

E. BROTHERS.
METHOD OF MAKING SHOES.
APPLICATION FILED SEPT. 23, 1908.

1,103,937.

Patented July 21, 1914.

2 SHEETS—SHEET 1,

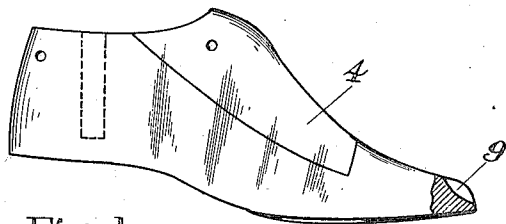


Fig. 1.

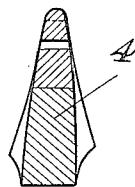


Fig. 2.

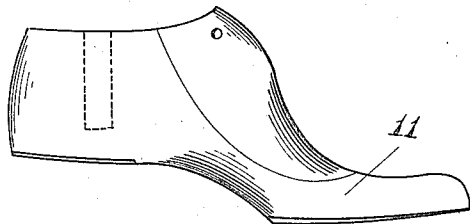


Fig. 3.

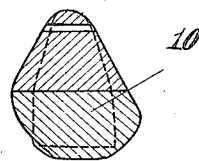


Fig. 4.

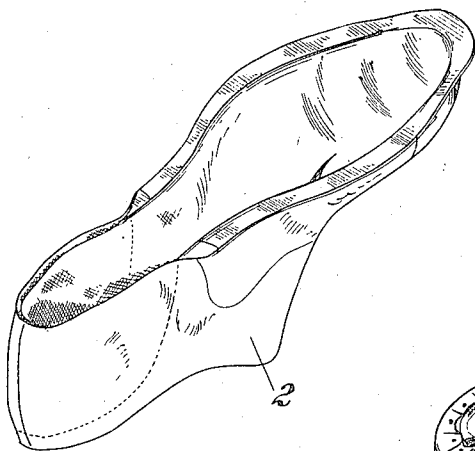


Fig. 5.

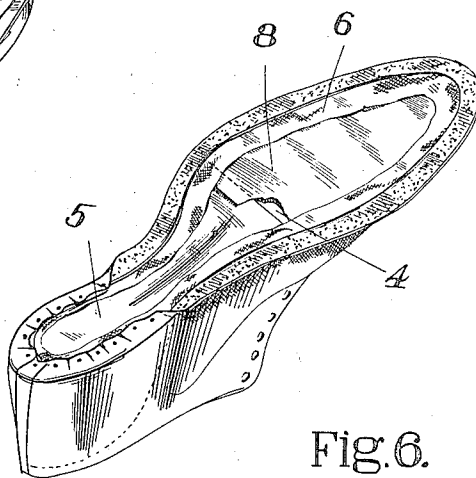


Fig. 6.

WITNESSES.
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2 SHEETS—SHEET 2.

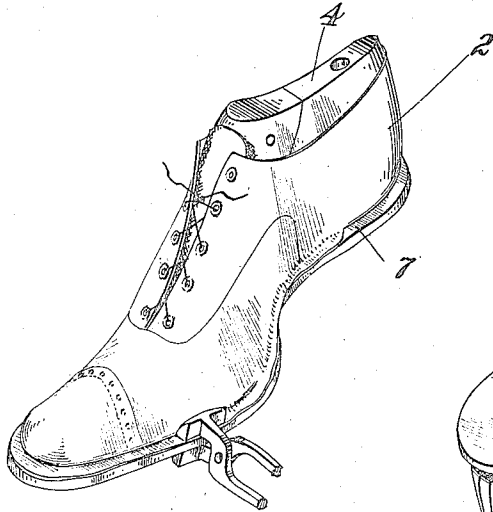


Fig. 7.

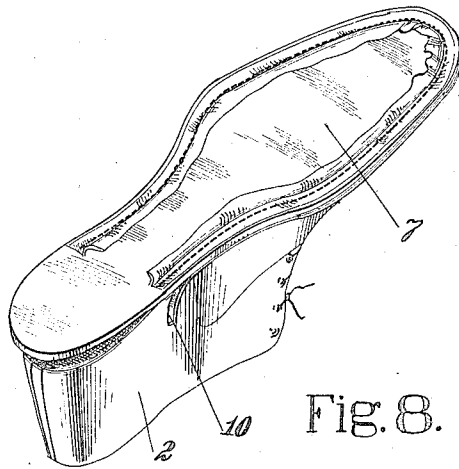


Fig. 8.

