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H. S. HOFFMAN

1,849,745

ELECTRODE DEVICE

Filed Sept. 4, 1930

Fig. 1.

Fig. 2.

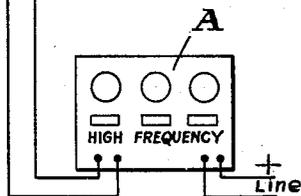
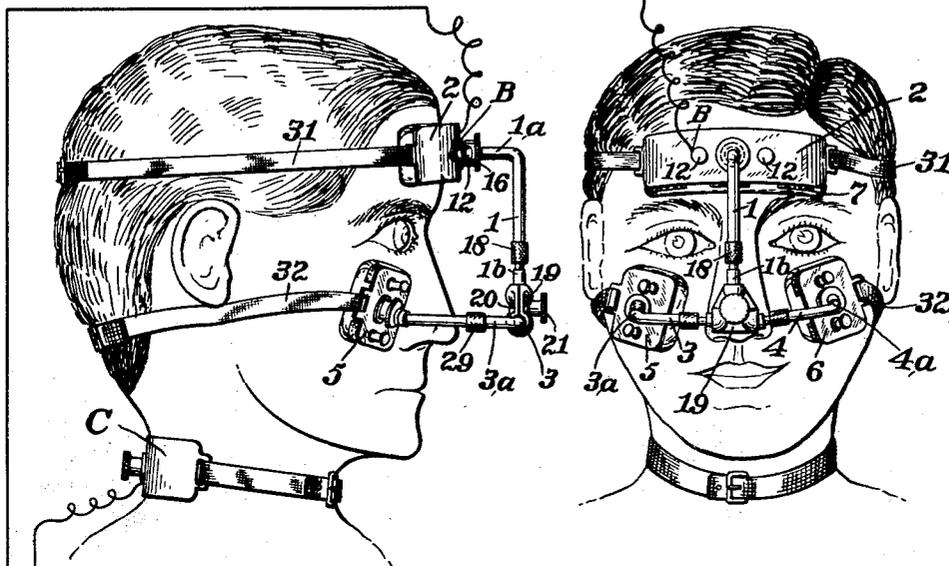


Fig. 4.

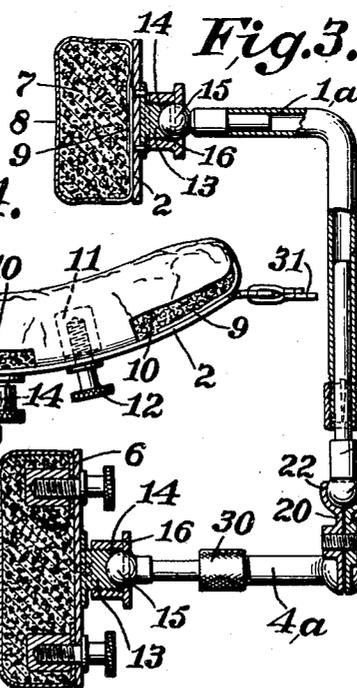
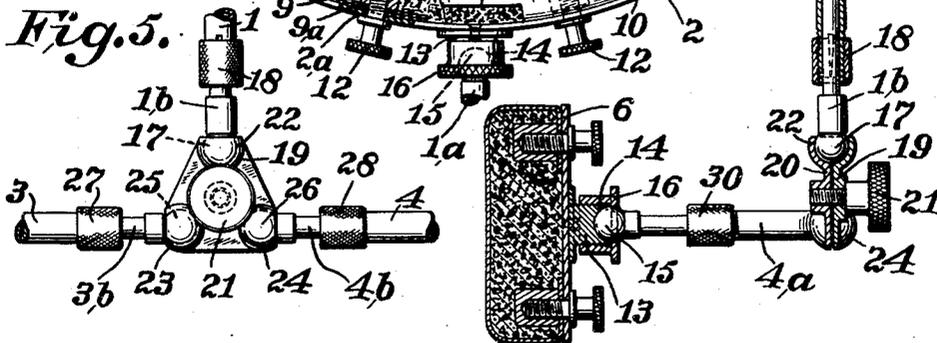


Fig. 5.



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# UNITED STATES PATENT OFFICE

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## ELECTRODE DEVICE

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My invention relates to improvements in electrodes to be applied to the human face for diathermic treatment.

An object of the invention is the provision of means for insuring exact conformance of the electrode to the face in a perfect electrical contact so as to avoid all possibility of looseness causing arcing and consequent burning of the skin. The object is to provide such close-fitting means as will be flexible and will maintain its conformity and perfect contact with the face even though the muscles of the face be moved to change the configuration of the face.

The invention consists in the features, combination, and arrangement of parts hereinafter described and particularly pointed out in the claim.

