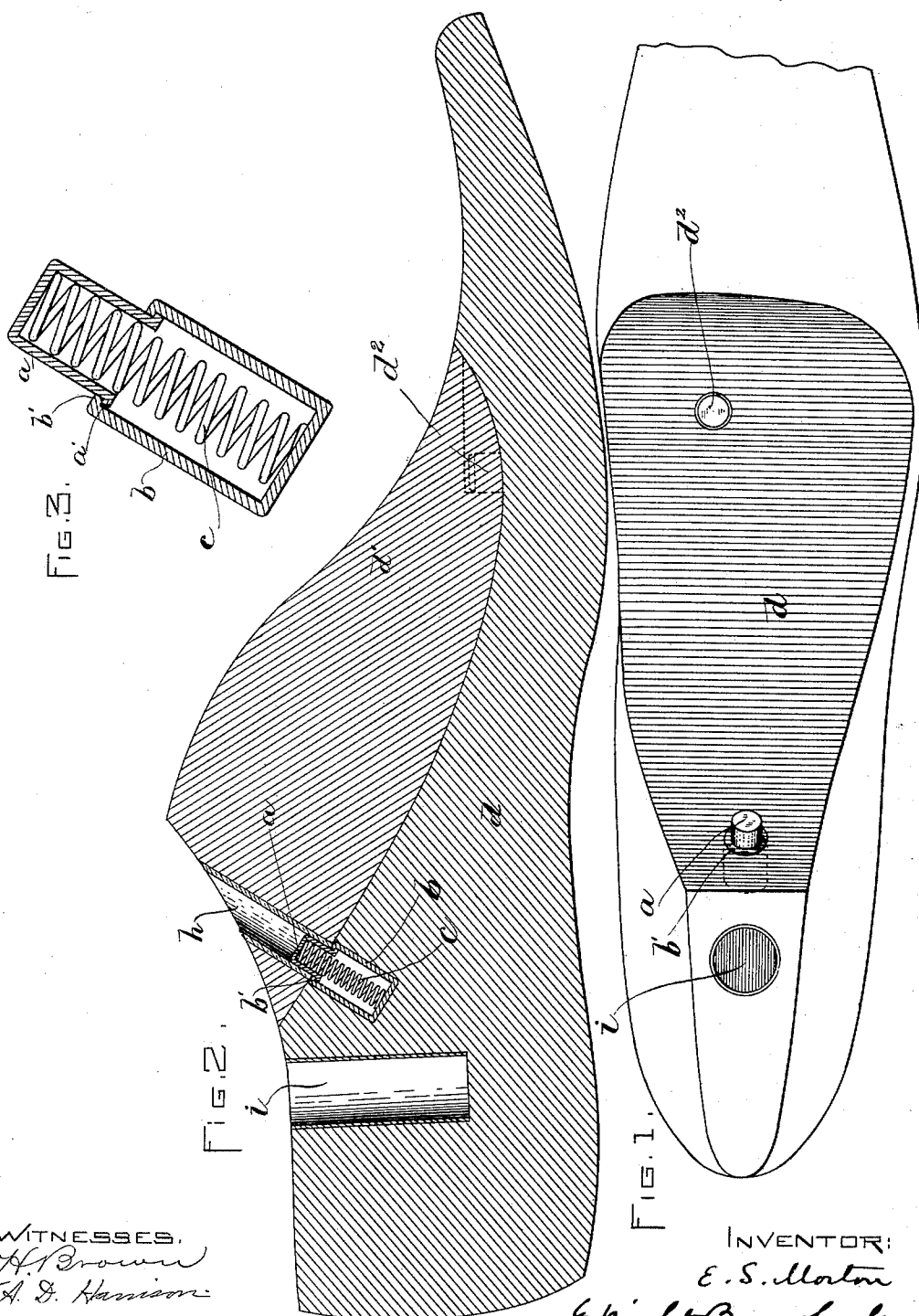


(No Model.)

E. S. MORTON.
LAST.

No. 468,088.

Patented Feb. 2, 1892.



WITNESSES.
H. Brown
A. S. Harrison

INVENTOR:
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UNITED STATES PATENT OFFICE.

EPHRAIM S. MORTON, OF BROCKTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO ANDREW H. BAKER, OF SAME PLACE.

LAST.

SPECIFICATION forming part of Letters Patent No. 468,088, dated February 2, 1892.

Application filed August 21, 1891. Serial No. 403,297. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM S. MORTON, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Last-Block Fasteners, of which the following is a specification.

