Feb. 9, 1954 S. E. WRIGHT 2,668,372

VENTILATED BOOT

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Fig. 1

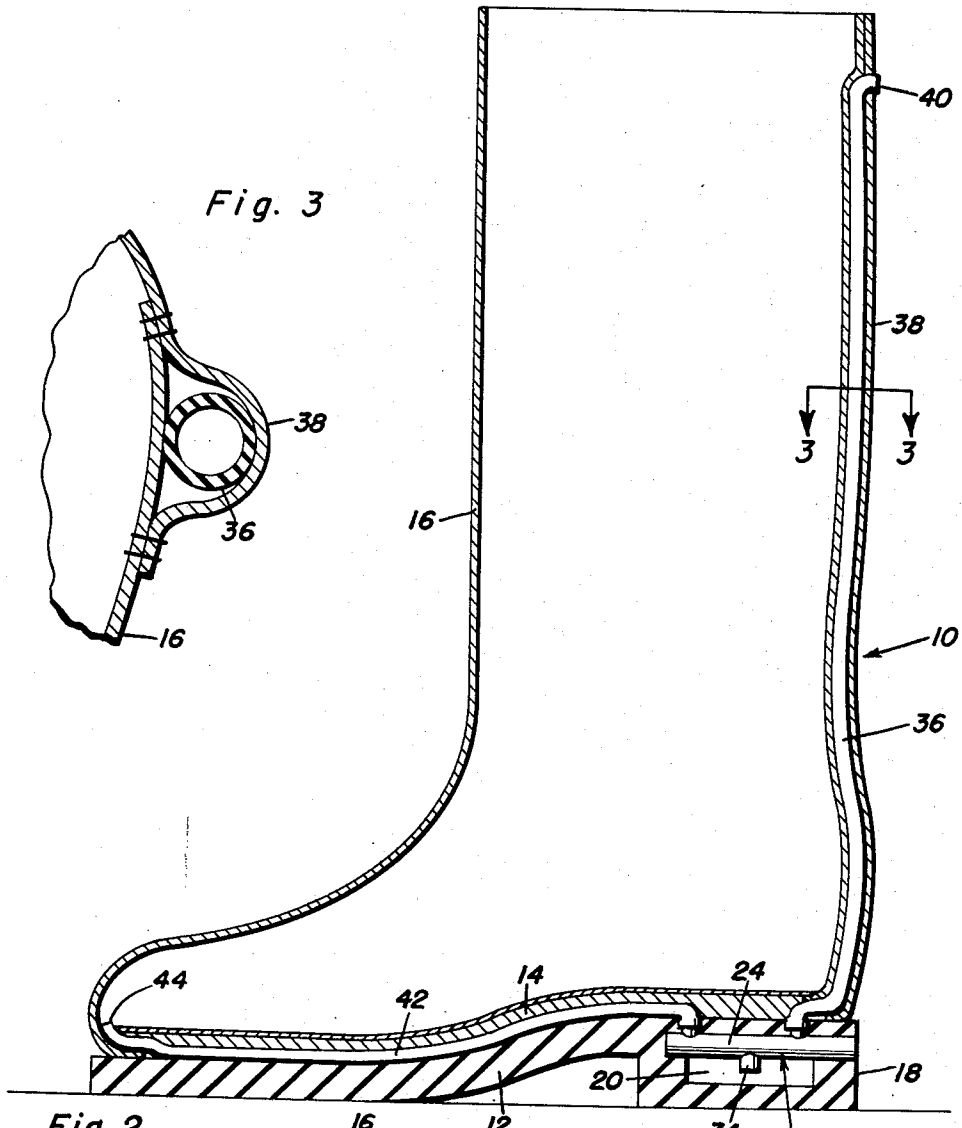
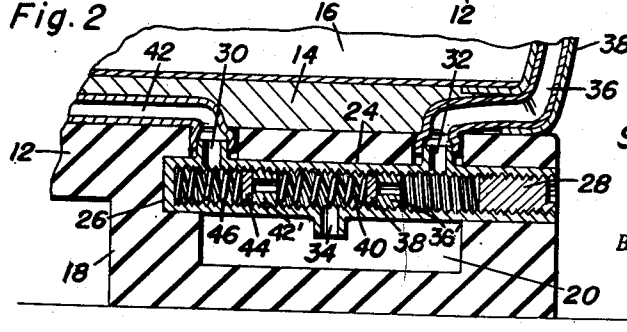


Fig. 3

Fig. 2



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VENTILATED BOOT

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2 Claims. (Cl. 36—3)

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This invention relates to new and useful improvements and structural refinements in ventilated boots, and the principal object of the invention is to provide efficient and dependable ventilation for the interior of a boot, so as to prevent perspiration and discomfort of the user's foot.

