June 11, 1940. H. G. LUMBARD 2,204,505

WELT INSOLE

Filed Aug. 7, 1939

Fig. 1.

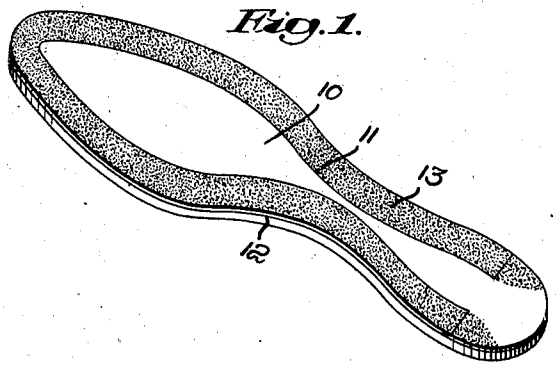


Fig. 2.

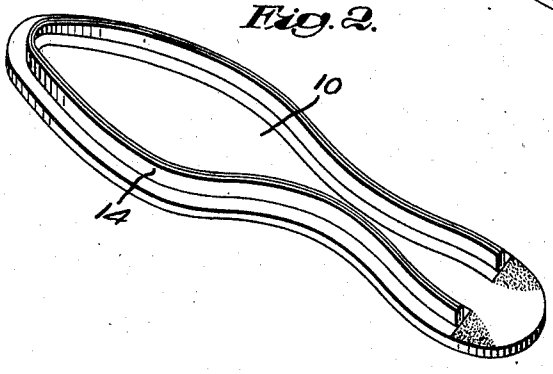


Fig. 4.

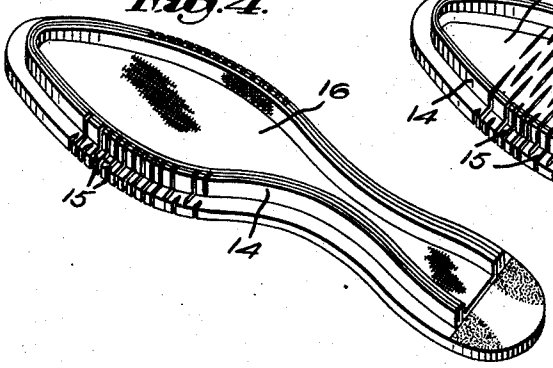


Fig. 3.

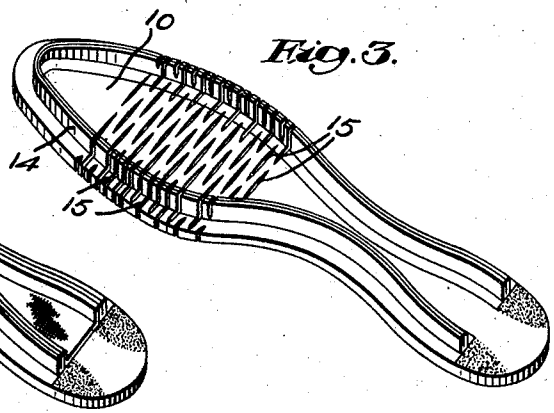
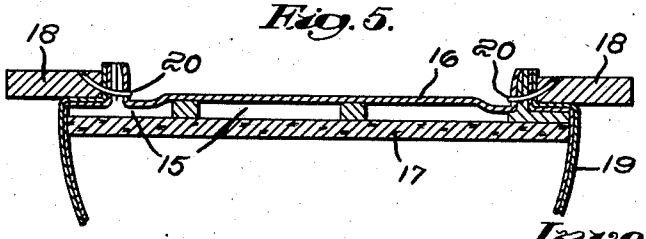


Fig. 5.



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UNITED STATES PATENT OFFICE

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WELT INSOLE

Henry G. Lumbard, Auburn, Maine

Application August 7, 1939, Serial No. 288,716

3 Claims. (Cl. 36—22)

The present invention relates to shoemaking and consists in improvements in flexible welt insoles and in a novel process of producing the same. My improved insole may be incorporated in a welt shoe of otherwise standard construction and greatly improves the shoe in respect to flexibility and comfort in wear.

