

N° 3055



A.D. 1912

Date of Application, 6th Feb., 1912

Complete Specification Left, 6th Aug., 1912—Accepted, 19th Dec., 1912

PROVISIONAL SPECIFICATION.

Improvements in Wireless Telegraph Receiving Apparatus.

We, MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED, and HENRY JOSEPH ROUND, both of Watergate House, York Buildings, Adelphi, in the City of Westminster, Electrical Engineers, do hereby declare the nature of this invention to be as follows:—

5 The object of this invention is to provide improved wireless telegraph receiving apparatus in which the results of natural electrical waves commonly known as X's can be eliminated.

For the purpose of stopping these X's it has before been proposed to employ two aerials one tuned to the signals it is desired to receive and the other of a
10 slightly different tune and to oppose the effects produced by X's through these two aerials in the detector circuit.

According to this invention we produce a balance in the alternating currents set up by X's in two such aerials before these currents reach the detector.

As is well known the X's set up in these two aerials alternating currents of
15 frequencies equal to the natural periods of the aerials. The currents thus set up in the out-of-tune aerial we pass through the stator of an alternator, the rotor of which is so constructed and rotated as to make the frequency of the currents in it due to the effect of the X's through the out-of-tune aerial equal to the frequency of the currents due to the X's through the tuned aerial, which is
20 coupled to the oscillating circuit containing the rotor. The two X frequencies being now the same may be effectively opposed in a third circuit to which a detector circuit is coupled. X's will therefore have no effect on the detector circuit but signals will be readily detected.

Or we may connect to the rotor of the alternator two parallel oscillating
25 circuits, one coupled to the tuned and one to the out-of-tune aerial, the frequency of the rotor being in this case half the difference between the periods of the two aerials while the stator is in an oscillating circuit coupled to the detector circuit and tuned to half the sum of the two frequencies.

In place of two independent aerials, we may employ a single aerial with a
30 double tune.

Dated this 6th day of February, 1912.

CARPMAEL & Co.,

Agents for Applicants,

24, Southampton Buildings, London, W.C.

35 COMPLETE SPECIFICATION.

Improvements in Wireless Telegraph Receiving Apparatus.

We, MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED, and HENRY JOSEPH ROUND, both formerly of Watergate House, York Buildings, Adelphi, but now of

[Price 8d.]

PRICE 6d.

Improvements in Wireless Telegraph Receiving Apparatus.

Marconi House, Strand, both in the City of Westminster, Electrical Engineers, 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 wireless telegraph receiving apparatus in which the results of natural electrical waves commonly known as X's can be eliminated. 5

For the purpose of stopping these X's it has before been proposed to employ two aerials one tuned to the signals it is desired to receive and the other of a slightly different tune and to oppose the effects produced by X's through these two aerials in the detector circuit. 10

According to this invention we produce a balance in the alternating currents set up by X's in two such aerials before these currents reach the detector by passing the currents set up in the out of tune aerial through the stator of an alternator, the rotor of which is so constructed and rotated as to make the frequency of the currents in it due to the effect of the X's through the out-of-tune aerial equal to the frequency of the currents due to the X's through the tuned aerial, which is coupled to the oscillating circuit containing the rotor. The two X frequencies being now the same may be effectively opposed in a third circuit to which a detector circuit is coupled. X's will therefore have no effect on the detector circuit but signals will be readily detected. 15 20

Or we may connect to the rotor of the alternator two parallel oscillating circuits, one coupled to the tuned and one to the out-of-tune aerial, the frequency of the rotor being in this case half the difference between the periods of the two aerials while the stator is in an oscillating circuit coupled to the detector circuit and tuned to half the sum of the two frequencies. 25

In place of two independent aerials, we may employ a single aerial with a double tune.

The accompanying diagrams show the arrangement of receiving apparatus constructed in accordance with our invention. 30

In Figure 1 A is the aerial tuned to the signals to be received and A¹ is the out of tune aerial connected to the stator S of an alternator the rotor R of which is included in an oscillating circuit P. A third circuit Q is coupled both to the aerial A and to the circuit P and a detector circuit is coupled to the circuit Q. 35

In Figure 2 the rotor R is connected in two parallel oscillating circuits one coupled to each aerial and the stator circuit is coupled to a detector circuit. If we call the frequency of the signals $p+q$ and the aerials A, A¹ and the rotor circuits coupled to them are tuned to $p+q$ and $p-q$ respectively then the stator and detector circuits should both be tuned to p and the frequency of the alternator should be q . 40

In Figure 3 the signal aerial A is closely coupled to a circuit Q so that the system has two frequencies $p-q$ and $p+q$ and loosely coupled to Q are the two parallel rotor circuits one tuned to $p+q$ and the other to $p-q$ as before. 45

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 receiver so constructed that natural electric waves produce in it oscillations of two different frequencies, the employment of an alternator for equalising these frequencies substantially as described.

