

[Second Edition.]



N° 20,229



A.D. 1909

Date of Application, 3rd Sept., 1909

Complete Specification Left, 2nd Apr., 1910—Accepted, 11th Aug., 1910

PROVISIONAL SPECIFICATION.

Improvements in Transmitting Apparatus for Wireless Telegraphy.

We, GUGLIELMO MARCONI, LL.D., D.Sc., and MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED, both of Watergate House, Adelphi, London, W.C., do hereby declare the nature of this invention to be as follows:—

- It has before been proposed (for example in the Specification No. 20,119 of 1907) to employ a transmitter in which the gap between two terminals of the oscillation circuit is more or less bridged at regular intervals by means of bridging pieces in very rapid movement, these bridging pieces preferably consisting of studs fixed to a rapidly revolving disc.
- Now it is found that under certain circumstances it is advantageous to obtain a greater number of discharges per second, and this can be done by increasing the number of pairs of studs on the disc and the speed of rotation of the disc. A difficulty however arises, for as stated in that specification, at the occurrence of each discharge the condenser is cut out of circuit, and when the discharge stops it is inserted again and is charged by the generator with oscillations, the time period of which is approximately equal to $2\pi\sqrt{CL}$ where C is the capacity of the condenser in farads, and L is the whole inductance in henrys, such inductance L including that of the alternator or transformer if an alternating current generator be employed or of the dynamo if a continuous current generator be employed. Now if the time period is reduced to the very small fraction of a second which is now found to be desirable, the value of L may become less than that of the dynamo. According to this invention therefore we insert across the terminals of the generator, or in other words in parallel with the condenser, a second condenser of comparatively large capacity to act as a reservoir condenser from which the first or working condenser can be fully charged through inductive resistances of suitable value in the very short interval of time available.

Dated this 3rd day of September, 1909.

CARPMAEL & Co.,
Agents for Applicants.

COMPLETE SPECIFICATION.

30 Improvements in Transmitting Apparatus for Wireless Telegraphy.

- We, GUGLIELMO MARCONI, LL.D., D.Sc., and MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED, both of Watergate House, Adelphi, London, W.C., do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

It has before been proposed, in the Specification No. 20,119 of 1907, to employ a transmitter in which the gap between two terminals of the oscillation circuit

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Improvements in Transmitting Apparatus for Wireless Telegraphy.

is more or less bridged at regular intervals by means of bridging pieces in very rapid movement, these bridging pieces preferably consisting of studs fixed to a rapidly revolving disc.

Now it is found that under certain circumstances it is advantageous to obtain a greater number of discharges per second, and this can be done by increasing the number of pairs of studs on the disc or the speed of rotation of the disc or both. A difficulty however arises, for the interval between successive discharges may be so small that there is not time completely to charge the condenser from the charging circuit, the natural time period of which depends upon the total inductance of that circuit including that of the alternator or transformer if an alternating current generator be employed or of the dynamo if a continuous current generator be employed. In order to reduce the time period of the charging circuit to the very small fraction of a second which is now found to be desirable we may require the total inductance to be less than that of the charging generator itself.

According to this invention therefore we insert across the terminals of the generator, or in other words in parallel with the condenser, a second condenser of comparatively large capacity to act as a reservoir condenser from which the first or working condenser can be fully charged through inductances or resistances of suitable value in the very short interval of time available.

The accompanying diagram shows transmitting apparatus in accordance with this invention.

a is the generator across the terminals of which is placed a reservoir condenser c connected through inductances or resistances r to the working condenser c^1 in turn connected to the rotating disc terminals d between which is an insulated disc e bearing studs f . The result of this arrangement is that the resistance and inductance of the generator are not included in the expression

$2\pi / \sqrt{\frac{1}{CL} - \frac{R^2}{4L^2}}$ for the time period of the charging circuit $c r c^1 r$, C , R and L being the capacity, resistance and inductance of such circuit. By suitably choosing these values the condenser c^1 may be fully charged in the short interval of time available.

Our Specification No. 4593 of 1907 describes the use of a reservoir condenser placed across the terminals of the generator and we make no claim to a reservoir condenser *per se*.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is;—

The combination with a transmitter in which the gap between two terminals of the oscillation circuit is more or less bridged at regular intervals by means of bridging pieces in very rapid movement, of a condenser of considerably larger capacity than the condenser of the oscillation circuit placed across the terminals of the transformer or generator and connected to the condenser of the oscillation circuit through suitable inductances or resistances substantially as described.

Dated this 31st day of March, 1910.

CARPMAEL & Co.,

Agents for Applicants.

24, Southampton Buildings, London, W.C.

(2nd Edition)

[This Drawing is a full-size reproduction of the Original.]

