

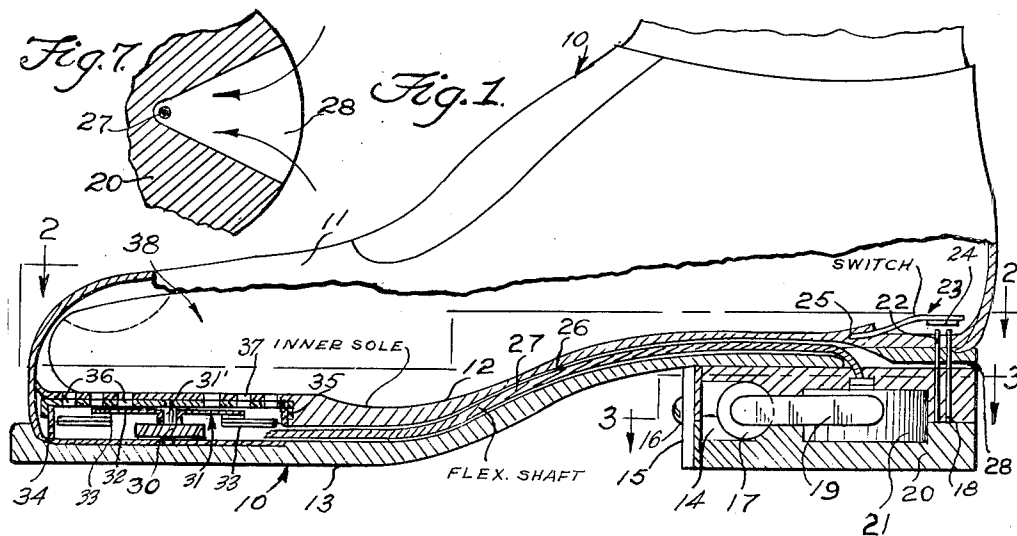
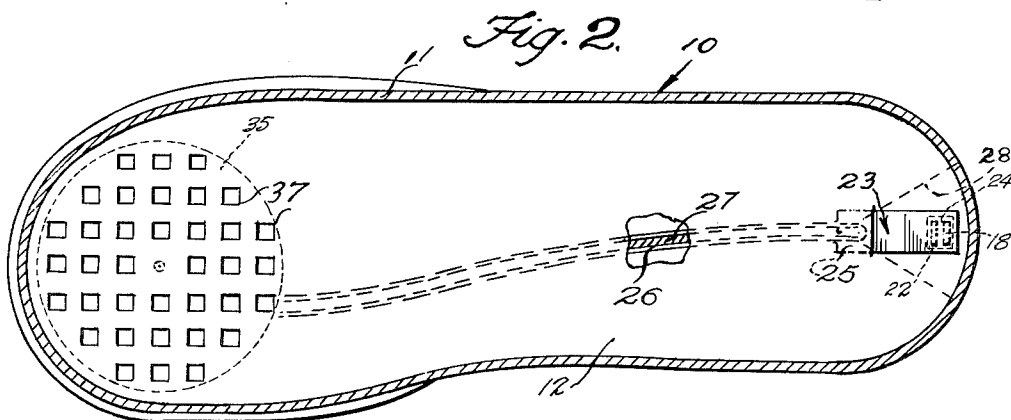
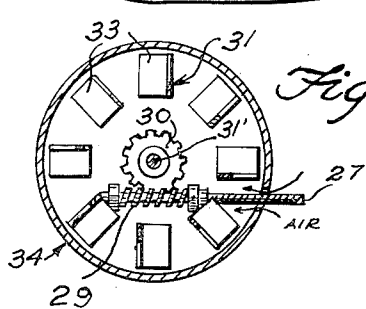
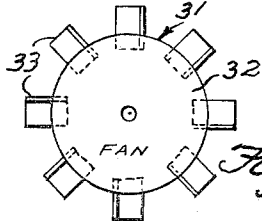
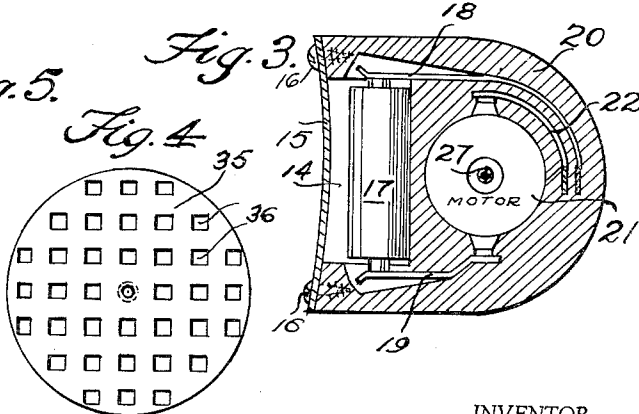
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A. S. FARINELLO