2. In a wireless telegraph receiver, the combination of two aerials differing in tune, an alternator the stator of which is connected to one aerial and a circuit coupled both to the other aerial and to the circuit of the rotor substantially as described. 50

3. In a wireless telegraph receiver, the combination of two aerials differing in tune, an alternator the rotor of which is included in two parallel circuits, one 55

Improvements in Wireless Telegraph Receiving Apparatus.

coupled to one aerial, the other to the other and a detector circuit including or coupled to the stator of the alternator substantially as described.

4. In a wireless telegraph receiver, the combination with an aerial system having two frequencies of two parallel circuits coupled thereto, an alternator the
5 rotor of which is included in the two parallel circuits and a detector circuit including or coupled to the stator of the alternator, substantially as described.

5. Wireless telegraph receivers substantially as described with reference to the drawing.

Dated this 6th day of August, 1912.

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Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.

[Wt. 35—50/6/1914.]

Fig. 1.

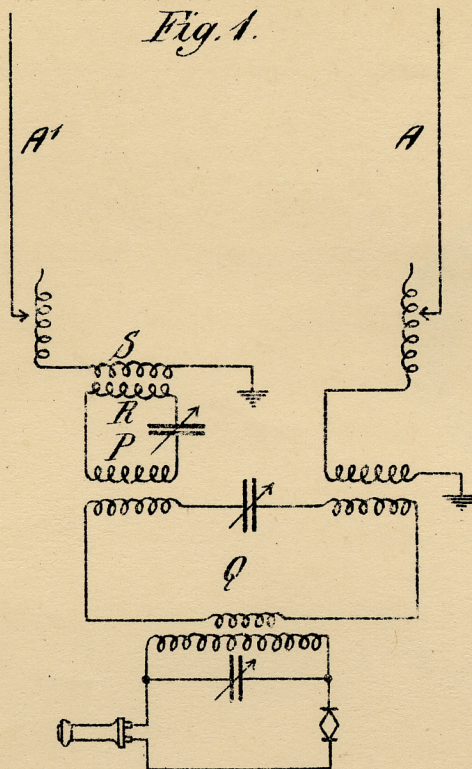
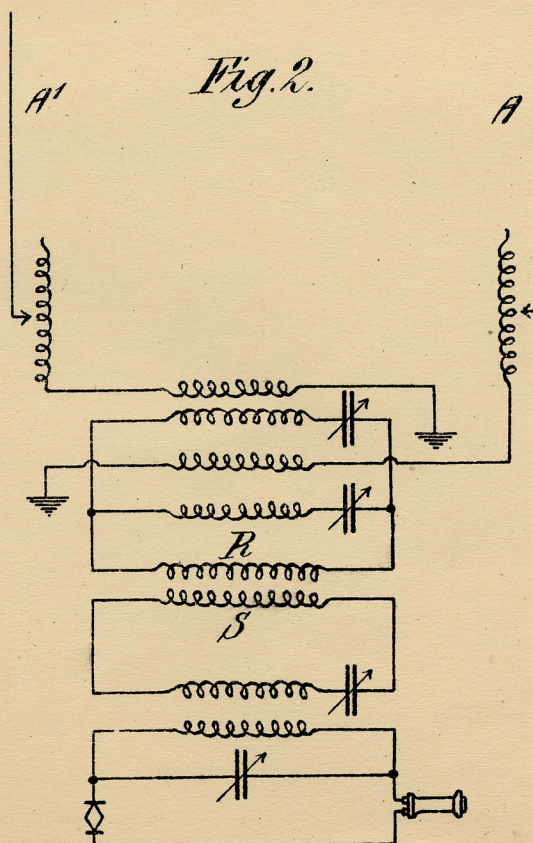


Fig. 2.



[This Drawing is a reproduction of the Original on a reduced scale.]

