

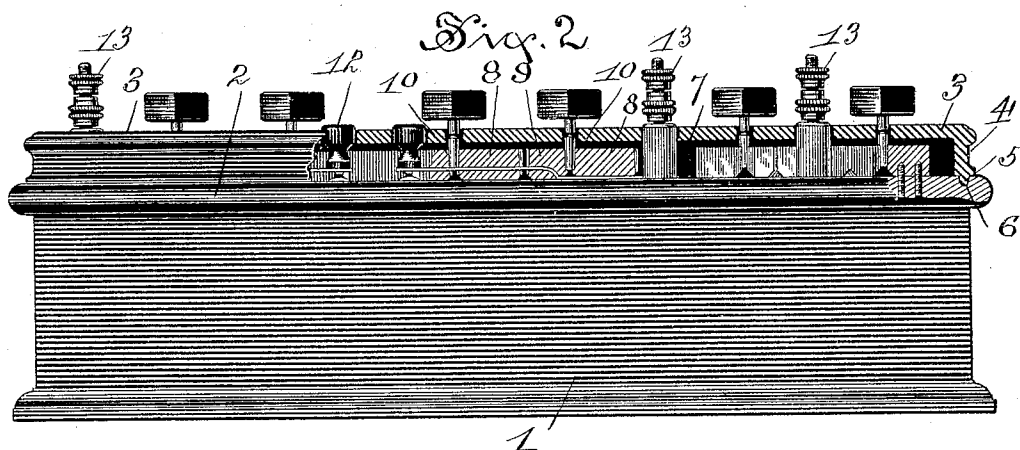
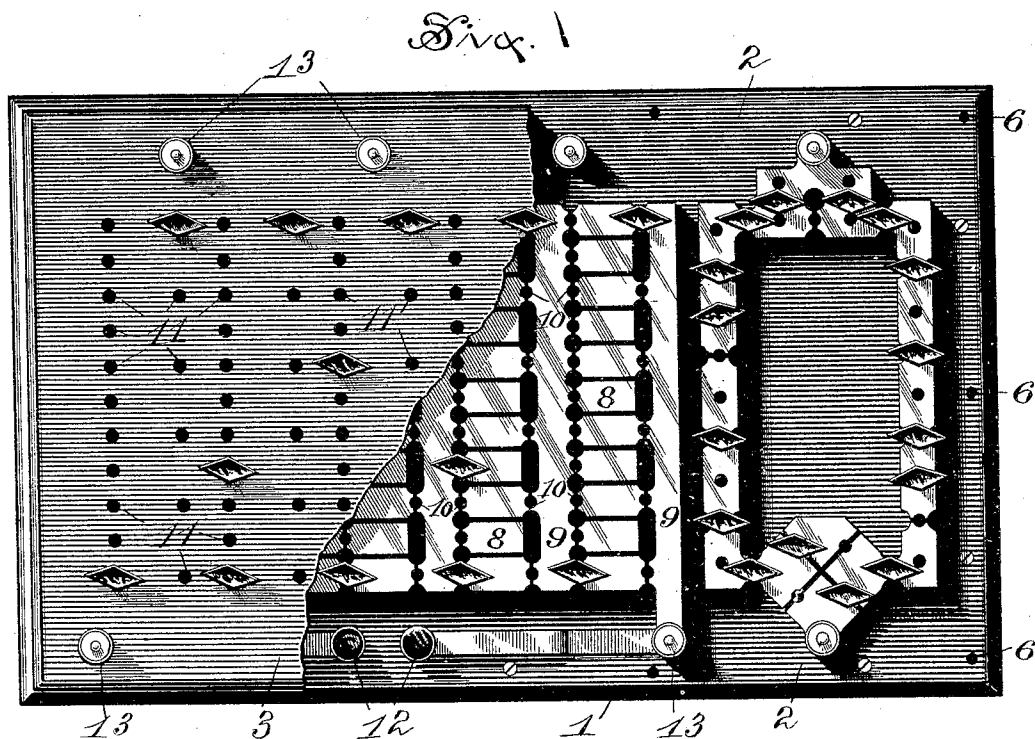
(No Model.)

