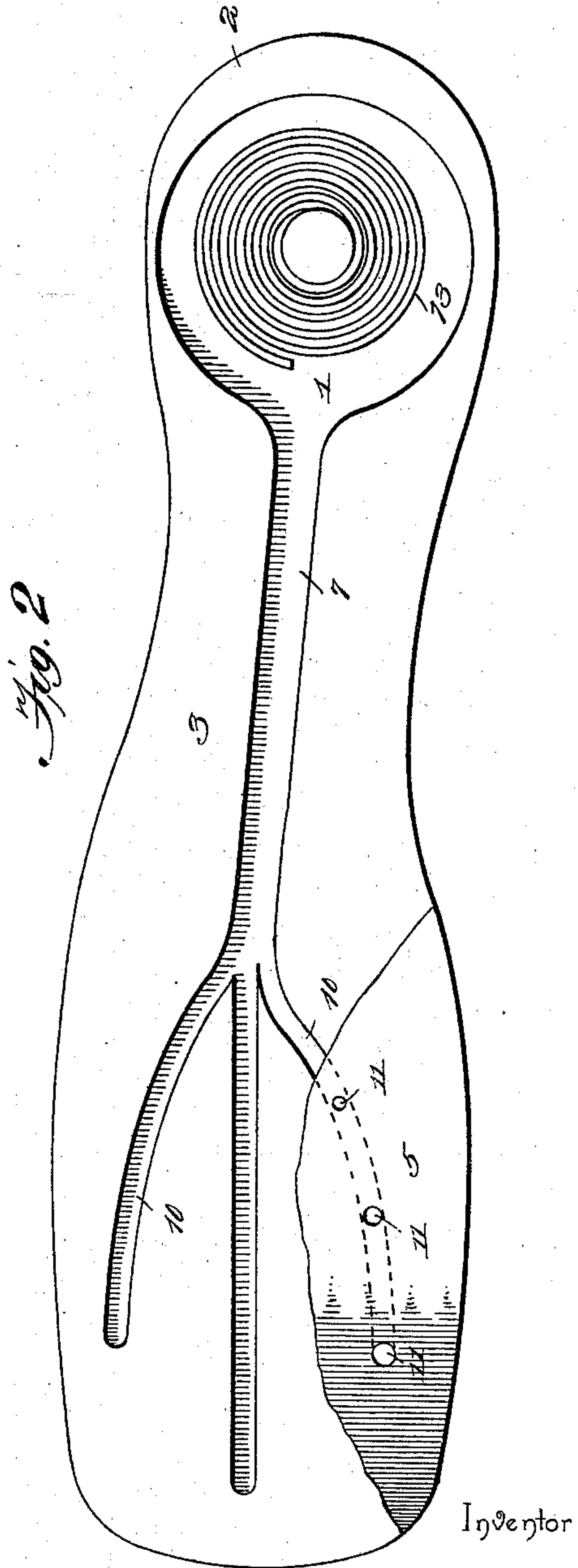
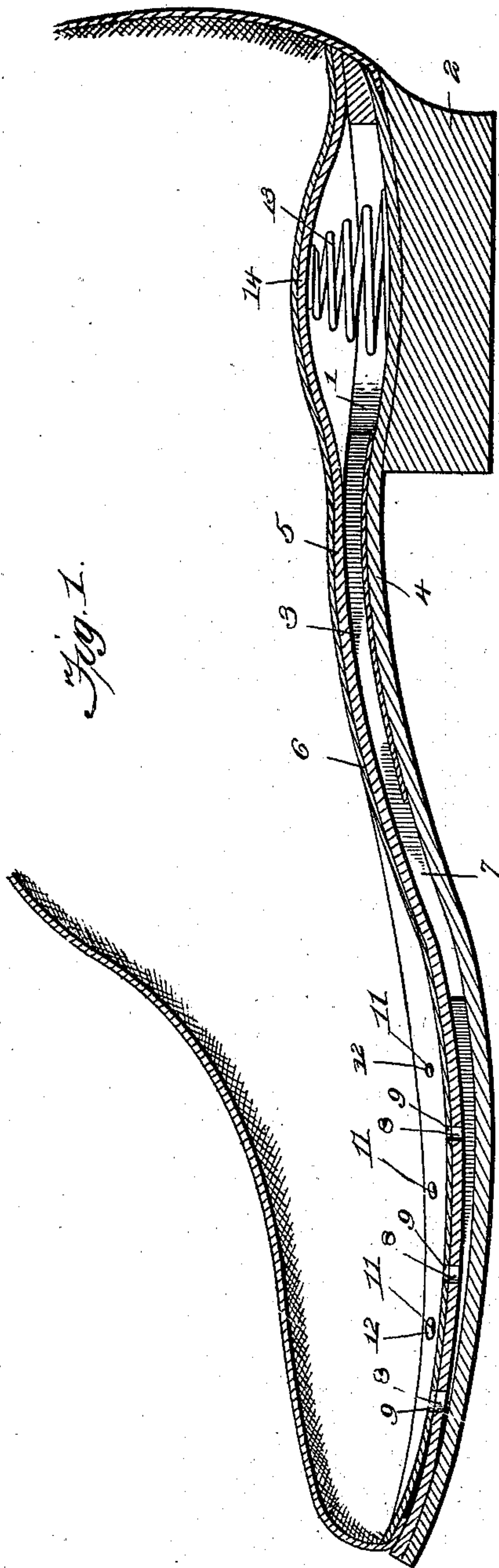


