G. FERRIÉ.

REGULATION OF THE PERIOD OR INDUCTANCE OF HIGH FREQUENCY CIRCUITS.

APPLICATION FILED MAY 8, 1907.

906,211. Patented Dec. 8, 1908.

Fig. 1.

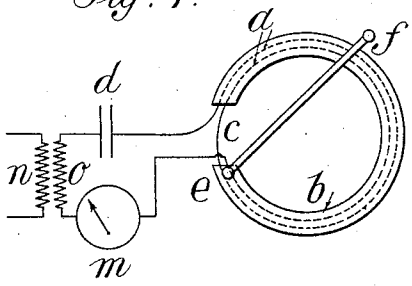


Fig. 1a.

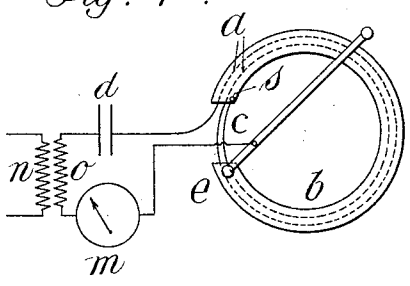


Fig. 2.

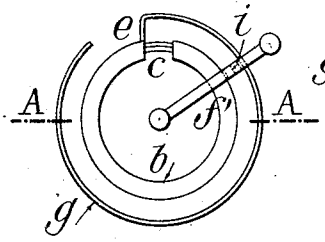


Fig. 3.

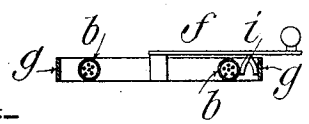


Fig. 4.

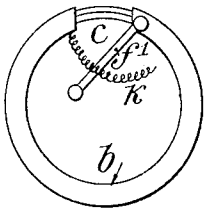
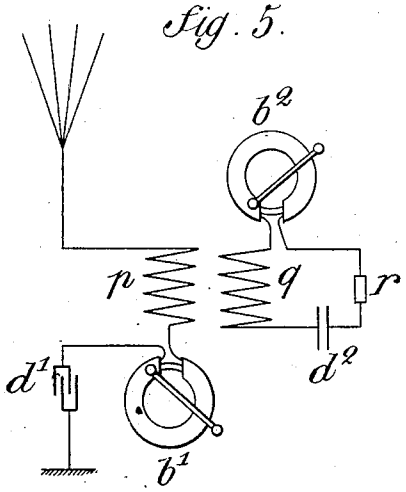


Fig. 5.



WITNESSES

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REGULATION OF THE PERIOD OR INDUCTANCE OF HIGH-FREQUENCY CIRCUITS.

No. 906,211. Specification of Letters Patent. Patented Dec. 8, 1908.

Application filed May 8, 1907. Serial No. 372,539.

To all whom it may concern:

Be it known that I, GUSTAVE FERRIÉ, a citizen of the Republic of France, residing at 51bis Boulevard de Latour Maubourg, Paris, in the Republic of France, captain, have invented certain new and useful Improvements Relating to the Regulation of the Period or Inductance of High-Frequency Circuits, of which the following is a specification.

My invention relates to the regulation of the induction or the period of high frequency circuits.

The object of the invention is to provide means for varying the inductance and period of such circuits in a simple and convenient manner.

The invention consists in providing in proximity to the inductance windings other conductors preferably surrounding said windings, and in short-circuiting a portion of such other conductors, the inductance being regulated by varying the relative position of the inductance windings and surrounding conductors and the position of the short circuit.

The invention further consists in surrounding the inductance windings with a conducting tube in the form of a ring or other figure with a portion removed, and in varying the inductance by short circuiting different points in the ring.

The invention also consists in the means for regulating the inductance and time period of electrical circuits hereinafter described.