Some of the advantages of the invention reside in its simplicity of construction, in its efficient and dependable operation, and in its adaptability to installation in boots of various sizes and types.

With the above more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a vertical sectional view of a boot embodying the invention;

Figure 2 is a fragmentary sectional view, on an enlarged scale, illustrating the arrangement of the heel structure and valve means used in the invention; and,

Figure 3 is a fragmentary sectional detail, taken substantially in the plane of the line 3—3 in Figure 1.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of a ventilated boot which is designated generally by the reference character 10 and embodies the usual sole 12, an innersole 14, an upper 16 and a heel 18, as will be clearly apparent from Figure 1.

The heel 18 is formed from resilient, compressible material such as rubber, or the like, and is hollow so as to provide what may be called a bellows chamber 20 therein, this being so arranged that the volume of this chamber is decreased when the heel is compressed by application of weight thereon, and alternately, so that the volume of the chamber is increased when the heel returns to its initial position by virtue of its own resiliency.

A valve assembly designated generally by the reference character 22 is provided in the heel 18, this valve assembly including a cylindrical, internally screw-threaded housing 24 which is suitably embedded in the heel and has a closed end 25 and an open end provided with a removable closure plug 28, this plug being accessible from the back of the heel, as shown.

The closed end portion of the housing 24 is provided with an outlet port 30 while the open end portion of the housing is similarly provided with

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an inlet port 32, and in addition, the intermediate portion of the housing is provided with an intermediate port 34 which communicates with the interior of the chamber 20.

The inlet port 32 communicates with an air inlet tube 36 which, as is best shown in Figure 3, extends upwardly through an elongated casing 38 afforded by the boot upper 16 at the back thereof, the upper end of the tube 36 being indicated at 40 and communicating with the atmosphere at a point adjacent the upper edge of the boot.

The air outlet port 30 communicates with a tube 42 which extends forwardly through the innersole 14 and communicates with the interior of the boot at a point 44 in the toe, as shown.

An externally screw-threaded, apertured valve member 36' is provided in the valve housing 24 between the ports 32, 34 for coaction with a check valve disk 38, the latter being urged to a closed position against the valve member 36' by a compression spring 40. This spring is in abutment with another apertured, externally screw-threaded valve member 42' which is positioned in the housing 24 between the ports 30, 34 for coaction with a check valve disk 44. The latter is urged to its closed position against the valve member 42 by a compression spring 46 which abuts the housing end wall 26.

Having thus explained the construction of the invention, the operation thereof will now be described.

When a wearer places his weight on the heel 18 of the boot, the heel is compressed and the volume of the chamber 20 is correspondingly decreased, so that air in the chamber is delivered under pressure through the port 34 and through the check valve 42', 44 to the outlet port 30 and thence through the tube 42 into the interior of the boot. Under such circumstances, the escape of air through the tube 36 is prevented by the check valve 36', 38.

Subsequently, when the weight is removed from the heel of the boot, the chamber 20 is expanded and air from the atmosphere is drawn through the tube 36, valve port 32 and check valve 36', 38, and through the port 34 into the chamber 20. Under such circumstances, suction of air through the tube 42 is prevented by the check valve 42', 44, and it will be observed from the foregoing that after expansion of the chamber 20, sufficient volume of air will be entrapped in that chamber for discharge through the tube 42 into the boot during the next cycle of operation incident to compression of the heel.

It is to be also noted that the valve mechanism

in the housing **24** may be conveniently serviced by simply removing the plug **28**.

It is believed that the advantages and use of the invention will be readily understood from the foregoing disclosure and accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

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

1. In a ventilated boot, the combination of a sole, an upper, and a hollow compressible heel having a bellows chamber therein, a valve assembly mounted in said heel and including an inlet port, an outlet port and an intermediate port in communication with said chamber, an air inlet tube extending downwardly in said upper and connected to said inlet port, and an air outlet tube connected to the outlet port and extending forwardly in said sole and having an upper front end in communication with the interior of the boot, said valve assembly being responsive to compression of said heel for delivering air from said inlet tube through said outlet tube and including a normally closed valve for said inlet port.

2. In a ventilated boot, the combination of a hollow compressible heel affording a bellows chamber, and a valve unit mounted in said heel, said valve unit including an elongated housing having an air inlet port at one end communicating with the atmosphere, an air outlet port at its other end in communication with the interior of the boot, an intermediate port between the ends of the housings communicating with said chamber, a check valve in the housing between the inlet and intermediate ports for admitting air into said chamber, and a secondary check valve in the housing between the intermediate and outlet ports for receiving air from said chamber.

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