[Second Edition.]

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PROVISIONAL SPECIFICATION.

"Improvements in Receivers for Wireless Telegraphy."

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

The object of this invention is to provide an improved wireless telegraph receiver from which the disturbing effects due to atmospheric electricity or to electrical waves of a period or decrement different from that of the transmitter from which it is desired to receive shall be eliminated.

In a prior Specification No. 887 of 1907, was described a method of utilising Professor Fleming's glow lamp detector or oscillation valve in a wireless receiver, and the present invention relates especially to the more effective employment of these valves and similar detectors which act by reason of their property of rectifying electrical oscillations.

According to this invention two rectifying detectors or valves are connected respectively to the secondaries of two oscillation transformers or jiggers, the primaries of which are joined to the receiving aerial or elevated conductor. A condenser is inserted in the circuit of each of said secondaries and these two circuits are arranged in such a manner that one of them is in resonance with the electrical waves which it is desired to receive while the other is slightly out of resonance, or in other words has a period differing slightly from that of the said waves. The valves are so connected to an induction coil, telephone or other detector that the rectified currents which they generate in consequence of the received oscillations are opposed to each other in polarity. By this method it is possible by the adjustment of the condensers, or by variations in the couplings between the aerial and the oscillation transformer circuits to so balance the rectified currents produced by the valves in consequence of natural electric disturbances or of waves different from those it is desired to detect that they are neutralised and therefore cease to interfere with the reception of signals.

Dated this 19th day of February, 1909.

CARPMAEL & Co.,
Agents for Applicants,
24, Southampton Buildings, London, W.C.

COMPLETE SPECIFICATION.

"Improvements in Receivers for Wireless Telegraphy."

We, GUGLIELMO MARCONI, LL.D., D.Sc., and MARCONI'S WIRELESS TELEGRAPH COMPANY, LIMITED, both of Watergate House, York Buildings, Adelphi, in

the City of Westminster, 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 an improved wireless telegraph receiver from which the disturbing effects due to atmospheric electricity or to electrical waves of a period or decrement different from that of the transmitter from which it is desired to receive shall be eliminated.

In a prior Specification No. 887 of 1907, was described a method of utilising Professor Fleming's glow lamp detector or oscillation valve in a wireless receiver, and the present invention relates to the more effective employment of these valves and similar detectors which act by reason of their property of rectifying electrical oscillations.

According to this invention two rectifying detectors or valves are connected respectively to the secondaries of two oscillation transformers or jiggers, the primaries of which are joined to the receiving aerial or elevated conductor.

A condenser is inserted in the circuit of each of said secondaries and these two circuits are arranged in such a manner that one of them is in resonance with the electrical waves which it is desired to receive while the other is slightly out of resonance, or in other words has a period differing slightly from that of the said waves. The valves are so connected to an induction coil, telephone or other detector that the rectified currents which they generate in consequence of the received oscillations are opposed to each other in polarity.

As a practical guide to putting the invention into practice we subjoin the arrangements which we find work best.

Figures 1 and 2 are diagrams of two arrangements of the receiving circuits which have been successfully employed.

In Figure 1, S and S^1 represent the secondaries of the oscillation transformers or jiggers, of which the primaries P and P^1 are in the aerial circuit, V and V^1 are the Fleming valves, or rectifiers, B and B^1 the batteries for rendering the valve filaments incandescent, K and K^1 are two condensers of equal capacity inserted in series with the secondary of the telephone transformer T the primary of which is connected to a telephone or indicator D. Across the condensers K and K^1, the capacity of which should be about .003 microfarads, it is advantageous to place two high resistances L and L^1 of about 40 megohms.

In Figure 2, an arrangement is shown in which the condensers K and K^1 and the resistances L and L^1 are omitted, but variable resistances or potentiometers R and R^1 are inserted across the terminals of the valves and batteries the connections to the telephone transformer T being tapped off at points close to the negative poles of the valves, the best points being easily ascertained by a process of trial and error by means of sliding contacts.

In order to properly balance the effect of the two valves further adjustable resistances W and W^1 may be placed in series with the filaments.

By this method it is possible by the adjustment of the condensers C and C^1 or by variations in the couplings between the aerial and the oscillation transformer circuits to so balance against each other the impulses produced by both valves in consequence of disturbing influences that these impulses are neutralised and therefore cease to interfere with the reception of signals. which is effected through that valve circuit which is arranged to be in resonance with the periodicity of the electric waves which it is desired to receive.