2 Sheets—Sheet 1.

J. WARING.
RESISTANCE BOX.

No. 487,306.

Patented Dec. 6, 1892.



Witnesses:

C. E. Rockland.

P. A. Phelps.

Inventor:

John Waring, by
Harry R. Williams,
Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

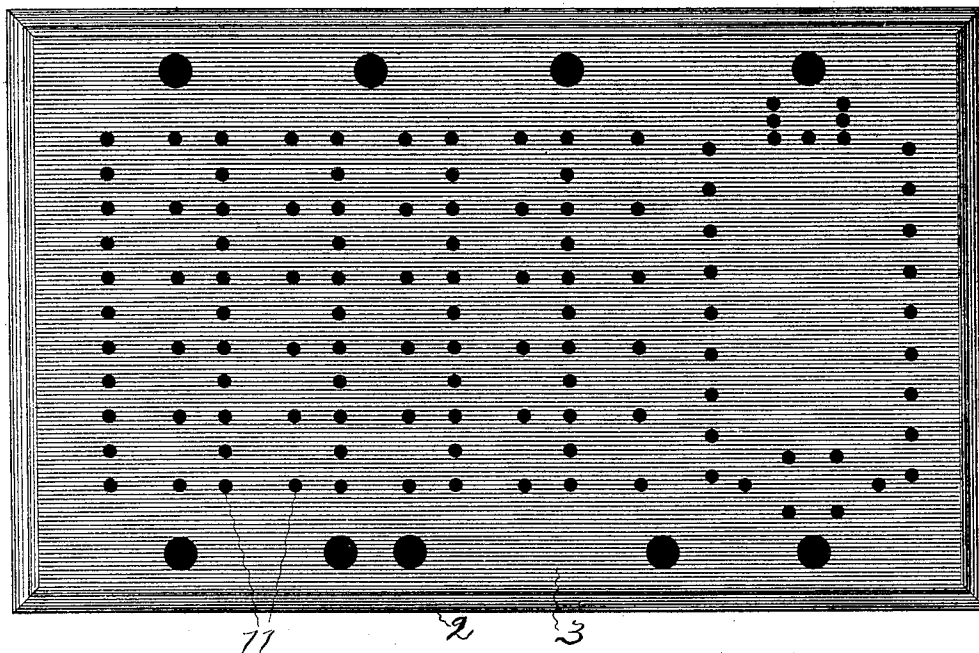
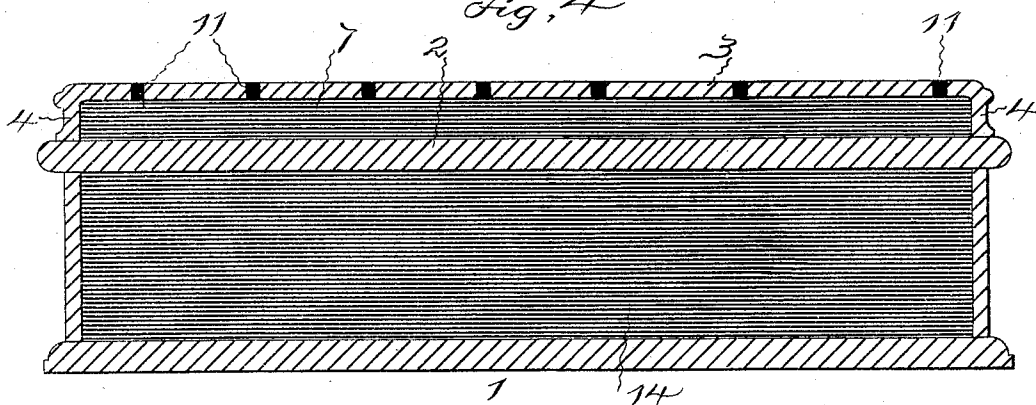


Fig. 4



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UNITED STATES PATENT OFFICE.

JOHN WARING, OF MANCHESTER, CONNECTICUT.

RESISTANCE-BOX.

SPECIFICATION forming part of Letters Patent No. 487,306, dated December 6, 1892.

Application filed April 28, 1892. Serial No. 431,082. (No model.)

