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E. H. ROLLINSON.

VARIABLE VOLTAGE ELECTRIC TRANSFORMER FOR CAUTERY AND DIAGNOSTIC WORK.

APPLICATION FILED JULY 18, 1905.

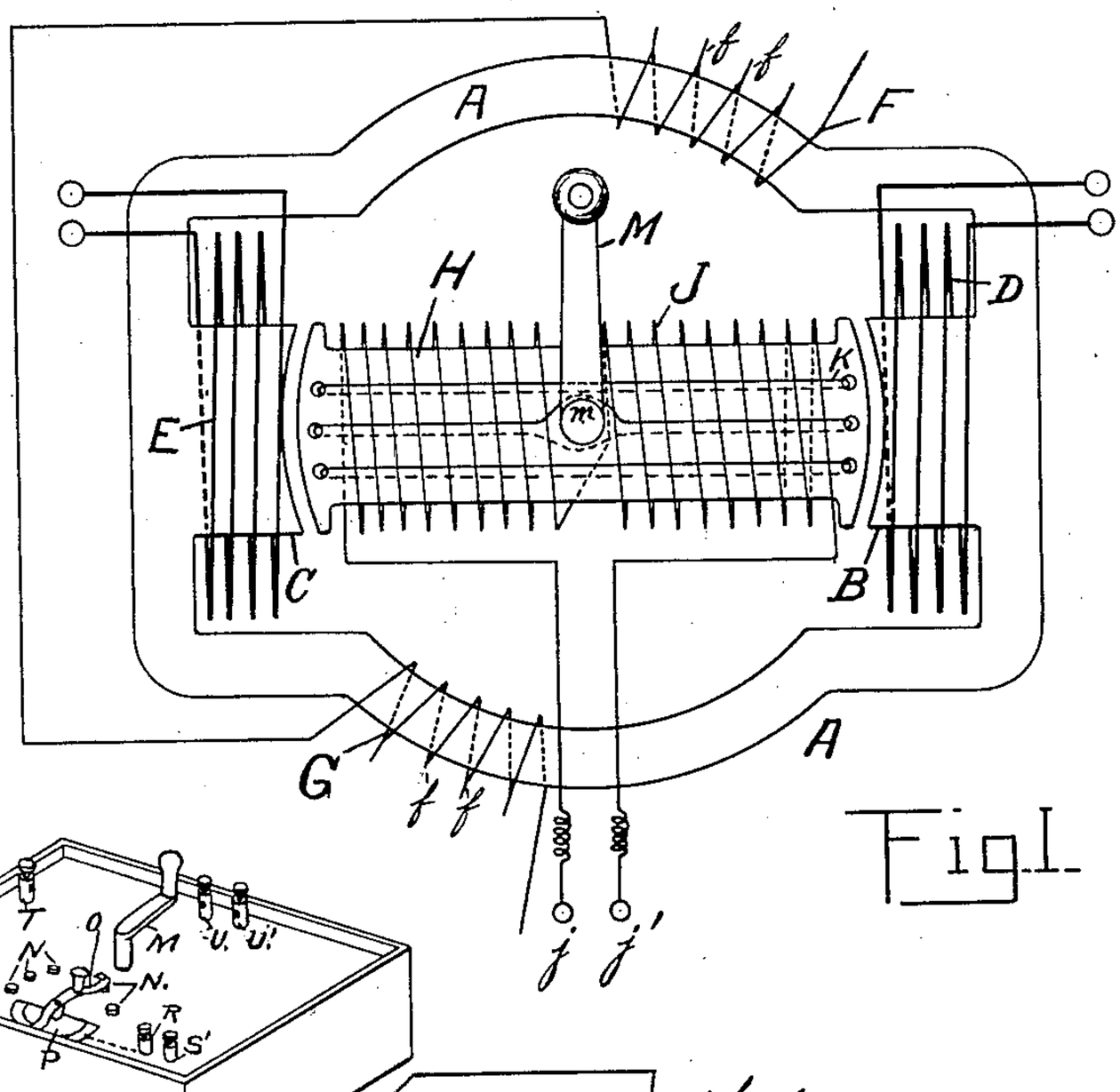

Fig. 1.

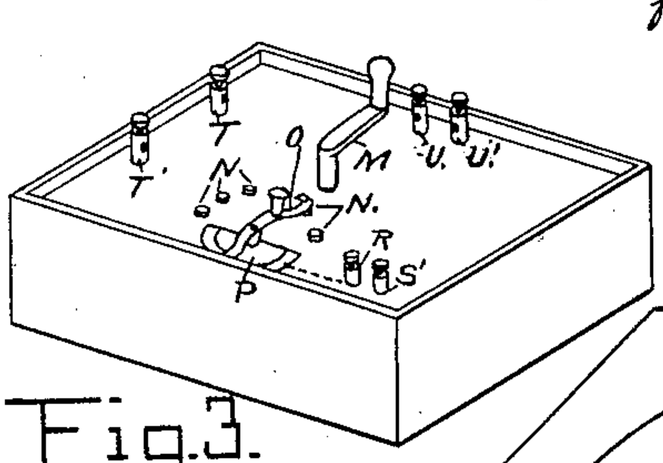

Fig. 3.

