B. SEACOMBE.

MAGNETO ELECTRIC MASSAGING MACHINE.

APPLICATION FILED MAY 25, 1910.

1,055,236. Patented Mar. 4, 1913.

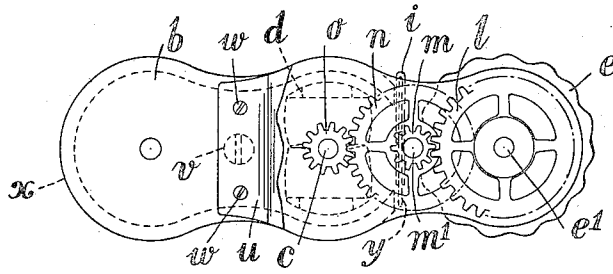

Fig. 1.

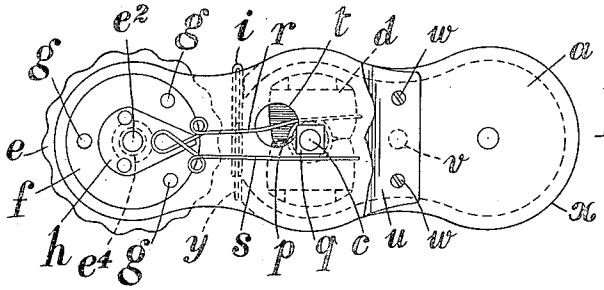

Fig. 2.

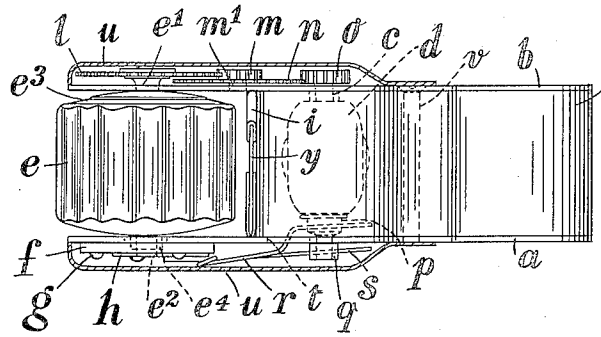

Fig. 3.

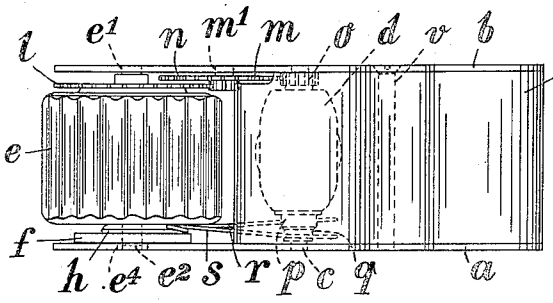

Fig. 4.

Witnesses

C. L. Raudes

H. E. Montague.

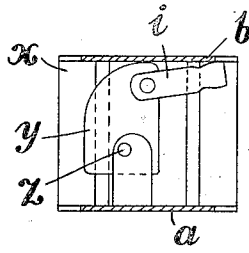

Fig. 5.

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UNITED STATES PATENT OFFICE.

BENJAMIN SEACOMBE, OF PENDLETON, NEAR MANCHESTER, ENGLAND, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THOMPSON & CAPPER, OF MANCHESTER, ENGLAND.

MAGNETO-ELECTRIC MASSAGING-MACHINE.

1,055,236. Specification of Letters Patent. Patented Mar. 4, 1913.

Application filed May 25, 1910. Serial No. 563,341.

To all whom it may concern:

Be it known that I, BENJAMIN SEACOMBE, a subject of the King of Great Britain, residing at Pendleton, near Manchester, in the county of Lancaster, in the Kingdom of England, have invented certain new and useful Improvements in Magneto-Electric Massaging-Machines, of which the following is a specification.

This invention relates to magneto-electric massaging machines of the type in which a metallic roller mounted in a suitable frame is adapted to be rolled over the part to be massaged, and drives a magneto-electric machine which generates a pulsating or intermittent electric current, the said current being caused to pass from the machine through the roller and the part to be massaged, and from this back to the machine usually through the hand holding and operating it. The machine is worked to and fro so as to cause a series of slight electric shocks to be passed through the part in contact with the roller, thus producing the required electric massaging effect.