In my copending application, Ser. No. 240,987, filed September 17, 1938, is disclosed an insole for McKay or Compo shoes characterized by through and through slashes extending transversely from edge to edge of the insole, in some cases intersecting the edge of the insole, and collectively adapting the insole to be stretched longitudinally thus increasing its size and rendering it extremely flexible in use.

The present invention in one aspect consists in a welt insole having the same broad characteristics, that is to say, a welt insole having its body provided with through and through slashes of the character described and a lip or rib also slashed but including a continuous fabric ply or flange therein for receiving the inseam stitches. I have discovered that this novel insole may be successfully produced by first channeling an insole blank, cementing the insole surface and turning the lips by the conventional steps, and then slashing the insole thus prepared and applying a fabric reinforcement to the surface of the insole and the lips thereof. The slashing step as carried out in accordance with my invention, consists in cutting in the insole transverse through and through slits which extend from edge to edge and intersect both edges of the insole, being interrupted by short unslitted portions, but severing from time to time the lips raised in a rib from the body of the insole. The reinforcement may take the form of any suitable textile fabric, such as gem duck or the like, and is applied intact to the slashed insole body presenting a continuous fabric ply for the inseam stitches.

The slashing of the insole may be confined to the forepart or it may include any other selected area. It imparts extreme flexibility to the sole, not only because of its effect on the body of the sole, but because it severs the upstanding lips which otherwise tend to act as stiffening trusses when they are supported by the filler and other elements of the shoe bottom.

The welt insoles of my invention may be produced by the novel process which is characterized by passing the insole blank, in which the lips have been turned up and set, beneath or past a roll having slashing blades therein. In this step transverse rows of slashes are cut in the body of the insole and the insole lips are temporarily flattened and severed wherever the slashing blades happen to encounter them, thus dividing them into a series of segments of unequal length. These temporarily flattened segments may be easily restored to their normal upright position and the reinforcing operation carried out in the usual manner.

When the insole is embodied in a welt shoe some of the inseam stitches may strike slashes in the insole rib although many more will pass through solid portions of the rib and in all cases the stitches will pass through the intact textile reinforcement of the insole. Thus adequate anchorage is provided for the inseam stitches although the rib and the insole as a whole is more flexible than any welt insole which has been heretofore available.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawing in which,

Fig. 1 is a view in perspective of an insole blank which has been channeled and cemented,

Fig. 2 is a similar view of the insole blank with its lips turned up,

Fig. 3 is a similar view of the insole after the slashing operation,

Fig. 4 is a similar view of the insole after it has been reinforced, and

Fig. 5 is a cross sectional view on an enlarged scale showing the insole as embodied in the bottom of a welt shoe.

An insole blank of the desired thickness is first selected and rounded to size and shape. It is then channeled and cemented in the usual manner as suggested in Fig. 1. In the leather body 10 of the insole are formed the inside channel cut 11 and the outside channel cut 12, these cuts extending topward each other beneath the flesh surface of the insole. After the channeling operation a band of cement 13 is applied to the margin of the insole outside the inner channel cut 11. The insole in this condition is shown in Fig. 1.

The channel lips defined by the two channel cuts are next progressively turned up and stuck together forming a continuous upstanding rib 14 which, as shown in Fig. 2, extends from the heel seat on one side forwardly about the blank and back to the heel seat on the other side of the insole. This rib stands substantially at right angles to the plane of the insole blank or if desired may be given a slight inward inclination.

