M. S. HESS.

METHOD OF MAKING SHOE FILLERS.

APPLICATION FILED OCT. 8, 1917. RENEWED AUG. 21, 1919.

1,383,947.

Patented July 5, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

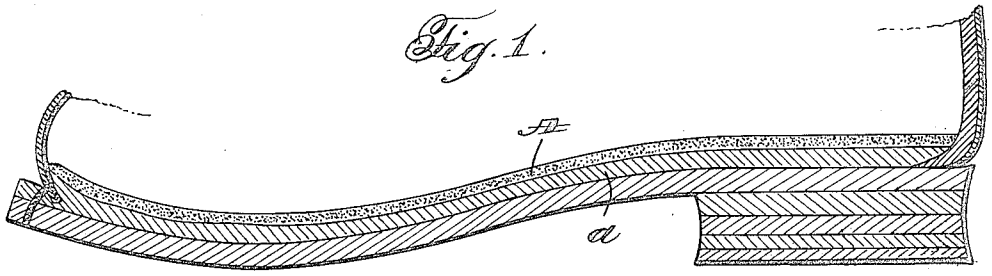


Fig. 2.

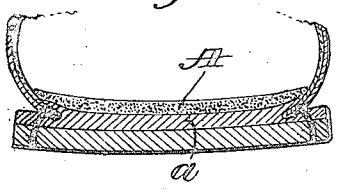


Fig. 4.

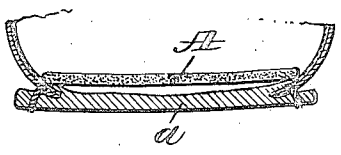


Fig. 3.

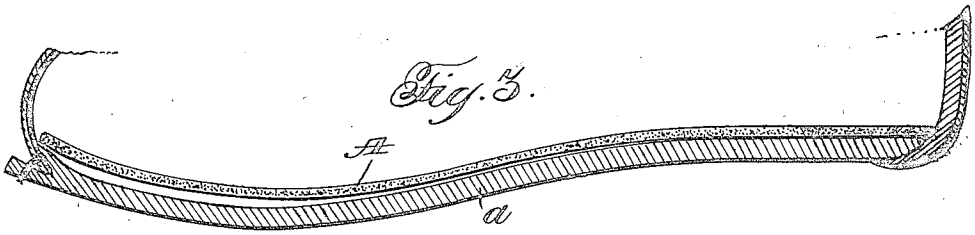
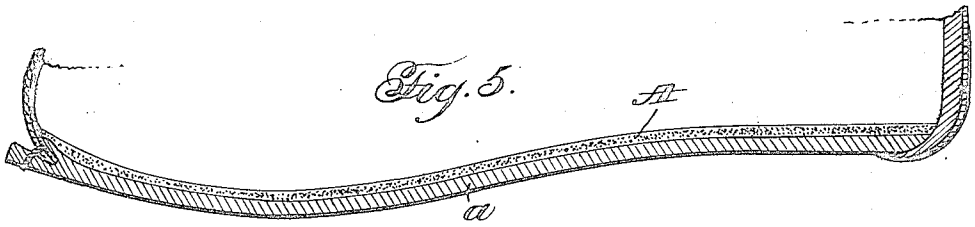


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

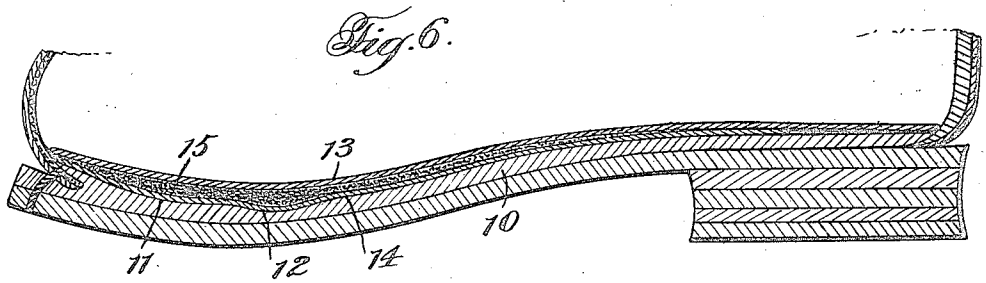


Fig. 7.

