

No. 618,954.

Patented Feb. 7, 1899.

A. C. DINKEY.
RESISTANCE PANEL OR GRID.

(Application filed June 20, 1898.)

(No Model.)

Fig. 3.

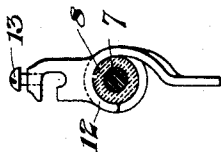


Fig. 4.

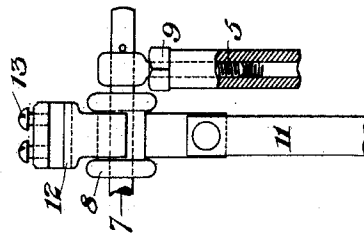
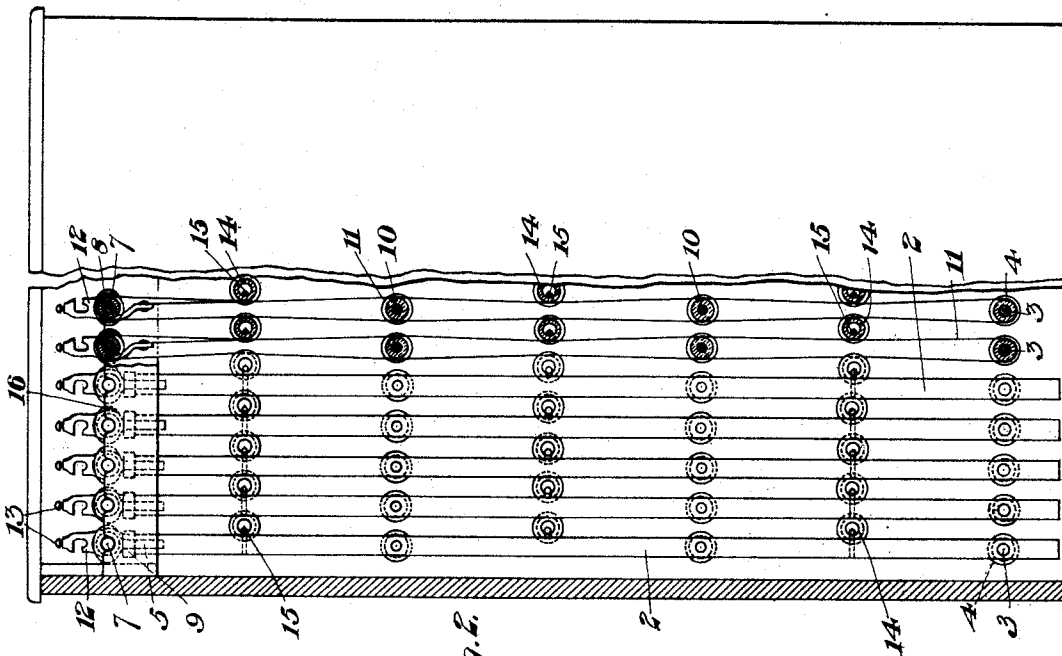


Fig. 2.

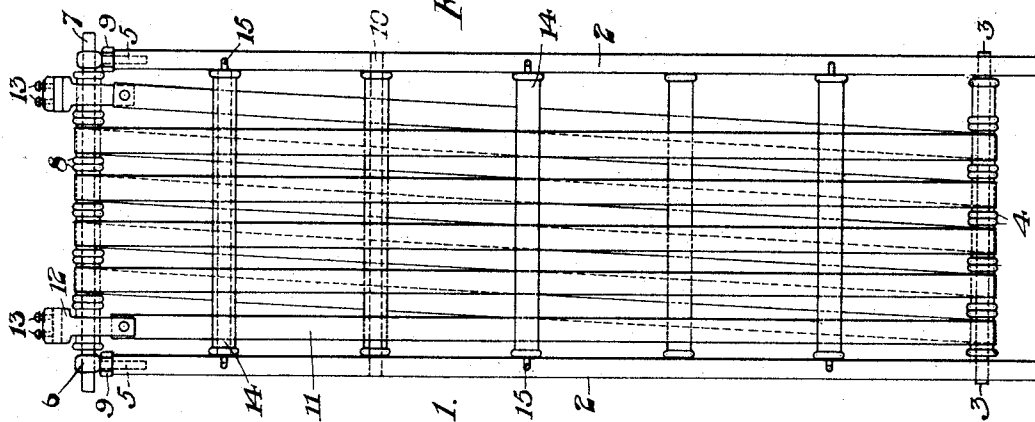


Fig. 1.

WITNESSES

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UNITED STATES PATENT OFFICE.

ALVA C. DINKEY, OF MUNHALL, PENNSYLVANIA.

RESISTANCE PANEL OR GRID.

SPECIFICATION forming part of Letters Patent No. 618,954, dated February 7, 1899.

Application filed June 20, 1898. Serial No. 683,948. (No model.)

