Nov. 9, 1937. L. YENTIS 2,098,735

SHOE HEATING

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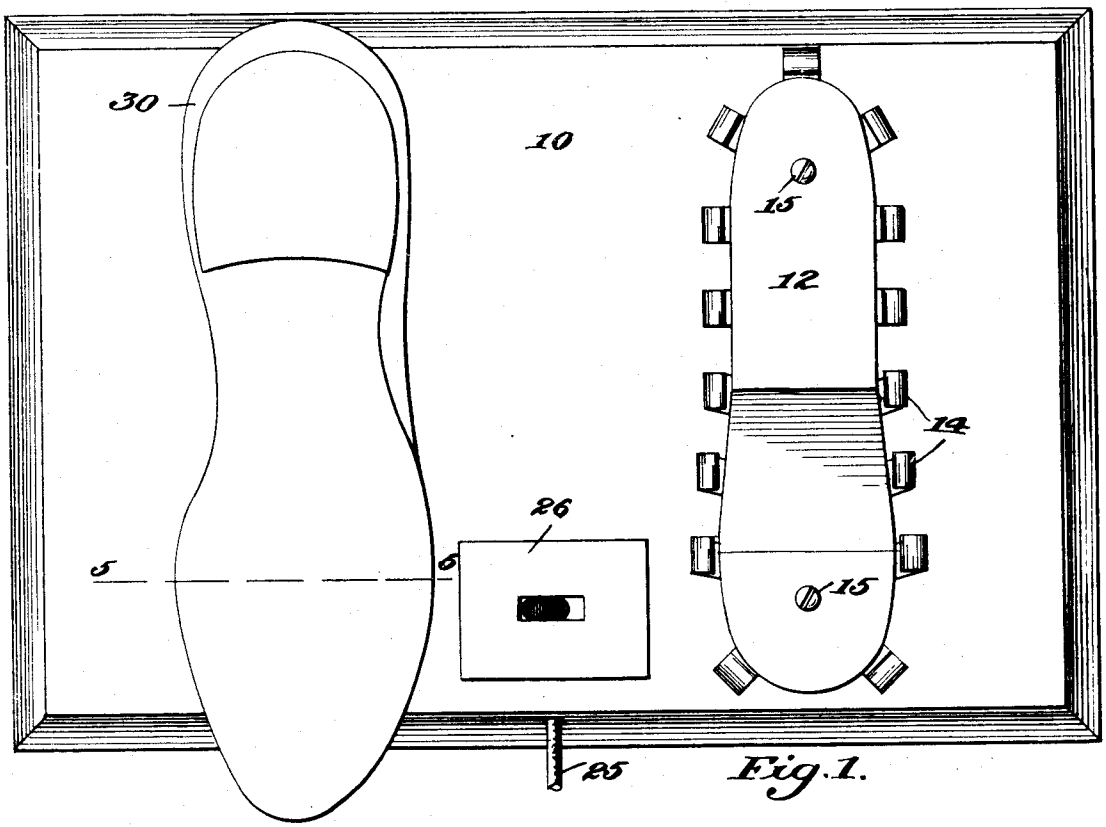


Fig. 1.

