

April 14, 1942.

F. H. NEWTON

2,279,906

MAGNETIC VIBRATING THERAPEUTIC APPLIANCE

Filed Dec. 14, 1940

2 Sheets-Sheet 1

Fig. 2.

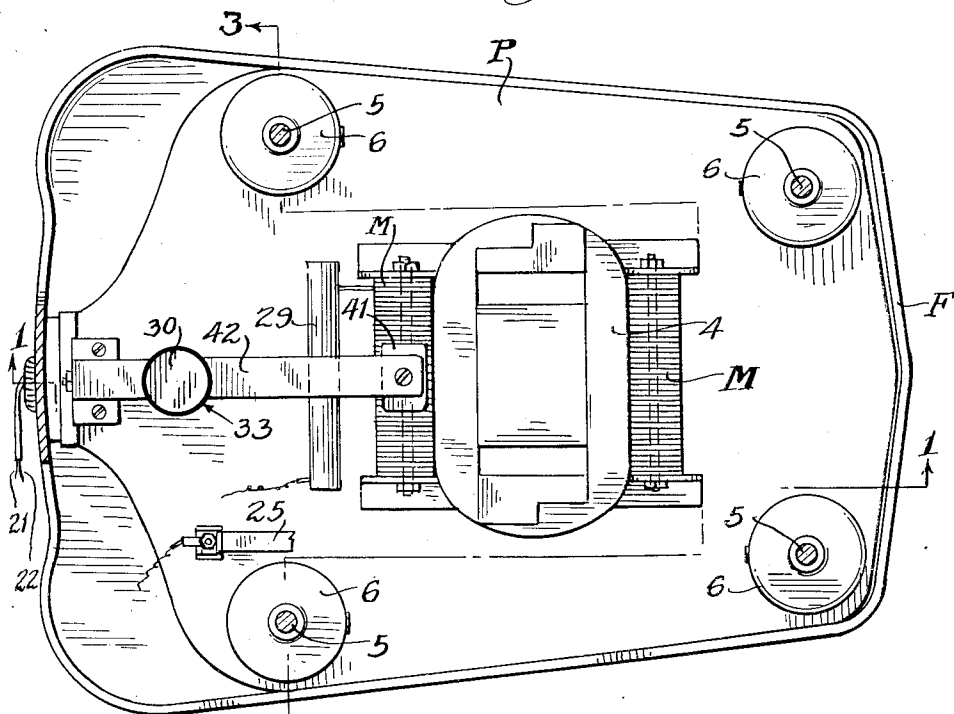
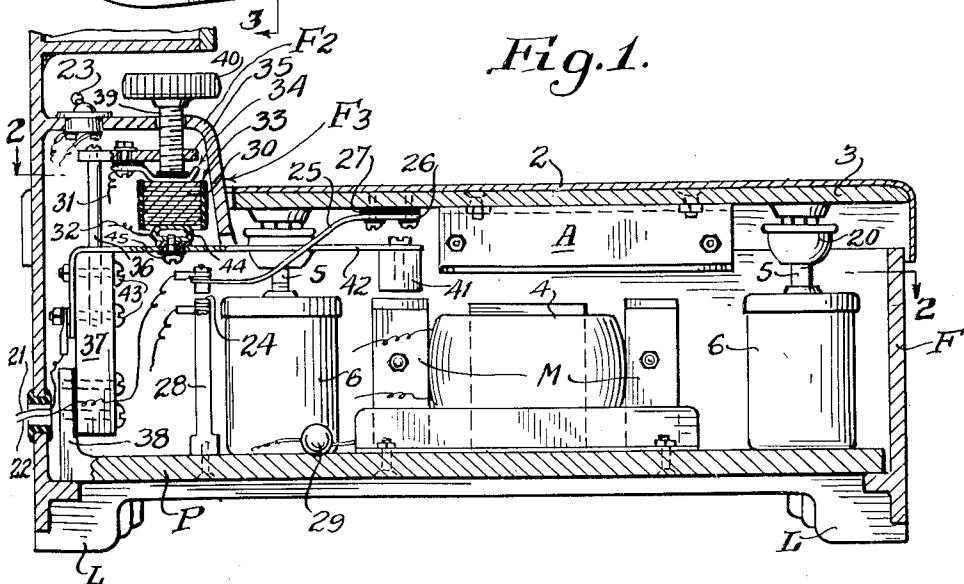


Fig. 1.