To all whom it may concern:

Be it known that I, JOHN WARING, a citizen of the United States, residing at Manchester, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Resistance-Boxes, of which the following is a full, clear, and exact specification.

This invention relates to the class of portable resistance-boxes having plug-bridges, provided for accurately determining electrical resistances and making similar measuring tests, the object being to construct such a box, which requires perfect contacts and high insulation, in compartments, so that the insulating-slab is protected from dust, dirt, light, and similar atmospheric effects generally and from bruises caused by accidental contact of the plugs, which mar its surface and deleteriously affect its insulating qualities, as well as appearance, and also to protect from dust, dirt, and other resisting material and from scratches by the rubbing of the plugs the highly-finished contact blocks and bars which are connected to the resistance-coils, the parts being so located and the protection so arranged that the box can be used at any time with the protection in place or it can be readily opened to expose the contacts, switches, and insulation for repairing, cleaning, or inspection.

Referring to the accompanying drawings, Figure 1 is a plan of a resistance-box with a portion of the upper part broken away, and Fig. 2 is a side view of the box with a portion cut in section to illustrate the construction. Fig. 3 is a plan view of the box with the plugs removed, and Fig. 4 is a central vertical section of the same.

In the views, from which the usual outer case in which the box is kept and transported is omitted, 1 indicates the hollow base or bottom of the box, made, usually, of wood or a similar insulating material, and 2 a slab or division of material having the highest possible insulating capacity—preferably hard rubber highly polished—that extends across the top of the base or divides it into two chambers. Above this slab, which is finished to the finest degree, is placed a top 3, preferably formed of insulation, having side walls 4 with studs 5, that project into sockets 6 to prevent

it from moving out of place, so that a chamber 7 is formed between the division or insulating slab 2 and the top 3. In the chamber 7, to the upper surface of the slab of insulation, are secured by any suitable means the conducting-blocks 8 and bars 9, usually formed of highly-polished brass. Located in the lower chamber 14, attached to the under side of this slab and connected with the plates on top, are the common coils having the desired known resistance, as is customary in this class of instruments. To this slab of insulation are also secured the switches and binding-posts by which the battery, galvanometer, and unknown-resistance wires are connected with the blocks and bars of the known resistance. The blocks and bars are of course separated from each other by an air-insulation and provided with the usual tapering plug or bridge sockets 10, which are cut partly in each opposite piece, so that when the tapering plugs of conducting material are inserted in the sockets the adjacent parts are electrically connected.

The top 3 of the box has a number of perforations 11, which correspond to and coincide with the plug openings or sockets 10 between the blocks and bars below, so that when a plug is thrust through a perforation in the top it will pass into a socket below and connect the adjacent parts, throwing out certain resistances. Perforations are also made through the top for the heads of the switches and binding-screws 13, so that the switches can be operated and the wires connected without removing the top of the box or opening the upper chamber 7 and exposing the insulation, and contacts. When the plugs are removed the top can be lifted away, so that the insulation, contacts, and switches can be inspected, cleaned, or repaired. In use the upper part is in position so as to inclose the insulation and contacts in the chamber 7, protecting them from dust, dirt, and light, and when the plugs are inserted through the perforations they enter the proper sockets without scratching the finely-finished metal contacts or marring the highly-polished insulation so as to affect their appearance, it being well known that light deleteriously affects the insulating quality of hard rubber, as well as does the roughening or scratching of its sur-

face by accidental contact or dropping of the plugs.

A box constructed after this manner is neat in appearance, convenient for use, and more
5 efficient than prior boxes of this class.

I claim as my invention—

1. A resistance-box consisting of a bottom having a chamber for the resistance-coils and a chamber for the contact-plugs separated
10 by insulation, with perforations through the top to coincide with the plug-sockets between the blocks, substantially as specified.

2. A resistance-box consisting of a bottom

having an insulating-slab adapted to support upon one side resistance-coils and upon the
15 other side contact-blocks with plug-sockets, and a removable part located above the insulating-slab over the contact-blocks and below the plug-handles, with perforations corresponding to and coinciding with the plug-
20 sockets between the blocks, substantially as specified.

JOHN WARING.

Witnesses:

H. R. WILLIAMS,
P. A. PHELPS.