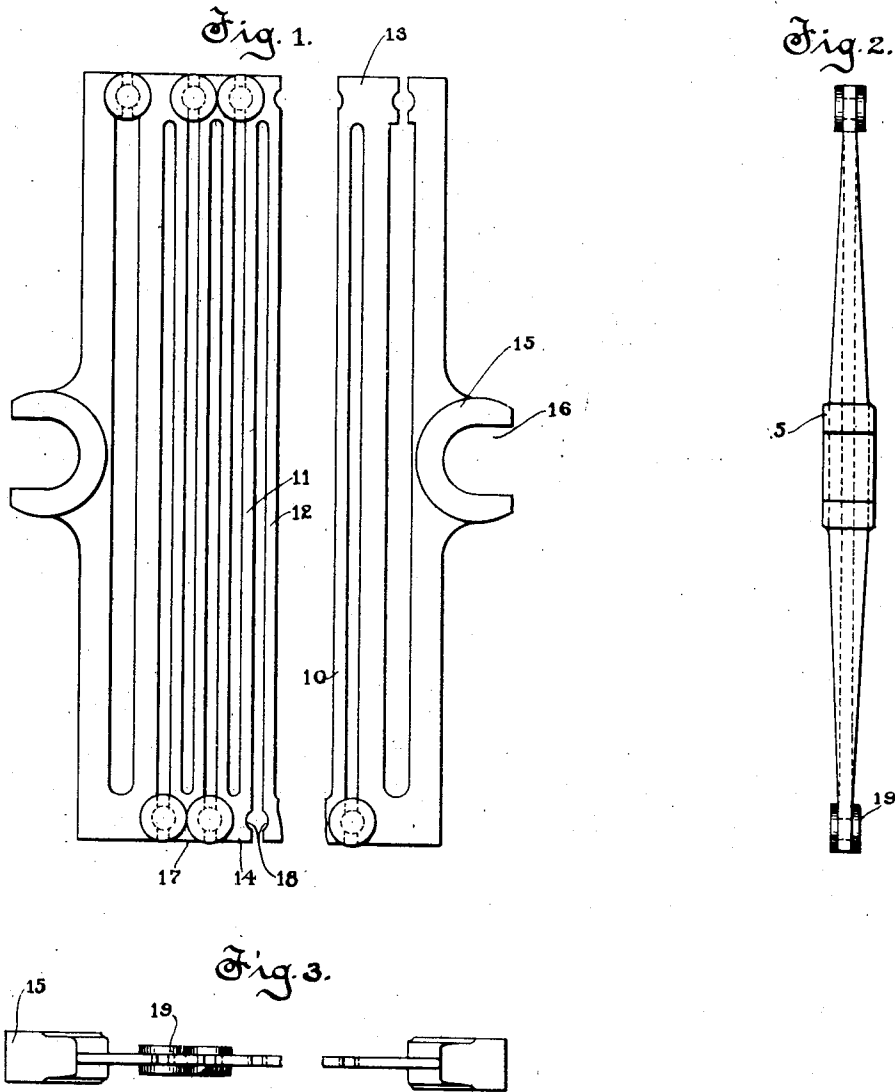


N. WILKINSON.
RESISTANCE GRID.
APPLICATION FILED MAY 20, 1909.

945,116.

Patented Jan. 4, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

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RESISTANCE-GRID.

945,116.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NATHAN WILKINSON, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Resistance-Grids, of which the following is a full, clear, and exact specification.

My invention relates to the construction of resistances for use in electric circuits.

Among the objects of my invention are, to obtain strength, durability, compactness, and cheapness of construction.

In addition to providing a resistance possessing superior structural features, the arrangement of the parts are such that they may all be readily assembled and firmly held in a permanent or fixed position, except those parts intentionally made movable. In this construction, grids are so formed and assembled that one or more of the grids comprising the resistance, can be taken out and replaced in case of breakage or injury without much trouble.

Conspicuous among the features of improvement is a method of reinforcing or stiffening the grids, especially when they have become excessively heated and thereby rendered flexible.

