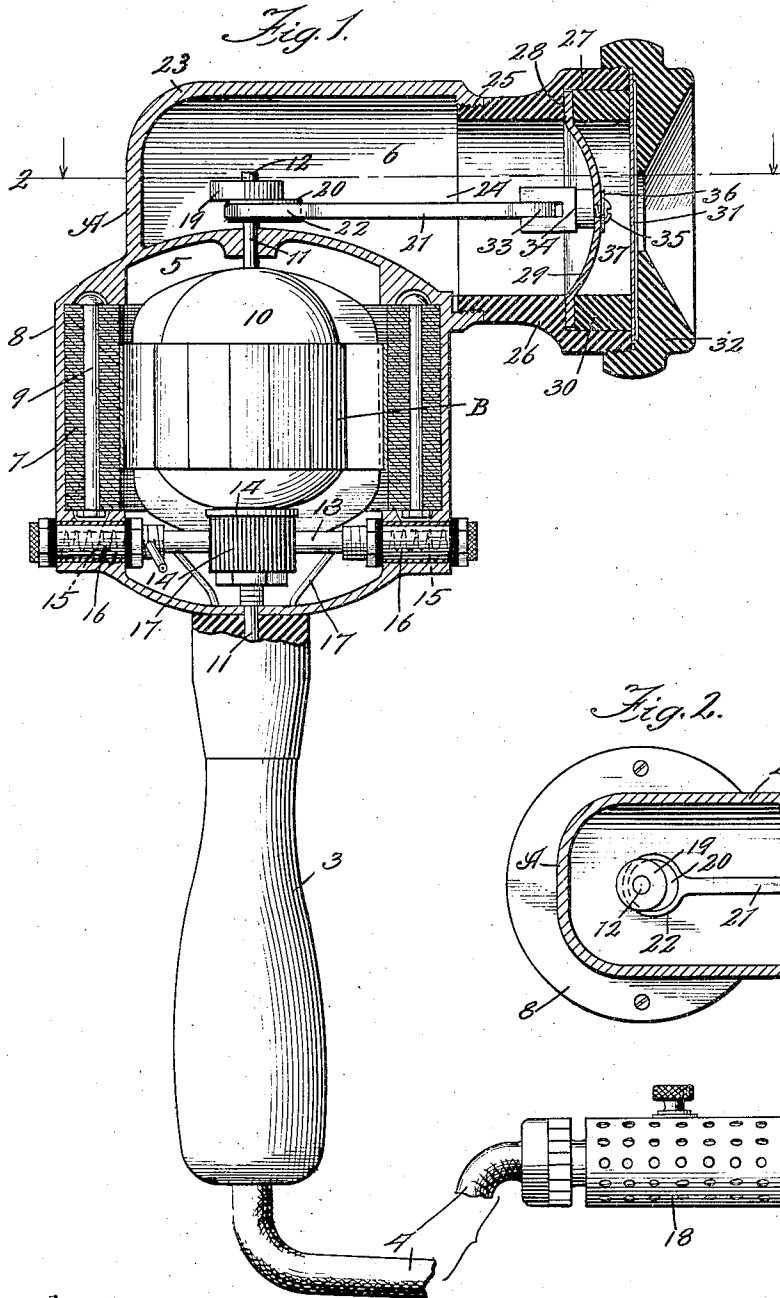


K. VAN HOOK.
 MASSAGE APPARATUS.
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1,042,058.

Patented Oct. 22, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

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MESSAGE APPARATUS.

1,042,058.

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To all whom it may concern:

Be it known that I, KATE VAN HOOK, a citizen of the United States, residing at Hiawatha, in the county of Brown and State of Kansas, have invented new and useful Improvements in Massage Apparatus, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in massage apparatus in general, but more specifically in connection with ear massage devices, and has for its object the production of a device by means of which the drums of the ears may be vibrated or flexed to any desired degree.

A further object is the production of a device in which the movement of a resilient diaphragm is utilized to obtain the desired result.

A further object is the production of a device in which the parts are of simple construction, conveniently arranged in a suitable case and not liable to disarrangement.

These and such other objects as are hereinafter set forth are attained by my device, an embodiment of which is illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of my device partly in section; Fig. 2 represents a sectional view on the line 2—2 of Fig. 1, looking in the direction indicated by the arrows.

Like numerals of reference indicate like parts in the several figures of the drawing.

