No. 842,910. PATENTED FEB. 5, 1907.

G. W. PICKARD.

WIRELESS COMMUNICATION.

APPLICATION FILED NOV. 30, 1906.

Fig. 1.

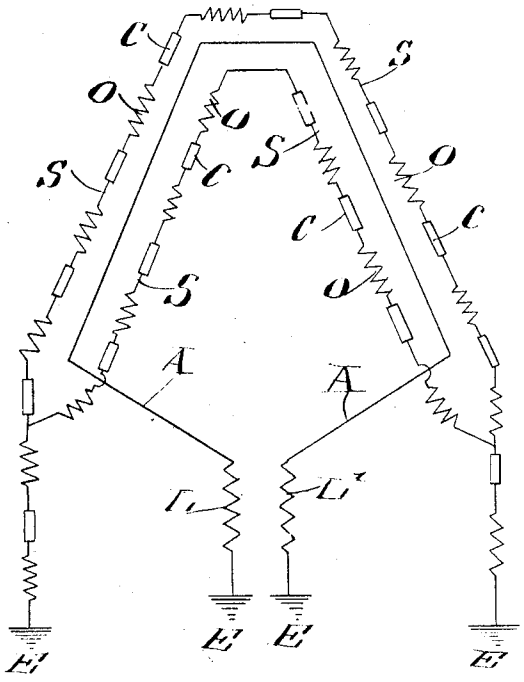


Fig. 2.

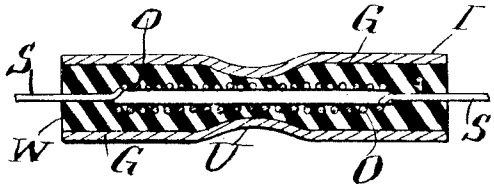


Fig. 3.

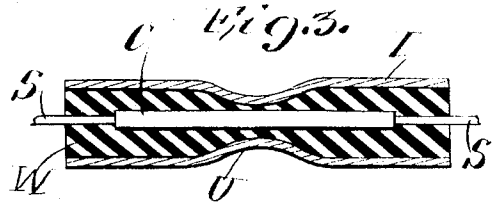


Fig. 5.

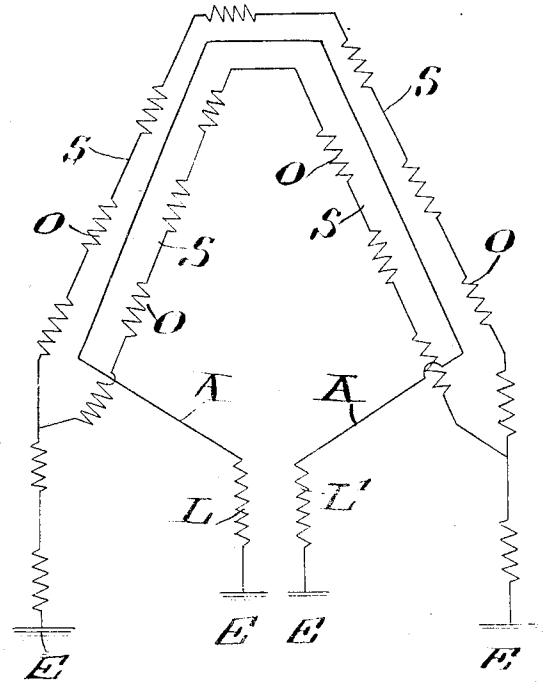
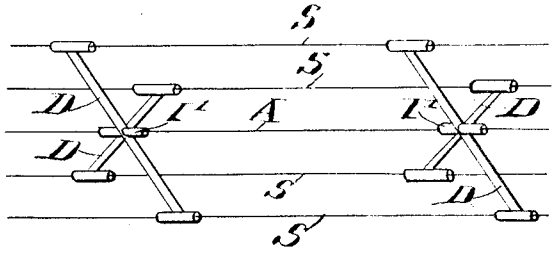


Fig. 4.



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WIRELESS COMMUNICATION.

No. 842,910. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed November 30, 1906. Serial No. 345,642.

To all whom it may concern:

Be it known that I, GREENLEAF WHITTIER PICKARD, a citizen of the United States of America, and a resident of the town of Amesbury, State of Massachusetts, have invented certain new and useful Improvements in Wireless Communication, the principles of which are set forth in the following specification and accompanying drawings, which disclose the form of the invention which I now consider to be the best of the various forms in which its principles may be embodied.

This invention relates to means for receiving intelligence communicated by electric waves.

The object of the invention is to prevent the deleterious effects of static discharges.

The invention consists in a static shield for the wave-intercepter, as described hereinafter and set forth as to novelty in the appended claims.

