June 23, 1931. W. M. F. SHERWOOD 1,811,764

MASSAGE DEVICE

Filed Jan. 17, 1930

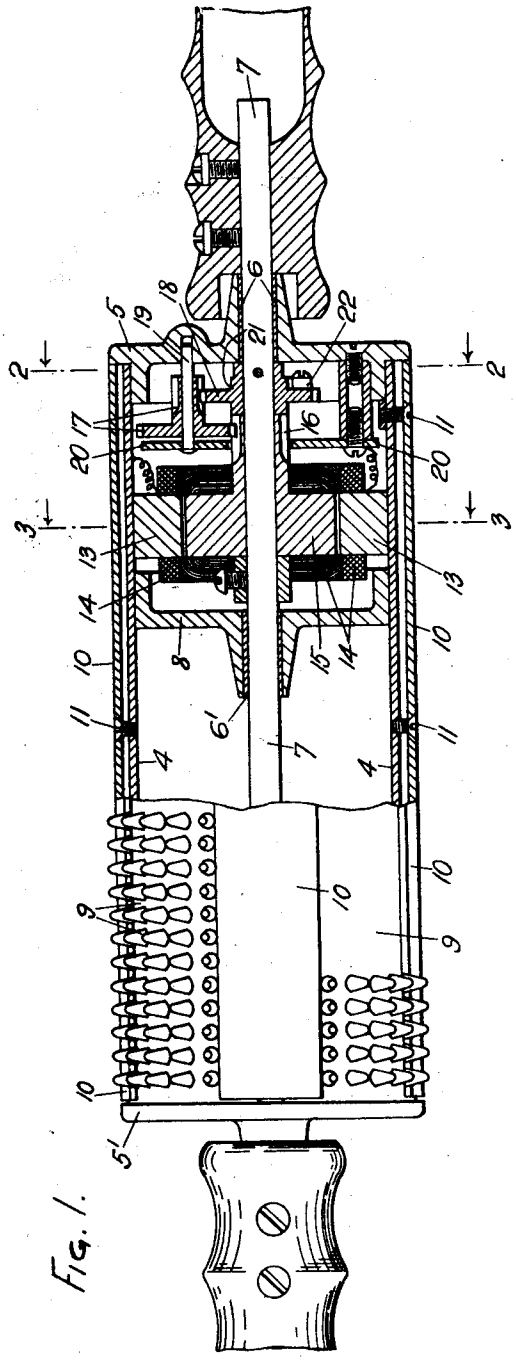


FIG. 1.

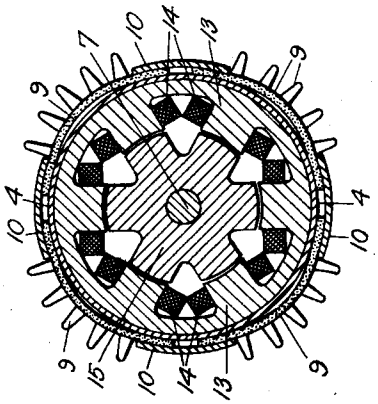


FIG. 3.

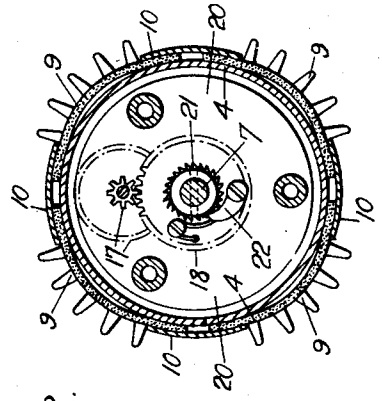


FIG. 2.

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UNITED STATES PATENT OFFICE

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MASSAGE DEVICE

Application filed January 17, 1930, Serial No. 421,477, and in Great Britain June 28, 1929.

This invention relates to roller devices to be used for massage purposes, and particularly to the hand-operated kind where the device is arranged to be held by a handle or handles and run over the member to be massaged so that the roller is rotated against the latter and the object of the present invention is to provide an improved construction of roller whereby the effect of the massage is beneficially increased. Massage rollers of this type commonly comprise a roller having electrodes on its outer surface and containing a magneto-electric machine, driven through the medium of gearing on rotation of the roller, and adapted to supply current to the electrodes, and a further object of the invention is to provide means for avoiding the wear on the bearings and gearing, in this type of roller, consequent upon the continued and sudden reversal of the magneto-electric machine as the roller is run to-and-fro over the member being massaged.

