

July 8, 1958

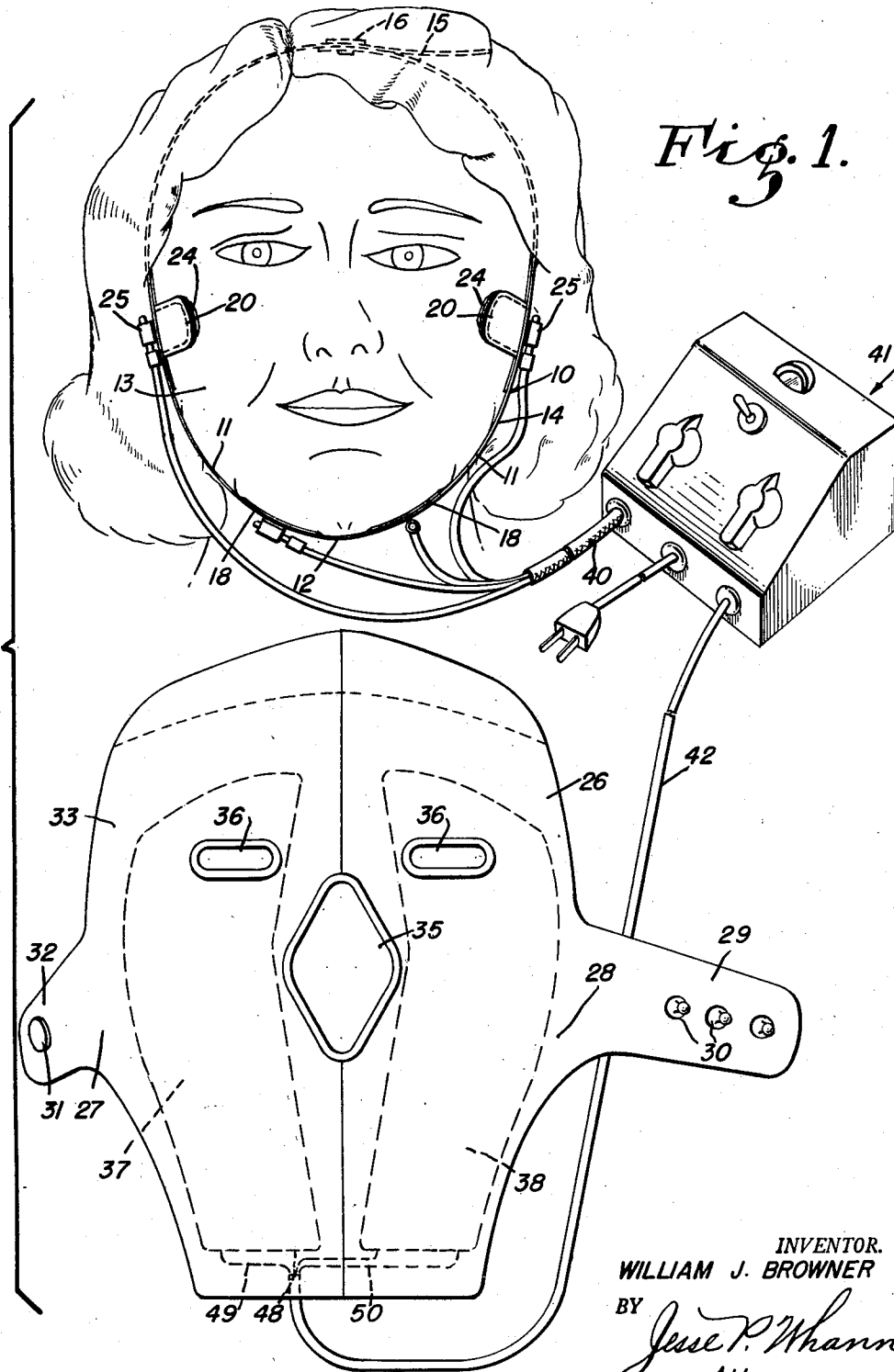
W. J. BROWNER

2,842,136

MEANS FOR TONING MUSCLES AND CONNECTIVE TISSUES

Filed Nov. 26, 1956

2 Sheets-Sheet 1



INVENTOR.  
WILLIAM J. BROWNER

BY *Jesse P. Whann*  
Attorney

July 8, 1958

W. J. BROWNER

2,842,136

