J. B. HADAWAY.

METHOD OF MAKING SHOES.

APPLICATION FILED OCT. 31, 1912.

1,160,164.

Patented Nov. 16, 1915.

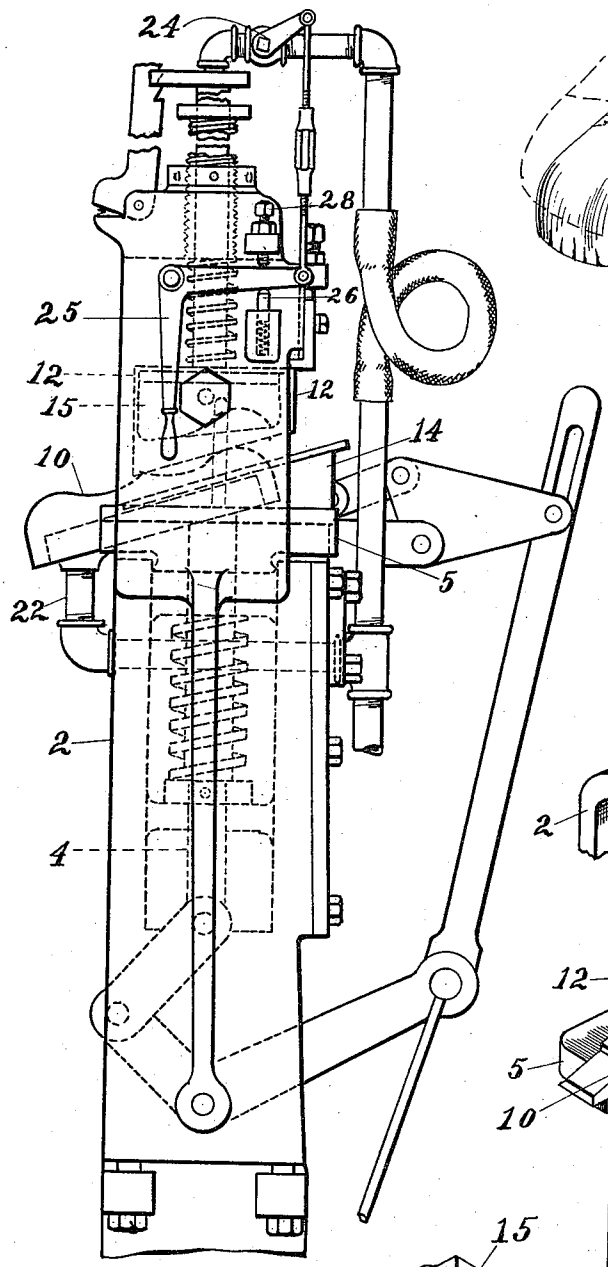


Fig. 1.

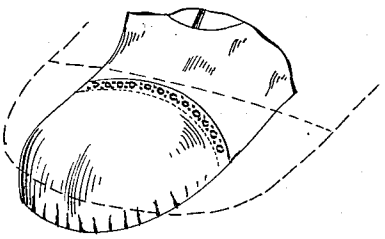


Fig. 5.

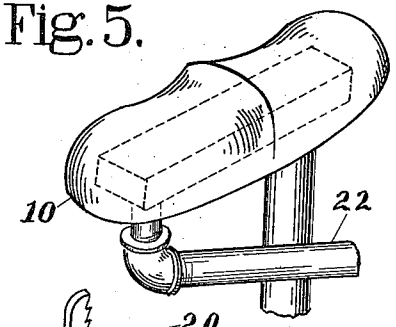


Fig. 4.

