L. G. RINK.

ELECTRIC CAUTERIZER.

APPLICATION FILED JAN. 31, 1917.

1,234,570.

Patented July 24, 1917.

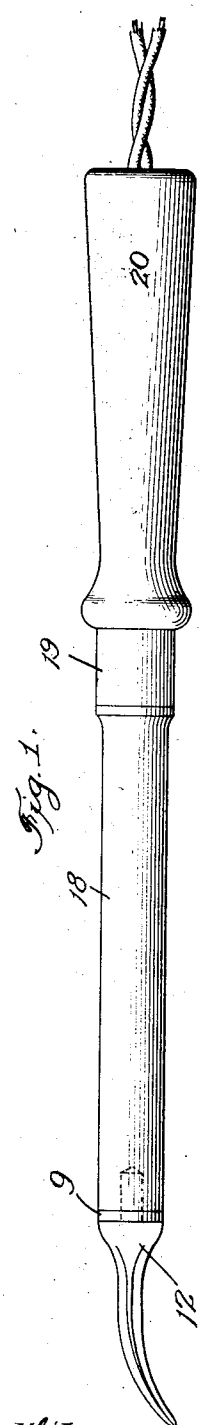


Fig. 1.

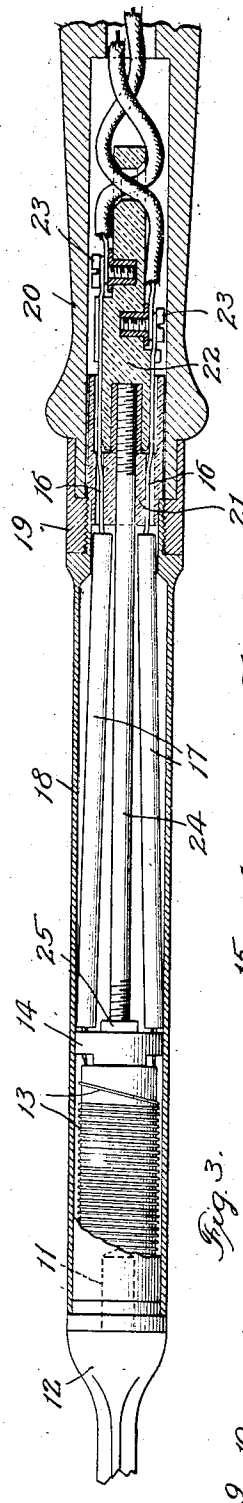


Fig. 2.

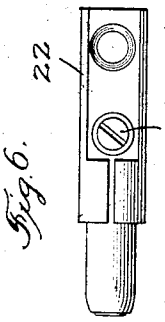


Fig. 6.

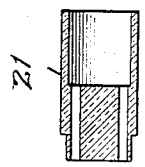


Fig. 5.

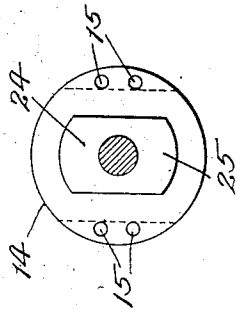


Fig. 7.

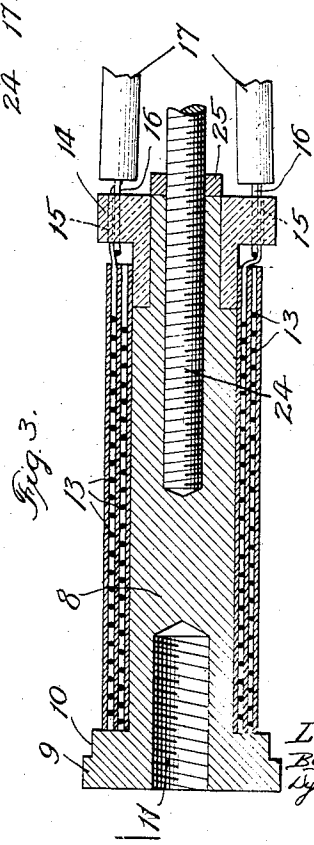


Fig. 3.

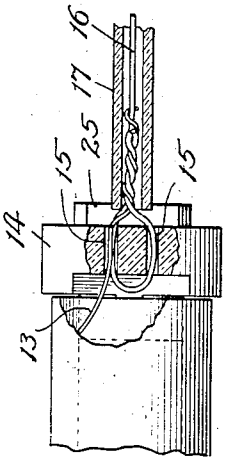


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ELECTRIC CAUTERIZER.

1,234,570. Specification of Letters Patent. Patented July 24, 1917.

Application filed January 31, 1917. Serial No. 145,656.

To all whom it may concern:

Be it known that I, LOUIS G. RINK, a citizen of the United States, residing at Wilmette, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electric Cauterizers, of which the following is a specification.

My invention relates to certain new and useful improvements in electric cauterizer and is fully described and explained in the specification and shown in the accompanying drawings, in which:

Figure 1 is a side elevation of my improved device; Fig. 2 is a longitudinal section, showing certain parts in elevation; Fig. 3 is a longitudinal section through the core and resistance winding; Fig. 4 is a broken section through the insulating sleeve behind the core; Fig. 5 is a longitudinal section through the insulating thimble at the front end of the handle; Fig. 6 is an elevation of the terminal-carrying member within the handle, and Fig. 7 is an end view of the sleeve at the rear of the core.

