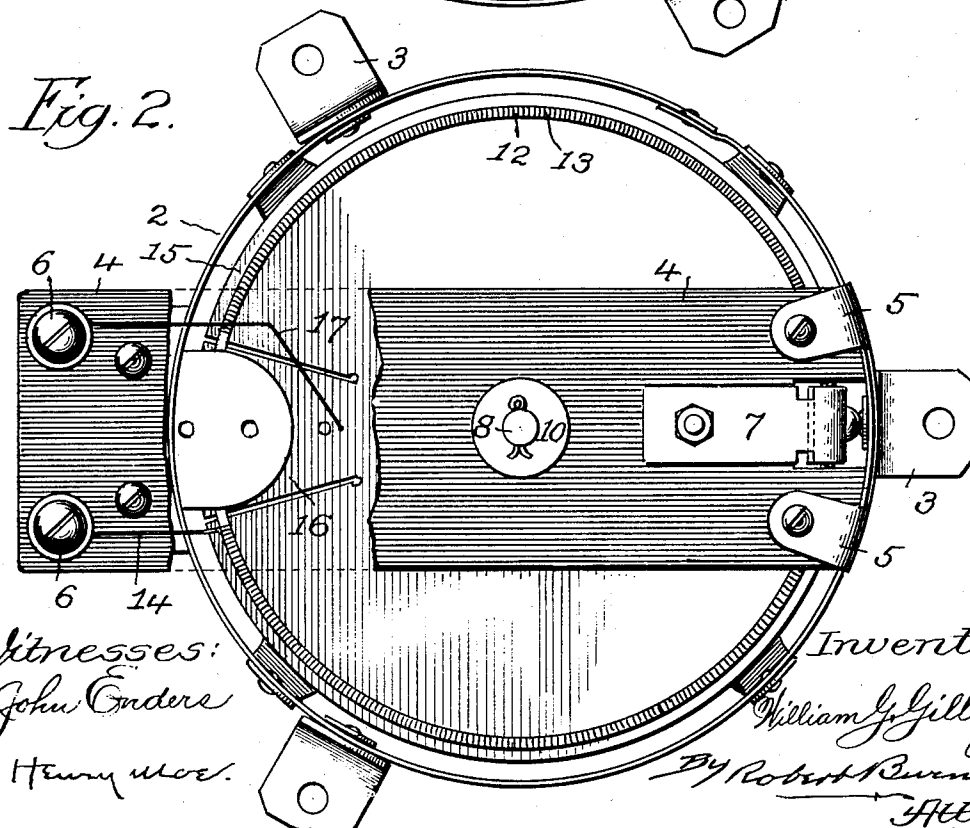
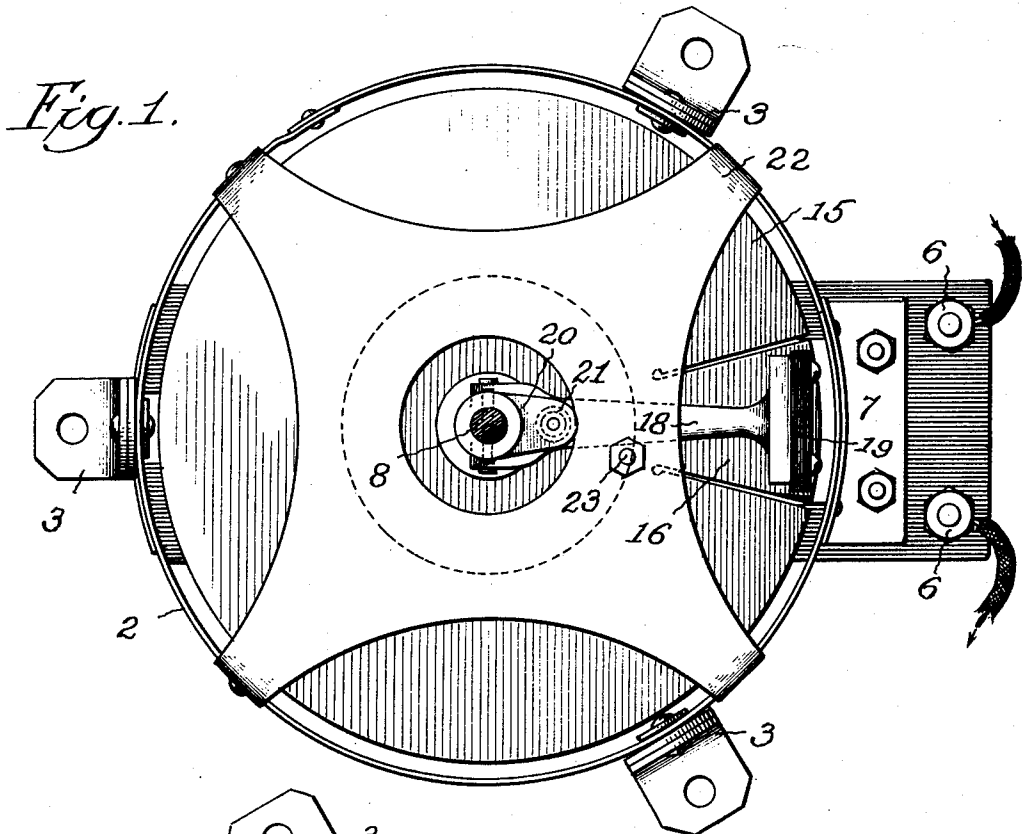