The present invention has for its object an improved construction of such machines whereby the same can be made more efficiently and cheaper than hitherto.

Further objects of the invention will appear from the description and claims.

The invention is illustrated in the accompanying drawings wherein:—

Figure 1 is a side view showing the apparatus in one form of construction, with the casing broken away in part; Fig. 2 is a similar view showing the device as seen from the opposite side; Fig. 3 shows the same device as seen from the top in Fig. 2, the casing being partly in section; Fig. 4 is a similar view to Fig. 3 illustrating a modified form of construction; Fig. 5 is a detail view hereinafter explained.

Referring first to Figs. 1, 2 and 3 it will be seen that x is a permanent magnet which may be made of steel and magnetized in any convenient manner. a and b are two non-magnetic side plates or cheeks which fit one at each side of the magnet x, and are held in position for instance by means of a connecting screw v. The cheeks a and b form the supports for the ends of the spindle c of a revoluble armature d arranged between the poles of the magnet x. The cheeks also form the supports for the massaging roller. This roller has a corrugated metal surface e for rolling over the part to be massaged. The metallic portion e is mounted on a core or block e^3 of insulating material such as wood. The pin e' at one end of this block which revolves in the cheek b is fixed in the block and is not in metallic connection with the surface e. The other pin e^2 is metallically connected to the surface e, for instance by the end of said surface being made to cover this end of the core e^3 in which the pin e^2 is fastened as indicated in the drawings. The massaging roller is geared to the armature d through a train of gear wheels l, m, n, and o. The gear wheel l is fixed on the pin e' of the massaging roller; the gear wheels m and n are fixed together and revolve upon a stud m' projecting from the side cheek b. The gear wheel o is fixed upon one end of the spindle c of the armature d. The gear wheel l drives the small wheel m, and the larger wheel n again drives the small wheel o on the armature spindle. The rotary movement of the massaging roller is therefore multiplied considerably by the gear train thus causing the armature d to be revolved rapidly as the massaging roller rotates. The pin e^2 metallically connected with the surface e of the massaging roller is prevented from touching the metal of the cheek a by being carried through an insulating ring e^4 in said cheek and borne in a metal plate h affixed to a disk f of insulating material which is attached to the cheek a by rivets g or the like. The metallic surface e is thus metallically connected to the plate h but is otherwise insulated. The armature d may be of any suitable construction, for instance as shown it may have two poles carrying suitable windings of fine wire. One end of the armature winding is metallically connected to the spindle c and so to the cheeks a and b, and the other metal parts in contact therewith. The other end of the winding is connected to a metal ring p insulated from the spindle c in any convenient way, for instance by being supported on a sleeve of fiber or the like on said spindle. The end of the spindle c which projects through the cheek a carries an approximately rectangular block q which rotates with the spindle. On the plate h is soldered or otherwise attached a piece of springy metal wire having two arms r and s. The

arm r is bent inward through a hole formed at t in the cheek a, and bears upon the current collecting ring p. The other wire s lies just beside the angular block q, and its normal position is such that it will not touch the face of the block q when this latter is parallel to the wire s. The corners of the block will however, touch the wire as the armature rotates. The gear train on one side, and the contact making device on the other side are inclosed by means of caps u suitably fixed on the cheeks a and b, as for instance by means of screws w.

With this device it will be readily understood that, as the massaging roller is worked to and fro over a part of a person's body to be massaged, the armature d will be caused to rotate rapidly; during the rotation the wire s will be continually making and breaking contact with the block q and when it makes contact the armature winding will be short circuited through r, s and q and the spindle c, but otherwise the current will only be able to flow from the winding through the wire r, plate h, spindle e^2 and surface e of the roller, through the part to be massaged and back through the hand working the device to the side cheeks a and b and the spindle c. A very rapid succession of current impulses will therefore be sent through the part on which the roller works, thus producing the desired massaging effect upon the said part.

