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W. P. WIEMANN

MAGNETO ELECTRIC SHOCKING MACHINE

Filed Sept. 28, 1921

Fig. 1

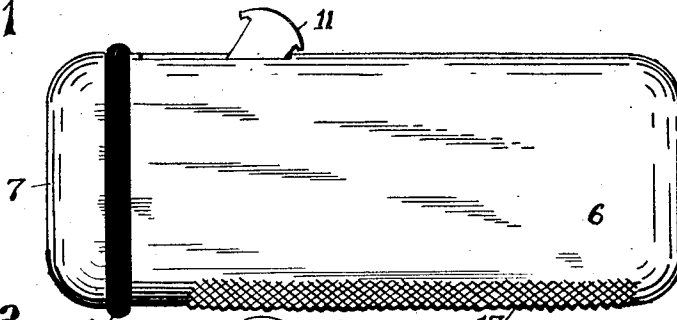


Fig. 2

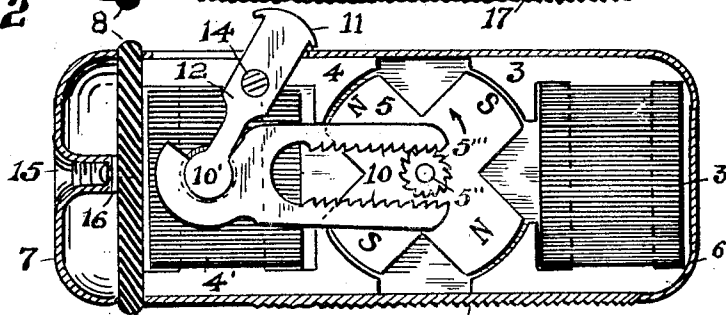


Fig. 3

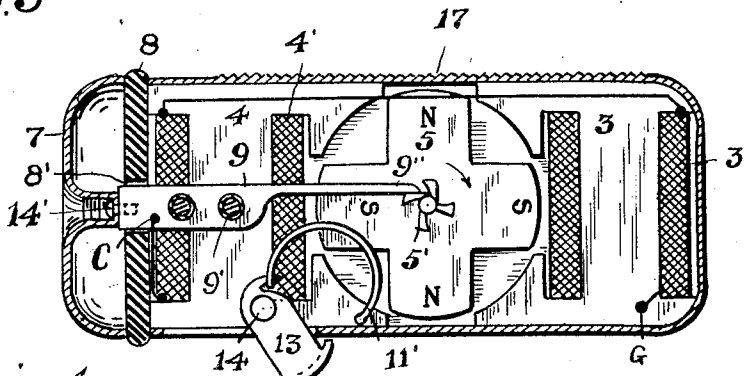
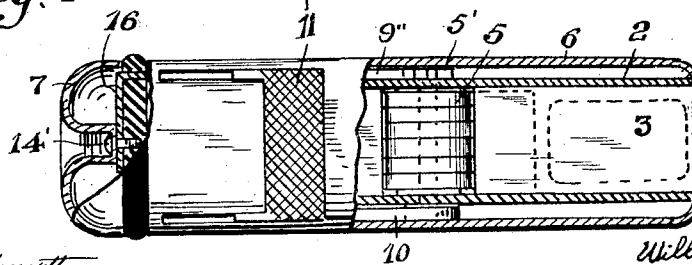


Fig. 4



WITNESS

T. F. Dilworth

INVENTOR

William Wiemann
By Jas. C. Myer
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM P. WIEMANN, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO THE
WIEMANN COMPANY, OF PITTSBURGH, PENNSYLVANIA.

MAGNETO-ELECTRIC SHOCKING MACHINE.

Application filed September 28, 1921. Serial No. 503,830.

To all whom it may concern:

Be it known that I, WILLIAM P. WIEMANN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Magneto-Electric Shocking Machines, of which the following is a specification.

This invention relates to magneto electric shocking machines, of that type, in which the field magnetism is provided by permanent magnets, which form a rotor within the poles of the stationary electromagnets, and the primary object of the invention is to provide, in a manner as hereinafter set forth, an electric shocking machine sufficiently small and so shaped that it may be conveniently held in the hand and manually operated, in order that the free terminal (forming a part of the machine) or cap, may be placed in contact with any part of the body to be treated, and the current administered by the patient. The external circuit of the machine being completed through the body from the hand holding the machine and that part of the body in contact with the end cap of the machine.