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AIR SHOES

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INVENTOR,
Anthony S. Farinello,
BY
Victor J. Evans & Co.
ATTORNEYS

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AIR SHOES

Anthony S. Farinello, 3281 S. Edgefield, Dallas, Tex.

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The present invention relates to ventilated or aerated shoes.

The primary object of the invention is to provide a means for ventilating or aerating shoes so that air can be caused to circulate through the shoes around the feet of the wearer whereby the shoes can be worn with increased comfort and wherein certain beneficial health advantages will accrue to the wearer.

Another object of the present invention is to provide shoes which are provided with a fan or blower mechanism therein and wherein there is provided a motor means for operating the fan, the parts being arranged and constructed so that when the foot is properly positioned in the shoe, a switch will be automatically depressed to automatically complete the circuit from the motor to the fan so as to cause air to be circulated or blown through the shoe and around the foot to help promote health and comfort for the wearer or user.

Another object is to provide a device of the character described that is rugged in structure and foolproof in operation and which is economical to manufacture and efficient to use.

Further objects and advantages are to provide improved elements and arrangements thereof in a device of the character described that is economical to use, durable in form, and conducive to the most economical use of materials and uniformity of members formed therefrom.

Still further objects and advantages will become apparent in the subsequent description in the specification.

In the drawings:

FIGURE 1 is an elevational view of the shoe equipped with the air ventilating means of the present invention, and with parts broken away and in section.

FIGURE 2 is a sectional view taken on the line 2—2 of FIGURE 1.

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 1.

FIGURE 4 is a plan view of the cover for the fan housing.

FIGURE 5 is a horizontal sectional view taken through the fan housing and showing certain parts thereof.

FIGURE 6 is a plan view of the fan per se.

FIGURE 7 is a fragmentary sectional view showing the air inlet.

Referring in detail to the drawings, the numeral 10 indicates a shoe which is provided with the aerating or ventilating mechanism of the present invention, and the shoe 10 includes the usual upper 11 as well as an inner sole 12, and a bottom portion or outer sole 13. As shown in FIGURE 3 for example, the heel 20 of the shoe is provided with a chamber or recess 14, and a closure or plate 15 is secured in place to the heel 20 by means of screws or the like 16 wherein one or more batteries 17 can be conveniently held in the chamber 14. Contacts 18 and 19 are electrically connected to the opposite end of the battery 17, and the numeral 21 indicates a small electric motor that is arranged in a suitable recess or chamber in the heel 20, FIGURES 1 and 3. A contact 22 is electrically connected to the motor 21, and portions of the contacts 18 and 22 are adapted to be engaged by a button or terminal 24 on a switch 23, and the switch 23 may be in the form of a spring member which has an end portion 25 fixedly secured to the inner sole 12 adjacent the rear portion thereof. When the foot is properly

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inserted in the shoe, pressure is applied to the switch 23 to move the switch 23 downwardly whereby the terminal or element 24 electrically engages portions of the contacts 18 and 22 so as to automatically complete the electrical circuit from the battery 17 to the motor 21, for a purpose to be later described.

