July 22, 1930. S. M. KALIKOW ET AL 1,771,258

ELECTRICAL CIRCUIT MAKER FOR SHOES

Filed April 21, 1928

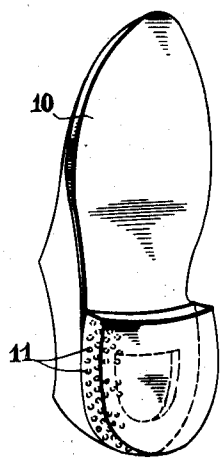


Fig. 1.

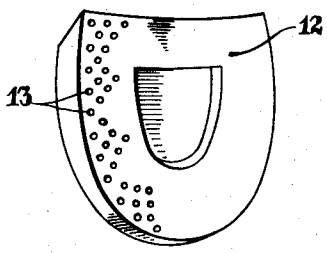


Fig. 2.

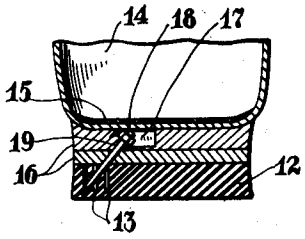


Fig. 3.

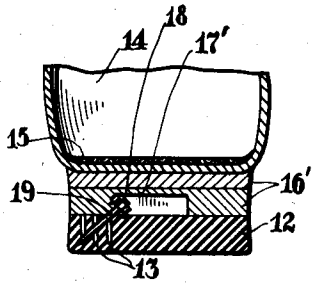


Fig. 4.

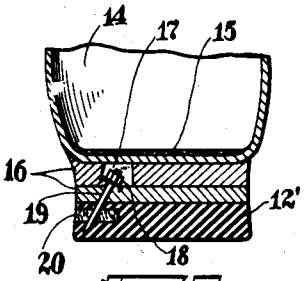


Fig. 5.

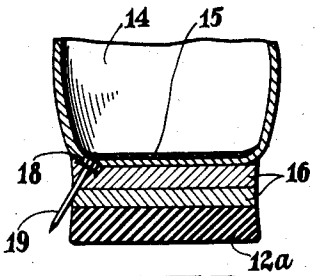


Fig. 6.

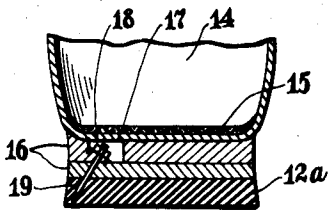


Fig. 7.

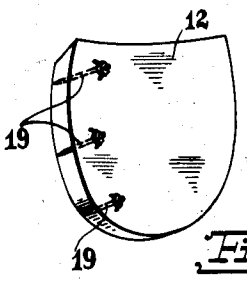


Fig. 8.

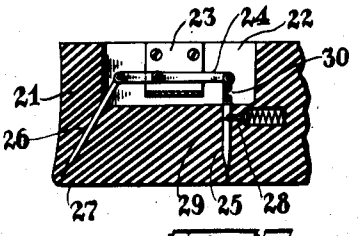


Fig. 9.

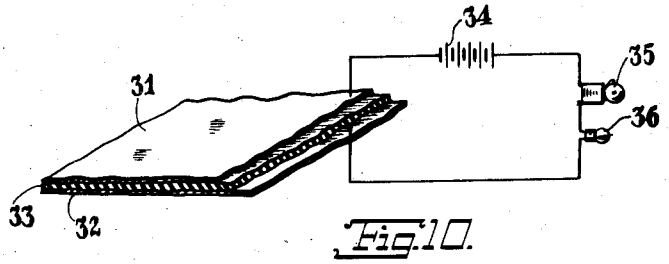


Fig. 10.

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UNITED STATES PATENT OFFICE

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ELECTRICAL CIRCUIT MAKER FOR SHOES

Application filed April 21, 1928. Serial No. 271,714.

This invention relates generally to alarm contact makers, and has more particular reference to a novel alarm contact maker for shoes.

The invention has for an object the provision of a device of the class described which is of simple durable construction, desirable and efficient in action and which can be manufactured and sold at a reasonable cost.

The invention proposes the use of a pointed contact member mounted on or in the heel of a shoe and arranged for closing or positioning for closing an electric alarm circuit upon exerting a pressure upon the heel directed at an inclination and on one edge of the heel. Upon exertion of this pressure, the pointed contact member is adapted to pierce thin and soft insulation and contact plates arranged on the floor of protected premises for closing a circuit between the plates. Preferably the said pointed contact member is arranged for normally being disposed within the heel and upon exertion of the said pressure to relatively extend from the heel. For facilitating this arrangement a portion of the heel may be arranged for being readily compressible.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing, forming a material part of this disclosure:

Fig. 1 is a perspective inner side view of a sole and combined heel of a shoe, constructed for use according to this invention.

