Feb. 22, 1938. K. ENGEL 2,108,849

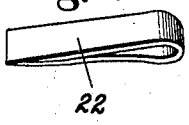
MANUFACTURE OF SANDALS

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Fig.1.



Fig.3.



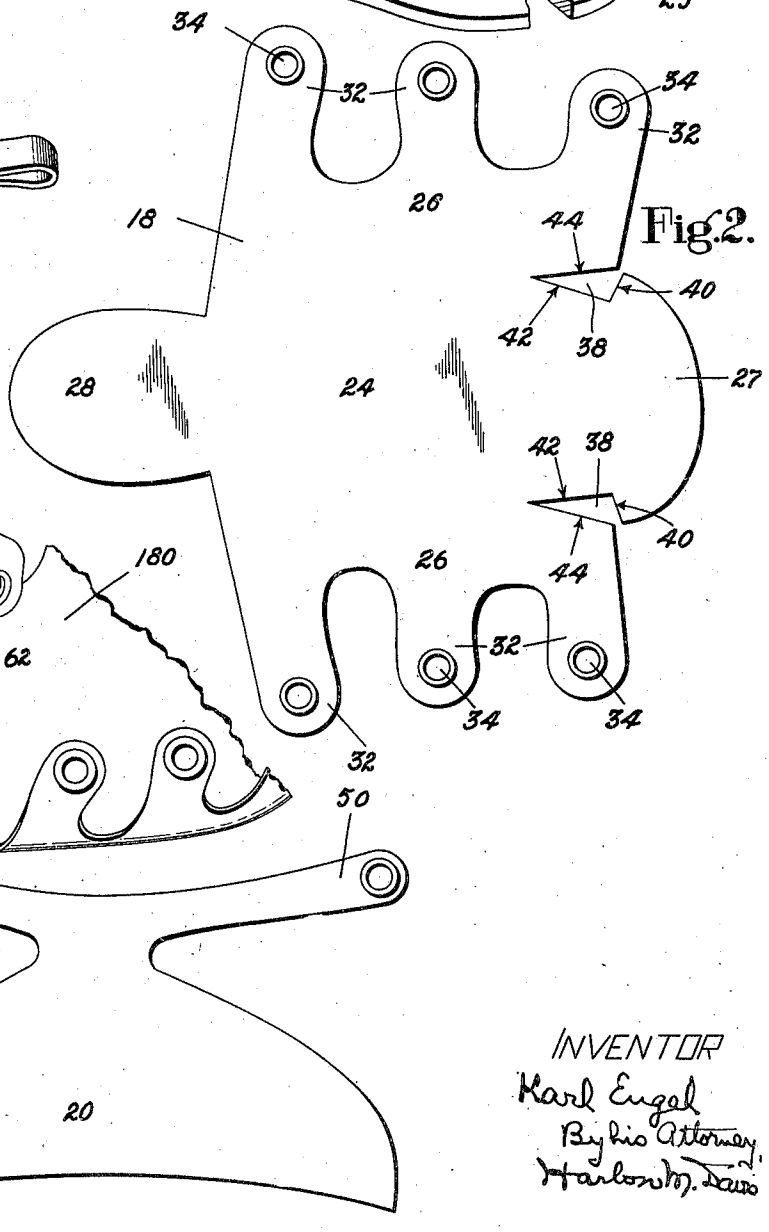


Fig.2.

Fig.4.

Fig.5.

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Fig.6.

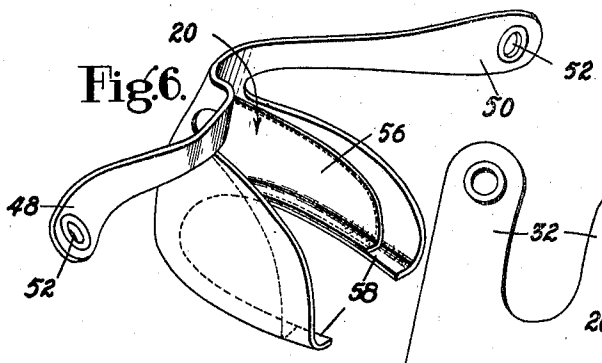


Fig.7.