The steps so far described are conventional in welt shoemaking but at this point a novel operation is introduced, viz., the ribbed insole is subjected to a novel slashing operation. This may be confined to a wide zone in the forepart of the insole, as suggested in Fig. 3, or it may extend into any selected area of the insole. It may be conveniently effected by passing the insole transversely between rolls one of which is provided with segmental slashing knives designed to form uniformly spaced lines or rows of interrupted slashes extending across the insole. The individual slashes 15 are connected by short bridges of solid leather and these are preferably arranged in staggered rows, that is to say, the bridge portions between adjacent rows of slashes are offset laterally. Ordinarily about half of the rows of slashes will intersect the margins of the insole and about the same proportion of slashes will sever the upstanding rib 14 so that the latter now presents a series of relatively short segments. Where the rib is severed the slashes pass also through the insole material at the root of the ribs. In this slashing operation the rib is temporarily flattened down upon the body of the insole but after the slashing operation the rib segments may be easily restored to their normal upright position as shown in Fig. 3.

The reinforcing operation is next carried out in the usual manner, that is to say, an unslashed sheet 16 of textile material such as duck or canvas is cemented to the flesh surface of the insole inside its rib 14 and the margin of the duck is turned up and cemented in a peripheral flange to the inner surface of the insole rib thus forming a continuous reinforcement which is tucked into the inner angle or vertex of the rib and trimmed substantially flush with the top of the rib. Since this textile reinforcement is essentially flexible of itself, it does not substantially decrease the flexibility of the insole as a whole but it does supply sufficient strength to the insole rib to provide firm anchorage for the inseam.

The welt insole thus provided and shown in Fig. 4 may be incorporated directly in any welt shoe with great resulting flexibility or it may be first combined with a cushion ply. In Fig. 5 I have suggested such specific employment of my novel insole but as already explained its use is not in any manner so limited. In Fig. 5, however, the slashed and reinforced insole is shown as continuously cemented in face to face contact to a cushion ply 17 of cork or cork composition. The cushion layer is trimmed flush with the edges of the slashed portion of the composite insole and is to be located next the foot of the wearer in the finished welt shoe. In Fig. 5 the welt 18 and upper 19 are shown as secured in lasted position to the insole rib by stitches 20 of the inseam all of which results may be effected in accordance with the usual commercial steps of inseam sewing by hand or by a welt sewing machine. It will be noted that the cross-sectional view of Fig. 5 is represented as if taken on the line of certain of the slits or slashes 15 and as showing three of the solid bridge portions of the insole body. The stitch 20 of the inseam is shown at the left hand side of this figure as passing through a slit in the insole rib and at the right hand side of this figure as passing through a solid portion of the insole rib, the reinforcing ply 16 being intact in both cases.

After the inseaming operation the inseam may be trimmed, the bottom filled, and the outsole attached, all in the usual manner followed in manufacturing welt shoes.

It will be understood that the slashed insole is subjected to tension in the lasting operation and, although the reinforcing fabric 16 is substantially inextensible, this tension tends to open the slashes in the leather portion of the composite insole and thus provide spaced internal edges that may move freely relatively to each other when the shoe bottom as a whole is flexed.

Having thus disclosed my invention I claim as new and desire to secure by Letters Patent:

1. An insole which comprises a body portion and an upturned sewing rib, the insole having a plurality of rows of staggered short spaced through-and-through slashes forming free open spaces at intervals in the body of the insole, the rows extending entirely across the insole, some of the slashes intersecting the edges thereof and some of the slashes severing not only the rib but also the entire thickness of the body portion at the root of the rib, and an unslashed fabric reinforcing sheet cemented to the surface of the insole within the rib and along its inner surface.

2. An insole for a welt shoe which comprises a body portion having up-turned lips and provided with a plurality of rows of short, spaced, staggered, through-and-through slashes having freely movable edges and extending transversely across the entire body of the sole and intersecting the edges of the sole, some of the slashes severing the lips and the material below the lips, and a fabric reinforcing sheet disposed on the surface of the insole inside the lips.

3. A welt insole comprising a body portion, a sewing rib integral with said body portion, the ball portion of the body and rib being provided with staggered rows of short, through-and-through slashes some of which sever the edges of the body portion and the ribs, each row of slashes extending entirely across the body portion and a fabric reinforcing sheet disposed in face to face contact with the body portion and the inside of the rib within the area defined by the sewing rib.

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