The serious results of static discharges occurring under certain climatic and atmospheric conditions, is well known to those skilled in the art.

Of the drawings, Figure 1 is a diagrammatic illustration of an application of the invention to a common form of wave-intercepter, or receiving-antenna, consisting of a single conductor A forming a closed circuit and including the usual inductance L, L′ and connected to earth at E; Figs. 2 and 3 are sectional views of devices used in the invention; Fig. 4 is a perspective illustrating the practical use of the invention; and Fig. 5 is a view of a modification.

As shown in Figs. 1 and 4, a conducting static shield composed of copper conductors S is arranged about and close to the intercepter or antenna A. This shield is of special construction, such that all static discharges will take place on the conductors of which the shield is composed, and not on the receiving-antenna A where they have acted harmfully theretofore.

The conductors S have connected with them respectively an impedance-coil O and a non-inductive resistance C, which may be used in numbers connected at intervals in the shield-conductors S. The object of this construction is to prevent the static discharge from taking an oscillatory form, and to cause it to slowly subside as a single pulse to earth (when the conductors S are connected to earth E as shown), the rate of change of electric force being so slow that no disturbance will be induced on the antenna A. Owing to the high impedance of the shield, it is practically transparent to a rapid change of electric force in the ether, so that the signal-waves from a transmitting-station pass through the shield without loss of energy, and cut the intercepter A to effect the usual result of delivering the signal.

The impedance-coils O are preferably made of small iron wire, in order to obtain high impedance and produce hysteresis losses which contribute to the damping out of any tendency of the static discharge toward oscillation. This wire may be about No. 26 or 28, and covered with cotton. As shown in Fig. 2, these coils are wound on wooden cores G, which may be protected by insulators I filled with a sealing compound W, such as wax. The iron-wire coils O are securely connected in any suitable way with the copper shield-wires S.

The non-inductive resistances C may be in the form of carbon rods or sticks, and may be protected as shown in Fig. 3, by insulators I filled with wax W, in the same way as the impedance-coils O, and also securely connected in any suitable way with the copper shield-wires S. Instead of using separate non-inductive resistances, the arrangement shown in Fig. 5 may be used, the impedance-coils consisting of fine or high-resistance wire, to contain in one device the desired ohmic as well as reactive impedance.

As shown in Fig. 4, the plurality of shield-wires S may be arranged entirely around the wave-intercepting antenna-wire A, and all the wires may be retained in their coöperative relations by a retaining device consisting of the wooden arms D forming a cross, with a central insulator I′ for the reception of the antenna-wire A. The outer ends of the arms D may be adapted to engage around the grooves U (Figs. 2 and 3) in the insulators I, to assist in maintaining the rigidity of the structure.

This aerial structure is somewhat more expensive than that heretofore used, but this disadvantage is slight as compared with the offsetting advantage of preventing the static troubles which frequently result in complete inoperativeness of an installation.

I claim—

1. In systems of wireless communication, means for shielding the wave-intercepter

from static discharges, which means consists of a conductor having impedance and non-inductive resistance connected to it.

2. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected with it a plurality of impedance-coils and non-inductive resistances.

3. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected with it an iron impedance-coil and a non-inductive resistance.

4. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected with it an impedance-coil and a carbon resistance.

5. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected with it an iron impedance and a carbon resistance.

6. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected with it a plurality of iron impedance-coils and non-inductance resistances.

7. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected with it a plurality of impedance-coils and carbon resistances.

8. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected with it a plurality of iron impedance-coils and carbon resistances.

9. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor connected to earth and having connected with it an impedance-coil and a non-inductance resistance.

10. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor located in proximity to the intercepter and containing ohmic and reactive impedance.

11. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a conductor having connected in it in series an impedance-coil and a non-inductive resistance.

12. In systems of wireless communication, means for shielding the wave-intercepter from static discharges, which means consists of a plurality of conductors arranged about the intercepter, said conductors having connected with them respectively an impedance-coil and a non-inductive resistance.

13. An aerial structure for systems of wireless communication, which comprises the wave-intercepting conductor; a plurality of static-shield conductors arranged about said wave-intercepting conductor, each including an impedance-coil and a non-inductive resistance; and a retaining member to maintain all the conductors in coöperative relationship.

14. An aerial structure for systems of wireless communication, which comprises the wave-intercepting conductor; a plurality of static-shield conductors arranged about said wave-intercepting conductor and each including an impedance-coil and a non-inductive resistance; insulating-shields for the devices in the static-shield conductors; and a retaining member connected with said insulating-shields to maintain all the conductors in coöperative relationship.

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