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Fig. 3.

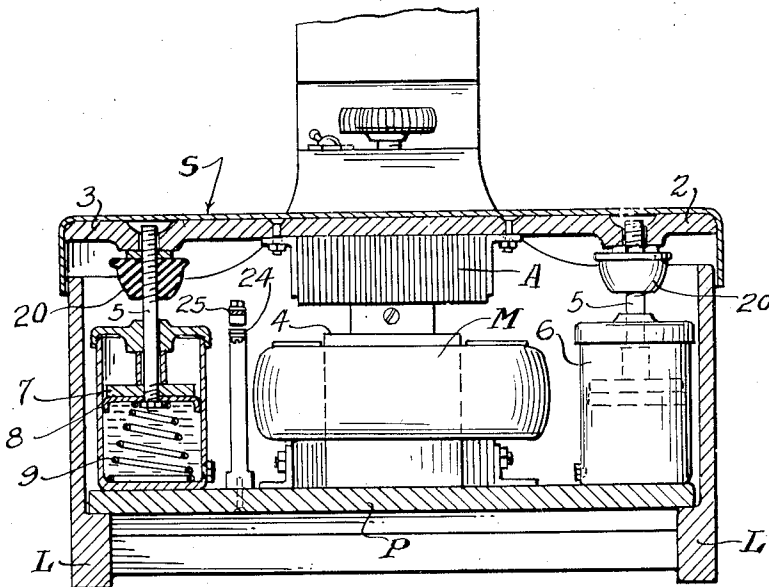


Fig. 4.

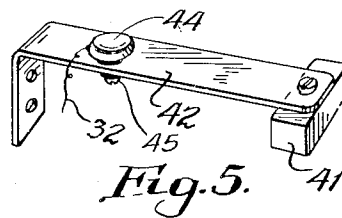
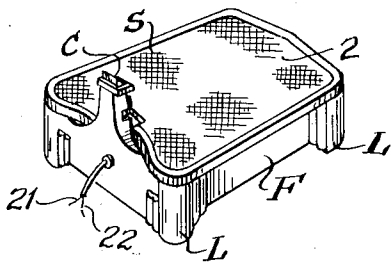
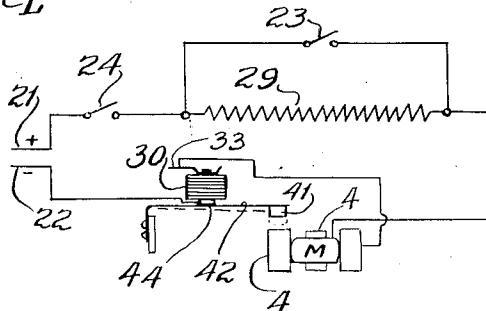


Fig. 6.



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MAGNETIC VIBRATING THERAPEUTIC
APPLIANCE

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Application December 14, 1940, Serial No. 370,167

5 Claims. (Cl. 128—41)

My invention relates to apparatus used in mechanical therapeutic treatment of patients wherein a vibration of the tissues in a mild manner relaxes muscular tension and increases the blood circulation and as it were frees congested situations as to any organ or function of the body which may be influenced by pleasing and slight vibrating shocks or impulses.

A prime object of my invention is to provide an apparatus for the purpose above described, that is simple in form, handy and adapted to sustain and vibrate the body of a person who may stand or sit thereon or vibrate any local part of the body which may be conveniently placed on the seat or platform of the apparatus.

