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CAUTERY ELECTRODE ILLUMINATING DEVICE

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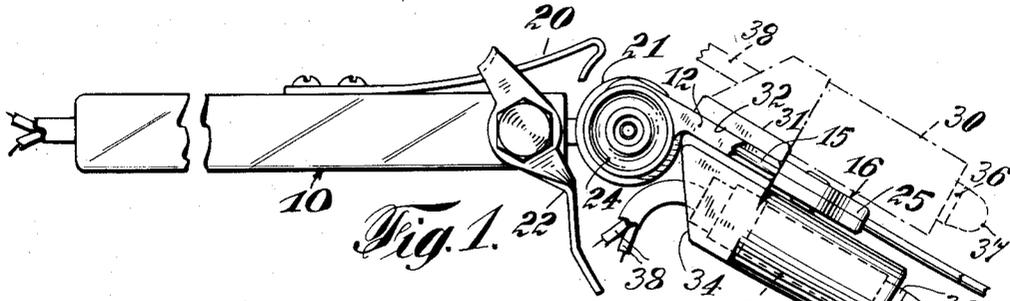


Fig. 1.

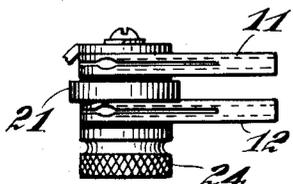


Fig. 2.

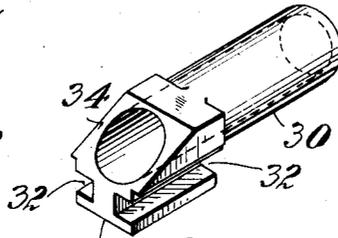


Fig. 4.

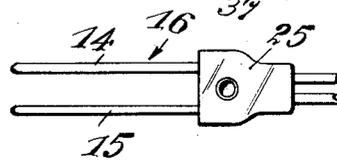


Fig. 3.



Fig. 5.

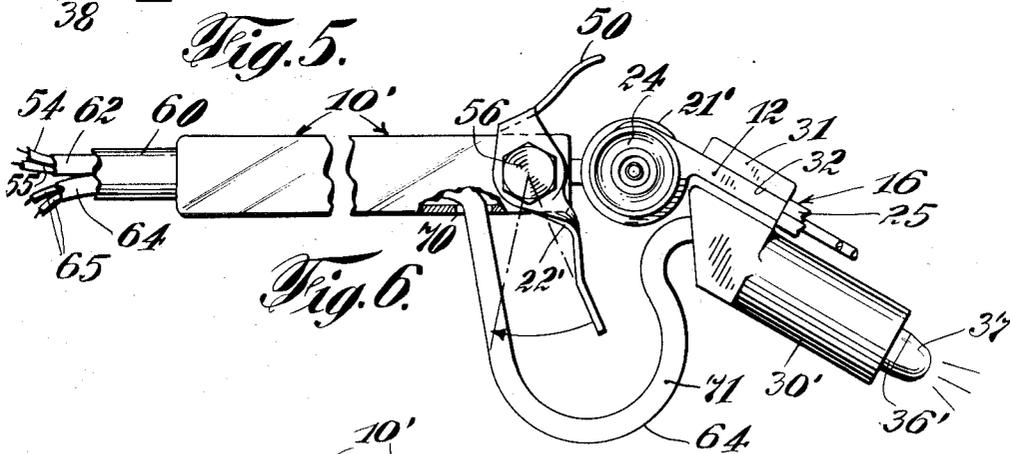


Fig. 6.

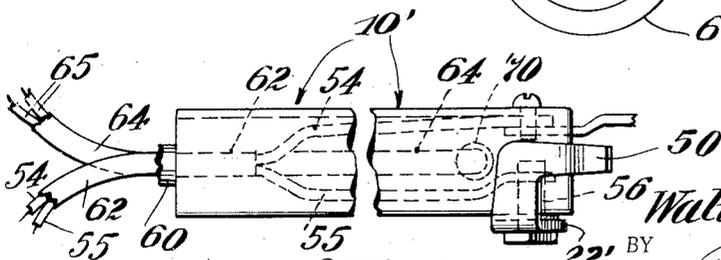


Fig. 7.

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## CAUTERY ELECTRODE ILLUMINATING DEVICE

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Application February 12, 1935, Serial No. 6,135

3 Claims. (Cl. 240—2)

This invention relates to improvements in surgical equipment and particularly to improvements in illuminating attachments for cautery instruments.

5 An object of the invention is to provide a new, simple and efficient illuminating attachment for cautery instruments.

Another object of the invention is to provide an attachment of the type described of such character that it can be secured to the cautery instrument in different desired positions.