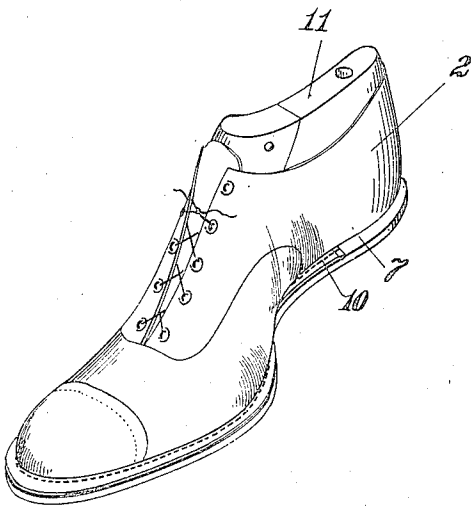


Fig. 9.



Fig. 10.

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UNITED STATES PATENT OFFICE.

ELI BROTHERS, OF LYNN, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

METHOD OF MAKING SHOES.

1,103,937.

Specification of Letters Patent.

Patented July 21, 1914.

Application filed September 23, 1908. Serial No. 454,441.

To all whom it may concern:

Be it known that I, ELI BROTHERS, a citizen of the United States, residing at Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Methods of Making Shoes of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to a method of making shoes.

In particular the invention relates to a method of making shoes of the type known as "stitch-downs", that is, shoes having uppers with outturned sole attaching flanges, and an object of the invention is a method by which shoes of this type of all grades, sizes and styles may readily be made at a comparatively small cost and with comparatively unskilled labor.

Stitch-down shoes have many characteristics which render them especially desirable for purposes of wear, such for example as the absence of seams or folds on the inside and the comparative flexibility of the soles, but difficulty has been experienced in the past in shaping such shoes over ordinary lasts by any method not rendered substantially prohibitive by the high labor cost.

An important object of the present invention, therefore, is a method of making a shoe having an outturned sole attaching flange by which the upper may readily be fitted to or for a last of the desired shape and an outturned flange may be so formed upon said upper that when said flange is stitched down upon the sole the upper will fit snugly in all parts the last upon which it is lasted and will preferably be adapted to fit also another last for which it is made.

Another object of the invention is a method of making shoes by which a snug fitting and comfortable shoe may be produced without the necessity for first attaching the upper to an insole.

Other objects of the invention will be apparent upon consideration of the novel method herein disclosed. In this method is involved a novel series of steps in the manufacture of shoes which constitutes an especially important feature of the invention.

This series of steps comprises the use of two lasts which take the same pattern but one of which is so shaped that it coöperates in and facilitates the assembling and uniting of the parts of the shoe in proper relation to each other, although it does not give the finished shape to the shoe, while the other last is utilized for this last-named purpose. Preferably the last first described is provided with a flange-gaging edge along those portions adjacent to which it is desired to form an outturned flange, and the last is preferably so shaped that only those portions of the upper project beyond the gaging edge which can be utilized to form a flange. Furthermore as above suggested, the last is preferably so shaped as to facilitate uniting the parts of the shoe and to this end the material of the last is so distributed that it fills the upper pattern for the second last, but yet has no portion projecting abruptly over the flange-gaging edge, whereby the flange may conveniently be stitched down upon the sole closely adjacent to said edge.

The novel last and the novel form of shoe shown herein will not be claimed in this application, but each will be made the subject-matter of a separate application to be filed simultaneously herewith.

In the accompanying drawings,—Figure 1 is a side elevation of the novel form of last employed in the method of this application; Fig. 2 is a vertical section through said last in the region of the shank; Fig. 3 is a side elevation of the last used to give the final shape to the shoe; Fig. 4 is a vertical section through this last in the region of the shank; Fig. 5 is a perspective view of an upper which may conveniently be employed in carrying out the method of this application; Fig. 6 illustrates the initial lasting operation; Fig. 7 illustrates the step in the manufacture of shoes according to the method of this application which involves forming and laying upon the outsole an outturned flange of the upper; Fig. 8 is a perspective view showing the outsole and a welt stitched to the outturned flange of the upper, the upper in Figs. 6, 7 and 8 being stretched over the last shown in Fig. 1; Fig. 9 shows the shoe after the last shown in Fig. 1 has been replaced by the last shown in Fig. 3 preparatory to the attachment of the heel and to the

finishing operations, and Fig. 10 shows the finished shoe.

In the manufacture of shoes according to the method of this invention, a novel form of last is preferably employed over which the preliminary lasting is effected and upon which the upper is confined until after the outsole has been permanently attached thereto. This last has been made the subject-matter of a co-pending application, Serial No. 454,439, of even date herewith, to which reference may be had for a specific description of features herein illustrated but not described. As shown in Fig. 1 in side elevation and in Fig. 2 in section, the aforementioned last is constructed to receive the pattern of the last having the desired shape of the finished shoe, but differs from the latter last in that it has along the bottom a continuous flange-gaging edge over which project only those portions of the upper which may be turned out or in, and in that it has preferably no portions overhanging said edge whereby the flange forming and laying and the sole attaching operations may be conveniently performed especially in the region of the shank. In order that this last may substantially fill up the pattern for the last shown in Fig. 3, the instep portions and the portions over the forepart are vertically extended. The differences in the transverse outlines of the two lasts may readily be seen by a comparison of the sections shown in Figs. 2, 3 and 4.

