G. E. HEDLUND.

METHOD OF MAKING WELT SHOES.

APPLICATION FILED OCT. 23, 1913.

1,229,077. Patented June 5, 1917.

Fig. 1.

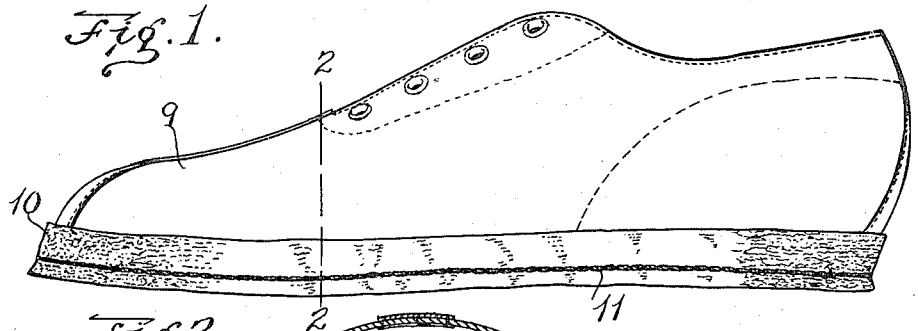


Fig. 2.

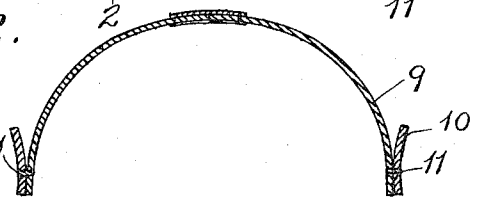


Fig. 3.

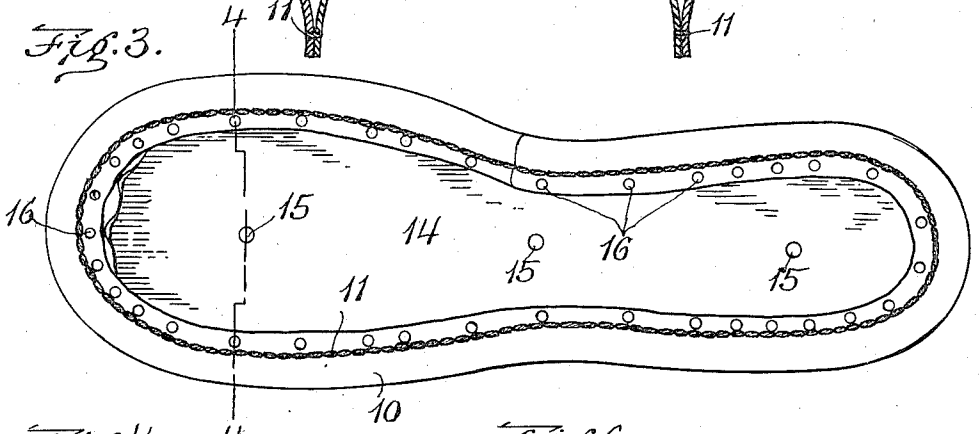


Fig. 4.

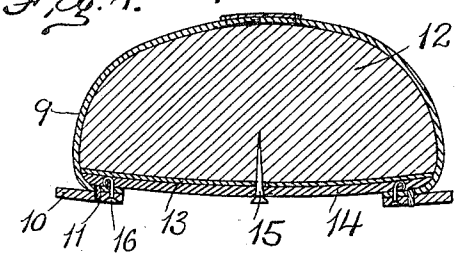


Fig. 6.

