Jan. 28, 1958 A. Y. PAII 2,821,191

PULSATING DEVICE

Filed Sept. 23, 1953 3 Sheets-Sheet 1

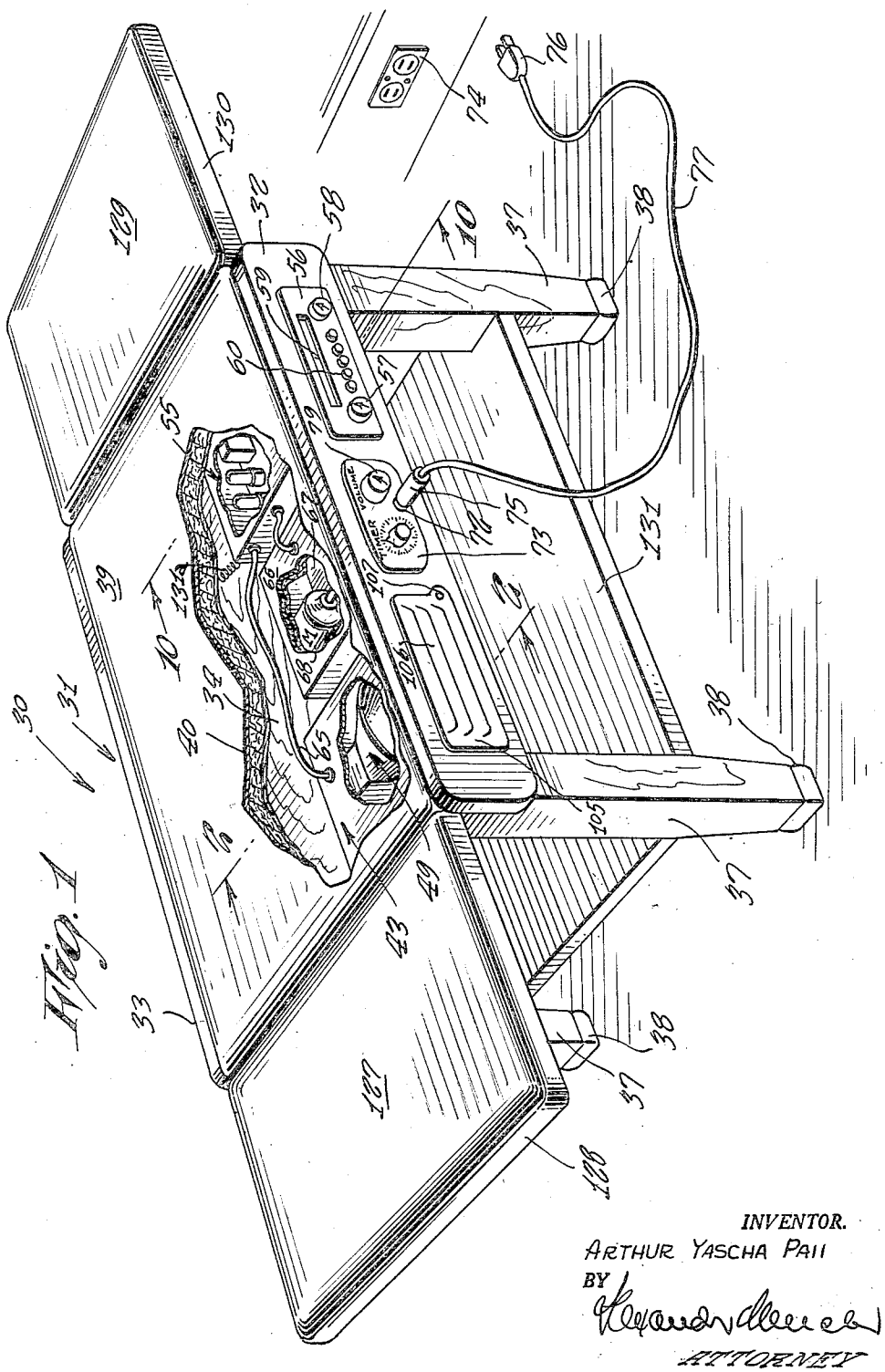


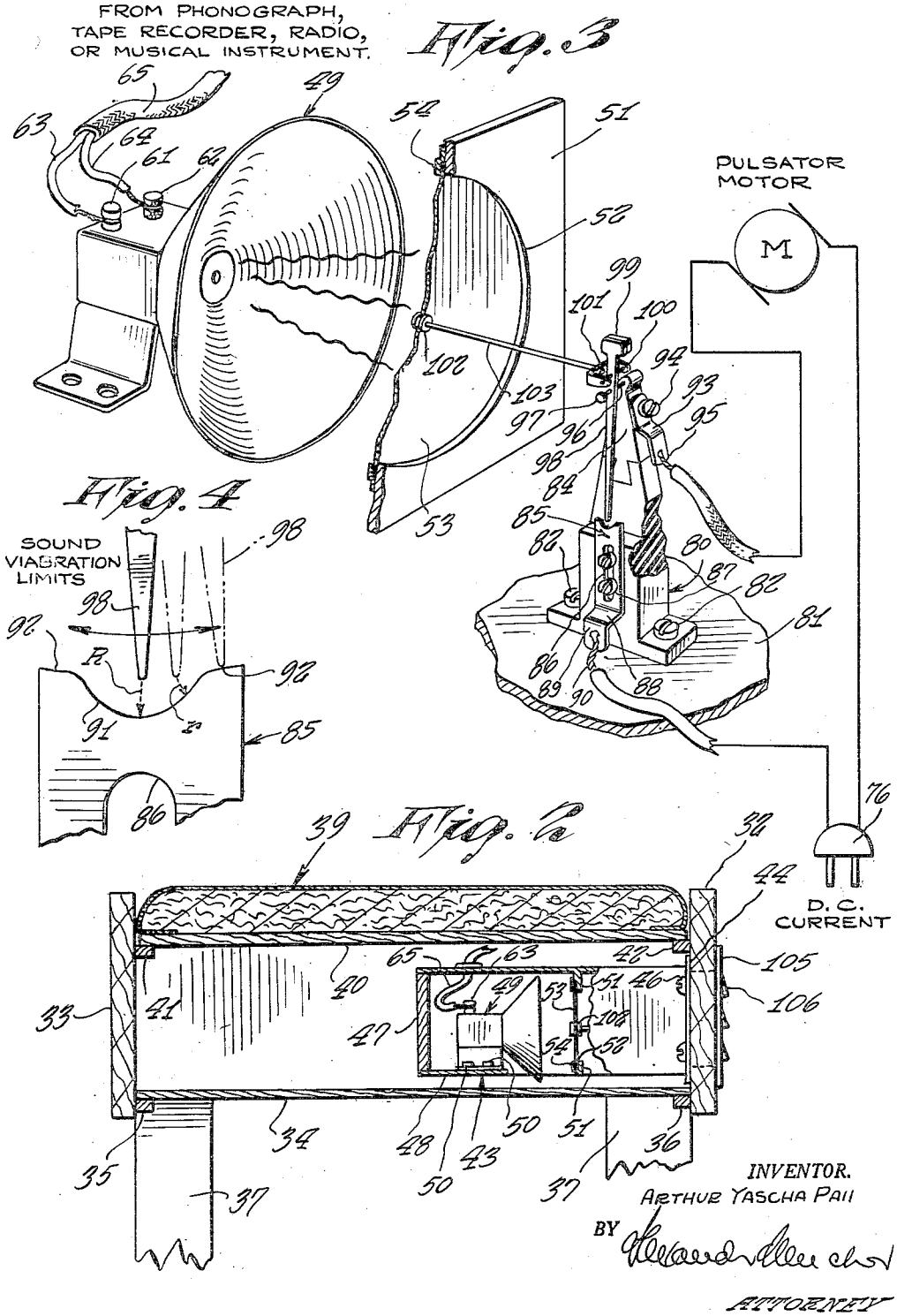
Fig. 1

INVENTOR.
ARTHUR YASCHA PAII
BY
ATTORNEY

Jan. 28, 1958 A. Y. PAII 2,821,191

PULSATING DEVICE

Filed Sept. 23, 1953 3 Sheets-Sheet 2



Jan. 28, 1958 A. Y. PAII 2,821,191

PULSATING DEVICE

Filed Sept. 23, 1953 3 Sheets-Sheet 3

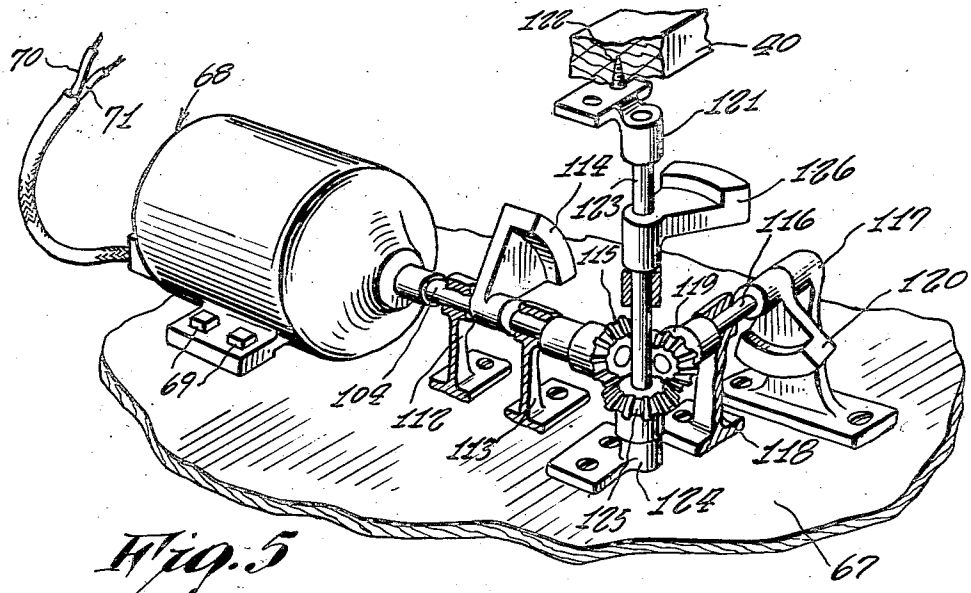


Fig. 5

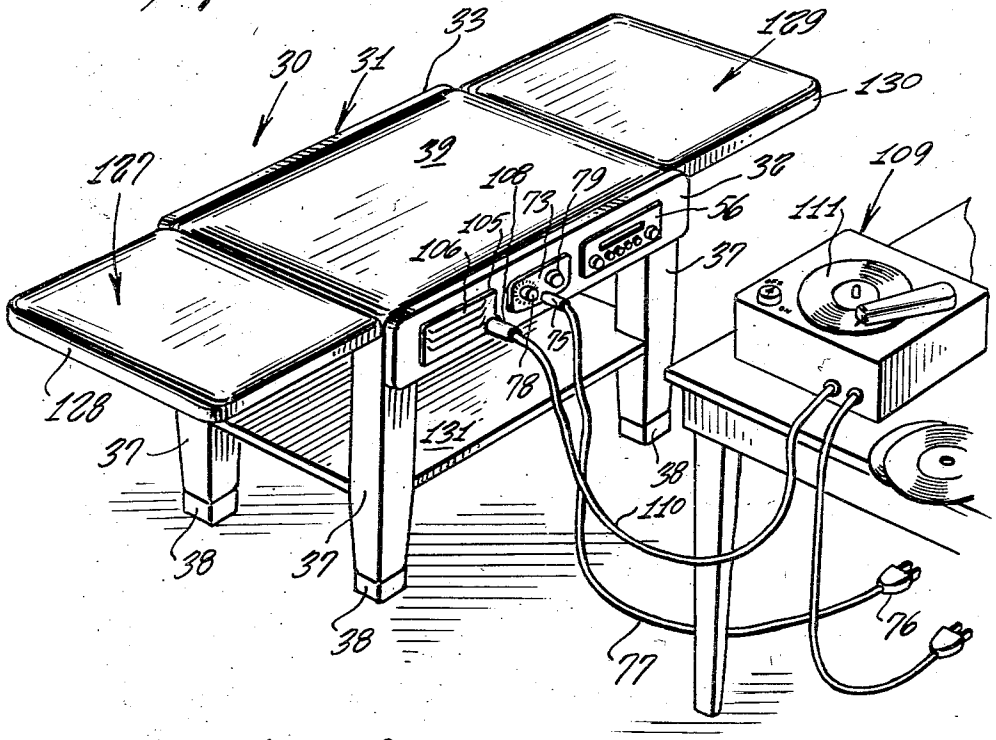


Fig. 6

INVENTOR.
ARTHUR YASCHA PAII
BY
ATTORNEY

United States Patent Office

2,821,191

Patented Jan. 28, 1958

2,821,191

PULSATING DEVICE

Arthur Yascha Paii, New York, N. Y.

Application September 23, 1953, Serial No. 381,933

9 Claims. (Cl. 128—33)

This invention relates to pulsating devices.

It is an object of the present invention to provide a pulsating device including controlled sound, light and electrical vibrations adapted to tone up physically both healthy and sick persons.

It is another object of the present invention to provide a pulsating device of the above type wherein the pulsations are synchronized with a musical score, permitting the user to "feel" the music as it is played and increasing thereby the beneficial and relaxing effect of the device.

