(No Model.)

G. W. O'HARRA.

RHEOSTAT.

No. 283,138. Patented Aug. 14, 1883.

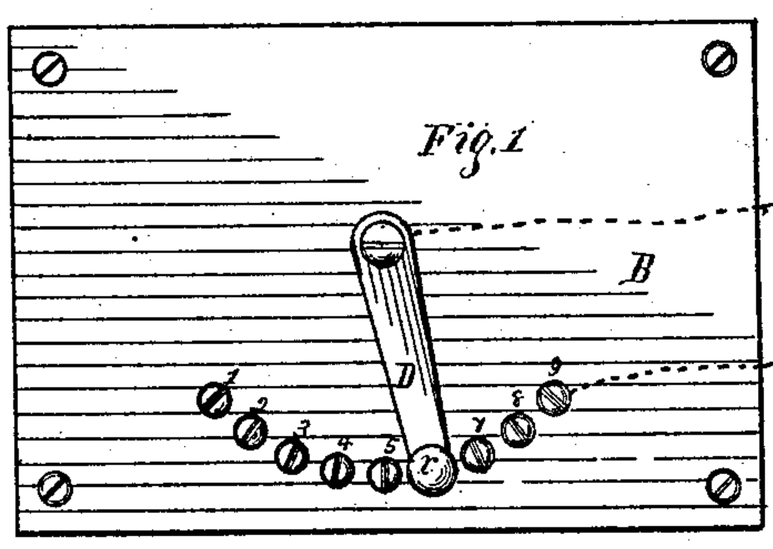

Fig. 1

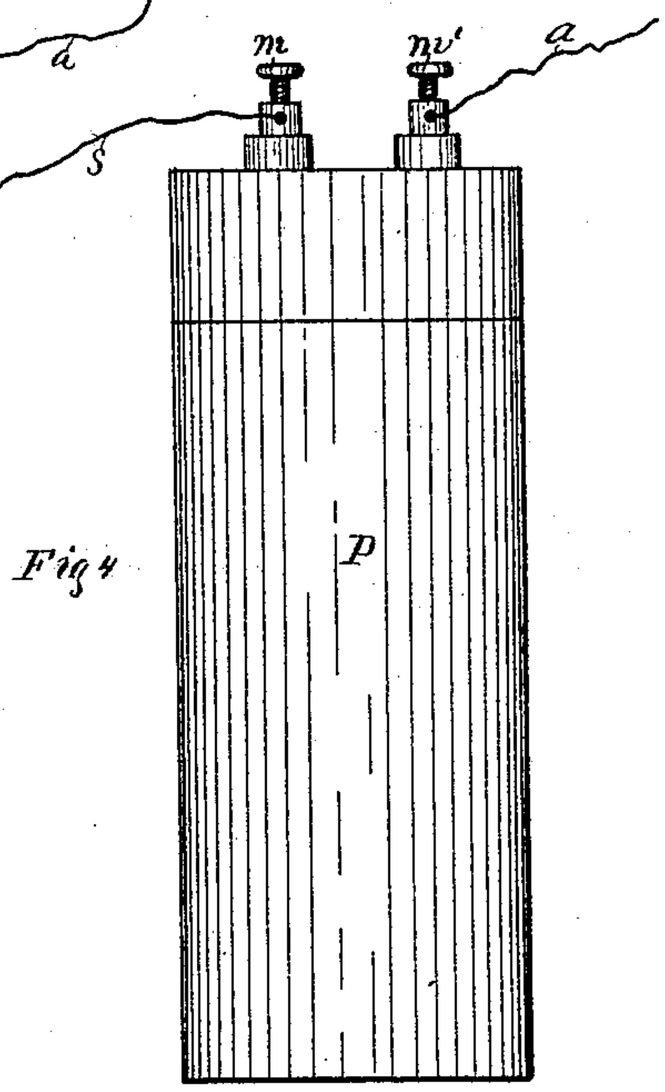

Fig 4

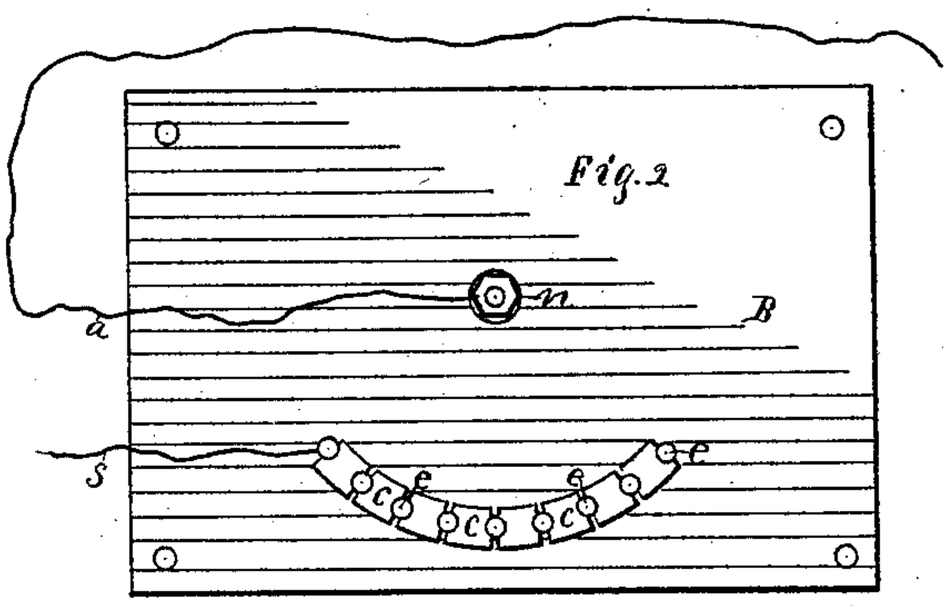

Fig. 2

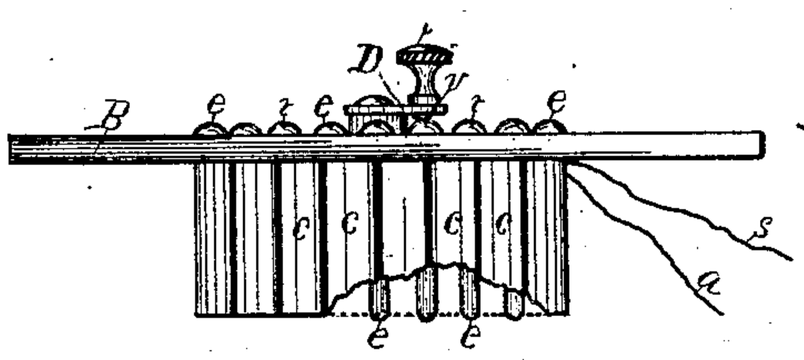

Fig. 3

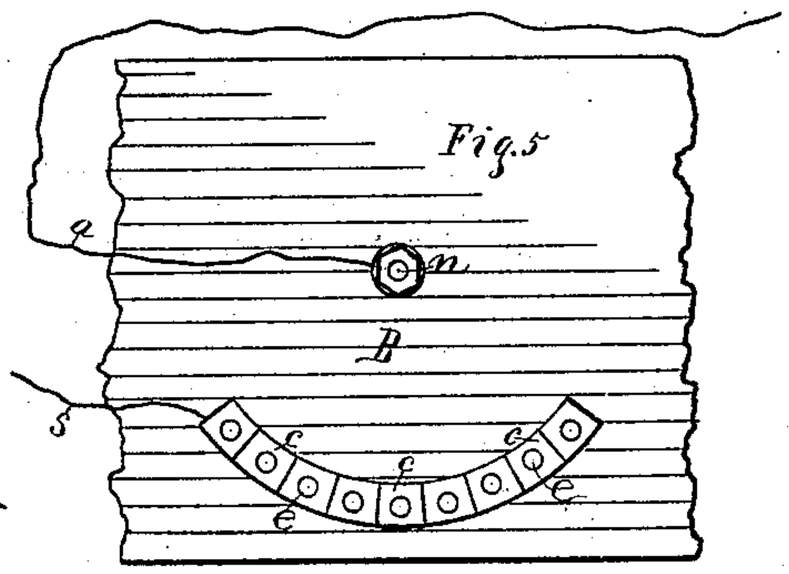

Fig. 5

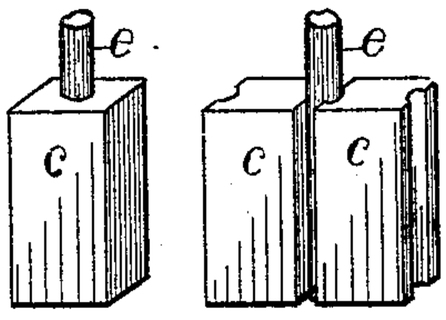

Fig. 6

Fig. 7

Attest.

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UNITED STATES PATENT OFFICE.

GEORGE W. O'HARRA, OF KALAMAZOO, MICHIGAN, ASSIGNOR OF ONE-HALF TO JOHN A. HOEDEMAKER, OF SAME PLACE.

RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 283,138, dated August 14, 1883.

Application filed November 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. O'HARRA, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Rheostat, of which the following is a specification.

My invention has for its object certain improvements in the construction of a device for graduating the quantity of a galvanic, faradic, or other electric current which passes around a circuit.

A construction embodying my improvements consists in a series of carbon blocks or equivalent material forming connection in alternating succession with metal keys, which keys are arranged for forming an engagement, respectively, with a movable switch, the whole being located in the circuit.

