(No Model.)

M. NORDEN.

RHEOSTAT.

No. 597,470. Patented Jan. 18, 1898.

Fig. 1.

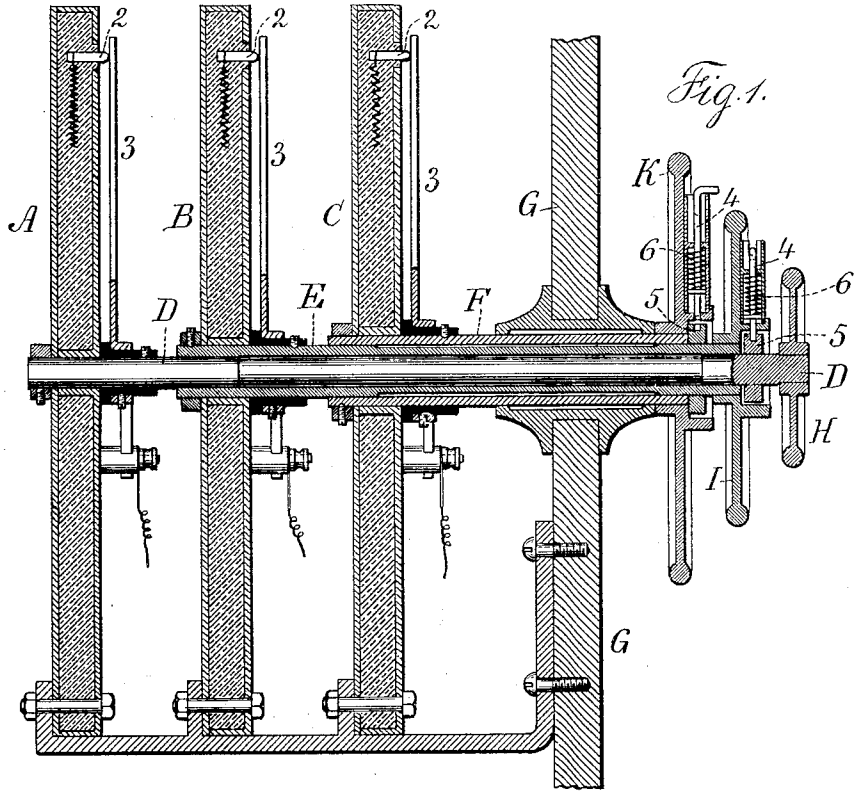


Fig. 3.

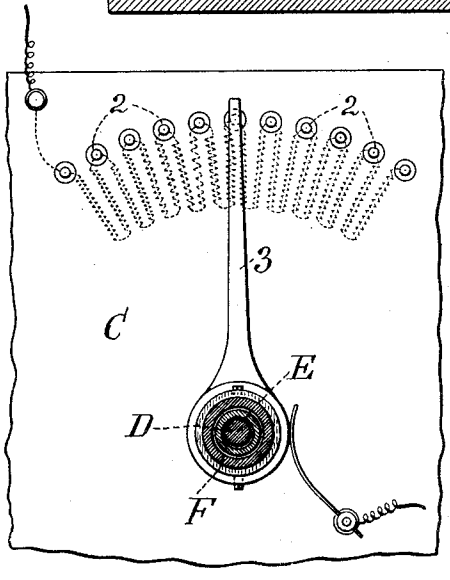
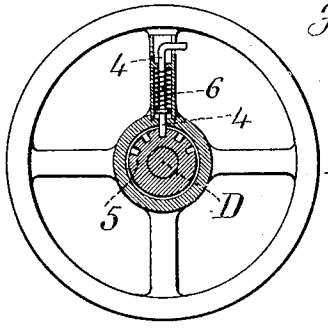


Fig. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MORTIMER NORDEN, OF NEW YORK, N. Y., ASSIGNOR TO JOSEPH NORDEN, OF SAME PLACE.

RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 597,470, dated January 18, 1898.

Application filed April 12, 1897. Serial No. 631,781. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER NORDEN, a citizen of the United States, residing at the city, county, and State of New York, have invented an Improvement in Rheostats, of which the following is a specification.

This rheostat is especially adapted to use in lighting theaters and other buildings where some of the lights require to be turned on or off or to be modified in intensity and where all of the lights may require to be turned on or off simultaneously and either in full force or some of them modified in intensity; and with this object in view I combine with the switchboard and segmental rheostats circuit-closing arms extending out from concentric shafts, there being hand-wheels upon the outer ends of the concentric shafts at the switchboard and radial bolts or latches for connecting the hand-wheel of one shaft to the next shaft, so that two shafts may be moved together, and by providing these bolts or latches upon all the hand-wheels except that connected with the central shaft the whole of the shafts can be turned together for turning the current on or off at all the rheostats, or either hand-wheel can be disconnected from the next shaft, so as only to turn the tubular shaft to which it is permanently connected, thus giving facility for turning the current on to any desired circuit or circuits and for modifying the intensity of the current or the light as desired.

