

No. 612,212.

Patented Oct. 11, 1898.

E. O. RASTER.
RHEOSTAT.

(Application filed Apr. 11, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

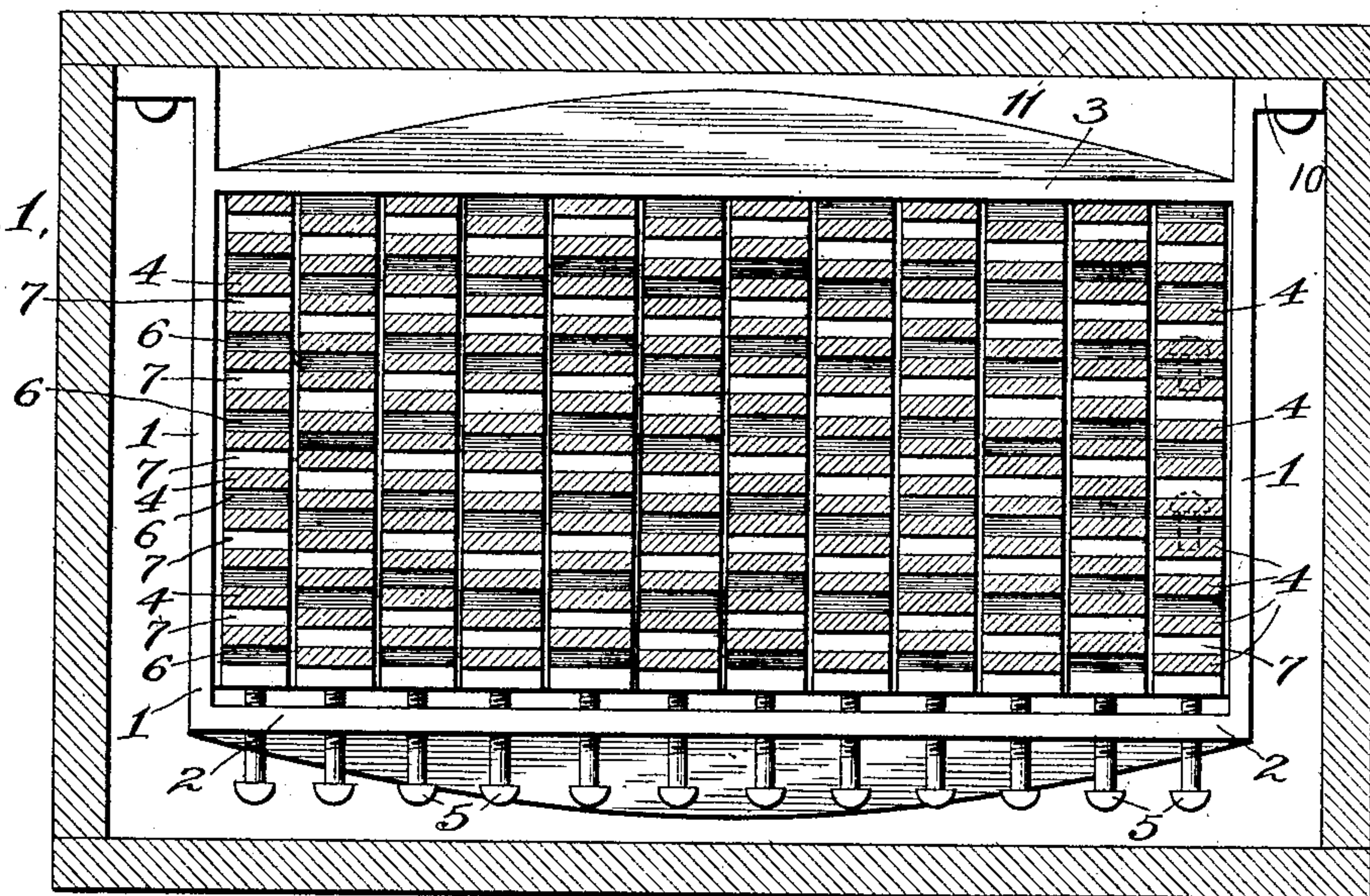
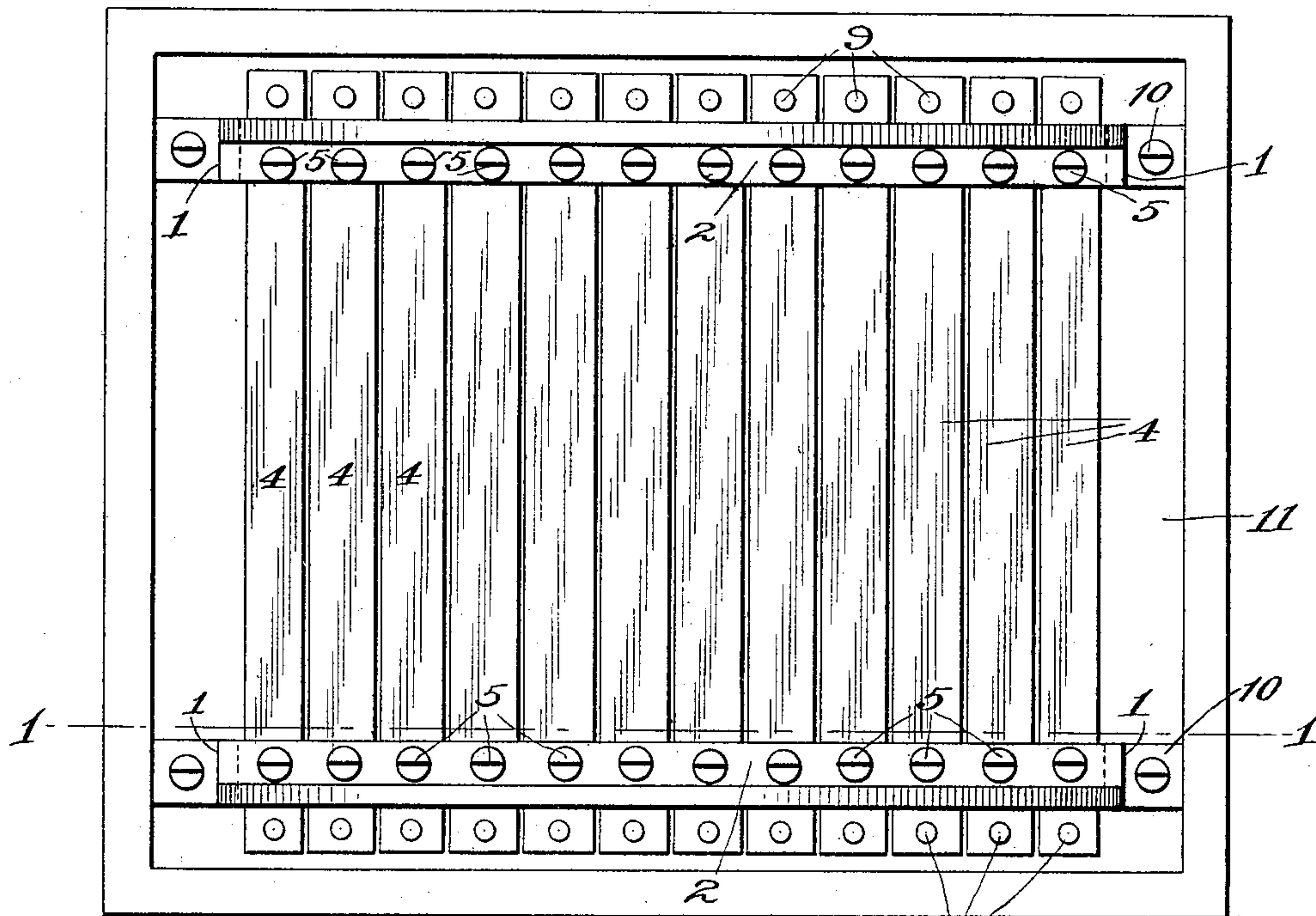


