FOOT VENTILATING SHOE

Bernard W. Oltrogge, Billings, Mont.

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2 Claims. (Cl. 36—3)

The present invention relates to certain new and useful improvements in ventilated footwear for male and female wearers in which users will find their normal needs and requirements fully met, contained and appropriately available.

As the introductory statement of the invention implies, I am conversant with the prior state of the art to which the invention relates. This is to say, I am aware that many and varied constructions and special adaptations have been devised by others in this field of endeavor and that it is the common objective, evidently, to circulate atmospheric air within the confines of a shoe and to so accomplish this end that the foot is ventilated, especially during the act of walking, to promote comfort and, more especially, to keep the foot dry by reducing perspiration to a minimum.

In carrying out the principles of the instant invention, I have evolved and produced ventilating means for boots and shoes, especially high-top styles, which are possessed of certain refinements, betterments and improvements and is destined, I submit, to more satisfactorily fulfill the requirements of practical ventilated shoes.

In reducing to practice a preferred embodiment of the stated invention, I employ a simple and economical laminated insert which may be readily embodied in a conventional-type of shoe, said insert functioning as a foot cushioning pad as well as a pump and air circulating and distributing device.

Other objects and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the accompanying sheet of drawings, wherein like numerals are utilized to designate like elements and parts throughout the views:

Figure 1 is a horizontal section through a conventional shoe equipped with my improved ventilating means, the section being taken approximately on the horizontal line 1—1 of Figure 2, looking in the direction of the arrows and with parts in section and elevation.

Figure 2 is a vertical section which is cut on the approximate section line 2—2 of Figure 1, looking in the direction of the arrows and with parts in section and elevation.

Figures 3 and 4 are cross sections on the lines 3—3 and 4—4 of Figure 1, looking in the direction of the respective sets of arrows.

Figure 5 is a fragmentary sectional and elevational view, a detail view taken on the line 5—5 of Figure 2, looking in the direction of the arrows.

Referring now to the illustrative drawings by distinguishing reference numerals and lead lines, the numeral 7 designates a boot or shoe embodying a sole 8, a heel 9, upper 10, and toe or toe-box 11. I have not attempted to show in great detail the construction of the shoe, since it is the ventilating attachment with which I am concerned and therefore I desire it to be understood that the so-called "shoe" may be high, low, a boot or for male and female use, as the case may be.

Reference is had now to Figure 2 wherein it will be seen that the laminated insert is made up of a top ply or insole 12 and a supplemental correspondingly proportioned and shaped lower ply 13, also an insole. These plies are of suitable leather or equivalent stock and the coating heel portions 14 and 15 are spaced apart and the forward sole portions 16 and 17 are in close superimposed relation and suitably fastened together. The overall length of the insert is such that the forward end is spaced from the interior of the toe-box to provide an air discharge and circulating space 18 as shown in Figure 2. This is the only edge portion of the insert which is spaced from corresponding and surrounding portions of the shoe. That is to say, the insert, except for the space 18, is fitted snugly and tightly in place to coat with surrounding shoe portions. Reference being had to Figure 1, it will be seen that the numerals 19 and 20 designate tubes embedded in said sole portions 16 and 17, and these discharge at their forward open ends into the space 18. The opposite or rearward ends communicate with an intermediate transverse zone 21. This zone 21 is characterized primarily by several sponge rubber blocks 22, 23 and 24 and these are spaced apart to provide communicating passages which, in turn, communicate with the tubes 19 and 20. These passageways are supplied with air by way of a suitable check valve 25 which is appropriately mounted in a cross member 26 which is also a divider. That is to say, 25 serves as a mount for the valve 25 and also divides the multiple passage area or temporary air trapping and distributing zone 21 from what may be differentiated as the heel and circulator unit. The latter, which is in effect a "pump," is made up of a multiplicity of substantially rectangular sponge rubber blocks 27 which are arranged in rows with the rows defining aisles or passageways for air circulation, the same denoted by the numerals 28. By interposing this multiplicity of blocks between the plies or portions 14 and 15, a cellular chamber is thus provided. Not only do the blocks de-
fine the passageways, but they constitute resil-

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lient “springs” which respond to the lifting and lower-

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ing movements of the heel of the wearer.

Air is delivered to the “pump” by way of an

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intake hose or pipe 29 which extends up to the

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interior of the shoe from the pump and has
its intake end 30 (Figure 5) hooked over the
upper edge of the upper of the shoe, the edge
denoted by the numeral 31. A suitable U-shaped
clip 32 is employed as an adapter and this is
8

removably fitted over said edge 31 and is suitably
apertured to take care of the bend or hook 33
(see Figure 5). The lower end of the air intake
tube is fashioned into a slitted conical terminal
or head 34 which also functions as a check valve.
The timed action of the valves 34 and 25 is
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alternating, as is obvious.

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It will be obvious from the description and
drawings that the shoe shown and described
literally “breathes” and thus satisfactorily venti-
lates the wearer’s foot. It functions with requi-
site nicety to keep the enclosed foot dry and cool
in summer time. I have a theory that by placing
the intake end 30 of the air intake tube 29 close
to the wearer’s leg, sufficient heat would be gen-
erated at this point that it would be possible to
use the construction in the winter time to “warm”
the foot.

11

It will be obvious that when walking, the
“pump” means described serves to suck or draw
fresh air through the delivery tube 29 every time
the foot is picked up. Then, when the foot goes
down and pressure is brought to bear on the
pump, the latter functions to close the valve 34
and to force the valve 25 open and to simulta-
neously force air which has been trapped in the
pump into the space means or zone 21 and then
through the ducts 19 and 20 for delivery to the
space 18, all in an obvious manner. Conse-
12

quently, the alternate operation of valves 25 and
34 serves to achieve wanted ends of taking in
air and delivering it for properly ventilating the
wearer’s foot.

13

For convenience of broadly visualizing the
structural adaptations, the cushioned heel por-
tion of the insert defines the air intake, trapping
and pumping chamber which is characterized by
an air intake hose or tube with a check valve
incorporated in said pump. The zone 21 is also
a valve chamber and receives its air from the
pump and serves to pick it up and deliver it into
the ducts 19 and 20.

14

In view of the foregoing description taken in
conjunction with the accompanying drawings,
it is believed that a clear understanding of the
device will be quite apparent to those skilled in
this art. A more detailed description is accord-
ingly deemed unnecessary.

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It is to be understood, however, that even
though there is herein shown and described a
preferred embodiment of the invention, the same
is susceptible to certain changes fully compre-
hended by the spirit of the invention as herein
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described and within the scope of the appended
claims.

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Having described the invention, what is claimed
as new is:

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1. An insertable and removable ventilator for
footwear comprising an insert embodying upper
and lower complemental plies of flexible material
having sole portions superimposed on one another
and directly connected together, and having their
intermediate arch and heel portions spaced apart,
a cross member mounted between the intermedia-
tate arch portions and constituting a divider and
defining a temporary air trapping and distribut-
19

ing zone, a plurality of compressibly resilient
blocks interposed between said heel portions and
spaced from each other and defining air circulat-
ing passages and a foot actuated pump, a check
valve mounted in said cross member and com-
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municating at its intake end with said pump and
having its discharge end emptying into said trap-
ing zone, air distributing tubes between said
sole portions and communicating at their inner
ends with said trapping zone and discharging at
their opposite ends through the tip portions of
said sole portions, and valved conduit means

21

communicatively connected with said pump.

BERNARD W. C. OTTROGGE.

REFERENCES CITED

The following references are of record in the
file of this patent:

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