Jan. 17, 1956 A. PERUGIA 2,730,736

METHOD OF MAKING SHOES

Filed April 10, 1952 2 Sheets-Sheet 1

Fig. 1.

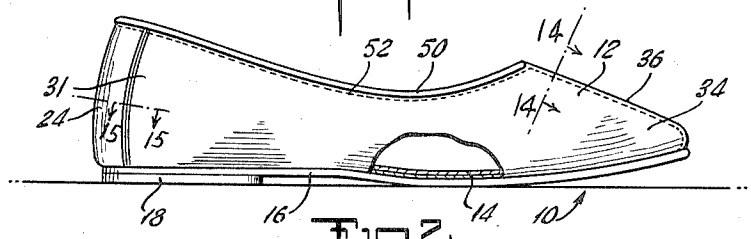


Fig. 2.

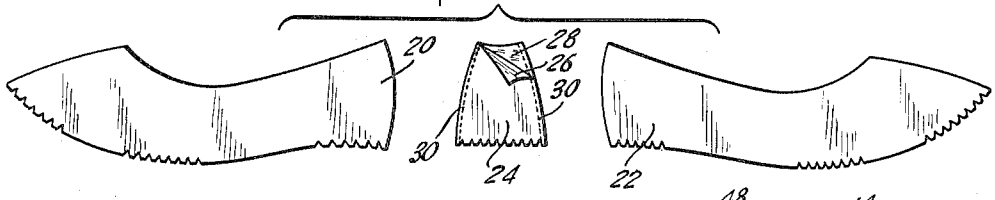


Fig. 14

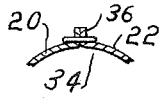


Fig. 15

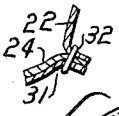


Fig. 3.

Fig. 17

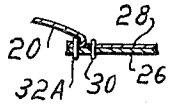


Fig. 16

Fig. 4.

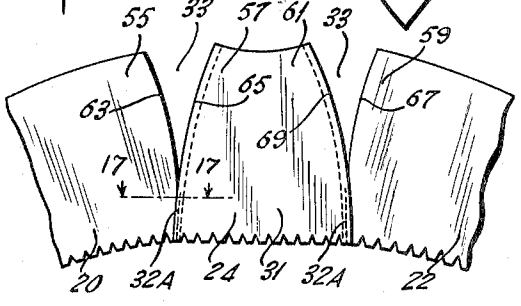
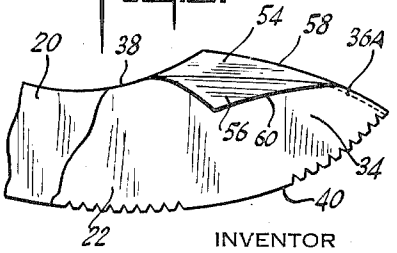


Fig. 5.



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Fig. 8.

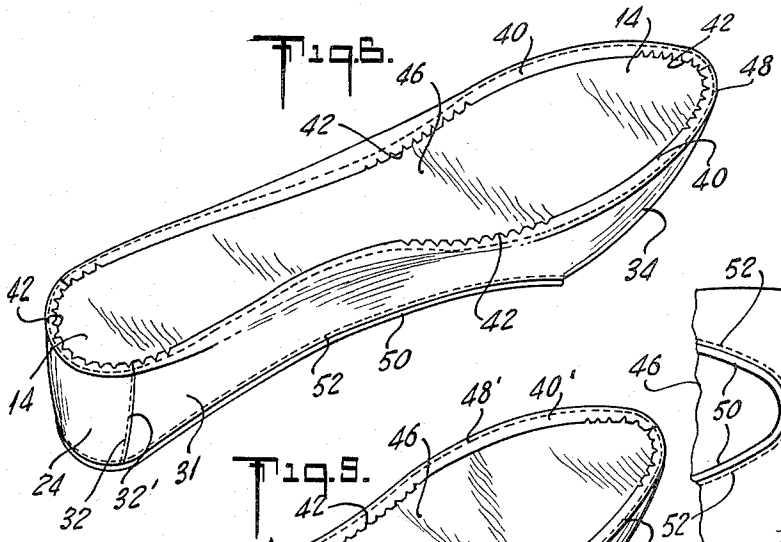


Fig. 7.

