

No. 891,776.

PATENTED JUNE 23, 1908.

J. B. KIRBY.
VIBRATOR FOR MOVEMENT CURE PURPOSES.
APPLICATION FILED JUNE 14, 1907.

Fig. 1.

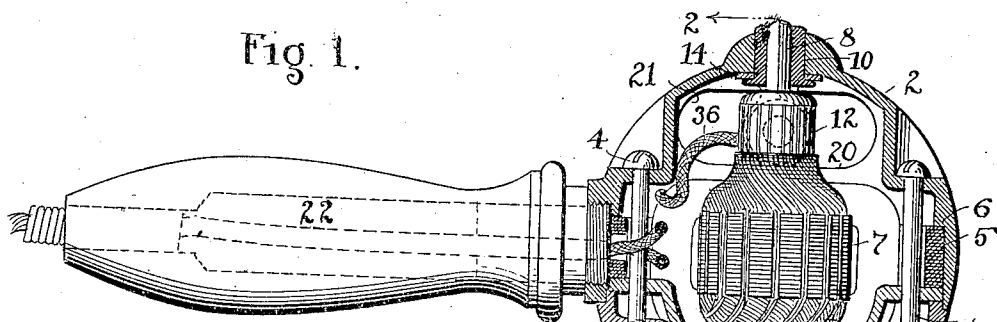


Fig. 2.

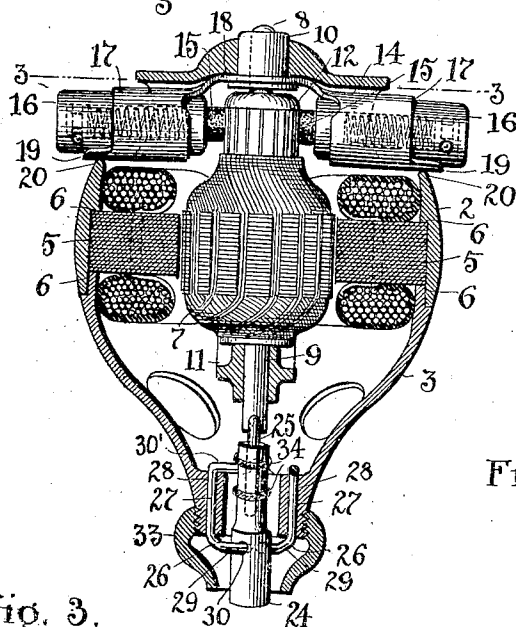
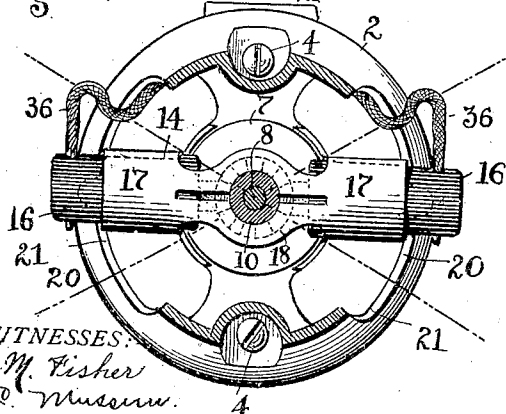


Fig. 3.



WITNESSES:
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Fig. 4.

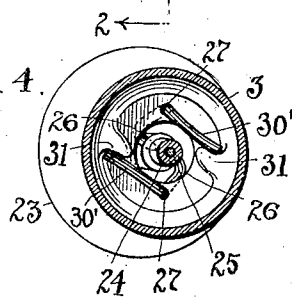
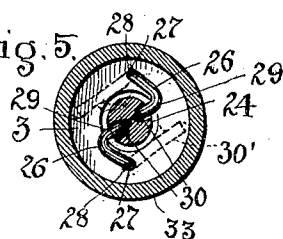


Fig. 5.



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UNITED STATES PATENT OFFICE.

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VIBRATOR FOR MOVEMENT-CURE PURPOSES.

No. 891,776.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed June 14, 1907. Serial No. 378,888.

To all whom it may concern:

Be it known that I, JAMES B. KIRBY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Vibrators for Movement-Cure Purposes, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to vibrators for movement cure purposes, and the invention is embodied in the construction and arrangement of parts substantially as herein shown and described and more particularly pointed out in the claims.

