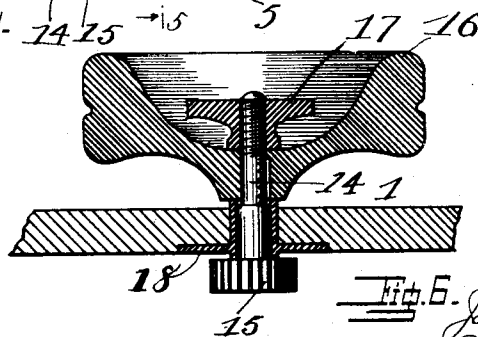
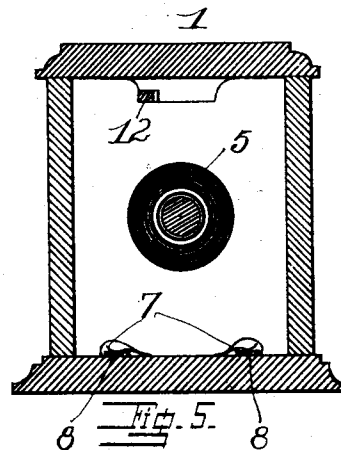
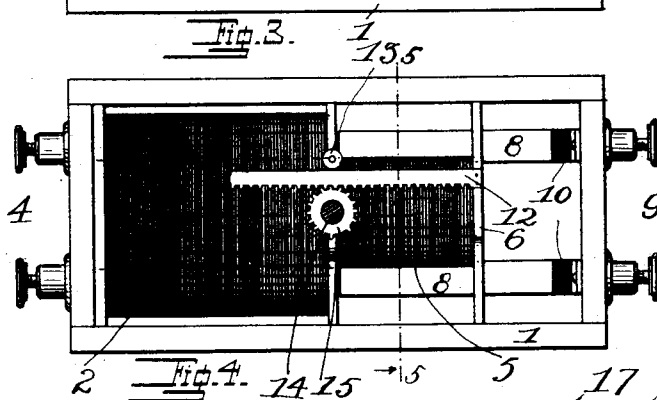
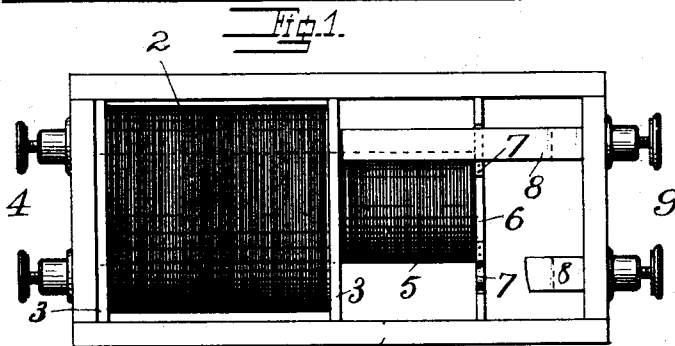
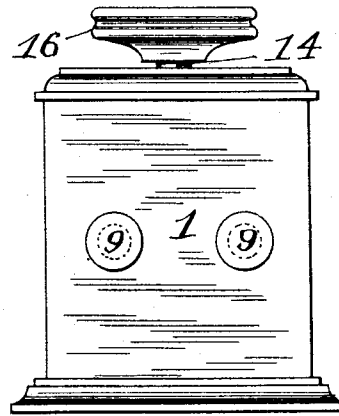
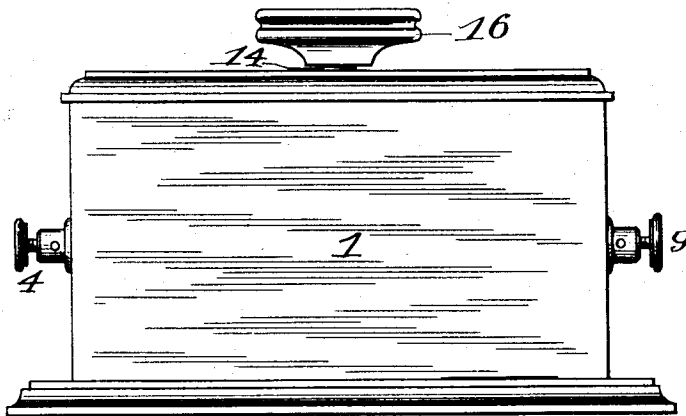


(No Model.)

J. A. WOTTON & E. A. BOSTROM.
ELECTRIC CAUTERY APPARATUS.

No. 511,742.

Patented Dec. 26, 1893.



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UNITED STATES PATENT OFFICE.

JAMES A. WOTTON AND EARNEST A. BOSTROM, OF ATLANTA, GEORGIA.

ELECTRIC CAUTERY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 511,742, dated December 26, 1893.

Application filed June 26, 1893. Serial No. 478,910. (No model.)

To all whom it may concern:

Be it known that we, JAMES A. WOTTON and EARNEST A. BOSTROM, citizens of the United States of America, residing in Atlanta, in the county of Fulton and State of Georgia, have made certain new and useful Improvements in Cautery Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to cautery apparatus, having however more particular reference to the improvement of the induction coil to be used therewith, whereby the current may be varied at will and said current held at any desired intensity as long as desired, and whereby the said current may be cut off when the instrument is not in use, the details of all of which will be hereinafter fully specified, and the parts claimed as new fully set up in the claims hereto annexed.

