

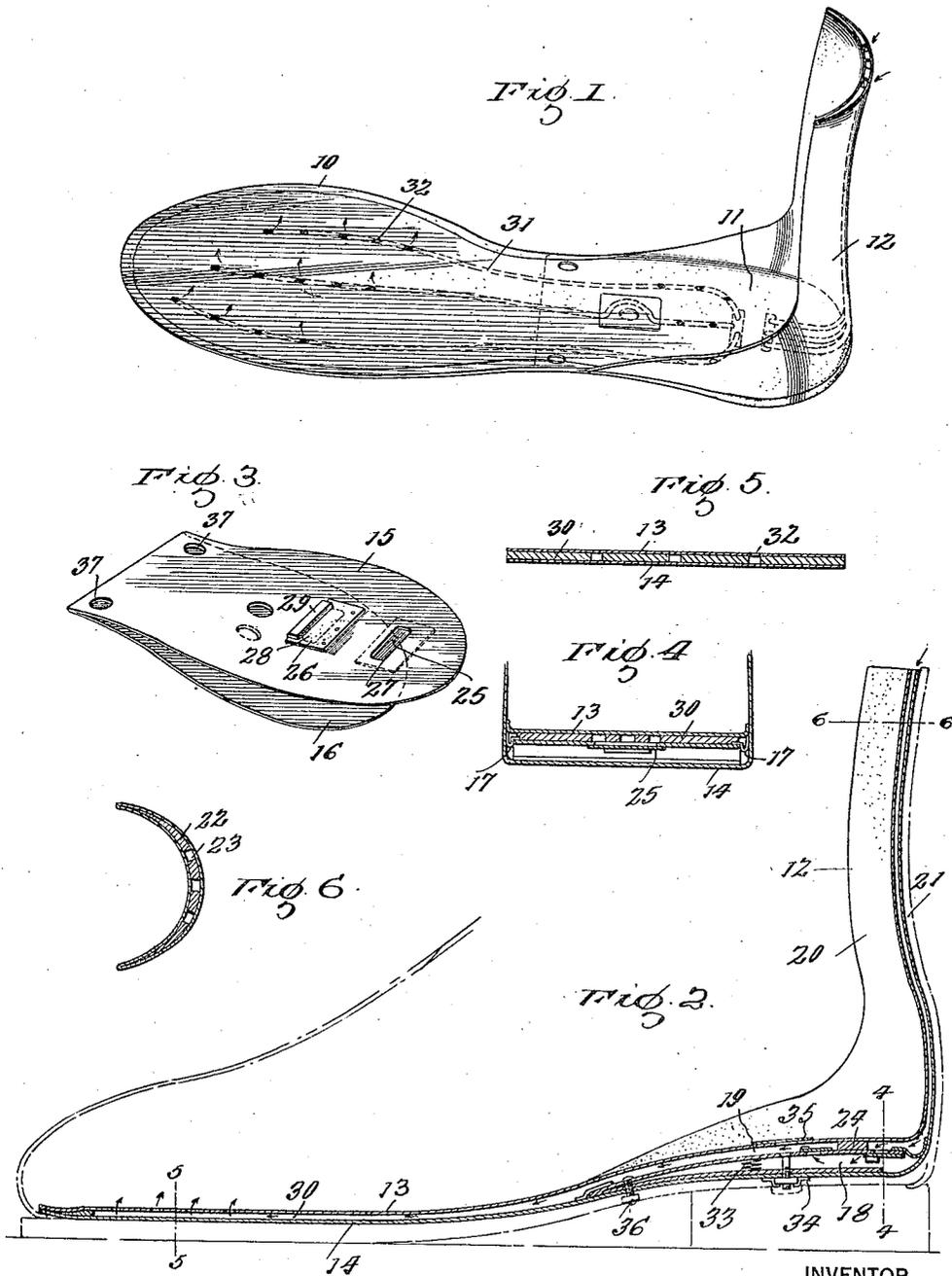
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VENTILATING INSOLE

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VENTILATING INSOLE.

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To all whom it may concern:

Be it known that I, JOSEPH KLEPAC, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Ventilating Insoles, of which the following is a specification.