The general purpose of my invention is to produce a rotary vibratory movement by simple and durable means comprising in part a yielding fulcrum support for the applicator adapted to minimize friction and wear.

A further object of the invention is incorporated in the shifting brush-holder adapted to vary the speed of the motor and the vibratory movement of the applicator.

Other objects are embodied in other details of construction and as hereinafter more specifically described.

In the accompanying drawings, Figure 1 is a central sectional view of the device complete, and Fig. 2 is a sectional view on line 2-2, Fig. 1 without the applicator. Fig. 3 is a cross section of the main body or casing on line 3-3, of Fig. 2 showing the brush-holder and its rotatable relation with the commutator and the fields. Fig. 4 is a cross section on line x-x, Fig. 1 showing the locking ends of the spring fulcrum members for the applicator support, and Fig. 5 is a cross section on line z-z, Fig. 1, showing the opposite fulcrum ends of said members socketed within said support.

Now, referring more particularly to the details of the invention, a two-part hollow body is shown which consists of a main section 2 of semi-spherical shape, and an extended section 3 secured thereto by a pair of bolts or screws 4. Main section 2 provides a housing support for an electrical motor, the field cores 5 of which are clamped between shoulders 6 of the respective body sections when joined together.

Armature 7 of the motor is supported centrally between the field cores by shaft ends 8 and 9 which have their respective bearings in

bushing 10 in main section 2, and in a cross piece 11 secured in place between the sections at their joint line and by bolts or screws 4. The commutator 12 of armature 7 is arranged adjacent to bushing 10, and said bushing rotatably supports brush-holder 14 centrally between its ends and said brush-holder has a pair of spring pressed carbon brushes 15 engaged with the commutator and confined within insulating tubes 16 mounted in the cylindrical brush-holder ends 17. Brush-holder 14 is made of spring metal and has a split sleeved bearing engagement with bushing 10 and also a flat bearing engagement at 18 with body section 2, and the holder is bent or bowed to maintain frictional engagement at lips 19 of ends 17 against edges 20 of elongated openings 21 within the sides of body section 2, and through which the brush-holder ends extend to be grasped by the fingers of the operator for rotating said brush-holder on its axis and in respect to the commutator and the fields, and whereby the speed of the motor is governed and a corresponding change in vibration is obtained. The frictional engagement between the brush-holder ends and stationary body section 2 firmly holds the brush-holder in any position as set, and the ends are so disposed in respect to handle 22 of the device and in such close relation thereto that the operator may conveniently operate the brush-holder with the thumb of the hand grasping the handle. Obviously, this arrangement of a speed regulating brush-holder constructed as a part of the device is of material advantage in giving treatments where the other hand of the operator may be otherwise employed.

The rotary movement of the motor armature is utilized to impart a gyratory and vibratory movement to applicator 23 and its supporting member 24 by a crank stem 25 secured off center at the end of armature shaft end 9 and inclined axially in respect thereto, but sleeved centrally and axially within tubular supporting member 24. This result, of course, would not be obtainable without a fulcrum support for said member, and which, in this instance comprises novel means adapted to yieldingly resist end pressure upon the applicator and also lateral pressures upon the same and its support, and whereby friction and wear is reduced to a minimum, thus assuring long life and durability to the device at a point

where the strain and wear is greatest. To this end, a pair of fulcrum members 26 are provided which are made of spring wire having a straight middle portion 27 adapted to be rotatably mounted within bores 28 in the tubular end of body section 3 and which members are further provided with angularly bent fulcrum ends 29 adapted to seat at their pointed or rounded extremities in sockets 30 in opposite sides of supporting member 24. Two such fulcrum members 26 are provided, one at each side of the axial line of supporting member 24; and the fulcrum ends 29 thereof project toward each other and on the same central line to provide a substantially pin point rocking bearing for supporting member 24. It will be noted also that the angular relation of fulcrum end 29 to the middle portion 27 is such that a lateral pressure upon applicator 23 and its support 24 against the extremities of the fulcrum ends 29 will tend to rotate fulcrum members 26 at their middle portion 27 within bores 28. This tendency is spring counteracted by inner right angled ends 30' of members 26 which engage at their free ends with lugs or stops 31 integral with the inner wall of section 3. A yielding play in various directions is thereby given to the fulcrum support 24 which relieves the strain on crank stem 25, although said stem is also preferably backed up by a spring 32 mounted upon the right angled end of said stem and bearing against the shaft to yieldingly hold said stem to its seat, and which provides for a limited amount of irregular movement of said stem and prevents rattling and noise. The spring wire for these parts is preferably piano wire of suitable gage, and in practice the construction as described has been found to stand up for indefinite periods without breaking and without appreciable wear and making an ideal fulcrum support for the uses and purposes set forth.