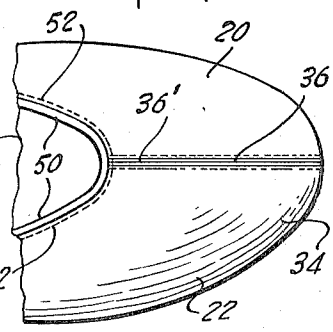


Fig. 9.

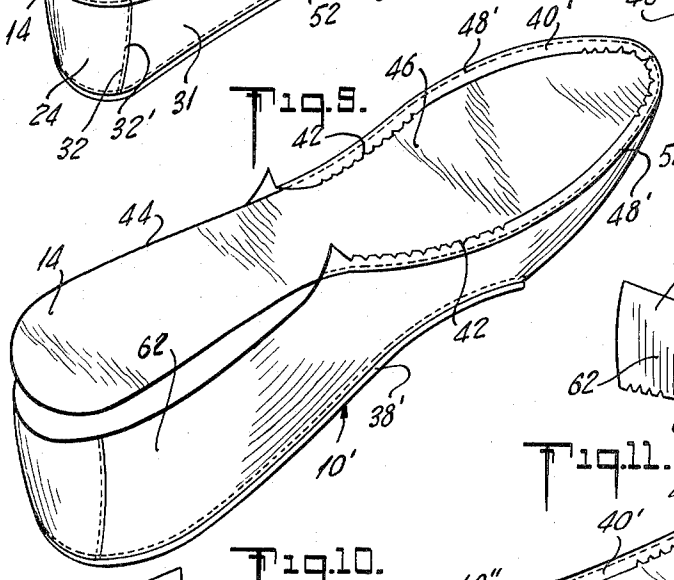


Fig. 6.

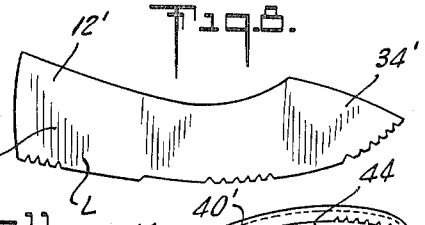


Fig. 11.

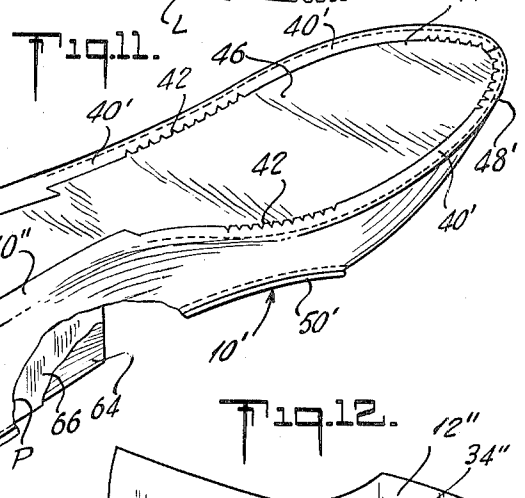


Fig. 10.

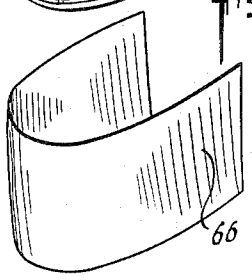


Fig. 12.

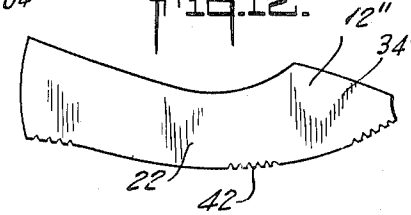
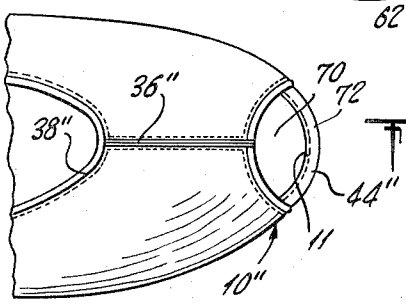


Fig. 13.