In the drawings, forming a part of this specification, Figure 1 is a face view, showing the arrangement of the keys and the switch; Fig. 2, under view of Fig. 1; Fig. 3, a side elevation; Fig. 4, a cell; Fig. 5, an equivalent construction to that in Fig. 2, and Figs. 6 and 7 detached parts enlarged.

The carbon blocks *c c* are preferably made with grooves in the sides, as in Fig. 7, said grooves fitting around the keys *e e* located in them. The carbons and keys are connected with a non-conducting support—in this case a rubber plate, B—and for convenience in operating the switch D they are arranged in a semicircle, as in Fig. 2. The heads of the keys *e e* project a little beyond the face of the plate B in order that the switch may engage them, Figs. 1 and 3. The pivot-bearing of the switch extends through the plate B and forms connection with electrode *a*. The other end, S, of the electrode or wire forming the circuit connects with the key nearest to cell P.

In Figs. 5 and 6 the carbon blocks *c c* are shown perforated to receive the keys *e e* in lieu of the grooves in the sides, as in Fig. 2. In this case the blocks touch each other. The advantage of separated but connecting blocks, compared with a solid or unbroken stick of carbon of like dimensions is that there is a greater amount of resisting-surface presented to the current. The greater the number of carbon blocks in a circuit the less the quantity of galvanic or other electric current, and, vice versa, the less the number of blocks.

In Fig. 1 the keys are numbered from 1 to 9, that being the number of keys here shown. Moving the switch D toward the increasing numerals increases the quantity of the electric current, because it lessens the number of carbon blocks *c c* in the circuit, and moving the switch toward the decreasing numerals decreases the quantity of the electric current, because the number of carbon blocks now in the circuit have been increased. The circuit of the electric current is illustrated as follows: Taking pole *m* of cell P as a starting-point, the current passes over wire S, the keys, and carbon blocks till the switch D is reached, over said switch, the wire *a*, and the helix, plating-vat, or whatever device is connected with the wire, thence over the continuation of the wire *a*, which connects with said helix or other device, and with pole *m'* (none of said devices being here shown) through cell P, and on around again in the usual manner.

Having thus described my invention, what I claim as new is—

In a rheostat, blocks of carbon, or blocks of equivalent material having the grooves or recesses in which the keys are located, said blocks arranged in the relation to the keys shown and constituting the rheostatic elements, all substantially as set forth.

GEORGE W. O'HARRA.

Witnesses:
HERBERT S. WILSON,
H. JAY HAMMOND.