MEANS FOR TONING MUSCLES AND CONNECTIVE TISSUES

Filed Nov. 26, 1956

2 Sheets-Sheet 2

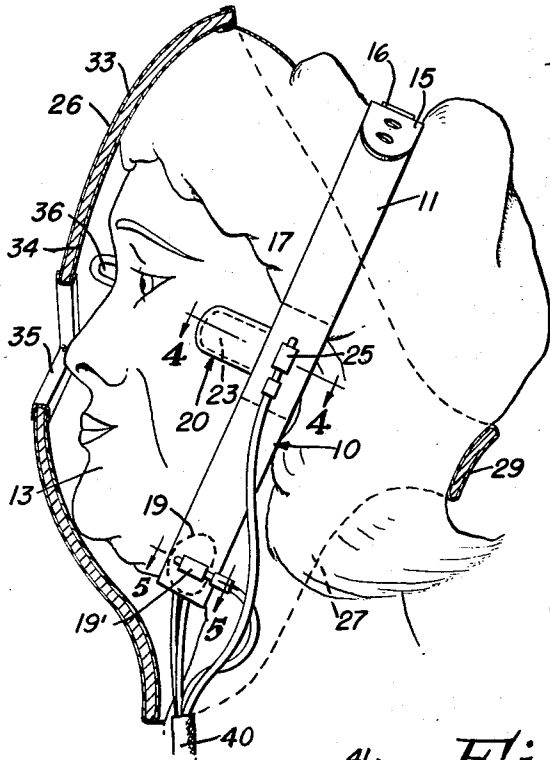


Fig. 2.

Fig. 5.

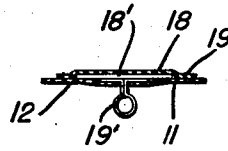


Fig. 4.

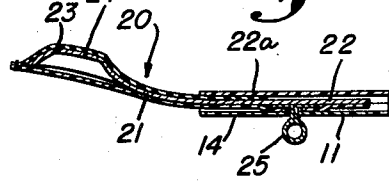
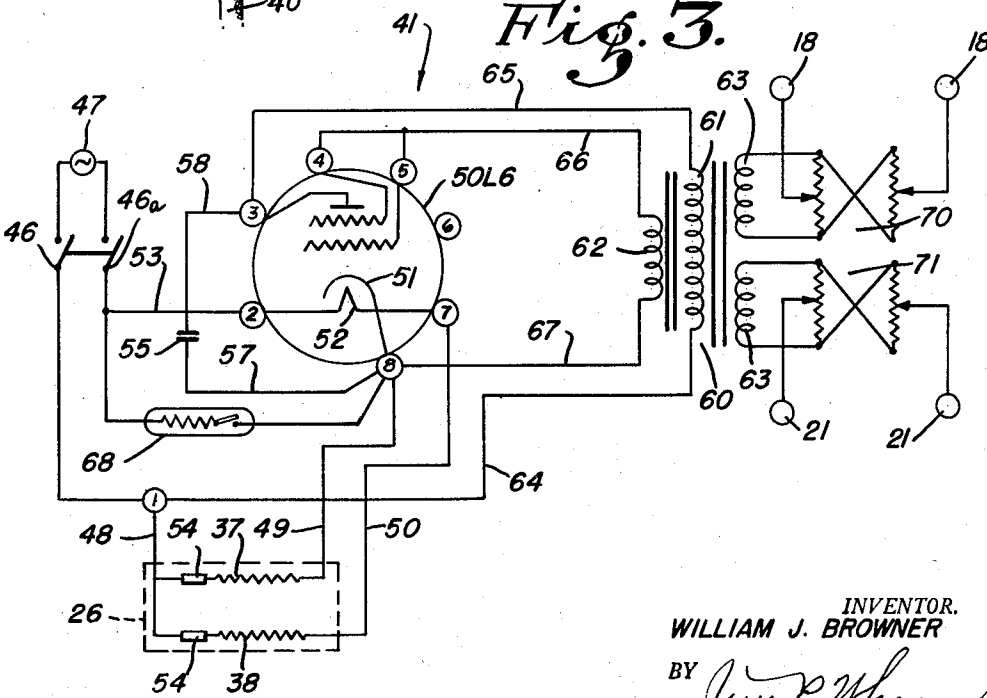


Fig. 3.