It is still another object of the present invention to provide a pulsating machine of the above type wherein the frequency of the pulsations is directly proportional to the vibratory effect of the sound waves of a musical selection emanating from a loud speaker forming a part of the present invention.

It is still another object of the present invention to provide a pulsating device of the above type wherein the pulsations occur in all directions.

It is still another object of the present invention to provide a pulsating device of the above type wherein the musical score controlling the pulsations may be played from either a built-in radio or from a phonograph which may be readily connected to the device.

It is still another object of the present invention to provide a pulsating device of the above type wherein the head supporting, body supporting and leg supporting portions are each provided with individual pulsating mechanisms.

It is still another object of the present invention to provide a pulsating device of the above type wherein pleasing sound means are provided for drowning out the noise of the pulsating mechanism, the pitch of the sounds varying in accordance with the frequency of the pulsations.

It is still another object of the present invention to provide a pulsating device of the above type which includes novel means for raising and lowering the head and leg supporting portions of the device.

It is still another object of the present invention to provide a pulsating device of the above type wherein novel suspension means are provided for preventing the pulsations from being absorbed by the external housing of the device.

It is still another object of the present invention to provide a pulsating device of the above type which includes vari-colored visual means controlled by the music, permitting the user to "see" as well as "feel" the music.

Other objects of the present invention are to provide a pulsating device bearing the above objects in mind which is of simple construction, inexpensive to manufacture, has a minimum number of parts, is easy to use and efficient in operation.

For other objects and a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of a pulsating device

embodying the features of the present invention, a portion thereof being broken away to show the interior arrangement of the parts;

Fig. 2 is a vertical sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary perspective view, partly diagrammatic, illustrating the manner in which the pulsator motor is controlled by music emanating from the loud speaker;

Fig. 4 is an enlarged fragmentary elevational view of a portion of one of the parts shown in Fig. 3;

Fig. 5 is a perspective view of another of the parts of the device illustrating the manner in which the pulsations are transmitted in all directions;

Fig. 6 is a perspective view of the device but showing the connection therewith of a phonograph.

Referring now to Figs. 1 through 6, there is shown a pulsating device embodying the features of the present invention referred to collectively as 30, and arranged in the general shape of a treating table, the device including a central body supporting portion 31.

The body supporting portion 31 includes a pair of front and rear panels 32 and 33, respectively, connected at their lower edges by means of a bottom sounding board 34 (similar to that used in a piano) and strips 35 and 36 (Fig. 2). The sounding board 34 and strips 35 and 36 terminate short of the ends of the panels 32 and 33, permitting the latter to be supported at their ends by legs 37, the lower ends of the legs 37 being inwardly flared and supported upon rubber feet 38.

