(No Model.)

W. C. CROSS.

LASTING BOOTS AND SHOES.

No. 306,589. Patented Oct. 14, 1884.

Fig. 1

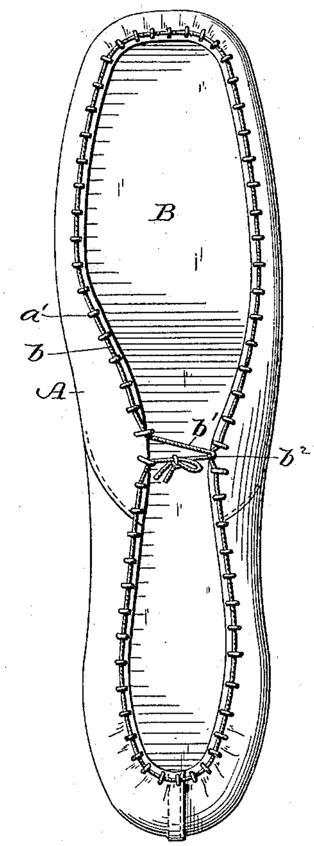
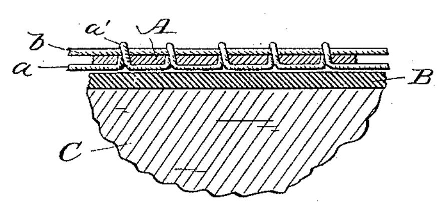


Fig. 2



Witnesses:
J. Walter Blandford.
Ewell A. Dick

Inventor:
William C. Cross
by Marcellus Bailey, attorney

UNITED STATES PATENT OFFICE.

WILLIAM C. CROSS, OF BOSTON, MASSACHUSETTS.

LASTING BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 306,589, dated October 14, 1884.

Application filed November 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. CROSS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Improvement in Lasting Boots and Shoes, of which the following is a specification.

It has been my object in this invention to provide a ready and convenient means for evenly drawing and gathering the edge of the upper over upon and around the last, and particularly the curved portions of the same, in the operation of lasting a boot or shoe. This result I obtain by combining with the upper a cord, termed by me the "loop-cord," which forms around the edge of the upper a series of connected loops, and a second cord, termed by me the "draw-cord," which passes around the edge of the upper through the series of loops, and when drawn up by its ends draws smoothly the edge of the upper over upon the bottom of the last, gathering it evenly at all points where this is needed.

I remark at the outset that I am aware that a lacing-cord passing from one side to the other of the upper across the bottom of the last has been employed for the purpose which I have in view. For the same purpose there has been proposed a modification of this plan, consisting, substantially, in sewing along the edge of the upper with a single thread, and interlacing the same with a lacing-cord going either entirely across from one side to the other of the last, or to a center cord similarly sewed to and extending lengthwise of the insole. The edge of the upper has also been gathered in by a thread or string applied thereto by sewing "over and over" its edge. All of these plans, however, are defective, in that they take too much time, are not efficient to gather evenly and to the requisite extent the edges of the upper around the curved portions of the last, and they permit the draw-string or its equivalent to be applied and put in place only after the upper is put on the last. Another plan now employed, which possesses decided advantages over those above referred to, is to provide the upper around its edge with a pocket or channel, formed either by the upper itself or its lining, or both, or by a separate folded strip of cloth stitched to the upper, and to insert in this pocket or channel a draw string or cord, by pulling on which the upper can at its edge be drawn over upon the last. My plan, while having many of the advantages of the one last referred to, possesses in addition features which are not found conjoined in any other of which I have knowledge. Inasmuch as the draw-string is held in place around the edge of the upper by a series of loops, it practically is in condition to be got at at any point through its length, thus permitting it to be taken hold of at any point where it is necessary to apply direct pull or strain. Again, the loops, owing to the fact that they are connected in series or formed out of a continuous cord, are capable, during the drawing-in operation, of varying slightly in length, so that some may shorten and others may lengthen to compensate for irregularities in the stitching or the cut of the upper. The loops, under my arrangement, also serve in effect to space the gathers at the heel and toe, the gathers coming in the spaces between the loops, and thus being distributed evenly and regularly around the curved portions, and they permit the cutting or slitting of the leather at the heel and toe, which is often necessary in lasting a heavy upper. Moreover, I can apply the cords to the upper very inexpensively and with great rapidity. All that is necessary is to run a line of stitching with a lock-stitch sewing-machine around the edge of the upper, so regulating the tension on the two threads, respectively, that one of the threads, at the points where the two interlock, will be drawn through the upper. The thread thus drawn through will be the loop-cord, and the other will be the draw-cord, and without further preparation they are ready for use.

