April 17, 1928. 1,666,066

N. ASHBRIDGE

RESISTANCE COIL

Filed Jan. 4, 1924

Fig. 1

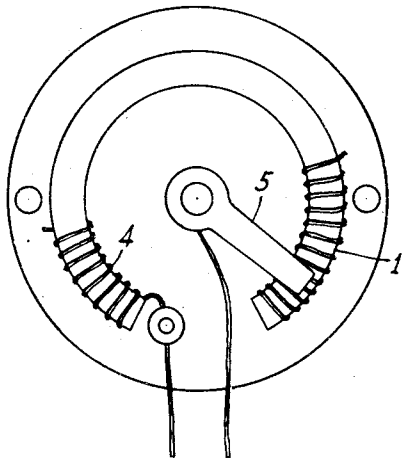


Fig. 2

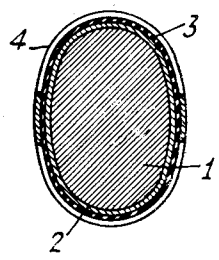
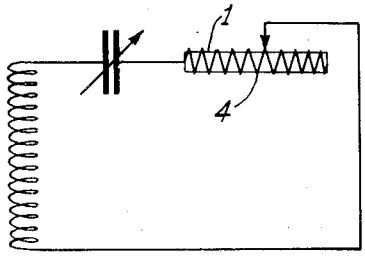


Fig. 3



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UNITED STATES PATENT OFFICE.

NOEL ASHBRIDGE, OF WANSTEAD, ENGLAND, ASSIGNOR TO RADIO CORPORATION OF AMERICA, A CORPORATION OF DELAWARE.

RESISTANCE COIL.

Application filed January 4, 1924, Serial No. 684,282, and in Great Britain January 5, 1923.

This invention relates to resistance coils and its object is to provide a non-inductive resistance and especially a non-inductive variable resistance.

A construction in accordance with the invention is illustrated by way of example in the accompanying drawings in which:

Fig. 1 is a plan view, Fig. 2 is an enlarged transverse cross section of the resistance element, and Fig. 3 is a diagram of a circuit in which the resistance device may be utilized.

According to this invention I wind a coil of resistance wire upon a metallic or metal coated former. Preferably I provide a former 1 of slate fibreboard or similar suitable material, which may conveniently be oval in cross section, with a coating of copper 2, and I surround this coating with a thin layer of insulating material 3, such as paraffin wax paper, and I then wind a resistance coil 4, preferably of bare wire, upon this material. The copper coating may be applied by electrolytically depositing copper upon the slate or by wrapping thin copper foil around the former and sweating the foil along its longitudinal seam.

The copper foil being thus in the full field of the coil makes the inductance of the winding negligible, while the self capacity of the winding remains sufficiently small.

Any suitable slider 5 may be used in conjunction with such a coil so that by moving it along the coil the amount of the resistance in circuit may be varied.

Such a variable non-inductive resistance of the order of 200 ohms or more is very suitable for use in a wireless receiver to vary the resistance of a tuned circuit without varying its wave length.

Having described my invention what I claim is:

1. A resistance coil consisting of a resistance wire wound upon a core of insulating material, said core being covered with a thin layer of nonmagnetic metal.

2. A resistance coil consisting of a resistance wire wound upon a core of slate coated with copper.

3. A resistance device comprising a support of insulating material, a resistance mounted thereon, a layer of conductive material of low permeability on the support and insulating material between the conductive layer and the resistance.

4. A resistance coil comprising a supporting structure of insulating material, a nonmagnetic conductive covering for said supporting structure, an insulating covering for the conducting covering and a winding of resistance wire around the insulating covering.

5. A bare resistance coil comprising a supporting structure of insulating material, a conductive covering of low permeability for said supporting structure, an insulating covering for the conducting covering, a winding of resistance wire around the insulating covering, and a slider cooperating therewith.

6. A resistance coil comprising a supporting structure of slate, a thin layer of conductive material of low permeability on said supporting structure, an insulating covering over the conductive layer and a winding of resistance wire over the insulating covering.

7. A resistance coil comprising a supporting structure of insulating material, a thin layer of copper on said supporting structure, an insulating covering over the conductive covering and a winding of resistance wire around the insulating covering.

8. The combination with a high frequency circuit of a resistance member adapted to vary the ohmic resistance of the circuit while substantially maintaining the reactance of the circuit constant, said resistance member comprising a core of insulating material, a layer of metal on said core, a coil of resistance wire wound on said core and insulated from said layer of metal, and means for varying the amount of said coil to be included in the circuit.

9. The combination with a tuned circuit of a resistance member adapted to vary the ohmic resistance of the circuit while substantially maintaining the tuning, said resistance member comprising a coil of resistance wire, means for varying the amount of said coil to be included in the circuit, and a metallic sleeve having substantially the same shape as said coil of resistance wire located adjacent said coil and forming a short circuited path whereby said coil of resistance wire has substantially no inductance when traversed by alternating currents.

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