Referring now to the drawings, 3 is a handle or support through which passes the cord 4. Mounted on the handle, is a metallic case A, divided, in the present instance, into two chambers 5 and 6. Mounted within the chamber 5, is a suitable motor B, comprising a field 7, rigidly secured within the walls 8 of the casing by means of bolts 9 passing therethrough and an armature 10 mounted on a shaft 11, one end of which passes through the bottom of the case and into the handle, while the upper end passes through the top of the case and into the chamber 6, as shown at 12.

The carbon brushes 13 are held against the commutator 14 by means of springs 15 in the tube 16, and the connection between the field 7 and the cord 4 is shown at 17.

On the cord-circuit 4, is placed a suitable rheostat 18 adapted to fit in any lamp socket,

by means of which the amount of current passing into the device may be regulated.

Rigidly mounted on the end 12 of the shaft 11, is a disk 19; and adjacent and inside thereof on the shaft, is eccentrically mounted a driving cam 20. A driving shaft or connecting rod 21 is enlarged at its inner end, forming a circular eye 22 adapted to fit loosely over the circular cam 20.

The walls 23 of the upper casing are threaded about the openings 24 at 25, and a hard rubber cylindrical extension 26 is screwed therein. This extension is enlarged at the end, as shown at 27, forming a circular seat 28. A diaphragm of rubber or other resilient material 29 is mounted on the seat 28 and held in place by a hard rubber gasket 30, fitting within the enlarged end 27. An ordinary thin metallic disk or diaphragm 31, similar to those used in telephone receivers, is mounted on the end of the extension, and an ordinary telephone receiver cap 32 is screwed over the end of the extension, holding the disk in place.

The connecting rod 21 is hingedly mounted at the outer end 33 on a supporting head 34, adapted to press against the inner face of the center of the diaphragm and held against lateral movement by means of the screw 35, a washer 36 being interposed between the screw and the diaphragm.

The mechanical operation of my device is extremely simple. The current being turned on, the shaft 11 rotates, transmitting a reciprocatory motion to the connecting shaft or rod 21 and causing the diaphragm 29 to move in and out rapidly, the motion amounting practically to a vibration of the disk or diaphragm. This rapid vibration causes the air within the chamber 37 between the diaphragms to be alternately compressed and expanded and causes the vibration of the second disk or diaphragm 31. The instrument being held close to the ear, the column of air between the outer diaphragm and the ear is also alternately compressed and expanded, thus tending to set up a vibratory action in the drum of the ear and perform what may be termed "phonic massage".

The cause of deafness in a great many cases is known to be a lack of circulation in the tiny blood vessels in and surrounding the ear drum, by reason of which the drum becomes hardened and responds less readily to the sound vibrations from the outside. By

the use of my device, however, the drum and surrounding parts of the ear are massaged and circulation is thereby produced, thus proving very beneficial in restoring impaired hearing.

In the event that the current used is not strong, or the case treated is stubborn or severe, the second diaphragm 31 may be dispensed with and the vibrations transmitted directly from the first diaphragm 29.

I claim:

1. In a device of the class described, the combination of a diaphragm case, a diaphragm, a second diaphragm so positioned as to form a closed chamber between the two diaphragms, a motor, and means for causing said diaphragms to vibrate rapidly.

2. In a device of the class described, the combination of a diaphragm case, a diaphragm, a second diaphragm so positioned as to form a closed chamber between said diaphragms, a motor, a connecting rod between the shaft of said motor and said first mentioned diaphragm, whereby both diaphragms may be caused to vibrate rapidly.

3. In a device of the class described, the combination of a diaphragm case, a diaphragm, a second diaphragm so positioned as to form a closed chamber therebetween,

a motor, a connecting rod positioned between the motor and said first mentioned diaphragm and eccentrically mounted on the shaft of said motor through the movement of which said diaphragms may be caused to vibrate rapidly.

4. In a device of the class described, a case provided with a motor chamber and a diaphragm chamber, an electric motor mounted within said motor chamber, a source of current therefor, a connecting rod eccentrically mounted on the shaft of said motor and positioned within said diaphragm chamber, a resilient diaphragm closing the opened end of said diaphragm chamber, the outer end of said connecting rod being connected with the center of said diaphragm, and a second resilient diaphragm mounted in front of said first named diaphragm and forming an air chamber therebetween, whereby the operation of said motor causes said diaphragm to vibrate.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

KATE VAN HOOK.

Witnesses:

NELS ALLEN,
PRUDIE READ.