

E. R. BARDIN.

Improvement in Boot and Shoe Stretchers.

No. 115,808.

Patented June 13, 1871.

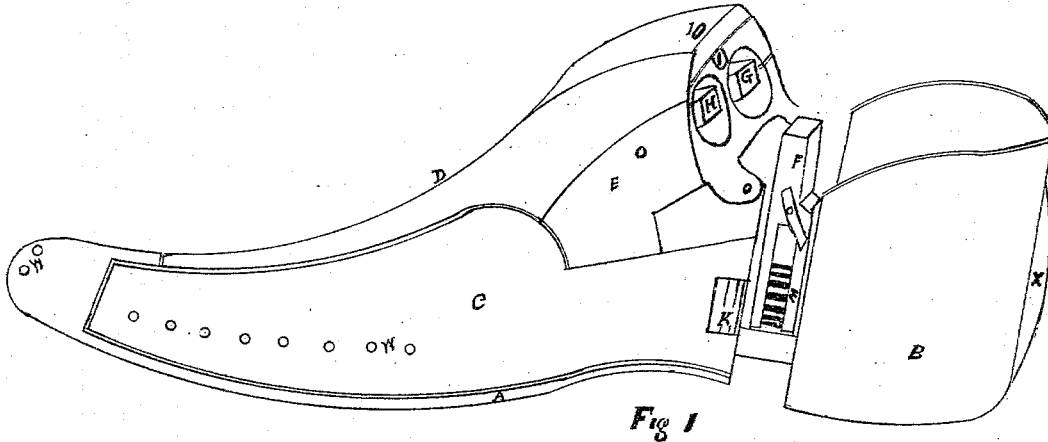


Fig 1

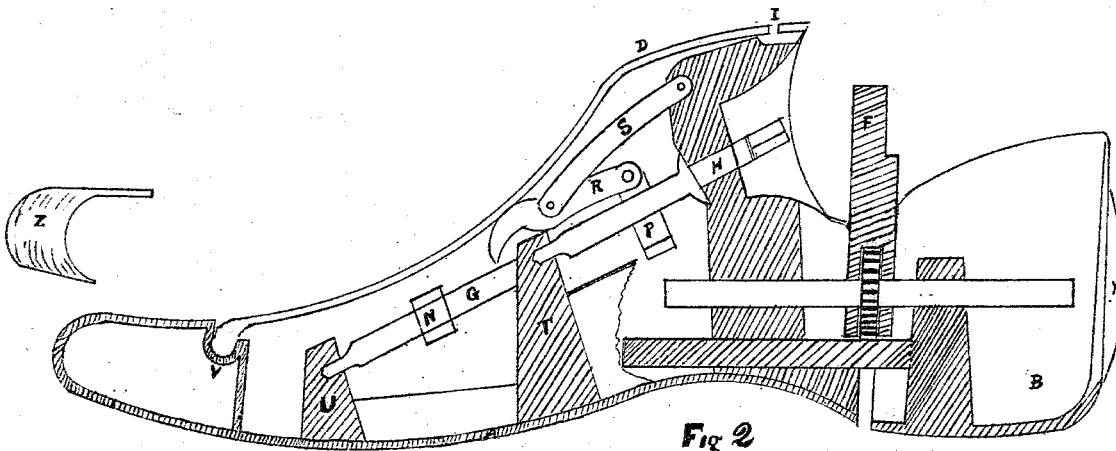


Fig 2

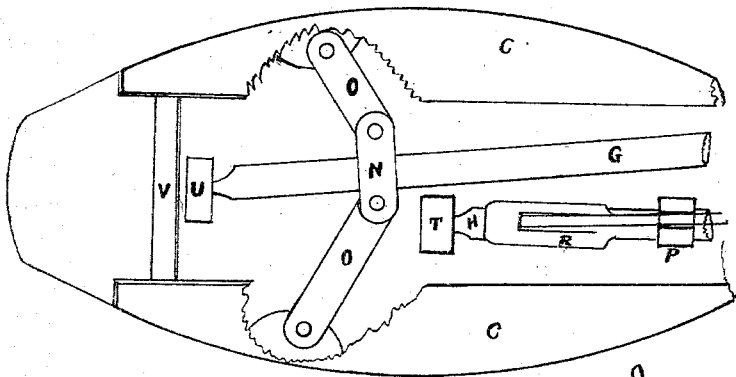


Fig 3

Emerson Reed Bardin & Co.  
by his Attorney *John D. Smith*

*J. M. Green*  
*The West*

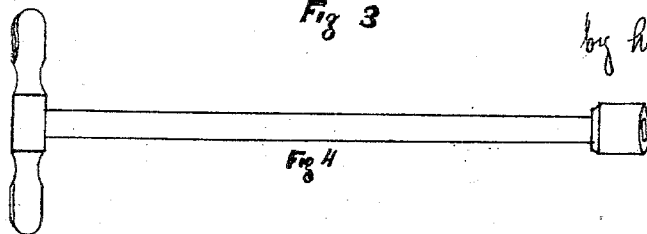


Fig 4

## UNITED STATES PATENT OFFICE.

EMERSON REED BARDIN, OF NEWBURG, NEW YORK.

## IMPROVEMENT IN BOOT-AND-SHOE STRETCHERS.

Specification forming part of Letters Patent No. 115,808, dated June 13, 1871.

