I. SCHWARZWALD.

Ventilating Boots and Shoes.

No. 206,267. Patented July 23, 1878.

Fig. 1

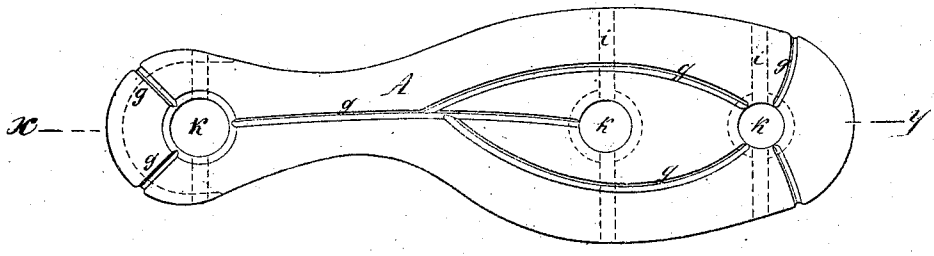


Fig. 2

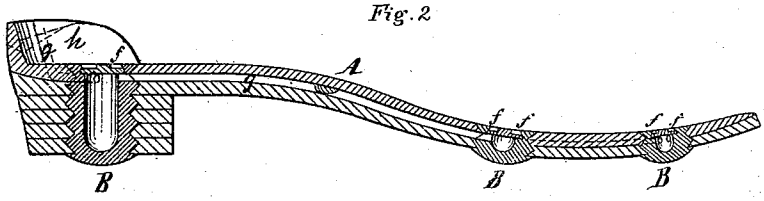


Fig. 3

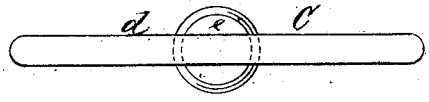
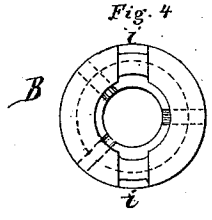


Fig. 4



Witnesses:
C. B. Barnum
J. Schwarzwald.

Inventor:
J. Schwarzwald

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE

ISAAC SCHWARZWALD, OF NEW YORK, N. Y.

IMPROVEMENT IN VENTILATING BOOTS AND SHOES.

Specification forming part of Letters Patent No. **206,267**, dated July 23, 1878; application filed February 6, 1878.

To all whom it may concern:

Be it known that I, ISAAC SCHWARZWALD, of the city, county, and State of New York, have invented new and useful Improvements in Ventilated Boots and Shoes; and I declare the following to be a full description thereof, reference being had to the accompanying drawings, wherein—

Figure 1 is a bottom view of my improved insole; Fig. 2, a sectional view thereof on the line *x y* of Fig. 1; Fig. 3, a plan of a spring-valve, and Fig. 4 a top view of my ventiduct.

The object of my invention is to ventilate boots and shoes.

The invention consists, first, in the construction of a boot or shoe, in the use of what I term "ventiducts," placed in a vertical position in the sole and heel, and extending through the same, with openings in the sides thereof, which are opposite to and connect with air-passages traversing the sole, by means of which circulation of air is constantly maintained; second, in a spring-valve extending across the top of the insole in a groove in the insole and in the top of the ventiduct, by means of which the ventiduct is prevented from turning in its position, and the open upper end is closed when discharging its air into the air-passages.

In the drawing, A is the insole, made of leather or other material used for insoles. B is the ventiduct, made of india-rubber or other elastic material suitable for the purpose; and C, the spring-valve, the button or valve of which may be made of any suitable material, as leather, wood, or metal, and the spring of wood, rubber, whalebone, or spring metal.

The insole A is made in shape and form as insoles usually are. In the bottom of it I sink furrows or grooves *g g*, forming passages for air, which may be run in any and all directions, but connecting with or running into round perforations or holes *k k* in the insole, which I prefer to make, one each at the heel, ball, and toe, and from the perforation in the heel back to and up the outer side of the counter *h* of the boot or shoe, and from the other perforations to the edge of the insole.

The ventiducts B, constructed of the material stated, are rounded on the closed end, which is intended to extend through and slightly outside of the outer sole or heel of the boot or shoe. They are cylindrical in shape, and are grooved on the outer circumference, so that the layers of the soles and heel, being fitted into the grooves, may hold it in position and make a tight joint. Cement is also used to prevent the possibility of leakage. The upper groove of the ventiduct fits in the edge of the perforation or hole, leaving a flange on the ventiduct above the insole, or, by beveling the edge of the perforation, flush with the upper side of the insole. From the air-chamber into this upper groove passages *f f* open at the points where the furrows or grooves in the bottom of the insole terminate, thus connecting the air-chamber with the air-passages in the insole.

The open end of the air-chamber I prefer to be flush with the upper side of the insole. In the upper side of the insole, as shown by the dotted lines in Fig. 1, are grooves *i i*, for the reception of the spring *d* of the spring-valve *c*, which spring is simply a narrow strip of the material stated, slightly sprung downward between its ends. To the center of the under side of this spring is attached a button, *c*, fitted to close the mouth of the air-chamber.

The top or flange of the ventiduct B is also grooved, so that when in position the spring *d* fills a continuous groove on the top of the insole and ventiduct across the sole, and prevents the ventiduct from turning. This spring *d* should be secured to the insole by screws, or in any other desired manner.

It will be seen that all the air-passages and air-chambers are connected.

From the upper end of the grooves, which are continued up outside the counter, outlets may be made either to the outside or inside of the boot or shoe; or, by means of rubber or other piping, the air-passages may be carried higher and discharged, as stated, at any desired point.

When the boot or shoe is made, a soft insole should be placed over my improved insole and the ventiducts.

In operation, the air which is admitted to the air-passages and their connections is kept in circulation at every step made by the wearer, by the compression of the ventiduct, which forces the air in the air-chambers through the

air-passages or grooves in every direction, and up into body of the boot or shoe and around the foot. By this means the feet may be kept dry, and the exhalations, perspiration, and impurities thrown off by the skin of the feet taken up by the air by the reverse action of the ventiducts, when relieved from pressure, are drawn into the air-passages, and discharged at the outlets above the counter at the heel.

If desired, small holes may be made in the valves *e e*, so that the air may be forced into the boot or shoe directly under the foot.

The ventiducts, made of rubber, will also tend to prevent slipping while walking.

As will readily be seen, by the construction of these ventiducts and the method shown of securing them in position, they may be removed when worn out and new ones inserted.

By placing the ventiducts in a vertical position through the heel or sole many difficulties in the way of manufacture have been obviated, the distribution of the currents of air in all directions simultaneously obtained, and in the construction of the boot or shoe no change in the relations of its parts is needed.

The boot or shoe is constructed in the ordinary manner, and perforations made in the ordinary heel and sole alone are necessary to receive a vertical ventiduct.

Having described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. The combination of the ventiduct B, placed vertically in the sole or heel of a boot or shoe, and extending below the same, with openings in the sides thereof opposite to and connecting with air-passages traversing the sole, substantially as described.

2. In a boot or shoe, a flat spring-valve fitting in a groove extending partly across the sole, and partly through the top of the ventiduct, by means of which the ventiduct is prevented from turning in its position, and its open end is closed.

I. SCHWARZWALD.

Witnesses:
E. B. BARNUM,
J. SCHWARZWALD.