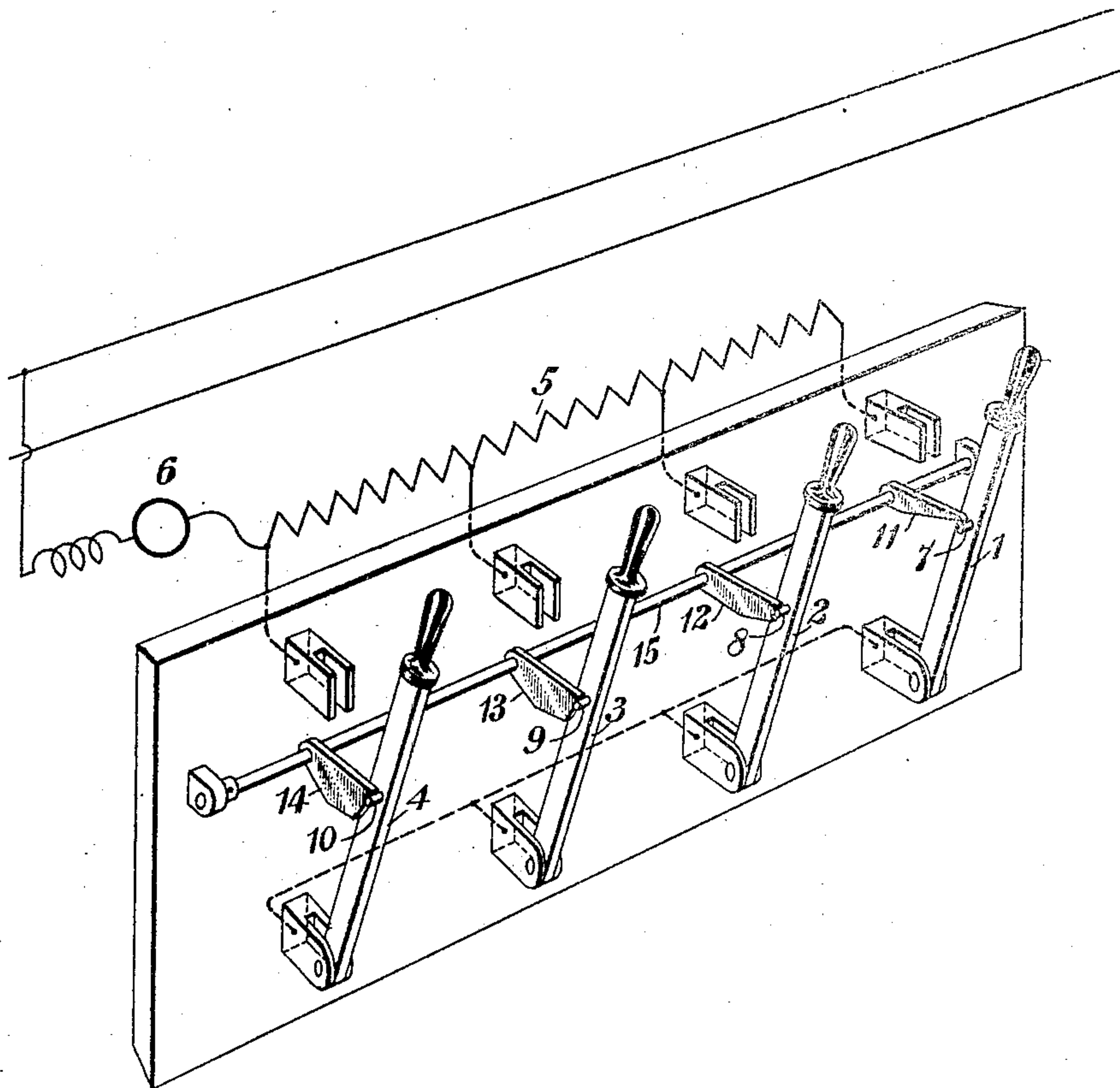


O. S. SCHAIRER.
MULTIPLE SWITCH RHEOSTAT.
APPLICATION FILED NOV. 8, 1907.

931,148.

Patented Aug. 17, 1909.



WITNESSES:

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UNITED STATES PATENT OFFICE.

OTTO S. SCHAIRER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, OF EAST PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

MULTIPLE-SWITCH RHEOSTAT.

No. 931,148.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed November 8, 1907. Serial No. 431,315.

To all whom it may concern:

Be it known that I, Otto S. Schairer, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Multiple-Switch Rheostats, of which the following is a specification.

My invention relates to multiple switch rheostats and to similar apparatus comprising a plurality of separately actuated devices, and it has for its object to provide simple and effective means for interlocking the operation of a plurality of switches so that they may be closed only in a predetermined order.

In the accompanying drawing which illustrates a device constructed in accordance with the present invention, a plurality of independently and manually operated switches 1, 2, 3, and 4 are employed for governing the amount of a sub-divided resistance 5 that is included in circuit with a motor 6, the said switches being prevented from closing except successively from right to left by means of pins or studs 7, 8, 9, and 10 carried by the respective switches and a corresponding number of dogs 11, 12, 13, and 14 that are carried by a shaft 15 to which they are rigidly secured. In the normal position of the shaft 15 and the dogs carried thereby, switches 2, 3, and 4 cannot be closed because the dogs 12, 13, and 14 serve as stops that are interposed in the paths of movement of the pins 8, 9, and 10. The switch 1, however, may be closed, the pin 7 being thereby caused to engage the lower edge of the dog 11 which serves as a cam and causes rotation of the shaft 15 and also of the dogs 12, 13, and 14. The dog 12 then occupies such a position that it no longer serves as a stop in the path of the pin 8, but when switch 2 is closed the pin engages the lower edge thereof and it then serves as a cam for causing further rotation of the shaft 15. The dog 13 then occupies such a position that it no longer serves as a stop for the pin 9 when the switch 3 is closed, but it serves as a cam with the lower edge of which the pin 9 engages and causes further rotation of the shaft 15 to such an extent that the dog 14 is removed from the path of movement of the pin 10 carried by the switch 4, and the said switch may then be closed.

The device here shown is only illustrative of suitable means whereby the invention may be carried into effect and it will, therefore, be understood that it may be modified as to details and may be employed in connection with switches differing widely in character from those indicated, or with any number of switches or other devices employed in different relations from those here shown.

I claim as my invention:

1. The combination with a set of independently actuated switches, of a set of rigidly connected dogs mounted for rotative movement by the respective switches when closed in a predetermined order.

2. The combination with a plurality of independently actuated switches, of a shaft mounted for rotative movement and provided with a set of unlike projections whereby the switches are prevented from closing except in a predetermined order.

3. The combination with a plurality of independently actuated switches, of a shaft mounted for rotative movement, and a plurality of unlike dogs projecting from said shaft into the paths of movement of the switches to prevent them from closing except in a predetermined order.

4. The combination with a series of independently actuated switches, of a plurality of interconnected dogs mounted for rotative movement to prevent each switch, except the first of the series, from closing unless the next preceding switch is closed.

5. The combination with a series of independently actuated switches, of a shaft mounted for rotative movement and having a series of dogs which correspond to the respective switches, the said dogs serving as stops to prevent each switch, except the first of the series, from closing unless the preceding switch is closed and serving also as cams to turn the shaft as the corresponding switches are closed.

In testimony whereof, I have hereunto subscribed my name this 29th day of October, 1907.

OTTO S. SCHAIRER.

Witnesses:

R. J. DEARBORN,
BURNETT HINES.