

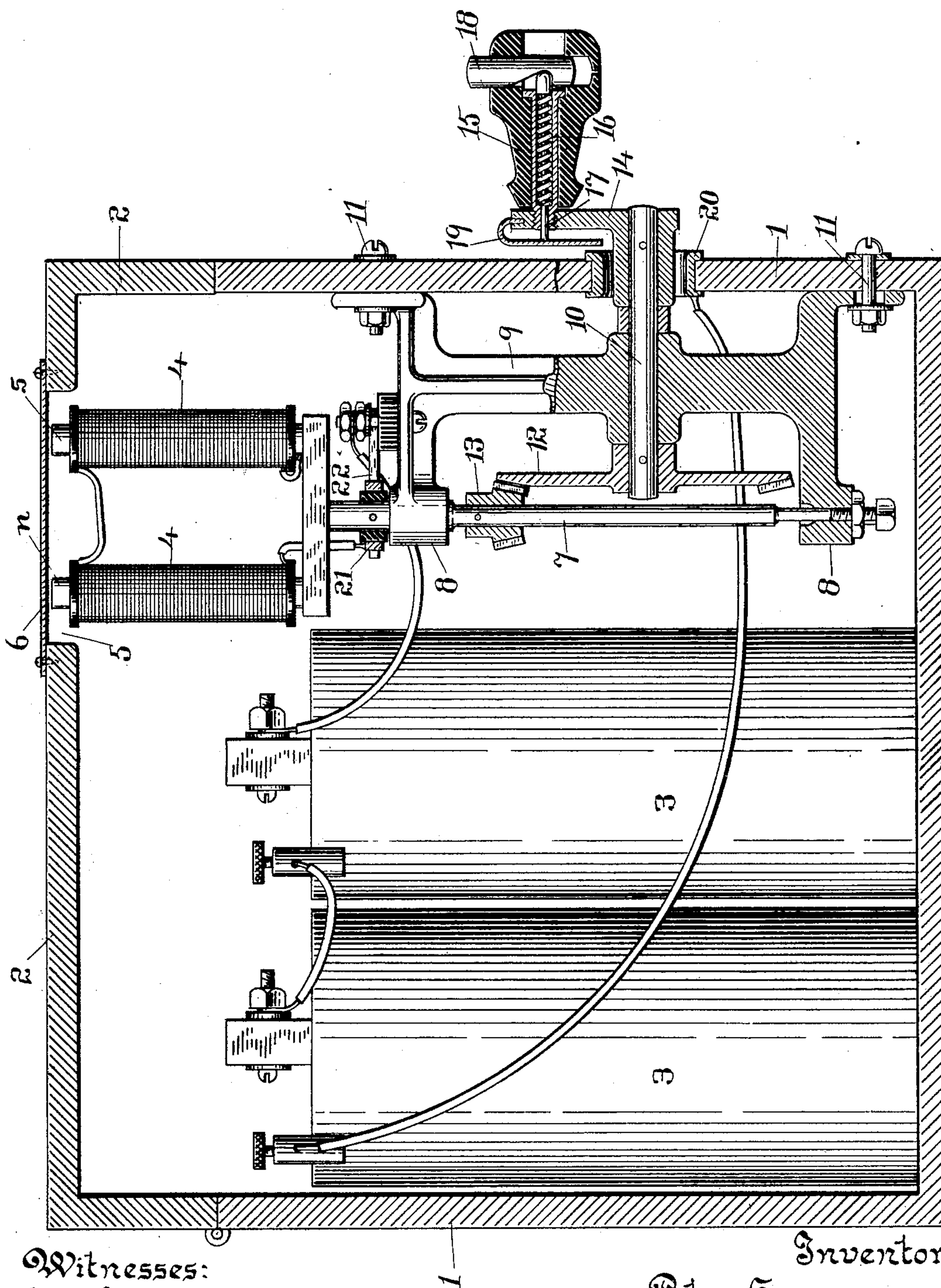
No. 702,500.

Patented June 17, 1902.

P. SORENSEN.
WATCH DEMAGNETIZER.

(Application filed Jan. 9, 1902.)

(No Model.)



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UNITED STATES PATENT OFFICE.

PETER SORENSEN, OF BROOKLYN, NEW YORK.

WATCH-DEMAGNETIZER.

