G. VANDE.

VIBRATOR.

APPLICATION FILED JUNE 16, 1913.

1,093,301. Patented Apr. 14, 1914.

Fig. 1.

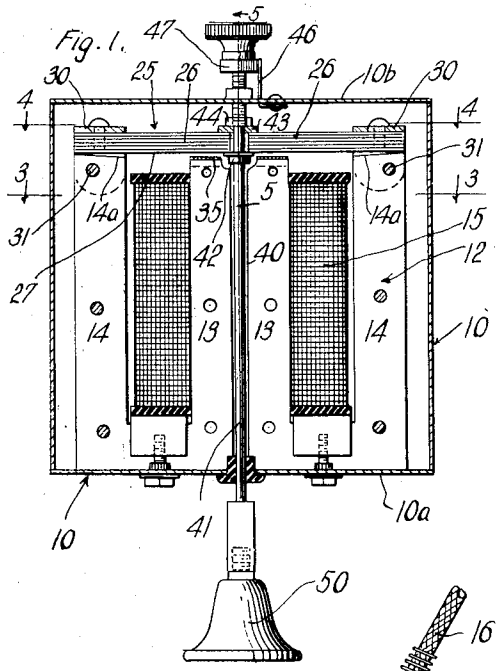


Fig. 2.

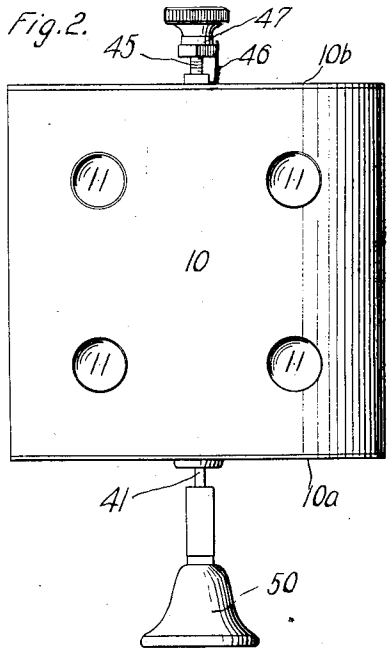


Fig. 3.

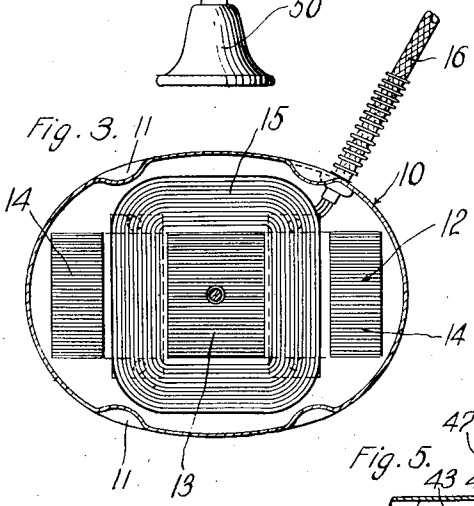


Fig. 4.

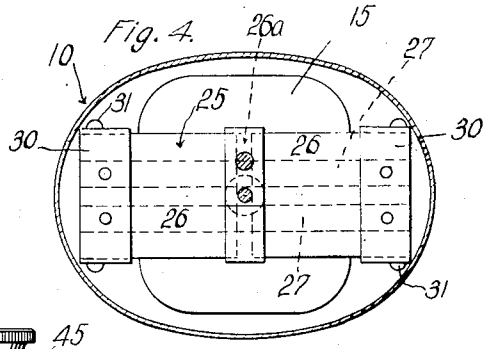
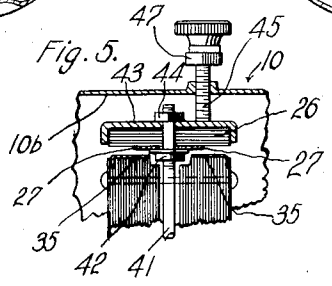


Fig. 5.



Witnesses.
Elwood H. Babcock
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UNITED STATES PATENT OFFICE.

GERARD VANDE, OF LOS ANGELES, CALIFORNIA.

VIBRATOR.

1,093,301. Specification of Letters Patent. Patented Apr. 14, 1914.

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To all whom it may concern:

Be it known that I, GERARD VANDE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Vibrators, of which the following is a specification.

This invention relates to vibrators and particularly to vibrators for massage and medical purposes and preferably to vibrators adapted to be operated by alternating current; and one of the objects of my invention is the provision of a simple and inexpensive mechanism which will efficiently perform the desired operations without mechanical or electrical complications of any sort whatever.

