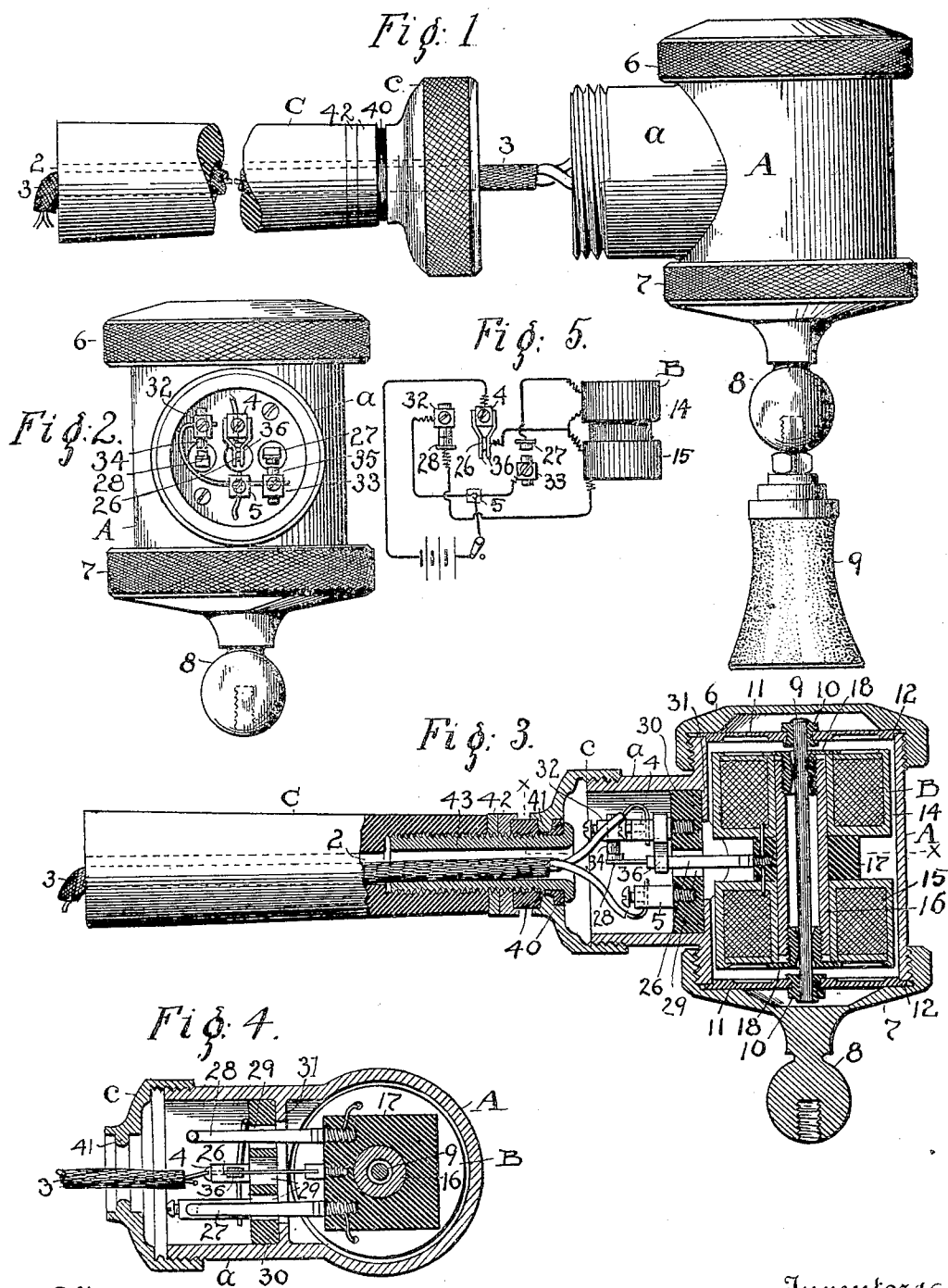


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L. E. RICHMOND & C. J. GRAHAM.
ELECTRICAL VIBRATING AND MASSAGING DEVICE.
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UNITED STATES PATENT OFFICE.

LOUIS E. RICHMOND AND CHARLES J. GRAHAM, OF CLEVELAND, OHIO.

ELECTRICAL VIBRATING AND MASSAGING DEVICE.

No. 800,489.

Specification of Letters Patent.

Patented Sept. 26, 1905.

