

July 8, 1958

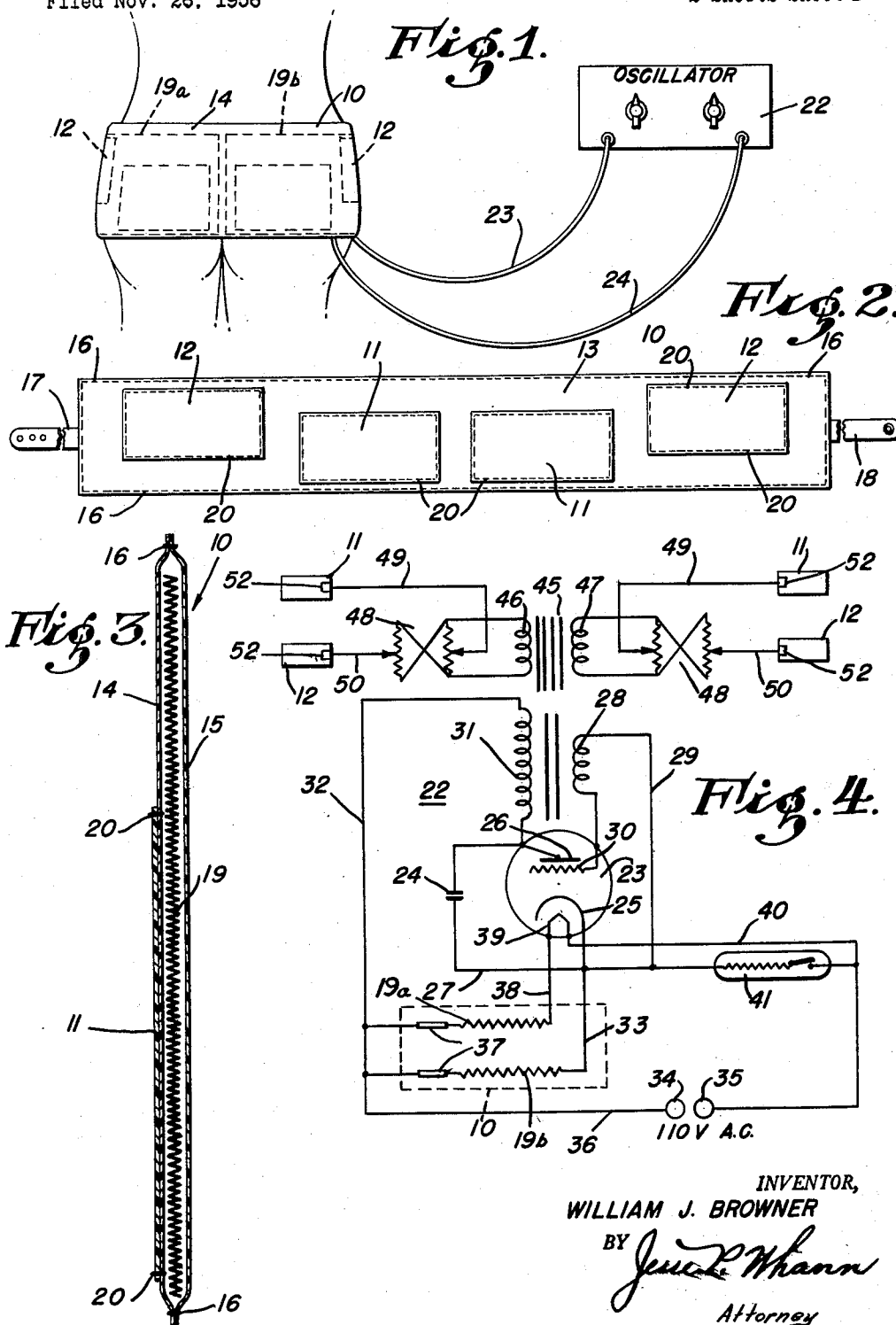
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ELECTRICAL BODY TREATING DEVICE

Filed Nov. 26, 1956

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 5.