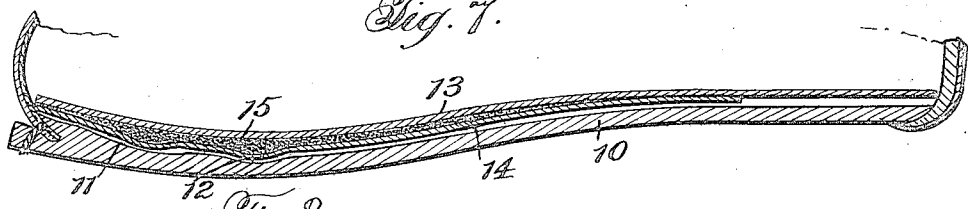


Fig. 8.

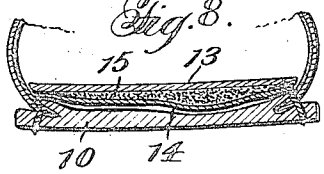


Fig. 9.

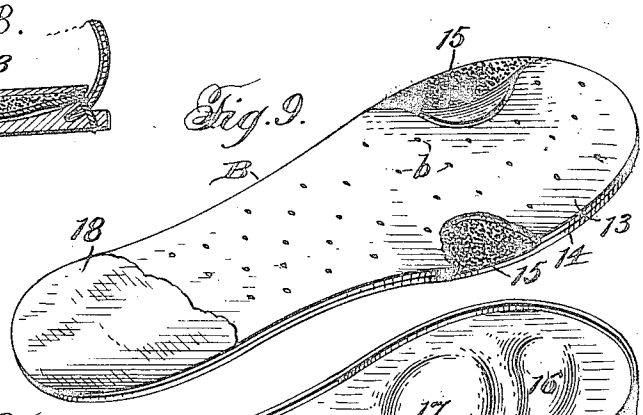


Fig. 10.

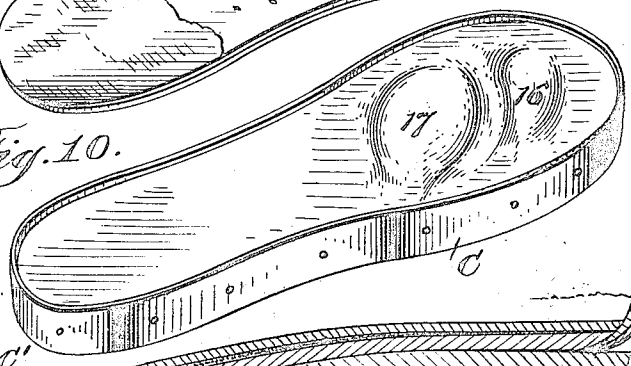
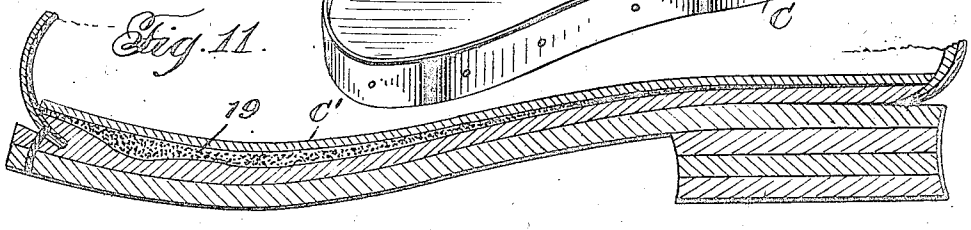


Fig. 11.



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UNITED STATES PATENT OFFICE.

MEYER S. HESS, OF BALTIMORE, MARYLAND.

METHOD OF MAKING SHOE-FILLERS.

1,383,947. Specification of Letters Patent. Patented July 5, 1921.

Application filed October 8, 1917, Serial No. 195,427. Renewed August 21, 1919. Serial No. 319,043.

To all whom it may concern:

Be it known that I, MEYER S. HESS, a citizen of the United States, residing at Baltimore, in the county of Baltimore City and State of Maryland, have invented certain new and useful Improvements in Methods of Making Shoe-Fillers, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to an article for use in the manufacture of shoes and also in the repairing of the same, and has for its principal object the provision of a filler or other element which is capable of being molded or pressed to a desired shape within the shoe, over the inner face of the insole, where it forms a permanent part of said shoe and presents an exposed surface conforming to the last of the shoe, when manufactured or repaired.