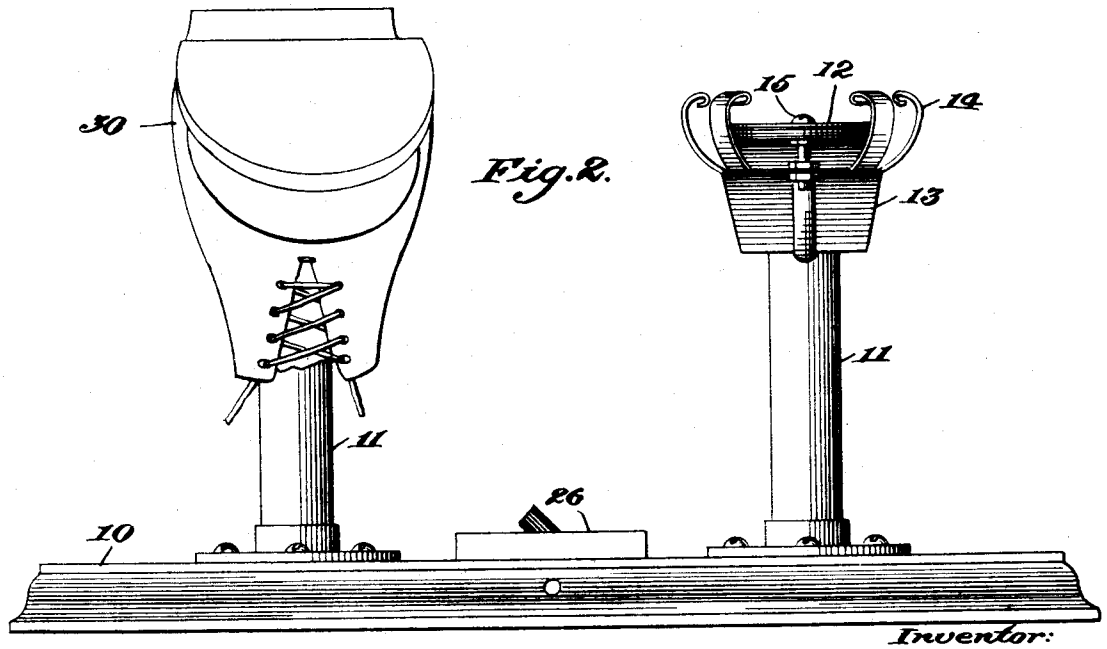


Fig. 2.

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Fig. 3.

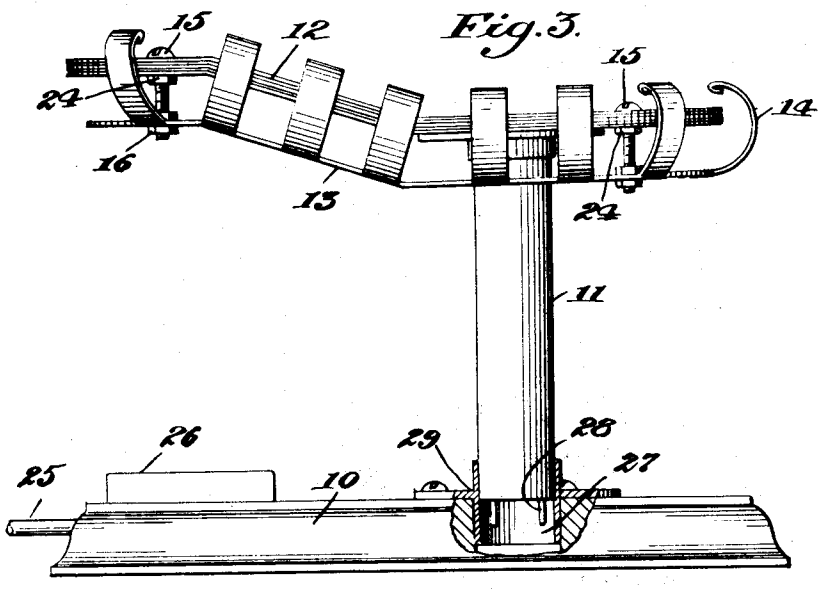


Fig. 4.

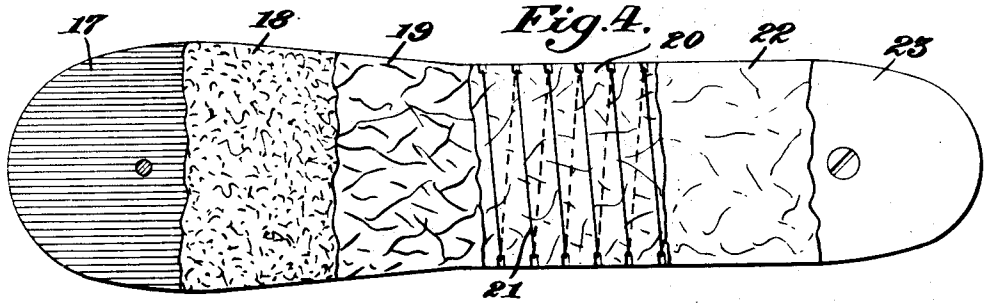
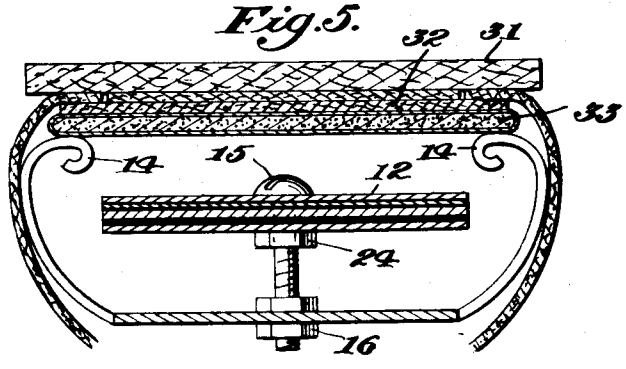


