(No Model.)

F. BATTER.

HEATING APPARATUS FOR BOOTS OR SHOES.

No. 382,681. Patented May 15, 1888.

Fig. 1.

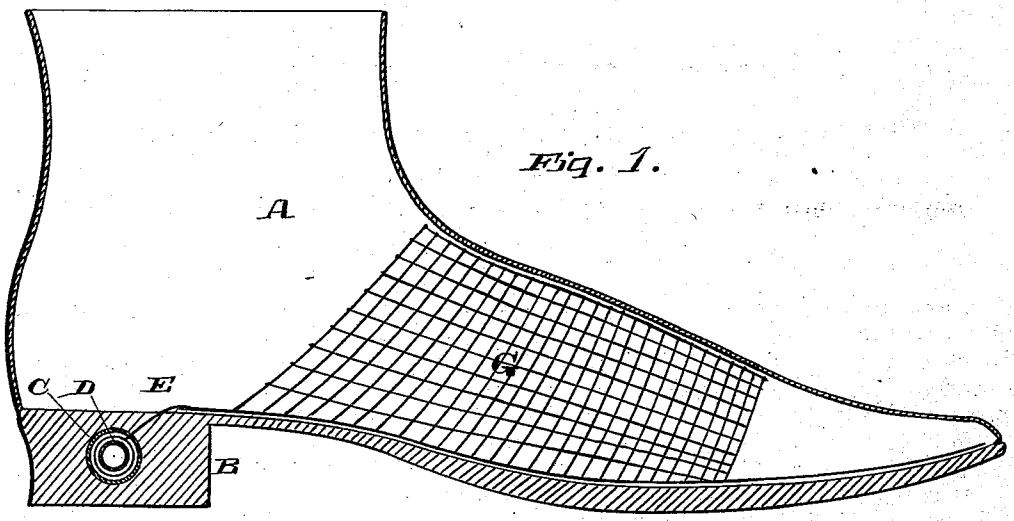


Fig. 2.

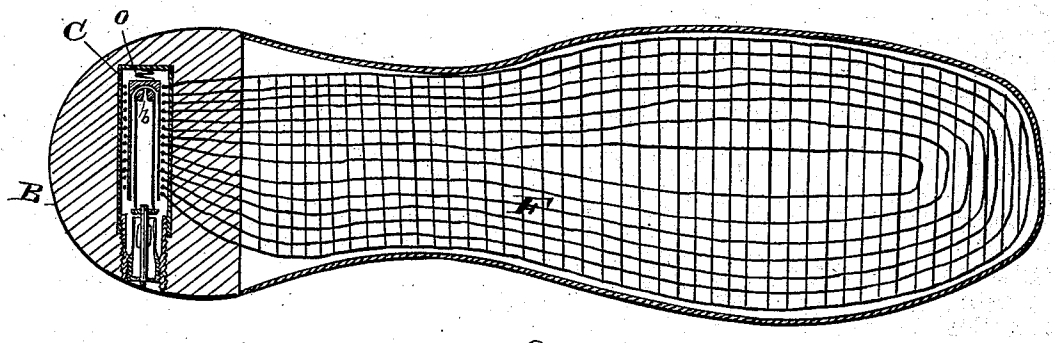


Fig. 3.

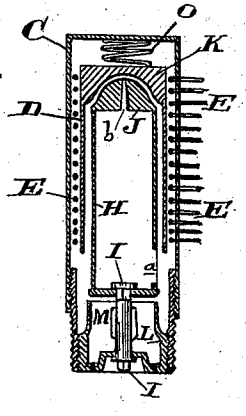
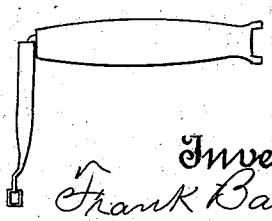


Fig. 4.



Witnesses,
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UNITED STATES PATENT OFFICE.

FRANK BATTER, OF SLIDE, CALIFORNIA.

HEATING APPARATUS FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 382,681, dated May 15, 1888.

Application filed October 14, 1887. Serial No. 252,394. (No model.)

