HEATED METAL POINT ELECTRODE

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3 Claims. (Cl. 174—89)

The object of this invention is to provide a heated metal point electrode for use with a separate electrode to be applied in the manner indicated below, and especially to provide a particular construction and grouping of elements, as hereinafter disclosed.

With the foregoing and other objects in view, the invention consists in the novel features of construction and in the novel arrangement of the elements herein disclosed, it being understood that modifications, alterations or changes may be made within the scope of the claims without departing from the spirit of the invention.

In the drawing forming part of this application:

Figure 1 is a view of the implement in longitudinal section.

Figure 2 is a view on line 2—2 of Figure 1.

Figure 3 is a diagrammatic view showing the electrical connections between the implement and the feed wires, and the various regulating or controlling devices.

A gold plated needle point is designated 10 and is carried by a metallic tube 11 within which the heating element 12 is mounted, the latter being embedded within the insulating material 13.

An outer insulating casing is designated 14, and between the latter and metallic tube 11 is a filling of asbestos 15 and a tubular insulating element 16. The latter is connected by means of springs 17', shown at the left of Figure 1, with the metallic tube 11, so that in the event of too much pressure on the needle point, and between the latter and the skin where the needle is applied, there would be a yielding movement between elements 11 and 16, no frictional contact being allowed to prevent this action. The feed wires enter at the left and through apertures 18 in casing 14, the left end portion of the casing being closed by a threaded cap 19.

The device thus constructed is of convenient size, and is shown at the lower portion of Figure 3. The feed wires of a 110 volt alternating current circuit are designated 20 and 21, and a switch 22 provides for the control of the circuits. Wire 23 passes from one terminal of the switch to a primary coil 24, and a 2 volt secondary coil is shown at 24'.

A vibrating armature 29 cooperates with an adjustable post 30, and the latter has connection by means of wire 31 with coil 24'. This armature is opposite the element 32 surrounding which are primary and secondary coils designated respectively 33 and 33'. From post 30 of the vibrator, a wire 35 leads to condenser 36, and from the latter, which is connected to element 29. This wire, or the portion 37' thereof, connects with primary coil of this piece of apparatus at point 38. A slide core 40 serves to vary the current in the secondary coil 33', and is positioned as shown with reference to the structure just described, and wire 41 is connected with coil 24' and with coil 33 at the point 42.

The resistance of say 2000 ohms is designated 44 and is in shunt with the condenser 36. A variable contact switch is shown at 47, and this has connection with wire 48, the latter leading through condenser 49 and wire 49' to the wire 50 and the sponge electrode 51.

Elements 44 and 49 are designed to prevent interference with radio reception in the neighborhood, and the use of the device causes no trouble of that character.

The condenser 49 may be of one microfarad capacity, and the wire 48 is connected with terminal 48' of the block 55. Also connected with this block is a wire 56 leading through the movable element 57 and the coil 58 of a variable resistance, the coil having connection by means of a wire 59 with the wire 29, and the latter being connected with switch 22 and wire 20. The other side of this circuit is through wire 60, lamp 61, constituting a principal resistance and preventing the heating element from becoming too hot. Lamp 61 is connected with wire 21 by conductor 62.

A detachable plug 64 is provided with a plurality of tongues adapted to fit into the socket contacts, such as shown at 48' in block 55, the tongue or pin 65 is connected with wire 17, shown also in Figure 1 as having connection with the metallic tube 11. Pin 65' is connected by means of a wire with the resistance element 12, and pin 65'' is connected by means of a wire with the other side or end of the said element 12. A pulsating current from a generator, medical battery or the like, not shown, is to be connected with wire 17, and the three wires shown at the left of Figure 1 and at the lower portion of Figure 2 are carried into the casing of the device of Figure 1 by means of a single cord designated 68. It should be added that the lamp 61 also serves as a pilot light. The casing 14 will be of insulating material of any standard commercial type.

The heated metal point electrode is used together with the wet sponge electrode. To operate the device, close the switch 22 and the vibra-
tor will be set into motion, and the lamp will be lighted. Now bring the resistance to the lowest point and place the finger on needle point and when it becomes hot, begin to apply to the skin. If it becomes too hot, heat can be reduced by increasing the resistance. The amount of heat required at the needle point is between 140° to 200° F., varying with part of the body to be treated and age and sex. The time the needle point is placed on the body is from one to several seconds, according to sensitivity of the skin and the heat on the needle point. Keep the wet sponge electrode on the body and apply the heated metal point electrode to the body in quick succession. The number of applications is between fifty to several hundred, according to the disease to be treated and the condition of the patient. To be effective, it usually requires as many applications as to produce redness of the skin where it is desired. Apply the heated metal point electrode in such a way that about five per cent of the total application may form small eschars, but the eschars are small and almost invisible and disappear in the course of several days to ten days. In some cases, such as chronic inflammation of the joints, however, it may be necessary to produce more eschars.

In use, the apparatus may be employed for effecting counter-irritation to relieve the congestion of the internal organs or any part of the body; it may be used as stimulant, either as local or whole nervous system. There are many uses as local stimulant. By stimulating the end organs of the sensory nerves and the muscles, local functional process is quickened and many local subnormal conditions brought to normal.

It may also be used as sedative or soothing agent. By stimulating the sensory nerves, the reflex action may be stopped; or by stimulating the inhibitory nerves of the organ, the inhibitory action may be accelerated, and thus the morbid condition of that organ brought to normal.

Such diseases as neuralgia, local anemia, nervous disorders, muscular and nervous paralysis, nervous indigestion, rheumatism, local congestion, chronic inflammation, etc., are greatly benefited by this treatment.

It is my purpose to produce the cautery treatment of the skin in such manner that the patient will not be inconvenienced, but will readily submit to the treatment or even enjoy it. A strong Faradic current is unpleasant, but the reverse is true when a weak pulsating current is employed, and a high degree of heat may be applied at the same time, by the use of the present apparatus, and with the beneficial results herein indicated. Cautery treatment when used alone will produce pain, sometimes to such an extent that the treatment must be discontinued, or not even considered. The joint results secured by the combination disclosed constitute the essence of the invention.

The needle point carried by metal tube 11 may be considered as a floating element, in view of the mounting thereof by means of small springs 17, whereby a yielding effect is produced, and the skin will not be punctured, no contact with the muscles being possible.

What is claimed is:

1. In a device of the class described, a tubular element, a needle point carried thereby, an insulated electrical resistance unit within said tubular element, means for energizing said element, a contact electrode for application to a member to be treated, said means for energizing the tubular element including a circuit, separable contact devices and electro-magnetic induction devices, fixed and variable resistance devices in the respective sides of the circuit constituting a portion of the energizing means, and independent means for conveying pulsating current to the needle through the tubular element, the latter being heated by the resistance unit therein.

2. In a device of the class described, a tubular element, cushioned needle point carried thereby, an insulated electrical resistance unit within said tubular element, means for energizing said unit, a contact electrode for application to a member to be treated, said means for energizing the tubular element including contact devices, fixed and variable resistance devices in the respective sides of the circuit constituting a portion of the energizing means, and independent means for conveying pulsating current to the needle through the tubular element, the latter being heated by the resistance unit therein.

3. In a device of the class described, a needle point, means for electrically heating said point, resilient means for cushioning the needle point, a contact electrode for application to a member to be treated, an induction coil connected with the electrode, a core for the coil, a vibrating element cooperating with the core, a condenser and high resistance connected with the vibrating element, a source of current, and means for initially reducing the voltage between the source of current and the armature, said armature and coil being connected with the means for reducing voltage.

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