The upper edges of the front and rear panels 32 and 33 are interconnected by a pad 39 mounted upon a top board 40, the latter being secured at its front and rear edges to the inner faces of the panels 32 and 33 by means of the strips 41 and 42 (Fig. 2).

As shown in Fig. 2, a housing 43 adapted to fit intermediate the top board 40 and sounding board 34 is provided at its front open end with a flange 44 permitting the housing to be secured to the inner face of the front panel 32 about an opening provided therethrough, the flange 44 being secured to the panel 32 by means of bolts 46. The open rear end of the housing 43 is closed by a wooden board 47. The bottom wall 48 of housing 43 terminates short of the front panel 32 and supports a loud speaker 49 secured thereto by bolts 50. The loud speaker 49, it will be noted, extends downwardly below the open bottom of the housing 43.

A partition 51 is provided within the housing 43, the partition 51 being provided with a circular opening 52 behind which is secured a diaphragm 53 by means of a lock ring 54 suitably secured to the rear face of partition 51.

A radio 55 (of which the speaker 49 forms a part) is mounted behind the front panel 32 at the other end thereof in a manner similar to the housing 43, the panel 32 being provided with a suitable opening in which is mounted the control panel 56 of the radio. The panel 56 includes the switch and volume control knob 57, the channel selector knob 58 controlling indicator 59, as well as alternate push button selectors 60.

The terminals 61 and 62 of the loud speaker 49 are connected to the radio 55 by means of insulated wires 63 and 64 provided with covering 65, these wires passing upwardly through a suitable opening provided in the top of housing 43.

A housing 66 having a bottom wall 67 is secured intermediate the housing 43 and the radio 55 to the inner face of the front panel 32 in a manner similar to the housing 43. Thus, the bottom wall 67 is also freely spaced from the sounding board 34.

A pulsator motor 68 is mounted on the bottom wall 67 of housing 66 by means of bolts 69 (Fig. 5). The

terminals of motor 68 are connected (by insulated wires 70 and 71) in parallel with the radio 55 to a jack plug 72 mounted in a control panel 73 provided in the front panel 32 adjacent the housing 66, the jack plug 72 being connected to a household source of power 74 by means of a jack 75 connected to a male plug 76 by electrical cord 77.

A mechanical timer switch, not shown, having a control knob 78 mounted on the control panel 73 is connected in series with the motor 68 and serves to set the period during which the pulsations will be transmitted to the subject.

A rheostat, not shown, having a control knob 79 mounted in the control panel 73 is also connected in series with the motor 68 and serves to regulate the speed of the latter and thereby the frequency of the pulsations.

As shown in Fig. 3, a standard 80 of insulator material is secured to the front bottom wall 81 of housing 43 by means of screws 82, the upper edge of the standard 80 having a dovetailed groove within which is secured a correspondingly shaped conductor element 84. A vertical conductor bracket 85 is secured to one side of the standard 80 by means of an elongated slot 86 and screws 87, the lower edge of the bracket 85 being bent laterally as at 88, and extending downwardly in a portion 89 having a suitable opening therein receiving a wire 90 connected in the circuit of the pulsator motor 68. The upper edge of the bracket 85 is provided with an arcuate cut out portion 91 terminating in flat portions 92 for a purpose which will hereinafter become clear.

A conductor bracket 93 is connected at one end to the conductor element 84 by means of a screw 94, the other end of the bracket 93 being connected to a wire 95 connected in the circuit of the motor 68.

The upper end of the conductor element 84 mounts a pin 96 having an enlarged head 97 and on which is rotatably mounted a moving arm 98 intermediate the conductor 84 and the head 97. The moving arm 98 tapers downwardly to a point and is provided at its upper end with an enlarged head 99. A pin 100 pierces the moving arm 98 above the pin 96 and has connected to its ends the corresponding ends of a yoke 101.