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METHOD OF MAKING SHOES

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Application April 10, 1952, Serial No. 281,561

2 Claims. (Cl. 12—142)

The present invention relates to shoes of an improved construction and to an improved method of making shoes. The primary object of the present invention is to simplify the art of shoe making and to reduce the cost of labor and materials. More particularly, pursuant to this objective of the invention, the shoe is made in such a way as to enable the upper and insole to be assembled in an improved manner without requiring the usual lasting operation and to facilitate the securement of the upper and insole to each other. A last or form may be, and preferably is, inserted in the shoe after the upper and insole are secured to each other, whereby to facilitate the attachment of the outsole and the usual shoe finishing operations.

More specifically, it is an object of the present invention to provide an upper and insole which are pre-formed in such a way that they can be relatively manipulated so that their successive marginal edge portions can be conformed in flatwise superposed condition during the operation of stitching the insole and upper to each other.

In accordance with one form of the present invention, both the insole and upper are each cut to the size and shape they are to have, respectively, in the finished shoe; and the upper may be provided with additional material at certain portions thereof, in another form of the present invention as will subsequently be described; and thereafter the insole and upper are stitched together.

Another object of the present invention is the provision of a shoe of improved construction in which the upper and insole are secured together without the formation of wrinkles and bulges, and without a lasting operation.

Yet another object of the present invention is the provision of an improved method of manufacturing shoes which eliminates many of the currently used shoe manufacturing steps and machinery necessary therefor.

The invention may be embodied and practiced in various ways including but not limited to those hereinafter referred to by way of illustration, and the above and other objects, features and advantages of the invention will be fully understood from the following description considered in connection with the accompanying illustrative drawings.

In the drawings:

Fig. 1 is a side view in elevation of one form of shoe made according to the present invention with parts broken away to reveal structural details;

Fig. 2 is a side view in elevation of the parts of the upper shown in disassembled relation;

Fig. 3 is a perspective view of the upper and insole shown with one part of the insole secured to the upper;

Fig. 4 is a fragmentary view, on an enlarged scale, of the rear part of a modified form of upper;

Fig. 5 is a fragmentary view, on an enlarged scale, of the forward part of the modified form of upper shown in Fig. 4;

Fig. 6 is a perspective view of the insole and upper in assembled condition corresponding to the embodiment of Figs. 1–3;

Fig. 7 is a fragmentary plan view on an enlarged scale, showing the forward part of the insole and upper of Fig. 6;

Fig. 8 is a side view in elevation of an upper in accordance with another form of the present invention;

Fig. 9 is a view similar to Fig. 3 showing the upper of Fig. 8 and insole in the process of being secured to each other in accordance with another form of the present invention;

Fig. 10 is a perspective view of a counter stiffener;

Fig. 11 is a view similar to Fig. 9 showing the upper and insole secured to each other with a counter stiffener secured relative to the insole and upper, and with parts broken away to reveal structural details;

Fig. 12 is a view similar to Fig. 8 showing an upper in accordance with another form of the present invention;

Fig. 13 is a view similar to Fig. 7 of another form of the present invention;

Fig. 14 is a sectional view taken on the line 14—14 of Fig. 1;

Fig. 15 is a sectional view taken on the line 15—15 of Fig. 1;

Fig. 16 is a fragmentary bottom plan view, on an enlarged scale, of the toe portion of the insole and upper assembly shown in Fig. 6 but corresponding to the embodiment of Figs. 4 and 5; and

Fig. 17 is a sectional view taken on the line 17—17 of Fig. 4.

Referring now to the drawings and more particularly to Figs. 1 through 3, 6 and 7 thereof, the shoe 10, formed according to one form of the present invention, comprises an upper 12, an insole 14, an outsole 16 and a heel 18. According to this form of the present invention the upper 12 and insole 14 are cut to the size and shape they are to have in the finished shoe and are secured to each other off the last; i. e., they are attached to each other without the usual lasting operation. Pursuant to the present invention, the upper 12 is prepared in a manner which will now be described.