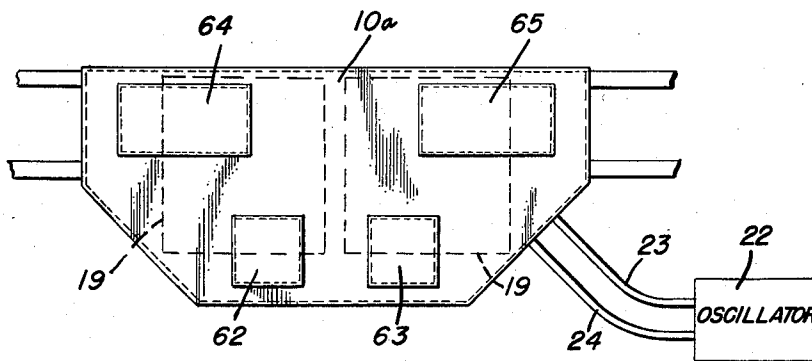
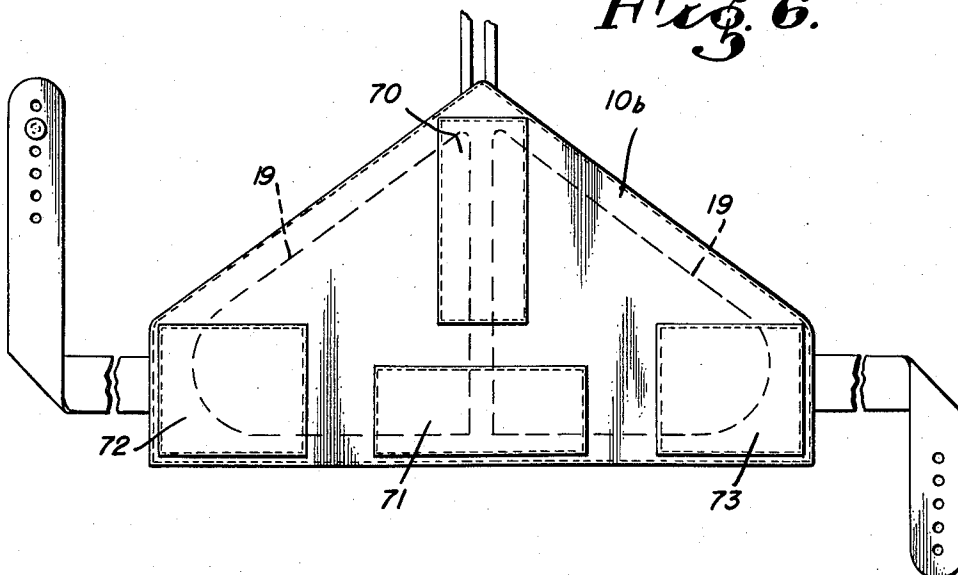


Fig. 6.



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ELECTRICAL BODY TREATING DEVICE

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10 Claims. (Cl. 128—422)

This invention relates in general to electrical devices for treatment of body tissues wherein therapeutic electrical currents are passed through the body tissues, and relates in particular to an electrical treating device which effects reduction of body size as the result of the application of muscle contracting electric currents.

It is an object of the invention to provide a device for electrical therapy having means for holding the electrodes of the device in properly spaced relation on the patient's body and also having means for generating heat which is transmitted to the body tissues during the electrical treatment thereof, with the result that the effects of the treatment are noticeably accelerated. It has been demonstrated that by use of the present invention the flow of blood through the tissues being electrically treated is markedly increased, with the result that the toning, tightening and reduction in size of the muscular and connective tissues occurs in a shorter length of time than is required where ordinary muscle contracting electrical equipment is employed.

It is a further object of the invention to provide means for electrical therapy wherein the electrodes and the heating means are carried by a unitary supporting member arranged to be secured on the patient's body so that both electrical current and heat are simultaneously applied to the body tissues, the electrodes being so positioned that they are brought into proper positions on the body as the result of the placement of the unitary supporting means.

It is a further object of the invention to provide an electrical therapy device of the character described in the foregoing having an electrical generator of the therapeutic current, this generator including resistance elements which are supported upon the patient's body so that the heat therefrom will be transmitted through the body tissues during the electrical treatment thereof. The electrical resistance elements therefore serve two separate purposes or functions, one of which is in the operation of the generator, and the other which is to supply heat in the unit which is secured upon the patient's body.

A further object of the invention is to provide means for delivering the therapeutic current to selected skin areas comprising a unitary support having electrodes consisting of areas of electro-conductive sheet material which is flexible and at the same time impervious to moisture.

A further object of the invention is to provide an electrode for bodily contact comprising a sheet of electro-conductive flexible plastic material and means for connecting the sheet to an electrical conductor.

It is also an object of the invention to provide a body-engaging electrode which has a skin engaging portion comprising a sheet of electro-conductive rubber compound.