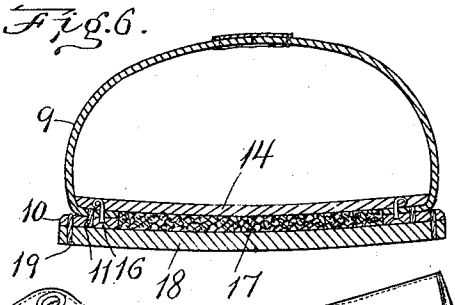
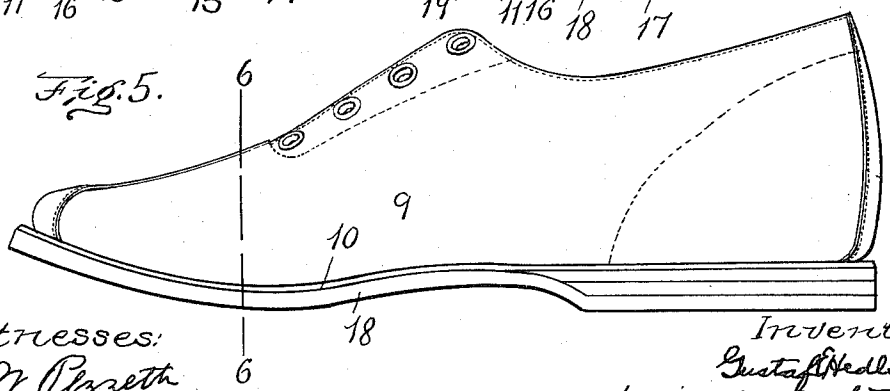


Fig. 5.



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING WELT-SHOES.

1,229,077. Specification of Letters Patent. Patented June 5, 1917.

Application filed October 23, 1913. Serial No. 796,869.

To all whom it may concern:

Be it known that I, GUSTAF E. HEDLUND, a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Methods of Making Welt-Shoes, of which the following is a specification.

The present invention relates to a new and improved method of making welted shoes, said method and the shoe produced thereby having many of the advantages and valuable features of the ordinary Goodyear welt shoe, and having in addition many other advantages and points of superiority over the Goodyear method and the shoes produced by that method. The objects which my invention is designed to serve, the manner in which such objects are accomplished, and the particular new and improved features in which the invention consists, as well as the advantages and improved results accomplished by such features are fully set forth in detail in the following specification and are illustrated in the accompanying drawings, to which reference is made in connection with the designating characters used in the following description. In these drawings,

Figure 1 is a side elevation of a partly completed shoe with the welt attached according to my new method, this figure therefore showing the first step of the method which forms a part of this invention.

Fig. 2 is a cross section on line 2—2 of Fig. 1.

Fig. 3 is a bottom plan view of the partly finished shoe illustrating a further step of the method.

Fig. 4 is a cross section on line 4—4 of Fig. 3.

Fig. 5 is a side elevation of the finished shoe.

Fig. 6 is a cross section on line 6—6 of Fig. 5.

The same reference characters indicate the same parts of all the figures.

In practising the method which forms my invention to produce a shoe, I first take what is practically a complete upper and attach a welt thereto. The upper may be made by any of the methods or in any of the ways now commonly employed, or which may be found suitable, it being sufficient for my present purpose to say that this invention is not concerned with the production of the upper, but only with the mode of connecting the upper with the inner and outer soles. The upper produced ready for further operation according to my improved method may be composed of any ordinary or other number of parts stitched together in final form and in the condition which makes the upper practically ready for lasting, that is, in the condition in which the upper is said to be "fitted." The upper so made may be provided with a lining or without a lining, according to the type of shoe to be made or to the desire of the maker, and it may or may not, according to similar requirements be provided with a counter stiffener, or with a toe stiffener, or box toe, so called.

It being understood then that the upper is produced complete by means with which my invention is not concerned, the first step in the method consists in attaching a welt to the upper independently of the attachment of either the upper or the welt to the inner sole. This is done preferably prior to lasting and the attachment is preferably made by stitching. Referring to Figs. 1 and 2 which illustrate this step, the upper is represented by the character 9, the welt by the character 10, and the seam whereby the welt and upper are welted together by the character 11. The welt is a flat strip of suitable material, preferably leather, and preferably of such length as to extend entirely around the edge of the upper and to overlap at its ends, such overlapping ends being scarfed so as not to increase the thickness at the overlap. Attention is called at this point to the fact that the welt strip preferably is not grooved, snipped, notched, folded, or in any other way distorted from its natural condition prior to or during the operation of attaching it to the upper, but that it is merely passed around the upper and drawn tight against the same by the attaching stitches.

