Aug. 16, 1960 L. VECCHIO 2,949,108

THERAPEUTIC VIBRATOR PAD

Filed Sept. 3, 1957

Fig. 1.

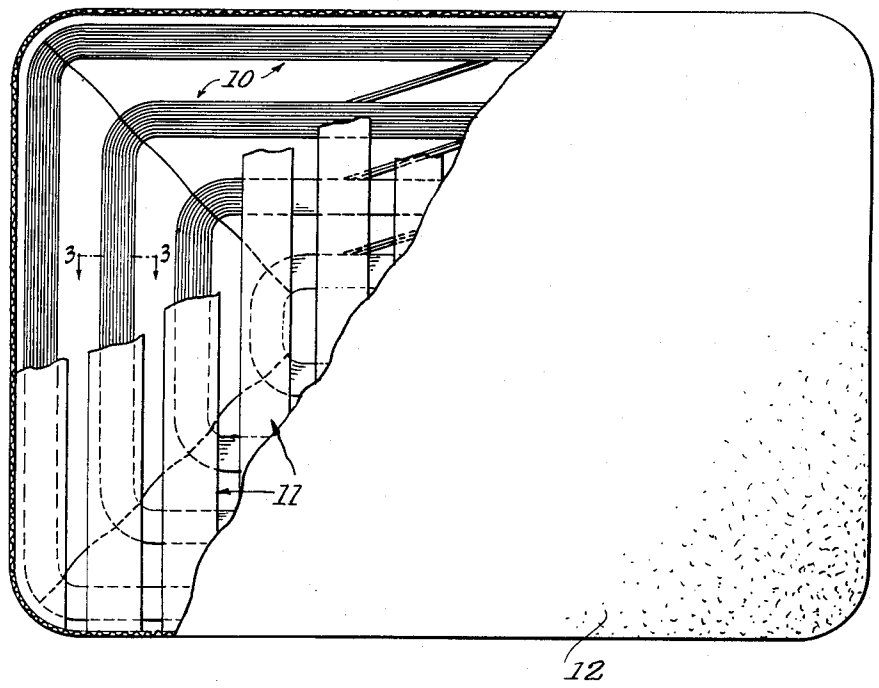


Fig. 2.

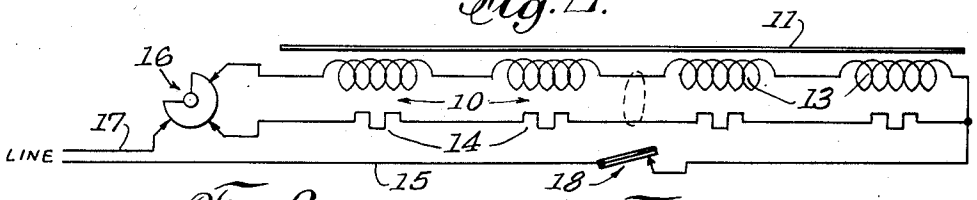


Fig. 3.



Fig. 4.

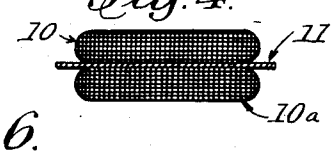


Fig. 5.

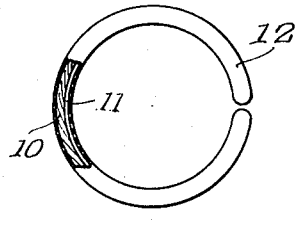
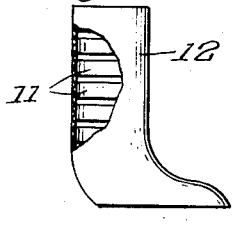


Fig. 6.



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THERAPEUTIC VIBRATOR PAD

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3 Claims. (Cl. 128—24.1)

This invention relates to a pad having therapeutic value when externally applied to different parts of the body.

A general object of the invention is to provide a pad of the character referred to that may be set to provide a heat or thermal application, vibration without any heat whatever, or both heat and vibration, selectively.

A more particular object of the invention is to provide a thermo-vibratory pad that produces vibration in a novel, inexpensive and simple manner, the same being especially applicable to the present use and environment in that the vibration is induced magnetically without mechanical vibratory means.

A further object of the invention is to provide a pad of the character above referred to in which the vibration and control of heating is armature-controlled, radiation being one of the effects dissipating undesired heat in the pad.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes, preferred embodiments of the present invention, which are given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is a face view, partly broken away, of a pad according to the present invention.

Fig. 2 is a conventionalized wiring diagram of the electrical components of the pad.

Fig. 3 is an enlarged cross-sectional view as taken on line 3—3 of Fig. 1.

Fig. 4 is a similar view of a modification.