Further objects and advantages of the invention may be brought out in the following part of the specification wherein the description of relatively small details is for

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competence of disclosure, without intending to limit the scope of the invention which is defined by the accompanying claims.

Referring to the accompanying drawings which are for illustrative purposes only:

Fig. 1 is a schematic elevational view showing one form of the invention;

Fig. 2 is an inner face view of the electrode and heating element support shown in Fig. 1;

Fig. 3 is an enlarged schematic sectional view taken as indicated by the line 3—3 of Fig. 2;

Fig. 4 is an electrical diagram of the device for electrical therapy shown in the preceding figures;

Fig. 5 is a schematic view showing a form of the invention for electrical treatment of another part of the body; and

Fig. 6 is a schematic view of still another form of the invention.

As shown in Figs. 1 to 3 of the drawings, the device includes an electrode holder 10 which is in the general form of a flat pad adapted to be secured upon the body of the patient. The particular device disclosed in Figs. 1 to 3 is for the purpose of reducing the size of the hips and buttocks and for firming and toning the muscles thereof. It has two pairs of electrodes, each pair consisting of an electrode 11 and an electrode 12. The electrodes 11, consist of easily flexible sheets of electro-conductive plastic material, as shown in Fig. 1, are positioned so as to lie adjacent the gluteus maximus areas, and electrodes 12 are positioned so as to cover the lateral areas of the hips, adjacent to and extending downwardly from the iliac crests. Specifically, each of the electrodes 11 and 12 comprises a rectangular sheet of flexible electro-conductive compound which will conform readily to the contacted body part.

As shown in Figs. 2 and 3, the support 10 has elongated rectangular sheets 14 and 15 of flexible material secured together by edge stitching 16, with straps 17 and 18 extending from the ends of the assembly, for securing the support 10 around the hips of a patient, as shown in Fig. 1.

The front flexible sheet 14 is of plastic waterproof material, to provide a waterproof separation between the bare skin of the patient and a heating and resistance means 19 which is disposed between the inner or front sheet 14 and the back or outer flexible sheet 15. The electrodes 11 and 12 are secured to the sheet 14 by stitches 20.

The resistance means 19 is in duplicate. That is to say, it consists of two rectangular sections 19a and 19b as indicated in dotted lines in Fig. 1. An oscillator 22 is provided having cables 23 and 24 extended therefrom to the support 10, to conduct therapeutic electric current to the electrodes 11 and 12 and to conduct electric current to the resistance elements 19a and 19b to produce heat contiguous to the body tissues which are being electrically treated.

As shown in Fig. 4, the oscillator 22 includes an electronic tube 23 and an associated circuit which includes the resistance elements 19a and 19b. A capacitor 24 is bridged across the cathode 25 and the plate 26 of the tube 23 by conductor means 27. A winding 28 is connected by conductor means 29 in series with the cathode 25 and the grid 30 of the tube 23. A winding 31 is connected into the plate circuit of the plate 23 by a circuit which includes a conductor 32, the resistance element 19b and a conductor 33.

The oscillator is energized from the terminals 34 and 35 of a source of alternating current, such as 110 volt alternating current distributing system. A conductor 36 connects the supply terminal 34 through thermostat switches 37 with the resistance elements 19a and 19b, the

resistance elements 19a being connected by a conductor 38 with the heater 39 of the tube 23, the opposite terminal of the heater 39 being connected by a conductor 40 with the supply terminal 35. For effecting an intermittent operation of the oscillator 22 a tungsol intermitting switch 41 connects the cathode 25 with the conductor 40. The thermostat switches 37 are not intended as means for controlling the heat generated by the resistance elements 19a and 19b, but are safety devices which will open the circuits should temperatures be developed higher than those which are created in the normal operation of the resistance elements 19a and 19b.

The windings 28 and 31 form part of a transformer 45 having secondary or output windings 46 and 47 which are connected through dual potentiometers 48 and conductors 49 and 50 with electrodes 11 and 12 which are situated in the support 10. At the ends of the conductors 49 and 50 there are metal plates 52 which make electrical contact with the electrodes 11 and 12. The conductors 49 and 50 are extended through the cable 23, Fig. 1. The cable 24 carries the conductors of the system which connect the resistance elements 19a and 19b of the support 10 with the remaining electrical parts of the oscillator 22.