(No Model.)

M. HILGERT.
VENTILATED SHOE.

No. 568,068.

Patented Sept. 22, 1896.



Witnesses

John C. Shaw
C. D. Hays

By his Attorneys.

Mathew Hilgert,

CA Shown to.

UNITED STATES PATENT OFFICE.

MATHEW HILGERT, OF SALT LAKE CITY, UTAH.

VENTILATED SHOE.

SPECIFICATION forming part of Letters Patent No. 568,068, dated September 22, 1896.

Application filed February 9, 1895. Serial No. 537,810. (No model.)

To all whom it may concern:

Be it known that I, MATHEW HILGERT, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented a new and useful Ventilated Shoe, of which the following is a specification.

My invention relates to shoes and boots, and has for its object to provide means for ventilating and causing a circulation of air in the sole and beneath the foot of the wearer in order to prevent overheating, perspiration, and the evils resulting therefrom, some of those evils being the production of corns, bunions, callousness, general soreness, weariness, &c.

A further object of my invention is to arrange a device of the class named in the sole of a shoe or boot without weakening or impairing the durability thereof.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a longitudinal vertical section of a shoe or boot provided with a ventilating device constructed in accordance with my invention. Fig. 2 is plan view, partly broken away, of the sole of the shoe or boot.

Similar numerals of reference indicate corresponding parts in both the figures of the drawings.

In carrying out my invention I form an air chamber or cavity 1 in the seat of the heel 2 of the shoe or boot, the floor of said chamber or cavity being in or above the plane of the upper surface of the heel proper, whereby the strength and durability of the heel are equal to those of the shoe or boot not provided with the device embodying my invention. Said chamber or cavity may be of any desired depth, according to the requirements, the depth being regulated by the thickness of a false insole 3, which is arranged between the outer sole 4 and the usual insole 5, and in which false insole is cut an opening to form said chamber or cavity 1. The lining 6 is arranged upon the insole as in the usual construction. Communicating with the said chamber or cavity 1 is a channel 7, formed by

cutting a slot in the insole 3, and which extends longitudinally of the shoe or boot in the inner layer of the sole, and the insole 5 is provided at the ball or adjacent to the toe of the shoe or boot with ports 8, which register with similar openings 9 in the lining 6. This channel 7 may be provided with any desired number of branches 10, having ports 11, also registering with openings 12 in the lining, said branch channels 10 being also formed by cutting slots in the insole 3.

