[Second Edition.]

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PROVISIONAL SPECIFICATION.

"Improved Apparatus for use in connection with Electric Wave Telegraphy."

We, GUGLIELMO MARCONI, LL.D., D.Sc., 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 provide improved apparatus for use in connection with electric wave telegraphy, whereby a transmitter can transmit oscillations in any specific direction and a receiving station can ascertain the direction or bearing of one or more transmitting stations.

According to this invention we employ a number of conductors lying in horizontal or substantially horizontal straight lines upon or at a short distance above the surface of the ground (or water), and radiating out from a centre, like the spokes of a wheel.

In the case of the transmitter, a spark gap or oscillation producer, or, in the case of the receiver, any suitable receiving instrument, such as a magnetic detector, is placed where these antennae converge, and by means of a suitable revolving switch can be connected between the end of any one of the antennae and earth.

As already described in Specification No. 14788 of 1905 a horizontal antenna placed close to the surface of the ground or water most efficiently transmits or receives electric oscillations or waves in the vertical plane passing through it. If therefore a sending station be operating within range of the instrument, and the switch be turned round and about, it will be found that the maximum signals will be received when the detector is connected to the antenna which happens to be pointing away from the sending station, or if there be not an antenna pointing exactly in this direction, then when the detector is connected to the one which points nearest to said direction.

If a powerful transmitter be in operation at a short distance it may be found that signals are obtained on all the wires, but these signals will be much stronger on the wire pointing in the already described direction.

In this case by means of suitable shunts, which may be inserted in parallel with the magnetic detector or receiving instrument, it is easy to reduce the energy acting on said instrument in such a way that the receiver will only work when connected to the wire pointing in the proper direction.

With a transmitter constructed according to our invention, it is possible to send signals in any specific direction by rotation of the revolving switch.

Dated this 8th day of February 1906.

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

[Price 8d.]
PRICE 6d.

COMPLETE SPECIFICATION.

"Improved Apparatus for use in connection with Electric Wave Telegraphy."

We, GUGLIELMO MARCONI, LL.D., D.Sc., 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 provide improved apparatus for use in connection with electric wave telegraphy, whereby a transmitter can transmit oscillations in any specific direction and a receiving station can ascertain the direction or bearing of one or more transmitting stations.

According to this invention we employ a number of conductors lying in horizontal or substantially horizontal straight lines upon or at a short distance above the surface of the ground (or water), and radiating out from a centre, like the spokes of a wheel.

In the case of the transmitter, a spark gap or oscillation producer, or, in the case of the receiver, any suitable receiving instrument, such as a magnetic detector, is placed where these antennae converge, and by means of a suitable revolving switch can be connected between the end of any one of the antennae and earth.

As already described in Specification No. 14788 of 1905 a horizontal antenna placed close to the surface of the ground or water most efficiently transmits or receives electric oscillations or waves in the vertical plane passing through it.

If therefore a sending station be operating within range of the instrument, and the switch be turned round and about, it will be found that the maximum signals will be received when the detector is connected to the antenna which happens to be pointing away from the sending station, or if there be not an antenna pointing exactly in this direction, then when the detector is connected to the one which points nearest to said direction.

If a powerful transmitter be in operation at a short distance it may be found that signals are obtained on all the wires, but these signals will be much stronger on the wire pointing in the already described direction.

In this case by means of suitable shunts, which may be inserted in parallel with the magnetic detector or receiving instrument, it is easy to reduce the energy acting on said instrument in such a way that the receiver will only work when connected to the wire pointing in the proper direction.

With a transmitter constructed according to our invention, it is possible to send signals in any specific direction by rotation of the revolving switch.

Figure 1 is a plan and Figure 2 a vertical section of a receiving station constructed according to this invention.

a^1 to a^8 are the horizontal antennae. b is the receiving instrument connected to earth E. c is a revolving switch by which the receiving instrument or detector can be connected to any one of the antennae.

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. A transmitting station for wireless telegraphy provided with a number of substantially horizontal antennae radiating from a centre any one of which can be connected by a switch to an oscillation producer which itself is connected to earth substantially as described.

2. A receiving station for wireless telegraphy provided with a number of substantially horizontal antennae radiating from a centre any one of which can be connected by a switch to a receiving instrument or detector which itself is connected to earth substantially as described.

3. The combination of transmitting and receiving stations such as are referred to in Claims 1 and 2, substantially as described.

Dated this 6th day of August 1906.

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

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(2nd Edition)

Fig. 1.

