

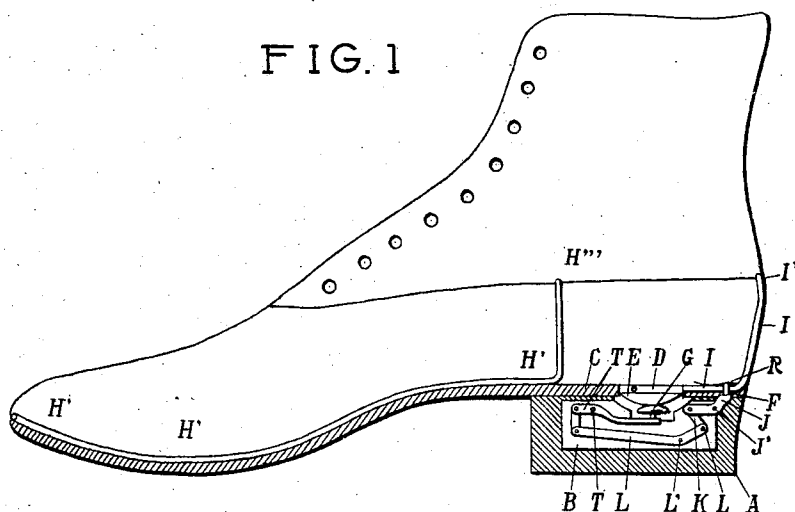
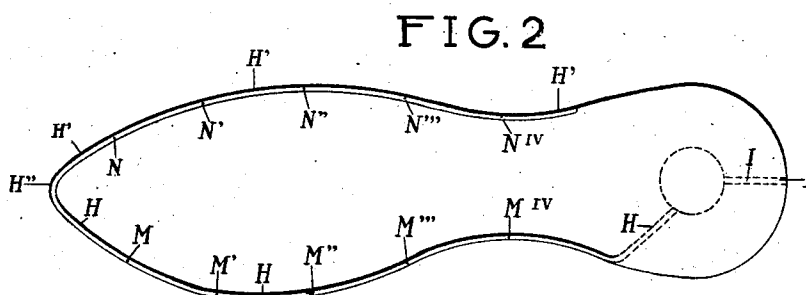
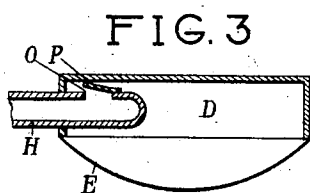
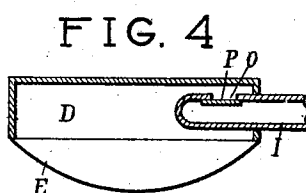
No. 853,386.

PATENTED MAY 14, 1907.

M. VILLACAMPA Y VILLACAMPA.

VENTILATING SHOE.

APPLICATION FILED AUG. 24, 1905.



Witnesses

A. J. Haddan
A. J. Haddan

Inventor

Miguel Villacampa y Villacampa
by his Attorney At Law

UNITED STATES PATENT OFFICE.

MIGUEL VILLACAMPA Y VILLACAMPA, OF BUENOS AYRES, ARGENTINA.

VENTILATING-SHOE.

No. 853,386.

Specification of Letters Patent.

Patented May 14, 1907.

Application filed August 24, 1905. Serial No. 275,655.

To all whom it may concern:

Be it known that I, MIGUEL VILLACAMPA Y VILLACAMPA, a subject of the King of Spain, residing at Buenos Ayres, Argentina, have invented certain new and useful Improvements in Ventilating-Shoes, of which the following is a specification.

The present invention relates to means for the interior ventilation of foot-wear.

The apparatus comprises an air suction and compressing device lodged in the inner part of the heel and put into action by the natural impulsion by the foot, when the person is walking, said mechanism being combined with communication-tubes and their valves and with means serving to actuate it.

The apparatus is illustrated in the annexed drawing in which:

Figure 1 is a vertical longitudinal section of a boot to which the ventilating apparatus is adapted. Fig. 2 is a view from above of the interior sole. Figs. 3 and 4 are sections on a larger scale of the air suction and compression box and the tubes ending in it, on planes passing through the axes of said tubes.

In the heel A is a cavity B in which is situated a set of levers which at one end is connected to a rod F and at the other to a button G; this arrangement is such that when an impulsion causes the rod F slightly to descend, the button G rises for a relatively considerable distance. The lever J is pivoted at J' and connected by means of a link K to the end of a second lever L pivoted at L' and connected in its turn by means of a link Q to the lever T pivoted at T'.

Level with the upper surface of the heel is a closed box D, the bottom of which consists of a resilient membrane E which projects downward. The button G is, in contact with the under side of the membrane E so that when the button G ascends the membrane E is pressed inward, into the inner part of the box D, and reduces the volume of the latter and compresses the air contained therein.

Two tubes end in the box D; on the one side is the tube I I', one end of which is in the box, and the other end communicates with

the outer air through a small opening with which the boot is provided, and on the other side is the tube H one end of which enters the box and the other end is closed at H^{II}; this tube H possesses however several orifices M^I M^{II} M^{III} M^{IV} by which it communicates with the interior of the boot.

H^I designates another tube closed at H^{II} and communicating at H^{III} with the outer air by means of a small opening arranged in the boot and with the inside of the latter by means of several orifices N N^I N^{II} N^{III} N^{IV} distributed along the tube.

Near its inner end the tube H possesses a valve opening outwardly; the tube I possesses also a valve arranged in inverse sense to the former. These valves are shown in Figs. 3 and 4; they are composed of simple disks P and P' of leather or india-rubber and bear on the holes O and O' in the tubes I and H; these disks being fixed at one end only.

The rod F is protected on the inside of the boot, by a smooth plate R, so that the foot is not in direct contact with the end of the rod F.

In walking when the foot presses on the heel of the boot, the end of the rod F is automatically pressed downward the button G rises, presses the membrane E and compresses the air contained in the box D; the valve P' of the tube I opens and a certain quantity of air is expelled to the outer air through said tube, and escapes through the opening at I'. When the rear part of the foot is lifted, the rod F rises and the membrane E owing to its elasticity (aided if desired by a spring) returns to its initial position sucking the air from the inside of the boot through the tube H and orifices M^I M^{II} M^{III} M^{IV}; the air sucked in is replaced by the air penetrating through the orifices N N^I N^{II} N^{III} N^{IV} of the tube H^I and which is sucked in from the outer air through the opening H^{III} owing to the vacuum produced in the interior of the boot.

The tubes H and I and the upper part of the box D are covered by the lining and the insole. The apparatus is visible with the exception of the openings H^{III} and I' which however are very small and unnoticeable.

What I claim is:

In an apparatus for the interior ventilation of foot-wear the combination of an air suction and compressing device arranged in
5 the interior of the heel, a foot operated stud, multiplying system of levers between said stud and air suction and compressing device for increasing the mechanical effect of the

natural action of the foot in walking, and tubes for the circulation of air.

In witness whereof I have signed this specification in the presence of two witnesses.

MIGUEL VILLACAMPA Y VILLACAMPA.

Witnesses:

MONETY DUVAIN,
STANLEY C. HARRIS.