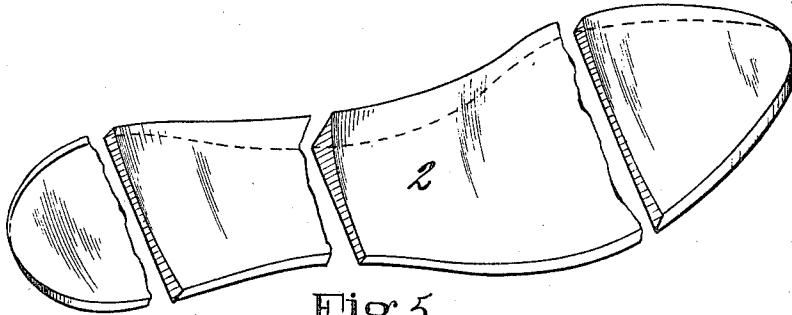
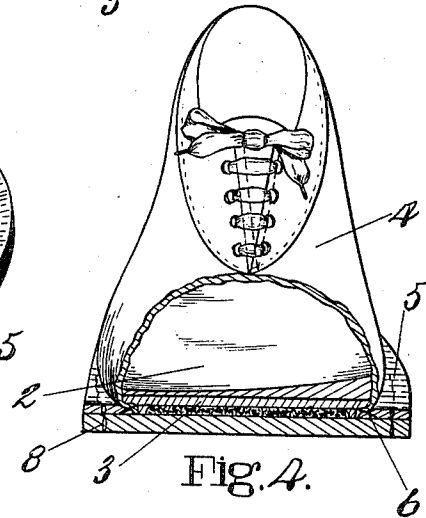
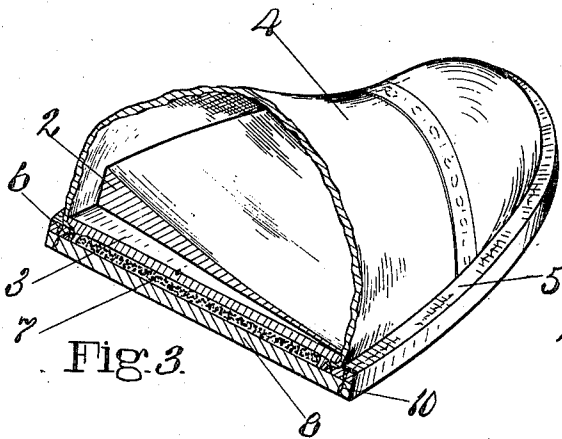
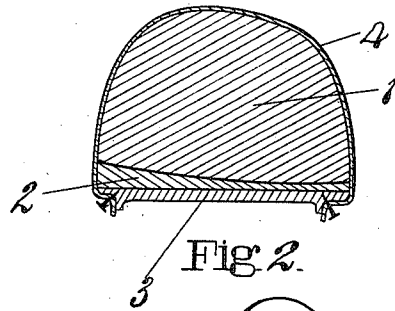
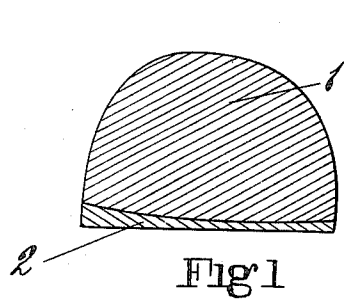


M. HILGERT.
PROCESS OF MAKING SHOES.
APPLICATION FILED NOV. 17, 1911.

1,032,672.

Patented July 16, 1912.



WITNESSES.

Elizabeth C. Coyle
S. Blanche Hargrave.

INVENTOR.

Mathew Hilgert
By his Attorney,
Nelson W. Howard

UNITED STATES PATENT OFFICE.

MATHEW HILGERT, OF NEW YORK, N. Y.

PROCESS OF MAKING SHOES.

1,032,672.

Specification of Letters Patent.

Patented July 16, 1912.

Application filed November 17, 1911. Serial No. 660,886.

To all whom it may concern:

Be it known that I, MATHEW HILGERT, citizen of the United States, and resident of the borough of Manhattan, city, county, and State of New York, have invented certain Improvements in the Process 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 boots and shoes, and more particularly to an improved process or method of making boots and shoes.

