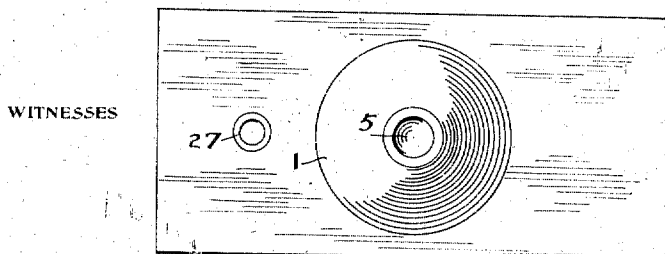
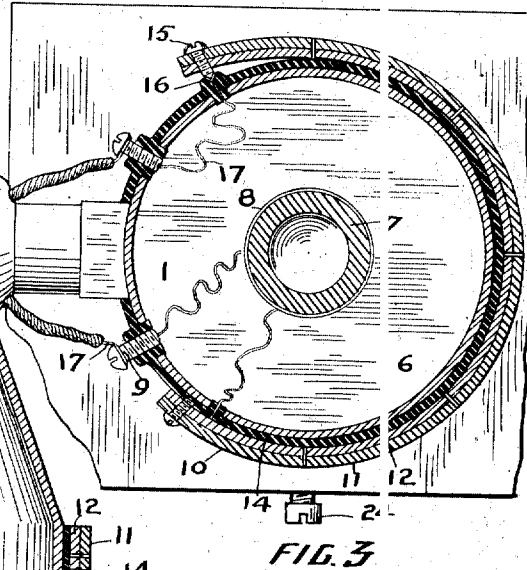
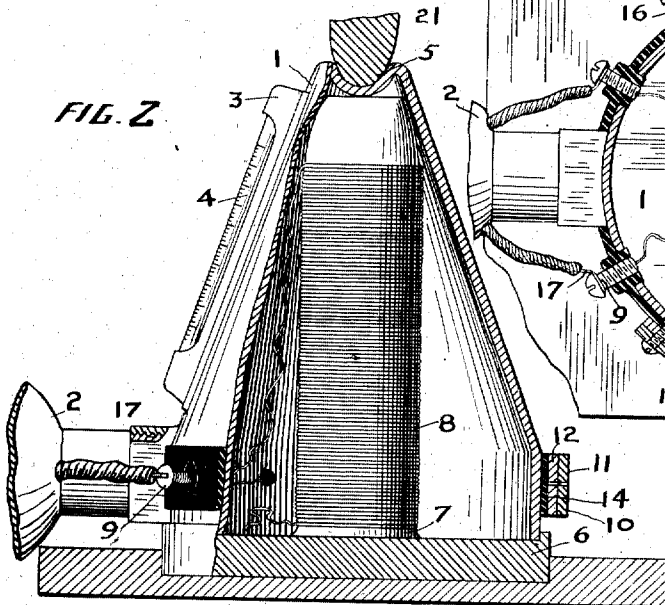
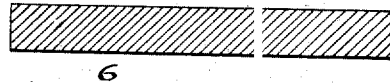
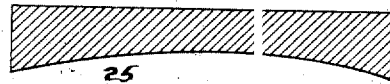
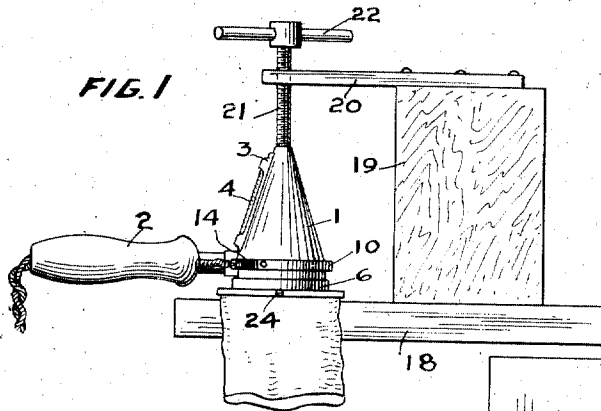


S. H. HORNE.
VULCANIZER.

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1,008,469.

Patented Nov. 14, 1911.



WITNESSES

Nellie B. Keating
Leon Miller

FIG. 6

BY

INVENTOR
S. H. Horne,
Fm. Knight,
ATTORNEY

UNITED STATES PATENT OFFICE.

SANFORD H. HORNE, OF SAN FRANCISCO, CALIFORNIA.

VULCANIZER.

1,008,469.

Specification of Letters Patent.

Patented Nov. 14, 1911.

Application filed December 29, 1908. Serial No. 469, 07.

To all whom it may concern:

Be it known that I, SANFORD H. HORNE, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Vulcanizers, of which the following is a specification.

The present invention relates to vulcanizers, which are in general use for vulcanizing rubber, especially rubber patches on the inner tubes of automobile tires, and on the outer casings of the same.

It relates especially to that class of vulcanizers in which a thermostat is employed to prevent undue heating of the resistance coil.