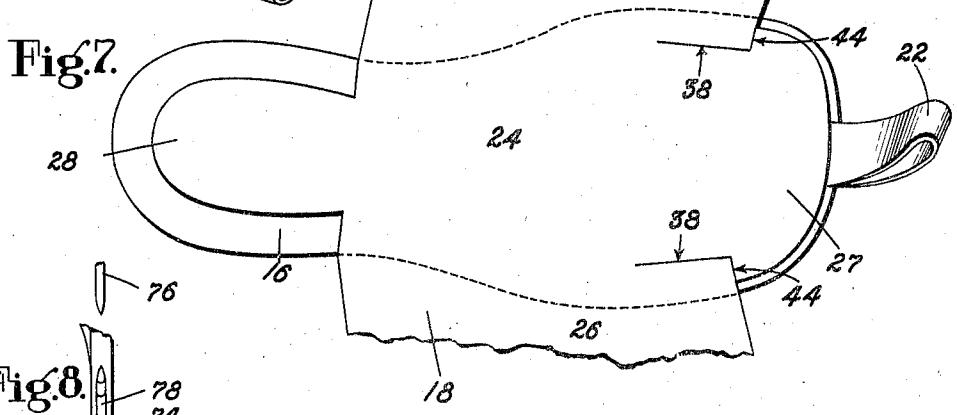


Fig.8.

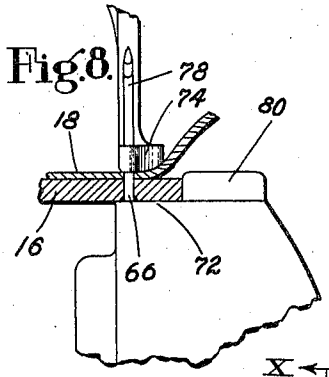


Fig.9.

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Fig.10.

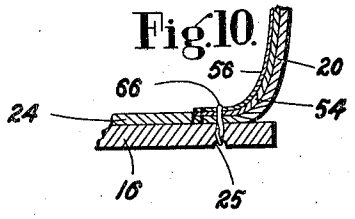
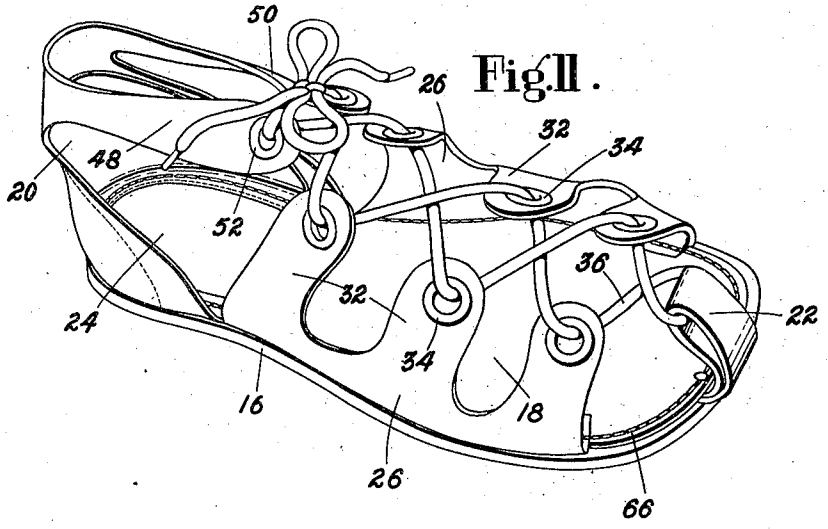


Fig.11.



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UNITED STATES PATENT OFFICE

2,108,849

MANUFACTURE OF SANDALS

Karl Engel, Swampscott, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Application September 24, 1936, Serial No. 102,348

10 Claims. (Cl. 36—11.5)

This invention relates to improvements in the manufacture of sandals and has for its object to provide a sandal of simple and inexpensive construction and one which is comfortable to wear and is also neat and attractive in appearance.

With this object in view the invention, in one aspect, provides a combination insole and upper blank for use in the manufacture of sandals, the blank comprising a middle insole portion and two upper portions formed as integral lateral extensions of the insole portion, and the upper portions being partially separated from said insole portion by two notches which are adapted to be closed and are shaped and arranged so that when closed the upper portions will be forced out of the plane of the rest of the blank to facilitate the shaping of the upper portions to the contour of a foot. The shape of the combination upper and insole blank is such as to provide an insole portion adapted to overlie substantially the upper surface of the shank and forepart of a tread sole, laterally extending wing or strap members adapted to be turned upwardly to constitute an upper in the shank and forepart of the sandal, and a rearwardly extending heel piece which is smaller than the heel part of the tread sole but has a corresponding edge contour and is adapted to cover the central heel seat portion of the tread sole.

