

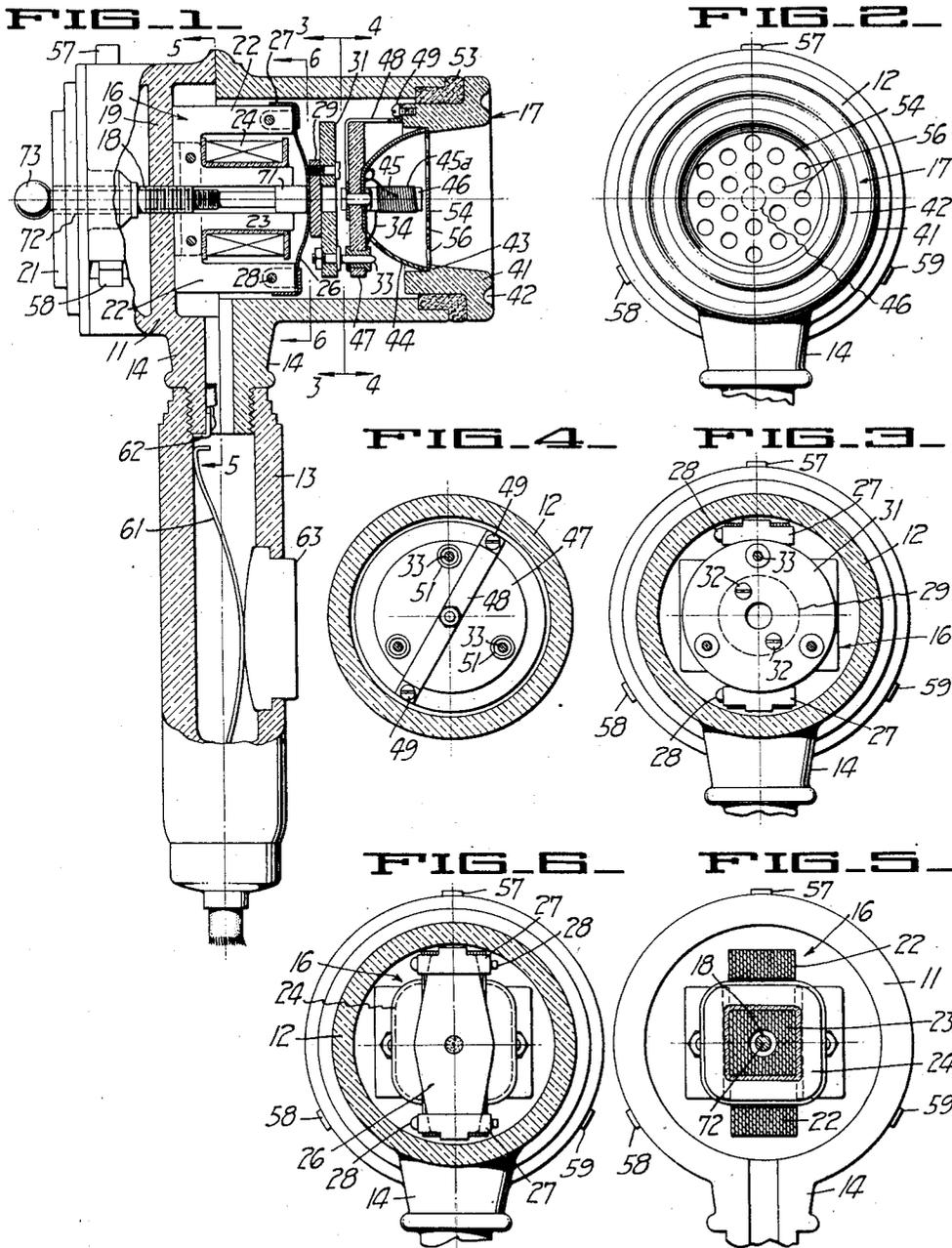
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MASSAGE DEVICE

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UNITED STATES PATENT OFFICE

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MESSAGE DEVICE

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6 Claims. (Cl. 128—24.2)

This invention relates to a therapeutic device, particularly one in which the application of heat and vibration is combined.

Devices intended for the same use as the device or the present invention have heretofore been known and the U. S. patent to Freemon No. 1,844,247 of February 9, 1932 shows such a device. However, the Freemon device, which characterizes the prior art, was therapeutically relatively ineffective as compared to the device of the present invention because the intensity of heat was neither of sufficient degree nor correctly applied. In fact, the Freemon device was so inefficient that the major portion of the heat went into the device itself rather than made available to the patient, thus making the device uncomfortable as well for an operator to handle.

