Aug. 30, 1955 C. C. RATH 2,716,293

VENTILATED BOOT RESPONSIVE TO ANKLE MOVEMENT

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Fig. 1

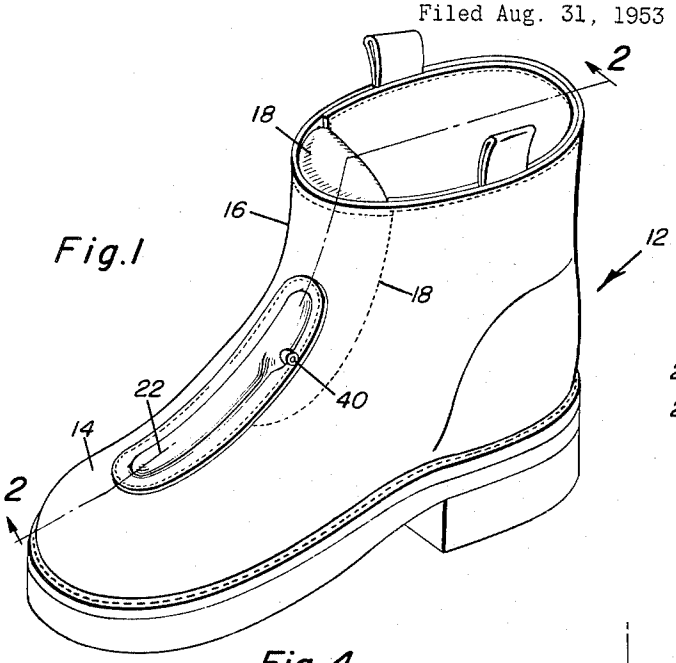

Fig. 3

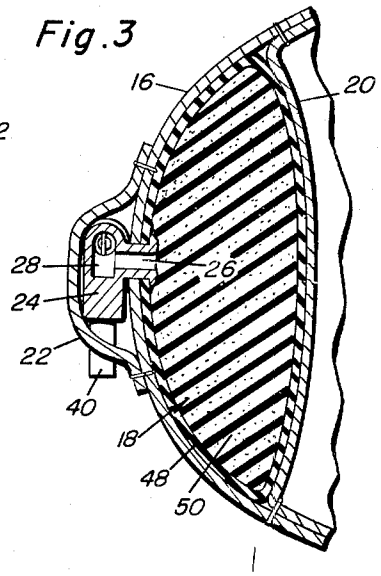

Fig. 4

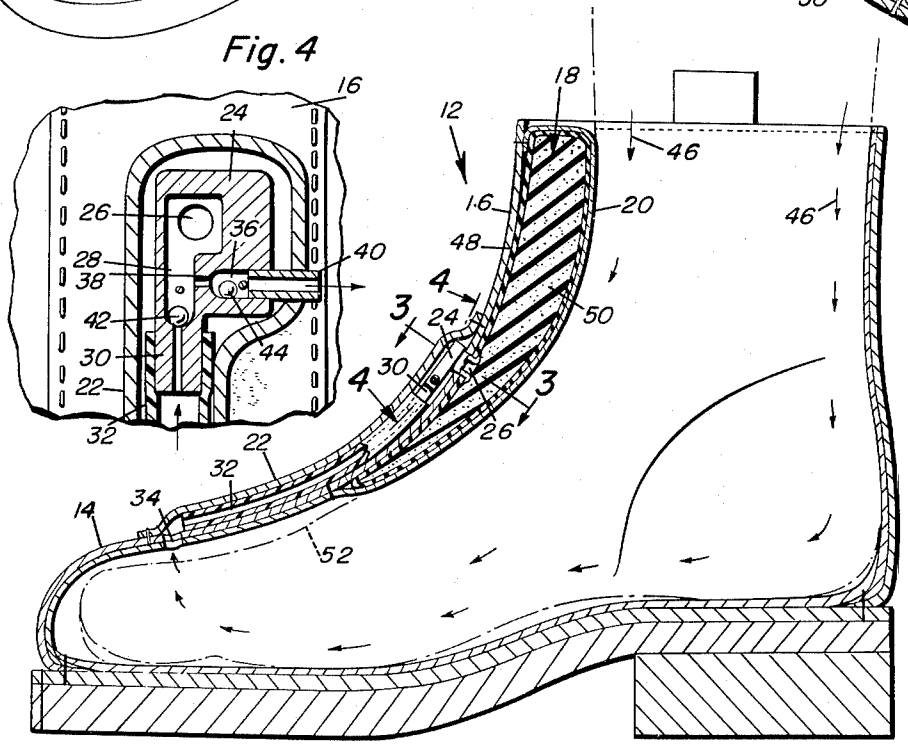

Fig. 2

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VENTILATED BOOT RESPONSIVE TO ANKLE MOVEMENT

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3 Claims. (Cl. 36—3)

This invention relates to new and useful improvements and structural refinements in boots, and the principal object of the invention is to provide a boot with apparatus responsive to ankle movement for ventilating the interior of the boot automatically while walking.

