W. D. BERRY.

THERMOMETER CAUTERY.

APPLICATION FILED AUG. 18, 1916.

1,229,704.

Patented June 12, 1917.

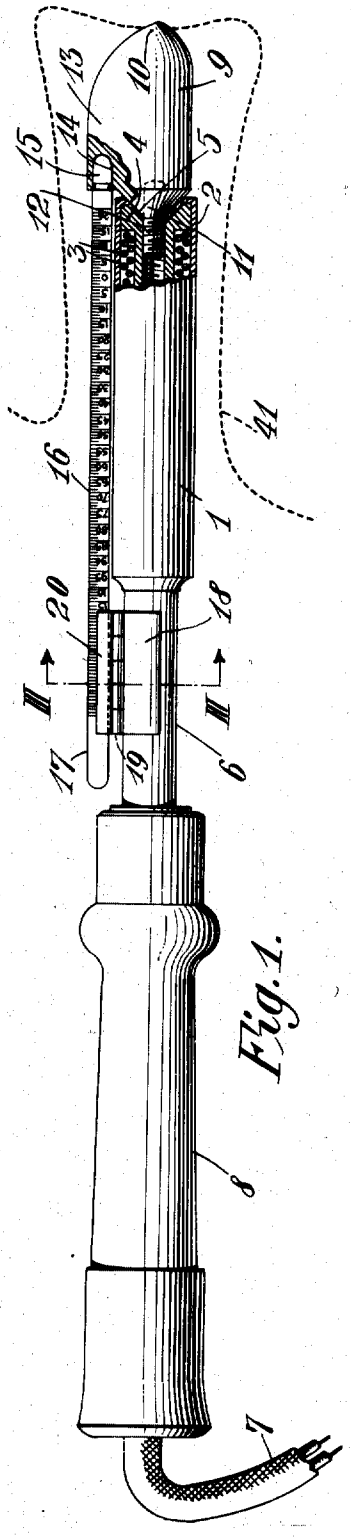


Fig. 1.

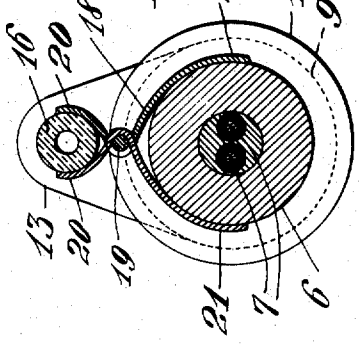


Fig. 3.

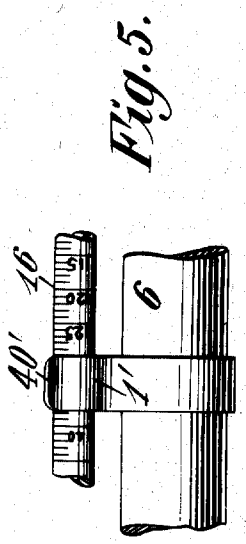


Fig. 5.

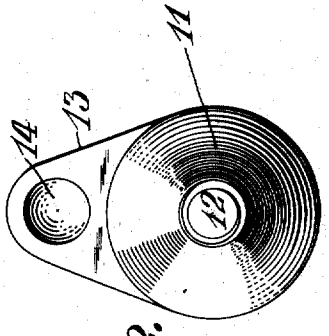


Fig. 2.

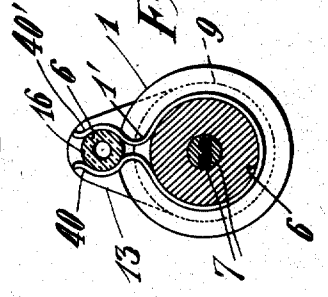


Fig. 4.

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THERMOMETER-CAUTERY.

1,229,704. Specification of Letters Patent. Patented June 12, 1917.

Application filed August 18, 1916. Serial No. 115,613.

To all whom it may concern:

Be it known that I, WM. D. BERRY, a citizen of the United States, and a resident of Muskogee, in the county of Muskogee and State of Oklahoma, have invented certain new and useful Improvements in Thermometer-Cauteries, set forth in the following specification.

This invention relates to cauteries of the type adapted for employment within cavities in the human anatomy. A cautery of this general type employs a heating element which is usually heated by the ohmic resistance of a self-contained heating-coil; a suitable manipulating handle; and an operating tip of heat conducting metal which may be attached and detached readily to and from the heating element. More particularly the invention relates to that type of cauteries which are sometimes known as cold cauteries or cauteries which treat affected parts such as cancerous tissue at a critical heat in the neighborhood of 120°. Physicians have found that the maintenance of the operating tip at the critical temperature desired is highly important to effect the desired result without any danger of burning.

The object of the present invention is to modify the construction of such a cautery and to combine suitable parts therewith so that an accurate reading of the actual temperature of the operating tip may be made readily at a locality exterior to the cavity in which the cautery is inserted. A preferred embodiment in carrying out the objects of the invention provides for the combination in such a cautery of a suitably constructed glass thermometer.