Referring to the accompanying diagrammatic drawings, Figure 1 shows one modification of the invention. Fig. 1a is a similar view of a modified form; Fig. 2 is a plan view of another form; Fig. 3 is a section on the line A—A of Fig. 2. Fig. 4 is a plan of a fourth modification, while Fig. 5 shows the application of invention to a receiver for wireless telegraphy.

In carrying my invention into effect according to the modification illustrated in Fig. 1 I provide a number of insulated windings, *a*, which form the inductance and inclose these in a metallic tube, *b*, in the form of an incomplete loop, a small portion of the windings being situated in the gap, *c*, in the tube. I find that if this device be placed in an electrical circuit, the inductance and period of that circuit may be varied by short-circuiting two points on the tube by means of a metal bar, *f*, of low ohmic resistance. I find that the period of the circuit is more affected by the short-circuit when the points connected are near the cut-away part of the tube while the tube without the short-circuit has little effect on the period. The effect on the period of the circuit also depends upon the number of windings and their diameter and the section of the tube, and I find that a greater effect is produced by a greater number of windings in the same section of the tube.

In some cases I may place the ring itself in the circuit of the inductance as shown in dotted lines in Fig. 1a where, *s*, indicates the junction of the tube and wire of the inductance.

According to the construction shown in Fig. 1a, I use a lever or handle, *f'*, having one end near to one side of the opening in the envelop and adapted to make contact at various points around the envelop.

A convenient method is also shown in Figs. 2 and 3. A ring, *g*, is attached to one end of the tube and arranged concentric therewith; the lever, *f'*, would then be pivoted at the center of the tubular envelop, *b*, and would be provided with a spring contact, *i*, adapted to connect the tube, *b*, and ring, *g*, at various points when the lever is turned about its pivot. A variable resistance may if desired be provided between the ends of the opening in the envelop, a further variation of period being thus obtained. A scale may also be provided showing the inductance of the whole device when the lever is in different positions.

In the modification shown in Fig. 4 this arm, *f'*, is adapted to make contact at various points on a wire, *k*, connected to the opposite side of the gap, *c*.

The apparatus may be used as a wave meter as shown in Fig. 1 for determining the period of a given circuit by inserting it in a circuit containing a constant or variable capacity, *d*, together with a current indicating device, *m*, and the secondary, *o*, of an induction coil or transformer, whose primary, *n*, is in the circuit whose period is to be determined. By varying the induction by the variable inductance above described, the point at which the two circuits syntonise can be determined. The apparatus above described is especially useful in wireless telegraphy in connection with the receiver as illustrated in Fig. 5, one of the variable inductances, *b'*, being placed in series with the serial wire, a capacity, *d'*, and the primary *p*, of a transformer while the other, b^2, is in-

serted in series with the secondary, q, of the transformer another capacity, d^2 and the detector, r, in a closed circuit. The apparatus may also be used in transmitting circuits in wireless telegraphic installations or in any circuits carrying high frequency currents.

It will be seen that while the period of the circuit in which my improved device is placed is very slightly changed when the envelop is not short-circuited, any desired change of period may be introduced by varying the position of the short-circuit.

Claims—

1. An apparatus for regulating the self-induction of a circuit traversed by currents of high frequency, comprising an annular hollow conductor having a transverse gap, a conductor within the hollow conductor and interposed in the circuit, and means for regulating the resistance of the hollow conductor.

2. An apparatus for regulating the self-induction of a circuit traversed by currents of high frequency, comprising an annular hollow conductor having a transverse gap, a conductor within the hollow conductor and interposed in the circuit, and means for regulating the resistance of the hollow conductor, said means comprising a movable arm connecting opposite points of a hollow conductor.

3. An apparatus for regulating the self-induction of a circuit traversed by currents of high frequency comprising a conductor interposed in the circuit a hollow conductor inclosing said first named conductor said hollow conductor having its ends spaced apart from each other and means for regulating the resistance of the hollow conductor.

In testimony, that I claim the foregoing, as my invention, I have signed my name in presence of two subscribing witnesses.

GUSTAVE FERRIÉ.

Witnesses:

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