10 A further object of the invention is to provide an illuminating attachment for cautery instruments of such character that the attachment is completely insulated from other energized parts of the instrument.

A still further object of the invention is to provide an illuminating attachment for cautery instruments of such character that separate sources of energy can be supplied for the tip of the instrument and for the attachment.

In carrying out the objects of the invention and in the preferred form, an attachment is provided for cautery instruments utilizing tips so formed as to have separated contact members. The attachment carries a source of light rays suitably encased, and the case itself is so shaped as to fit either directly between the spaced contact prongs of the cautery tip or between the socket members in which these contact prongs can be secured. The casing or shield of the attachment is preferably made of some good insulating material, such as flexible rubber, whereby the shield can be positioned either between the prongs of the cautery tip or between the sockets of the cautery handle holding the contact prongs. Since this shell is of insulating material it becomes necessary to provide means whereby the source of light rays carried thereby can be energized from a source of energy separate from that used to energize the cautery tip. Accordingly, the socket in which the source of light rays is secured can be supplied with electric conductors which can be connected to a suitable source of energy. Such an arrangement is preferable since it is desirable that a source of light rays be controlled independently of the control of the energization of the cautery tip.

Other features, objects and advantages of the invention will become apparent by reference to the following detailed description read in the light of the accompanying drawing, wherein

Fig. 1 is a side elevation of a cautery instru-

ment having an illuminating attachment secured thereto.

Fig. 2 is a plan view of the sockets for receiving the contact prongs of a cautery tip.

Fig. 3 is a fragmentary view of a cautery tip. 5

Fig. 4 is a perspective view of the casing or shield of the illuminating attachment.

Fig. 5 is a plan view of the socket for the source of light rays, which socket is adapted to be mounted within the casing or shield. 10

Fig. 6 is a side elevation of a modified form of cautery handle and of a modified arrangement of conductors, both for the cautery tip and for the illuminating attachment.

Fig. 7 is a plan view, partially in section, of 15 the arrangement shown in Fig. 6.

Referring now to the drawing and particularly to Figs. 1 to 5, inclusive, 10 indicates a cautery handle provided with sockets 11 and 12 for receiving the contact prongs 14 and 15, respectively, of a cautery tip indicated generally by the reference character 16. A handle of the type shown in Fig. 1 has been described fully in my Patent No. 1,988,293, issued January 15, 1935. As set forth in this patent, the sockets 25 11 and 12 are insulated from each other, current being supplied to the socket 11 directly by a suitable conductor, while current is supplied to the socket 12 from another conductor through a spring contact 20 which can be forced into engagement with a disk-like contact member 21 by means of a trigger 22. A thumb nut 24 is utilized for tightening the sockets 11 and 12 sufficiently to securely retain the contact prongs 14 and 15 therein. As shown in the drawing, the sockets 11 and 12 are of such length as to receive the entire lengths of the contact prongs 14 and 15 which are held in separated position by means of an insulating spacer 25, but it will be obvious that these sockets can be shortened materially, the only requirement being that they be of such length as to securely hold parts of the contact prongs. 30

Since it is usually desirable to illuminate the region of the body which is being cauterized, 45 provision is made for such illumination by the attachment of the present invention. This attachment is made up of a tubular casing or sleeve 30, preferably of some good insulating material, such as soft rubber. The sleeve 30 is provided at one end with an extension 31 in the opposite sides of which are recesses 32. This same end of the sleeve 30 is tapered off as at 34 for a purpose to be described later. Insertable within the sleeve 30 is a tubular socket member 55

35 in the end of which is secured a light bulb 36. This light bulb 36 can be of any desired form, but in order that the rays emanating from the filament therein may be concentrated at the desired point, the bulb is provided with a condensing lens 37 as shown. The usual electric conductors 38 are attached to the socket in such manner as to permit one of them to be secured to the shell of the contact itself and the other to be secured to a central contact member insulated from the shell. Inasmuch as this particular arrangement forms no part of the present invention and has been shown in detail in my Patent No. 1,990,972, issued February 12, 1935, it is not described or illustrated herein in detail. The socket 35 is of such size as to fit snugly within the sleeve 30 so that the socket can be adjusted longitudinally of the sleeve until the light bulb attains a position for the most efficient radiation of light rays, in which position the socket is held frictionally.