The illustrated sandal is also provided with additional upper members comprising a toe strap or loop and a quarter or heel member, the latter having an inturned lower flange which is secured to the upper surface of the tread sole, outside of the heel piece extension of the combination insole and upper member, by a line of through-and-through stitching which extends also along opposite margins of the shank and around the forepart of the tread sole to secure the combination insole and upper member and the toe loop to the tread sole. A cord or lacing is passed through the toe loop, through openings in the wing or strap portions of the insole and upper member, and through openings in the ankle strap extensions of the quarter to hold those parts in place upon the foot of the wearer. In making the sandal, the heel piece and the insole portion of the combination insole and upper member is cemented to the upper surface of the tread sole and so positioned upon the latter that the edge of the heel piece is spaced from but substantially parallel to the edge of the heel portion of the tread sole and the quarter is positioned with its inturned lower flange abutting the edge of said heel piece and, while the quarter is thus held with its position gaged from the heel piece, the flange of the quarter is stitched to the tread sole by a line of through-and-through stitching and the stitching is continued along the shank at one side of the sandal, around the forepart and along the shank at the opposite side of the sandal thereby permanently securing the combination insole and upper member as well as the quarter to the tread sole, the stitches passing also through the toe loop one end of which is interposed between the insole member and the tread sole. Also, as herein illustrated, the notches in the combination insole and upper member are closed before that member is cemented to the tread sole and that member is cemented and finally stitched to the tread sole with the notches in closed condition, the stitching passing through the insole and upper material at the outer sides of the closed notches so as permanently to hold the adjacent portions of the upper members in upwardly turned positions adapting them more readily to conform to the shape of a foot.

The invention consists also in a sandal embodying certain novel features of construction hereinafter described and claimed.

The invention will now be explained with reference to the accompanying drawings, in which

Fig. 1 is a perspective view of the tread sole of the sandal showing the tread surface of the sole;

Fig. 2 is a plan view of the combined insole and upper forepart member;

Fig. 3 is a perspective view of the toe strap;

Fig. 4 is a fragmentary plan view showing a combined insole and upper member of modified formation in assembled relation with a separate filler piece for the heel seat portion of the sandal;

Fig. 5 is a plan view of the quarter or heel part of the upper;

Fig. 6 is a perspective view of the quarter;

Fig. 7 is a plan view of the shoe in a partially assembled condition;

Fig. 8 is a fragmentary sectional view of the shoe in course of construction illustrating the operation of stitching together the tread sole and the combined insole and upper forepart member;

Fig. 9 is a plan view of a completed sandal;

Fig. 10 is a detail sectional view taken along the line X—X of Fig. 9; and

Fig. 11 is a perspective view of the completed shoe.

As shown in the drawings, my improved sandal comprises a tread sole 16, a combination in-

sole and upper member 18, an upper heel part or quarter 20, and a toe strap or loop 22.

The tread sole 16 is cut to the required size and shape by a die-cutting or sole-rounding operation. No other sole-fitting operation is required to be performed upon the tread sole except that a stitch-receiving groove 25 may be formed in its tread surface, the groove extending entirely around the marginal portion of the sole.

The combined insole and upper member 18 is made by cutting out a blank, as by means of a die, from suitable upper stock, the blank shaped as best shown in Fig. 2 to provide, in a single integral piece, an insole portion 24 which is adapted to overlie the inner or upper surface of the tread sole so as to perform the function of an insole, and two upper portions 26 formed as integral lateral extensions of the insole portion which are adapted to be turned inwardly at opposite sides of the insole portion so as to overlie the opposite sides of a foot. As shown in Figs. 2 and 7 the insole portion 24 is formed with an integral toe portion 27 and an integral heel or filler piece 28. In order to reduce waste in cutting, however, it may be desirable to cut out the heel piece and the combination insole and upper members separately as shown at 180 and 280 in Fig. 4. The illustrated lateral extensions or upper members 26 are shaped to provide a plurality of integral strap sections 32 each of which is provided at its outer end portion with an opening or eyelet 34 for receiving a lacing 36 (Fig. 11) by which the strap sections may be maintained in place so as to hold a sandal on the foot. As best shown in Fig. 2, two notches 38 are cut in the member 18, the notches being so shaped and positioned that by closing the notches 38, as shown in Fig. 7, the foreparts of the upper members 26 may be constrained to curve or bend upwardly relatively to the middle portion or insole member 24 so that they will more readily conform to the shape of the sides of the foot when the sandal is being worn. For this purpose the notches 38 are located in the opposite lateral margins of the insole member 24 just rearwardly of the toe portion 27 and each notch is formed by three cuts which produce three straight edges 40, 42 and 44. As shown, the edges 40, which are shorter than the others, extend nearly at right angles to the edge of the toe portion 27, while the longer edges 42 and 44 converge rearwardly and separate the foreparts of the upper members 26 from the insole portion 24.