The insole extends over the chamber or cavity at the heel of the shoe or boot, and thereby closes the top of the same, whereby the only inlet to and outlet from said chamber or cavity is through the channel 7 and its ports, as above described, and arranged in the chamber or cavity and resting at its lower end upon the floor thereof is a spring 13, preferably of spiral construction, with its reduced upper end in contact with the under surface of the portion of the insole which covers the chamber or cavity. The upward pressure of this spring bulges or convexes the contiguous portion of the insole, or the portion which covers the chamber or cavity, and which for convenience I will hereinafter term the "flexible" cover of the chamber, this portion of the insole which forms the cover being represented by the numeral 14.

The portion 14 of the insole 5 is quite an important feature of the invention, and at this point it will be observed that the portion 14 of the insole is the heel portion thereof and is cut of a greater size than the interior of the boot or shoe at the counter thereof, so that when fitted in place within the boot or shoe above the spring 13 it will provide a loose normally-dished flexible imperforate cover portion for the chamber or cavity 1, and thereby forms an air-bulb which is operated by the heel of the wearer during the act of walking.

This being the construction of the device, it will be seen that in operation the pressure of the heel of the wearer upon the cover of the chamber or cavity depresses said cover against the tension of the spring 13, and thus forces air, which is contained in the chamber or cavity, through the channel 7 and its branches and discharges the same at the fore

part of the shoe or boot beneath the ball and toes of the foot, and as the ports 8 and 11 in the channel and branches are made small in diameter at the rear ends of the series and
 5 increase in size toward the toe of the shoe it will be seen that a portion of the air contained in the chamber will be discharged through each of the ports.

When the foot of the wearer is raised, as
 10 in swinging the foot which is toward the rear forward in the act of taking an advance step, the spring elevates the cover 14 of the chamber or cavity, thus holding it in contact with the heel of the foot, and this upward move-
 15 ment of the cover produces a partial vacuum in the chamber or cavity and causes an inward draft of air from the fore part of the shoe or boot through the channel to the chamber, the air thus drawn in being again expelled
 20 when the heel of the wearer is again depressed. Therefore an alternate depression and elevation of the cover of the air chamber or cavity is caused during walking, thus alternately forcing the air from the chamber
 25 to the toe of the shoe or boot and drawing it from the toe into the chamber, and this continuous circulation of the air within the shoe or boot has the effect of cooling the foot, and by preventing perspiration and the evils such
 30 as are above enumerated also adding to the durability of the material forming the shoe or boot by avoiding the hardening and consequent breaking thereof. Furthermore, the construction described provides a cushion to
 35 relieve the jar upon the foot in placing the heel upon the ground or floor as in taking a forward step.

The channel and its branches may be constructed of any suitable kind of metal or of
 40 wood or similar material, the object being to provide an unobstructed passage from the air-chamber at the heel of the shoe or boot to the toe or front portion of the same in order that the air contained in the shoe or boot may be

forced backward and forward beneath the sole of the foot to prevent overheating. 45

Inasmuch as air is not taken from the outside of the shoe or boot, but is simply circulated therein, the temperature of the foot is not lowered by a draft of cold air, and in
 50 addition to this the fact that the chamber and the communicating channels have no exterior outlets prevents the introduction of dust or water to the interior of the shoe or boot.

In the above-described construction only
 55 one spring is shown in the cavity of the heel, but in practice a plurality thereof may be employed, and various other changes in the form, proportion, and the minor details of construction may be resorted to without de-
 60 parting from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, I claim—

In a boot or shoe, a laminated insole provided at the heel thereof with a circular opening, and also having an air-circulating slot
 65 communicating with such opening, the upper portion of the insole being provided near the front end with an opening communicating with the circulating-slot, said upper portion
 70 of the insole being further provided with an enlarged heel portion forming a loose flexible imperforate cover portion for the circular opening in the insole, and a spring supported within the insole under the enlarged heel
 75 portion thereof to normally dish and elevate said heel portion of the insole to provide an air-bulb operated by the heel of the wearer during the act of walking, substantially as
 80 set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MATHEW HILGERT.

Witnesses:

THOS. RAINE,
 L. C. PEARSE.