The upper 12, which is formed in the size it is to have in the finished shoe, comprises side or quarter pieces 20 and 22 and a connecting heel piece 24. If desired, the heel piece 24 may be formed of an outer layer 26 and a stiffening layer 28 which are substantially coextensive and which are secured to each other in any conventional manner, as by the lines of marginal stitching 30. The pieces 20, 22, and 24, comprising the upper 12, are individually secured to the insole 14 in the manner shown in Fig. 3. The lower free marginal edge 40 of the parts comprising the upper 12 may be slit or notched or otherwise similarly prepared as indicated at 42 at suitably spaced intervals whereby successive increments of edge 40 of the parts 20, 22, and 24 may during securement be manipulated to facilitate the securement of said parts to the insole. Thus successive increments of the marginal edge 40 of each of the parts of the upper 12 may during securement be manipulated to conform to the edge 44 of the insole whereby to facilitate the securement of said marginal edge 40 to the outer marginal edge 44 of insole 14 with said marginal edges disposed in flatwise superposed condition. As indicated in Fig. 3, the marginal edge 40 of parts 20, 22, and 24 is adapted to be positioned above marginal edge portions of the outer face 46 of the insole 14 and the marginal edge 40 of said parts and the marginal edges 44 of insole 14 are fed flatwise in successive increments, and in superposed relationship, to the work support of a conventional sewing machine, or other securing means, with said edges being substantially parallel. Thus the pieces 20, 22 and 24 are separately secured to insole 14, as shown in Fig. 3, in the above manner,

with the marginal edge 40 of each of said pieces being secured to the marginal edge 44 of said insole. The marginal edges 40 and 44 of the upper and insole, respectively, may be secured to each other by the line of stitching 48 or by a cementing operation or, if desired, by both a cementing operation and a stitching operation.

With the parts 20, 22, and 24 secured to insole 14 in the above manner, said parts are adapted for securement to each other by the upstanding seams illustrated in cross section in Figs. 14 and 15. It will be noted that part 20 is secured to insole 14 at one side thereof and part 22 is secured thereto at the other side thereof, with part 24 being secured to said insole at the back thereof. The marginal edges 40 of the parts 20, 22, and 24 correspond in length to the marginal edge 44 of the insole whereby edge 40 of the upper 12 will be peripherally continuous when said upper is secured to the insole as shown in Fig. 6. The lines of stitching 32 at the rear part 31 of the upper 12 are adapted to secure part 24 to the parts 20 and 22, said lines of stitching extending from the edge 44 of the insole to the upper marginal edge 38 of said upper. Similarly, as shown in Fig. 7, the line of stitching 36 at the forward part 34 of the upper 12 is adapted to secure the parts 20 and 22 to each other, said line of stitching extending from the edge 44 of the insole to the upper marginal edge 38. Thus the parts comprising the upper 12 are secured to each other and to the insole off the last in any conventional manner and preferably by the lines of stitching 32 and 36. After the upper and insole are secured in the above manner an edge binding 50 is attached to the marginal edge or foot opening 38 of the upper 12 in any conventional manner, as by means of the line of stitching 52.

Thereafter an outsole 16 may be secured to the upper and insole assembly in any conventional manner and the usual shoe finishing operations performed to complete shoe 10 shown in Fig. 1. In the securement of the outsole 16 to the upper and insole assembly and to facilitate the performance of the usual shoe finishing operations, the insole and upper assembly, as shown in Fig. 6, preferably has a form or a last inserted therein. Thus the upper 12 and the insole 14 are attached to each other off the last and may have a form or last inserted in the insole and upper assembly to facilitate the securement of the outsole and to perform the usual shoe finishing operations.

It will thus be seen that shoe 10 will have its upper 12 provided with a seam 36 running along a line extending downwardly and forwardly from the edge 38 of the upper towards the toe of the shoe and terminating in the region of insole 14.