The upper employed in making a shoe according to the method of this invention may be substantially of usual form except that it is not necessary to provide as much excess material over the pattern as is usual where the upper is lasted in upon the last. The illustrated upper 2 having been placed upon the last 4, shown in Fig. 1, the heel end of the upper is lasted in upon a short insole 5, which has previously been applied to the last, and the lining 6 of the upper, if the upper is provided with a lining, is turned in and pasted down upon the insole as far forward as the insole extends, a thin piece of flexible material 8 which may conveniently be a skiving, being provided in advance of the insole upon which the inturned portions of the lining about the forepart may be pasted down.

Those portions of the upper which project beyond the flange-gaging edge upon the last or beyond the front edge of the last are provided with cement and an outsole 7 is laid upon the last upon which the said projecting portions of the upper are pasted down, the outturned flanges of the upper being pressed down upon the outsole close in to the flange-gaging edge of the last. The cement may be provided also along the edge of the outsole as well as upon the outturned flange of the upper, or it may be

provided upon either alone. This operation may be performed in different ways, for example, the upper and outsole may be brought into adhesive contact by pincers shaped to operate close in to the last, as shown in Fig. 7. It will be noted that the last 4 shown in Fig. 1 is so shaped that these pincers may operate also in the shank region and that therefore the upper may be cemented down upon the outsole close in to the flange-gaging edge of the last in this region also.

If it is desired to form over the last 4 without changing its shape materially an upper having an extra high toe, provision is preferably made for doing this during the operation of cementing the outturned flange of the upper down upon the outsole. The last 4 is preferably provided at its toe part with a concavity 9 into which the upper may be pressed back by the thumb or finger of the operator while he is cementing the outturned flange upon the sole in this region. Pressing the upper back into this concavity serves to provide a fullness into which may be inserted a last of the desired shape of the finished shoe and having an extra high toe. After the upper has been turned out and pasted or cemented down upon the outsole, a welt 10 is laid upon the outturned flange and the outsole, outturned flange and welt are united by stitches for which any suitable sewing machine may be used, the illustrated last permitting the employment of a straight needle machine, if it is desired to use such a machine. The welt may conveniently be laid upon the outturned flange of the upper as the stitching proceeds, many of the sewing machines used for this purpose being provided with welt guides which aid in laying the welt. After the outsole has been permanently attached to the upper, as shown in Fig. 8, the last 4 shown in Fig. 1 is replaced by the last which is shown in Fig. 2, this last giving to the upper the shape illustrated in Fig. 9. The heel is attached and the finishing operations are performed with the last 11 in the shoe, so that when the shoe is completed it will have the form shown in Fig. 10.

It will be noted that this method permits the manufacture at a low cost and with comparatively unskilled labor of a shoe which, when finished, has the general appearance of the more expensive shoes, such, for example, as Goodyear welt shoes.

It will be noted also that this method permits the manufacture of a stitch-down shoe true to the type, in that the upper is stitched down upon the outsole from the heel corner on one side to the heel corner on the other side, which is fitted to the last smoothly in the region of the shank, and which is so attached to the outsole in this region that the edge of said sole may be trimmed in

closer in the shank than in the forepart, thus improving the appearance of this type of shoes.

Although as preferably practised, this method involves lasting in the heel end of the upper upon a short insole, it will be seen that it includes also dispensing with an insole altogether, and turning the upper out and stitching it down upon the outsole, all the way around. To this latter practice, as well as to that above described, the last shown in Fig. 1 is especially adapted.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. That improvement in the art of making stitch down shoes which consists in placing the upper right side out upon a last shaped to fill and to support the upper upon the inside down to, and vertically within the bounds of, the desired flange line and to provide an abrupt edge at said flange line extending throughout the shank and the forepart regions, locating upon the bottom of the last a sole so proportioned that a marginal portion thereof will project beyond said edge, turning out the marginal portion of the upper that extends beyond the flange gaging edge of the last and stitching it down upon the sole close to said edge, removing

said last, and inserting a second last adapted to fill the same pattern but having the desired shape of the finished shoe.

2. That improvement in the art of making stitch down shoes which consists in placing the upper right side out upon a last shaped to fill and to support the upper upon the inside down to the desired flange line and to provide an abrupt edge at said line extending throughout the shank and the forepart regions, locating upon the bottom of said last a sole so proportioned that a marginal portion thereof will project beyond said edge, pressing the upper back from the edge adjacent to the toe end of the last, and then turning the upper out at said edge and stitching it down upon the sole close to said edge along the shank and about the forepart, removing said last and inserting a second last adapted to fill the same pattern but having the desired shape of the finished shoe.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELI BROTHERS.

Witnesses:

H. DORSEY SPENCER,
BERNARD BARROWS.