# 104,189

# PATENT SPECIFICATION

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*Complete Left, July 17, 1916.*
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PROVISIONAL SPECIFICATION.

## Improvements in Wireless Telegraph Transmitters.

We, GUGLIELMO MARCONI, G.C.V.O., D.Sc., and WILLIAM SNOWLEY ENTWISTLE, Electrician, both of Marconi House, Strand, London, W.C., do hereby declare the nature of this invention to be as follows:—

In Specification No. 11,371 of 1913 there is described the regulation of the discharges of two or more main condenser circuits by means of the discharges of two or more auxiliary or trigger condenser circuits of smaller dimensions and having a higher natural frequency than the main circuits, each trigger circuit including the primary of an oscillation transformer of which the secondary is included in one of the main circuits.

According to the present invention, instead of a separate trigger condenser circuit for each main circuit, we employ a single trigger circuit to excite all the main circuits, such circuit including a transformer primary, common to separate secondaries in the different main circuits.

Each main circuit is connected through one of the said secondaries to separate fixed electrodes at a disk discharger, while the trigger circuit is discharged by a single electrode, and a trigger disk discharger having studs in number equal to the number of the studs on the main disk multiplied by the number of the main circuits.

At every discharge of the trigger circuit, all the secondaries are excited but only in the main circuit, of which the electrode has a stud on the main disk opposite to it, will a spark be produced and the discharge started.

By this means we avoid a number of trigger circuits and the necessity of having more than one electrode at the trigger disk and we thus obtain more accurate timing.

Dated the 17th. day of January, 1916.

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[*Price* 6*d*.]

COMPLETE SPECIFICATION.

## Improvements in Wireless Telegraph Transmitters.

We, GUGLIELMO MARCONI, G.C.V.O., D.Sc., and WILLIAM SNOWLEY ENTWISTLE, Electrician, both of Marconi House, Strand, 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:—

In Specification No. 11,371 of 1913 there is described the regulation of the discharges of two or more main condenser circuits by means of the discharges of two or more auxiliary or trigger condenser circuits of smaller dimensions and having a higher natural frequency than the main circuits, each trigger circuit including the primary of an oscillation transformer of which the secondary is included in one of the main circuits.

According to the present invention, instead of a separate trigger condenser circuit for each main circuit, we employ a single trigger circuit to excite all the main circuits, such circuit including a transformer primary, common to separate secondaries in the different main circuits.

Each main circuit is connected through one of the said secondaries to separate fixed electrodes at a disk discharger, while the trigger circuit is discharged by a single electrode, and a trigger disk discharger having studs in number equal to the number of the studs on the main disk multiplied by the number of the main circuits.

Our invention is illustrated by the accompanying diagram which shows two main discharge circuits. A is a high tension direct current machine, or it may be a battery, adapted to charge through inductances C, $C^1$, $C^2$, $c$, main condensers D, $D^1$, and the trigger condenser $d$. G, $G^1$, are discharger disks arranged in the main condenser circuits and mounted on the same shaft, while $g$ is a discharger disk in the trigger circuit and having twice as many teeth as G or $G^1$. The three disks are not necessarily insulated from each other.

The gaps at the dischargers G and $G^1$ are adjusted so that no discharge can take place from K and $K^1$ at the potential to which they are charged by A.

D G K H E and $D^1$ $G^1$ $K^1$ $H^1$ $E^1$ constitute the two main condenser discharge circuits which are coupled to the aerial circuit L F $F^1$. $d$ $e$ $k$ $g$ constitutes the trigger primary circuit which is coupled to two circuits H I and $H^1$ $I^1$.

Condensers I and $I^1$ tune the circuits I H and $I^1$ $H^1$ to the circuit $d$ $e$ $k$ $g$, and when $d$ discharges through $e$ $k$ $g$, circuits I H and $I^1$ $H^1$ are excited and I discharges through J K G. This enables the main condenser D to discharge through G K H E. When the next tooth on $g$ comes opposite $k$ a tooth on $G^1$ will be opposite $K^1$, $d$ will again discharge and $I^1$ will therefore discharge through $J^1$ $K^1$ $G^1$, enabling the main condenser $D^1$ to discharge through $G^1$ $K^1$ $H^1$ $E^1$. Thus the two main condensers D and $D^1$ are discharged alternately by means of the one trigger circuit $d$ $e$ $k$ $g$.

Similarly the discharges of any number of circuits may be timed by one trigger circuit provided that the number of studs on the trigger disk is equal to the number of studs on one of the main disks multiplied by the number of main circuits.