Fig. 2.



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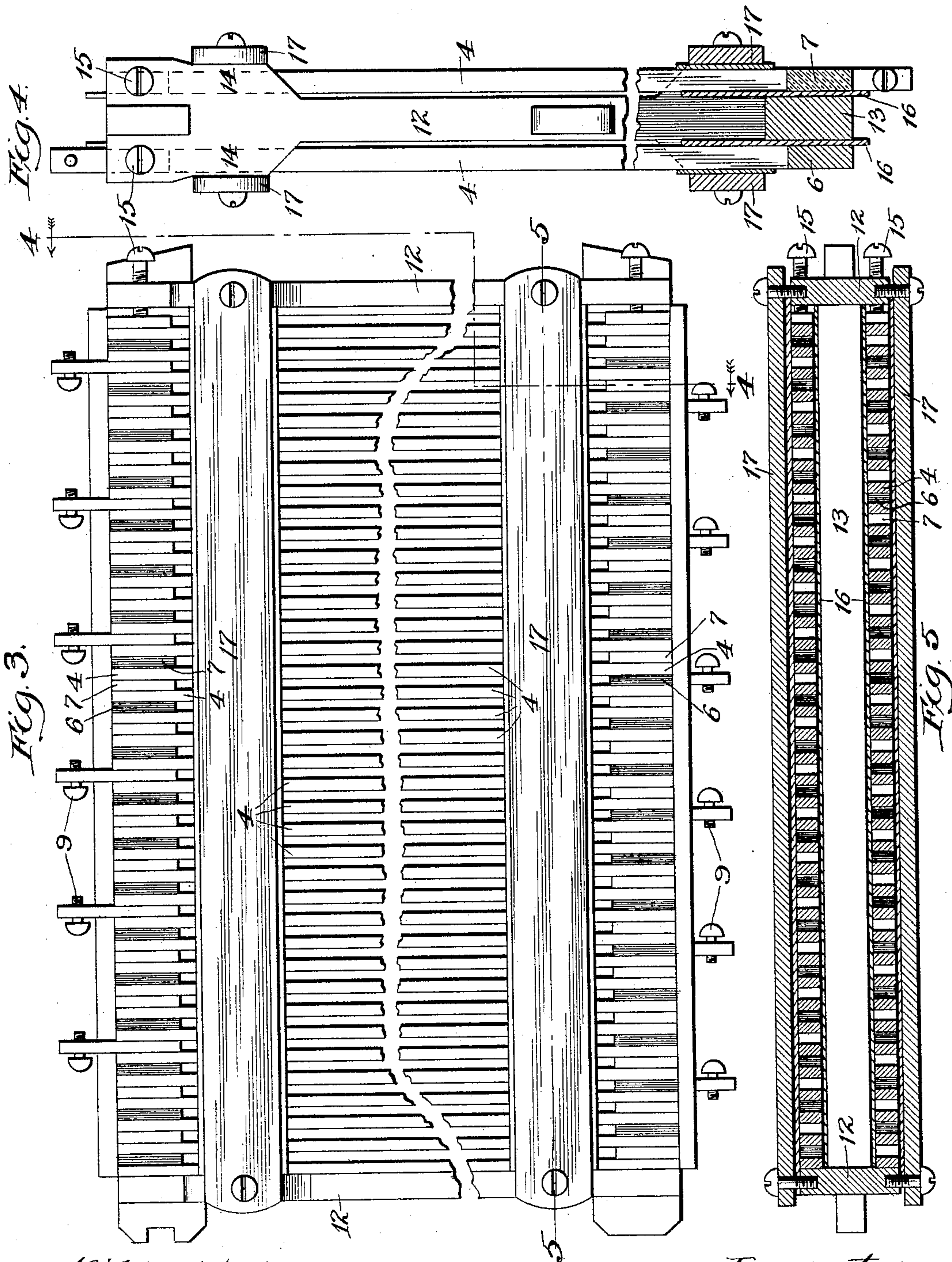
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UNITED STATES PATENT OFFICE.

EDWIN O. RASTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE RASTER
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RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 612,212, dated October 11, 1898.

Application filed April 11, 1898. Serial No. 677,203. (No model.)

To all whom it may concern:

Be it known that I, EDWIN O. RASTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rheostats; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel construction in a rheostat or electric heater, the object being to provide a device of this character in which a large number of carbon or other non-metallic resistance-sticks can be secured, so as to limit the size of the device and to secure sufficient contact-surface between said resistances and metallic contact-pieces to prevent the formation of arcs at such points of contact; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a horizontal section of a rheostat or heater constructed in accordance with my invention mounted on a face-plate, taken on the line 1 1 of Fig. 2. Fig. 2 is a rear elevation of the same. Fig. 3 is a view in elevation of a modified form of my rheostat. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 3. Fig. 5 is a section on the line 5 5 of Fig. 3.

The main feature of the present invention consists in providing a suitable frame of the smallest possible dimensions in which a large number of parallel resistance-sticks can be firmly secured and at the same time electrically connected in series in any desired manner, and also in such a manner that if one resistance breaks it can be removed and another inserted in its place quickly and easily. To these and other ends I provide two frames, each consisting of two side pieces 1, connected by cross-pieces 2 and 3, between which a number of sets of resistance-sticks 4 are clamped by means of set-screws 5, passing through the cross-pieces 2 and bearing against the nearest of said resistances 4 to clamp the entire set, of which said resistance forms one, against the cross-pieces 3, a layer of insulating material, such as mica, being

interposed between said screw and said resistance-stick.