In the use of this invention, the cost of shoe manufacture will be materially reduced, and the art of shoe repair greatly improved. Furthermore with this invention I am enabled to materially strengthen a worn shoe and bring the same into complete conformity with the original last, and due to the nature of the material of which the filler is made, an efficient cushion for the shoe is provided.

Referring specifically to the application of this invention to the art of shoe repair, it is to be noted that in the use of shoes, the results of wear produced by any particular wearer are such that unless the inner face of the insole, or that face of the shoe which comes in contact with the bottom of the wearer's foot, is restored to a condition where it is in strict conformity with the original last, considerable discomfort is experienced by the wearer, and this due to the worn, uneven and cracked condition of the upper surface of said insole. Furthermore, as will be obvious, the results of wear produced by one person are never the same as those produced by another, and unless these individual results of wear are removed in repairing, the shoes thus repaired cannot possibly be worn with any degree of comfort by anyone other than the original wearer, and even the original wearer experiences discomfort in this regard for the reasons just stated.

Through the instrumentality of my invention the individual wear results are entirely removed, so that the repaired shoe can be worn with comfort by not only the original wearer, but, in fact anyone to whom the particular size is suitable and, in addition, will readily conform to the individual characteristics of the foot of the original or new wearer as the case may be. By attaining this end, I greatly increase the field of usefulness of repaired shoes, which taken in conjunction with the capabilities of my invention in reclaiming badly worn shoes, greatly enhances the economic element of shoe repair.

It is to be further noted that by the use of my invention in the manufacture of shoes, material advantages are secured in that a lighter weight insole can be used, the filler acting as a backing for the material of which said insole is made, thus reducing the cost of shoe manufacture. It may be here stated that the filler, is subjected to a sufficient heat to render the same more or less plastic for the molding or pressing operation, although after said filler has been properly pressed to the desired shape, within the shoe and becomes set, the same will not, to any material extent, be affected by the heat of the human foot.

Further advantages and purposes of my invention will be apparent from the detail description of the present embodiment thereof, taken in connection with the accompanying drawings, wherein:—

Figure 1 is a longitudinal section through a portion of a shoe manufactured in accordance with my invention, illustrating my improved form of filler made up of a homogeneous mass or layer;

Fig. 2, a transverse section of what is shown in Fig. 1;

Fig. 3, a view similar to Fig. 1, showing the first step in my improved method of shoe manufacture, the outer sole of the shoe not yet applied, and the filler in position within the shoe but not pressed;

Fig. 4, a transverse section of Fig. 3;

Fig. 5, a view similar to Fig. 3 after the filler has been pressed to shape and the shoe is ready to receive the outer sole in the usual manner;

Fig. 6, a longitudinal section through a portion of a worn shoe repaired in accordance with my invention, and illustrating a modified form of filler;

Fig. 7, a view similar to Fig. 6, showing

the first step in my improved method of repairing, the outer sole of the shoe having been previously removed, and the filler for restoring the inner face of the insole in position but not pressed;

Fig. 8, a transverse section of Fig. 7;

Fig. 9, a perspective view of the improved filler shown in Figs. 6, 7 and 8;

Fig. 10, a perspective view of one of the mold elements employed in imparting the initial shape to the filler shown in Figs. 6, 7, 8 and 9;

Fig. 11, a longitudinal section through a portion of a shoe manufactured or repaired in accordance with my invention, and illustrating a still further form of filler construction.

Referring particularly to Figs. 1 to 5, it will be noted that there is illustrated a filler or element A, disposed over the inner face of the usual insole *a*, completely fitting the irregularities of said insole, and presenting an exposed surface, in strict conformity to the last upon which said shoe was manufactured. This filler A, in the preferred embodiment of this invention, comprises a homogeneous mass or layer of suitable material, preferably a composition of cork, leather dust, gum arabic, linseed oil, pitch, rubberized felt, etc., and the nature of this material is such that it is capable of being rendered plastic at a predetermined temperature, approximately 140°, but is not affected by temperatures ranging around 110° and less, and is, therefore, not disturbed or affected to any material extent, by the heat of the human foot.

In preparing these fillers A, for use in the manufacture or repair of shoes, the material from which they are formed is first rolled into sheets of the desired thickness, and from these sheets are cut said fillers to the size and shape desired according to the size and style of the shoe being manufactured. Said filler is then in a condition and ready to be heated and rendered plastic, placed within the shoe over the inner face of the insole, and pressed to the desired final shape where it becomes a permanent part of the shoe. While I have described the filler as being rendered plastic before insertion, it is evident that it can be inserted in a nonplastic state and heat applied to it while in the shoe.