I have discovered that an electric vibratory heat device can be constructed in which the heating element is arranged in conjunction with a spherical reflector in such a manner that an intense heat can be made available for application to a patient undergoing massage. It is an object of the present invention to improve upon the construction of electric vibratory and heating devices to the end that the therapeutic treatment can be made more effective, mechanical massage being made available with the accompaniment of an intense and localized heat.

It has been my observation that the heating units in such a device as that in the aforementioned Freemon patent have a relatively short life. In accordance with this invention I have provided an electric vibratory and heating apparatus in which the heating unit is readily replaceable by another unit so that repair is a simple matter.

A further object of the present invention is to provide an electric heat vibratory apparatus in which the construction employed is relatively simple so that manufacturing is facilitated and so the device can be sold to the purchasing public cheaply.

The invention includes other objects and features of advantage, some of which, together with the foregoing, will appear hereinafter wherein I have set forth and disclosed the preferred form of electric heat apparatus of my invention. In the drawing accompanying and forming a part hereof Figure 1 is a side view, partly in section to illustrate the construction of the preferred form.

Figure 2 is a partial end view.

Figures 3 and 4 are sections respectively taken on the lines 3—3 and 4—4 in Figure 1.

Figure 5 is a section taken along the line 5—5 showing construction of the electro magnet employed.

Figure 6 is a view taken along the line 6—6 to show the construction of the electro magnet and the vibrating structure employed therewith.

In constructing the device I provide a housing made up of two parts 11 and 12 and secured together by a handle 13. The separate parts 11 and 12 each include an extension 14 having a screw thread thereon received by the handle. Parts 11 and 12 cooperate to provide an axially extending chamber in which is positioned an electro magnetic vibrating structure generally indicated by 16 and the massage and heating unit generally indicated by 17. The electro magnet vibrating structure is secured in place by a hollow screw 18 extended through transverse wall 19 in member 11 to engage and retain the magnetic core against the wall 19. A closure member 21 carries the screw 18. The core of the electro magnet is made up of a plurality of suitable soft iron pieces and is formed so as to have three pole pieces, two outside poles 22 and central pole 23. A coil 24 is wound upon central pole and is adapted to be energized, usually by a low voltage alternating current.

To provide the vibratory structure I extend a spring strip 26 across the exterior poles 22 and then secure caps 27 in place by means of pins 28 so that the strip 26 is loosely mounted across the poles. Strip 26 is usually made of a piece of high silicon steel. Attached to this strip is a button 29, the button being usually riveted onto the strip. This button is usually of soft iron to provide mass in the vibrating structure. Disc 31 is attached as by screws 32 to the button and from this disc extends three pins 33, the pins 33 being connected to wires 34 for reasons which will appear hereinafter.

It is to be noted that the foregoing described vibrating structure extends axially in the housing provided by parts 11 and 12 and is easily accessible for inspection or repair. To cooperate with said vibrating means I provide a massage means for contact with the skin of a patient in conjunction with suitable heating means. As the actual contact element I provide an annulus 41 made of the same material as the housing. This annulus is grooved as at 42 so that it can be held in place readily upon the skin of a patient. A shoulder 43 is formed upon the annulus and against the shoulder rests a reflector 44. I prefer that the reflector be parabolic in shape or otherwise arcuately formed so that it delivers

a maximum amount of radiated heat at a point corresponding to the exterior face of annulus 41, thus delivering to the skin of the patient a maximum of radiated heat.

5 To supply heat for radiation by the reflector 44 I mount a heating unit 46 upon the reflector, the heating unit being substantially at what would correspond to the focal point of the reflector except that the heat source cannot be a mere point source. The heating unit 46 is preferably of a bare resistance wire so that luminous heat for radiation is given off. In practice, the unit includes two separately energizable coils 45 and 45A.

15 The reflector and heating unit are secured to an insulating backing member 47, the backing member being in turn secured by a metal strip 48 and screws 49 to the annulus 41. Receptacles 51 are provided in the backing member and electrical connections extend from these to the heating unit 46 so that two different degrees of heat can be secured, as will hereinafter appear, by connection of the receptacles with the pins.

To prevent entrance of foreign matter between the unit 17 and the housing proper and to center the unit 17 a collar 53 of sponge rubber is preferably interposed between the part 12 and the annulus 41 to seal the passage between these two as well as dampen and smooth the vibration of the annulus. Since the unit 17 is readily removed and replaced, if the heating unit 46 happens to fail this is not more than temporary inconvenience since another unit may be readily attached. It is to be noted that the pin connections are provided upon the plan of an isosceles triangle and that accordingly the proper hookup can be readily made with the pins and the receptacles in the unit 17.