The nature and the details of the invention will more fully be understood by reference to the illustrative embodiments of the same described in the accompanying specification and shown in the accompanying drawings, which form a part hereof, in which like characters designate corresponding parts in the several figures, and in Figure 1 is a side elevation, partly in section, showing an embodiment of the invention in its relative position to a diagrammatic showing of a human cavity, a part of which is to be treated; Fig. 2 is an enlarged end elevation of the operating tip; Fig. 3 is an enlarged vertical section through line III—III of Fig. 1, looking in the direction of the arrow; Fig. 4 is a view similar to Fig. 3 showing a modification of the attaching clip; and Fig. 5 is a front elevation with parts broken away of the modification shown in Fig. 4.

A suitable heating element 1, shown comprising a cylindrical shell 2 containing a heating-coil 3 and an internally threaded nipple 4 firmly held in position by the spun-over lip or flange 5 of the shell 2, provides the local source of heat for the cautery. This heating element, at the rear, comprises a tubular shank 6 of suitable metal and serves as a conduit for the lead-in wires 7 which pass out through the manipulating handle 8 for attachment to a suitable source of electric energy.

An operating tip 9, constructed of suitable heat-conducting material, preferably copper carefully nickel-plated, may be formed of the desired configuration and size for the treatment of any part of the body. A suitable size and configuration is illustrated in the drawings. For the greater part this operating tip is substantially cylindrical in cross section, at its forward end terminating in a blunt point 10 and at its rear end having a conical extension 11 adapted to fit in the socket formed by the flange 5 of the heating element 1. A central threaded stem 12 is provided detachably to thread into the nipple 4 in such a way that heat may readily be conducted from the heating element 1 to the operating tip 9, the entire extent of which remains at the same temperature on account of the conducting character of its substance. A portion of the cross section of the operating tip 9 departs from circular contour to provide a lateral extension 13 in which a cavity 14 open to the rear is provided. This cavity 14 is suitably shaped to contain and seat a mercury bulb 15 of a bar-shaped thermometer 16, which thermometer extends parallel rearwardly along the heating element 1, with its outer end 17 stayed and attached to the shank 6 by a suitable clip 18. As may be noted in the drawings, the portion 13 of the operating tip extends laterally beyond the part 19 of the heating element 1, so as to accommodate the rearward extension of the thermometer. In the actual construction illustrated, in view of the fact that the heat-

ing element 1 is cylindrical, the portion 13 of the operating tip 9 is arranged to extend laterally beyond any part of the heating element 1. This would not be the case, however, if the heating element 1 were not cylindrical.

The construction of the clip 18 shown in Figs. 1 and 3 comprises symmetrical parts hinged together by the pin 19 and providing two pairs of independently gripping jaws 20 and 21, the jaws 20 adapted to extend just beyond the diameter of the thermometer and the jaws 21 adapted to extend just beyond the diameter of the shank 6. The material of which this clip should be constructed is preferably spring metal, so that a decided grip of both pairs of jaws 20 and 21 is effected.

In the modification of Figs. 4 and 5, the clip 1′ comprises a single strip of bent spring metal suitably formed to take over the shank 6 and with its jaws 40 grip the thermometer 16.

The dotted lines 41 of Fig. 1 indicate diagrammatically the contour of a cavity of the human anatomy in which the treatment of cancerous tissue is frequent, and the drawing illustrates relatively the manner in which the scale of the thermometer, at the locality where the desired critical temperature is to be indicated, is readily visible exteriorly to the cavity. By the use of the thermometer in this position, a rheostat may be employed to control the heating element 1 so as to regulate and maintain the exact desired temperature of the operating trip 9 even when it is in contact with moist, cooling tissue and to maintain this critical temperature throughout the treatment.

Although I have illustrated a preferred embodiment of my invention, I desire it to be understood that I contemplate all modifications falling within the scope of my claims.

What I claim and what I desire to secure by United States Letters Patent is:

1. The combination with the elongated heating element of a cautery, of an operating tip of heat conducting metal having a base formation for ready attachment to said heating element, and a part projecting laterally beyond a side portion of said heating element, said projecting part being provided with a rearwardly opening cavity; a thermometer projecting into said cavity and extending outwardly therefrom along said heating element; and a clip for staying such portion of said thermometer to said heating element.

2. An operating tip for cauteries, comprising a body of heat conducting metal having an attaching part extending from the rear thereof, said body being substantially cylindrical throughout a major part of its perimeter and throughout the remaining part comprising a lateral extension having a rearwardly opening cavity, whereby the bulb end of a rearwardly extending thermometer may be fitted into said cavity so that said thermometer may be read from a position considerably in the rear of said operating tip.

3. A detachable operating tip for cauteries, comprising a formation at its rear for attachment to and detachment from the heating element of the cautery; and a body portion having a laterally positioned cavity opening to the rear for the purpose of seating a thermometer.

In witness whereof I have signed my name to this specification, this 7th day of August, 1916.

WM. D. BERRY.