A screw cap 33 attached to the end of section 3 incloses the fulcrum members and provides a neat finish for the device at this point. Any suitable oiling medium may be employed between the operating parts, but as here shown self oiling felt washers 34 are used which are sleeved over tubular member 24 and pressed into a side slot 35 and into engagement with stem 25. The electrical connections between the fields and the brushes consist of flexible tinsel cords 36, and the line connections are made through the hollow handle 22.

What I claim is:—

1. In vibrators, power means and an applicator member connected therewith having a fulcrum support comprised of spring wire.

2. In vibrators, an applicator having a fulcrum support of spring wire members yieldingly mounted, and power means ec-

centrically connected with the applicator support to impart vibrations to the applicator.

3. In vibrators, a power shaft having a crank stem, an applicator support engaged with said crank stem, and a pair of spring fulcrum members for said support.

4. In vibrators, a motor having a crank shaft, a tubular member engaged with said crank shaft, a set of spring wire members having angular ends adapted to provide fulcrum supports for said tubular member, and an applicator mounted upon said tubular member.

5. In vibrators, the combination of a power shaft, with a gyratory and vibratory member for applicators operatively engaged therewith, said member having a yielding fulcrum support adapted to play against both end and lateral pressures.

6. In vibrators, a powershaft having a crank member, an applicator support operatively engaged with said crank member, a pair of spring wire members having bent portions adapted to provide fulcrum supports for said applicator supports, and said spring members being mounted under spring tension to resist lateral pressure upon said applicator support and its fulcrum members.

7. In vibrators, an electric motor and a support therefor, combined with an applicator having a vibratory support operated by said motor, and a speed regulator for said motor mounted upon said motor support.

8. In vibrators, a motor and a support therefor, combined with an applicator having a vibratory support operatively engaged with said motor, and a brush-holder for said motor adjustably mounted upon said motor support.

9. In vibrators, an electric motor and an applicator having vibratory connection with said motor, in combination with a speed regulator for said motor comprising a brush-holder having frictional supporting parts and rotatably supported in respect to the field of the motor to vary the speed of the motor.

10. In vibrators, an electric motor and an applicator having vibratory connection therewith, in combination with a speed regulator for said motor comprising a shifting brush-holder forming a part of said vibrator and rotatably mounted thereon relatively to the motor fields and motor commutator.

11. A vibrator having a hand support and a motor mounted thereon, and an applicator having vibratory connection with said motor, in combination with a speed regulator for said motor comprising a shifting brush-holder forming a part of said vibrator and rotatably mounted in respect to the fields and commutator of said motor and in relatively close working relation to said handle.

12. In vibrators, a two-part body having

motor fields and cores therefor removably clamped between said parts, and a motor armature rotatably mounted upon said body and having vibratory imparting means connected therewith.

13. In vibrators, a hollow body and an electric motor supported therein, and a shifting brush-holder for said motor comprising a rotatable spring support frictionally engaged with said body, in combination with an applicator and a vibratory support for said applicator operatively connected with said motor.

14. In vibrators, the motor and crank stem thereon, and a vibratory support for

an applicator sleeved upon said crank stem, slots within the sides of said support, and self-oiling washers mounted within said slots.

15. In vibrators, the motor shaft and a crank stem having a spring adapted to provide a yielding connection therewith, in combination with an applicator support operatively engaged with said crank stem.

In testimony whereof I sign this specification in the presence of two witnesses.

JAMES B. KIRBY.

Witnesses:

E. M. FISHER,
R. B. MOSER.