

H. W. HALLEY.
 VENTILATING AND DISINFECTING MEANS FOR SHOES.
 APPLICATION FILED JUNE 21, 1913.

1,103,874.

Patented July 14, 1914.

Fig. 3.



Fig. 1.

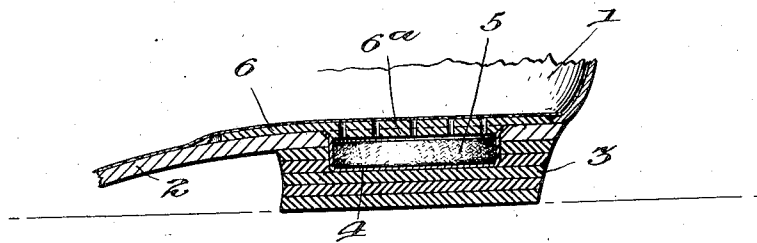


Fig. 2.

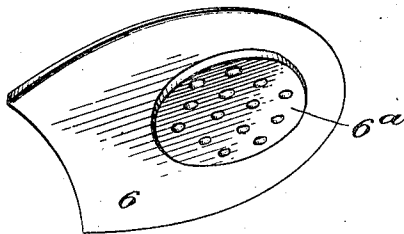


Fig. 4.

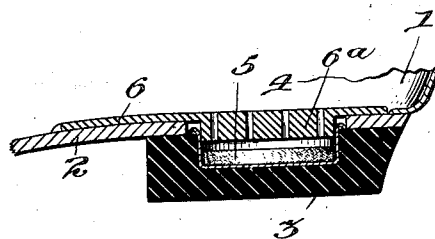
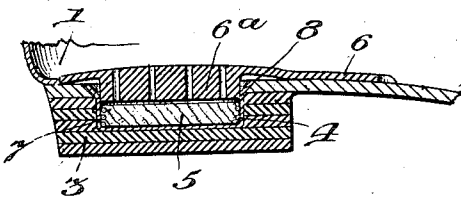


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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VENTILATING AND DISINFECTING MEANS FOR SHOES.

1,103,874.

Specification of Letters Patent.

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Application filed June 21, 1913: Serial No. 775,004.

To all whom it may concern:

Be it known that I, HENRY W. HALLEY, a citizen of the United States, residing at Hutchinson, in the county of Reno and State of Kansas, have invented certain new and useful Improvements in Ventilating and Disinfecting Means for Shoes, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to shoes, and has for its object the provision of means for ventilating and disinfecting the shoe, and at the same time providing a cushion to absorb the shocks due to the heel striking the ground in walking. I attain the first part of my object by providing a hollow heel with a vessel therein, containing antiseptic or disinfecting material, this vessel being open at the top and overlaid or covered by a perforated elastic pad which may constitute a portion of the insole of the shoe, and which in walking acts with the vessel like a suction pump to force the fumes of the disinfectant through the perforations into the shoe. I attain the second part of my object by making the entire heel resilient, which however I shall not claim except in combination with my disinfecting device.

My invention is illustrated in the accompanying drawings in which—

Figure 1 is a sectional view of the heel portion of the shoe with my invention applied thereto. Fig. 2 is a perspective view of the antiseptic perforated pad removed from the shoe. Fig. 3 is a side view of the containing vessel or cup removed. Figs. 4 and 5 are sectional views of modifications.

Referring to Fig. 1, 1 represents the counter of a shoe, and 2 the shank of the sole. 3 is the heel, which as shown in this figure is made up of sections or "lifts" of leather in the ordinary way, but which as will later appear, may be constructed of solid rubber or equivalent material. This heel is hollowed out to receive a cup 4, which is preferably made of metal, broad and shallow, and with slightly flaring upper edges to its walls. In this cup lies an absorbent disk 5 of material like felt which can be impregnated with the desired disinfecting material and will prevent the same from leaking in a liquid form into the boot or shoe. Over this cup, and extending partly into the same, being supported upon the flaring edges thereof, is a perforated pad 6, which may be leather, rubber, textile material, metal, wood, or other