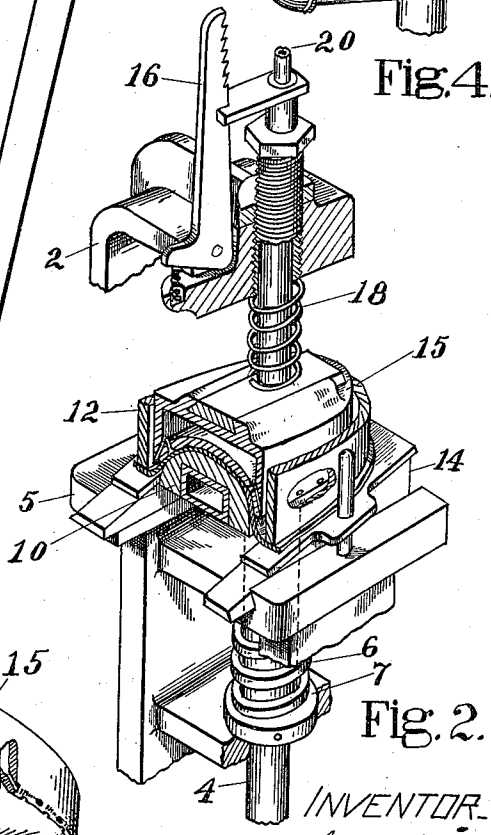


Fig. 2.

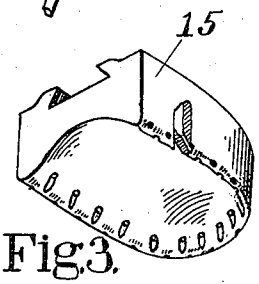


Fig. 3.

WITNESSES.

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METHOD OF MAKING SHOES.

1,160,164. Specification of Letters Patent. Patented Nov. 16, 1915.

Application filed October 31, 1912. Serial No. 728,825.

To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, a citizen of the United States, residing at Swampscott, in the county of Essex and State 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 the manufacture of boots and shoes and particularly to methods of making shoes.

It has heretofore been proposed to shape the toe portions of shoe vamps preliminary to the pulling-over and the lasting operations by subjecting the vamps to tension and pressure applied to the interior portion of the vamp. The object of this operation is to prepare the toe portions of vamps so that when assembled upon a last ready for the lasting operation the vamp will, to a large degree, conform to the shape of the last and require a minimum of labor in the lasting operation. It is also an important consideration that in this preliminary operation directed specifically to the toe portion of the vamp and performed by devices which may be more particularly adapted for the toe shaping operation than are the lasting devices, shaping of the toe can be accomplished with a degree of effectiveness which is not possible in the lasting operation. Therefore, by means of this preliminary operation, a better fitting toe can be produced, as well as a saving in the labor cost of manufacturing the shoes.

Experimental work in connection with the foregoing operations has indicated to me that the results which it is desirable to secure by the preliminary toe shaping operations include not only the shaping of the stock by the devices operating thereon but also the permanent fixing or setting in its acquired shape of that portion of the toe of the vamp which is to be applied over the top face of the toe of the last, while it is desirable that the marginal portion of the toe of the vamp be rendered soft and pliable and left in that condition because that is the condition in which the marginal portion of the vamp can be best and with least labor conformed to the edge of the last and overworked into lasted position on the last bottom.

This invention comprises an improvement in methods of making shoes which consists in treating the marginal portion of the toe of the vamp to render it pliable and treating the interior portion of the toe of the vamp to stiffen it and set it in the shape which it has acquired at the time it is treated. In practising this method I shall, as I am now advised, prefer to treat the marginal portion of the vamp with moisture and heat, as for example with hot vapor, and to treat the interior portion of the vamp with dry heat while the interior portion is being subjected to the preliminary shaping operation above described. As I am advised, it is new with me to treat the margin of a vamp with moisture to render it soft and pliable preparatory to the lasting operation. Advantageously the treatment indicated for the margin of the vamp and the essentially different treatment indicated for the interior of the vamp may be effected simultaneously and preferably both treatments will be effected while the vamp is undergoing the preliminary shaping operation preparatory to the pulling-over operation and to lasting.

I will now more fully explain my improvements in methods of making shoes in connection with an apparatus which may advantageously be used in practising the method in the best way now known to me although it will be obvious that the method may be practised with the aid of different apparatus or devices.

Figure 1 of the drawings is a side elevation of the apparatus to be described; Fig. 2 is a perspective view partly in section; Fig. 3 shows one of the devices used in treating the vamp with heat as described; Fig. 4 shows a coöperating device; Fig. 5 shows in dotted and full lines respectively an example of a vamp before and after treatment in accordance with this invention.

The general organization of the apparatus corresponds in the main with that shown and claimed in the prior application of Mat- thias Brock Serial No. 714,452, filed August 10, 1912 but it will be unnecessary to de-

scribe here in detail the apparatus therein shown because it is not my invention. So much only will therefore be described as is necessary to enable the present invention to be understood and practised with the aid of that apparatus.

