A. R. COOPER.

THERMO-ELECTRIC ARCH SUPPORT.

APPLICATION FILED AUG. 22, 1919.

1,344,581. **Patented June 22, 1920.**

Fig. 1

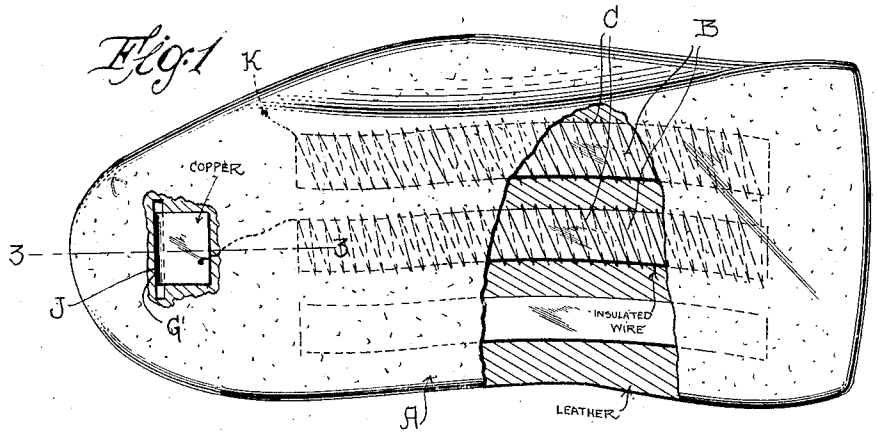


Fig. 2

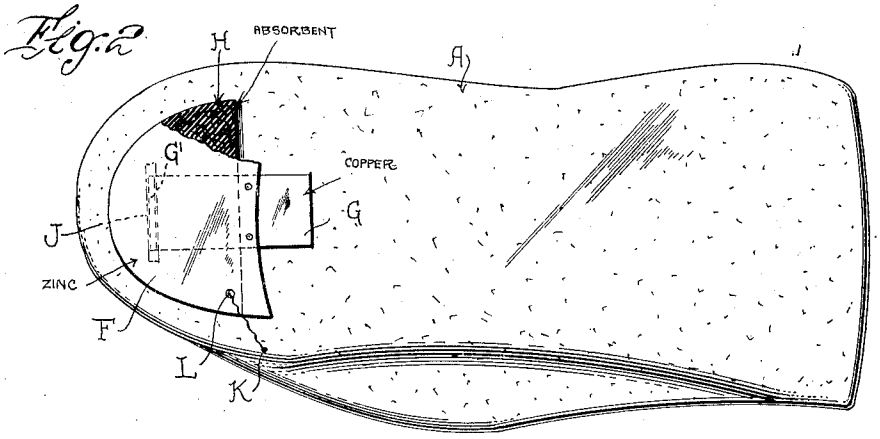
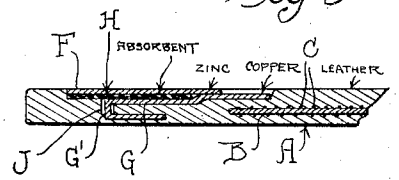


Fig. 3



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UNITED STATES PATENT OFFICE.

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THERMO-ELECTRIC ARCH-SUPPORT.

1,344,581. Specification of Letters Patent. Patented June 22, 1920.

Application filed August 22, 1919. Serial No. 319,205.

To all whom it may concern:

Be it known that I, ALBERT R. COOPER, a citizen of the United States, residing at Findlay, in the county of Hancock and State of Ohio, have invented certain new and useful Improvements in Thermo-Electric Arch-Supports; and I do hereby 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in thermo-electric arch supports for shoes, and the object in view is to supply a device of this nature whereby a voltaic current may be generated and applied to the sole of the foot, for the purpose of stimulating a circulation of blood at that point, as well as restoring flat foot or broken down arch to a normal position.

The invention comprises various details of construction, combination and arrangement of parts which will be hereinafter fully described, shown in the accompanying drawings and then specifically defined in the appended claims.

My invention is illustrated in the accompanying drawings which, with the letters of reference marked thereon, form a part of this application, and in which:

Figure 1 is a plan view of a thermo-electric arch support made in accordance with my invention, parts broken away.

Fig. 2 is a plan view of the reverse side of the arch, and

Fig. 3 is a cross sectional view on line 3—3 of Fig. 1.

Reference now being had to the details of the drawings by letter:

A designates an arch or form made preferably of leather and so shaped upon a last as to conform to the proper shape of the arch of the foot. The leather form is reinforced by means of a plurality of resilient metallic bars B preferably of steel which serve as a support for a winding of copper wire C suitably insulated, said wire being about two or more of the bars.

Positioned in the heel portion of the form is a zinc plate F and a copper plate G, and said plates are attached to the leather form at the heel and separated by one or more layers of absorbent material H, excepting the forward portions of the plates, which are without the intervening absorbing material and which portions are adapted to contact with each other. Said copper plate G is bent at an angle as at G′ at its rear end and passes up through a slot J formed in the leather form. The wire C of the winding of the metallic bars passes up through the leather form at the side of the heel portion as at K and is attached to the zinc plate at L.

The heat from the foot of the wearer of the support, at the junction of the two metals, is adapted to cause a voltaic current which will flow around the circuit keeping the plates electrically charged, the current being absorbed by the body through the foot of the wearer.

Heretofore it has been common to form electric arch supports of aluminum and other materials, in which voltaic currents of electricity are adapted to be generated by using the body of the wearer and the ground to form a voltaic current, and by which the current is supposed to circulate through the body from one pole of the electric generator in one shoe to a pole in the other.

In the present invention a device is provided adapted to support broken down arches and restore same to proper position which differentiates the present invention from those in which the arch is shaped to the contour of the foot, and at the same time to produce a voltaic current, which will increase the temperature of the metals in the circuit, keeping the sole of the foot warm, and thereby stimulating the circulation of blood at the point of contact and which will tend to ameliorate any discomfort while the arch of the foot is being forced back to proper position.

By the provision of a device embodying the features of my invention, it has been found that rheumatic pains in the feet and legs may be relieved.

What I claim to be new is:

1. An electric foot support comprising a leather form with metallic bars seated therein and having copper wire windings about the same, copper and zinc heel plates in said form, and an absorbing material interposed between portions of the plates, parts of the latter projecting beyond the absorbent material and being in contact with

each other, terminals between the plates and with which the wire windings of said bars connect.

2. An electric foot arch support comprising a leather form with metallic bars seated therein and having copper wire windings about the same, copper and zinc heel plates in said form, and an absorbing material interposed between portions of the plates, said copper plate having an angled portion passing through a slot in the form, portions of the plates projecting beyond said material and in contact with each other, terminals upon the plates to which the windings of the bars are connected.

In testimony whereof I hereunto affix my signature.

ALBERT R. COOPER.