

(No Model.)

E. S. MORTON & E. C. WOODARD  
LAST.

No. 497,591.

Patented May 16, 1893.

FIG. 1

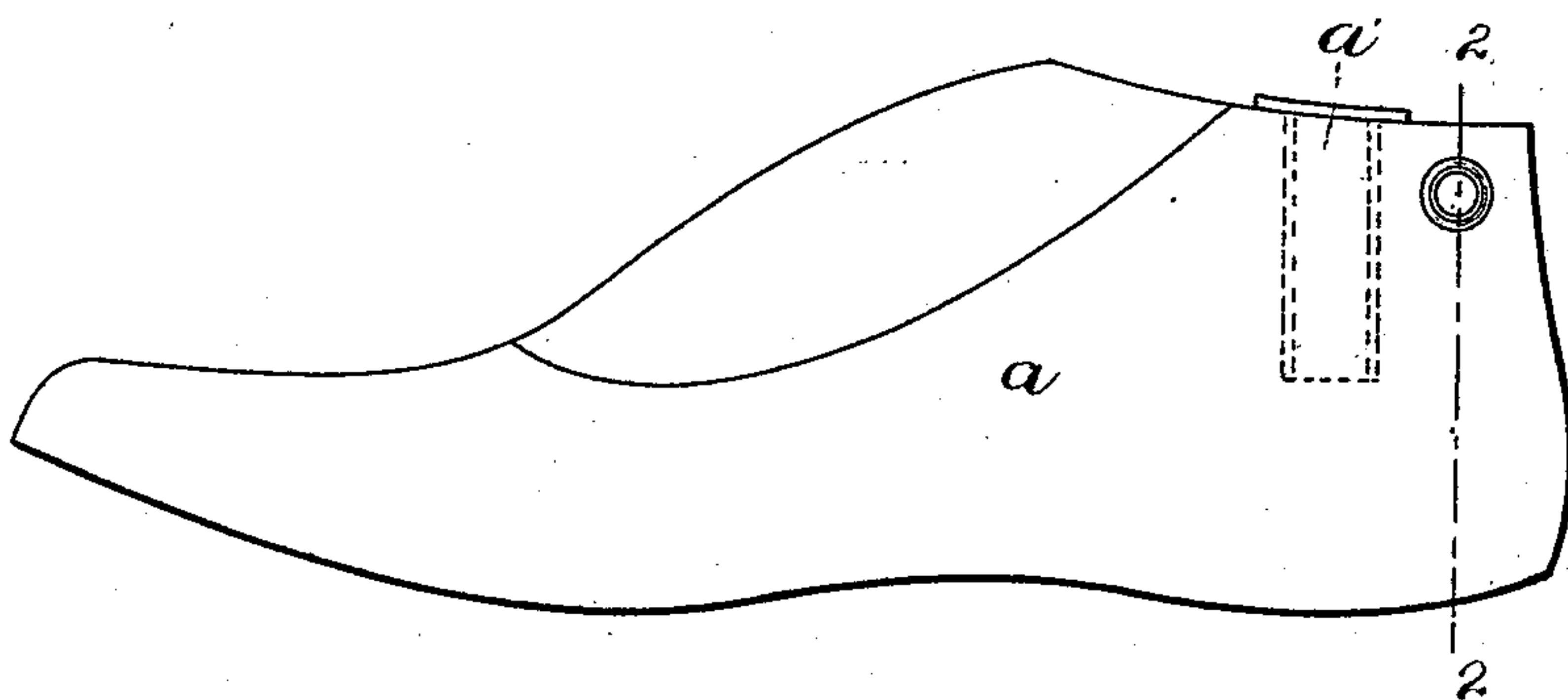
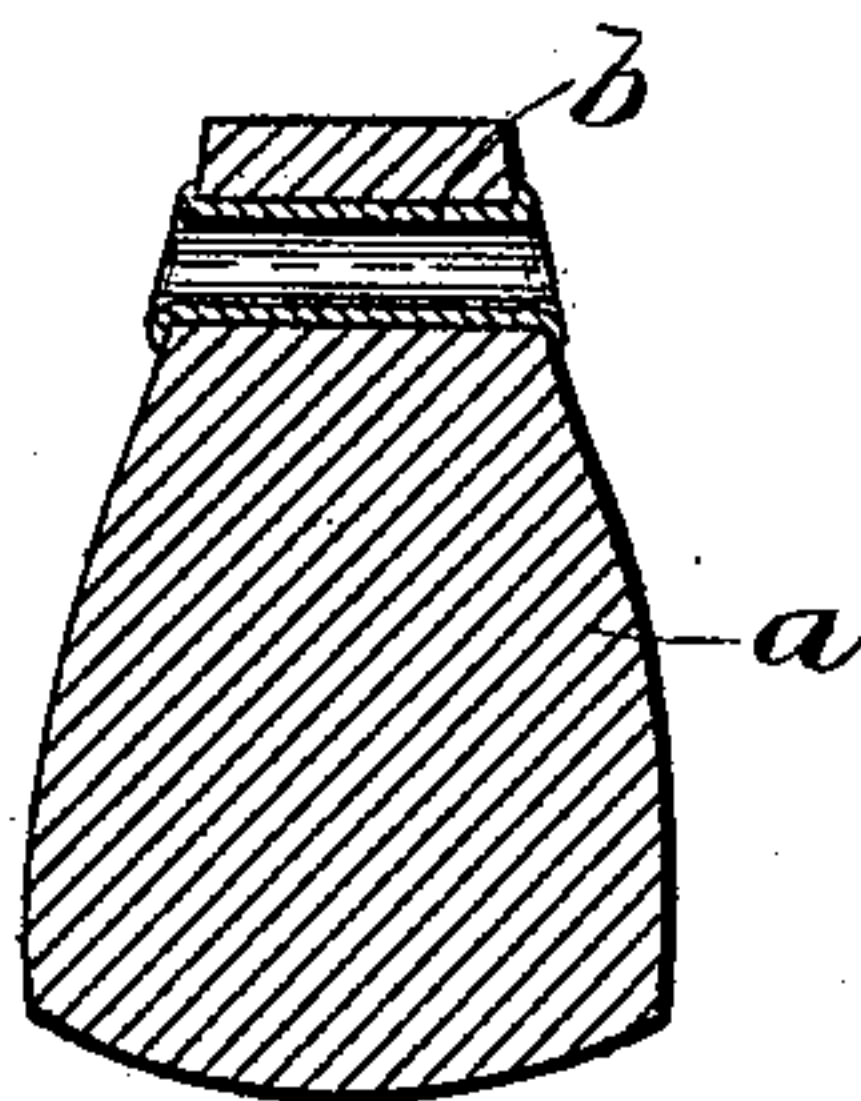