To all whom it may concern:

Be it known that I, ALVA C. DINKEY, of Munhall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Resistance Panels or Grids, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of a resistance-grid constructed in accordance with my invention. Fig. 2 is a partial rear elevation of a rheostat provided with my improved resistance with the rear plate removed, and Figs. 3 and 4 are detail views showing the hook-shaped terminals for the resistance-strips and the loose connection for the grid-support.

My invention relates to the resistance employed in connection with rheostats and other electrical instruments and is designed to provide a holder for the resistance-strip which will automatically adjust itself in length during the expansion and contraction of the strip, to provide an adjustable connection or stretcher by which the strip may be drawn taut after winding, and to provide a simple and cheap resistance-grid which shall give a high resistance in a small space.

In the drawings, 2 2 represent a pair of side members, preferably formed of hollow tubing and having at one end a transverse shaft 3, upon which are placed a series of china insulating-spools 4. Into the opposite ends of the side tubes project the screw-threaded stems 5 of two holders or bearings 6 6 for a transverse shaft 7, which is also provided with a series of insulating-spools 8. The stems 5 project through nuts 9, which bear upon the ends of the side tubes, so that by rotating the nuts the shaft 7 may be moved endwise of the grid. Intermediate of the end shafts are provided the cross-shafts 10, each having a long insulating-spool thereon and which serve to keep apart the several strands of the resistance strip of ribbon.

The resistance ribbon or strip 11 is wound in the form of an elongated coil over the spools upon the end shafts, as shown in Fig. 1, and its ends are secured to the hook-shaped terminals 12, which take over the end spools upon the shafts 7 and are provided with suit-

able binding-screws 13 for attachment of the electrical connections. After the ribbon has thus been wound as tightly as possible, each coil being tightened successively, the wound ribbon is drawn taut by rotating the nuts 9, and thus increasing the distance between the end shafts and stretching the coil.

In using these grids I preferably provide upon one face of each grid a series of spacing-spools 14 of insulating material, secured by wires 15, extending through holes in the side tubes and secured therein. These spools upon each grid prevent the ribbon contacting with the ribbon of the next grid if any buckling occurs, and thus insure the correct action of each grid.

In using the panels or grids the rheostat or resistance-box is provided with an upper rectangular frame 16, having a series of opposite registering grooves which are engaged by the projecting ends of the shafts 7 of the several grids. These grids hang side by side, as shown in Fig. 2, and the ends of their side tubes may project through holes in the floor of the chamber, as shown. The width of the resistance-ribbon in the various grids is changed to vary the amount of resistance, and the insulating-spools upon which the ribbon is wound are correspondingly changed, several widths of these spools being used. No surrounding box is used for each separate grid, and a thorough ventilation of the ribbon is afforded.

The advantages of my invention will be apparent to those skilled in the art. A device for stretching the ribbon after winding is important, as in practice it is found impossible to wind the ribbon sufficiently taut, and it must be pulled taut after winding. The loose connection at one end of the frame allows the grid to drop down during expansion of the ribbon consequent upon its heating by the current, and thus gives an automatic adjustment. The stretching device is simple and effective, the grids are easily and cheaply built and wound, and the construction lends itself readily to changes in the width and length of the resistance-ribbon.

Many changes may be made in the stretcher for pulling the winding taut, as well as in the loose connection to allow lengthening of the frame during expansion and in the construc-

tion and arrangement of the other parts, without departing from my invention, since I claim—

- 5 1. An expansible frame for resistance material, the frame having a loose connection to allow a change in its length during the expansion or contraction of the resistance-winding; substantially as described.
- 10 2. A resistance-frame having a movable support over which the winding extends and means for adjusting this support to pull the winding taut; substantially as described.
- 15 3. A resistance-frame having supports over which the winding passes, these supports being adjustable to and from each other, said frame being hung upon one of the supports, so that the frame will elongate automatically upon expansion of the winding; substantially as described.
- 20 4. A resistance-grid, having at its ends rods provided with removable separate spools over which the ribbon is wound, and intermediate separating bars or spools to keep the coils separate; substantially as described.
- 25 5. A resistance-grid, having at one end a support carried in screw-threaded holders engaging the main frame; substantially as described.
6. A resistance-grid having tubular side

rods and end supports carried by holders having screw-threaded stems entering the side rods and engaging nuts at their ends, and a resistance-ribbon passing over the support; substantially as described. 30

7. A resistance-box having separate frames therein, each provided with resistance-ribbon wound thereon, and spacing-bars of insulating material between the panels and contacting with the ribbons, substantially as described. 35 40

8. A resistance-grid, having end shafts, one movable toward and from the other, a resistance-ribbon wound upon insulating-spools on these shafts, and hook-shaped terminals secured to the ends of the ribbon and taking over one of the shafts; substantially as described. 45

9. A resistance-grid, having at one end a shaft upon which the frame is hung, a loose connection between the frame and the shaft, and a coil of ribbon wound around the shaft and the frame; substantially as described. 50

In testimony whereof I have hereunto set my hand.

ALVA C. DINKEY.

Witnesses:

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L. A. CONNER, Jr.