

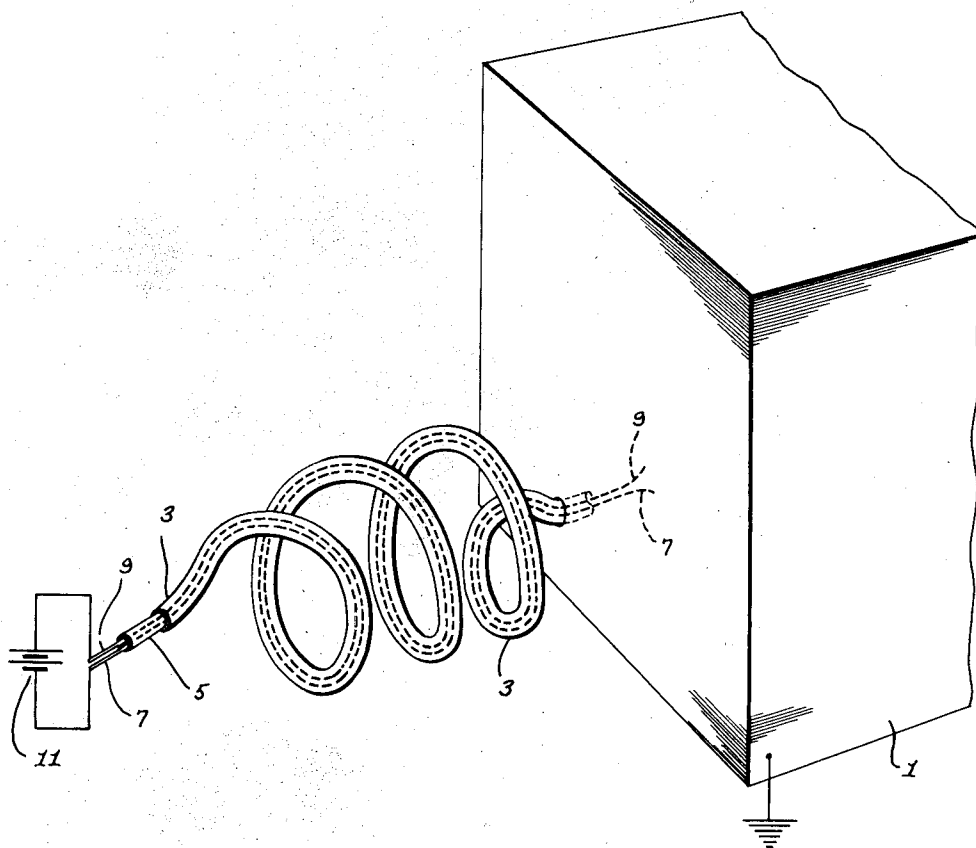
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SHIELDED ELECTRIC SYSTEM

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SHIELDED ELECTRIC SYSTEM

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4 Claims. (Cl. 250—16)

The present invention relates to electric systems, particularly high-frequency systems, and to shields therefor.

It has long been known that it is very difficult to supply low-frequency energy, or direct current, to a high-frequency device, without having some of the high-frequency energy output fed down the leads, and out into space, in spite of the fact that the entire high-frequency system is shielded electrically. In the case of a short-wave, radio-frequency oscillator, for example, considerable high-frequency energy can be propagated from the oscillator along the wires from the battery, or from the low-frequency alternator, and out into space, even though these wires may be shielded by means of metal braid which, in turn, is connected to the main shield of the apparatus.

An object of the present invention is to overcome this difficulty of loss of energy from shielded, high-frequency apparatus along low-frequency, or direct-current, control leads to the shielded apparatus.

A further object is to provide a new and improved isolating means for electric systems.

Still another object is to provide a new and improved means for preventing the transfer of high-frequency energy from one point to another.

A further object is to prevent the carrying of energy from within a shielded container, containing high-frequency apparatus, to the external or surrounding state.

Other objects will be explained hereinafter and will be particularly pointed out in the appended claims.

The invention will now be explained in connection with the accompanying drawing, the single figure of which is a perspective, diagrammatic view of circuits and apparatus arranged and constructed according to a preferred embodiment of the invention.

A shielded container 1, which may be of copper, containing high-frequency apparatus, is shown associated with a battery source 11. It is, of course, understood that this source 11 might also be a low-frequency oscillator, or other control means. The low-frequency energy is led into the shielded container 1 by means of conductors 7 and 9, embedded, side by side, so as to be insulated from each other, in an insulated coating 5, shielded by a metallic conductor 3, which may be in the form of braid or solid tubing. The conducting shield 3 and the conductors 7 and 9 contained therein are in coiled form, so as to act as a choke coil. The convolutions of the conducting shield 3 are insulated from one another by air, as shown.

By this simple expedient, it is possible to reduce, to practically any degree desired, the high-frequency energy leaving the shielded container 1 along the supply conductors 7 and 9.

Modifications will obviously occur to persons skilled in the art, and all such are considered to fall within the spirit and scope of the invention, as defined in the appended claims.

What is claimed is:

1. An electric system having, in combination, an alternating-current circuit, a conductor connected with the circuit, and a shield in which the conductor is disposed, the conductor and the shield being coiled as a unit, the frequency of the alternating current of the circuit being such that the said coiled unit provides sufficiently high impedance at the said frequency substantially to prevent the passage of energy at the said frequency from the said circuit through the said shield of the said coiled unit.

2. An electric system having, in combination, an alternating-current circuit, a plurality of conductors connected with the circuit, the conductors being insulated from each other, and a shield in which the conductors are disposed, the conductors and the shield being coiled as a unit, the frequency of the alternating current of the circuit being such that the said coiled unit provides sufficiently high impedance at the said frequency substantially to prevent the passage of energy at the said frequency from the said circuit through the said shield of the said coiled unit.

3. An electric system having, in combination, an electrically shielding surface, a high-frequency circuit on one side of the surface, a conductor connected with the high-frequency circuit and extending through the surface, and a shield in which the conductor is disposed, the shield extending to the surface, the conductor and the shield being in coiled form to constitute a choke coil and the convolutions of the coiled shield being insulated from one another.

4. An electric system having, in combination, an electrically shielded container, a high-frequency system contained in the container, a plurality of conductors connected with the high-frequency system and extending into the container, the conductors being insulated from each other, and a shield in which the conductors are disposed, the shield extending to the container, the conductors and the shield being in coiled form to constitute a choke coil and the convolutions of the coiled shield being insulated from one another.

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