*To all whom it may concern:*

Be it known that I, EMERSON REED BARDIN, M. D., of Newburg, in the county of Orange, in the State of New York, have originated and invented an Improved Device for Stretching Boots and Shoes, of which the following is a specification:

The nature and object of my invention consist in constructing a last, of metal or wood, in pieces and partly hollow, hinged, and screwed together in such a manner that the sides, top, (or instep,) and the heel and toe are expanded by means of screws and levers, operated by wrench and ratchet, thereby stretching any part of the boot or shoe desired with the one last. The object of my invention is to supply manufacturers and dealers in boots and shoes a "stretcher," combining all the essential points and qualities desirable in one last or stretcher that heretofore have been embodied in two or more, with additional improvements, so that with the one last the boot or shoe may be stretched in any part usually requiring such treatment readily and without change. This I have accomplished, as I will hereafter describe.

To enable others skilled in the art to make and use my invention, I will proceed to describe the accompanying drawing forming a part of this specification.

Figure 1 represents a side elevation of my improved expansive last or boot-stretcher, showing the joints, hinge, sole, heel, and instep, heads of screws, and part of the ratchet to operate the heel. Fig. 2 represents a skeleton sketch of Fig. 1, showing the working parts, and the principle of operating the same. Fig. 3 represents a section of my stretcher, showing the position of the screws and levers, nuts, &c., showing their connections and the method of operating the same; Fig. 4, wrench for operating screws and ratchet.

Fig. 1.—Letter A is the sole of the stretcher; B, the heel; C, the expanding sides; D, the expanding top; E, a section of the last forming a cap, and securing the screws into their position; F, ratchet to operate the right-and-left-hand screw which moves the heel; G, screw to operate the sides in expanding or contracting; H, the screw to operate the instep; I, the hole to insert a hook to draw out the instep-piece when in the boot; J, passage under the instep, for the

hook to pass when drawing out the instep; K, hinge; M, teeth of the ratchet-wheel; N, nut; W, holes to secure the desirable forms thereto, when necessary, in stretching.

Fig. 2.—A, sole; B, heel; D, instep; F, stem of the ratchet; G, screw; H, screw; I, hole; M, teeth of the ratchet; N, nut; O, levers; P, nut; R, levers; S, link; T, stationary elevation to support end of screw; V, circular groove, forming a kind of a hinge-lock for the lower end of the instep-piece; Z, a false toe, to lengthen when desirable; X, a detachable reversible projection, to press the form of the *os calcis* of the heel.

I construct my boot-and-shoe stretcher of suitable sizes, (two being sufficient for all sizes of boots and shoes,) of wood or metal; prefer malleable iron for durability, and cheapness, and convenience in fitting up. When so made the parts may be very thin; and when put together, being hollow, make a very convenient receptacle to receive the screws, levers, &c., necessary to operate its various parts. The sole or main body of the last has an elevation near where the heel is attached. That the sides may be attached thereto this connection is made by joints being cast or formed in such a manner, when fitted together, drilled and pinned through the center of the joint, that a perfect hinge is formed, allowing the two sides to swing outward or inward when desirable. The heel is attached to the elevated part of the sole by a tongue and a right-and-left-hand screw. The tongue is made nearly square, and slides in a hole to receive it in the lower part of the elevated portion of the sole. The screw, in connecting the two parts together, serves to lengthen or shorten the stretcher. A ratchet-wheel and lever are secured to the middle of this screw, with springs attached to give tension on the pawl. Only one spring should rest upon the pawl when operating, and the one used will depend upon the desired movement to lengthen or shorten the last or stretcher. The heel is made hollow with the exception of the elevation near its center for the purpose of connecting, by screw and tongue, before mentioned, to the sole. The screws are fitted into position by drilling through the elevated part of the sole. The holes are drilled at suitable angles and distances from the instep, inclining downward toward elevated parts. The drill

should enter these elevations nearly half-way through, to give a good support to the screws at their ends. I now place the screws in their places; place the nuts and their connecting-links and levers on the screws in their positions; connect the links to the expanding sides by pins or screws. The lever which raises the instep is connected to the nut in a hinged manner, pinned. The same lever is connected with a link near its point of bearing. The other end of the said link is secured to the elevated part of the sole, as before mentioned. The instep-piece is made nearly parallel in width, but in form on the top similar to an ordinary last. On the lower part of this piece I make a circular rib or projection, on the under side, of a suitable size, which fits a corresponding groove made below the outer surface, or the outside, and near the toe. This forms a kind of stationary support for the instep-piece when operating the same. I drill holes in the instep, heel, and sides of the stretcher, to attach pieces formed to suit particular cases of lumps and projections of the foot, to stretch the boot or shoe in that place needed. I place my stretcher in the boot, first removing the instep to reduce the size. Then I place the end of the instep-piece in its position by first resting the lower end of the same on the ways provided for that purpose, and then slide it into position. I then fill the boot lengthwise by operating the double screw with the ratchet; then expand the sides until the boot is filled sidewise, and follow, in like manner, with the instep. When the boot is thus filled you may proceed to stretch any part desired perfectly. If projections are re-

quired, the desired shape should be attached to the last in the place desired. The detachable reversible piece on the heel corresponds with the anatomical formation of the human heel of most persons. For peculiar adaptations I prefer to use leather, of suitable forms, for cheapness and convenience.

A great difficulty has always been experienced in stretching boots with any of the stretchers now in use—that they invariably draw the boot out of its natural shape by not filling the boot in all its parts. With my stretcher I fill the boot, as before mentioned, then proceed to strain in the desired part. I prefer to wet the part to be stretched on the outside, and then rub the part with a stick or the handle of the wrench. I accomplish, also, another very important point—the stretching the heel or toe with my improvement. This is not accomplished by any other stretcher. By this combination I have made great improvements long desired by the public.

*Claim.*

I claim—

The sole A, the movable heel B, the reversible detachable anatomical projection attached to the heel, the loose detachable instep, when the parts are all constructed and arranged as described and specified, when used for the purposes set forth.

EMERSON REED BARDIN, M. D.

Witnesses:

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JAMES T. SHERIDAN.