In the accompanying drawings, Figure 1 is a side elevation of the exterior of the device, showing thereon the binding posts and the operating wheel. Fig. 2 is an end elevation thereof. Fig. 3 is an inverted plan view with the bottom board or base removed showing the interior arrangement of parts, one of the contact strips being also removed. Fig. 4 is a plan of the device as seen on the removal of the top board, the operating wheel shaft being shown in section. Fig. 5 is a vertical cross section on the line 5-5, of Fig. 4. Fig. 6 is a detail view of the operating and setting wheels, their shaft and a portion of the casing, all being in vertical section and enlarged from the size shown in the other figures.

In the figures, like reference characters are uniformly employed in the designation of corresponding elements of construction in all the views.

1 is the casing which may be made in any form so long as it is adapted to contain the hereinafter described operative elements, but the top should be secured thereto so as to be a part thereof, while the bottom may be made

easily removable from the rest of the casing, in order that access may be had through the bottom, and that the proper arrangement of the rack and pinion (the latter secured to the top) shall be insured.

2 is a secondary coil wrapped on a tube and having ends 3 of insulating material, the wire being as usual in induction coils of a gage larger than the wire of the primary coil. This secondary coil is set in the casing and is held stationary therein in any desired manner. Terminals of said coils are secured to the binding posts 4 extending exteriorly of the casing, and to these binding posts are attached the wires leading to the handle carrying the cautery filament. The primary coil 5 is wound on a suitable core and has a follower on its end fitting the interior of the tube whereon the solenoid is wound, and on its outer end also a follower 6 which fits the interior of the casing 1 so that said coil may be moved freely into and from the said solenoid, the said followers acting as guides to said movement. The terminals of the said coil 5 are secured to spring brushes 7 screwed on the under edge of the follower 6 and which contact with the contact strips 8 secured to the end of the casing as shown best in Fig. 4, and lying along the bottom of said casing, extending from the end of the casing to near the secondary coil. The securing screws of the binding posts 9 answer to secure the said strips 8 in place. The line wires carrying a suitable alternating or intermittent current are connected with these binding posts. Insulating covering pieces 10 are secured to the upper side of the strips 8 so that as soon as the spring-brushes 7 in the movement of the coil 5 come into contact with said pieces 10, which are thereby interposed between the conducting substances, the current will be cut off from the primary coil and the action of the device so stopped instantly.

In order to move and set the primary coil to any position in the secondary coil, a rack 12 is secured to the follower 6 of the coil 5, extending across and its back having bearing upon the contiguous head 3 of the solenoid, a roller 13 being interposed as an anti-friction device. A shaft 14 is journaled in the top of the casing, a sleeve 18 having an at-

taching flange being set in said top to form an adequate bearing for said shaft. Below the top board of the casing a pinion 15 is secured to the shaft 14, and above the same a thumb-wheel 16 is feathered thereon, the end of the shaft being screw-threaded and a thumb-nut 17 being screwed thereon. By this construction it will be seen that as the pinion 15 engages with the rack 12, the turning of the thumb-wheel 16 will cause the shaft and attached pinion to revolve and move the coil 5 to and fro in the casing, whereupon the thumb nut 17 may be tightened and by the clamping of the pinion and thumb-wheel on opposite ends of the sleeve 18, the parts will be held rigid in any set position.

The operation of this device is as follows: The coil 5 being withdrawn from the solenoid or secondary coil, and the brushes 7 are hence resting upon the insulation strips 10, whereby the current is entirely cut off from the primary coil, and the device is hence inactive. The coil 5 may be by the use of the thumb-nut 17 locked in the said position, whereby it is plain that it may be by no accident caused to enter the secondary coil. As the current is cut out of the primary coil whenever the same is withdrawn from the secondary, it is also obvious that no sudden increase of the line current can burn out said primary coil, whereby the instrument may be left connected with said line without danger, and no exterior switch is necessary. To start activity in the device the thumb-nut 17 is slightly loosened, and the wheel 16 is turned in the proper direction to start the introduction of the primary coil into the secondary, and at the said time move the brushes from contact with the insulation 10 into contact with the strips 8, whereby the current from the line is allowed to pass through the coil 5. A continuation of the movement of the coil 5 by said wheel, pinion and rack will cause the current to increase in the secondary in proportion to the distance of introduction of

the said primary thereinto, and the current will be lessened by a contrary movement.

With this device the most minute variations of potential of induced current may be made, and is inexpensive of construction and durable.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The secondary coil, the primary coil movable from and into same, spring-brush terminals thereon, and contact strips adapted to receive said spring brushes, and insulating pieces laid on said strips so as to be interposed between said strips and brushes when said primary coil is completely withdrawn from said secondary coil, substantially as and for the purpose specified.

2. The secondary coil set stationarily in a casing, a primary coil adapted to slide therein and therefrom, and a switch included in the primary coil circuit and adapted to open upon the complete withdrawal of the said primary from the said secondary coil, substantially as and for the purpose specified.

3. The primary and secondary coils, the former movable to and from the latter, a rack secured to the movable coil, a pinion mounted on a shaft, said shaft set in the casing, and a hand wheel thereon, outside of the casing, substantially as and for the purpose specified.

4. The secondary coil, the primary coil movable into and from said secondary coil, a rack secured to said primary coil, a shaft screw-threaded on its end and carrying a pinion meshing with said rack, a hand wheel feathered on said shaft, and a thumb-nut on the threaded end of said shaft.

In testimony whereof we hereunto affix our signatures in presence of two witnesses.

JAS. A. WOTTON.

EARNEST A. BOSTROM.

Witnesses:

A. P. WOOD,

HARDIE L. KEITH.