A further object of my invention is to provide an apparatus for the purpose described which will operate efficiently in the function of producing the desired vibrating action, and composed of mechanisms that will not easily get out of order and which can be operated indefinitely without requiring repairs of any kind.

A further object of the invention is to provide in the machine controlling electrical mechanisms to produce the vibration of the seat or platform parts by electromagnetic attraction wherein the electrical current lines are not entirely opened at any time, but current may at all times pass but in the current lines there is provided an automatically variable resistance means, the vibration of which form a weak to a stronger current coacting with spring action periods which result in providing the desired vibration of the seat or platform of the apparatus.

A further object of the invention is to provide means for a vibrating magnetic attraction which acts on a seat or platform to vibrate the same by a connection in the electrical circuit of a magnetic field coil a carbon pile with spring action for intermittently compressing said pile and thereby altering its electrical conductive capacity for vibrating purposes.

Reference will be had to the accompanying drawings in which Fig. 1 is a longitudinal sectional elevation on line 1—1 of Fig. 2. Fig. 2 is a plan sectional view on line 2—2 of Fig. 1. Fig. 3 is a transverse section on line 3—3 of Fig. 2. Fig. 4 is a general outline perspective view of the machine. Fig. 5 is a perspective view of the spring vibrator acting under magnetic influence to vary the volume of electrical currents in the operation of the machine, but not to break the electrical service currents of the machine.

Fig. 6 is a diagram of the electrical wiring of the machine.

The machine is provided with any suitable table or seat S which is composed of a covering or sheathing of rubber or non-corrosive material 2 of pleasing appearance mounted over a stiff rigid plate or platform 3. This seat S is vibrated electrically which is the purpose of the mechanisms of the machine.

An enclosure or outside frame F covers the inside mechanism on all four sides and is provided with any suitable legs L, to the end that all together with sheathing S, frame walls F and legs L provide a neat appearing machine as indicated by Fig. 4.

A common use of the machine is for treating the feet of persons while standing on the seat or platform S. However, suitable extension legs, not shown, are provided to be attached to the legs L to raise the seat or platform S sufficiently high to accommodate a sitting position on the seat or platform S for the person to be treated.

Modifications of the machine are made, but not shown, for having the machine operative by deposits of coins in the common field of slot machine services when coin operative service is an attachment.

When coin operative service attachments are made with the machine then there will appear the coin slot C, or its equivalent as indicated in Fig. 4, but not claimed herein.

Inside of frame F there is mounted thereto in rigid form a base plate P in the approximate center of which there is fixed a large electro-magnet M provided with its field coil 4. This acts in association with an armature A attached to the bottom of platform 3, whereupon the action of pulsating magnetic influence the seat S and the platform 3 are vibrated.

The platform 3 is supported by dash pot piston rods 5 screwed into the plate 3 and extending into dash pots 6 in which there are pistons 7 faced with special rubber packing 8 resting on springs 9.

Inside the dash pots 6 below pistons 9 there is placed any suitable oil for dampening purposes and for preventing noise and extra recoil of the springs acting on the uplift of the platform 3 by the springs 9.

The exciting action of an electric circuit to control a magnet is so instantaneous that it is desirable to cushion the starting movement of seat S as it moves and for this purpose there is provided the oil fluid charging in the dash pots 6.

The fastenings of piston rods 5 pass through cup collars 20 which are made of rubber or elastic material for the purpose of becoming shock absorbers or bumpers in the event of any extra load pressing down the springs 9 to such an extent as to require the use of a limiting bumper stop of the platform 3.

The electric wiring is as follows: The current supply comes to the apparatus by the current lead lines 21 and 22 from any suitable public service supply of electrical current.

In the apparatus there are arranged two switches of this current, one of them being a hand operative switch 23 at the upper left hand region of the machine and indicated in the diagram at the top thereof. The other being an automatically operative switch 24, see Fig. 1.