A further object of the invention, is to provide in a manner as hereinafter referred to, an electric shocking machine, capable of being conveniently held in the hand and operated by the oscillatory motion of a lever actuated by the thumb of that hand which is holding the machine.

A further object of the invention, is to provide in a manner as hereinafter set forth, an electric shocking machine for the purpose referred to, having means whereby a conductor can be attached to the machine, to enable shocking operation to be had at points desired removed from the device.

A further object of the invention is to provide a machine for the purpose set forth having means for generating alternating current, which is interrupted or broken at the strongest or highest part of the current phase, producing a strong physiological shock at the terminals of the machine.

Further objects of the invention are to provide a machine for the purpose set forth which is simple in its construction, strong, durable, compact, conveniently operated, efficient in its use, operated by the thumb of the hand holding the machine, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1, is an elevation of an electric shocking machine in accordance with this invention.

Figures 2 and 3 are sectional elevations.

Figure 4, is a top plan broken away.

Referring to the drawings in detail the mechanism of the machine is supported by a pair of frame plates 1, 2, and between which the electromagnets 3, 4 are secured. One of the magnets is positioned between the frame plates at one end and the other between said plates at the other end. Operatively arranged between the frame plates 1, 2 and also between the magnets 3, 4 is a four pole permanent magnet rotor 5, and which revolves freely within the pole shoes of the electromagnets 3, 4. A casing 6, is provided to enclose the mechanism of the machine and which is provided with a terminal cap 7, and the latter is insulated from the body of the casing or machine proper by a plate 8, of insulation. The plate 8 is provided with an opening 8' for a purpose to be referred to.

The electromagnets 3, 4, include coils #3', 4', connected in series, and with one end of the winding grounded to the machine, as at G, and the other end connected to the short-circuit breaker 9, as at C. The breaker 9, is positioned at the outer side of the plate 2, connected therewith, by a pair of hold-fast devices 9', insulated from the plate 2. The inner end of the breaker 9, is reduced, as at 9'' and which forms a spring acting on a ratchet 5', to be presently referred to, to short circuit coils 3', 4' and to break the short circuit at predetermined periods. The shaft of the rotor, is indicated at 5'' and the ratchet 5' is secured to one end of the shaft 5'' at the outside of the plate 2. The shaft 5'' is mounted in the plates 1, 2 and projects from each of them. The ratchet 5' is secured on the rotor shaft in a position with relation

to the magnetic poles of the rotor, that the short-circuit is broken at the period when the current phase is highest, or when the magnetism in the electromagnets 3, 4 is zero.

5 The permanent magnet rotor 5, has four poles and is built up from a number of separately magnetized plates of cruciform contour, arranged with their like poles aligned, and mounted securely on the shaft 5".

10 The other end of the rotor shaft 5" is provided with a ratchet gear 5''' arranged outside of the plate 1, and which is employed for the purpose of revolving the shaft 5", so as to revolve the rotor 5. The gear 5''' is operated by a right and left ratchet fork 10, which is operatively connected to an operating lever 11, by a hinge joint 10'. The friction of the joint 10' being so adjusted as to prevent movement between the lever and the fork only when the fork 10 is in contact with the ratchet 5'', or during the power stroke or strokes, and in this connection it will be stated, that on a forward motion of the lever 11, the lower leg of the fork 10 is thrown in mesh with the gear 5'', while a rearward or backward motion of the lever 11, the upper leg of the fork 10 is thrown in mesh with the gear or ratchet 5'''. When the motion of the fork 10 is slower than the gear 5'', the fork is thrown out of mesh and to a central or neutral position, by the ratchet gear 5'', but a motion of the lever, in either direction, will again throw the fork into mesh, and revolve the rotor. The power stroke is in both directions, while the movement of the rotor is continuous in one direction.