Fig. 5.



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Patented Nov. 9, 1937

2,098,735

UNITED STATES PATENT OFFICE

2,098,735

SHOE HEATING

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Application July 30, 1934, Serial No. 737,647

3 Claims. (Cl. 219—19)

The principal purpose of the present invention is to heat shoes to prepare them for properly fitting the feet of those who are to wear them. It is particularly adapted to fitting shoes of the type having an inner sole intended to be specially formed for the individual wearer. An example of such a shoe is described in Patent 1,930,355, granted to Adolph Lettermann October 10, 1933. Such shoes may be made, finished and supplied to the dealers' stock in the usual varying sizes. In the shoe and generally incorporated in the sole may be a layer which becomes plastic on heating. The layer being thus plasticized the foot of the wearer is inserted in the shoe and the plastic layer more or less formed to conform to the sole of the wearer. On cooling the impressed plastic material becomes hard and sets in the proper shape to fit the feet. The temperature margin between that of the body and that which is readily experienced by the foot comfortably may be slight so that it may not be necessary to heat the plastic layer to a very high temperature. It may therefore be desirable to keep the heating element out of contact with the sole or other portions of the shoe so that there may be an effective, distributed, relatively mild heat.

In the accompanying drawings is shown one form of apparatus embodying the invention. Figure 1 is a top plan view of heating apparatus, one shoe being shown in place. Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation of the heating apparatus no shoe being shown in place, and a portion being broken away to more clearly show a phase of a possible construction. Fig. 4 is a plan view of the heating element portions being broken away to disclose the various layers thereof. Fig. 5 is a fragmentary transverse vertical section on the line 5—5 of Fig. 1 showing a shoe in place in the apparatus.

On a suitable base 10 may be mounted pillars 11 carrying at their tops heating elements 12 with which are associated fenders 13 mounted on the pillars 11 below the heating elements 12 and provided with outwardly and upwardly curved fingers 14. The fenders 13 may be suspended from and spaced from the heating elements 12 by means of bolts 15 provided with spacing and retaining nuts 16. The heating elements may be heated by any suitable convenient means such as gas, steam, electricity or the like. The particular elements here illustrated are heated preferably by electricity and comprise a lower metallic plate 17 at the top of the pillar 11 on which is placed a layer of heat insulating material 18 such as asbestos or the like on which is placed an electrical insulating material 19 such as mica or the like. On this lies the element 20 which may be made up of mica or some suitable refractory electrical insulating material about which is wound wire 21 through which may be passed a suitable heating current of electricity. On this is placed a layer 22 of electrical insulating material such as mica and the entire element may have a metallic cover 23 which can receive and radiate heat. The bolts 15 hold the various layers of the heating element together by means of nuts 24. The posts or pillars 11 may be hollow to carry electric wires. Current for heating the element may be introduced through a suitable cable such as 25 going through a switch 26 on the base 10. Preferably the switch 26 will have incorporated in it any suitable timing device which may be adjustable by which the current may be cut off after any suitable interval and before the shoe becomes overheated. The heat insulating layer 18 may keep heat from traveling to other parts of the apparatus and thus keep it from deteriorating and at the same time keep it safe and comfortable for handling and using.