The use and operation of the arrangement just described is substantially as follows: Inasmuch as the sockets 11 and 12 are of such length as to receive practically the entire expanse of contact prongs 14 and 15, the sleeve 30 with the socket 35 and light bulb 36 properly positioned therein, is secured to the socket by seating the sockets in the two recesses 32, either with the sleeve positioned beneath the sockets as shown in heavy lines in Fig. 1, or with the sleeve positioned above the sockets as shown in dotted lines in Fig. 1. With the attachment in place, a suitable cautery tip may be introduced into the sockets and locked in place. The sleeve 30 is inclined slightly so that the rays from the source of light 36 are projected toward the remote end of the cautery tip to properly illuminate the portion of the body being treated. Should on the other hand the sockets be shorter than shown in the drawing, or should the cautery tip be secured to the handle in any other fashion, it will be evident that the attachment can be shaped and sized to permit the recesses 32 to receive the contact prongs 14 and 15 of the tip directly. Either arrangement will operate efficiently, since the attachment of necessity moves with the cautery tip in its pivotal movement relative to the handle.

In Figs. 6 and 7 a slight modification of the invention is shown. In this modification the spring contact 20 is eliminated, and in lieu thereof, the trigger 22' is provided with a contact member 50 movable to good electrical engagement with the disk contact 21'. This arrangement is made possible by having one of the conductors 54 connected in such fashion as to lead to a socket 11 (in Fig. 2) while the other conductor 55 is connected to the trigger 22' in some suitable fashion, for example, a connection with the shaft 56 of the trigger arrangement will suffice.

The modification shown also incorporates another slight change in construction in that a single cable 60 is utilized entering the hollow handle 10'. This cable 60 is made up of two cords 62 and 64, the cord 62 containing the conductors 54 and 55, while the cord 64 contains the conductors 65 utilized for energizing the source of light rays 36'. The cable 60 is so fashioned that an expanse of cord 64 beyond the end of the cord 62 is provided. This expanse passes through an opening 70 in the hollow handle and is formed into a loop 71 of such size as to permit the sleeve 30' to be attached to the sockets, either in the position shown in heavy

lines in Fig. 6, or in the position shown in dotted lines in Fig. 1.

It will be apparent, of course, that the cable arrangement of Figs. 6 and 7 can be used in connection with the handle arrangement shown in Fig. 1, and at the same time the separate cord arrangement shown in Fig. 1 can be used in connection with the contact arrangement of the handle of Figs. 6 and 7.

The tapered portion 34, before referred to, is provided to permit ready introduction of the cord connected to the socket 35 into the sleeve.

It will be apparent from the foregoing that the present invention in any form shown provides a new, simple and efficient arrangement for illuminating the area of a body so that this area can be cauterized. The provision of separate energization circuits for the illuminating device and for the cautery tip permits control of either one of these energized devices independently of the other. Since the sleeve is of insulating material, it may be secured readily either directly to contact prongs of a cautery tip or to the socket receiving these prongs without interfering with the energization of the tip. The arrangement shown in Fig. 1, naturally, has the advantage that the illuminating attachment can be entirely removed from the cautery instrument should the use thereof become unnecessary. Under certain circumstances, however, the arrangement of electric cable shown in Figs. 6 and 7 may be desirable.

While the present invention has been described with particular reference to cautery instruments, it is to be understood that the invention is not to be so limited, since the illuminating attachment can be used equally well with other types of electrically energized surgical instruments so long as the instruments employ electrodes or other devices having a work portion. The attachment is designed to illuminate the portion of the body to be effected by the work portion of the electrically energized surgical instrument whether this instrument utilizes heat or any other results which may be obtained from the electrical energization. Accordingly, any limitations imposed upon the invention are to be such as are set forth in the following claims.

I claim:

1. In a cautery instrument, a handle having as a part thereof spaced socket members mounted for pivotal movement for attaching a cautery electrode to said handle, means for conveying electrical energy to said socket members, socket means for holding a source of light rays, insulating means for detachably securing said socket means to said socket members for movement therewith, and separate means for conveying electrical energy to said socket means whereby said socket members and said socket means can be independently energized.

2. In a cautery instrument, a handle having as a part thereof spaced socket members mounted for pivotal movement for attaching a cautery electrode to said handle, means for conveying electrical energy to said socket members, an insulating receptacle for a source of light rays having part thereof detachably secured between said socket members, and with the other part thereof in offset relation to said socket members, a source of light rays removably secured in said offset portion of the receptacle, and separate means for conveying electrical energy to said source of light rays whereby said spaced socket members and

said source of light rays can be independently energized.

5 3. In a cautery instrument, a handle having as a part thereof socket members for attaching a cautery electrode to said handle, means for conveying electrical energy to said socket members, a receptacle comprising a substantially tubular sleeve of insulating material having a lat-

erally offset portion provided with opposite recesses to receive said socket members with the tubular portion substantially parallel to said socket members, a source of light rays removably positioned in said tubular portion, and means for conveying electrical energy to said source of light rays. 5

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