Each two adjacent resistances 4 are connected together at one end by means of contact-pieces 7, interposed between the same, and are insulated from each other at their other ends by means of insulating material 6, interposed between the same. Each of the resistances forming one set is thus connected at one end with the next adjacent resistance on one side and at its other end with the adjacent resistance on the other side, thus forcing the current to pass over the entire lengths of all resistances in one set. Said resistances may also be connected in series parallel or any other desired manner. The adjacent sets of said resistances are also parallel with each other and are insulated from each other and held in relative position by means of layers 8 of non-conducting material. Each of said sets of resistances may form one resistance and be connected with one button of a switch in any suitable manner, or each set of resistances 4 may form a plurality of resistances and be connected with two or more buttons of a switch at a corresponding number of places. To enable such connection to be made in the simplest possible manner, the contact-pieces 7 at the points where it is desired to effect the connection with the switch are made to project beyond the ends of the resistance-sticks and are provided in their projecting portions with set-screws 9, which are adapted to secure the wires thereto. The side pieces 1 of the said frames project beyond the cross-pieces 3 and are provided with flanges 10 at their ends, by means of which they are secured to the rear face of a face-plate or switchboard 11.

The above-described manner of mounting and connecting the resistances is obviously extremely simple and efficient, as it not only saves space, but at the same time insures sufficient pressure at points of contact to insure good contact and prevent formation of arcs.

In Figs. 1 and 2 I have illustrated a rheostat in which a single frame is mounted on the face-plate or switchboard, such frame having large capacity, while in Figs. 3, 4, and 5 I have illustrated a rheostat consisting of a

frame in which the resistances are adapted to be mounted in a similar manner, said frame being so constructed as to enable any desired number thereof to be mounted behind a face-plate or switchboard, thus enabling a rheostat of any desired capacity to be easily constructed. The said frame consists of two end plates 12, connected together by means of cross-pieces 13 and enlarged adjacent the points of connection with said cross-pieces 13, as at 14, to receive set-screws 15 in one of said plates 12 and to form bearing-surfaces on the other of said plates 12, the sets of resistances being adapted to be clamped between said set-screws 15 and said bearing-surfaces. Layers 16 of insulating material are interposed between said sets of resistances and said cross-pieces 13 and between said resistances and confining-plates 17, secured at their ends to said plates 12 to hold said resistances in place.

My device has proved very efficient with the use of carbon or graphite resistance-sticks, though other material may be employed to equal advantage.

I claim as my invention—

1. A rheostat or heater comprising a frame adapted to receive a plurality of sets of resistances, each of which comprises a plurality of resistance-sticks alternated with contact and insulating pieces, and means for clamping said sets of resistances in said frame comprising devices mounted in one member and adapted to bear against said sets of resistances and clamp same against another member of said frame, substantially as described.

2. A rheostat or electric heater comprising a frame adapted to receive a plurality of practically parallel resistances divided from each other by means of contact and insulating pieces, and means for securing said resistances in said frame and holding same in close contact with said contact-pieces, consisting of a set-screw in one member of said frame adapted to bear upon one member of said set of resistances to clamp said set against each other and another member of said frame, substantially as described.

3. A rheostat or heater comprising a plurality of resistance-sticks laid practically parallel with each other, each of said resistances being electrically connected at one end with the adjacent resistance and at its other end insulated therefrom by means of conducting and non-conducting pieces respectively interposed between said adjacent resistances at opposite ends, and clamping devices for holding said resistances and said pieces interposed between the same in close contact with each other, substantially as described.

4. A rheostat or heater comprising a plurality of resistance-sticks laid practically parallel with each other, each of said resistances being electrically connected at one end with the adjacent resistance and at its other end insulated therefrom by means of conducting and non-conducting pieces respectively interposed between said adjacent resistances at opposite ends, means for connecting said resistances with a face-plate or switchboard comprising projections on said conducting-pieces interposed between said resistances to which wires are adapted to be connected, and clamping devices for holding said resistances and said pieces interposed between the same in close contact with each other, substantially as described.

5. A rheostat or heater comprising a plurality of resistance-sticks of rectangular cross-section laid practically parallel with each other, each of said resistances being electrically connected at one end with the adjacent resistance and at its other end insulated therefrom by means of conducting and non-conducting pieces respectively interposed between said resistances at opposite ends, a frame adapted to receive said resistances, and means for clamping said resistances in said frame and in close contact with the interposed pieces, substantially as described.

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

EDWIN O. RASTER.

Witnesses:

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