Fig. 2 is a similar view of just a heel.

Fig. 3 is a fragmentary transverse vertical sectional view of the heel portion of a shoe constructed according to this invention.

Figs. 4 to 7 are similar views of various modified forms.

Fig. 8 is a view similar to Fig. 2 but illustrating another modified form.

Fig. 9 is a fragmentary vertical sectional view of a further modified form of the device.

Fig. 10 is a perspective view of an electrical flooring upon which our device is used, and a wiring diagram.

The reference numeral 10 indicates generally a sole and heel element, and the heel portion thereof is formed with a plurality of apertures 11 disposed along one side. The numeral 12 indicates a heel element, that is the lower rubber layer, formed with a plurality of apertures 13. The apertures 11 and 13 are intended for softening that portion of the heel element for permitting a pin contact to readily penetrate it, as described in reference to Figs. 3 and 4.

In Fig. 3, the shoe upper 14 is provided with a cushioning layer 15, and with customary heel portions 16 to which the heel element 12 is attached. The top heel layer 16 is formed with a cavity 17 in which a nut 18 is firmly secured, and a needle contact maker 19 is threadedly engaged in this nut and extends thru the heel elements 12 and 16 at an inclination towards and in proximity with the lower corner thereof.

The needle contact maker 19 passes thru the region of the holes 13, and when a wearer of the shoe inclines the shoe to rest upon the said lower corner, and then places his weight thereupon, the heel portion 12 at this corner will be depressed exposing the needle which penetrates the floor for closing a circuit to give the alarm. The floor should be specially prepared with soft layers of insulation material and with soft contact plates for allowing the needle to readily penetrate and electrically connect the plates for the purpose stated.

In Fig. 4 the lower layer of the layers 16′ is formed with a cavity 17′, and the nut 18 is secured to the layer 12 and within the cavity 17′. Otherwise the construction is the same as regards Fig. 4, and the operation is identical.

In Fig. 5 the rubber heel layer 12′ is rendered compressible upon one edge by a rubber sponge 20 inserted along this edge.

The modified form of the device illustrated in Fig. 6 discloses the needle contact maker 19 secured to the heel portions 16 and extending on the outside of the heel at an

inclination thereto. The heel 12ª is of rubber but has no compressible edge means. In operation, the shoe is inclined about the lower corner as a pivot so that the contact needle 19 penetrates the floor for the purpose explained.

Fig. 7 shows the same heel portion 12ª with no compressible edge means, and the needle 19 is arranged within the heel as explained relative to Fig. 3. The heel portion 12ª is of rubber and has compression qualities of its own sufficient for the purpose of projecting the needle as required.

Fig. 8 illustrates that a plurality of needles 19 may be arranged in the same heel so that the shoe may be tilted in several directions for projecting the needles.

Fig. 9 illustrates a heel 21 formed with a recess 22 provided with bracket 23 to which a rod 24 is pivoted intermediate of its ends. A contact needle 25 is connected with one end of the rod and arranged for being projected from the bottom of the heel upon upward motion of a control rod 26 extending from the heel corner 27 and connected with the other end of the rod 24. The needle 25 is formed with a lower aperture 28 engaged by a spring pressed pin 29 for holding the needle in retracted position, and with an upper aperture 30 for engagement by the same pin 29 for holding the needle in extended position. Compression of corner 27 moves the rod 26 to force the needle into extended position. To retract the needle 25 it is necessary to step upon an unpenetratable surface, and the needle will move to retracted position.

Fig. 10 shows the flooring made of a pair of electric plates 31 and 32, separated by an insulator 33. When the needle contact maker is pressed into the plates the electric circuit is closed and a bell 34 or other audible alarm or a lamp 35 or other visual alarm is caused to signal.

While we have shown and described the preferred embodiment of our invention, it is to be understood that we do not limit ourselves to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

Having thus described our invention, what we claim as new and desire to secure by United States Letters Patent is:—

In a shoe circuit maker of the class described, a heel with an edge arranged to be readily compressible relative to the other portions of the heel, and a contact maker with a pointed end mounted within the heel and in the vicinity of the said edge so as to remain within the heel upon one's standing on the heel in a normal way, and extendible relative to the heel upon inclination of the heel on said edge and application of one's standing force to compress the said edge.

In testimony whereof we have affixed our signatures.

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