A preferred form of construction according to the invention is shown in the accompanying drawings in which:—

Fig. 1 is a part sectional elevation of a complete roller;

Fig. 2 is a sectional end elevation on line 2—2 of Fig. 1 and;

Fig. 3 is a sectional end elevation, taken on line 3—3 of Fig. 1, showing the magneto-electric machine.

The roller proper comprises a hollow metal cylinder 4 to which are attached end-plates 5, 5^1 of insulating material having at their centres suitable bearings 6 whereby the roller is adapted to rotate freely upon the central spindle or shaft 7. An intermediate disc 8, also of insulating material, is arranged inside the cylinder to provide an intermediate bearing 6^1 so that distortion of the shaft is prevented. The spindle 7 carries at its ends metal handles by which the device is held when in use.

The cylinder 4 has attached to its outer surface a number of massage or suction pads 9 made of rubber or like material and separated circumferentially by metal electrodes 10 which are attached to, and in electrical contact with the cylinder 4 by means of screws or studs 11. The electrodes extend the whole length of the cylinder between the end plates and serve to hold the massage pads in position.

Arranged internally of the cylinder 4 is a magneto-electric machine comprising a stator 13 attached to the cylinder and provided with windings 14, and a rotor 15 consisting of a permanent magnetic structure arranged so as to have the same number of poles as the stator; in this case there are six.

The rotor is arranged to be freely rotatable on shaft 7 and is provided at one end with a gear wheel 16 through which it is driven, if desired it may be provided at the other end with a flywheel rigidly attached to it and also revolving on shaft 7. The gear 16 meshes with epicyclic gearing 17, 18 carried on pin 19 on the plate 20 attached to end plate 5, and on shaft 7, respectively. The gear 18 rotates freely on shaft 7, but is coupled thereto, when relative movement takes place in one direction, through the medium of ratchet wheel 21, rigidly fixed on shaft 7, and its co-operating pawl 22 which is spring-biased into engagement therewith as shown.

The ends of the stator windings 14 are attached to the cylinder 4 and to the plate 20, respectively, the latter being in electrical contact, by means of the gearing, with shaft 7 and thus with the handles, so that upon relative rotation of the stator and rotor the current generated is applied to the member being massaged by the electrode which happens to be in contact with the member, the circuit being completed through the body of the user and the metal handles. A condenser may also be included in the circuit if desired.

When the device is in operation the action of rolling during the massaging operation, assuming that it is in the direction causing the ratchet to lock, causes the gear 17 to roll around the gear 18, which is meanwhile held relatively stationary by the handles being grasped, and the rotor 15 is thus rotated at a comparatively high speed generating a current in the windings 14, this

current being then applied as above described to the member being massaged. During the return stroke of the roller the ratchet arrangement allows the rotor to continue rotating, due to its own inertia and to the energy given out by the flywheel, if one is fitted, until a driving force is again supplied during the next forward motion of the roller.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A massage roller comprising in combination a metal cylinder rotatable upon a central shaft having handles at its ends, electrodes and massage pads disposed alternately around the outer surface of said cylinder, said electrodes being in metallic connection therewith, a magneto-electric machine, arranged internally of said cylinder, comprising a wound stator carried by said cylinder and a permanent magnet rotor arranged to rotate freely on said shaft, and epicyclic gearing connecting said rotor with said shaft whereby a high rate of rotation of said rotor relative to said stator is produced by rotation of said cylinder upon said shaft, the ends of said stator winding being connected respectively to said cylinder and to said gearing so that a difference of potential is set up between said electrodes and said handles.

2. A massage roller device comprising in combination a metal cylinder rotatable on a central shaft having handles at its ends, electrodes and massage pads disposed alternately around the outer surface of said cylinder, said electrodes being in metallic connection therewith and securing said massage pads in position, a magneto electric machine arranged internally of said cylinder and adapted to be driven, through the medium of gearing, on rotation of said cylinder on said shaft, the ends of the winding of said magneto electric machine being connected to said electrodes and said handles respectively, said machine having means whereby it is allowed to continue rotating after rotation of the cylinder has ceased or has been reversed.

3. A massage roller device according to claim 2, wherein said magneto electric machine is arranged to be driven in one direction only and allowed to continue rotating after rotation of the cylinder has ceased or has been reversed by the provision of a ratchet device in said gearing by which the magneto electric machine is driven.

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