Fig. 2.

Witnesses
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VARIABLE-VOLTAGE ELECTRIC TRANSFORMER FOR CAUTERY AND DIAGNOSTIC WORK.

No. 815,863. Specification of Letters Patent. Patented March 20, 1906.

Application filed July 18, 1905. Serial No. 270,302.

To all whom it may concern:

Be it known that I, EARL H. ROLLINSON, a citizen of the United States of America, and a resident of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Variable-Voltage Electric Transformers for Cautery and Diagnostic Work, of which the following is a specification.

My invention relates to variable-voltage cautery-transformers; and the object of my invention is to produce a secondary current with low voltage which can be varied to any amount large or small and to get a fine variation in the secondary current. I accomplish this object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan. Fig. 2 is a plan of a modified form of my invention. Fig. 3 is a perspective view of a box inclosing my invention.

Similar letters refer to similar parts throughout the several views.

I construct a core A, preferably of laminations of iron, which may be in the form shown in Fig. 1, substantially annular in shape, but having internal polar projections B and C, about which polar projections are placed the secondary winding D and E. Around the core A, between the polar projections B and C and on each side thereof, I wind a secondary winding F and G, respectively, suitably mounted in the frame supporting the core A, a movable primary core H, about which is coiled the primary winding J. The primary core H is built up of iron laminations and is provided with a series of wires K, extending lengthwise of the core and through the same from one side to the other, the wires K short-circuiting upon themselves. To the primary core H, I preferably arrange a handle-bar M, suitably mounted on a spindle *m* to the core, whereby the primary core H may be rotated. The wire making the winding J on the primary core H is connected at *j* and *j'* to the source of the electric supply. The secondary windings F and G are connected to small diagnostic lamps. (Not shown.) On the secondary windings F and G there are arranged the connections *f f*, which connect with the segments N in the top of the box, as shown in Fig. 3, and for the purpose of varying the voltage of the light-circuit from F and G the contact-piece O is removed from one segment to the other, the contact-plate P being connected to the terminal R, which is the post or contact to which the lamp-circuit connects. The other terminal S is connected directly to the secondary windings F and G on the secondary core A. The secondary winding on D and E on the polar projections B and C, respectively, are connected to the terminals T and T', respectively. The terminals U and U' connect with the primary wires *j* and *j'*. When the primary core H is in the position shown in Fig. 1, a full load is generated. The flux set up by the primary core threads the secondary winding D and E on the polar projection and divides and passes equally along the secondary core toward the opposite polar piece, completing the magnetic circuit. When the primary core is rotated to ninety degrees, which may be done in either direction, preferably to the right, zero voltage is attained across the secondary terminals, for the reason that the magnetic flux set up by the primary winding will pass to the right and left along the secondary core, but will shunt the polar projections B and C, and no voltage will be generated in the secondary winding. When the primary core occupies any position between that shown in Fig. 1 and the position which it will occupy when rotated ninety degrees, it will in every intermediate position generate a voltage in the secondary winding varying and determined by the degree which the primary core is out of the position shown in Fig. 1, in which the ends of the core join the polar projections.

It will be noted that the windings F and G on the secondary core A will be practically unaffected by the rotation of the primary core H, since in whatever position the primary core occupied there will be a magnetic flux through said winding and the voltage of the winding will be the same. The secondary winding on the polar projections B and C may be connected either parallel or in series.

The object of placing the series of wires K around the primary core from end to end, as shown in Fig. 1, and short-circuiting them upon themselves is to reduce the reinduction of the secondary circuit and to reduce the attractive force between the secondary and primary core.

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

1. In a variable-voltage cautery-transformer; a laminated iron core; two separately-disposed secondary windings on said core;

polar projections on said core; windings on said polar projections; a primary core mounted to rotate between said secondary windings and between said polar projections; windings on said primary core, substantially as described.

2. In a variable-voltage cautery-transformer, a core substantially annular in form, made up of laminations of iron; polar projections located opposite each other on said core; secondary windings on said polar projections; terminals with which said windings are connected; secondary windings on said core separated from each other and from the winding on said polar projections; primary core mounted to rotate within said secondary core; electric supply-windings on said primary core; a series of wires extending lengthwise of the primary core through the same from one side to the other; a means for rotating said core, substantially as described.

3. In a variable-voltage cautery-transformer; a secondary core, substantially annular in form; a primary core mounted to rotate within the secondary core; internal polar projections on the secondary core; heavy current secondary windings placed on said polar projections; separated secondary windings on said secondary core; primary windings on said primary core; a series of wires extending at right angles to the said primary wires on said primary core; substantially as described.

4. A variable-voltage cautery-transformer provided with secondary and primary cores; the secondary windings being of different terminal voltage; the heavy current secondary windings being placed about internal polar projections on said secondary core; the light diagnostic winding placed on a portion of the secondary core other than the polar projections; primary windings on the primary core; with short-circuited turns placed thereon, substantially at right angles to the primary windings to reduce the induction of the secondary windings in the intermediate positions of the primary core, substantially as described.

Signed at Albany, New York, this 7th day of July, 1905.

EARL H. ROLLINSON.

Witnesses:
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LOTTIE PRIOR.