A coupling 102 is suitably secured to the center of diaphragm 53 and has secured therein one end of a link 103, the other end of which is connected to the yoke 101. When the diaphragm 53 is not vibrating the bottom end of the moving arm 98 will normally be disposed above the center of the arcuate cut-out 91, as shown in Fig. 4. In this position a relatively great distance R exists between the bracket 85 and the moving arm 98, preventing current from flowing in the circuit of the pulsator motor 68, except when sparkling occurs. As the diaphragm 53 vibrates in response to sounds emanating from the loud speaker 49 when the radio 55 is turned on, displacement of yoke 101 will occur due to link 103 causing a slight rotation of the upper end of the moving arm 98 about the pin 96. This motion is magnified at the lower end of the moving arm due to the difference in moment arms, causing the lower end of arm 98 to assume the dotted line positions of Fig. 4. In the intermediate position, it will be noted, a relatively small distance exists between the bottom end of the moving arm 98 and the bracket 85, permitting a greater amount of sparkling and a greater amount of current to flow in the circuit of the pulsator motor 68. When the maximum displacement of yoke 101 occurs, occasioned by a maximum vibration of the diaphragm 53 in response to changes in the sound waves emanating from the loud speaker 49, the bottom end of the moving arm 98 will contact the bracket 85 closing the circuit completely and permitting the pulsator motor to operate at its full speed.

Thus, the drive shaft 104 of motor 68 will rotate at its maximum speed when the vibratory effect of the sound waves emanating from loud speaker 49 on the diaphragm 53 is at a maximum, the rotational speed of the drive shaft 104 varying in accordance with the music, i. e., when the music becomes loud the drive shaft will rotate more rapidly and when the music becomes soft, the drive shaft will rotate more slowly.

The opening 45 in the front panel 32 (directly in front of the loud speaker 49 and diaphragm 53) is closed by a plate 105 provided with louvres 106. The louvre plate 105 at one side is provided with a jack plug 107 (Fig. 1) connected in the circuit of the loudspeaker 49 and adapted to receive a jack 108 connected to a phonograph 109 by means of insulated wires 110, as shown in Fig. 6, and permitting the loud speaker to be connected to the phonograph 109 and the record 111 thereof instead of radio 55. By this arrangement it is possible to play those records and musical scores which have the most beneficial pulsating effects for the particular subject.

As shown in Fig. 5, the drive shaft 104 of the pulsator motor 68 is rotatably mounted in bearing brackets 112 and 113 secured at their bottoms to the bottom wall 67 of the housing 66. A first eccentric or counter-weight 114 is fixedly mounted upon the drive shaft 104 intermediate the brackets 112 and 113, serving to impart pulsations in a vertical plane disposed at substantially right angles to the drive shaft 104. A bevel gear 115 is fixedly carried at the outer end of the drive shaft 104. A rotatable shaft 116 is rotatably mounted in bearing brackets 117 and 118, the brackets being secured at their bottoms to the bottom wall 67 and so disposed that the shaft 116 is at right angles to the drive shaft 104 with the end of the former terminating adjacent the bevel gear 115. A second bevel gear 119 is fixedly carried at the end of shaft 116 and is in mesh with the bevel gear 115, transmitting the angular motion of drive shaft 104 to the shaft 116. An eccentric or counter-weight 120 is fixedly carried by the shaft 116 intermediate the brackets 117 and 118, imparting pulsations in a vertical plane substantially parallel to the drive shaft 104. A bearing bracket 121 is secured to the undersurface of the top wall 40 by means of screws 122 and rotatably mounts the upper end of a vertical shaft 123. The lower end of shaft 123 is rotatably mounted in a bearing bracket 124 secured to the bottom wall 67 directly below the bracket 121. A bevel gear 125 is fixedly carried by the shaft 123 at the bottom end thereof and is in mesh with the bevel gears 115 and 119, thus also transmitting the rotational motion of drive shaft 104 to the vertical shaft 123. An eccentric 126 is fixedly carried by the rotating shaft 123 and serves to impart pulsations in a horizontal plane. Thus, the eccentrics 114, 120 and 126 cooperate to provide pulsations in all three geometric planes, that is, universal pulsations are provided. These pulsations are transmitted through the top wall 40 to the pad 39 where they are received by the body.