FIG. 2



WITNESSES:

*H. E. Brown*

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# UNITED STATES PATENT OFFICE.

EPHRAIM S. MORTON AND EDWARD C. WOODARD, OF BROCKTON,  
MASSACHUSETTS.

## LAST.

SPECIFICATION forming part of Letters Patent No. 497,591, dated May 16, 1893.

Application filed November 19, 1892. Serial No. 452,565. (No model.)

*To all whom it may concern:*

Be it known that we, EPHRAIM S. MORTON and EDWARD C. WOODARD, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Lasts, of which the following is a specification.

This invention has for its object to improve the construction of the heel portions of lasts for boots or shoes with respect to strength and durability, and it consists in a last having at its heel portion a transverse tubular or hollow rivet, extending through the last at the rear of the usual spindle socket, said rivet not only serving the purpose of the ordinary rivet in preventing the last from splitting, but also serving as a lining or bushing for the hole that receives the last hook, so that the last, instead of having a solid rivet and an unbushed last hook hole, as heretofore, has only the tubular rivet, so that much less of the material of the last is cut away between the heel and the spindle socket than heretofore, the liability of splitting or cracking the last being therefore materially decreased.

Of the accompanying drawings, forming part of this specification: Figure 1 represents a side elevation of a last provided with our improvement. Fig. 2 represents a section on line 2—2, Fig. 1.

The same letters of reference indicate the same parts in both the figures.

In the drawings: *a* represents a last provided with the usual spindle socket *a'*.

In carrying out our invention, we form a single transverse orifice through the last, between the spindle socket and the rear end of the last, and insert in said orifice a tubular rivet *b*, which is open from end to end. Said rivet is engaged with the last by having its ends spread or flanged, said ends being preferably rolled backwardly and driven into the sides of the last, as shown in Fig. 2. Said

flanges, bearing against the sides of the last, serve the purpose of rivet heads in preventing the last from splitting. The tubular form of the rivet enables its interior to serve as an orifice to receive the usual last hook whereby the last is pulled out from the boot or shoe.

Heretofore it has been the invariable custom to provide a last with a solid rivet, and with a last hook hole, thus involving the formation of two holes between the spindle socket and the rear end of the last. This construction weakens the last at the rear end and renders it liable to split; and, besides this difficulty, it is necessary, in order to provide sufficient material around the last hook hole, to locate said hole so low that it is in many cases covered when in the boot or shoe by the counter or heel stiffener, so that, in order to obtain access to the hole, it is necessary to forcibly displace the heel stiffener, thus materially injuring the boot or shoe.

It will be seen that our improved rivet can be placed as near the top of the last as may be desired, so that the last-mentioned difficulty will be obviated.

We claim—

The combination with a last of a tubular rivet, which extends transversely through the last between the spindle socket and the end of the last, and is provided with outwardly-turned flanges at its ends, bearing on the opposite sides of the last, whereby the rivet is caused to prevent the last from splitting, the rivet being open from end to end so that it may receive a last-hook, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 11th day of November, A. D. 1892.

EPHRAIM S. MORTON.

EDWARD C. WOODARD.

Witnesses:

HERBERT H. CHASE,

FRED M. BUXBY.