In Fig. 5, I show a form of the invention adapted for the tightening of the stomach muscles, including a supporting member 10a proportioned so that it will reach from the iliac crests to a line above the lower ribs of the user. The supporting member 10a has in the lower-central portion thereof electrodes 62 and 63 of flexible plastic electro-conductive sheet material, such as an electro-conductive rubber compound, through which the lower rectus abdominus muscles may be electrically energized. In the upper lateral portions thereof the supporting member 10a has electrodes 64 and 65 for energization of the lateral and oblique musculature of the abdomen. The supporting member 10a is made in the manner described with relation to Fig. 3, and also supports heating elements 19, diagrammatically indicated by dotted lines. The electrodes and the heating elements of the supporting member 10a are connected to an oscillator 22 through cables 23 and 24 in the manner described with relation to Figs. 1 and 4. The harness shown in Fig. 5 may be rotated 180° from the position in which it is shown so that the electrodes 62 and 63 will lie over the upper portions of the rectus abdominus muscles and the electrodes 64 and 65 will be positioned for energization of the waist muscles.

Fig. 6 shows a supporting member 10b of generally triangular form for treatment of the muscles of the back for the purpose of correcting rounded shoulders, lifting of the thoracic cage and causing the patient to assume a more erect posture. The supporting member 10a carries upper and lower electrodes 70 and 71 of the flexible plastic material hereinbefore described for energization of the trapezius muscles, and on opposite sides thereof has electrodes 72 and 73 of similar material for energization of the infra spinatus muscles. The supporting member 10b is made in the manner described with relation to Fig. 3 and in addition to the electrodes 70-73 carries resistance or heating elements 19, adapted to co-operate with other electrical components in an oscillator and also to furnish heat for accelerating the effects of the electrical treatment of the bodily tissues supplied by the electrodes shown in Fig. 6.

I claim:

1. In an electrical body treating device: an electrical oscillator for producing a therapeutic current having electronic tube means and circuit means employing at least

one resistance element connected to the remaining parts of the oscillator by conductor means; a plurality of electrodes adapted to deliver said therapeutic current to the patient's body; and a unitary supporting means for supporting said electrodes and said resistance means of said oscillator on said patient's body so that while bodily tissues are being treated by said therapeutic current heat from said resistance means will be passed to said bodily tissues to facilitate the electrical treatment thereof.

2. In an electrical body treating device: an electrical oscillator for producing a therapeutic current having electronic tube means and circuit means employing at least one resistance element connected to the remaining parts of the oscillator by conductor means; a plurality of electrodes adapted to deliver said therapeutic current to the patient's body; a unitary supporting means for supporting said electrodes and said resistance means of said oscillator on said patient's body so that while bodily tissues are being treated by said therapeutic current heat from said resistance means will be passed to said bodily tissues to facilitate the electrical treatment thereof; and cable means for carrying said conductor means to electrodes and said resistance means.

3. An electrical body treating device as defined in claim 2 wherein said supporting means comprises a flexible sheet having said electrodes arranged in the inner face thereof so that when said supporting means is secured from the patient's body, said electrodes will face toward the patient's skin, and having said resistance means supported adjacent to the outer face thereof in overlying relation to said electrodes.

4. An electrical body treating device as defined in claim 2 wherein said supporting means comprises inner and outer sheets of flexible material, with said electrodes supported on said inner sheet and said resistance means supported between said inner and outer sheets.

5. An electrical body treating device as defined in claim 4 wherein said electrodes consist of sheets of electro-conductive flexible plastic material.

6. An electrical body treating device as defined in claim 2 wherein said supporting means comprises an inner sheet of flexible moisture resistant material having said electrodes secured to the inner face thereof and said resistance means are supported against the outer face of said sheet, there being an outer sheet covering said resistance means.

7. In an electrical body treating unit: a flexible sheet adapted to be secured on the patient's body; electrodes supported on the inner face of said sheet; resistance means supported by said sheet; means for delivering a therapeutic electrical current to said electrodes; and means for delivering electric current to said resistance means to cause generation of heat thereby to heat the contiguous body tissues during the electrical treatment thereof.

8. A device as defined in claim 7 wherein said electrodes consist of sheets of electro-conductive rubber compound.

9. In an electrical body treating device: a flexible sheet adapted to be secured on the patient's body and a thin, flexible electrode supported on said sheet facing the patient's body for contact therewith, said electrode comprising a flexible plastic material characterized by ability to conduct electricity to the contacted skin of the patient.

10. A device as defined in claim 9, wherein said plastic material is a rubber compound having a chemical constituency rendering it electro-conductive.

No references cited.