With reference to Figs. 4 and 5, there is shown a modified form of the present invention which is adapted to be used with an upper 12 formed of a relatively flexible and pliable material. In accordance with this form of the present invention the pieces or parts 20, 22, and 24, comprising the upper 12, are partially secured to each other in the manner shown in Figs. 4, 5 and 17 by upstanding seams. Thus pieces 20, 22 and 24 are partially secured to each other at the heel or rear part 31 by means of the lines of stitching 32A whereby portions of the upper are left unattached from each other. Similarly the pieces 20 and 22 are partially attached to each other at the forward part 34 of the upper 12 by means of the line of stitching 36A as shown in Fig. 5. Thus at the forward part 34 of the upper 12 the pieces 20 and 22 are left unattached along a longitudinal line extending forwardly from the upper edge or foot opening 38 of the upper 12. The upper 12 of shoe 10 prior to its securement to the insole 14 will thus have the portions 54 and 56 of the forward part 34 extending laterally towards each other from the marginal or free edge 40 and will terminate in free longitudinal opposed edges 58 and 60, whereby the portions 54 and 56 will be unattached to each other. After the insole and upper are secured to each other the portions 54 and 56 will be attached to each other in a manner to be described whereby the forward portion 34 of upper 12 will be in the form shown in Figs. 7 and 16.

It will also be noted that the upper will have portions 55, 57, 59, 61 of the rear part 31 extending laterally towards each other from the free edge 40 and will terminate in free longitudinal opposed edges 63, 65, 67, and 69, respectively, whereby the portions 55, 57, 59, 61 will be unattached to each other. After the upper and insole are secured to each other the portions 55, 57, 59, and 61 will be attached to each other. With the upper 12 prepared in the above manner it is adapted for securement to the insole14 without a lasting operation. From the above it will be apparent that the parts 20, 22, and 24 which comprise the upper 12 will have unclosed portions at its line of closure or foot opening 38 above the insole attaching edge 40 thereof, said unclosed portions being attached to each other subsequent to the securement of the insole and upper to each other.

The lower free marginal edge 40 of the upper 12 may be incised or notched or otherwise similarly prepared as indicated at 42 at suitably spaced intervals whereby successive increments of the lower marginal edge 40 of the upper may be disposed and manipulated or worked to facilitate the securement of the upper to the insole in the manner aforedescribed. With the upper 12 prepared in the above manner, it will be evident that it may be opened and the lower marginal edge 40 may be secured to the outer marginal edge 44 of insole 14. As indicated in Fig. 6, the marginal edge 40 of the upper 12 is adapted to be positioned above marginal edge portions of the outer face 46 of the insole 14 and the marginal edges 40 of upper 12 and the marginal edges 44 of insole 14 are fed flatwise in successive increments, and in superposed relationship to the work support of a conventional sewing machine, or other securing means, with said edges being substantially parallel. The marginal edges 40 and 44 of the upper and insole, respectively, may be secured to each other by the line of stitching 48 or by a cementing operation or, if desired, by both a cementing operation and a stitching operation. In the securement of the insole and upper to each other, the upper is opened in annular form and since portions of the upper are unsecured to each other, successive increments of the marginal edge 40 may be readily manipulated whereby a secure relatively untensioned attachment may be had between the upper and insole.

With the upper 12 and insole 14 secured to each other in the above manner, the unattached portions at the forward and rear parts of the upper 12 are secured to each other by upstanding seams. More particularly, the lines of stitching 32A at the rear part 31 of the upper 12 are continued to the upper marginal edge 38 of the upper as indicated by stitching 32′ in Fig. 6. Similarly, the line of stitching 36A at the forward part 34 of the upper 12 is continued to the upper marginal edge 38 of the upper as indicated by stitching 36′ in Fig. 7. Thus the unattached portions of the upper 12 are secured to each other off the last in any conventional manner and preferably by the continuation of the lines of stitching 32A and 36A which are utilized for the initial securement of the pieces 20, 22 and 24. Thus the longitudinal opposed edges 63 and 65 and 67 and 69 will be secured to each other by the lines of stitching 32′ and the longitudinal opposed edges 58 and 60 will be secured to each other by the line of stitching 36′ whereby to secure the unattached portions of the upper to each other. Although the upper 12 is shown in Fig. 4 as having two openings 33 between the pieces 20, 22 and 24 as defined by the unattached portions of the upper, it will be readily understood that said upper may be prepared for assembly to the insole 14 with any number of openings 33 defined by unattached portions thereof whereby the upper 12 may be manipulated in increments to facilitate the securement of the upper to the