To all whom it may concern:

Be it known that I, FRANK BATTER, of Slide, Humboldt county, State of California, have invented an Improvement in Heaters for Boots or Shoes; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device for inducing a degree of warmth to the feet; and it consists of a heating attachment fixed within the heels of the boots or shoes and connecting wires or plates extending therefrom, so as to conduct the heat which may be developed to other parts of the shoe.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a longitudinal vertical section of a shoe containing my heating device. Fig. 2 is a horizontal section taken through the chamber in the heel which contains the heater, showing, also, the arrangement of the heat-conducting wires within the sole of the shoe. Fig. 3 is an enlarged view of one form of heater adapted to be fitted to the heel of the shoe. Fig. 4 shows the implement for turning the cylinder.

A is the boot or shoe, having the ordinary soles, and the heel B having the hole made in it to contain the heater. This heater may be of any suitable form or construction. It may consist of a slowly-consuming material which will give out heat for some considerable length of time, this material being introduced into the cavity in the heel; or it may consist of a heated rod or bar of metal; or the interior cavity may be heated by a match or lighted cigar at will. The interior of this cavity contains a metal shell, C, and within this is a second concentric shell, D, within which the heat-producing substance or mechanism is contained.

Between the inner and outer shells are arranged a series of wires, E, which preferably surround the inner cylinder, and extend thence outwardly either between the soles of the shoe, as shown at F, or they may surround the instep and a portion of the foot, as shown at G in Fig. 1. Either one or both of these arrangements of wires may be employed at will.

The wires are made, preferably, of copper, silver, or other good conductors, so that the heat from the chamber in the heel may be rapidly distributed to other points in the shoe.

I have shown a form of heater in the present case consisting of an inner silver or other good conductor, H, which fits within the cylinder D, and has a shank or stem, I, which extends out through the end of the opening of the chamber within the heel, the outer end being squared or otherwise fitted to receive a key or handle by which it may be turned around. The inner end of this cylinder H has attached to it a semi-globular or other suitably-shaped piece of metal, J, and this fits into a correspondingly-shaped concave piece, K, which is fixed in the inner end of the cylinder D. A spiral spring, *o*, presses against the rear of the piece K, and thus keeps the two rubbing-surfaces properly in contact with each other. These rubbing-surfaces are made detachable, so that they may be replaced at any time when worn out.

When the interior cylinder, H, is turned rapidly, the friction between the pieces J and K will develop a suitable amount of heat, which is conveyed away by the wires E, as before described. The stem or shank I passes through a block, L, which is screwed into the outer shell from the open end of the chamber within the heel, and this block L has a chamber or stuffing-box, M, to contain a packing to prevent moisture from passing in alongside the shank I.

If it is desired to use any artificial heaters before described, it is only necessary to unscrew the block L, when a passage will remain of sufficient size to allow the inner cylinder, H, to be also removed, and the space may then be occupied by the artificial heater. The shell H has an opening, *a*, in the side to admit a lighted substance to heat it when removed, and an opening, *b*, at the inner end to cause a draft.

Only a small amount of heat can be generated by this device; but being conducted by wires around the foot it will often suffice to render the feet comfortable and prevent many of the results arising from cold feet.

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

1. A shoe having a chamber formed within the heel and a heater in said chamber, in com-

bination with wires extending therefrom and passing through the sole or around the foot between the lining and the outer leather, substantially as herein described.

2. In a boot or shoe, the flexible conducting-wires concealed between the soles of the shoe or between the lining and the upper and connected with a heating-chamber formed within the heel of the shoe, substantially as herein described.

3. In a boot or shoe, the chamber formed within the heel of the shoe, having a metallic lining, a second concentric chamber fitted within the first and surrounded by conducting-wires which lie between the two, said wires extending thence through the soles or around the foot, in combination with the interior artificial or frictional heating devices, substantially as herein described.

4. In a boot or shoe, the concentric cylinders with the coils of conducting-wires lying between them and extending between the soles or around the foot, the interior cylinder having the concave frictional metallic surface formed in the inner end, in combination with the inner rotary cylinder having its end fitted to the concave surface and its outer end provided with a stem or shank, to which a key or crank may be attached for rotating it, substantially as herein described.

5. In a boot or shoe, the concentric cylinders with the frictional end pieces fitted into the heel of a shoe and adapted to be operated by the rotating key or crank, in combination with the spring by which the frictional surfaces are held in contact, and the conducting-wires arranged with relation to the cylinders, substantially as herein described.

In witness whereof I have hereunto set my hand.

FRANK BATTER.

Witnesses:
S. H. NOURSE,
H. C. LEE.