This invention relates to lasts in which the upper end of the block is secured by a spring-bolt supported by the last and normally projecting above the seat for the block and entering an orifice in the under side of the block.

The invention has for its object to enable the combined length of the bolt and its impelling-spring to be reduced to the minimum, so that the bolt can be inserted in a last in the desired position without interfering with the socket usually formed in the rear portion of the last for the reception of the spindle of the jack by which the last is held during parts of the operation of making a boot or shoe.

The invention consists in the construction and combination of parts, as hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a plan view of a last having my improved block-fastener, the block being removed. Fig. 2 represents a longitudinal section of the same, the block being in place. Fig. 3 represents an enlarged sectional view of the bolt and its socket.

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

In the drawings, *d* represents the body of the last, and *d'* the usual removable block, the under surface of which fits a block-seat formed on the last, as usual. The lower end of the block is engaged with the last by any suitable means—such as a pin or dowel affixed to the last near the lower end of the block-seat—and engaging a hole formed in the lower portion of the block, or, as shown in the present case, by a shoulder *d''*, formed on the last at the lower end of the block-seat and engaging the lower end of the block.

i represents the jack-spindle socket, which is formed in the rear portion of the last behind the block, said socket extending downwardly from the upper surface of the last.

b represents a metallic bushing or tube inserted in a hole formed for its reception in the last immediately in front of the socket *i*, said tube being arranged at the center of the width of the last and extending diagonally, as shown in Fig. 2, its upper end being flush with the block-seat. The lower end of the socket *b* is preferably closed and forms a bottom or end to support the spring *c*, hereinafter referred to, the outer end of the socket being open.

a represents a hollow bolt, which is formed to enter the mouth of the socket *b* and to slide lengthwise in said socket, said bolt being of the same general form as the socket—that is to say, one end is open while the other end is closed, the closed end being at the outer end of the bolt and serving to support the outer end of the spring *c*. I prefer to permanently engage the bolt *a* with a socket *b*, so that while the bolt is free to slide in the socket it cannot be entirely withdrawn therefrom, and to this end I form an outwardly-projecting flange or shoulder *a'* on the inner end of the bolt and an inwardly-projecting flange or shoulder *b'* on the open end of the socket, said shoulder *b'* being preferably formed by upsetting or turning inwardly the outer end of the socket and engaging the flange *a'* of the bolt so that it cannot be withdrawn from the socket. It will be seen that the spring *c*, bearing at one end against the inner end of the socket and at the other end against the outer end of the bolt, normally holds the bolt projected above the block-seat and in position to enter the orifice *h* formed in the block, so that the bolt when engaged with said orifice securely holds the block in position on the last. The last may be released by pushing the bolt *a* inwardly by means of a suitable tool inserted in the orifice *h*. It will be seen that the hollow form of the bolt enables it to contain a portion of the spring *c* when the bolt is projected and substantially the entire spring when the bolt is pushed in. Hence the socket *b* is enabled to be made of much less depth than would be the case if the bolt were solid, so that it could not contain the spring. I am enabled by thus reducing the combined length of the bolt and spring to locate the bolt immediately in front of the

socket *i*, which is the most convenient position, because a bolt so located can be conveniently reached by the operator, who inserts the tool in the orifice *h* for the purpose of displacing the bolt. It is necessary that the socket *i* be located so far forward that there is but little room for the play of the bolt and its spring in front of said socket. Owing to this fact the only form of spring-bolt fastener that is now in general use is arranged at one side of the last and extends diagonally into the last, so that the operator in displacing the bolt has to insert the tool into the last at one side of the instep, instead of at a point directly in the center of the instep, as in the present case.

It will be seen that by using a hollow bolt I am enabled to locate a bolt in the limited space directly in front of the socket *i* without encroachment of the spring and bolt-receiving socket *b* upon the socket *i*.

I claim—

A last having a spindle-socket *i* and an

orifice located directly in front of said socket and extending to the top of the last-block, combined with a socket or bushing *b*, inserted in said orifice and having a closed lower end and an inwardly-projecting shoulder *b'*, a hollow bolt *a*, fitted to slide in the socket *b* and having a closed outer end and an open inner end and an outwardly-projecting flange *a*, and a spring located in the chamber formed by said socket *b* and bolt *a*, one end of said spring bearing on the closed inner end of the socket *b* and its other end on the closed outer end of the bolt *a*, said bolt and socket being engaged to prevent the separation of the bolt from the socket, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 18th day of August, A. D. 1891.

EPHRAIM S. MORTON.

Witnesses:

FRED M. BIXBY,
WM. F. KANE.