

H. B. ETHERIDGE.

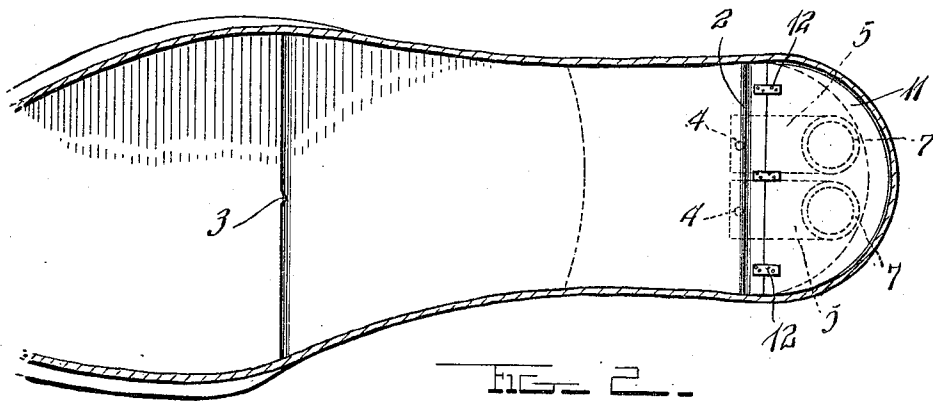
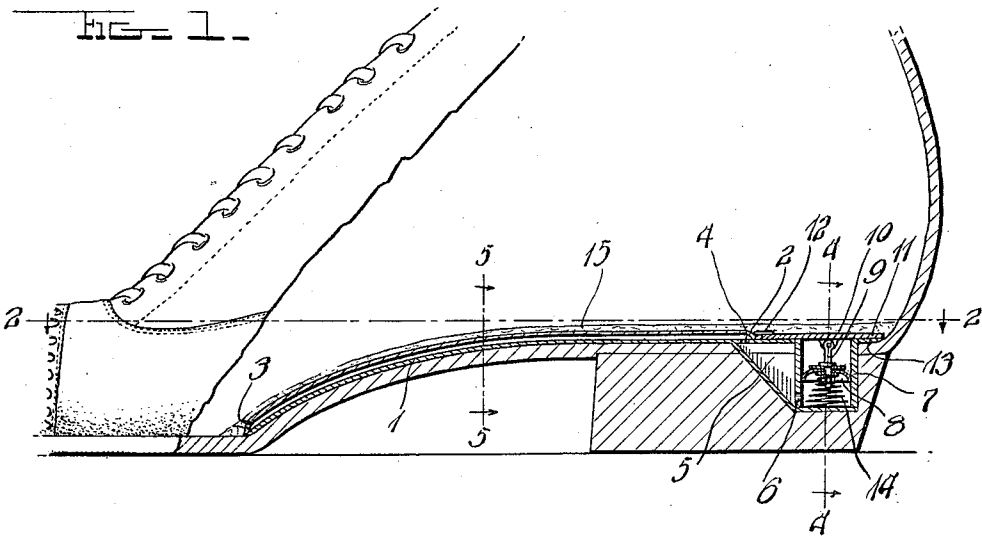
FOOT WARMER.

APPLICATION FILED FEB. 1, 1918.

1,272,931.

Patented July 16, 1918.

2 SHEETS—SHEET 1.



Witness
Robt. G. ...