After this form of filler is produced in the manner just described, the method of application to a shoe being manufactured or repaired is as follows:

Before the outer sole and heel of a shoe being manufactured has been applied, and after the insole has been stitched to the upper, or in the case of a shoe being repaired, after what is left of the outer sole and heel of a worn shoe has been removed, said insole, by any suitable means, is pushed or forced upward or in an outward direction in order to make room for the filler, thus it will be seen that the filler, when applied, does not materially reduce the interior dimensions of the shoe, and the size of the shoe remains practically the same as if made without the filler. After this operation the filler is disposed within the shoe over the inner face of the insole. The desired last is then placed within the shoe to act as one element of a press, and another press element is brought to bear against the outer face of the insole. The press elements when forced together will cause the filler which has previously been rendered plastic by the application of heat, either before or after it has been placed in the shoe to be forced into the irregularities of the inner face of the insole, and furthermore cause the inner face of said filler to conform with the last of the shoe upon which said shoe is being manufactured.

Principally, in the case of worn shoes, it will be noticed that depressions of considerable depth are formed upon the worn insole, at varying positions according to the shape of the wearer's foot, and in view of the fact that the present form of filler is initially made from rolled sheets of a uniform thickness it has been found to be of material advantage in the application of said fillers to such shoes, to apply small portions of the same material from which the filler is made, to the under surface thereof at points which will, when applied to the shoe, be adjacent the depressions of greatest depth, thus making the filling in of these depressions a simple and more practical operation. A filler, after being formed in this way, is applied to the shoe, and pressed to desired shape while in a plastic condition, where it forms a permanent part of the shoe, and in this connection it is to be noted that the main body of the filler and the portions thereof which have been applied thereto in spots, after being heated and pressed or molded against the sole, becomes a single homogeneous mass or layer, which when the same cools and becomes set, is not affected by a less degree of heat than that which rendered the same plastic.

The form of filler A may be provided, if found desirable, with perforations extending through the body thereof, thus allowing the air to better circulate about the same, and permitting the filler to more readily cool and set after being subjected to heat and pressed to desired shape within a shoe.

By reference to Figs. 6 and 10, which illustrate more particularly the application of this invention in the art of shoe repair and show a modified form of my improved filler, it will be noted that the inner face of the insole 10 has become depressed at 11 and

12, as the result of wear, said depressions being usually caused by continued pressure of the bones of the foot. These depressed portions are common in varying extent in all worn shoes but are never produced in exact similarity by any two wearers of shoes. For this reason it will be obvious that the continued use of worn shoes must be restricted to the original wearer unless the inner face of the insole is restored to conformity with the original last. Even when the shoes are restricted to continued use by the original wearer considerable discomfort is experienced from these depressed portions owing to the fact that the insole 10 is more or less distorted in repair, and furthermore by reason of the fact that in many instances the upper surface of the insole is in a cracked and more or less roughened condition due to the use to which it has been subjected.

To obviate the conditions just enumerated and render the repaired shoe usable by others than the original wearer, I provide a filler which is placed on the inner face of the insole, and when properly applied thereto becomes a fixed or permanent part of the repaired shoe. The filler B, in the form of the invention shown in Figs. 6 to 10, is preferably formed of two flexible layers 13 and 14 of any suitable material, and between these layers I confine a filling of material 15 formed preferably of the ingredients named in connection with the form of filler A shown in Figs. 1 to 5. This filling, as heretofore stated, is rendered plastic at a temperature of 140°, but is not affected by average temperatures, and is, therefore, not disturbed or affected to any material extent, by the heat of the human foot.

In forming the filler B the layer 14 is placed in a suitable mold C, and the plastic material 15 applied on this layer, after which the layer 13 is placed in said mold and the filler pressed to the desired shape. It will be noted that the mold C is provided with depressed portions 16 and 17 approximating the depressed portions 11 and 12 of the insole 10 but being somewhat less in depth than said portion 11 and 12. During the pressing operation it will be obvious that the material 15 will be forced into the depressed portions 16 and 17 of the mold and the filler thus given the desired preliminary shape, which as clearly shown is of varying and uneven thickness. It is obvious, however, that this preliminary shape may vary in certain instances according to existing conditions and it is, therefore, to be understood that any reference which is made herein to the size, location, depth, and characteristics of the depressed portions 11, 12, and 16, 17 is merely by way of illustration. Both layers 13 and 14 are provided with an adhesive around their edge portions so that they will become attached to each other when pressed together and efficiently hold the elastic material therebetween constituting in effect an envelop for said plastic material although if found desirable these layers may be stitched together in any suitable manner. Furthermore, the layer 13 is stiffened around its edge so that the filler B will lie snugly and evenly in a shoe.