A pad 127 mounted within a frame 128 is suitably secured to one end of the central portion 31 and serves to support the legs of the user.

A second pad 129 mounted within a frame 130 is suitably secured to the other end of central portion 31 and serves to support the head of the user.

A tabular portion 131 is provided at each corner with cut-outs receiving the legs 37 and is suitably secured thereto in the manner shown in Fig. 1.

It will be noted that sounding board 34 receives music from loud speaker 49 and amplifies the same, functioning in the same manner as a sounding board in a piano. This sounding board effect will, of course, cause greater movement of the diaphragm 53 than would otherwise occur.

Springs 131*a* (Fig. 1) secure the upper rear corners of the radio 55 and the housings 43 and 66 to the top wall 40, these springs serving to support the housings and radio without at the same time transmitting to them the pulsations received by the top wall 40.

In operation, with the subject lying on his back across the central portion 31 (with legs supported by the pad 127 and head supported by pad 129), it will be apparent

that the subject may reach down with his left hand to the front panel 32 and the various control knobs located thereon. With the jack 75 plugged into the jack plug 72 and the male plug 76 connected to the wall socket 74, the radio 55 is turned on by means of the knob 57 which also controls the volume of the radio. The station is then selected by the knob 58 or the push buttons 60, as desired.

The timer switch is then set by means of the knob 78, determining the period of time during which the pulsations will occur.

The frequency or "volume" of the pulsations is then controlled by means of the knob 79 controlling a rheostat connected to the circuit of the pulsator motor.

The user may then relax and listen to the music emanating from the loud speaker 49 and reflected from the sounding board 34 through the louvres 106. The sound waves striking the diaphragm 53 will cause the moving arm 98 to oscillate across the bracket 85 and effect thereby a proportionate increase and decrease in the speed of the drive shaft 104 (which causes the pulsations by means of the eccentrics 114, 120 and 126). These pulsations are transmitted through the top wall 40 to the pad 39 where they are received by the body, permitting the user to "feel" the music as well as listen to it and effecting a beneficial relaxation and physical "toning up" of the subject. As the music becomes loud, the pulsations will increase and as the music becomes soft, the pulsations will become more delicate.

When the subject desires to listen to particular musical selections, the phonograph 109 may be connected by means of the jack 108 and the jack plug 107, as will be obvious.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

I claim:

1. A pulsating device comprising a tabular portion adapted to support a human body in a reclining position, electrical pulsating means below said tabular portion and connected to the undersurface thereof, music playing means below said tabular portion, and diaphragm-switch means connected in the circuit of said pulsating means and actuated by said music playing means whereby to vary the pulsations with the music emanating from said music playing means.

2. A pulsating device comprising a tabular portion adapted to support a reclining body, front and rear panels connected to the opposite longitudinal sides of said tabular portion and extending downwardly therebelow, a sounding board connecting the bottom portions of said panels and providing a compartment intermediate said tabular portion, said sounding board and said panels, electrical music playing means intermediate said sounding board and tabular portion, electrical pulsating means connected to said tabular portion above said sounding board within said compartment and diaphragm-switch means connected in the circuit of said pulsating means and actuated by said music playing means whereby to vary the pulsations emanating from said pulsating means with the music emanating from said music playing means.

3. A pulsating device according to claim 2, said pulsating means comprising an electric motor intermediate said sounding board and said tabular portion, said motor being freely spaced from said sounding board, a drive shaft in said motor, a first eccentric mounted on said drive shaft, a first bevel gear at the end of said drive shaft, a second shaft rotatably mounted at right angles to said drive shaft above said sounding board, a second bevel gear on the end of said second drive shaft in mesh with said first bevel gear, a third shaft rotatably mounted intermediate said tabular portion and sounding board and disposed at substantially right angles to the plane formed by said drive and second shafts, a third bevel gear at the bottom of said third shaft in mesh with said first and second bevel gears, a bearing member receiving the upper end of said third drive shaft connected to the undersurface of said tabular portion, a second eccentric mounted on said second shaft and a third eccentric mounted on said third shaft.