This invention has relation to footwear and has for an object to provide means for ventilating the interior of footwear while the same is being worn to provide for the comfort of the wearer and for other purposes to be hereinafter set forth.

Another object of the invention is to provide a ventilating means for footwear consisting of an insole to be inserted in a boot, shoe or the like with means for inspirating and expiring air thereinto, the air being expelled into the front portion of the footwear and beneath the sole of the foot in a manner to be presently noted.

Another object of the invention is to provide a ventilating insole of the character above set forth embodying an extension thereof engaging the heel and back of the leg and adapted to extend to the top of the shoe upper and containing channels to conduct air down into the ventilating insole.

In addition to the foregoing this invention comprehends improvements in the details of construction and arrangement of parts to be hereinafter described and particularly set forth in the appended claims.

In the accompanying drawings in which similar and corresponding parts are designated by the same characters of reference throughout the several views in which they appear,

Figure 1 is a view in perspective of an insole constructed in accordance with my invention.

Figure 2 is a view of the insole in longitudinal section illustrating a shoe in dotted lines.

Figure 3 is a view in perspective of the valve members and resilient means, and

Figures 4, 5 and 6 are detailed sections taken on the lines 4/4, 5/5 and 6/6 respectively of Figure 2.

With reference to the drawings 10 indicates generally the sole portion, 11 the heel portion and 12 an extension of the heel portion designed to cover the tendo Achillis and constituting an air conduit. The sole and heel portion consists of an upper layer

13 of flexible material such as rubberized cloth or the like and 14 a bottom layer of similar material. At the heel there is interposed between the layers a resilient element shown in Fig. 3 and consisting of two leaves, an upper leaf 15 and a lower leaf 16 integrally connected at one end with their opposite ends normally in spaced relation and conforming to the shape of the heel. The lower leaf 16 is secured to the bottom layer 14 and the edges of the leaf 15 are provided with flexible strips 17 which in turn are secured to the side edges of the bottom layer 14, thus defining an inspiration chamber 18 beneath the leaf 15 and an expiration chamber 19 above said leaf. The heel portions of the layers 13 and 14 are extended upward as at 20 and 21 to form the extension 12. Said extension is provided with a filling layer 22 interposed between the layers 20 and 21 and are provided with channels 23 opening at the upper end of the extension to the atmosphere and communicating at their lower end with the space above the leaf 15, a partition strip 24 being located between the leaf 15 and the layer 13 separating the chamber 19 from the lower end of said channels 23. An inlet opening 25 is formed in the leaf 15 at the right side of said strip 24 and an outlet opening 26 is formed in said leaf at the left hand side of said strip. Said openings are normally closed by means of the flap valves 27 and 28 located respectively beneath and above the top leaf 15 and may consist of strips of fabric secured at one or more edges to the leaf, leaving one edge free. Strips of thicker rigid material 29 are secured to the free edges of said valves to render them noiseless during operation. Interposed between the layers 13 and 14 and between the layer 13 and the leaf 15 is a filling 30 provided with channels 31 running the full length of the sole portion, the top layer 13 having perforations 32 communicating with said channels, the perforations being preferably located both at the heel and toe portions of the insole.

In operation, the insole is inserted into a shoe or the like with the upper end of the extension 12 located at the top edge of the shoe upper. During the act of walking the weight of the body resting on the heel portion of the device will depress the top leaf 15 thus forcing the air in the chamber 18 through the opening 26 into the chamber 19

and along the channels 31 and out through the perforations 32.

When the foot is lifted the inherent resiliency of the leaves 15 and 16 will cause them to separate and the chamber 18 will become again filled with air drawn in through the channels 23 of the extension and through the valve opening 25. By constant repetition of this process fresh air is constantly withdrawn from the outside of the shoe and forced beneath the sole of the foot and throughout the interior of the shoe. It will thus be seen that since the insole is separable from the shoe within which the same is to be inserted, that the extended heel portion 12 will be moved upwardly and downwardly with the foot during the act of walking and consequently will prevent any friction which might otherwise be produced by the heel of the foot rubbing against the lining of the shoe.