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, the combination of two oscillation circuits each comprising a rectifier, the two circuits being so arranged that one is in

resonance with the oscillations it is desired to detect while the other is slightly out of resonance, and a detector included in both circuits in such a way that the currents in it due to the two rectifiers are opposed to each other in polarity substantially as described.

2. In a wireless telegraph receiver as claimed in Claim 1, inserting a condenser in the connection of each rectifier to the detector.

3. Wireless telegraph receivers substantially as described with reference to the drawings.

Dated this 14th day of September, 1909.

CARPMAEL & Co.,
Agents for Applicants.

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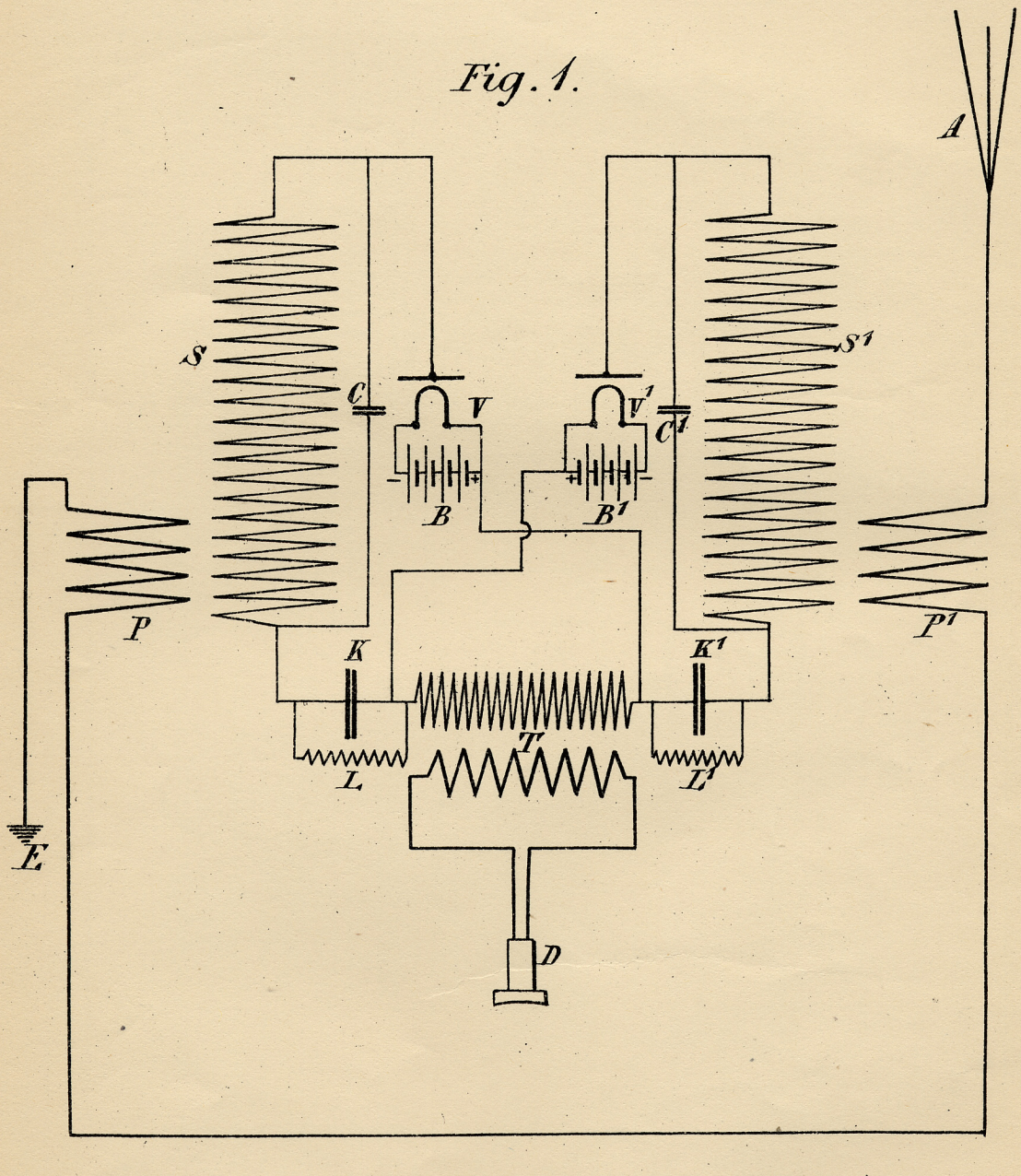
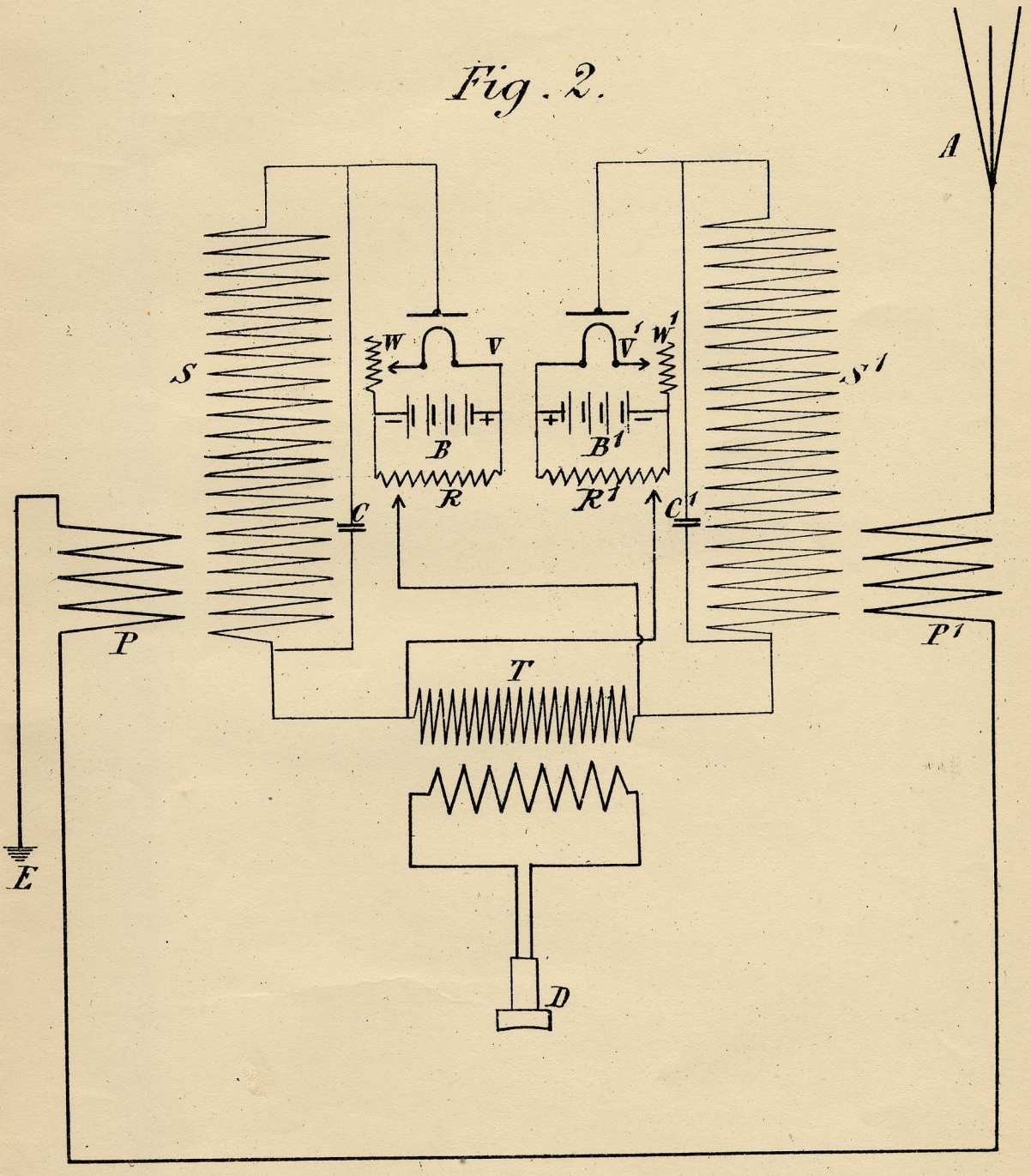
(2nd Edition) SHEET 1.

Fig. 1.



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

Fig. 2.



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