SPECIFICATION forming part of Letters Patent No. 702,500, dated June 17, 1902.

Application filed January 9, 1902. Serial No. 88,979. (No model.)

To all whom it may concern:

Be it known that I, PETER SORENSEN, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Watch-Demagnetizers, of which the following is a specification.

My invention relates to the construction of that class of apparatus in which a watch or other article to be demagnetized is subjected to the action of a rotating electromagnet.

The object of my invention is to provide a simple and cheap portable apparatus for this purpose and to so organize the same that the circuit of the battery used in charging the magnet may not be left unintentionally closed when the apparatus is out of use.

The first part of my invention consists in the construction of an automatic circuit closer and breaker, which is embodied in or mounted suitably in the handle, by which rotation is imparted to the magnet, and is so constructed that in the act of taking hold of the handle the operator may close the circuit of the battery, but will serve to automatically open the circuit when the operator lets go of the handle.

My invention consists also in the novel organization and construction of apparatus hereinafter more particularly described in connection with the accompanying drawings, in which a form of apparatus embodying my invention is shown in a vertical section through the containing-case and the principal working parts.

Referring to the drawings, 1 indicates a suitable box or casing, preferably of wood, having a hinged cover 2 and carrying one or more cells of battery, preferably a dry battery, (indicated by the numeral 3.) The electromagnet, which is rotated in the operation of demagnetizing the watch or other article, is indicated by the numeral 4, and consists, preferably, of a magnet of horseshoe form, mounted so that its two opposite poles (indicated by the letters *n s*) may be rotated in the plane parallel to the plane of the top or cover of the casing and in close proximity to the upper surface thereof, for which purpose an opening 5 is made in the cover, which opening is preferably closed by a thin plate 6, that

may be of brass or other non-magnetic material, fastened by pins or screws to the cover, as indicated. The two poles *n s* are in close proximity to the under surface of said plate, and therefore the lines of force may be brought to bear closely upon any object laid upon the plate 6 and gradually moved away therefrom in the well-known operation of rotating the magnet for rendering the magnetized parts neutral.

The electromagnet 4 is mounted upon a vertical shaft 7, to which the yoke-piece of the electromagnet is suitably secured. Said shaft rotates in suitable bearings 8, formed in arms extending transversely from a suitable bracket 9, which is fastened by bolts or screws 11 to the side wall of the casing and is provided, as shown, with a proper bearing or journal box for the horizontal shaft 10, which is rotated in order to rotate the electromagnet. The shaft 10 gears with shaft 7, carrying the electromagnet, through gear-wheels 12 13, one secured to shaft 10 and the other to shaft 7, as shown, and is provided on its end extending through the wall of the casing with a crank 14, to which is secured the handle 15. The handle 15, which is preferably of insulating material, is fastened to the crank 14 by a hollow screw 16, set in a countersunk hole passing longitudinally through said handle, as clearly shown in the sectional view. Within said screw is a longitudinally-movable headed conducting-pin 17, with which engages a transversely-movable button 18, located in the head of the handle 15 and in position to be depressed by the finger of the operator when he rotates the shaft 10 by taking hold of the handle. The button 18 engages with the headed end of the pin 17 by an incline or cam, as clearly shown, and thereby forces the same inwardly for the purpose of closing the circuit of the electromagnet 4. When the button 18 is relieved of pressure by the hand of the operator, the pin is forced backward by a suitable spring and the circuit is broken. The spring for this purpose may be either a coil-spring encircling the pin, as shown, and compressed between the head of the pin and the bottom of the opening in the hollow screw, or it may be a spring 19, which is set in the crank 14 and

is engaged by the inner end of said pin, so as to be forced thereby into contact with the edge of a conducting ring or bushing 20, set in the opening through which the shaft 10 passes, or otherwise disposed around said shaft so as to be engaged by the spring 19 during rotation of the handle 15 and crank 14.