insole. After the upper and insole are secured to each other in the above manner shoe 10 is formed by the same operations aforedescribed in connection with the embodiment shown in Figs. 2 and 3. It is to be noted that the upstanding seams, in the embodiment of Figs. 4 and 5, which secure the parts 20, 22, and 24 to each other extend from the marginal edge 40 and accordingly portions of said seams are disposed in overlying relation to the insole as shown in Fig. 16 whereas the corresponding upstanding seams of the embodiment of Figs. 2 and 3 extend upwardly from the edge 44 of the insole as previously noted, it being understood that, if desired, said corresponding upstanding seams may extend so as to overlie said insole. Thus the embodiment shown in Figs. 4 and 5 is similar to the embodiment shown in Figs. 2 and 3 except that in the latter embodiment the parts 20, 22, and 24 are each individually secured to the insole and are thereafter secured to each other by upstanding seams extending from the edge 44 of the insole whereas in the former embodiment the parts 20, 22, and 24 are partially secured to each other initially by upstanding seams extending from edge 40 of the upper and such assembly is secured to the insole with the portions of the upper left unsecured thereafter secured to each other.

With reference to Fig. 8, there is shown an upper 12' which has its forward part 34' formed similarly to the forward part 34 of upper 12 of shoe 10 of either the embodiment of Figs. 2 and 3 or 4 and 5, and is provided with a lasting allowance L at the counter portion 62 thereof. Thus the upper 12' is structurally identical with upper 12 or either of the aforedescribed embodiments forwardly of the counter portion 62 and upper 12' at the counter portion 62 is provided with the usual lasting allowance L for a purpose which will be described in detail hereinafter. The upper 12' is adapted to be secured to an insole 14 forwardly of the lasting allowance L in the same manner as upper 12 was secured to the insole 14 of shoe 10 in either aforedescribed embodiment. Thus forwardly of the counter portion 62 of upper 12', the marginal edge 40' of said upper is secured to the marginal edge 44 of the insole 14 off the last by any conventional means, for example the line of stitching 48'. In one embodiment the unattached portions of the forward part 34' of upper 12' are then secured to each other in the manner described in detail above whereby the forward part 34' of upper 12' will be structurally identical with the forward part 34 of upper 12 of the embodiment of Figs. 4 and 5. In the other embodiment the forward part 34' of upper 12' will be formed in the manner described in connection with Figs. 2 and 3. An edge binding 50' may then be secured to upper 12' at the upper marginal edge 38' thereof in the manner aforedescribed, it being understood that the rear part or counter portion 62 of said upper is prepared in the usual manner for assembly to an insole by a lasting operation.

Thereafter a suitable lining member 64 is secured to the counter portion 62 of upper 12', internally thereof, to form a pocket P adapted for the reception of the counter stiffener 66 shown in Fig. 10. Thus marginal edge portions of the lining member 64 are secured to adjacent portions of upper 12' internally thereof with the lower marginal edge of said lining member in the region of the insole 14 left unsecured to define the opening to said pocket P. It will be understood that any pocket formation P at the counter portion 62 of upper 12' may be utilized for the reception therein of a suitable counter stiffener 66 and that the specific structural arrangement herein shown and described is by way of example only and not by way of limitation. After the formation of the pocket P at the counter portion 62 of upper 12' the counter stiffener 66 is positioned in said pocket and the upper 12' and insole 14 are secured together at their unsecured marginal edges by a conventional lasting operation. More specifically, a last or form preferably is inserted in the partially assembled upper and insole assembly shown in Fig. 9 and the marginal edge 40'' of upper 12' in the region of counter portion 62 is secured to the marginal edge 44 of insole 14 whereby the marginal edge portions which are left unsecured by the aforedescribed off the last securing operation are now secured to each other. In this lasting operation the lining member 64 will have its lower marginal edge secured to the edges 44 and 40'' of the insole 14 and upper 12', respectively, and interposed therebetween as will be readily understood. Thus this aforedescribed lasting operation will be effective to complete the securement of upper 12' to insole 14 and at the same time will complete the securement of the lining member 64 relative to said insole and upper. While on the last an outsole 16 may be secured to the insole and upper assembly, shown in Fig. 11, in any conventional manner and the usual finishing operations performed. It will be understood that marginal edge portions 40' of upper 12' forwardly of the counter portion 62 thereof may be slit, notched, or otherwise peripherally prepared at intervals whereby successive increments of the marginal edge portions 40' may be manipulated for securement to complementary edge portions of insole 14 in flatwise condition.