The main object of the invention is to provide a vulcanizer, the heating surface of which shall be as small as possible, so that it will heat the least amount of rubber necessary to vulcanize the patch, and to accomplish this result while maintaining a sufficiently high degree of heat. With electric vulcanizers heretofore in use, so far as my knowledge extends, the extent of the heating surface has been much greater than is necessary to vulcanize the patch. The heating of rubber has a deleterious effect and it is therefore desirable to confine the heat to as small an extent of surface as possible. This I accomplish in my invention.

A further object of the invention is to provide such an apparatus that is convenient in use, easy to repair when the resistance coil is burned out, and which can be used with a great variety of bases for different purposes.

In the accompanying drawing, Figure 1 is a side view showing the apparatus in use; Fig. 2 is a section of the device; Fig. 3 is a horizontal section through the thermostat; Fig. 4 is a cross section of the base thereof detached; Fig. 5 is a similar view of a modified form of base; Fig. 6 is a plan view of a further modified form of base.

Referring to the drawing, 1 indicates a conical shell; to the lower portion of which is screwed a hollow handle 2. Said shell is formed, in the vertical plane through the handle and on the side adjacent thereto, with a housing 3 for a thermometer 4. It is also formed at the top with a recess 5, the purpose of which will hereinafter appear.

Secured to the lower edge of said shell is a heater 6, comprising a circular plate and a central hollow stem 7 rising from said

plate. Around said stem is wound a resistance coil 8, one of the ends of said coil leading to a terminal 9 adjacent to the handle, and the other end passing through the shell of the vulcanizer and insulated therefrom, and connected with the stationary end of a thermostat 10. Said thermostat is secured around the lower portion of the conical shell and consists of two curved strips 11, 12, of dissimilar metals riveted together, of which the inner metal is the more expansive by heat. The stationary end of the thermostat is secured to the outside of the shell there being interposed an insulated piece 14, of material such as lava or mica, which will permit of a sufficient amount of heat to pass to heat the thermostat when the vulcanizer becomes heated, while at the same time preventing the short-circuiting of the current. In the free end of the compound strip forming the thermostat is screwed an adjusting screw 15, the end of which bears against a terminal 16. To said terminals 9, 16, are secured wires 17 which lead through the hollow handle 2.

The lengths of the strips are so proportioned, and the adjusting screw so adjusted that, when the heat of the vulcanizer becomes excessive, a break is made in the circuit between the thermostat and the terminal 16, and the current no longer passes, whereby the heat immediately begins to diminish. Thus the device is self-regulating as to the degree of heat to which it attains.

In using the vulcanizer upon an inner tube, upon a board 18 is secured a block 19, from which block extends an arm 20, through which is screwed a screw 21, having a hand wheel 22, the end of which screw 21 bears down in the recess 5 formed in the top of the vulcanizer. The vulcanizer is by means of the handle placed in position on the inner tube, and then by screwing down the screw pressure is applied to press the vulcanizer against the patch in the tube.

This vulcanizer is used with various forms of bases, when necessary to repair a very large cut or tear. In the form shown in Figs. 1 to 4, the base is rectangular, and with a flat or level lower surface, the heating plate 6 of the vulcanizer being set into a circular recess in the base and secured thereto by means of a screw 24. This form of base is suitable for vulcanizing the inner tube of an automobile tire. For vul-

canizing an outer casing of the tire, there is substituted the base shown in Fig. 5, the under surface of which, while straight longitudinally, is concaved transversely, as shown at 25.

In Fig. 6 is shown a modified form of base suitable for vulcanizing a part of the inner tube of the tire adjacent to an air valve, the base being formed with an aperture 27 to permit the air valve to pass therethrough and the lower surface of the base to lie snugly upon the casing.

By the above construction I provide a vulcanizer in which the heater 6 will be comparatively small, so that it can be applied over a comparatively small surface of the rubber, and at the same time sufficient heat is obtained. This effect is produced by reason of the construction of the heater having a central stem 7 formed integral therewith to which a large amount of heat can be imparted by the resistance coil 8.

I claim:—

1. A vulcanizer, comprising a conical shell, having a recess in its apex, a heater plate secured to the bottom of said shell, a resistance coil within the shell and arranged to heat said plate, a handle secured to the lower portion of said shell, and extending horizontally from the same, a thermostat extending closely around the lower portion

of the shell and consisting of two strips of dissimilar metals, secured together, and secured at one end to said shell, the other end being free, said shell being formed above the handle, in the vertical plane through, and on the side adjacent thereto with a housing for a thermometer, and a thermometer in said housing, substantially as described.

2. A vulcanizer, comprising a conical shell, having a recess in its apex, a heater plate secured to the bottom of said shell, a hollow stem within said shell, a resistance coil carried by said stem, a handle secured to the lower portion of said shell, and extending horizontally from the same, a thermostat extending closely around the lower portion of the shell and consisting of two strips of dissimilar metals, secured together, and secured at one end to said shell, the other end being free, said shell being formed above the handle, in the vertical plane through, and on the side adjacent thereto, with a housing for a thermometer, and a thermometer in said housing.

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

SANFORD H. HORNE.

Witnesses:

FRANCIS M. WRIGHT,
D. B. RICHARDS.