This switch is composed of an arm 25 connected to the seat platform 3 to be carried thereby in movements to the said plate, but this arm 25 at its connection with the plate 3, indicated by 26, is insulated thereat by the insulation 27. The other contact side of switch 24 is supported on a post 28.

Whenever a load in the form of the weight of a person or any part of the person's body is supported on the platform or seat S, the dash pot springs 9 yield sufficiently to allow the closure of the switch 24 and thus automatically set the instrument or apparatus in service operation the electric current lines to the public service being then connected.

Thus normally the machine is always serviceably available whenever it is plugged in to the electrical service supply.

It is expected that the general service of the apparatus will come to be used in relation to the alternating current supply. However when direct public service current or any current supply becomes direct current, then there must be switched into this current a resistance which is necessary to reduce the ordinary resistance induction for service of this class. This is provided for in the electrical circuit by the resistance coil 29, see Figs. 1 and 2 which is caused to become a part of the electric current to the magnet coil 4 by the opening of the switch 23 which forces the current supply to go through the resistance 29, see the diagram of Fig. 6.

All the current which goes to the magnetic coil 4 does go through the switch 24 and it also goes through a carbon pile 30, as indicated by the lead lines 31 and 32 of Fig. 1.

This carbon pile 30 is arranged in disk layers and is enclosed by tubular wall 33 of non-conducting material which is held in place by frictional contact with the carbon pile. A bracket 34 of conducting material having a spring character is supported to and insulated from a cross bar 35 fixed to the top of two vertical posts 36. The posts 36 are fixed to a block 37 and this block is fixed to a projection 38 from the base plate P.

Into the bar 35 there is screwed a set screw 39 having a hand knob 40. The screw 39 is insulated to the bracket 34. By adjusting the screw 39 the pressure of the bracket 34 on to the carbon pile 30 may be increased or diminished to a close adjustment up and down of the layers or disks 30.

When the seat of platform S is occupied in service by the weight of any portion of the person being treated whereby the automatic switch 24 is closed, the magnet M is excited and pro-

duces a vibratory action of the armature A and the platform 3.

The magnetic attraction of the magnet M on one side thereof attracts an armature block 41 on a spring 42. This arm 42 is fastened to the aforementioned block 37 by means of the screws 43. On the spring arm 42 there is mounted block 44 of conducting material by a screw 45. This block 44 is cupped shaped and is adapted to be slightly adjustable in its depth in the spring arm 42, and is insulated therefrom.

When the armature block 41 is attracted to the magnet M it draws down the block 44 from the intensity of its pressure under the layers of the carbon pile 39, and thus lessens the conductivity of the electric current through the pile. This lessens the strength of the electric current which passes through the coil 4 of the magnet M and thus weakens its attraction to the armature block 41 sufficiently that the spring 42 then overcomes the magnetic attraction between the magnet M and the armature 41, and allows the spring 42 to again press up tightly the block 44 to compress the carbon pile whereby the current passing through the magnet coil 4 increases the power of the magnet M to again draw down the armature block 41, and thus there is produced not an entire make and break of the electric current in the magnet coil 4, but only a change in its intensity, which results in a vibratory variation on power of the magnet M to vibrate the armature block A together with the seat S of the platform.

By the above described arrangement of the several parts there is a vibratory pulsation movement produced in the seat S and platform 3 is controlled in its rate of vibration by the vibratory period of the spring arm 42.

The electrical current lines in Figs. 1 to 5 inclusive, are indicated only at their terminal connections to allow a clearer understanding of the other parts by omitting portions of those electric lines on those above mentioned figures.

This method is free from the feature of the burning or corroding of any relay point involved in an ordinary relay used in making and breaking an electric current circuit. Not only that, but the vibratory period of the spring 42 may be arranged to accomplish a suitable period as desired by a construction of the spring 42 to suit the vibrating period desired for use in a machine of this class.