It has been my experience that the burning sensation on the soles of the feet complained of by persons who are required to do much standing or walking is caused by lack of ventilation of the footwear and I have found that this trouble as well as all other foot troubles and discomforts are entirely eliminated by shoe ventilation. I am aware that devices for ventilating shoes have heretofore been provided but in each instance they necessitate an alteration of the shoe structure or a special shoe. I am not aware that an insole has been provided intended to be inserted in any shoe without altering the construction thereof and which will effectually ventilate the shoe by forcing air in one direction through the shoe by means of valves and an inspirating mechanism.

In the event that the resiliency of the leaf members should not be sufficient to ensure their separation I may provide a coiled spring 33 inserted therebetween. I also may provide means to render the device inoperative when occasion requires, such as for instance when going out doors or during extremely cold weather. The means may consist of a screw 34 penetrating both of the leaves 15 and 16 and the lower layer 14 with a nut applied to the end of the screw. A removable strip 35 covering an opening in the top layer over the head of the screw may be removed to permit access thereto. By tightening the screw both leaves are forced together. If desired a means for securing the insole in the shoe may be utilized such for instance as a pair of bolts 36 which may pass through openings 37 in the leaves 15 and 16 and through the sole of the shoe as shown in Figure 2.

While I have illustrated and described my invention with some degree of particularity I realize that in practise various alterations may be made therein; I therefore reserve the right and privilege of changing the form

of the details of construction or otherwise rearranging the order of the correlated parts, without departing from the spirit of the invention or the scope of the appended claims.

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

1. A shoe insole comprising flexible layers of material having an extension on the heel portion of the insole to engage the back of the foot and to terminate at the top of the shoe upper, said extension having air channels and movable within the shoe and with the foot during the act of walking, said insole having air exit openings, and means operable upon compression and release of the insole to inspire through said channels and expirate through the exit openings.

2. An independent shoe insole comprising spaced superposed layers provided with sets of openings in one of said layers, and means operable upon compression of the layers toward each other and subsequent release to inspire through one set of openings and expirate through the other, said insole being movable within the shoe and with the foot during the act of walking.

3. An independent shoe insole comprising superposed spaced layers secured together at their edges, said insole having inlet openings at one end and exit openings at the other end, and means operable upon compression of the layers toward each other and subsequent release to inspire through one set of openings and expirate through the other, said insole being movable within the shoe and with the foot during the act of walking.

4. An insole comprising spaced layers of flexible material, said insole having inlet openings at one end and exit openings at the other end, a resilient leaf between the layers dividing the space therebetween into two compartments, and means operable upon compression of said leaf and the layers toward each other and subsequent release to inspire through one set of openings and expirate through the other.

5. An insole comprising spaced layers of flexible material, a resilient element of diverging leaves inserted between said layers dividing the space therebetween into two compartments, one above and one below the uppermost leaf, said insole having an inlet and outlet openings, and valve means located on the uppermost leaf operable to transfer air from one compartment to the other when the resilient member is compressed.

6. An insole comprising spaced layers, a resilient element composed of diverging leaves interposed between the layers, dividing the space therebetween into a compartment above and below the uppermost leaf, a partition in the compartment above the leaf, said top leaf having a pair of openings

one at each side of said partition, and valve means controlling said openings and adapted to permit the passage of air from one compartment to the other and from the exterior of the device into the lower compartment.

7. An insole comprising spaced layers, a V-shaped resilient element located therein, valve means in the resilient element adapted to inspire and expire throughout the insole upon compression of the resilient member, and means for binding together the parts of the V-shaped member when occasion requires to render the same inoperative.

8. An insole comprising a sole portion, a heel portion, and an extension of said heel portion, all of which consists of spaced layers of flexible material, filling material between said layers, the sole and heel portion having a plurality of channels in said filling material, said channels having their inner terminals in the heel portion, said extension having channels also terminating in the heel

portion, and an inspiring and expiring means located in the heel portion and adapted to inspire from the channel terminals of the extension and expire into the channel terminals of the sole and heel portion.

9. An independent shoe insole of the class described comprising a ventilated sole of flexible material having an extended heel portion, means operable upon compression and release of the insole to inspire and expire, said extended heel portion being movable within the shoe and with the foot during the act of walking thereby preventing friction between the foot and the lining of the shoe.

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

JOSEPH KLEPAC. [L. s.]

Witnesses:

L. E. WILLMOTT.

MARY KATHARINE GEYER.