With reference to Figs. 12 and 13, there is shown a shoe 10'' which is formed in a similar manner as either embodiment of shoe 10 except shoe 10'' is of open toe construction. Thus upper 12'' will be pre-formed prior to its assembly to the insole 14 in a manner similar to upper 12 of the embodiment of Figs. 2 and 3 or 4 and 5 except for a cut-away portion 70 at the forward part 34'' which defines an open toe portion. Thus upper 12'', prior to its assembly to insole 14, is prepared structurally identical with upper 12 of the embodiments aforenoted except for the cut-away portion 70 which defines an open toe portion. Upper 12'' is attached to insole 14 in the same manner upper 12 is attached to insole 14 of the aforenoted embodiments whereby aside from the cut-away portion 70 of the upper, shoe 10'' is constructed in a similar manner as shoe 10 and the same method steps applicable to shoe 10 are applicable to shoe 10''. If desired, a suitable edge binding 72 may be secured to outer marginal portions 44'' of insole 14 at the toe portion by line of stitching 11 whereby to impart to shoe 10'' an esthetically pleasing appearance. Thus shoe 10'' will have a seam 36'' extending downwardly and forwardly from the edge 38'' of the upper 12'' towards the toe of the shoe and will terminate at the cut-away portion 70 defining the toe opening. It will be further understood that if desired an open heel type of shoe construction may be had by providing a correspondingly prepared upper with suitable cut-away portions at the rear part, and similarly a shoe of an open toe and open heel construction may readily be formed by the above described methods.

The shoes 10, constructed according to the methods aforedescribed, enable the upper and insole to be assembled in an improved manner without requiring the conventional lasting operation and facilitates the securement of the upper and insole to each other. After the upper and insole are secured to each other in shoes 10 and 10'', a last or form may be, and preferably is, inserted in the shoes to facilitate the attachment of the outsole and to perform the usual shoe finishing operations. When the upper and insole are prepared in the manner aforedescribed, the marginal edge portions adapted for securement to each other may be manipulated into conformity whereby to provide for the facile operation of stitching the upper and insole to each other. The upper and the insole secured together by the above method will provide a high grade securement without the formation of wrinkles and bulges. It will also be evident from the above, that the above methods of making shoes will

eliminate many of the now used manufacturing steps and the machinery necessary therefor whereby the shoes **10** of the above method may be economically mass produced in less time than shoes made by the heretofore used conventional methods. Since the method herein shown utilizes an upper which is generally of a size and shape it is to have in the finished shoe there will be a substantial saving in the elimination of the conventional lasting allowance and the attendant waste due to a trimming operation associated with the currently used lasting methods.

While I have shown and described the preferred embodiment of my invention, it will be understood that various changes may be made in the present invention without departing from the underlying idea or principles of the invention within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. The method of making shoes comprising providing a closed shoe upper having an unclosed portion at its line of closure above its insole attaching edge with said upper having a lower incised edge and a forward part of the size it is to have in the finished shoe, providing an insole, working the lower incised edge of the upper over the marginal edge of said insole in successive increments and attaching it thereto, and finally securing together the unclosed portion of the upper above the insole attaching edge thereof.

2. The method of making shoes comprising providing a closed shoe upper having an unclosed portion at its line of closure above its insole attaching edge with said upper having a lower incised edge and a forward part of the size it is to have in the finished shoe, providing an insole, working the lower incised edge of the upper over the marginal edge of said insole in successive increments and attaching it thereto with said edges being disposed in overlapping disposition inwardly of the walls of the upper, and finally securing together the unclosed portion of the upper above the insole attaching edge thereof.

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