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R. H. WORRALL

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ELECTRICAL SHIELD

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FIG. 1

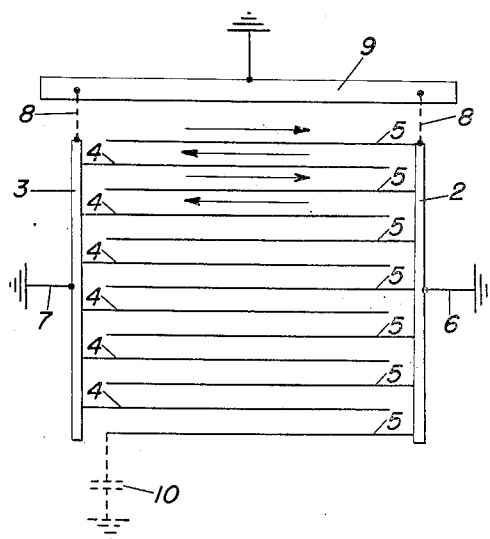
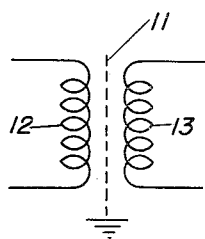


FIG. 2



INVENTOR
ROBERT H. WORRALL

BY

Kansom H. Davis
ATTORNEY

UNITED STATES PATENT OFFICE

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ELECTRICAL SHIELD

Robert H. Worrall, Honolulu, Territory of Hawaii

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4 Claims. (Cl. 250—16)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This invention relates to a new and useful means for shielding adjacent parts of electrical or radio systems in which capacity coupling must be reduced to a minimum.

It is an object of this invention to provide a simple and inexpensive device for this purpose which will produce the desired result.

It is a further object of this invention to provide a device for this purpose which will reduce to a minimum any loss in the shield itself.

It is a still further object of this invention to provide a double shield in which any field created by one part of said shield will be cancelled out by an opposing field created by another corresponding part of said shield.

In the drawing:

Fig. 1 is a schematic showing of said shield; and

Fig. 2 is a schematic showing of one method of its use.

As shown in Fig. 1, the shield is composed of two metal strips 2 and 3, to each of which is secured a plurality of parallel wires, those secured to strip 2 being marked 5 and those secured to strip 3 being marked 4. All the wires lie in a single plane in alternating or interleaved relation. These wires are insulated from each other very carefully. The spacing between adjacent wires may be only that of the insulation or it may be greater, depending upon the specific use of the screen. There may be few or many of these wires to the linear inch along either 2 or 3. Each of the strips 2 and 3 with its attached wires is grounded. Each may be grounded to a separate ground such as shown at 6 and 7 or both may be grounded to a common bus 9 through the two connections 8.

Attached to 5 by dotted lines a small fixed capacity 10 is shown. This capacity, though very small, will exist from the ends of all of the wires 4 and 5 to ground, but for simplicity is shown as existing only from the one wire. The existence of this capacity causes a radio frequency current flow in each of the wires and the building up of a magnetic field about each wire. The direction of the current flow through the wires is indicated in Fig. 1 by arrows and it will be seen that the direction of current flow in adjacent wires is opposite. This balancing out of current flow in adjacent wires results in cancelling any field set up about the wires of either or both parts of the shield.

Fig. 2 illustrates the use of the shield between two coils of a transformer where it is desired to

reduce the capacity coupling to a minimum. The shield is indicated at 11 and the coils of the transformer at 12 and 13.

The use of the shield of this invention results in a very high degree of electrostatic shielding, which degree is not obtainable by any device hitherto used for the purpose.

While I have shown and described a preferred form of my invention, it is to be understood that my invention is not limited to the specific arrangement and proportion of the device shown, but only by the scope of the following claims.

The invention described herein may be manufactured and/or used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

What is claimed is:

1. In an electrical or radio system, shielding means arranged in the form of a grid, two main conductors forming the sides of said grid, a plurality of branch conductors leading from each of said main conductors and forming the bars of said grid, the branch conductors of one of said main conductors lying in adjacent, parallel and alternating relationship to the branch conductors of the other of said main conductors and being insulated therefrom above ground, and each of said main conductors being grounded, the grounding point of each of said main conductors being so located with respect to said branch conductors that displacement currents flowing in adjacent branch conductors are caused to flow in opposite directions to ground.

2. Shielding means as claimed in claim 1, characterized by said main conductors being grounded to a common ground.

3. A shield for use in an electrical or radio circuit comprising a pair of substantially identical grounded shielding means, each of said means having a plurality of members extending in parallel, adjacent and alternating relationship with the members of the other of said means and being insulated therefrom above ground, the grounding point of each of said shielding means being so located with respect to said members that displacement currents flowing in adjacent members are caused to flow in opposite directions to ground.

4. A shield as claimed in claim 3, characterized by said pair of shielding means being separately grounded to a common ground.

ROBERT H. WORRALL.