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:—

1. In a wireless telegraph transmitter, the combination with a plurality of

condenser discharge circuits of a single trigger circuit adapted to excite all the main circuits, substantially as described.

2. In a wireless telegraph transmitter, the combination with a plurality of main condenser discharge circuits of a single trigger circuit including a primary common to separate secondaries in the different main circuits, substantially as described.

3. A wireless telegraph transmitter substantially as described with reference to the diagram.

Dated the 17th day of July, 1916.

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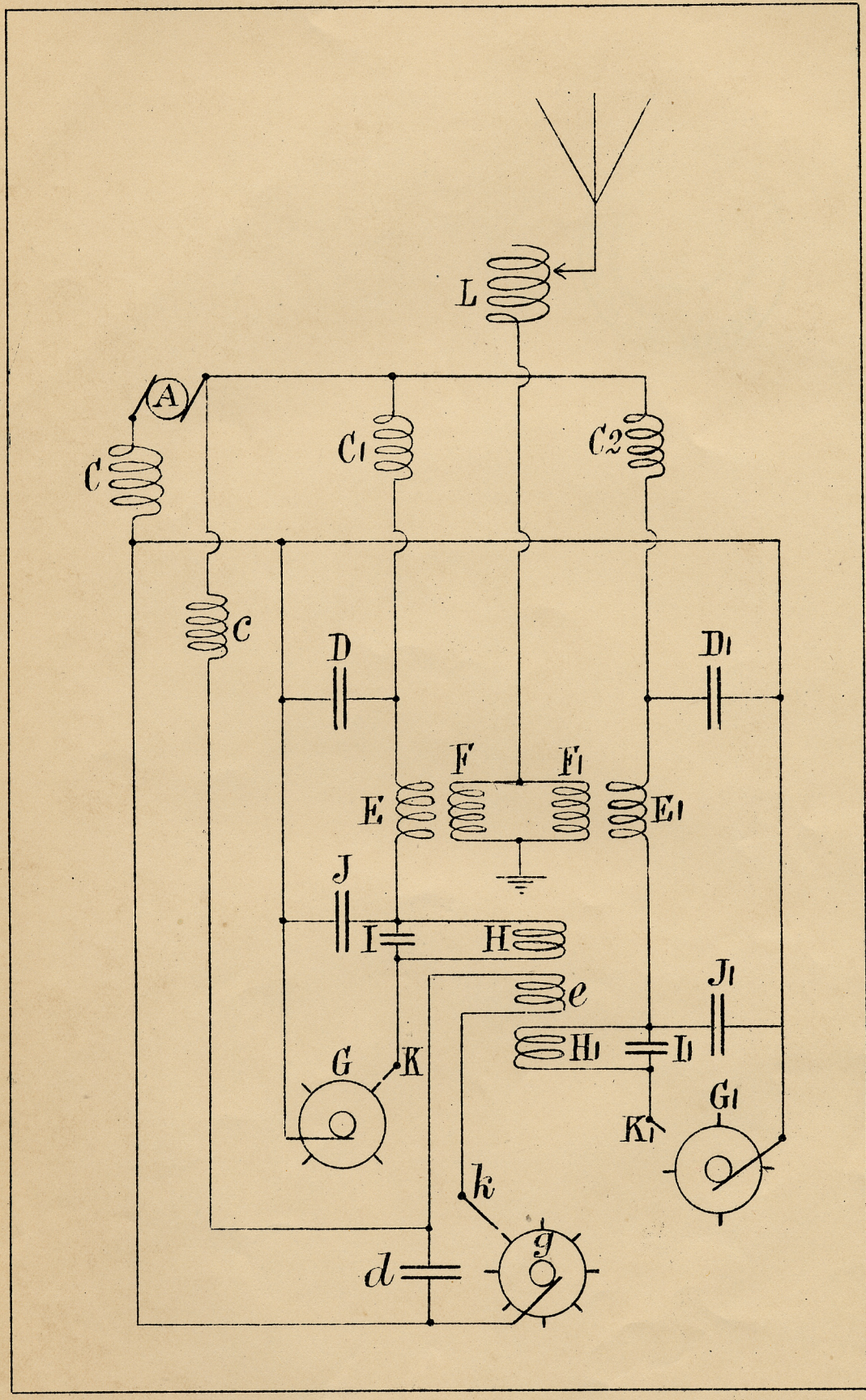


[This Drawing is a full-size reproduction of the Original.]

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