The next two steps of the method consist

in lasting the upper and in securing the upper and welt to the inner sole. These two steps are performed at the same time and are inseparable from one another, since that of attaching the upper and welt to the inner sole is in fact a part of the lasting operation. In carrying out these steps I provide a last 12, shown in Fig. 4, equipped with a steel or iron bottom plate 13 in which there are a sufficient number of openings left to permit attachment of an inner sole by means of tacks. The last is, of course, one of the size and shape which the upper is designed to fit. An inner sole 14 of the correct size and width having been fastened to the lasts by a few temporary attaching tacks 15, or otherwise, the last is inserted in the upper. Then the shoe is lasted, the upper and attached welt being pulled over the bottom edge of the last and bent sharply around the outer face of the inner sole. The stretch and shape given to the upper in the lasting operation is maintained by tacks 16, which are driven through the adjacent edges of the welt and upper into the inner sole. These tacks are more than sufficiently long to pass entirely through the inner sole, whereby they strike the steel bottom plate 13 of the last and are clenched, their points being turned back and caused to enter the inner sole again, whereby they become united very securely to the inner sole. As many of these tacks 16 are driven as may be necessary to maintain the union between the upper and inner sole and to make the upper smooth and free from wrinkles. As these tacks constitute the permanent connection between the upper and the inner sole, it is essential that enough of them be provided and that they be placed sufficiently near together and fastened in the inner sole sufficiently securely to avoid all danger of the upper pulling away from the inner sole.

The upper with the welt attached can be lasted as easily as the upper alone in the Goodyear method. The welt does not appreciably increase the difficulty of shaping the upper around the last, nor prevent the upper being pulled over the inner sole as far as may be necessary to make it fit smoothly against the surfaces of the last. The welt acts also as a stay to the upper in holding the attaching tacks 16, the heads of these tacks being brought to bear against the outer face of the welt, so that it is a practical impossibility for the upper to pull away from the inner sole. The attaching tacks are applied between the attaching seam and the adjacent edges of the upper and welt, wherefore the seam is placed a sufficient distance back of these edges while stitching the upper and welt together to leave room for the tacks. The lasting operation also brings the welt strip into approximately the plane of the inner sole, so that it projects laterally from the sides of the shoe. If necessary or desirable, the welt may be beaten flat after lasting, but this operation is not necessary in all cases.

The next operation consists in placing a filler next to the bottom of the inner sole in the space surrounded by the overlapping edges of the upper and welt. This filler is indicated as 17 in Fig. 6, and may be of any desired or suitable character, for instance, a mixture of granulated cork and cement, or leather, felt, fiber, or any other common or other suitable material.

Now comes the final operation of my method which consists in laying the outer sole 18 upon the bottom of the shoe prepared as above described, and permanently securing it to the shoe by the outer seam 19, composed of stitches passing through the edge portions of the outer sole and the portion of the welt which projects outwardly from the upper. When this has been done the shoe is complete so far as my invention is concerned and is ready for the final finishing operations, which may be the ordinary finishing operations, or may be of any other character.

In giving the foregoing detailed description of the manner in which my invention is performed I have not intended to limit the invention to the specific details of operation specified. For example, I have not intended to restrict myself to the use of tacks as the means for attaching the upper to the inner sole. Any means for making this attachment in a sufficiently secure manner is within the scope of my invention. For example, an attachment might be made by means of a sufficiently powerful adhesive or by stitches whipped through the inner sole and through the adjacent edges of the upper and welt. Neither is it an essential feature of my invention that the welt pass around the entire circuit of the shoe, or that the outer sole be stitched to the welt at the heel part as well as at the fore part of the shoe. The welt may be caused to terminate at the forward end of the heel, as in Goodyear welt shoes if desired, or it may be carried entirely around the heel as here shown. A shoe may be lasted and finished at the fore part according to my method and finished at the heel according to the commonly used methods or any other old or new method without departing from this invention. Shoes having any character of heel may also be made by this method. The completed shoe which I have illustrated in these drawings has a spring heel, but I do not intend to limit the invention to the manufacture of that particular type of shoe, for the shoe so made is adapted to have heels applied to it as well as is a shoe of any other make. My method may be applied to making shoes of all styles having any known or other de-

sired type or style of heel. Neither do I limit the invention to the means of attaching the outer sole to the welt by a seam constructed of thread, as a seam made by a line of any other form of fastening, such as pegs, nails, or wire stitches, is equally within the scope of my invention.