It will be observed that the heating element 12 as shown in general approximates the shape of the sole of a shoe but this is not essential as any other suitable form may be employed. Preferably it is somewhat smaller than the sole of a shoe to be heated. It may be desirable to have heating elements of various sizes and shapes such as for the shoes of children or for the shoes of women or for the shoes of men. The heating elements may be rigidly and permanently mounted on the base 10 but such heating elements of varying sizes may be arranged to be interchangeable with the base 10 in any suitable manner. For instance there may be provided in the base 10 sockets 27 which may be engaged in electrical contact by tongues 28 at the bottoms of the pillars 11 when they are inserted into the supporting collars 29 carried by the base 10. The fenders 13 and the fingers 14 may be adjustable in position in any suitable manner. For instance the fingers 14 may be made of resilient elastic flexible metal and they may be adjusted or deformed by hand. Their function is to receive and support the shoe 30 when it is inverted over the heating element 12. As will be observed from Fig. 5 the fingers 14 may be adjusted to engage the inner side of the shoe or of the sole so as to hold the walls of the shoe out of contact with the heating element while holding the sole carrying the plastic material to be heated slightly away from but more or less parallel with the surface of the heating element 12. To this end the heating element may be all in one plane

or it may be bent as shown and as may be particularly necessary to follow the inner sole of high heeled ladies' shoes.

In Fig. 5 there is illustrated a shoe having the usual outer sole 31 and the usual inner sole 32 within which may be placed the layer 33 of material which becomes plastic when heated. It will be observed that when the shoe is inverted and placed upon the apparatus the plastic layer 33 is held above the heating element 12 and out of contact therewith. The fingers 14 all may be of approximately the same length so that the sole lies more or less parallel with the heating element so that it will be more or less uniformly heated and the uniform distribution of the heat will be aided by the fact that the fingers 14 hold the shoe away from the heating element in such a way that circulation of air thereabout and within the shoe is possible.

In use the apparatus having been set up and heating elements of the appropriate size having been selected and installed and the fingers 14 having been flexed or adjusted if necessary the pair of shoes may be inverted over the two heating elements and the switch turned on to cause the heating elements to be energized. After the plastic layer has been sufficiently heated or after the time interval for which it has been set has expired the switch 26 may operate to end the heating and the shoes then may be in condition to be removed from the device and placed on the foot of the wearer for forming. Overheating the plastic layer may be particularly undesirable as it may cause discomfort to the wearer and the time switch may be especially desirable for this reason but it will be understood that it is not essential to the construction and operation of the device.

Two heating elements have been shown mounted on a single base to make up a unit and this may be particularly desirable for the use described so that both shoes of a pair may have their plastic soles heated at the same time and to the same extent and both shoes may be placed on the wearer's feet at once and thus possibly a better forming and fitting of the shoes may be accomplished. Of course it is possible to carry out the invention by a single heating element on a single pillar or there may be installed a plurality of elements at one place so that more than one pair of shoes may be treated at one time. Indeed it may be found convenient to have a complete permanent installation of the size for men's shoes and also separate complete installation for women's shoes and also for children's shoes. A single time switch may control a single heating element or a single pair of heating elements or all or any part of the elements of an entire installation and as many separate switches as desirable may be installed with control of any extent.

The specific details of construction and operation set out are not essential to all phases of the invention nor are the modes of employing the device limited to what is here described. Various alterations and changes may be made by those availing themselves of the invention.

I claim as my invention:

1. A device for heating shoes comprising a standard, a heating element carried at the top of the standard and somewhat the shape of a shoe sole, and a plurality of curved spring members for supporting a shoe inverted over the heating element with the shoe sole substantially parallel with the heating element but out of contact therewith, the sole of the shoe being somewhat larger than the heating element.

2. A device for heating shoes comprising a standard, a heating element carried at the top of the standard and somewhat the shape of a shoe sole, and a plurality of curved spring members for supporting a shoe about the heating element with the shoe sole near the heating element but out of contact therewith so that heated air may circulate about the heating means and in free contact with the shoe sole.

3. A device for heating shoes comprising a standard, a heating element carried at the top of the standard and somewhat the shape of a shoe sole, and a plurality of curved spring members for supporting a shoe inverted over the heating element with the shoe sole substantially parallel with the heating element but out of contact therewith so that heated air may circulate about the heating means and in free contact with the shoe sole.

LOUIS YENTIS.