materials, or any desired combination of these. As shown in Fig. 1, the pad is of leather with a reinforced facing 6^a on its lower face, fitting within the flaring edges of the cup and serving as a plunger when forced down by the pressure of the foot, to compress the air and gas beneath it, and force the same to pass up through the perforations into the shoe. The pad as shown also in Fig. 2 is in this case supposed to be of the size and shape of the shoe heel and it may be part of the usual insole. I prefer however to have it a separate piece, in order to facilitate its removal and the recharging of the cup 4. The operation of the structure thus described will be readily understood. In walking, the wearer first interposes the weight of his foot on the heel and then lifts the same therefrom at each step. At each imposition of his weight the pad is forced down and a certain portion of the air or gas impregnated with the antiseptic material is forced through the perforations in the pad and into the shoe beneath the foot. This operation is facilitated by the fact that there is always more or less space between the shank of the sole and the arch of the foot, so that the gas is fairly well distributed at the beginning of the step. As the foot passes to the rear under the walker, the weight is removed from the heel and comes upon the ball, the heel being slightly lifted. The gas which has previously been distributed under the arch and ball is then in part forced up toward the sides of the foot and in part toward the heel which is slightly raised. This operation repeated for each step, is sufficient to keep the interior of the shoe constantly filled with vaporized disinfectant; also by reason of the constant shifting of the air or gas in the shoe, a very fair degree of ventilation is secured as some air is forced out around the ankle, and other air drawn in both through and around any side or front openings of the shoe at each step. Thus the foot in walking is maintained dry and sterile, and hence in best condition for comfort as well as health.

In Fig. 4 I have shown a slightly modified form of the pad in which the portion 6^a is made deeper and acts like a true plunger. In this case the felt disk 5 is thick enough to be reached by the plunger and be compressed by each stroke, to be restored thereafter, and in turn assist in restoring the plunger 6^a by its own resilience, which may

be supplemented by a ring of rubber or a spiral or other spring inside the cup as indicated at 7. Here the ventilating effect is accentuated since there is an appreciable air space at 8 between the pad 6 and the top of the heel. This makes a very agreeable cushion in walking.

In Fig. 5 I have shown the heel 3 as of solid rubber, the shank and sole of the shoe 2 of leather, the pad 6 of leather, and the plunger 6^a of any suitable material adapted to be forced up and down like a piston in the cup 4, which has sufficient clearance above the felt disk 5 to permit free movement. The effect here is not to have the pad 6 move up and down, but to have the heel when compressed move the cup up and down around the plunger 6^a.

Other modifications will be obvious to those skilled in the art when considering the main principles involved. All non-essential changes and modifications are contemplated by me, and I desire to have it understood that all such as do not depart from the spirit of the invention are included within the scope and purview of the appended claims.

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

1. A ventilated shoe comprising a body, a heel having a chamber communicating with the interior of the body, an imperforate cup fitted within the chamber and adapted to hold disinfectant material, and a perforated elastic pad arranged over said chamber to support the foot of the wearer, and arranged further to make an approximately tight joint with the upper edges of said cup and to constitute a piston working up and down therein, whereby circulation of air between the said cup and the interior of the body is forced as said pad moves up and down under the varying pressure of the foot thereon as the wearer walks.

2. A ventilated shoe comprising a body, a heel having a chamber communicating with the interior of the body, a cup in said chamber constituting a cylinder and containing absorbent material adapted to hold disinfectant material, and an elastic perforated pad covering said chamber and adapted to support the foot of the wearer but having a limited degree of movement up and down under variations in pressure of the foot as the wearer walks, and said pad being arranged further to make a substantially tight joint with the upper edges of said cup and provided with a portion working up and down in said cup cylinder and constituting a piston therefor setting up forced circulation of air between said cylinder and the interior of said shoe.

3. A ventilated shoe comprising a body, a heel having a chamber communicating with the interior of the body, and a perforated pad or cover for the chamber, adapted to be compressed therein by pressure of the foot in walking, together with a metal cup in said chamber, and an absorbent disk or pad in said cup adapted to hold disinfectant material, the edges of the cup being so disposed with reference to the pad that the central portion thereof will act as a plunger in the cup.

4. A ventilated shoe comprising a body, a heel having a chamber communicating with the interior of the body, an imperforate cup forming a lining for the chamber and containing absorbent material adapted to hold disinfectant material, and a perforated pad covering said chamber and arranged to support directly the foot of the wearer, a depending portion from said pad closely fitting the inner walls of said cup and constituting a piston adapted when worked up and down to force a circulation of air between said cup and the interior of said shoe, one of said heel and pad parts being elastic whereby relative motion of said cup and said piston takes place as the pressure on the heel varies when the wearer walks, and said circulation is set up as aforesaid.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY W. HALLEY.

Witnesses:

CHAS. S. FULTON,
A. G. LAUDER.