Apparatus or machines of this class are used by the laymen who mount the machine as relates to the extra weight of the persons or parts of their body onto the seat S and platform 3, and in order to protect the left end of the machine whereat is located the carbon pile 30 and the switch 23, the frame member F has a portion F2 which extends upwardly of the left end of the machine and over horizontally to the right on which there is mounted the switch 23 and this horizontal portion is curved downwardly at F3 to protect the carbon pile and its connectings from accidental contact of persons using the apparatus.

What I claim is:

1. In an apparatus of the class described, a platform seat located in a supporting frame, mechanism in said frame and adapted to be vibrated by means of an electromagnet beneath the said platform, an electrical circuit for actuating said magnet, an electrical switch connected to said platform and adapted to close the said electrical circuit when a service pressure of a

person is applied to said platform; in combination with a variable resistor in said electrical circuit and a vibratory spring magnetically operative from said magnet and adapted to automatically actuate the resistor to vary its conductive capacity.

2. In an apparatus of the class described, a platform seat, an electromagnet and an armature therefor associated below the said platform and mounted to vibrate said platform, an electrical circuit for said magnet, a switch in said circuit actuated in closing the said circuit by a movement downward of said platform by a weight thereon, a variable resistor in said circuit, a vibratory spring actuated by magnetic impulses of said magnet and means connected to said vibratory spring to actuate the said variable resistor to automatically vary its conductive capacity.

3. In an appliance of the class described, a seat platform, an electrical armature fixed to the underside of said seat, an electrical magnet seated below said armature in and carried by a base frame member of the appliance, means for supporting said seat platform in vibratory relation to the said base frame and over the said magnet, said magnet adapted to act on said armature fixed to the said seat and vibrate the said seat and the said magnet also mounted in location to act on a small armature block located at one side of said magnet, said small armature block mounted on a spring and below the said seat, a carbon pile, contact parts on said spring adapted to contact said carbon pile for purposes of compressing said pile, an electrical circuit for energizing the said magnet and said circuit passing through the said carbon pile, said carbon pile adapted to vary the resistance in the said circuit when compressed by the said spring and thereby produce pulsation in the said electrical circuit as to the electrical strength thereof as relates to the energizing of the said magnet; in combination with a series of springs supporting the said seat platform and which are adapted to be compressed as and when the strength of the said magnet in relation to the armature on the said seat is suffi-

cient to overcome and compress the springs which support the said seat platform.

4. In an apparatus of the class described, a frame mechanism, a seat platform mounted in said frame mechanism and adapted to vibrate vertically therein, an electromagnet fixed in the said frame underneath the said platform, an armature block fixed to the underside of said platform and over the said electromagnet, the mounting of said platform in said frame being composed of vertically arranged pistons connected to the said platform and said pistons sliding into cylindrical dash pots fixed in said frame mechanism, an electrical circuit for said magnet, a carbon pile in the said circuit adaptable for a varying resistance member, a vibratory spring mounted to be vibrated by the varying magnetic strength of said magnet, said vibratory spring having a contact member in association with said carbon pile whereby the vibrations of said spring act to vary the compression of said carbon pile and thereby vary the strength of said magnetic circuit, manually operated means for adjusting the conductivity of said carbon pile.

5. In an appliance of the class described, a seat platform, a base frame on which said seat is mounted, means for mounting said seat in said base frame whereby there can take place vertical vibrations of said seat in relation to said base, an electrical armature fixed on the underside of said seat in association with an electro-magnet located underneath said seat and armature and supported in said frame, an electrical conductor circuit connected to and adapted to energize said magnet from any suitable source of electrical current supply, a carbon pile connected in said circuit and being adaptable to produce a varying resistance in said circuit, a vibratory spring mounted to be vibrated by the magnetic strength of said magnet, said spring having a contact member contacting said carbon pile whereby the vibration of said spring acts to vary the compression of said carbon pile and thereby vary the strength of said magnetic electrical circuit.

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