An important feature of the invention resides in the novel construction of the ventilating apparatus and in the novel manner whereby the apparatus functions to deliver a supply of fresh air to the interior of the boot for efficiently ventilating the same.

Some of the advantages of the invention reside in its simplicity of construction, in its efficient and dependable operation, and in its adaptability for embodiment of 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 perspective view of the invention;

Figure 2 is a vertical sectional view, taken substantially in the plane of the line 2—2 in Figure 1;

Figure 3 is a sectional detail, taken substantially in the plane of the line 3—3 in Figure 2, and

Figure 4 is a sectional detail, taken substantially in the plane of the line 4—4 in Figure 2.

Referring now to the accompanying drawings in detail, the ventilated boot is designated generally by the reference character 12 and includes the usual foot portion 14 and the ankle-encircling portion 16, as will be readily understood.

The invention contemplates the provision of a bellows 18 which is configurated so as to fit in the front region of the ankle-encircling portion 16, so that when the boot is worn and the wearer is walking, the bellows 18 is alternately compressed and expanded by the movement of the wearer's foot. If desired, the bellows 18 may be disposed in a suitable pocket 20 formed in the front region of the ankle-encircling portion 16, and the inner surface of the bellows as well as the inner surface of the pocket 20 is preferably of a convex configuration as is best shown in Figure 3, so as to afford the utmost efficiency in compressing the bellows when the wearer walks.

In any event, an elongated casing 22 is stitched or otherwise secured to the outer surface of the boot in such position that the casing extends downwardly from the ankle-encircling portion 16 to the toe of the foot portion 14, and the upper portion of the casing 22 accommodates a valve body 24 which communicates through the medium of a suitable duct 26 with the interior of the bellows 18.

The valve body 24 is provided with an air chamber 28 communicating with an adapter 30 formed integrally with the valve body, and an air suction line or tube 32 extends from this adapter downwardly through the casing 22 and communicates at its lower end, through the medium of an opening 34, with the interior of the toe region of the foot portion 14 of the boot.

The valve body 24 is also equipped with a second air chamber 36 which communicates with the chamber 28 through the medium of a passage 38, and the chamber 36 is provided with an exhaust port 40 which projects outwardly from the casing 22 and communicates with the atmosphere.

An inlet check valve 42 is provided in the chamber 28 while an outlet check valve 44 is provided in the chamber 36, and it will be apparent from the foregoing that when the bellows 18 is compressed, the check valve 42 will be closed while air under pressure is discharged from the bellows through the chamber 28, the passage 38, the chamber 36 and the exhaust port 40 to the atmosphere.

On the other hand, when the bellows 18 is expanded, the check valve 44 will be closed and air will be drawn through the aperture or opening 34, through the suction line 32 and the chamber 28 and duct 26 into the bellows 18. As this occurs, air from the atmosphere will be drawn into the boot through the open upper end thereof as indicated by the arrows 46, so that as a result, the entire interior of the boot will be effectively ventilated.

The bellows 18 preferably comprises in its construction a casing 48 formed from airtight but flexible material, and a filler 50 of compressible porous material such as sponge rubber, or the like, which is disposed within the casing 48. By virtue of this arrangement, the bellows 18 is airtight, apart from its communication with the chamber 28 of the valve body 24 through the medium of the duct 26.

The position of the foot of the wearer in the boot is indicated by the dotted lines 52 in Figure 2.

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.

What is claimed as new is as follows:

1. In a ventilated boot, the combination of a bellows mounted in the boot and responsive to ankle movement when the boot is worn, an air suction line extending from said bellows to the interior of the boot, an air exhaust port provided on said bellows and communicating with the atmosphere, and check valves provided in said suction line and said exhaust port, said bellows comprising a jacket of airtight, flexible material extending in front of the ankle portion of the boot, and a filler of compressible porous material provided in said jacket.

2. In a ventilated boot including an upper having a foot portion and an ankle-encircling portion, a bellows mounted in the front region of said ankle-encircling portion and adapted to be alternately compressed and expanded by the foot of the wearer when walking, an air suction line extending from said bellows to the interior of said foot portion, an air exhaust port provided on said bellows and communicating with the atmosphere, and check valves provided in said suction line and in said exhaust port.

3. The device as defined in claim 2 together with an elongated casing provided on said upper of the boot, a valve body provided in said casing and communicating with said bellows, said exhaust port being connected to said valve body and projecting outwardly from the casing, and said suction line being disposed in said casing.

References Cited in the file of this patent

UNITED STATES PATENTS

853,386	Villacampa et al.	May 14, 1907
1,134,389	Lack	Apr. 6, 1915
1,176,445	Haran	Mar. 21, 1916
1,216,795	Gause	Feb. 20, 1917
1,809,323	Williams	June 9, 1931
1,926,389	Jones	Sept. 12, 1933