Figs. 5 and 6 are partly broken elevational views of two forms of pad for special application.

In its typical physical form, as illustrated in Figs. 1 and 3, the present pad comprises plural coils of wire **10** in preferably planar arrangement, radiation- and vibration-inducing means **11** in superimposed relationship over said coils **10**, and a flexible container or envelope **12** enclosing said coils **10** and means **11**. An alternative form, shown in Fig. 4, provides additional plural coils of wire **10***a*, the means **11** being preferably disposed between the coils **10** and **10***a*.

As illustrated in the diagram of Fig. 2, said coils **10** preferably comprise a number of turns of aluminum enamel-coated wire represented by the coils **13**. In practice, the same preferably comprise approximately two hundred fifty turns of No. 25 wire in such arrangement, as suggested in Fig. 3, that the same are generally flat and have a suggested width between the side edges approaching a half-inch or even greater.

As seen in Fig. 1, the individual coils **10** in which the coils **13** are incorporated are wound in rectangular form, one inside the other. Although four are shown, the number may vary according to size and conditions desired.

Upon the introduction of ordinary house current, 115 volts, 60-cycle A.C., a magnetic field is set up in the coils **13**, the field circulating around the transverse sections of the coils.

The means **11** is provided to intensify the magnetic field to such a degree as to set up vibration in all of the coils **13**. Said means **11** is here shown as a plurality of sheet metal strips of some pliability and placed in superposition over the coils **13**. Sheet steel may be used for this purpose which, primarily, is to serve as a vibration-inducing or -increasing armature for the flux or field of the coils **13**. The increase of impedance or inductance of the coils decreases the current consumption.

The armatures also serve as radiation means for any heat that may be induced in the coils **13**, the metal strips conducting such heat away so that radiation effects result.

In addition to one armature between two sets of coils, as in Fig. 4, another variation contemplates a single encircling armature around one flatwise arranged set of coils. This alternative would be the same as is shown in Fig. 3, except that a second armature is placed against the exposed side of the coil. In all instances, the armatures are insulated so the same are not in electric circuit, the enamel coating on the turns ordinarily serving for this purpose.

As shown in Fig. 2, each coil **10** also includes a coil **14** of heating wire. Nichrome wire is preferred for this purpose and about five turns for each coil **10** are preferred. No. 28 wire, asbestos covered, in the above arrangement as part of each coil **10**, will serve to generate heat.

Whereas the resistance of the vibrating coils may be measured in but two or three hundred ohms on the basis of some 3000 to 3500 feet of wire used, the Nichrome wire may have a resistance of 2700 to 2800 ohms for a total length of approximately 650 feet.

The respective coils **13** and **14** are in series arrangement but each series is in parallel with one side **15** of an A.C. line. A switch **16** is interposed in the other side **17** of said line. Said switch, regardless of its particular construction, has four positions which are: (1) off with side **17** open; (2) on for vibration only with side **17** connected only to coils **13**; (3) on for heat only with side **17** connected only to coils **14**; and (4) on for both vibration and heat with side **17** connected to both series of the coils **13** and **14**.

In order to insure against accidental overheating, the side **15** of the line may incorporate a thermostat **18** that remains closed, normally, but opens to open the circuit to the coils **13** and **14** upon an unduly great rise in temperature within the envelope of the pad. Such a thermostat may be advantageously placed within the innermost coil **10** and the same may either be initially set for a predetermined maximum temperature, or arrangements may be made to vary such maximum according to particular conditions.

The envelope may be rendered moisture-impervious in various ways and the interior thereof so sealed off as to obviate ingress of moisture to the coils.

It will be clear that the pad may vary in shape according to the particular use to which it may be put. A limb-encircling pad, as in Fig. 5, and a leg- or foot-enclosing pad, as in Fig. 6, are merely examples of various shapes of pads that may be made embodying the features of the present invention.

While the foregoing has illustrated and described

what I now contemplate to be the best modes of carrying out my invention, the constructions are, of course, subject to modification without departing from the spirit and scope of my invention. I, therefore, do not desire to restrict the invention to the particular forms of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

I claim:

1. A pad of the character described comprising a plurality of plural, series-connected close-wound coils, each plural coil embodying both a vibration-inducing wire coil and a heating wire coil, a metal armature disposed in the magnetic field that is induced in the vibration-inducing wire, said armature being disposed to increase the impedance and inductance of the latter wire, said heating and vibration-inducing coils being connected in parallel, and a common switch to connect said coils, selectively, either simultaneously or separately in an energizing alternate current circuit.

2. A pad according to claim 1 in which a thermostatic control device is connected in series with said coils in said circuit.

3. A pad according to claim 1 in which the armature comprises a plurality of electrically separate sheet metal plates in superposition over the mentioned plural coils.

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