The base of the machine which extends to the floor where it is provided with an operating treadle is indicated by the reference character 2 and guides a plunger 4 capable of being reciprocated vertically by the treadle. The upper portion of the plunger extends through the table 5 which the plunger raises yieldingly by means of a spring 6 located between the lower face of the table and a collar 7 fast to the plunger. On its upper end the plunger supports unyieldingly the inside former 10.

The frame 2 extends above the table and sustains a depending U-shaped plate 12 corresponding approximately to the exterior edge contour of one end of the inside former, Fig. 4, and presenting a comparatively thin clamping edge on its lower face to coöperate with the table in clamping the margin of the toe when the table is raised by the plunger. The formation of the upper clamping member 12 permits the inside former 10 to move upwardly into said member for stretching and shaping the vamp after the margin of the vamp has been clamped between the table and said member and while the spring 6 yields to permit continued movement of the plunger. The plate which forms the work engaging surface of the table is supported in a plane inclined to the horizontal by a wedge 14 which is interposed between said plate and the top face of the table and has a lost motion connection with the plunger operated treadle whereby the wedge is retracted near the extreme end of the downward treadle movement. The vamp engaging edge of the clamping member 12 is of course similarly inclined to the horizontal.

In the upper end of the frame slides the stem of the outside former 15 which, at the time the work is inserted and during the upper stretching and shaping movement of the inside former, or so much of that movement as the operator may deem best, is hooked up in an inoperative position away from the work by the pivoted ratchet 16. After the work has been inserted, and at a time selected by the operator, this outside former is released and allowed to press by gravity and the action of a spring 18 upon the top face of the interior portion of the toe of the vamp as shown in Fig. 2.

It will be understood that by the use of this apparatus as thus far described, the margin of the vamp is clamped between the upper clamping member 12 and the table and the vamp is then stretched and shaped by the projection of the inside former upwardly against the interior portion of the vamp and the said interior portion of the vamp is subjected to compression between the inside and outside formers. This compression contributes to the shaping of the vamp and tends to set the vamp or reduce the reaction of the stock which occurs when the vamp is released from the shaping devices.

For the purpose of practising the present improvement in methods of making shoes, the outside former 15 is provided with a steam or vapor chamber, as shown in Fig. 2, connecting with a source of steam or vapor supply through a tube 20 that extends through the stem of the former and said outside former is provided with perforations, see Fig. 3, arranged to direct steam or hot vapor to the edge portion of the vamp to the exclusion of the interior portion of the vamp which is subjected to the action of heat between the imperforate middle portion of the face of the former 15 and the imperforate face of the inside former 10 which is heated by steam from a pipe 22, Fig. 4. Moistening of the interior portion of the vamp by escaping steam from the outside former is avoided by the use of a valve 24 in the pipe leading to the tube 20. This valve is connected to a controlling lever 25, Fig. 1, operated upon by a spring plunger 26 which maintains the valve normally shut. An adjustable stop 28 is provided by which the closing of the valve may be rendered proximate only whereby an amount of steam will be allowed to pass continuously to the outside former which amount will be insufficient to effect undesirable results but will keep the former 15 heated and may be sufficient to produce some moisture of condensation on the margin of the former adjacent to the perforations and in position to be applied directly to the edge portion of the vamp when the former is lowered into engagement with the work. In the use of the apparatus it is customary to allow the work to stand under shaping tension and pressure as in Fig. 2 for a period and during that period the operator will, in practising the present invention, manipulate the controlling lever 25 to allow steam to pass for treating or subjecting the margin of the vamp to the action of moist heat for rendering the margin soft and pliable while subjecting the interior portion of the vamp to the action of heat without moistening said interior portion, that is, to the action of dry heat between the imperforate faces of the inside and outside formers. The dry heat, when maintained long enough, acts on the fibers of the stretched and shaped leather to contract the fibers and stiffen the stock, as in the well understood ironing operation,