It is well known that the bones of the human foot are arranged substantially in the form of two arches, the main or longitudinal arch extending from the heel to the forepart of the foot, and a secondary or transverse arch from the ball of the foot to the toes, this transverse arch supporting the forward end of the longitudinal arch. The bones in these arches are not self sustaining but are held in their respective arch formation by the ligaments and muscles attached to them so that any breaking down of the arches is a result of weakness in these ligaments and muscles. When in normal position, the foot has the base of its heel in the same horizontal plane with the bearing points in its forepart, and the arches of the foot are in proper position to act with the greatest efficiency and to impart elasticity to the ankle.

In infants' and children's shoes, which are made substantially without heels, the foot is sustained in normal position. However, as soon as a heel is added to a shoe, the heel of the wearer is raised relatively to the forepart of the foot and consequently both the longitudinal and the transverse arches of the foot are thrown out of normal position and the foot is given thereby a tendency to "roll" toward one side or the other. This results in putting an abnormal strain upon the ligaments of the foot, and, if not corrected, will further result in the maladies of "flat foot," "inside roll," or "outside roll," broken down arches and a completely unbalanced muscular condition of the foot.

I have discovered that the tendency of the foot to roll toward one side can be overcome by building up the foot supporting portion of the shoe upon that side. While this could be done by making the outsole thicker

upon that side or by introducing a wedge shaped tap between the outsole and welt, a shoe so made would be unsightly and would not satisfactorily secure the desired result. Attempts to secure this result by inserting into a shoe a false insole or filler thicker upon one side than upon the other would be unsatisfactory because the shoe having been made upon a last shaped according to the wearer's foot would, after the insertion of such insole, be too small to fit that foot. I have also discovered that in order to produce a shoe which shall obviate the tendency to roll toward one side and which shall at the same time both fit the foot of the wearer properly and have every appearance of a shoe made in the ordinary way, a false insole or filler thicker at one side of the shoe than at the other side should be introduced into the shoe before it is lasted, so that the finished shoe with the false insole or filler in it, having been shaped to the last with the filler in it, will fit the foot of the wearer for which the last was made. The method of making such a shoe constitutes the present invention.

In carrying out my method, I preferably make a last shaped to the foot, and I then prepare an orthopedic insole which is designed to lift that side of the foot toward which it is inclined to roll. This insole will therefore have one edge of greater average thickness than the other to properly lift the foot at such thicker edge and thereby counteract its tendency to roll. Preferably such thickness will vary throughout the length of the insole, being greater, for example, at the instep portion in order to conform to the bottom of the foot. This orthopedic insole may be made of any suitable material, such as felt, leather, or the like and is preferably unattached in the completed shoe, having its lower surface shaped to fit the inside tread of the shoe and its upper surface of suitable form to fit properly the bottom of the foot. This orthopedic insole is, therefore, a false insole or filler. If desired, a filler, corresponding to the orthopedic insole and made of more durable material so that it could be used repeatedly in successive shoes, may be employed during manufacture and the insole substituted afterward, but I deem it preferable to use the insole itself as the filler during the manufacture of the shoe. The word "filler" will be hereinafter used to mean either the

orthopedic insole or a substitute therefor, to avoid confusion with the usual insole of a shoe. In making welt shoes by my improved method, the filler is inserted between the last bottom and the insole, then the upper materials are assembled, the shoe is lasted and then its manufacture is completed in the usual manner. In order to allow for the increased thickness of the filler on that side of the shoe where the greater thickness occurs, the vamp of the upper is preferably formed with an excess of material to compensate approximately for such greater thickness and this prevents distortion of the upper during the lasting of the shoe over the filler and insures the normal relation of the lines of the upper to the last and consequently to the foot of the wearer.

Referring to the drawings illustrating the preferred steps in practising my improved method of making shoes,—Figure 1 is a view, in cross section, of a last and a filler; Fig. 2 is a view, also in cross section, showing the last, filler and an insole of a welt shoe with the upper in lasted position; Fig. 3 is a view in perspective, and partly in section, of the forepart of a completed welt shoe with the orthopedic insole or filler therein; Fig. 4 is a view, in cross section, of the completed shoe; and Fig. 5 is a perspective view, partly in cross section, of the filler.