The upper heel part or quarter 20 is died out of upper material and is shaped to provide integral ankle strap sections 48 and 50 each of which is provided with an eyelet 52 for receiving the lacing 36. The quarter 20 is maintained in a desired semi-rigid shape by means of a counter stiffener 54 which is located inside the quarter and is covered by a lining 56 which is stitched to the quarter. These members are formed with inturned lower flanges 58 for attachment to the tread sole 16.

The heel piece 28 of the combination insole and upper member 18 is cut out with curved rear and side edges shaped so that the heel piece will fill in the space within the flanges 58 of the quarter 20. The separately formed heel seat filler piece 280 is similarly shaped except that it is also provided with a straight front edge 60 which is adapted to abut the straight rear edge 62 of the modified insole and upper member 180.

In making my improved sandal no last is employed. The combination insole and upper member 18 is merely secured in place upon the upper side of the tread sole 16 by means of a suitable adhesive, such as rubber cement, in the position shown in Fig. 7, the edges 42 and 44 having been brought together and held in that position by means of the cement and the toe strap or loop 22 having been inserted between the toe portions of the members 16 and 18. The assembled relation of the parts may be readily determined by the eye of the operator, it being necessary only to position the curved edge of the toe portion 27 of the insole member parallel to that of the toe of the tread sole and to position the curved edge of the heel piece 28 of the insole member so that it is parallel to the similarly curved edge of the heel end of the tread sole. The curved edge of the heel piece 28 will then serve as a shoulder to gage the location of the flange 58 of the quarter 20. Accordingly, in assembling the quarter 20 with the other parts it is merely positioned with the inner edge of the flange 58 against the curved edge of the heel piece 28 of the insole member and with the front ends of the flange 58 against the rear edge of the insole member. While the quarter is held in this position by the operator, the assembled parts are presented to a suitable sewing machine by means of which a seam 66 (Figs. 9 and 10) is sewn entirely around the bottom of the sandal. The stitching may start, for example, approximately at the point 68 (Fig. 9) and proceed around the heel portion, thus uniting the flange of the quarter 20 to the tread sole, after which it proceeds forwardly along the shank and forepart at one side of the sandal and thence around the toe, where it permanently secures the toe strap 22 in place, and then rearwardly along the forepart and shank at the opposite side of the sandal to the point 68 where the stitching was commenced, thus uniting the combination insole and upper members 18 with the tread sole. If desired, rivets 70 (Fig. 9) may be employed to reinforce the attachment of the toe strap to the sole members of the sandal. This stitching may be accomplished by the use of a lock stitch sewing machine such, for example, as that disclosed in United States Letters Patent No. 939,152, granted November 2, 1909, upon application of F. W. Merrick, such a machine as shown in Fig. 8 comprising a work support 72, a presser foot 74, an awl 76, a straight hooked needle 78, and an edge guide 80, and being provided also with the usual thread guiding and looping devices (not shown). The location of the stitches relatively to the sole edge is determined by the edge guide 80 which is positioned to locate the stitches within the groove 25 in the tread sole.

In case the heel seat filler piece is cut separately from the insole and upper member 18, as shown in Fig. 4, those parts are cemented to the tread sole 16 in the relation to each other indicated in that figure and in the same relation to the tread sole as that of the corresponding parts in Fig. 7. It may be found satisfactory in some instances merely to hold the upper and insole parts in place by hand while they are being stitched to the tread sole, thus eliminating the preliminary operation of cementing them in place, but it is considered preferable to cement them to the tread sole as described in order that the curved edge of the heel seat filler member may serve as a gage to determine the location of the quarter.

After the parts have been stitched together as described and the lacing 36 has been inserted through the eyelets 34 and 52, the sandal

is ready to be worn. It will be appreciated that the sandal thus produced is of very simple construction consisting only of the four parts, viz., the tread sole, the upper and insole member, the quarter, and the toe strap. Obviously, the toe strap may be omitted if desired. The sandal is particularly comfortable inasmuch as there are no ridges upon the inside of its bottom part to engage the bottom of the foot and on account of the upper members **26** being pre-shaped by the closing up of the notches **38** so that they conform approximately to the contour of the sides of the foot. The use of stitches for securing the upper members to the tread sole and for securing the insole member and tread sole together results in the production of an exceptionally strong and serviceable shoe. Moreover, the sandal can be manufactured inexpensively, inasmuch as the only operation necessary to be performed, after the parts have been cut out and assembled, is a single stitching operation.