Inventor

H. B. Etheridge

By *A. B. Wilson & Co.*

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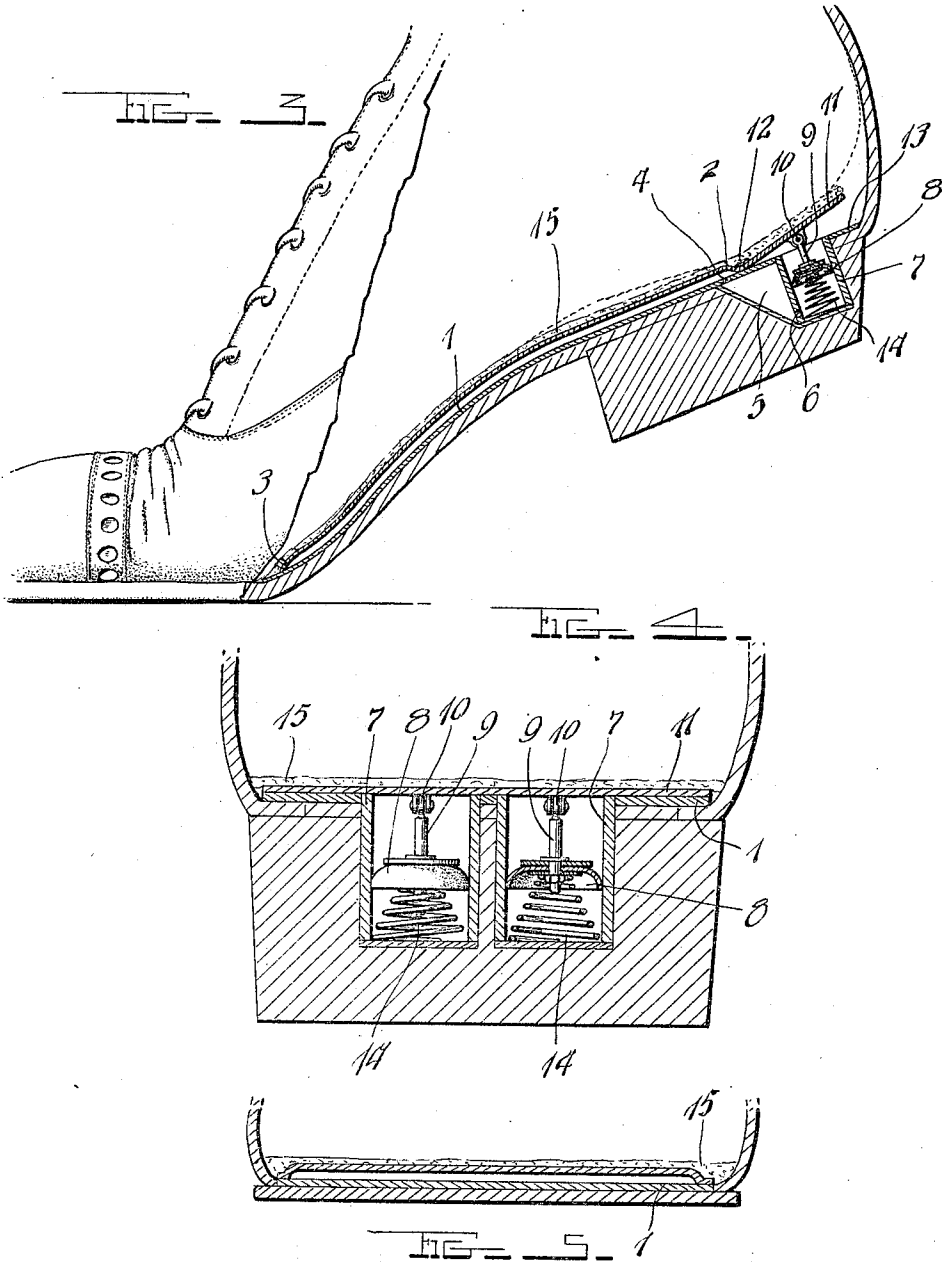
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UNITED STATES PATENT OFFICE.

HALLS B. ETHERIDGE, OF GILMERTON, VIRGINIA.

FOOT-WARMER.

1,272,931.

Specification of Letters Patent.

Patented July 16, 1918.

Application filed February 1, 1918. Serial No. 214,895.

To all whom it may concern:

Be it known that I, HALLS B. ETHERIDGE, a citizen of the United States, residing at Gilmerton, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Foot-Warmers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a simple and inexpensive, yet a highly efficient device for use in boots and shoes to warm the user's feet and maintain them at a comfortable temperature by compressing air until it is heated and expelling such heated air into the shoes, the device being operated solely by the motion of walking.