In the drawings 1 is the last, and 2 the false insole or filler which may be applied to the last bottom at the same time with the insole 3 or prior thereto. The upper 4 may now be assembled upon the last and the shoe lasted as usual, being shown at this stage of my process in Fig. 2. The welt 5 is sewed to the upper and insole by stitches indicated at 6 and the manufacture of the shoe is then completed in the usual manner, a filling 7 being added and the outer sole 8 being attached by the stitches 10.

The filler 2 is preferably made of such form as to lift one side of the last a sufficient height to counteract the tendency to "roll" of the particular foot for which the last was made. As shown in Fig. 5, this filler is preferably made of varying thicknesses but has a greater average thickness upon that side of the shoe where it is desired to raise the foot. The filler 2 herein shown is particularly intended to counteract a tendency toward "inside" roll of a right foot. If the filler is to be the permanent orthopedic insole for the shoe, then it is preferably made of felt, leather or the like, but if it is intended for use during the process of manufacture only it may be made of wood or other materials.

In carrying out this process it is desirable and important to keep the lacing opening in its proper relation to the last, so that the upper will not be distorted upon the foot

by reason of a displacement of the upper material caused by the greater average thickness of the filler upon one side of the shoe. The upper therefore is preferably provided with an excess of vamp material on the side of the shoe adjacent to the thicker edge of the filler to compensate substantially for such excess thickness on that side. By reference to Fig. 4, it will be readily seen that without an excess of vamp material adjacent to the thicker edge of the filler the lasting process would tend to strain and distort the upper to one side so that the lacing opening would be displaced relatively to its normal position on the last, such displacement being approximately as indicated in dotted lines in that figure. This displacement would of course seriously detract from the appearance of the shoe upper upon the foot of the wearer for whom it was made.

An important advantage of my invention is that a heeled shoe is provided which will prevent the foot from "rolling" either toward one side or the other, and which therefore will relieve the strain on the muscles of the foot from their natural endeavor to counteract such "rolling." The shoe itself will counteract the tendency to "roll" by lifting that edge of the foot toward which such roll would tend.

A further advantage, as will be obvious, is that wearing a shoe made in accordance with my invention will tend to restore to normal condition and balance the entire muscular organization of a foot which had become muscularly unbalanced from "inside" or "outside roll."

An additional advantage is that an orthopedic shoe is provided without altering the appearance of the exterior of the shoe, the edge portion of the outersole being of uniform thickness on each side as usual, although the edge portion of the foot supporting soles may be actually at a considerably greater height on one side of the shoe than on the other.

The shoe made by my novel method is not herein claimed, but is made the subject-matter of a co-pending application.

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

1. That improvement in the art of making shoes which consists in applying to the bottom of a last an insole with an independent filler interposed between the insole and the last, which filler holds the insole substantially throughout its entire length at a transverse angle to the surface of the last bottom, then lasting the upper, securing the upper to the insole and completing the manufacture of the shoe as usual.

2. That improvement in the art of making shoes which consists in applying to the bot-

tom of a last a filler having a greater average thickness at one edge than at the other, superimposing an insole upon the filler, then lasting the upper, uniting the upper and insole and completing the manufacture of the shoe in the usual manner.

3. The improvement in the method of making boots or shoes which comprises placing upon the bottom of a last a filler of greater average thickness upon one side of the shoe than upon the other with an insole superimposed upon said filler, working into lasted position and securing to said insole an upper having in the vamp on the same side of the shoe as the thicker side of said filler an excess of vamp material approximately compensating for the greater thickness of the filler at that side of the shoe.

4. The improvement in the method of making shoes which consists in interposing

a filler between the insole and the last bottom, said filler having a greater average thickness at one edge than the other, and extending from the heel to the toe of the shoe, then lasting and securing to the insole an upper having an excess of material adjacent to the thicker portions of the filler sufficient to compensate approximately for the greater thickness of the filler to prevent distortion of the upper during the lasting of the shoe over the filler and thereby insure the normal relation of the lines of the upper to the last.

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

MATHEW HILGERT.

Witnesses:

WINFIELD SIMONSON,
M. E. CUMMINGS.