribbed, as shown at *r*, Fig. 2, and the wood suitably cut away to receive it.

It will be observed that all the nice curves of the bottom surface, the generally sharp outlines, and the smooth angular edges are easily obtained and preserved in the cast portion of a last such as described. If it be finished before it is joined to the wood it forms a rigid and reliable guide by which the wood may be dressed, as in use it affords a wide and smooth gage for the knife-edge in rounding the insole, equally harmless to the knife, and unharmed by it.

While possessing every merit of inertia and strength found in the all-iron last, the combined wood and iron last described has several advantages over it. Thus it is so much lighter that the workman can handle it with far more rapidity and less effort. It can be varied in circumferential measurement in the manner described, and may be reduced in size by cutting down the wood. It may also, with less expense, be given a better surface finish, and is generally a more agreeable and suitable article to handle.

Besides its special adaptation to the making of nailed shoes, my last will be found serviceable as a beating-out last, in connection with a common jack, for machine-sewed work of all grades, essentially the same qualities in the last being required for this purpose as in making nailed work.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A two-part last in which the lower or metal portion extends upward at or through the rear of the upper or wood portion, to have contact or connection with the jack, substantially as and for the purposes set forth.

2. In a two-part last, the metal thimble D, extending through the upper or wood portion A, with bottom iron part C, to relieve the wood from the hammer-blows and the strain of the jack-pin, substantially as described.

3. The combination, in a last, of the metal bottom-facing C, rigid stud D, and wood portion A, substantially as shown and described, and for the purposes specified.

4. In a last composed of a wood portion, A, and rigid metal part C, the intermediate removable strut F, substantially as described, and for the purposes set forth.

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Witnesses:

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