I desire it to be understood that in using the term "cord," as applied to the draw and loop cords, I intend a cord of any suitable material.

In the accompanying drawings, Figure 1 is a plan of the under face of a shoe lasted in accordance with my invention. Fig. 2 is a longitudinal section on enlarged scale of a portion of the same through the line of loops.

A is the upper, B is the insole, and C is the last. The loop-cord is shown at *a* and the draw-cord at *b*. The loop-cord, which extends around the edge of the upper, lies on the lining side of the upper, and at intervals

throughout its length is passed through to the opposite face of the upper, thus forming on the latter face a series of projecting connected loops, *a'*, which extend around and bound the edge of the upper. Through these loops passes the draw-cord *b*, which by them is held in place along the edge of the upper. By drawing on the ends of the cord *b* after the upper and insole are put on the last, the edge of the upper will be drawn in and gathered evenly over the last. In the particular arrangement represented in the drawings there is but one draw-cord for the whole upper. When employing this arrangement I prefer to pass one of the ends *b'* of the cord around the draw-cord on the opposite side of the last, as indicated at b^2. Under these circumstances, by drawing on the ends of the cord, the upper will be drawn in closely upon and caused to conform to the shank of the last. I can, if I choose, employ a separate draw-cord for the heel and toe portions of the upper, and I do not desire to be understood as restricting myself to the employment of any specific number of draw-cords.

I have hereinbefore indicated that the loop and draw cords can be readily applied to the upper by running a row of stitching around the edge of the upper with a lock-stitch machine. In such case, inasmuch as the draw-cord usually will be heavier or larger than the loop-cord, I prefer that the under or shuttle thread should constitute the draw-cord, since it is not required to pass through the upper; and I so regulate the tension on the two threads—putting a comparatively light tension on the upper or needle thread and a comparatively heavy tension on the under or shuttle thread—that in making the stitches the loops of needle-thread at the interlocking points will be drawn through to the side of the upper on which the under thread is, thus producing the arrangement of loop and draw cords represented in the drawings.

In conclusion, I state that I do not claim, broadly, the employment, in connection with a draw-cord, of a cord which extends around the edge of the upper in the form of a series of connected loops, through which the draw-cord is passed. A loop-cord of this kind is shown in Patent No. 104,828, dated June 28, 1870, and is not new with me. In my arrangement the loop-cord is laid on the side of the upper opposite to that on which the draw-cord is laid, and at intervals is bent into loops whose bights extend through to the opposite side of the upper, where they meet the draw-cord. The edge of the upper is thus held between these two cords, which in this position can be most effectively applied to draw and gather smoothly the edge of the upper over upon the last and insole; and the arrangement is such that one loop may break without effecting the others, or thereby causing the loop-cord to pull out.

What I claim as new is—

The combination, with a boot or shoe upper, of the draw-cord *b*, laid along the edge and upon one of the sides of the upper, and the loop-cord *a*, laid along the edge and upon the other side of the upper, and bent at intervals into loops *a'*, whose bights pass through to the opposite side of the upper and receive the draw-cord, as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 15th day of November, 1883.

WILLIAM C. CROSS.

Witnesses:

EWELL A. DICK,

J. WALTER BLANDFORD.