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To all whom it may concern:

Be it known that we, LOUIS E. RICHMOND and CHARLES J. GRAHAM, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electrical Vibrating and Massaging Devices; and we 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.

Our invention relates to electrical vibrating and massaging devices and is an improvement in that class of devices which are electrically operated and adapted to be held in the hand; and it consists in the construction substantially as hereinafter shown and described, and more particularly pointed out in the claims.

Our object is embodied in a small hand device which is constructed of separable parts permitting ready and convenient means of access to the interior for repairs and inspection and wherein the movable parts are adapted to operate freely and with the least possible friction.

In the accompanying drawings, Figure 1 is a side elevation of our improved vibrating device with the handle shown as slipped back on the cable and removed from the main body. Fig. 2 is a side elevation at right angles to Fig. 1 looking into the open end of the handle-supporting extension and with the handle removed. Fig. 3 is a central longitudinal section on the axial line of the casing, and Fig. 4 is a central horizontal cross-section on line *x x*, Fig. 3. Fig. 5 is a diagrammatic view of the magnet-plunger and the circuits and contacts therefor.

The main body of the device comprises a cylindrical shell or casing A, provided with a tubular side extension *a*, the casing confining a double magnet-plunger B, adapted to move axially therein. Extension *a* confines the electrical contact members and electrical connections for the magnets and is externally threaded at its end to receive a hard-rubber handle C, having a head *c*, internally threaded.

The device is intended to be supported by the hand, and the electrical connecting-wires pass through the handle to permit freedom of movement of the device in its application. To this end handle C has a central bore or opening 2, through which the elec-

trical cable connection 3 passes to connect with the electrical terminal posts 4 and 5, respectively, within extension *a*. This construction of handle permits a ready removal of the handle from the body without disconnecting the wires, the handle when unscrewed slipping back over the cable, so that the interior may be viewed and the parts therein brought within reach.

Casing A is provided with threaded end caps 6 and 7, respectively, cap 7 having a boss or extension 8, into which any suitable massaging-cup 9 or like member may be secured. These cups or members are in various shapes and patterns, according to their uses, and therefore a detachable connection, such as a screw-threaded extremity, is desired.

The double magnet B is of somewhat less diameter than the interior of casing A and is supported to slide upon a central copper rod or shaft 9, which is supported at its ends in fiber bearings 10, centrally fastened within the removable end plates or walls 11. Said plates are in reality armature-disks having a flange 12 bearing against the end of casing A and firmly held in place thereon by a bearing-shoulder on end caps 6 and 7. Magnet-plunger B comprises two oppositely disposed and alined magnets 14 and 15, respectively mounted upon a brass sleeve 16 and with an intervening body of fiber 17 about said sleeve, which acts as an insulating-washer between the two magnets. A tubular nut 18 is screwed into each of the internally-threaded ends of sleeve 16 and secures the magnets firmly in place upon said sleeve and in locked relation, and said nuts also provide a sliding bearing for the magnet-plunger upon central rod 9. The plunger B is of less length than the distance between heads 11 and slides back and forth on rod 9 when its respective magnets are alternately energized. To this end we provide three several contact-arms 26, 27, and 28, respectively, each of which is screwed into fiber washer 17 at the side opposite extension *a* and projects through slots or openings 29 in the fiber base 30, screwed to flange or wall 31 within said extension.

A set of contact-posts 32 and 33 are mounted upon the outer exposed faces of fiber base 30 and project outward within extension *a*, and each post has a short contact-pin 34 and 35, respectively, adjustably secured by a screw at the top of each post. Contact-arms 27 and 28 are preferably of spring-

metal with platinum tips, which are alined opposite and adapted to engage the respective contact-pins 34 and 35. Only one of said contact-arms is in engagement with one of the contact-pins at the same time. The moment engagement is broken between one set of contacts the other set is brought into engagement by the movement of plunger B. Contact-arms 27 and 28 are connected with magnets 14 and 15, respectively, and the return-circuit for said magnets is through central contact-arm 26, which is in constant engagement with spring members 36 on post 4, forming one of the terminals for cable 3. It will readily be understood by the foregoing that first one magnet is energized to move the plunger in one direction, and as this movement takes place and before it reaches the end of its travel a break is made in one set of contacts and a circuit established by the contacts of the other set to energize the other magnet and cause a return movement, and this movement continues repeatedly as long as the electrical current is on the line.