20 The lever 11, is in the form of an inverted yoke, and the leg 12, is of greater length than the leg 13 thereof. The legs of the lever 11 are mounted on the pivot 14, which is seated in the plates 1, 2. The lower end of the leg 12 is rounded and is mounted in the seat formed in the fork 10 and which provides the hinge joint 10'. The legs of the lever 11 are arranged at the outside of the plates 1, 2 and the leg 13 has a curved spring bearing against the lower end thereof. The curved spring is indicated at 11' and acts against the lever 11 to hold it in the position shown. The top of the lever 11 provides a thumb piece and the lever is actuated by the thumb of the hand in which is holding the machine. As the backward motion of the thumb is the weakest, the spring 11' assists the thumb in returning the lever on the back stroke, as well as securing a more equal thrust on both strokes and less fluctuation rotation, at the same time securing the position of the lever when the magnet is not in operation.

25 The entire mechanism is enclosed in the casing 6, the latter is formed from conducting, but not magnetic material, and which forms the grounded terminal of the machine.

The plate 8 is secured to the end of the machine or rather casing or case 6, and the cap 7 is secured against the plate 8, by a holdfast device 14', which is mounted at the inner end of a threaded socket 15, in the cap, and engages with the extension of the brake spring 9. The extension of the break spring 9, is indicated at 16, and is bent to extend forwardly of the plate 8, so that it can be readily engaged by the holdfast device 14. The threaded socket is employed to enable the attaching to the cap of a conductor (not shown) so that the shocking operation can be had at points removed from the device. The manner of setting up the break spring 9, or rather the extension 16, provides a contact with the cap 7, thus the cap 7 and case 6 form terminals for the machine. The bottom of the case 6, is corrugated, as at 17, to facilitate holding of the machine.

The manner in which the machine is operated is as follows:—

The machine is held in the hand with the cap 7 projecting beyond the hand. An oscillatory motion is imparted to the lever 11, by the thumb of the hand holding the machine, causing thereby the rotor to revolve between the poles of the electromagnets 3, 4 and setting up an alternating current in the windings, and which is periodically interrupted by the break spring 9, which is so adjusted to break or open the short circuit of the windings at a time when the current phase is highest, causing a physiological shock in the external circuit formed by the body. The frequency of the impulses is within the control of the operator, the higher speed giving the higher frequency and corresponding shock.

What I claim is:—

1. A machine for the purpose set forth comprising a casing adapted to be held by the hand and having means therein for generating alternating current, an oscillatory lever actuated by the thumb of the hand holding the casing for operating said generating means during the operation of the lever, a circuit making and breaking element engaging with said generating means and actuated on the operation of the latter, said casing including a body and a cap, the latter insulated from the former and in circuit with said element, said body and cap providing terminals.

2. In a machine for the purpose set forth, stationary electro-magnets, a rotatable multipole permanent magnet operating between the poles of said magnets, a compound integral rack fork for operating said multipole magnet, and a lever actuated by the oscillatory movement of the thumb for operating said fork.

3. A machine for the purpose set forth comprising a compound permanent magnet rotor, stationary electromagnets between

which said rotor operates, and a make and break contact element associated with said rotor for periodically short circuiting the winding to produce physiological shock through the enclosing case of the machine.

4. An electric shocking machine comprising a corrugated casing adapted to be held by the hand and formed of conducting and non-magnetic material and providing a pair of terminals, stationary electromagnets supported in the casing, a rotatable multipole permanent magnet operating between the poles of said magnets, operating means for the multipole magnet, and an oscillatory lever actuated by the thumb of the hand holding the casing for operating said means to cause the operation of said multipole magnet during the actuation of said lever by the thumb.

5. A magneto electric shocking machine comprising a casing adapted to be held in the hand and formed of conducting material of

a non-magnetic nature and providing a pair of terminals, a compound permanent magnet rotor stationary electromagnets between which said rotor operates, and a make and break contact element associated with said rotor for periodically short circuiting the winding to produce physiological shock through the said casing.

6. A magneto electric shocking machine comprising a corrugated casing adapted to be held in the hand and formed of conducting material of a non-magnetic nature and providing a pair of terminals, a compound permanent magnet rotor stationary electromagnets between which said rotor operates, and a make and break contact element associated with said rotor for periodically short circuiting the winding to produce physiological shock through the said casing.

In testimony whereof I affix my signature.

WILLIAM P. WIEMANN.