INVENTOR.  
WILLIAM J. BROWNER

BY *Jose P. Mann*  
Attorney

1

2,842,136

## MEANS FOR TONING MUSCLES AND CONNECTIVE TISSUES

William J. Browner, San Mateo, Calif., assignor to Relaxacizor, Inc., Los Angeles, Calif., a corporation of California

Application November 26, 1956, Serial No. 624,246

9 Claims. (Cl. 128—422)

This invention relates to devices for electrotherapy treatment and relates in particular to a device for electrical treatment of the human face.

It is an object of the invention to provide a device for the electrical treatment of facial tissues, including muscular and connective tissues, capable of effecting more rapid and complete patient response. In carrying out the foregoing objective I provide a means whereby an effective therapeutic electrical current is applied to the facial tissues, and at the same time the facial tissues are covered by a mask member having therein heat generating means, so that heat is applied to the facial tissues during electrical treatment thereof. This accomplishes a more rapid response to the treatment for the reason that the heat acts to bring intestinal blood closer to the surface, so that during the electrical treatment there is increased nutritional activity and also an effective carrying off of waste products by the blood and lymph.

It is an object of the invention to provide an improved means for holding electrodes, forming a part of the electrotherapy equipment, in contact with selected areas of the face.

A further object of the invention is to provide an improved electrotherapy device wherein the heat applied to the human tissues is derived from electrical resistance element forming a part of the circuitry of an electrical oscillator which supplies the therapeutic current employed in the operation of the device.

Further objects and advantages of the invention will be brought out in the following part of the specification wherein relatively small details have been described for the purpose of competence of disclosure, without the invention, however, of limiting 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 a preferred embodiment of the invention;

Fig. 2 is a side elevation showing the position of the electro holding means upon the head of a subject and showing, in section, the heating mask which forms a part of the invention;

Fig. 3 is an electrical diagram, schematic of the electrical parts of the device;

Fig. 4 is a sectional view taken as indicated by the line 4—4 of Fig. 2; and

Fig. 5 is a sectional view taken as indicated by the line 5—5 of Fig. 2.

Referring to Figs. 1 and 2, there is an electrode support 10 comprising a band or loop 11 consisting of an elastic strip and having a lower portion 12 which extends under the chin of the subject 13, side portions 14 which extend up over the subject's ears, and top portion 15 which extends around the top of the subject's head and have overlapping portions which are connected in a manner to adjust the size of the loop 11, by a connector 16.

2

Lower electrodes 18 are secured on the upper face of the lower portion 12 of the band 11 in positions to engage spaced portions of the subject's chin, adjacent the line of emergence of the chin with the neck, as shown in Figs. 1 and 2. The electrodes as shown in Fig. 5 are pieces of flexible, electro-conductive sheet rubbery compound and are secured to the support 10 by peripheral stitches 19. Metal connector plates 18' are disposed in the spaces between the electrodes 18 and the band 11, and connector posts 19' are extended through openings in the band 11. Upper electrodes 20 as shown in Fig. 4 consist of strips of electro-conductive rubbery compound disposed on the front or inner faces of metal plates 21 having their rear ends 22 disposed under the side portions 14 of the bands 11 in positions close to the upper margins of the subject's ears. The ends 22 of the plates 21 are covered by sheets 22a of plastic sheet insulating material. The front parts 23 of the electrodes 20 project forwardly over the subject's temples and have rounded or bulging portions 24 adapted to engage the temple areas of the subject's face. The upper electrodes 20 are connected to the support 10 by electrical connector posts 25 which pass through the side portions 14 of the band member 11. The forward ends 23 of the upper electrodes 21 may be swung upwardly or downwardly around the centers defined by the connectors 25 for purpose of adjustment of the projecting portions of the electrodes 21 so that the parts 24 thereof will engage desired areas of the face.