thereby setting it to the shape of the formers. The moisture from the steam or vapor penetrates the margin of the vamp, this penetration being accelerated by the presence of the heat and softens the margin of the vamp to render it pliable and in condition for conforming to the edge of the last and for being overworked and fitted smoothly and compactly down upon the shoe bottom in the lasting operation. In practice it is contemplated that formers will be employed which, while giving the desired shape to the interior portion of the toe of the vamp, will be designed for giving only approximately the shape of the last to the marginal portion of the vamp whereby the vamps which have been preliminarily shaped by one set of formers may be used upon more than one size of last and also upon lasts varying somewhat in shape or style. The use of this invention by which the shape given to the interior portion of the vamp is rendered permanent to a greater degree than has heretofore been possible while the margin of the vamp is rendered soft and pliable, contributes to the success of the described practice of using one set of formers for a plurality of lasts. The main advantage of the invention, however, is in the increased permanence of the acquired shape and the condition in which the margin of the vamp is prepared to facilitate the lasting operation because said soft and pliable margin stock will conform to the edge portion of the last more perfectly and with less labor by reason of having been subjected to treatment according to this invention.

In the use of the illustrated machine, it is contemplated that after the work has stood under tension and pressure as above described, the treadle will be further depressed for retracting the wedge 14 far enough to allow the portion of the margin that is under and outside of the clamping member 12 to be drawn between the edge of said member 12 and the table by a further rise of the plunger and inside former which will effect a "stripping" action to stretch the margin widthwise and reduce the length of its edge line around the toe. By this procedure the margin of the vamp is reshaped from the position shown in Fig. 2 into the position shown in Fig. 5 to constitute an upstanding flange which will be substantially perpendicular to the plane of the last bottom and will be in position to be conveniently engaged by the grippers of the pulling-over machine and by the grippers of a pincer lasting machine, if such a machine is used, as well as to be most readily overworked by the wipers of a bed lasting machine if that type of laster is employed in the manufacture of the shoe. In the operation of drawing out the flange between the table and clamping member 12 the portion of the stock which has been subjected to the action of steam or vapor from the outside former will be subjected to renewed tensioning whereby additional stretching of this portion of the stock will be effected.

Having explained the nature of this invention and described how it may be practised, I claim and desire to secure by Letters Patent of the United States:

1. That improvement in methods of making shoes which consists in subjecting the marginal portion of the toe of a vamp to the action of moist heat to render it soft and pliable and subjecting the interior portion of the toe of the vamp to the action of dry heat or heat without moisture to set the interior of the vamp in the shape possessed by it.

2. That improvement in methods of making shoes which consists in confining the edge of the toe portion of the vamp, subjecting the unconfined portion of the vamp to pressure for shaping it toward the contour desired in the shoe of which it is to form a part, treating the marginal portion of the toe of the vamp with moist heat to render it soft and pliable for the subsequent toe lasting operation, and treating the interior portion of the toe of the vamp with dry heat for setting it in the shape to which it has been molded.

3. That improvement in methods of making shoes which consists in confining the edge of the toe portion of the vamp, subjecting the unconfined portion of the vamp to pressure for shaping it toward the contour desired in the shoe of which it is to form a part, treating the marginal portion of the toe of the vamp with moist heat to render it soft and pliable, and drawing out the softened marginal portion of the toe of the vamp to prepare it for a subsequent operation.

4. That improvement in methods of making shoes which consists in preliminarily shaping the interior portion of the toe of a vamp toward the contour which it is desired that said stock shall have in the completed shoe whereby the toe lasting operation is facilitated and subjecting such shaped portion to the action of dry heat to set it in its shaped condition, and softening and rendering pliable the marginal portion of the vamp for further facilitating the lasting operation.

5. That improvement in methods of making shoes which consists in preliminarily shaping the interior portion of the toe of a vamp toward the contour which it is desired that said stock shall have in the completed shoe, subjecting the shaped stock to a setting action in the presence of heat without the addition of moisture for causing it

to retain its shape, and simultaneously subjecting the marginal portion of the vamp to the action of moisture for softening it and rendering it pliable for the toe lasting operation.

6. That improvement in methods of making shoes which consists in shaping the interior portion of the toe of a vamp into approximately the shape which it is desired that it shall have in the completed shoe, and subjecting said interior portion of the vamp to action rendering it stiff while subjecting the marginal portion of the vamp to action rendering it pliable to facilitate the subsequent lasting operation.

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

JOHN B. HADAWAY.

Witnesses:

FREDERICK L. EDMANDS,

EDITH C. HOLBROOK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."