The reciprocal action of plunger B within casing A causes said casing to vibrate to a high degree, which vibration is imparted to the patient under treatment through the medium of the massaging member 9 and may be more or less transmitted by the degree of pressure of the operator as the device is manipulated by hand.

The foregoing description covers a construction which is exceedingly light and simple, the casing and caps and handle-head being preferably made of aluminium for the sake of lightness and being removable for convenience in assembling, repairing, and for inspection. Central guiding and supporting rod 9 is of great importance in reducing friction and for keeping the plunger in true alinement, as will be readily understood when it is noted that a device of this description is held at all angles and in all positions while at work.

We prefer to use an elastic or flexible connection between handle C and casing A to avoid transmission of the vibrations of the casing to the hand of the operator and for other reasons and to that end provide a set of soft-rubber washers 40, arranged upon opposite sides of annular flange 41 on head c, and lock them in place by screw-nuts 42 and a tubular locking-thimble 43, adapted to support handle C.

What we claim is—

1. In a massaging device, a cylindrical casing and a set of magnet-coils free to slide therein, timed make-and-break circuit, means to alternately energize said magnets, and a removable handle for said casing covering said make-and-break means.

2. In a massaging device, a cylindrical casing and a pair of connected magnets free to

slide therein, and make-and-break contact means for switching the electrical current alternately to said magnets, said contact means projecting through said casing at one side thereof, and a handle detachably secured to said casing and inclosing said means.

3. In a massaging device, a casing and a handle therefor, a magnet-plunger reciprocally confined within said casing, timed make-and-break contact mechanism for controlling the current to said magnets, and a massaging member secured at the end of said casing to transmit the vibrating movement produced by the reciprocal action of said plunger and casing when said device is supported by the handle.

4. In a massaging device, a cylindrical casing having an opening at one side and removable end caps, a magnet free to slide back and forth within said casing and having contact members projecting through said opening, a handle attached to said casing and covering said opening and contacts, and a massaging member detachably secured to one of said caps.

5. In an electrical vibrating massaging device, a cylindrical casing provided with a tubular extension, a magnet-plunger within said casing and contact members therefor within said extension, a removable handle supported by said extension, and a massaging member mounted upon said casing.

6. In an electrical vibrating massaging device, a cylindrical casing provided with a tubular extension, a magnet-plunger within said casing having a contact member projecting into said extension, contacts for said members, a handle for said casing, and a massaging member attached to said casing.

7. In an electrical vibrating massaging device, a cylindrical casing having removable end caps, a massaging member attached to one of said caps, a side extension for said casing and a removable handle connected therewith, and a magnet-plunger and contact members therefor mounted to operate within said casing and its extension.

8. In an electrical vibrating massaging device, a cylindrical casing having a tubular extension at one side thereof, a removable handle for said extension, removable end caps for said casing, a magnet-plunger within said casing and a supporting guide-rod for said plunger, and a massaging member on one of said caps.

9. In an electrical vibrating massaging device, a cylindrical casing and a reciprocal magnet-plunger therein, a central guide and supporting-rod for said plunger, and removable supporting members for said rod mounted upon said casing, inclosing caps for the ends of said casing, contact-arms and members within said casing and for said magnet-plunger, and a massaging member attached to one of said caps.

10. In an electrical vibrating massaging device, a cylindrical casing having removable end caps and a massaging member upon one of said caps, in combination with a magnet-plunger reciprocally confined within said casing and comprising a pair of magnets having a central connecting-sleeve and tubular nuts at the end thereof to secure said magnets together, and a central guiding and supporting rod within said casing for said plunger.

11. In an electrical vibrating massaging device, a cylindrical casing having a tubular extension, removable end caps for said casing and a tubular removable handle for said extension, a magnet-plunger free to reciprocate within said casing and contact-arms on said plunger extending within said extension, contact members mounted within said extension and electrical connections leading thereto through said tubular handle, and a massaging member carried by said casing.

12. In a massaging device, the main casing and vibrating actuating mechanism therefor, in combination with a handle provided with a tubular member removably attached thereto and a set of compressible washers adapted to yieldingly support said casing upon said handle and said member.

13. In an electrical massaging device, a main casing and vibratory actuating mechanism therefor comprising a reciprocating magnet-plunger, in combination with a handle having flexible or yielding supporting members for said casing.

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

LOUIS E. RICHMOND.
CHARLES J. GRAHAM.

Witnesses:

C. A. SELL,
R. B. MOSER.