With the foregoing general object in view the invention resides in the novel features of construction and unique combinations of parts to be hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings which form a part of this specification and in which:

Figure 1 is a vertical longitudinal section, partly in elevation, of a shoe equipped with the invention and illustrating the air compressing piston in lowered position;

Fig. 2 is a horizontal section on the plane of the line 2—2 of Fig. 1;

Fig. 3 is a duplicate of Fig. 1 with the exception that it illustrates the heel of the shoe raised and the compressor piston on its return stroke;

Fig. 4 is a transverse section on the plane of the line 4—4 of Fig. 1; and

Fig. 5 is a similar view on the plane indicated by the line 5—5 of Fig. 1.

In the drawings above briefly described, the numeral 1 designates a hollow insole extending from the heel of the shoe substantially beneath the instep although it could be of any preferred length. The insole 1 is closed at its rear end as shown at 2, whereas its front end is provided with one or more restricted air outlet openings 3. The lower side of the insole, near its rear end, is formed with a pair of air inlets 4 with which a pair of vertical passage members 5 communicate, said members also communicating with air discharge openings 6 of a pair of vertical air compressing cylinders 7 which, together

with said passage members, are inset in the heel of the shoe.

Pistons 8 are mounted in the cylinders 7 and are provided with vertical piston rods 9 whose upper ends are pivoted or otherwise suitably connected at 10 to a vertically moving operating member 11 which is preferably in the form of a flap pivoted to the insole at its front edge as shown at 12, said flap overlying the rear end 13 of the bottom of the insole, said end projecting beyond the top of said sole and carrying the cylinders 7. Springs 14 are preferably employed for raising the pistons 8 when the person's weight is relieved from the flap 11 as shown in Fig. 3 and these pistons are so constructed that upon each upward movement thereof, they admit air into the lower ends of the cylinders 7. It thus follows that when the flap 11 is lowered by the user's weight as will be clear from Fig. 1, the air will be compressed in said cylinders and discharged into the hollow insole 1 from which it will be expelled through the restricted outlet 3. By continuously compressing the air in this manner, it becomes highly heated so that the entire insole is filled with hot air and maintained at a comfortable temperature even in the coldest weather.

The device is simple and inexpensive, yet will be highly efficient for the purposes intended. Any preferred material may be used in the construction of the improved warmer, but I preferably employ copper throughout and in most cases a covering of felt, wool or any other suitable soft and pliable material will be provided for the insole 1 and the flap 11 to prevent the device from possibly interfering with the comfort of the user.

From the foregoing, taken in connection with the accompanying drawings, it will be obvious that a novel device has been created for carrying out the objects above set forth, and that such device will be highly efficient and durable. Since probably the best results are obtained from the several specific details shown and described, these details are by preference employed, but within the scope of the invention as claimed, numerous minor changes may well be made.

I claim:

1. The combination with a shoe, of a foot warmer therein comprising an air compressor operated by the motion of walking,

said compressor having restricted air outlet means into the shoe and having relatively large air inlet means independent of said outlet means.

5 2. The combination with a shoe, of a hollow insole in said shoe having restricted air outlet means, an air compressor inset in the shoe heel and having a vertically movable heel-actuated operating member, and a pas-
10 sage leading from said compressor to said hollow insole.

3. A foot warmer comprising a hollow insole having air outlet means, an air compressor depending from the rear end of said
15 insole and having a vertically moving heel-actuated operating member at the upper side of said sole, and a passage from said compressor to said hollow sole.

4. A foot warmer comprising a hollow insole having an air outlet, a cylinder depend- 20
ing from the rear end of said insole and open at its upper end, the lower end of said cylinder being closed, a piston in said cylinder having an upstanding piston rod, a
25 vertically swinging heel-operated flap pivoted to said insole and connected to the upper end of said rod, and a passage from the lower end of said cylinder into said hollow insole.

In testimony whereof I have hereunto set 30
my hand in the presence of two subscribing witnesses.

HALLS B. ETHERIDGE.

Witnesses:

GEO. D. LAWRENCE,
HARRY A. BRINKLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."