A mask 26 is provided which covers the face of the subject during treatment. In Fig. 1 the mask 26 is shown below the patient's head ready to be placed over the face after installation of the electrode support 10. In Fig. 2 the mask 26 is shown in the position which it occupies over the face of the user. The mask 26 is concavo-convex and has side portions 27 and 28 which lie over the sides of the subject's head when the mask is applied. The side 28 has an extended tongue 29 adapted to pass across the back of the subject's head as shown in Fig. 2, this tongue having thereon snap fastener buttons 30 arranged to be engaged by a complementary snap fastener element 31 located on a short tongue member 32 which projects rearwardly from the side portion 27 of the mask 26.

The two sides 27 and 28 of the mask 26 each have an outer fabric sheet 33 and an inner sheet 34. The mask 26 has a breathing opening 35 positioned in front of the nose and mouth, as shown in Fig. 2 and also has eye openings 36 positioned in front of the subject's eyes. Between the sheets 33 and 34 thereof there are electrical heating elements 37 and 38 indicated by dotted lines in Fig. 1 and diagrammatically in Fig. 3. A cable 40 extends from the electrodes of the support 10 to an oscillator unit 40 for delivery of therapeutic current to the electrodes 18 and 20. A cable 42 extends from the unit 41 to the mask 26, carrying conductors for circulating electric current through the heating elements 37 and 38. To generate effective muscle contracting current a 50L6 electronic tube is employed in the oscillator of the unit 41, as shown in Fig. 3. One terminal 46, arranged to be connected to a source 47 of alternating current, is connected to the terminal 1 of tube base for the 50L6 tube. Conductors 48, 49 and 50 are extended through the cable 42, Fig. 1, to the mask 26 so that two separate circuits are formed through the heating elements 37 and 38, which provide resistances forming part of the electrical circuit of the oscillator unit 41. The conductor 49 extends to the terminal 8 so that the cathode 51 of the tube is energized, and the conductor 50 extends to the terminal 7 for energization of the heater 52 by current controlled by the resistance of the heating

3

element 38 disposed in the mask 26. The circuit through the heater 52 is completed by a conductor 53 which connects the terminal 2 of the tube with the second terminal 46a associated with the source 47 of alternating current. Small thermostats 54 are located in the mask 26, in series with the heating elements 37 and 38, to open the circuits through the elements 37 and 38 should a predetermined maximum temperature in the mask 26 be exceeded. The heating elements 37 and 38 are designed so that the temperature produced thereby is ordinarily below the temperature at which the thermostats 54 open the circuits. That is to say the thermostats 54 are safety appliances and do not normally control the heat generated by the elements 37 and 38 by repeated on and off action such as used in electric heating pads.

A capacitor 55 is bridged across the plate circuit by conductors 57 and 58 which connect it with the tube terminals 3 and 8. An iron core transformer 60 has primary and control windings 61 and 62, and secondary or output windings 63. The winding 61 is connected by conductors 64 and 65 with the tube terminals 1 and 3 respectively, whereby the winding 61 is connected with the plate of the tube. Conductors 66 and 67 connect the winding 62 respectively with the terminals 4 and 5 and the terminal 8 of the tube, both of the grids of the tube being tied together. The terminal 46 is connected through a tungsol circuit breaker 68 with the tube terminal 8 which periodically connects the conductor 49 to the alternating current source, thereby bypassing or shorting out the cathode 51 to give intermittent periods of inactivity, alternated with periods of oscillation. This results in intermittent energization of the electrodes 18 and 21 applied to the subject's face.

The output windings 63, shown in Fig. 3, are respectively connected with the electrodes 18 and 21, by dual potentiometers 70 and 71 of the type disclosed in my copending application, Serial No. 283,270 filed April 21, 1952 for Device for Electrotherapy and now abandoned.

I claim:

1. In a means for the electrical treatment of the muscular and connective tissues of the face: electrodes adapted to be applied to spaced areas of the face of a subject; means for holding the electrodes in engagement with the face; a source of electric current having output circuits connected to said electrodes, said electric current source comprising an oscillator having therein electronic tube means and a circuit therefor including resistance means; and means for supporting said resistance means in proximity to the face of the subject so that heat from the resistance means will heat the facial tissues during the time electric current is being passed through the tissues between the electrodes.