Figure 1 is a side view of one of the grids embodying my invention, parts being broken away and shown in section; and Figs. 2 and 3 are end and top views respectively of the grid shown in Fig. 1.

Resistance grids have been made very heavy and bulky in structure in order to withstand jars and tendencies to warp out of shape when excessively heated. The resistance grids shown in these drawings are made light in structure. These grids are made of suitable resistance material in zig zag form, for example, substantially as shown in Fig. 1, so as to reduce into comparatively small space a resistance of considerable length.

The resistance grid consists of a conductor 10, formed substantially as shown and having its elements, such as 11 and 12, parallel and in integral connection to form a number of end-turns, such as 13 and 14, the conductor terminating in enlarged ends 15 formed of hooks or holes open on one side. These ends fit over insulated cross-rods or bolts of the suspending frame. The number of grids may vary according to the desired length of the suspending frame. The end

turns of the conductors, such as 13, 14, and 17, are provided with slots 18 to provide for the reception of insulating reinforcing buttons 19. These insulating buttons or members are set in the slots by springing apart the elements of the resistance grid. When all of the insulating members are set in place the enlarged portions of each of said members are in contact with the enlarged portions of the adjacent insulating members, thus forming a substantially stiff reinforcing means. The same reinforcing or stiffening arrangement is used at both top and bottom of the grid. By means of this reinforcing it is possible to use grids which are comparatively frail in structure without having its elements warp to such an extent when excessively heated as to buckle up or come in contact with or to have adjacent grids in the same frame come in contact with each other.

It is evident that many modifications of the precise arrangement here shown may be made, and I aim in my claims to cover all such modifications which do not depart from the spirit and scope of my invention.

What I claim as new is:

1. A resistance grid comprising a conductor having end turns provided with slots, and insulating members occupying said slots for reinforcing said grid.

2. A resistance grid comprising a conductor having end turns provided with slots in the sides of said end turns, and insulating members occupying said slots for reinforcing said grid.

3. A resistance grid comprising a conductor having end turns provided with slots, and insulating members each one of which occupies two of said slots for reinforcing said grid.

4. A resistance grid comprising a conductor having end turns provided with slots, said slots occurring in adjacent sides of adjacent end turns, insulating members occupying said slots for reinforcing said grids.

5. A resistance grid comprising a conductor having end turns provided with slots, insulating members occupying said slots, enlarged portions of each of said insulating members in contact with the enlarged portions of each adjacent insulating member to form a stiff reinforcing means.

6. A resistance grid comprising a conductor having end turns provided with slots, insulating members occupying said slots for

reinforcing said grid, said insulating members having a plurality of enlarged portions.

7. A resistance grid comprising a conductor having a plurality of end turns provided with slots, a plurality of insulating members in a line occupying said slots for reinforcing said grid.

8. A resistance grid comprising a conductor having a plurality of end turns provided with slots, and a plurality of series of insulating members occupying said slots and reinforcing said grid.

9. A resistance grid comprising a conductor having end turns provided with slots, each of said end turns having one or more slots, and insulating members occupying said slots for reinforcing said grid.

10. A resistance grid comprising a conductor having end turns provided with slots, said conductor including parallel elements, and insulating members occupying said slots for reinforcing said grid.

11. The combination of a resistance grid comprising a conductor having end turns provided with slots, and insulating members

occupying said slots, elements of said conductor being sprung when said insulating members are placed in said slots.

12. The combination of a resistance grid comprising a conductor having end turns provided with slots, insulating buttons occupying said slots for reinforcing said grid, extreme elements of said conductor being hook-shaped.

13. A zig-zag resistance grid provided with means for mutually bracing its free end turns, said means comprising insulating buttons.

14. A zig-zag resistance grid adapted to be supported at certain portions and having end turns intermediate the supported portions provided with slots, in combination with a plurality of insulating members occupying said slots to reinforce said grid.

In testimony whereof I affix my signature, in the presence of two witnesses.

NATHAN WILKINSON.

Witnesses:

CHAS. L. BYRON,
LEILA BAST.