An embodiment of the invention is shown in the drawings in which—

Figure 1 is a side view of the apparatus applied to the human face.

Figure 2 is a front view of the device of Figure 1.

Figure 3 is a side elevation partly in section, of the apparatus.

Figure 4 is a top plan view, partly in section of the forehead pad of Figure 1.

Figure 5 is a detail view of the ball and socket universal joint connection between the arms and standard.

In the drawings, 1 is the central standard of my appliance, carrying forehead engaging member 2 at its upper end, and being connected at its lower end to arms 3 and 4, carrying cheek engaging members 5 and 6 and their outer ends.

The forehead plate 2 is best illustrated in Figure 4, the pad or cushion 7 of sponge rubber or the like being disposed against the plate 2, and having its face covered by a metal foil 8. The metal foil which may be an alloy of tin and silver is provided with spaced apart tongue portions 9 which preferably leaves the sponge rubber cushion ex-

posed as at 10 to make for greater yielding or cushioning effect. The tongue portions extend between the cushion 7 and the plate 2 and are secured by means of units 11 embedded in the cushion 7 and engaged by screws 12 extending through openings 2a and 9a in the plate and tongue portions. The plate 2 is provided with a threaded projection 13 having a socket 14 therein to receive the ball 15 on the end of the standard 1. A nut 16 cooperates with the threaded projection 13 and adjustably holds the ball 15 to its socket.

The cheek engaging members 5 and 6 and their connections to their respective supporting arms 3 and 4 are identical in construction with the forehead engaging member except that the latter is larger and curved. Like reference characters are applied to corresponding parts in the several views as to this construction.

The ball 15 is on the end of the overturned part 1a of the standard 1, the upright or main part of the standard 1 comprising a tube receiving a slidable member 17 carrying on its end ball 17. The end of the tube is split and adjustably clamped against the member 17 by means of nut 18.

A clamp bracket comprising a pair of plates 19 and 20 held together by screw 21 provides sockets 22, 23, and 24 for the ball 17 and for the balls 25 and 26 of the arms 3 and 4. This provides for universal movement of adjustment of the standard and the laterally disposed arms.

The arms 3 and 4 are extensible as is standard 1 by means of slidable portions 3b and 4b and clamping nuts or collars 27 and 28.

The arms 3 and 4 also have overturned outer ends 3a and 4a carrying the balls 15 for cooperation with the sockets in the cheek engaging members 5 and 6. The portions 3a and 4a are extensible in a manner identical with that described in connection with the main portions of the arms 3 and 4 and the

standard, by means of clamping collars 29 and 30.

Suitable straps 31 and 32 are connected as shown in Figures 1 and 2 to the outer sides of the face engaging members to encircle the head of the patient and to hold the members in place, the ball and socket universal joint connections between the L-shaped lateral arms and standard serving to provide the requisite flexibility while maintaining a unity and security of connection between the parts which insures perfect electrical contact.

One end of the power source from the high frequency device A, is connected to a suitable point on my appliance as shown for instance at B while the other terminal is connected to the body by a suitable contact member as at C which may be similar in general construction to the face engaging members 2, 5 and 6.

Modifications may be made within the scope of the appended claim and I therefore do not desire to limit the invention to the exact construction shown in the drawings.

The pads or contact members extend across the extreme ends of the frame members and serve as means for protecting undesirable contact of the frame members with the face of the patient, which contact might take place accidentally. These pads therefore are terminal portions of the apparatus, beyond which terminal portions there are no frame parts projecting.

Furthermore, these pads are adjustable both rotatively about the axis of the immediate portions of the frame to which the said pads are applied, and by reason of the oblong shape of the pads, this rotary adjustment will enable different surface contacts to be secured over different areas. The pads are also adjustable at an angle to the axis of the immediate frame parts, all of these adjustments being permitted by the use of the ball and socket joints and the clamping members forming a part of these joints.

The adjustment of the frame members takes place wholly within the length of said frames, and between the pads and the ball and socket joints at the central clamping member.

I claim:

An apparatus for diathermic treatment of the human face comprising a central standard, arms extending laterally from the lower part of said standard, each of said parts, namely, the standard and the laterally extending arms being formed in telescopic sections, the outer section of each arm being bent substantially at right angles to the main part of the arm so as to be directed towards the face of the patient, a pad at the end of each of the right angularly bent arms, arranged coaxially with said arms, a ball and socket joint between each pad and its coaxially arranged supporting arm, with clamping means

at this joint for setting the pad in different positions relative to the supporting arm, a central clamping device between the meeting ends of the standard and laterally extending arms, with ball and socket joints between said clamping device and said standard and arms, and means for setting said clamping device to hold all of the ball and socket connections in the desired positions, each of the said pads extending across the end of the right angularly bent arm, substantially as described.

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