A shoe made according to my invention has many valuable features in comparison with shoes of other types. For instance, it is a particularly flexible shoe, since the manner of attaching the upper to the welt and both to the inner sole causes much less rigidity than does the inseam of the ordinary welted shoe in which the upper and welt are both stitched to an outwardly projecting rib on the bottom of the inner sole. For the same reason the shoe is more comfortable to the foot, as the seam uniting the upper to the welt is a flat seam, and there is nothing to cause it to form ridges on the inner surface of the inner sole, which are a cause of discomfort in the ordinary welted shoe. The greater flexibility of the seam uniting the welt and upper enables the shoe to wear longer than the ordinary welted shoe, because the stitches of this seam are free to bend and are not so placed as to be strained and be in danger of breaking when the shoe is bent.

The mode of attaching the upper to the inner sole does not require the inner sole to be channeled, with consequent weakening of the inner sole. Thus less strong and tough material can be used for the inner sole of a shoe made according to my method than is acceptable to make a sufficiently strong inner sole for the old types of welted shoe. The absence of channels in the inner sole is also an advantage in the finished shoe, by reason of the absence of the grooves or depressions, or "gutters" as they are called, which form in the inner surface of a channeled inner sole by reason of the channel formed in its outer surface. When such channeled inner soles are stretched in consequence of the lasting operation, the bottoms of their channels tend to be pulled out into the same plane with the unchanneled bottom surface of the sole, thereby making depressions in the inner face of the inner sole where the stock is reduced in thickness.

The manner in which the shoe is lasted and the upper is fastened to the inner sole enables the upper to be conformed exactly with the surfaces of the last and enables the inner sole to cause the upper to retain its shape. Thereby a shoe made according to my method can be perfectly fitted.

In attaching the upper and welt together in the first step of my method, the counter stiffener placed in the heel part of the upper may be either stitched in at the same time, or left unconnected at the will of the operator and according to the style of shoe to be made. When it is stitched into the seam uniting the upper and welt, it is positively tied in position and can not slip out of position in the subsequent lasting operations. This is an effect not obtainable so far as I am aware with any other type of welt shoe. The shoe made according to this method is stronger also than other shoes, since there is no possibility of injuring the attachment between the welt, upper, and inner sole during any of the operations, so that such fastenings can not become loose, the inner sole is not weakened by channeling, and the welt is not weakened by grooving. In the common method of making welt shoes there is a possibility of the awl which prepares the way for the needle in making the inseam to pass through a previously made stitch, and thereby so injure the thread that the inseam may give way after the shoe has been worn for but a short time. Such an accident is evidently impossible with my method.

Finally my method results in greatly reducing the cost of making a welted shoe, since many of the operations essential in the old methods are eliminated.

From the foregoing explanations of the construction and advantages of my improved shoe, it will be appreciated that a shoe having the characteristics described possesses most of the virtues of the ordinary welt shoe and has many superior qualities besides.

What I claim and desire to secure by Letters Patent is:

1. The improvement in the art of making welt shoes which consists in stitching a welt strip to the edge of an unlasted and unturned fitted upper with the edges of said strip and upper flush; placing a last having a metal bottom and a flat inner sole attached thereto in said upper; pulling the edges of the attached welt and upper over the edge and against the bottom of said inner sole so that the outer edge of said strip will extend beyond said upper; driving tacks through the welt strip, upper, and inner sole against said metal bottom of the last whereby said tacks will be clenched into said inner sole; placing a filler on the bottom of said inner sole between the inner edges of said welt strip and upper; and finally attaching an outer sole to said welt strip with a plurality of heel lifts interposed between said welt strip and the rear end of said outer sole.

2. The improvement in the art of making welt shoes which consists in stitching a welt strip to the edge of an unlasted and unturned fitted upper with the edges of said strip and upper flush; placing a last having a metal bottom and a flat inner sole attached thereto in said upper; pulling the edges of the attached welt and upper over the edge

and against the bottom of said inner sole so that the outer edge of said strip will extend beyond said upper; driving tacks through the welt strip, upper, and inner sole against said metal bottom of the last whereby said tacks will be clenched into said inner sole; and finally attaching an outer sole to said welt strip with a plurality of heel lifts interposed between said welt strip and the rear end of said outer sole.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GUSTAF E. HEDLUND.

Witnesses:

CLIFFORD P. WARREN,

C. S. HOWLAND.