There is provided in the lower portion of the shoe a longitudinally extending passageway or channel 26, and the numeral 27 indicates a flexible shaft or cable which extends through the passageway 26, and the rear end of the shaft 27 is operatively connected to the motor 21. The numeral 28 indicates an air inlet which communicates with the passageway 26, and the air inlet 28 is adapted to be arranged in a convenient location so that rain water or the like will not have a tendency to normally enter the opening 28 and the passageway 26.

A worm 29 is mounted on the front portion of the shaft 27, and the worm 29 meshes with a gear 30 on a shaft 31 of a fan 31, and the fan 31 includes a rotary disc 32 which has a plurality of spaced apart blades 33 suitably affixed thereto, FIGURE 6. The fan disc 32, constituting an air induction device, is rotatably arranged in a housing or casing 34 which is mounted in the lower front portion of the shoe, FIGURE 1, and a cover or top piece 35 is mounted on the housing 34, and the cover 35 has a plurality of spaced apart apertures or openings 36 therein. The portion of the sole 12 above the cover 35 also has a plurality of apertures or openings 37 therein which register with the apertures 36 so that the air can circulate out through the registering apertures 36 and 37 in order to ventilate or aerate a foot such as the foot 38 positioned in the shoe 10.

From the foregoing, it is apparent that there has been provided a ventilated or aerated shoe construction, and in use with the parts arranged as shown in the drawings, it will be seen that the heel 20 of the shoe is recessed or hollowed out so as to provide clearance spaces for the various parts such as the battery or batteries 17 as well as the power means or motor 21. The elongated channel or passageway 26 serves a dual purpose, that is it provides a passageway for the projection therethrough of the flexible cable or shaft 27, and in addition, the passageway 26 also provides means whereby air can enter through the openings 28 and flow through the passageway 26 and whereby this air can be directed upwardly by the fan 31 to cause the air to circulate around the toes and other portions of a foot such as the foot 38.

With the parts arranged as shown in the drawings, it will be seen that when the foot is properly inserted in the shoe 10, the foot such as the foot 38 will exert pressure on the switch 23 to cause the button 24 to move downwardly into engagement with the upper portions of the contacts or terminals 22 and 18 so that the electrical circuit will be completed from the battery 17 to the motor 21 whereby the motor 21 will be energized to rotate the shaft 27. As the shaft 27 rotates, it turns the worm 29, and with the worm 29 meshing with the gear 30, it will be seen that this will result in rotation of the gear 30. The gear 30 is connected to the disc 32 of the fan 31 by means of the shaft 31 so that as the gear 30 rotates the fan 31 will rotate to thereby cause the blades 33 to force or circulate the air up through the openings 36 in the cover 35 on the housing 34, and this air will then flow upwardly through the openings 37 in the front portion of the inner sole 12 whereby the air will accomplish the desired ventilating effect.

When the foot 38 is removed from the shoe, the inherent flexibility of the switch 23 will cause the switch 23 to move to a raised position whereby the button 24 will be out of engagement with the contacts 22 and 18 so that the electrical circuit from the battery 17 to the motor

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21 will be automatically interrupted whereby the fan 31 will not operate when the foot is not in the shoe.

While one battery 17 has been illustrated positioned in the heel 20, it is to be understood that the number of batteries can be varied as desired or required.

The parts can be made of any suitable material and in different shapes or sizes.

The parts are arranged so that the shoe can be worn comfortably and wherein various elements or parts are adapted to be made of a small size so that they will fit snugly within the concealed portions of the shoe in the desired manner.

The opening 28 is arranged or positioned so that water and other foreign matter will not readily enter the passageway 26, and this is because the opening 28 has a generally protected arrangement, that is it is protected generally by the adjacent portions of the shoe. The spring member or switch 23 serves to automatically open the electrical circuit when the foot is removed whereby there will be no unnecessary usage of the battery when the shoe is not being worn.

As shown in the drawings the fan is arranged in the sole of the shoe, and the motor, battery and switch are arranged in or contiguous to the heel of the shoe. The switch is actuated by the weight of the wearer.