4. A pulsating device according to claim 2, said music playing means including a loud speaker intermediate said sounding board and tabular portion, said diaphragm-switch means comprising a diaphragm mounted in front of said loud speaker and adapted to vibrate in sympathy therewith, switch means connected in the circuit of said pulsating means, and a link connecting said diaphragm with said switch means whereby to open and close latter.

5. A pulsating device according to claim 4, said switch means comprising an upstanding insulator, a substantially vertical conductor bracket connected to the side of said insulator at the bottom thereof in a plurality of vertically adjustable positions, the upper edge of said conductor bracket having a concave arcuate portion, a conductor at the top of said insulator, a substantially vertical elongated moving arm rotatably mounted near its upper end at the side of said conductor, the lower end of said moving arm being adapted to contact the outer portions of the upper edge of said conductor bracket while freely spaced from the central portion thereof and a yoke pivotally connected at its ends to said moving arm at the upper end thereof, said link being connected to said yoke.

6. A pulsating device according to claim 2, said electrical music playing means comprising a radio mounted on the inner face of said front panel and including a control panel mounted on the outer face of said front panel, a loud speaker mounted on the inner face of said front panel, said front panel having an opening aligned with said loud speaker, an electric motor mounted on the inner face of said front panel, a drive shaft in said motor, a plurality of rotatable shafts adapted to be driven by said drive shaft, eccentric means carried by each of said plurality of shafts and said drive shaft, bearing means for the end of at least one of said shafts connected to the undersurface of said tabular portion, a timer switch connected in series with said motor and operable from the outside of said front panel, and a rheostat connected in series with said motor and operable from the outside of said front panel.

7. A pulsating device according to claim 6, said radio and motor being connected in parallel, a first jack plug connected in the circuit of said radio and motor and mounted in said front panel, means for connecting said jack plug to a source of power, and a second jack plug connected in the circuit of said loud speaker and mounted in said front panel whereby to permit said loud speaker to be connected to a phonograph.

8. A pulsating device, according to claim 2, said tabular portion comprising a central top board, a pad connected to the top surface of said board, a head board connected to one end of said first board, a pad connected to the upper surface of said head board, a foot board connected to the upper surface of said foot board.

9. A pulsating device according to claim 1, including a rheostat connected in the circuit of said electrical pulsating means, said electrical pulsating means including an electric motor, a drive shaft for said motor and a plurality of eccentrics driven by said drive shaft, a hormonica, mouth openings along said harmonica track means disposed adjacent and extending the length of said mouth openings, a slide movable longitudinally across said mouth openings of said harmonica and guided by said track means, said drive shaft extending outwardly from both ends of said motor, a blower propeller mounted on one end of said drive shaft, a housing connected to said motor and surrounding said blower propel-

ler, said housing being adapted to draw air inwardly through the sides thereof, a restricted end in said housing, said slide having a central bore, a hollow extension on said slide and communicating with said bore, means connecting said tubular extension and said restricted portion, a rack rotatably mounted at one end on said extension, a gear in mesh with said rack, said rheostat including a control knob, said gear being rotatable by said control knob whereby to move said slide into the upper range of said harmonica when said rheostat is set for maximum speed and to move said slide into the lower range of said harmonica when said rheostat is set for lower speeds.

References Cited in the file of this patent

UNITED STATES PATENTS

661,820	Schupner	Nov. 13, 1900
1,079,276	Thorell	Nov. 18, 1913
1,414,086	Janes	Apr. 25, 1922
1,690,279	Craft	Nov. 6, 1928
2,131,934	Burchfield	Oct. 4, 1938
2,500,508	Bachin	Mar. 14, 1950

FOREIGN PATENTS

405,912	Great Britain	Feb. 15, 1934
970,160	France	June 7, 1950