

A. O. BOURN.

Improvement in Boots and Shoes.

No. 115,422.

Patented May 30, 1871.

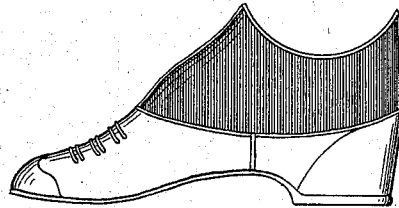


FIG. 1.

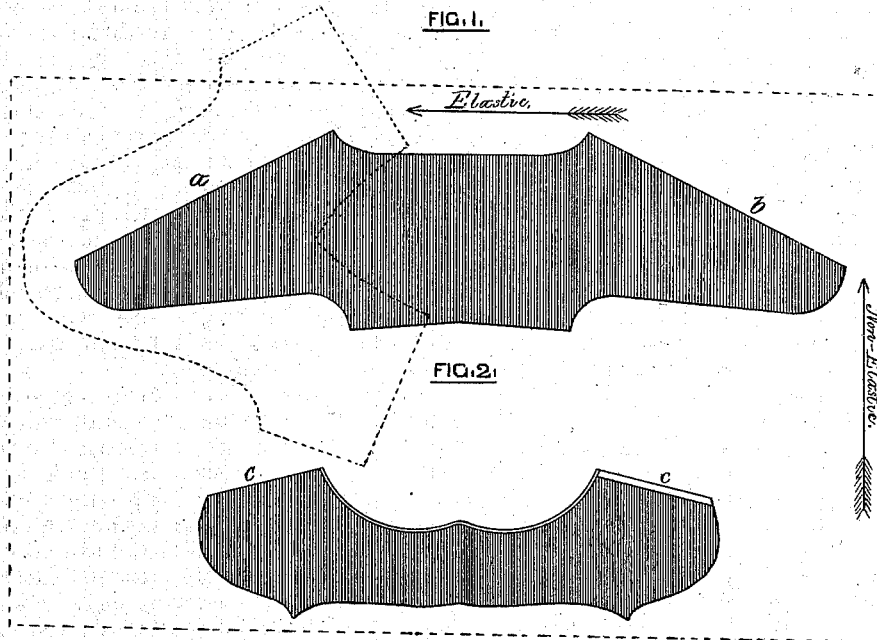


FIG. 2.

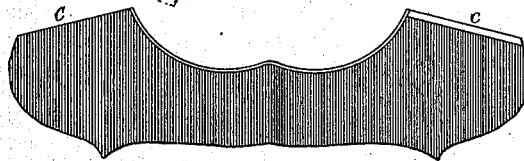


FIG. 3.

WITNESSES.

O. C. Barrows
James Shaw

INVENTOR.

Augustus O. Bourn

UNITED STATES PATENT OFFICE.

AUGUSTUS O. BOURN, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN BOOTS AND SHOES.

Specification forming part of Letters Patent No. 115,422, dated May 30, 1871.

To all whom it may concern:

Be it known that I, AUGUSTUS O. BOURN, of the city and county of Providence and State of Rhode Island, have invented a new and useful Improvement in the Manufacture of Elastic Boots and Shoes.

My improvement relates to that general class of goods the uppers of which are composed of one or more thicknesses of a textile fabric, naturally elastic in but one direction; combined with an exterior, interior, or interposed layer of rubber. My invention consists in cutting and joining the piece or several pieces forming the upper portion of the boot or shoe with reference to the elastic line of the fabric, so that the said natural line of elasticity, when the boot or shoe is completed, will extend from one end of it to the other, while the naturally non-elastic line of the fabric will be vertical to the plane of the soles; and I do hereby declare that the following specification, taken in connection with the drawing furnished and forming a part of the same, is a true, clear, and exact description thereof.

Referring to the drawing, Figure 1 represents an overshoe exhibiting my improvement. Fig. 2 represents the entire lining of the same, cut from the fabric in one piece, with seam in front. Dotted lines show the same with seam at the heel. A piece of the fabric is also outlined, giving the direction of its elastic and non-elastic lines. Fig. 3 represents the entire exterior upper, except the foxing, also cut from the fabric in one piece.

It is to be understood in this instance that the soles and foxing are of rubber, manufactured and applied in a manner well-known to persons skilled in the art. The lining and the exterior above the foxing in each case are composed of a textile fabric naturally elastic in one direction, with an interposed layer of rubber. It will be observed in reference to Fig. 2 that the entire lining is represented as having been cut in one piece twice the length of the shoe, and parallel with the elastic line of the fabric—that is to say, if stocking-net or other similar knitted fabric be used, the lining-pattern should be laid on the fabric crosswise, or at right angles to the line of the loop. Having been so cut, and the edges *a* or *b* brought together and united, it is obvious that the natural elasticity of the fabric is on a line

lengthwise of the shoe and that the line of the loop will be vertical to the plane of its sole. It will also be observed in Fig. 3 that the fabric has been cut in a manner corresponding with the lining already described, and therefore that when the two edges *c* are united the line of elasticity corresponds with that of the lining. It is well known that stocking-nets and other similar fabrics have little or no elasticity on a line parallel with the line of the loop, while, on the contrary, they are particularly elastic on a line at right angles thereto; therefore, by cutting the fabric as described, I combine with the elasticity of the intervening water-proofing compound the natural elasticity of the fabric, and so arrange it in the shoe that its entire elasticity is rendered available in the right direction or lengthwise of the shoe. By this improvement a high, close-ankled shoe or boot may be made without side or heel-gores, and with, if desired, but a single seam in the uppers.