The apertures or openings are arranged so that air will be circulated onto the toes of the foot, and this air will help minimize various types of ailments such as athlete's foot, or the like, and also tired feet will be benefited, so that it will be seen that a person can wear the shoes with increased comfort and benefits, and wherein sore feet will be benefited by having the air circulate therearound. The blades 33 are adapted to be arranged at a suitable pitch or angle so that the air will be circulated in the most advantageous manner. The various elements are adapted to be made small in size so that they will conveniently fit in the heel, sole and other parts of the shoe. By using the flexible shaft or cable 27, the shaft will fit the contour of the inside of the shoe and thus the flexible shaft can curve as desired or required. The number of blades on the fan can be varied as desired or required.

While certain embodiments of the invention have been illustrated and described in detail, it will be obvious that the invention may be otherwise embodied and the dimensions and interrelation of parts changed so long as the objects of the invention are attained.

What is claimed is:

1. In a shoe including an upper, a heel, an inner sole and an outer sole; the improvements consisting and providing a means for aerating said shoe, said means comprising a chamber in said heel, an electrical circuit including a battery in said chamber, contacts connected to said battery, a motor mounted in said heel and electrically connected to said battery, a switch in the lower rear portion of the shoe for engagement by the foot of the wearer, there being a longitudinally extending passageway in said shoe, a flexible shaft extending through said passageway and having one end connected to said motor, there being an air inlet communicating with said passageway and said air inlet being arranged adjacent said heel, a hollow housing arranged in the lower front portion of said shoe, a rotary fan arranged in said housing, a gear connected

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to said fan, a worm on said flexible shaft meshing with said gear, a cover on said housing having a plurality of spaced apart apertures therein, and the front portion of the inner sole having a plurality of spaced apart openings therein which register with the apertures in said cover.

2. In a shoe including an upper, a heel, an inner sole and an outer sole; the improvements consisting and providing a means for aerating said shoe, said means comprising a chamber in said heel, an electrical circuit including a battery in said chamber, contacts connected to said battery, a motor mounted in said heel and electrically connected to said battery, a switch in the lower rear portion of the shoe for engagement by the foot of the wearer, there being a longitudinally extending passageway in said shoe, a flexible shaft extending through said passageway and having one end connected to said motor, there being an air inlet communicating with said passageway and said air inlet being arranged adjacent said heel, a hollow housing arranged in the lower front portion of said shoe, a rotary fan arranged in said housing, a gear connected to said fan, a worm on said flexible shaft meshing with said gear, a cover on said housing having a plurality of spaced apart apertures therein, and the front portion of the inner sole having a plurality of spaced apart openings therein which register with the apertures in said cover, said fan having a circular disc having a plurality of radially disposed blades affixed thereto.

3. The structure as defined in claim 2 wherein the electrical circuit is automatically completed from the battery to the motor when the foot is properly inserted in the shoe, and wherein the electrical circuit from the battery to the motor is automatically interrupted when the foot is removed from the shoe.

4. In a ventilated shoe, a fan in the lower front portion of the shoe, a motor in the rear portion of the shoe, connecting means operatively connecting said motor to said fan, and switch means operatively connected to said motor for controlling actuation of the motor.

5. In a ventilated shoe, a fan in the lower front portion of the shoe, a motor in the rear portion of the shoe, connecting means operatively connecting said motor to said fan, and switch means operatively connected to said motor for controlling actuation of the motor, said connecting means comprising a flexible shaft, there being an elongated passageway in said shoe for the projection therethrough of said shaft, and an air inlet communicating with said passageway.

6. In a shoe including an inner sole and an outer sole, a casing disposed between said inner sole and said outer sole, there being a passageway for air having one end connecting in communication with said casing and having the other end connecting in communication with the exterior of said shoe, said inner sole having openings connecting in communication with the interior of said casing, an air induction device in said casing, and power means carried by said shoe operatively connected to said air induction device, said device being operable to draw air in through said passageway and eject the air through said openings.

No references cited.