The nature of the plastic material 15 is such that the filler B will not crack in wear, the same being flexible and having practically the same characteristics of leather, in which event said filler will readily shape itself to the foot of the wearer. Preferably I work graphite into the layer 14, or that layer which comes in contact with the original worn insole, and thereby obviate squeaking of the shoe during use. Furthermore, the layers 13 and 14 are rendered antiseptic and water-proof by suitable treatment before incorporation in the filler. The heel portion of the filler B is also reinforced at 18 to provide for the proper clenching of the heel nails. In addition, when the filler B is pressed into initial shape the material 15 and the layers 13 and 14 will adhere one to the other and form, in effect, a single element which can be readily applied to a shoe. The layers 13 and 14, or either of them, as desired, may be provided with suitable perforations, as indicated at *b*, thus allowing the filler to be properly vented and facilitating the drying and setting of the plastic material after being subjected to heat in the molding or pressing operation.

After this form of filler is produced the method of repair is as follows:—

What is left of the outer sole and heel of the worn shoe is removed, and a filler B applied, as shown in Fig. 7. It will be noted that so far the filler does not entirely occupy the depressed portions 11 and 12, or, in fact, exactly conform to the irregularities of the upper surface of the worn insole. The desired last is then placed within the shoe to act as one element of a press, and another press element is brought to bear against the outer face of the insole 10, and when these press elements are operated under the necessary pressure, they will cause the material 15, which has been previously rendered plastic, to be forced into the depressed portions 11 and 12, so that the latter will then be entirely occupied by the filler. This operation will likewise cause the inner face of the filler B to conform exactly with the original last of the shoe and in this way the depressed portions 11 and 12 and any other irregularities in the inner face of the insole are entirely removed and the repaired shoe rendered usable by anyone. After this application of the filler B is effected the outer sole is applied in the usual manner.

A still further form of filler C is illus-

trated in Fig. 11, and this filler comprises a single layer or body to which the plastic material 19 is applied in the desired quantities and places, as the particular case may require. The nature of the material is such that it will adhere to the layer or body, and when the filler is applied to the inner face of the insole, in a manner similar to that described in connection with the form of fillers shown at A and B, said plastic material will fill the irregularities of the insole and said layer or body will present an exposed surface conforming to the original last of the shoe.

It is to be expressly understood that any one of the fillers referred to herein, or in fact any type of filler having similar characteristics, may be applied in the original manufacture of shoes, and also in the repairing or reclaiming of badly worn shoes, and furthermore any shoe which is originally manufactured with one of my improved fillers and has become worn in use, may be easily repaired by removing the worn filler and replacing the same by a new one; or by heating worn filler to render it plastic, and then subjecting it to pressure in the manner hereinbefore described.

I wish also to call attention to the fact that it is the purpose of this invention to have the filler become a permanent or fixed part of the shoe, and in this connection, if found necessary, any form of metallic or other fastening means may be provided, to accomplish this end.

I claim:—

1. The method of reclaiming deformed insoles in shoes which consists in superposing on the insole a filler which is plastic only at temperatures higher than body temperature, and then by pressure conforming its upper and lower surfaces respectively to the last of the shoe and to the deformities in the insole.

2. The method of reclaiming deformed insoles in shoes which consists in introducing into the shoe and superposing on the insole a normally nonplastic filler, and then subjecting the same to pressure in the presence of heat to conform its upper and lower surfaces respectively to the last of the shoe and to the deformities in the insole.

3. The method of reclaiming deformed insoles in shoes which consists in first reducing to a plastic state a filler which is rendered plastic only at temperatures higher than body temperature, then introducing the same in the shoe and superposing it upon the insole, and finally subjecting it to pressure while in contact with the last to conform its upper and lower surfaces respectively to the last and to the deformed upper surface of the insole.

In testimony whereof I affix my signature in presence of two witnesses.

MEYER S. HESS.

Witnesses:
THOS. E. EDMONSTON,
LOUIS JUDELL.