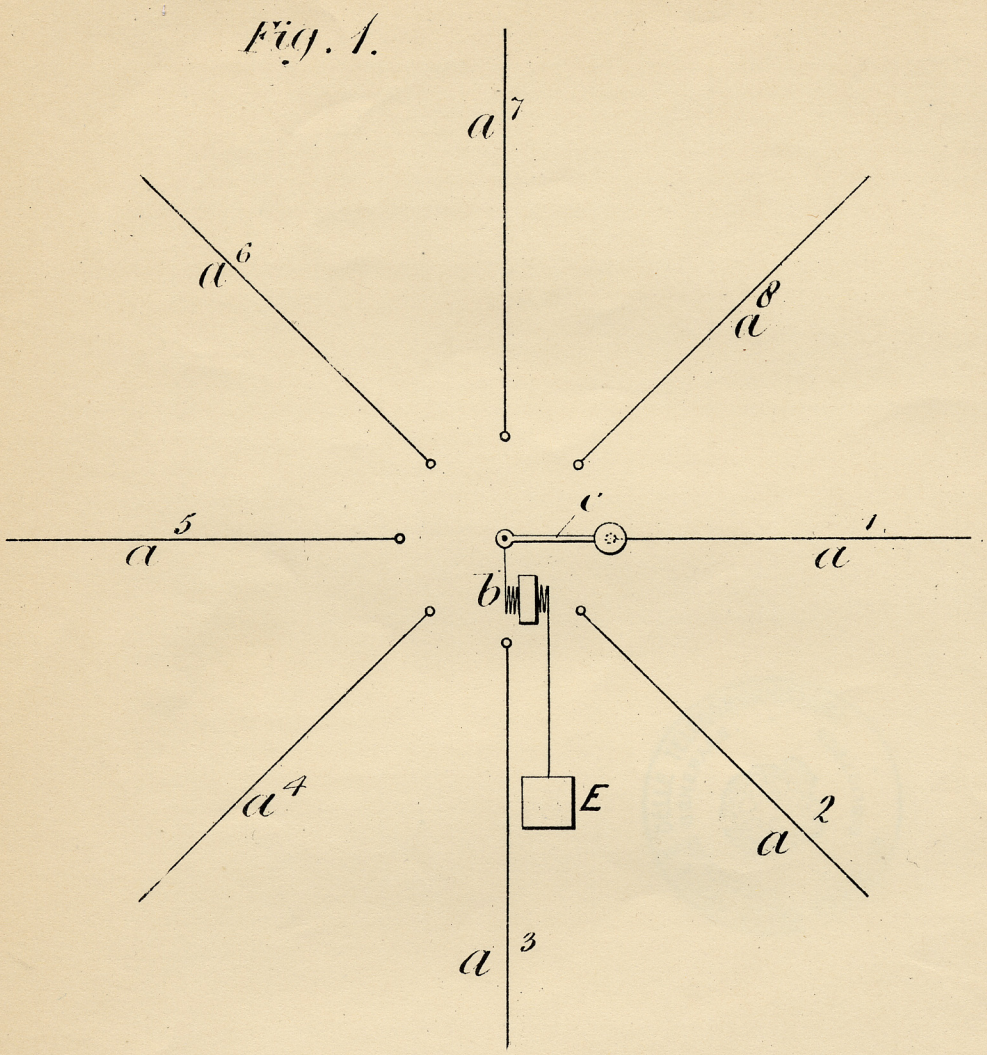
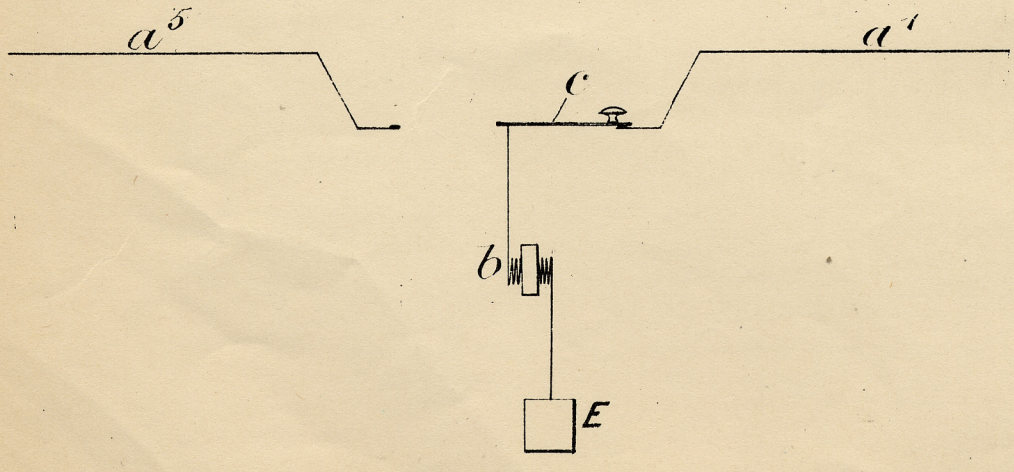


Fig. 2.



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