In referring to boots and shoes composed in part of textile fabric and in part of rubber, I desire to be understood as referring to those in which the textile piece fabric is in any manner combined with rubber for producing a perfect boot or shoe, regardless of the relative positions occupied by the fabric and the rubber, or whether the textile fabric is used externally for a cloth finish, internally as a lining, or combined and used, both externally and internally, after the manner of the shoe particularly described.

If instead of stocking-net woven fabrics be used, the parts should be cut on a line obliquely to the lines of both warp and weft in order that its entire natural elasticity may be made available in substantially the same manner as already described.

In using the word textile as applied to fabrics I do not confine myself to its technical meaning, or refer only to woven goods; by textile fabric I desire to be understood as referring to any piece of goods suitable for the purpose, whether such are knit or woven; and again, in referring to goods which are elastic in but one direction, I do not speak of goods which are or may be totally deficient in elasticity in one direction, but to such goods as are practically and usefully elastic in but one direction.

It will be observed that the lining, as shown in Fig. 2, would serve, so far as form is concerned, as a perfect upper, for unison with the sole and heel in the usual manner, or in such case there might be a vertical seam at the heel.

In the manufacture of boots the legs can be made of the same water-proof fabric as the lining and uppers, and with the elastic line of the fabric corresponding therewith.

As desired, the legs and uppers may be cut in one piece, or separately, and joined with an elastic seam at a point corresponding with the top of the shoe.

In manufacturing my improved boots and shoes all longitudinal seams above the soles or foxing should be made elastic in a manner well known to persons skilled in the art, while the vertical seams, being at right angles thereto, will naturally be non-elastic.

I am aware that stocking-nets and similar fabrics combined with rubber have long been used in the manufacture of so-called rubber boots and shoes, but am also aware that the fabric has always been cut and formed in the shoe in such a manner that its natural elastic line has been vertical to the plane of the sole instead of being parallel with the plane. In other words, the shoes have been so made that they were freely elastic widthwise and not lengthwise. I am also aware that it has been proposed to make the entire uppers of a seamless knitted fabric of requisite form, with lining to correspond, and provided with intervening strips, sheets, or layers of rubber; and also that so-called Congress overshoes have been made with soles and foxings of rubber, with cloth vamps and quarters. In all such, however, a fabric specially elastic, or corresponding with the rubber and stocking-net, has been combined with the vamp in the form of side gores or elastic quarters. I am also aware that shoes have heretofore been made with longitudinally-elastic vamps and quarters which were composed of rubber and a textile fabric elastic in but one direction. Such shoes, however, were made with a longitudinal non-elastic seam, extending from the ankle to the toe on top of the shoe, and it therefore rendered the longitudinal elasticity of the uppers practically unavailable. I also know that

experiments have been made with a view to producing a close-fitting leg for water-proof boots, and that such boot-legs have been made of a fabric possessing the general characteristics of the fabric used by me, and that they have been cut so low as to require curving to suit the outline of the ankle. These experiments have, however, been made in connection with longitudinally non-elastic shoes or slippers, and the legs have been joined thereto by non-elastic seams, rendering, as in other cases mentioned, the longitudinal elasticity of that portion of the leg above and immediately adjacent to the seam practically unavailable.

By my invention I am enabled to produce a high-cut close-ankled shoe, without the introduction of gores or their equivalents, and at the same time obviate all necessity of having more than one seam either in the lining or the uppers.

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

1. The combined vamp and quarter for boots and shoes, composed of rubber and a textile fabric practically elastic in but one direction, cut as described with reference to the elastic line, and requiring, above the soles or foxing, either one single non-elastic vertical heel-seam, or in lieu thereof a single longitudinally-elastic instep-seam, substantially as shown and described.

2. The herein-described improved boot or shoe, composed in part of rubber and a textile fabric practically elastic in but one direction, the entire vamps and quarters of which are wholly elastic longitudinally, and in which all seams above the foxing or soles are vertically non-elastic or longitudinally elastic, as and for the purposes specified.

3. The improved overshoe, consisting of the longitudinally-elastic vamp and quarter composed of a textile fabric and of rubber, practically elastic in but one direction, and of the rubber soles and foxing, substantially as described.

AUGUSTUS O. BOURN.

Witnesses:

JAMES SHAW,
OZRO C. BARROWS.