The circuit of the electromagnet is formed as follows: One end of the coil of said magnet is attached to a conducting-ring 21, which is fastened upon the shaft 7, but insulated therefrom by a suitable bushing, as shown, while the other end of said coil is connected to the core or yoke of the electromagnet, so as to be in electrical connection with the shaft 7, and thence through the metal-work of the bracket and core with the shaft 10, crank 14, and pin and contact-springs 17 and 19. Upon the contact-ring 21 bears a spring 22, fastened to a binding-post which is suitably supported upon the bracket or upon any other part of the apparatus and is properly insulated from said bracket. One terminal of the battery being fastened to the said binding-screw and the other being suitably connected with the conducting-ring 20, it is obvious that when the button 18 is forced inwardly, so as to carry the contact-pin inwardly toward the ring 20, the circuit of the battery through the coils of the electromagnet will be closed and said magnet will be energized, so as to afford the magnetism by which the watch or other article is to be demagnetized through rotation of said magnet and the gradual removal of the watch or article from the field of magnetic influence. When the operation ceases and the operator removes his hand from the handle by which the device is rotated, the circuit of the battery and electromagnet will be automatically opened through the recession of the circuit making and breaking pin in the handle, which is brought about through the action of the spring and the relief of pressure upon the button 18. It will be seen, therefore, that the circuit at the battery is not liable to be left unintentionally closed when the apparatus is not in use.

What I claim as my invention is—

1. In a demagnetizing apparatus, the combination of a rotatable electromagnet, the shaft carrying the same and having one end of the magnet-coil in electrical connection with it, the bracket of conducting material secured to a wall of the casing, a conducting-ring upon said shaft in electrical connection with the other end of the magnet-coil, a spring mounted upon an insulated support carried by the bracket and bearing upon said ring, a battery connected with one pole to said spring, and means for closing a connection from the other pole of the battery to the supporting-bracket for the shaft.

2. In a demagnetizing apparatus, the combination substantially as described of a rotatable electromagnet, a battery for charging the same, an actuating-handle for rotating said magnet and an automatic circuit closer

and breaker mounted in the handle, an actuating-button mounted in said handle for closing the circuit, and a spring for automatically breaking the circuit of said battery and electromagnet when the operator lets go the handle, as and for the purpose described.

3. In a demagnetizing apparatus, the combination substantially as described, of a rotating electromagnet, an actuating-handle secured to the arm of the actuating-shaft, a hollow screw mounted in a countersunk opening in the handle and serving to secure the same to the crank, a circuit making and breaking pin passing longitudinally through said screw and handle, and an actuating-button therefor mounted in a transverse opening in the handle.

4. The combination substantially as described with a crank 14 connected to one pole of an electric circuit through the shaft carrying the same, a stationary ring or collar 20 surrounding said shaft and connected to the other pole of the circuit, means for making and breaking electrical connection between the crank and the ring, an actuating-pin therefor mounted in a longitudinal opening passing through the handle and crank, an actuating-button mounted in a transverse opening in said handle for actuating the pin in a direction to close the circuit, and a suitable spring for operating the pin in the other direction to open the circuit, all as described, whereby during rotation of the shaft the circuit will be automatically maintained by rotating contact with the ring 20, while the circuit will be automatically opened when the operator lets go of the handle.

5. The combination substantially as described of the crank 14, shaft 10, ring 20, handle 15, hollow screw 16 fastening said handle to the crank, a longitudinally-movable pin therein, a spring adapted to engage with ring 20 and bearing against one end of the pin, and an operating-button 18 engaging with the opposite end of the pin.

6. In a demagnetizing apparatus, the combination substantially as described of the rotatable electromagnet or shaft carrying the same and provided with an insulated conducting-ring to which one end of the magnet-coil is secured, the transverse operating-shaft 10 passing through the wall of the casing and surrounded by conducting-ring 20 fixed in said wall, a suitable bracket 9 provided with bearings for said shaft, contact-spring 22 engaging the ring 21 but insulated from the bracket, and an actuating-crank in electrical connection with the shaft and bracket and carrying contact devices whereby continuous connection may be maintained with ring 20, to maintain the circuit of the electromagnet during rotation of the same.

7. The combination substantially as described of a battery, a casing, a rotatable shaft within said casing, an actuating-handle for rotating said shaft and an automatic circuit

closer and breaker mounted in the handle, an
actuating-button mounted in said handle for
closing the circuit, and a spring for automat-
ically breaking the circuit of said battery
5 when the operator lets go the handle, as and
for the purpose described.

Signed at New York city, in the county of

New York and State of New York, this 7th
day of January, A. D. 1902.

PETER SORENSEN.

Witnesses:

H. C. TOWNSEND,
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