In the modification illustrated in Fig. 4 the only essential difference is that the gear train on one side, and the contact making and breaking device on the other are arranged inside instead of outside the cheeks a and b. The gear wheels connecting the massaging roller to the armature spindle are lettered l, m, n and o to correspond with the preceding description. The insulating disk f with the plate h upon it carrying the spring wires r and s is arranged on the inside of the cheek a, between said cheek and the end of the massaging roller, and both the contact ring p and the angular block q are on the spindle c of the armature between it and the cheek a. This device will require no further explanation as the operation thereof is otherwise identical with that of the device shown in the preceding figures.

One detail in the device remains to be described. This is the adjustable "keeper" y best seen in Fig. 5, which may be used for varying the strength of the magnetic field in which the armature works, and thus altering the strength of the current produced. Of course the strength of the current will also vary according to the speed at which the roller is moved to and fro, or it might be varied by interposing gear wheels of different ratios between the roller and the armature. The adjustable keeper however provides convenient means for varying the strength of the current during use. The keeper y is of soft iron pivoted at z on a suitable support and having a projecting handle i by which the keeper can be turned so as to lie more or less across the ends of the poles of the magnet x. The more completely that the keeper y metallically bridges the gap between the ends of the poles, the greater will be the magnetic flux at this point, and the weaker therefore will be the field in which the armature rotates. When the keeper is turned back to the position shown in Fig. 5 the flux leakage there will be small and the field strength will be a maximum at the gap where the armature works. Of course the keeper might be arranged in any other convenient way as to vary the magnetic leakage path; or the keeper may be dispensed with altogether if it is not required.

I declare that what I claim is:—

1. In a magneto-electric massaging machine, the combination of a permanent magnet of approximately horseshoe shape, a pair of side cheeks of non-magnetic material and means for attaching them one at each side of the magnet, an armature supported in said side cheeks and adapted to rotate between the poles of the magnet, a massaging roller having bearing pins supported in the side cheeks beyond the poles of the magnet, gearing revolubly connecting the spindle of the massaging roller to the spindle of the armature, a metallic surface applied to the massaging roller said surface being in metallic contact with only one of the bearing pins of the roller, means for insulating said bearing pin from the side cheek which supports it, and means for electrically connecting said bearing pin and the winding of the armature.

2. In a magneto-electric massaging machine, the combination of a permanent magnet of approximately horseshoe shape, a revoluble armature and means for supporting it between the poles of the magnet, a massaging roller and means for supporting it beyond the poles of the magnet, means for driving the armature by rotation of the massaging roller, a metallic surface applied to the massaging roller and insulated from the frame of the device, means for collecting current from the armature and conveying it to the metallic surface of the massaging roller, and means for intermittently short circuiting the armature during rotation of the latter.

3. In a magneto-electric massaging machine, the combination with a permanent magnet, an armature and means for supporting it, a massaging roller having an insulated metallic surface, means for supporting said roller, and gearing connecting it to the armature spindle, of a winding on the armature connected at one end to its spin-

dle, an insulated conducting ring on the armature spindle to which the other end of the armature winding is connected, means for collecting current from said ring and conveying it to the metallic surface of the massaging roller, an angular metallic piece on the armature spindle and a short circuiting connection for the armature winding adapted to make and break contact with the angular metallic piece as the armature rotates.

4. In a magneto-electric massaging machine, the combination with a permanent magnet and armature and means for supporting it, a massaging roller having an insulated metallic surface, means for supporting said roller, and gearing connecting it to the armature spindle, of means for intermittently conveying current impulses to the metallic surface of the massaging roller from the armature as these parts rotate, a metallic piece and means for supporting it adjacent to the ends of the poles of the permanent magnet, said metallic piece being adapted to be adjusted in position so as to form a more or less complete metallic leakage path for the magnetic flux whereby the strength of the field in which the armature rotates may be varied.

In witness whereof, I have hereunto signed my name this 12th day of May, 1910, in the presence of two subscribing witnesses.

BENJAMIN SEACOMBE.

Witnesses:

EDWIN THOMPSON,

WILFRID E. UDALL.