Referring to the drawings, 8 is a copper core having at its forward end an enlarged head 9, the rear edge of the head being reduced to form a shoulder 10. The front face of the head, which is made flat, is provided with a central internally-threaded opening 11, into which a projecting male thread upon a cauterizing tip 12 may be screwed to bring the cauterizing tip into close contact with the flat surface in the head of the core.

In practice the cauterizing tip 12 will be provided in a variety of forms, sized and shaped, so that any one of a series can be used with any given cauterizing device. The shape, form or dimension of the tip, however, is not material to my present invention, and I therefore show only one such tip.

Wound around the core is a resistor 13. I find that the resistor may conveniently be wound in two layers separated by a layer of mica, sheets of mica being inside the inner and outside the outer layer of the resistor winding, and when this arrangement is adopted the two terminals of the resistor conveniently occur at the rear end of the winding.

The rear end of the core is reduced to receive a sleeve 14 flanged at its rear end to the same diameter as the shoulder 10 at the front of the core. The sleeve 14 is preferably made of a heat-resisting insulating material, such as lava, and is provided with opposite pairs of perforations 15, as shown in Fig. 4. The heating current is led into the resistor through wires 16, preferably insulated by glass tubes 17, these lead-in wires being passed through one of the perforations 15 and back through another, so as to form a loop. The adjacent resistor terminal is led out through one of the perforations 15 in the sleeve flange and intertwisted with the lead-in wire, as shown in Fig. 4. In this way the lead-in wire gets a firm connection with the sleeve and all strain is taken off the relatively delicate resistor wire. 18 is a tubular casing inclosing the core and bearing on the shoulder 10 thereof, fitting the flange of the sleeve 14 and extending back to inclose the lead-in wires. The rear end of the tubular casing is reduced and threaded to receive a ferrule 19 mounted on a handle 20. Within the handle, at the rear end of the tube, is a lava thimble 21 perforated centrally and also on the two sides for the passage of the lead-in wires. The rear end of this thimble is hollowed out to afford a place for the forward end of a terminal piece 22 having binding screws 23 which afford an electrical connection between the lead-in wires and a flexible cord which enters the handle through an opening in its rear end, in accordance with common practice.

The parts are assembled into a firm and unitary structure in the following manner:

24 is a rod threaded at both ends and 25 is a small flat nut screwed on the rod behind its forward end. The rod is threaded into the copper core and the nut is screwed down on the sleeve 14 so as to hold the forward interior parts firmly in position. The tubular shell or casing is then slipped into position, the thimble put upon it and the rear end of the rod 24 is screwed into the terminal piece until the thimble 21 is firmly pressed against the tubular casing. This holds all these parts rigidly together. The electrical connections are then made and the handle is thereupon screwed down over the tubular shell. The device is peculiarly strong, it is simple in structure, convenient in use, and attractive in appearance. It can readily be disassembled for repairs, and in the rare contingency of the resistor burning

out, the complete core and resistor can readily be replaced by an interchangeable substitute. By the arrangement shown the cauterizing tip is in good heat-conducting relation to the core and yet can readily be removed without difficulty for the substitution of a tip of differing shape.

I realize that considerable variation is possible in the details of this construction without departing from the spirit of my invention; therefore I do not intend to limit myself to the specific form herein shown and described except as pointed out in the following claims, in which it is my intention to claim all the novelty inherent in the construction as broadly as is permitted by the state of the art.

What I claim as new and desire to secure by Letters Patent, is:—

1. An electric cauterizer having, in combination, a metallic core, a resistor thereon, a removable operating tip having means of connection with the front of the core, a cylindrical shell inclosing the core and extending backward therefrom, a block of insulating material carrying binding screws at the rear of the shell, and a rod threaded in the core and block and holding the parts together.

2. An electric cauterizer having, in combination, a metallic core, a resistor thereon, a removable operating tip having means of connection with the front of the core, a cylindrical shell inclosing the core and extending backward therefrom, a thimble of a material which is a poor conductor of heat and an electrical insulator in the rear of the shell, a block of insulating material carrying binding screws at the rear of the thimble and having contact therewith, and a rod threaded in the core and in the block of insulating material and passing through the thimble to hold the parts together.

3. An electric cauterizer having, in combination, a metallic core, a resistor thereon, a removable operating tip having means of connection with the front of the core, a flange of a material which is a poor conductor of heat and an electrical insulator at the rear of the core and perforated for the passage of the resistor terminals, a cylindrical shell inclosing the core, fitting the flange and extending backward therefrom, a block of insulating material carrying binding screws at the rear of the shell, and a rod threaded in the core and block and holding the parts together.

4. An electric cauterizer having, in combination, a metallic core, a resistor thereon, a removable operating tip having means of connection with the front of the core, a flange of a material which is a poor conductor of heat and an electrical insulator at the rear of the core and perforated for the passage of resistor terminals, a cylindrical shell inclosing the core and extending backward therefrom, a thimble of a material which is a poor conductor of heat and an electrical insulator in the rear of the shell, a block of insulating material carrying binding screws at the rear of the thimble and having engagement therewith, and a rod threaded in the core and in the block and holding the parts together.

5. An electric cauterizer having, in combination, a metallic core, a resistor thereon, a removable operating tip having means of connection with the front of the core, a flange of a material which is a poor conductor of heat and an electrical insulator at the rear of the core, said flange being provided with pairs of perforations, lead-in wires looped around the material between adjacent perforations and secured to the resistor terminals, a cylindrical shell inclosing the core and extending backward therefrom, a block of insulating material carrying binding screws at the rear of the shell, and a rod threaded in the core and in said block and holding the parts together.

In testimony whereof, I have hereunto set my hand.

LOUIS G. RINK.