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

1. For use in the manufacture of sandals, a combination insole and upper blank comprising an insole portion and two upper portions formed as integral lateral extensions of said insole portion, said upper portions being partially separated from said insole portion by two notches located in the forepart of the blank; said notches being adapted to be closed and being shaped and arranged so that when closed said upper portions will be forced out of the plane of the rest of the blank to facilitate the shaping of said upper portions to the contour of a foot.

2. For use in the manufacture of sandals, a combination insole and upper blank comprising an insole portion and two upper portions formed as integral lateral extensions of said insole portion, said upper portions being partially separated from said insole portion by two notches located in the forepart of the blank, the portions of the blank which define said notches comprising rearwardly converging edges adapted to be brought together so as to close the notches and thus constrain the adjacent upper portions to curve upwardly relatively to said insole portion.

3. For use in the manufacture of sandals, a combination insole and upper blank comprising an insole portion and two upper portions formed as integral lateral extensions of said insole portion, said upper portions being partially separated from said insole portion by two notches located in the forepart of the blank, each of said notches being partially defined by two rearwardly converging edges which are adapted to be brought together so as to close the notch and thus to impart an upward curvature to the adjacent upper portion and each of said upper portions being shaped to provide a plurality of strap members, the strap members being adapted to receive a lacing by means of which they are held in place on the foot.

4. For use in the manufacture of sandals, a combination insole and upper blank comprising an insole portion and two upper portions formed as integral lateral extensions of said insole portion, said insole portion having an integral forwardly extending toe part and having two notches cut in its forward portion rearwardly of said toe part, each of said notches being partially defined by two rearwardly converging edges which are adapted to be brought together to close the notch and thus to constrain the adjacent upper portion of the blank to curve upwardly relatively to said insole portion.

5. A sandal comprising a tread sole, a combination insole and upper member having a middle insole portion attached to the upper side of said tread sole, and upper portions formed as lateral extensions of said insole portion, the forepart of each of said upper portions being received and held within a notch cut in said insole portion whereby an upward curvature is imparted to the forepart of said upper portion.

6. A sandal comprising a tread sole, a combination insole and upper member having an insole portion overlying the upper side of said tread sole, and upper portions formed as integral lateral extensions of said insole portion, and a continuous line of stitching securing said insole portion to the marginal portion of said tread sole, the foreparts of each of said upper portions being received within notches cut in said insole portion and being held in said relation to said insole portion and secured to said tread sole by said line of stitching.

7. A sandal comprising a tread sole, a combination insole and upper member cut from a single piece of material and having an insole portion overlying the shank and forepart of said sole, integral lateral extensions constituting an upper for the forepart of the sandal, and a rearward extension overlying the heel portion of said tread sole and having curved rear and side edges spaced from the corresponding edges of the tread sole, a quarter having an inturned lower flange the inner edge of which abuts the rear and side edges of said rearward extension, and a single line of through-and-through stitching uniting the marginal portion of the tread sole with said combination member and with the flange of said quarter.

8. A sandal comprising a tread sole, a combination insole and upper member cut from a single piece of material and having an insole portion overlying the shank and forepart of said sole, integral lateral extensions constituting an upper for the forepart of the sandal, and a rearward extension overlying the heel portion of said tread sole and having curved rear and side edges spaced from the corresponding edges of the tread sole, a quarter having an inturned lower flange the inner edge of which abuts the rear and side edges of said rearward extension, a toe strap, and a single line of through-and-through stitching uniting the marginal portion of said tread sole with said combination member and with the flange of said quarter and with said toe strap.

9. That improvement in methods of making sandals which consists in cutting out from a single piece of upper material a combination insole and upper member of a shape adapted to overlie the shank and forepart of a tread sole and to provide upper members at opposite sides of the forepart of the sandal and a heel piece smaller than the heel part of the tread sole but having curved rear and side edges parallel to those of the heel part of the tread sole, forming a quarter with an inturned lower flange, adhesively securing said combination insole and upper member to the upper surface of said tread sole, positioning said quarter with the inner edge of said flange abutting the curved rear and side edges of said heel piece, and permanently attaching said quarter and said combination insole and upper member to said tread sole by a single line of stitches extending through said quarter flange and through said combination member.

10. That improvement in methods of making sandals which consists in forming from a single piece of upper material a member adapted to provide an insole portion and upper portion, cutting notches in said member partially separating the upper portions from the insole portion thereof, closing said notches to shape said upper portions to approximate the contour of the sides of a foot, and securing said member to a tread sole by fastening means so applied as to hold said notches closed.

KARL ENGEL.