In the treatment of some portions of the human body it might accidentally happen that contact would be made or the skin of a patient would be approached uncomfortably near the heating unit 46. To prevent direct contact with said unit and to otherwise insure against this chance, I preferably interpose between said unit and the patient a shield 54. This shield is made up with a number of apertures 56 therein so that heat can be readily radiated without decreasing materially the efficiency of the unit and well avoiding the possibility of undesirable contact directly with the heating unit. In practice I have used sheet mica as well as wire screen for shield 54.

The wall 19 in the part 11 forms a small chamber which is closed by the backing member 21. This compartment serves as a receptacle for the switches 57, 58 and 59 respectively used to control low or high heating of the unit 46 and operation of the vibrating means. Thus switches 57, 58 and 59 respectively control current flow to the vibrator, coils 45 and 45A, each switch being in series with the element it controls and all the elements being in parallel with a current source.

It is to be noted that the handle 13 is hollow and that a long spring contact 61 is provided therein which cooperates with a contact 62 carried by the part 11. A bar 63 is extended through the side of the handle 13 and upon inward movement thereof moves the contact 61 to engage contact 62 and pass current through to the electro magnet and the heating unit 46. This simple structure provides a suitable dead man switch so that accidental operation cannot be secured unless the switch provided by manipulation of bar 63 is positively operated.

Means are provided for varying the rate of vibration of the vibrating structure. It is to be noted that the screw 18 is hollow and that in conjunction therewith an aperture extends through the central leg 23 of the electro magnet. Inside of this hollow is positioned a piece of soft rubber 71 which bears against the strip 26. This rubber is compressed or relieved of pressure by screw 72 secured to knob 73, the screw 72 being extended through the hollow screw 18 to engage the length of rubber 71.

I claim:

1. In a device of the character described, a reflector, a heat source within the confines of said reflector, an apertured member continuing beyond said reflector and surrounding said reflector to maintain a surface placed against said member out of contact with said heat source and at a point of effective radiation for heat generated by said source and directed by said reflector directly onto said surface through said aperture in said member, and electromagnetic means for vibrating said reflector, said heat source and said member as a unit.

2. In a device of the character described, a reflector, a heat and light source within the confines of said reflector, an apertured member positioned across said reflector beyond said heat source, a member continuing beyond said reflector and surrounding said reflector to maintain a surface placed against said member out of contact with said apertured member and at a point of effective radiation for heat generated by said source and reflected directly onto said surface through said aperture in said member, and electromagnetic means for vibrating said reflector, said heat source and said member as a unit.

3. In a device of the character described, an apertured annular member to be placed against a surface, electromagnetic means for vibrating said member, a reflector secured to said member and substantially closing the aperture in said member, and a heat source within the confines of said reflector and providing a source of infrared rays for direct reflection through said aperture onto said surface during operation of said vibrating means.

4. In a device of the character described, a vibrating unit comprising an electromagnet core having three parallel but spaced poles, a coil wound on the middle pole, a spring strip member extended across said poles, means for securing said strip to each of the outer poles, a magnetizable member carried by said strip and movable therewith, an insulating member carried by said strip and movable therewith, and a plurality of pins extending from said insulating member and a message unit for mounting on said spring strip and having receptacles to receive said pins, said message unit including a member for placement against a surface, said member having an aperture therein, a concave reflector carried by said member and positioned across said aperture, and a heat source cooperating with said reflector and positioned to supply a source of heat for reflection by said reflector through said aperture.

5. In a device of the character described, an electromagnet including a magnetizable core having a passage therein, a spring strip member, means for positioning said strip across said core, a magnetizable member abutting said first mentioned member and movable therewith to provide a vibrating structure, means for dampening vibration of said structure including a resilient

member in said passage and screw means for urging said resilient member to engage said strip member, a massage unit, means for mounting said unit on said vibrating structure, said unit including a member for placement against a surface, said member having an aperture therein, a concave reflector carried by said member and positioned across said aperture, and a heat source positioned to cooperate with said reflector in radiating heat through said aperture.

electromagnetic vibrating structure, a massage unit, means for mounting said unit on said vibrating structure, said unit including a member for placing against the surface, said member having an aperture therein, a concave reflector carried by said member and positioned across said aperture, and a heat source positioned to cooperate with said reflector in radiating heat through said aperture.

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6. In a device of the character described, an