2. In a means for the electrical treatment of the muscular and connective tissues of the face: electrodes adapted to be applied to spaced areas of the face of a subject; means for holding the electrodes in engagement with the face; a source of electric current having output circuits connected to said electrodes, said electric current source comprising an oscillator; means connecting said electric current source to said electrodes; a mask to cover the subject's face; an electric heating element in said mask; and means for passing electric current through said heating element so that heat will be generated in proximity to the subject's face during the electrical treatment of the tissues.

3. In a means for the electrical treatment of the muscular and connective tissues of the face: electrodes adapted to be applied to spaced areas of the face of a subject; means for holding the electrodes in engagement with the face; a source of electric current having output circuits connected to said electrodes, said electric current source comprising an oscillator having therein electronic tube means and a circuit therefor including resistance means; and a mask to cover the subject's face, said mask having means supporting said resistance means in prox-

4

imity to the face of the subject so that heat therefrom the resistance means will heat the facial tissues during the time electric current is being passed through the tissues between the electrodes.

4. In a means for the electrical treatment of the muscular and connective tissues: electrodes adapted to be applied to spaced areas of the body of a subject; means for holding the electrodes in engagement with the body; a source of electric current having output circuits connected to said electrodes, said electric current source comprising an oscillator having therein electronic tube means and a circuit therefor including resistance means; and means for supporting said resistance means in proximity to the body of the subject so that heat therefrom the resistance means will heat the body tissues during the time electric current is being passed through the tissues between the electrodes.

5. In a means for the electrical treatment of the muscular and connective tissues: electrodes adapted to be applied to spaced areas of the face of a subject; means for holding the electrodes in engagement with the face; a source of electric current having output circuits connected to said electrodes, said electric current source comprising an oscillator; means connecting said electric current source to said electrodes; a mask to cover the subject's body; an electric heating element in said mask; and means for passing electric current through said heating element so that heat will be generated in proximity to the subject's body during the electrical treatment of the tissues.

6. In a means for the electrical treatment of the muscular and connective tissues of the face: an encircling head band adapted to extend under the chin, upwardly approximately across the ears and then over the top of the head of the subject; a pair of lower electrodes supported on the lower portion of said band which extends under the chin; a pair of upper electrodes extending from the portions of the band in the regions adjacent the upper extremities of the subject's ears, the projecting ends of said upper electrodes being adapted to engage the temple area of the face; a source of electric current having output circuits connected to said electrodes, said electric current source comprising an oscillator having therein electronic tube means and a circuit therefor including resistance means; and means for supporting said resistance means in proximity to the face of the subject so that heat therefrom the resistance means will heat the facial tissues during the time electric current is being passed through the tissues between the electrodes.

7. In a means for the electrical treatment of the muscular and connective tissues of the face: an encircling head band adapted to extend under the chin, upwardly approximately across the ears and then over the top of the head of the subject; a pair of lower electrodes supported on the lower portion of said band which extends under the chin; a pair of upper electrodes extending from the portions of the band in the regions adjacent the upper extremities of the subject's ears, the projecting ends of said upper electrodes being adapted to engage the temple area of the face; means for connecting said electrodes to a source of muscle contracting current; and a mask adapted to cover the subject's face, said mask having heating means therein so that heat will be applied to the facial tissues during the time the muscle contracting current is acting upon the muscular and connective tissues of the face.

8. In means for the electrical treatment of the muscular and connective tissues of the face: an electrode support comprising an encircling band having a lower portion which extends under the chin, side portions which extend upwardly over the ears and a top portion which extends across the top of the head of the subject, a pair of lower electrodes connected to the lower portion of said band for engagement with the skin of the subject's chin; a pair of upper electrodes connected to and

5

projecting forwardly from said side portions of said band, the forward portions of the electrodes being adapted for engagement with the temple areas of the face; and connector means for delivery of electric current to said electrodes.

9. A means for the electrical treatment of the muscular and connective tissues of the face as defined in

6

claim 8 wherein the rearward portions of said upper electrodes are hingedly connected to said side portions of said band to enable said forward portions of said electrodes to be adjusted vertically.

No references cited.