In the preferred form of my invention, I employ a magnet core of double-U-shaped form, having a central core and lateral pole extensions on opposite sides thereof; and I preferably place the energizing coil on the central core, although this may be as desired. I utilize an armature which I attach at each end to the lateral pole extensions, the armature extending over the central core; and my preferred form of construction for the armature includes a flat steel spring backed by a body of iron laminæ which are preferably severed or broken at their centers. Such a form of armature I have found to give very efficient results, the iron body providing for the rapid reversals of magnetic flux necessary for the oscillation of the armature, and the steel spring providing the necessary resiliency. I have illustrated my preferred form of mechanism in the accompanying drawings, in which:

Figure 1 is a vertical longitudinal section of my apparatus. Fig. 2 is an exterior view thereof. Fig. 3 is a horizontal section taken as indicated by line 3—3 of Fig. 1. Fig. 4 is a horizontal section taken as indicated by line 4—4 of Fig. 1. Fig. 5 is a horizontal section taken as indicated by line 5—5 of Fig. 1.

In the drawings the numeral 10 may designate a suitable case which I preferably provide with depressions 11 so that the case may be grasped by the fingers, and thus obviate the necessity of a handle for the device. The case is preferably of the oval cross section shown in the various drawings and has heads 10^a and 10^b. Within the case I mount a magnetic core 12, preferably constructed of sheet iron laminæ and preferably in double-U-shaped form with a central core 13 and lateral pole extensions 14 on opposite sides of the central core. The energizing coil 15 is preferably placed around the central core and is suitably connected to wires 16 by which it may be connected to any suitable source of alternating current.

My armature 25 I provide with a body of laminated iron 26, beneath which I have two flat spring steel straps 27. The body of iron laminæ 26 is severed or broken at its center, as illustrated at 26^a; so that the resiliency of the spring steel straps 27 is practically the only resiliency possessed by the armature. The ends of the composite armature are held under clips 30 which are pivotally attached at 31 to the pole extensions 14, and a small space is provided by beveling the faces of the pole extensions, as at 14^a, to provide for the oscillation of the armature. To reduce noise to a minimum, I have provided a small pad of felt, or other suitable material, 35 on the upper end of the core 13, the edges of the pad being held between laminæ of the core.

The central core 13 is provided with a bore or opening 40 through which the vibration rod 41 passes. This vibration rod is directly attached to the armature; and I prefer to make the construction so that the vibration rod also acts as a bolt which holds the various parts of the armature together. For this purpose, I provide a washer 42 beneath the armature on the vibration rod, the clip 43 and nut 44 above the armature on the vibration rod, the rod passing through the armature in the soft iron laminated body. The clip 43 holds the soft iron laminæ from lateral motion; and the whole construction is such that the soft iron body is held to the steel springs 27 so that the armature will vibrate as a solid whole. Adjustable stop screw 45, having a spring detent 46 which presses against a flat faced portion 47 of the screw head, is adapted to limit the movement of the armature away from the magnet. The movement of the armature away from the magnet is induced by the resilient action of the steel springs 27: or is induced by pressure against the massage tool 50 mounted on the outer end of vibrator rod 41. When the massage tool 50 is pressed against the person, there is a constant tendency to press the armature away from the magnet: and the adjustable stop screw 45 limits this tendency.

By actual construction and practice my device has proven to be very efficient in its action, although it is exceedingly simple and inexpensive of construction. Operated by alternating current as usually available, of either 50 or 60 cycles per second, the speed of vibration is about that which is commonly used in laboratory massage machines: while I am enabled to obtain variable amplitude of vibration with a maximum sufficient for all needs and purposes.

Having described a preferred form of my invention, I claim:

1. A vibrator, comprising a double-U-shaped magnet with a central core and lateral pole extensions, an energizing coil for the magnet and a spring armature attached to both polar extensions and extending medially over the core.

2. A vibrator, comprising a double-U-shaped magnet with a central core and lateral pole extensions on opposite sides thereof, an energizing coil for the core, and a spring armature pivotally attached to both polar extensions and extending medially over the core.

3. A vibrator, comprising a double-U-shaped magnet with a central core and lateral pole extensions on opposite sides thereof, an energizing coil for the core, and a spring armature attached to both polar extensions and extending medially over the core, said armature comprising a body of soft iron laminæ and a flat strip of spring steel.

4. A vibrator, comprising a double-U-shaped magnet with a central core and lateral pole extensions on opposite sides thereof, an energizing coil for the core, and a spring armature attached to both polar extensions and extending medially over the core, said armature comprising a body of soft iron laminæ broken centrally over the core, and a flat strip of spring steel continuous between the points of attachment to the lateral pole extensions.

5. A vibrator, comprising a double-U-shaped magnet with a central core and lateral pole extensions on opposite sides thereof, an energizing coil for the core, and a spring armature attached to both polar extensions and extending medially over the core, said armature comprising a body of soft iron laminæ broken centrally over the core, and a flat strip of spring steel continuous between the points of attachment to the lateral pole extensions, and means to hold the soft iron laminæ to the steel strip at its center.

6. A vibrator, comprising a double-U-shaped magnet with a central core and lateral pole extensions, an energizing coil for the magnet, an armature connected to both polar extensions and extending medially over the core, and spring means for rendering resilient the motion of the armature to and from the central core.

In witness that I claim the foregoing I have hereunto subscribed my name this 9th day of June, 1913.

GERARD VANDE.

Witnesses:
DRUE L. HOFFMAN,
JAMES T. BARKELEW.