

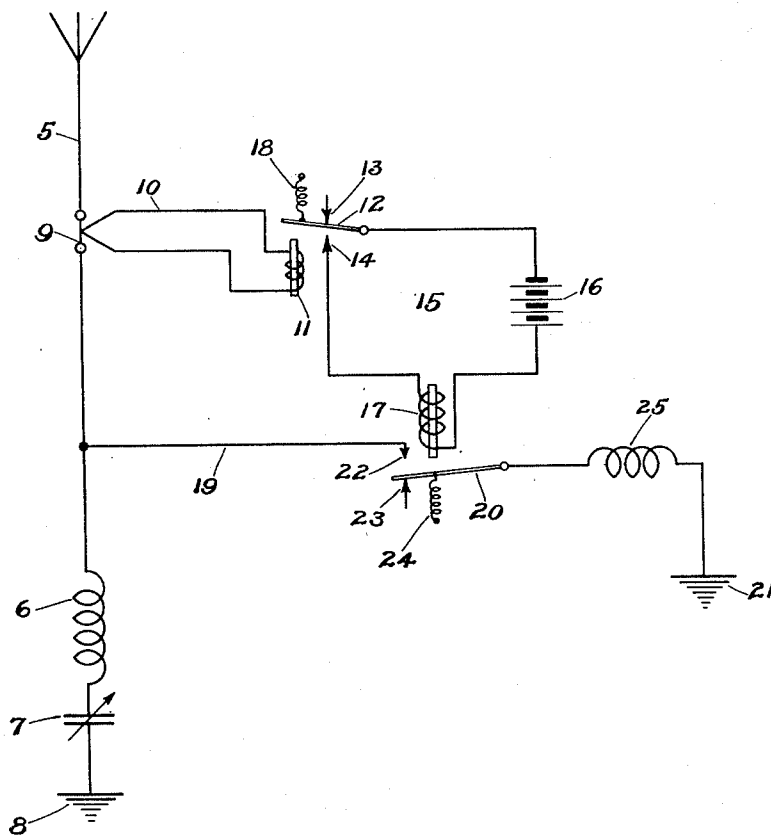
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H. B. HERTY

PROTECTIVE DEVICE FOR RADIO RECEIVING SYSTEMS

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PROTECTIVE DEVICE FOR RADIO RECEIVING SYSTEMS.

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To all whom it may concern:

Be it known that I, HAROLD B. HERTY, a citizen of the United States, residing at New Orleans, in the parish of Orleans, State of Louisiana, have invented certain new and useful Improvements in a Protective Device for Radio Receiving Systems, of which the following is a specification.

My invention relates generally to a radio receiving system and more particularly to a device for the protection of the receiving apparatus used therein.

In simultaneous transmission and reception of radio signals making use of separate but adjacent antenna, the energy radiated from the transmitting antenna is oft times received to such an extent by the receiving antenna that great damage is caused to the delicate receiving apparatus or, should this not happen, injury to the ears of the operator may occur.

To prevent any harmful results from currents thus received, I place in the receiving circuit an apparatus designed to automatically connect the antenna to ground when excess current flows in the antenna due to excess energy being absorbed thereby.

With this and other objects in view, the invention consists in the construction, combination, and arrangement of parts as will be hereinafter described.

In order to more clearly illustrate my invention, I shall describe in detail the preferred embodiment thereof in connection with the accompanying drawing, in which the figure represents a schematic diagram of a circuit arrangement fulfilling the above objects.

A receiving antenna is designated by 5, having the usual inductance 6 coupling the antenna to a receiver, variable condenser 7, and ground 8. A thermal device 9, which when heated produces current in circuit 10, is inserted in the antenna. The current thus produced energizes a solenoid inserted in the circuit 10. An armature 12 controlled by the solenoid 11 operates between a stop 13 and contact 14 to open and close a grounding relay circuit 15 which contains a source of energy 16 and solenoid 17. When normal current is passing through the receiving circuit, the armature 12 is held away from the contact 14 by a spring 18.

Circuit 19 in which is an armature 20 controlled by the solenoid 17 and adapted to

open and close said circuit, connects the receiving circuit with a ground 21. The armature 20 is movable between a contact 22 and a stop 23, and is normally held against the latter by a spring 24. In order to prevent chattering in the members 22 and 23, I insert an inductance 25 in the circuit 19.

The operation of my device is as follows:—

When a signal is received on the antenna, the current flow produces a certain amount of heat in the thermal device 9 building up an electromotive force which causes a current to flow in the circuit 10, energizing the solenoid therein, which exerts a magnetic influence to pull the armature to the contact 14. By properly adjusting spring 18, contact 14 is reached when current in the antenna reaches a predetermined undesirable value, thus causing a closing of the grounding relay circuit 15. As soon as this circuit is closed, the source of energy 16 energizes the solenoid 17 which pulls the armature 20 against the tension of the spring 24 to contacts 22, closing the circuit 19, grounding the antenna through the inductance 25. This action shunts the heavy currents through a circuit of low inductance, thereby protecting the receiving apparatus from damage.

While I have described an application of my invention pertaining specifically to a grounding means for protecting radio receiving apparatus, it may be as equally well applied to relays or the like operating any type of protective device desired whether at short or long distances from the receiving circuit, the mechanical and electrical changes necessary for such further application being within the knowledge of one skilled in the art.

It will be understood that the above description and accompanying drawing comprehend only a general and preferred embodiment of my invention, and that various changes in construction, proportion and arrangement of parts may be resorted to within the scope of the appended claims and without sacrificing any of the advantages of my invention.

Having fully described my invention what I desire to secure by Letters Patent is:—

1. A protective device for radio receiving systems including an antenna, a thermal de-

- vice therein, a relay circuit controlled by said device, and means operated by said relay circuit for short circuiting the element coupling the receiver to the antenna.
- 5 2. Means for protecting the receiving apparatus in a radio receiving system from excess energy absorbed by the antenna of said system which comprises a thermal device in said antenna and means operated by the electromotive force generated in said thermal device to short circuit excess energy from the receiver. 10

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