In the drawings, Figure 1 is a vertical section illustrating the present improvement. Fig. 2 is an elevation showing one of the hand-wheels and the radial bolt with the collar on the next shaft in section, and Fig. 3 is a sectional elevation of one of the rheostats.

I have represented three rheostats A B C. These may be of any desired character, and the contacts 2 upon such rheostats are arranged in an arc of a circle. I remark that these rheostats are conveniently made with the contacts 2, connected by resistance-wires embedded in a refractory material, so as to avoid risk of fire if the resistance-wires of the rheostat become heated, and the connections for the electric circuits are made to the rheostats in any desired manner and do not require further description. These rheostats may be more or less numerous, and they are placed one behind the other, so that the shafts D E F pass through and are supported by the plates of the rheostats, and these shafts are concentric—that is to say, the shafts E and F are tubular and surround the central shaft D, and the shafts E and F are shorter than the shaft D, so that the shaft D extends to the rheostat A, the shaft E to the rheostat B, and the shaft F to the rheostat C, and these shafts also pass through the switchboard G and turn freely in the bearing therein. At the outer ends of the respective shafts the hand-wheels H I K are applied, the hand-wheel H being permanently affixed to the central shaft D, the wheel I to the shaft E, and the wheel K to the shaft F, and these wheels are advantageously of different diameters, as represented, to facilitate access in turning such wheels.

The contact-arms 3 are to be of any desired character, and they are permanently connected with the inner ends of the respective shafts adjacent to the respective rheostats, so as to engage the contacts 2 of the rheostats as the shafts and arms may be turned around. These contact-arms usually become part of the electric circuit and require to be insulated from the shafts.

By the devices before described the hand-wheels can be conveniently turned to move the respective contact-arms and bring in more or less resistance into the electric circuits or to cut out or break the circuits entirely, as may be required from time to time in lighting a building by electricity or in performing any other electric operations.

Upon the hand-wheels I and K radial bolts 4 are mounted, and the ends of these bolts 4 engage the perforated or notched collars 5 upon the shafts D and E, such collars being permanently fastened to such shafts, and it is convenient to mount the bolts 4 in tubular cases and to provide expansive springs 6 to project the bolts into the collars, and by providing right-angle bends at the outer ends of the bolts and slots in the cases of the bolts the springs will project the bolts into the collars when the right-angle ends of the bolts are in the slots of the cases; but when such bolts are drawn outward and the right-angle

ends swing over the ends of the cases the bolts will be held in their retracted positions.

It will now be understood that either rheostat can be employed for regulating the electric energy in any particular circuit, and when the action of the rheostat has been adjusted in each circuit the respective hand-wheels can be bolted to the adjacent collars of the next concentric shafts, so that all the shafts will turn together in turning on or off the electric currents, and that in so doing the adjustment of the rheostats will not be changed. This is a great convenience, especially where the lights have to be turned on or off by an inexperienced person, and by withdrawing the proper bolt one rheostat can be adjusted without varying the adjacent one. It will be understood that the number of concentric shafts and rheostats can be varied at pleasure, and it is to be understood that proper insulating material is to be applied to the respective shafts or contact-arms, so that one electric circuit will be kept entirely separate from another.

I claim as my invention—

1. The combination with two or more rheostats having contacts in arcs of circles, of arms and concentric shafts carrying such arms, a switchboard through which the concentric shafts pass and hand-wheels upon the outer ends of the shafts for adjusting the contact-arms, substantially as set forth.

2. The combination with two or more rheostats having contacts in arcs of circles, of arms and concentric shafts carrying such arms, a switchboard through which the concentric shafts pass and hand-wheels upon the outer ends of the shafts for adjusting the contact-arms, a bolt upon one hand-wheel and a collar upon the inner concentric shaft for connecting such hand-wheel and causing the two shafts to move simultaneously when either hand-wheel is turned, substantially as set forth.

3. The combination with the rheostats and the contact-arms for the same, of concentric shafts carrying the arms, a switchboard and hand-wheels on the outer ends of the concentric shafts, bolts and cases carrying the bolts connected with the hand-wheels, such cases being slotted and the bolts provided with right-angle offsets, collars upon the concentric shafts receiving the ends of the bolts and springs for actuating such bolts, substantially as set forth.

Signed by me this 13th day of January, 1897.

MORTIMER NORDEN.

Witnesses:

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