[Second Edition.]

N° 410 A.D. 1901

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PROVISIONAL SPECIFICATION.

"Improvements in Apparatus for Wireless Telegraphy."

We, GUGLIELMO MARCONI, Electrician, and MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED, both of 18 Finch Lane, in the City of London, do hereby declare the nature of this invention to be as follows:—

The object of this invention is to increase the efficiency of the apparatus hitherto employed and also to so control the action as to cause communications to be established with one or more stations only out of a group of several receiving stations.

In the Specification of a former Patent No. 12039[95] a transmitter is described which consists of an induction coil or transformer one terminal of the secondary circuit being connected to a metal sphere connected to earth or other suitable capacity and the other to a similar sphere (which constitute the poles of the sparking appliance) connected to an insulated elevated conductor.

According to the present invention a condenser of suitable capacity in series with an inductance is placed across the spark gap.

At the receiving end a receiver is employed capable of being actuated by electrical oscillations of high frequency such as is described in the Specification No 12039[96], and to which induction coils or transformers such as are described in the Specifications Nos 12326[98], 6982[99] and 25186[99] are usually applied.

When the induction coils described in the above mentioned specifications are not employed, but the coherer or its equivalent is connected directly to the elevated conductor and to earth as in the first mentioned specification, it is desirable to insert in series with it inductance coils of suitable inductance and in certain cases to join the coherer in parallel with a condenser of suitable capacity which may be also in series with an inductance coil. The coherer is actuated in this latter case by the overflow of the condenser with which it happens to be in parallel.

The inductance consists of a few turns of copper wire.

In employing this invention to localize the transmission of signals to one out of several receiving stations one of the following methods is adopted.

The induction coils used at the receiving stations are wound with different lengths of wire and the self induction and capacity of the inductance, condenser and elevated wire is accordingly varied over wide limits.

It is found that if these factors are varied at the transmitting station until the electrical system composed of the elevated wire and its associated inductance coil and condenser are in resonance with the receiving elevated wire and its induction coil and coherer connections of one of the receiving systems, that one alone, out of all the number of receiving stations responds, provided that the distance between the transmitter and receiver is not too small. In this manner each receiving instrument can be adjusted to respond only to the transmitter when the inductance of that transmitter has a certain value or values.

At the receiving station the period of oscillation of the system can be altered by altering the capacity and inductance of the elevated conductor and by associating with the circuit of the induction coils condensers of suitable capacity in parallel or in series with the primary and secondary.

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At the transmitter the frequency may be varied in a similar way as has been described for the receiver.

At the transmitting station it is desirable in certain cases to insert a condenser in the lower part of the aerial conductor.

Dated this 7th day of January 1901.

G. MARCONI,
MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED.
By HENRY W. ALLEN,
Secretary.
HENRY S. SAUNDERS, } Directors.
S. FLOOD PAGE, }

COMPLETE SPECIFICATION.

"Improvements in Apparatus for Wireless Telegraphy."

We, GUGLIELMO MARCONI, Electrician, and MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED, both of 18 Finch Lane, in the City of London, 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.

The object of this invention is to increase the efficiency of the apparatus hitherto employed and also to so control the action as to cause communications to be established with one or more stations only out of a group of several receiving stations.

In the Specification of a former Patent No 12039[96] a transmitter is described which consists of an induction coil or transformer one terminal of the secondary circuit being connected to a metal sphere connected to earth or other suitable capacity and the other to a similar sphere (which constitute the poles of the sparking appliance) connected to an insulated elevated conductor.

According to the present invention a condenser *a* of suitable capacity in series with an inductance *b* is placed across the spark gap *c* as shown in the diagram.

At the receiving end a receiver is employed capable of being actuated by electrical oscillations of high frequency such as is described in the Specification No 12039[96], and to which induction coils or transformers such as are described in the Specification Nos 12326[98], 6982[99], and 25186[99] are usually applied.

When the induction coils described in the above mentioned specifications are not employed, but the coherer or its equivalent is connected directly to the elevated conductor and to earth as in the first mentioned specification, it is desirable to insert in series with it inductance coils of suitable inductance and in certain cases to join the coherer in parallel with a condenser of suitable capacity which may be also in series with an inductance coil. The coherer is actuated in this latter case by the overflow of the condenser with which it happens to be in parallel.

The inductance *b* consists of a few turns of copper wire.

In employing this invention to localize the transmission of signals to one out of several receiving stations one of the following methods is adopted.

The induction coils used at the receiving stations are wound with different lengths of wire and the self induction and capacity of the inductance *b*, condenser *a* and elevated wire *d* is accordingly varied over wide limits.

It is found that if these factors are varied at the transmitting station until

the electrical system composed of the elevated wire and its associated inductance coil and condenser are in resonance with the receiving elevated wire and its induction coil and coherer connections of one of the receiving systems, that one alone, out of all the number of receiving stations responds, provided that the distance between the transmitter and receiver is not too small. In this manner each receiving instrument can be adjusted to respond only to the transmitter when the inductance of that transmitter has a certain value or values.

At the receiving station the period of oscillation of the system can be altered by altering the capacity and inductance of the elevated conductor and by associating with the circuit of the induction coils condensers of suitable capacity in parallel or in series with the primary and secondary.

At the transmitter the frequency may be varied in a similar way as has been described for the receiver.

At the transmitting station it is desirable in certain cases to insert a condenser in the lower part of the aerial conductor.

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. Placing a condenser in series with an inductance across the spark gap substantially as described.

2. Apparatus for wireless telegraphy substantially as described and illustrated in the drawing.

Dated this 5th day of November 1901.

G. MARCONI,
MARCONI'S WIRELESS TELEGRAPH CO. LTD.,
S. FLOOD PAGE,
HENRY S. SAUNDERS, } Directors.
HENRY W. ALLEN,
Secretary.

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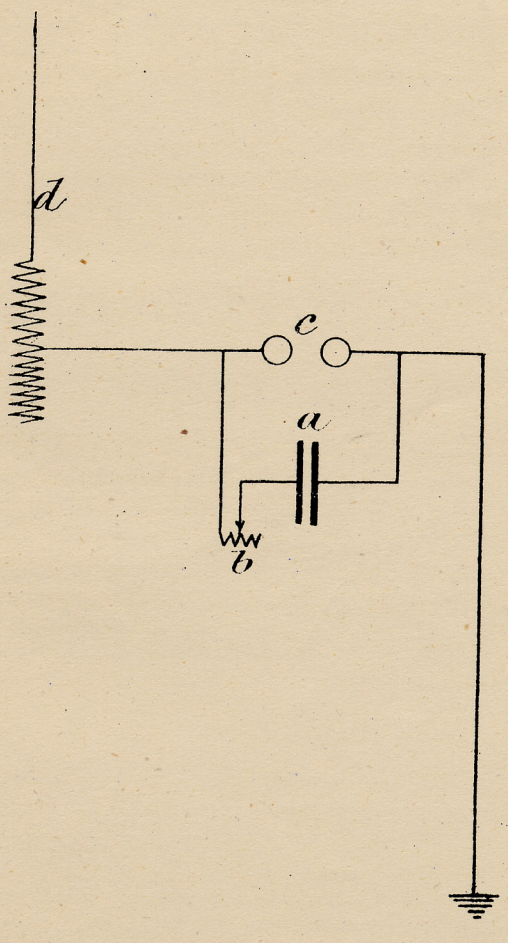

[This Drawing is a full-size reproduction of the Original.]

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