(No Model.)

J. B. MULLEN.

LAST.

No. 381,845. Patented Apr. 24, 1888.

Fig. 1.

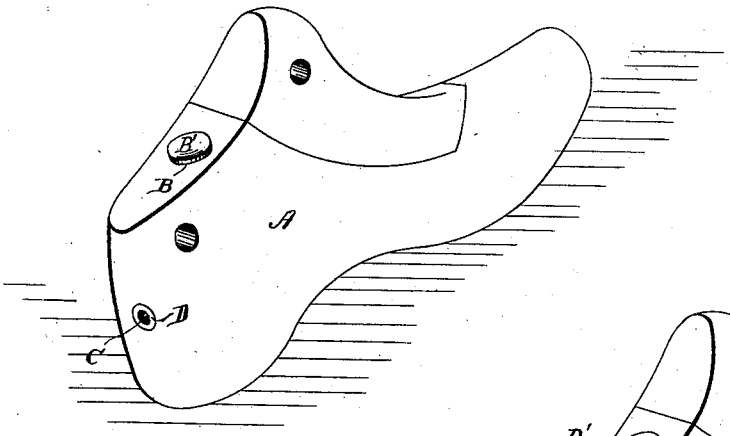


Fig. 2.

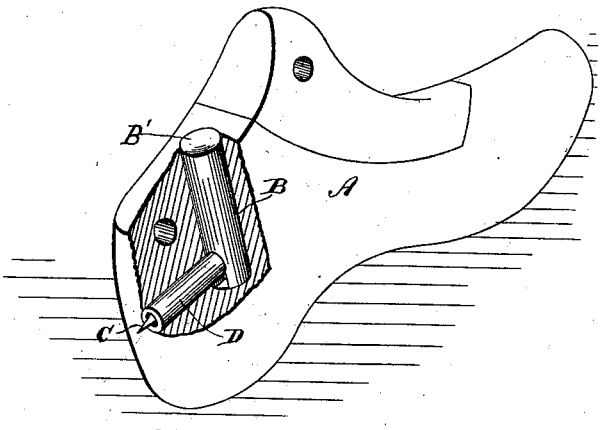


Fig. 3.

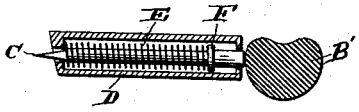


Fig. 4.

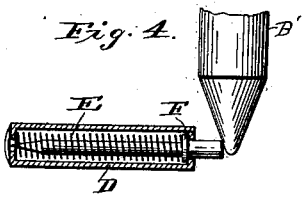
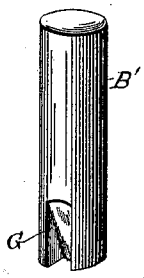


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES B. MULLEN, OF ROCHESTER, NEW YORK.

LAST.

SPECIFICATION forming part of Letters Patent No. 381,845, dated April 24, 1888.

Application filed January 26, 1888. Serial No. 261,935. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. MULLEN, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lasts; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to certain improvements in shoe-lasts, and has for its object to overcome the difficulty heretofore experienced in securing the counter and upper to the last at the heel without destroying the last by constantly driving nails into it, or at least requiring the frequent renewal of the removable wooden section sometimes employed to retain the nails in metal lasts.

To this end the invention consists in providing the last with a movable pin inserted at the heel and adapted to be projected by the jack-spindle or a special tool into or through the counter to hold the latter in position; and the invention further consists in certain details of construction and combinations and arrangements of parts, to be hereinafter described, and pointed out particularly in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view of a last with my invention applied thereto. Fig. 2 is a similar view with a section broken away, showing the pin and jack-spindle. Figs. 3 and 4 are sectional views of modifications. Fig. 5 is a view of the preferred form of jack-spindle.

Similar letters of reference in the several figures indicate the same parts.

The last A is provided with the ordinary guide or socket, B, for the spindle B′ of the jack, and at substantially right angles thereto, extending toward the heel, is a similar opening, in which the sharp-pointed pin C plays. This pin is preferably inclosed within a casing or sleeve, D, having a spring, E, therein, which rests against shoulder or collar F on the pin, for retracting the point of the pin, as will be readily understood from an inspection of Fig. 3. In constructing this casing or sleeve D it is formed with an internal diameter throughout a greater portion of its length considerably larger than the pin proper, but of substantially the same diameter as the shoulder or collar F on the pin. The spring is then placed in position and the pin inserted, the rear end of the casing or sleeve being then closed in back of said shoulder or collar F, effectually preventing the removal of the pin, but allowing it free longitudinal movement to a limited extent.

When the casing or sleeve containing the pin is inserted in the opening in the heel of the last, the inner end of the pin will project some distance within the jack-spindle socket B, as shown in Fig. 4. Thus when the inclined surface of the jack-spindle strikes the same it will be forced forward and its pointed end projected beyond the surface of the last into the counter or shoe-upper thereon.

The inclined surface on the jack-spindle may be of various forms—for instance, as shown in Fig. 3, wherein the spindle is formed with a cam-shaped end, and the pin is projected by turning the last, or as in Fig. 4, where the spindle is simply tapered; but the construction found to answer best in practice, and that preferably employed, is shown in Fig. 5, in which a narrow inclined bottom groove, G, is formed in the end of the spindle, leaving a large bearing-surface on the end to resist the blows of the hammer delivered on the sole of the shoe being operated upon. This latter construction also permits the last to be turned or swung around on the jack-spindle without allowing the pin to be retracted, as the inclined surface will, when the spindle is seated, be beyond the pin. (See Fig. 2.)

If desired, instead of having the rear end of the pin project into the socket for the jack-spindle, it may terminate in an opening similar to said socket, but a short distance to the rear of it; or the said socket may be located farther forward, in which instances a tool having its end shaped similar to the ends of the spindles heretofore described will have to be employed, thus, by sacrificing some of the simplicity of the device, securing an additional advantage—*i. e.*, keeping the pin projected at all times when desired, no matter whether on the jack or not.

It is obvious that the invention may be modified and changed considerably without departing from the spirit of my invention, and that it may be applied to metal lasts in which the opening for the pointed pin is formed of

suitable shape directly in the body of the last and does not require a casing or sleeve.

Having thus described my invention, what I claim as new is—

1. The combination, with a last, of a movable pin located within its heel portion and adapted to be projected beyond the rear surface of the last to hold the upper in position, said last having an aperture in its top, through which a tool may be inserted to operate the pin, substantially as described.

2. The combination, with a last and a movable pin within its heel portion adapted to be projected beyond the rear surface of the last to hold the upper in position and retracted by spring-pressure, of an inclined-faced spindle or tool engaging the rear end of said pin for projecting it, substantially as described.

3. The combination, with a last and a movable pin located in a tubular casing within its heel portion, said casing extending from a vertical aperture, through which a tool may be inserted to project the pin to the rear surface of the last, of a spring in said casing engaging a collar on the pin for holding the same normally retracted and its rear end projected into said vertical aperture, substantially as described.

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