W. G. GILLIG.
RHEOSTAT.
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1,064,722.

Patented June 17, 1913.

2 SHEETS-SHEET 1.



Witnesses:
John Anders
Henry Moe.

Inventor:
William G. Gillig,
By Robert Burns,
Attorney.

1,064,722.

2 SHEETS--SHEET 2.

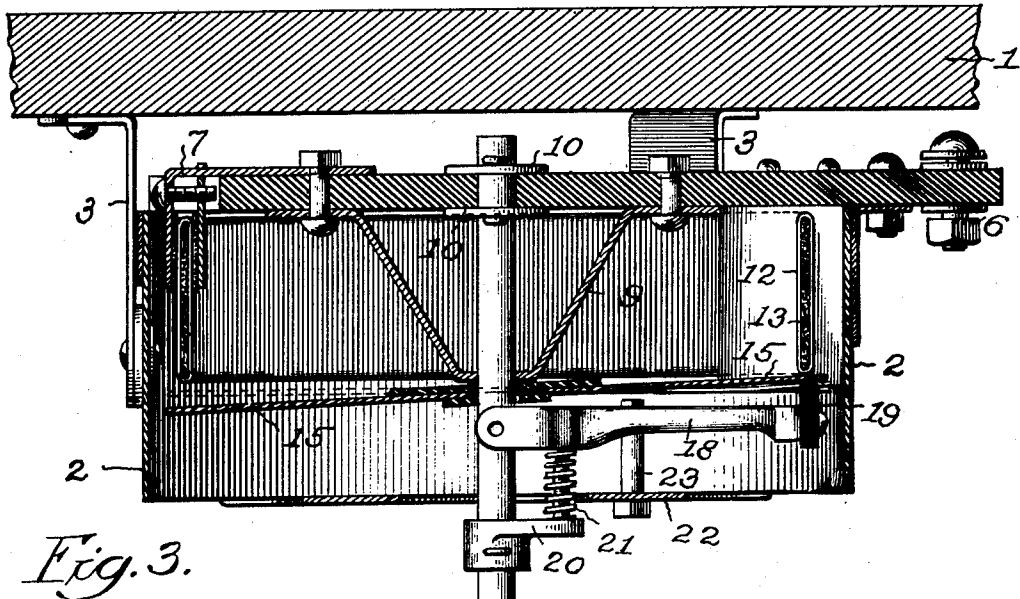


Fig. 3.

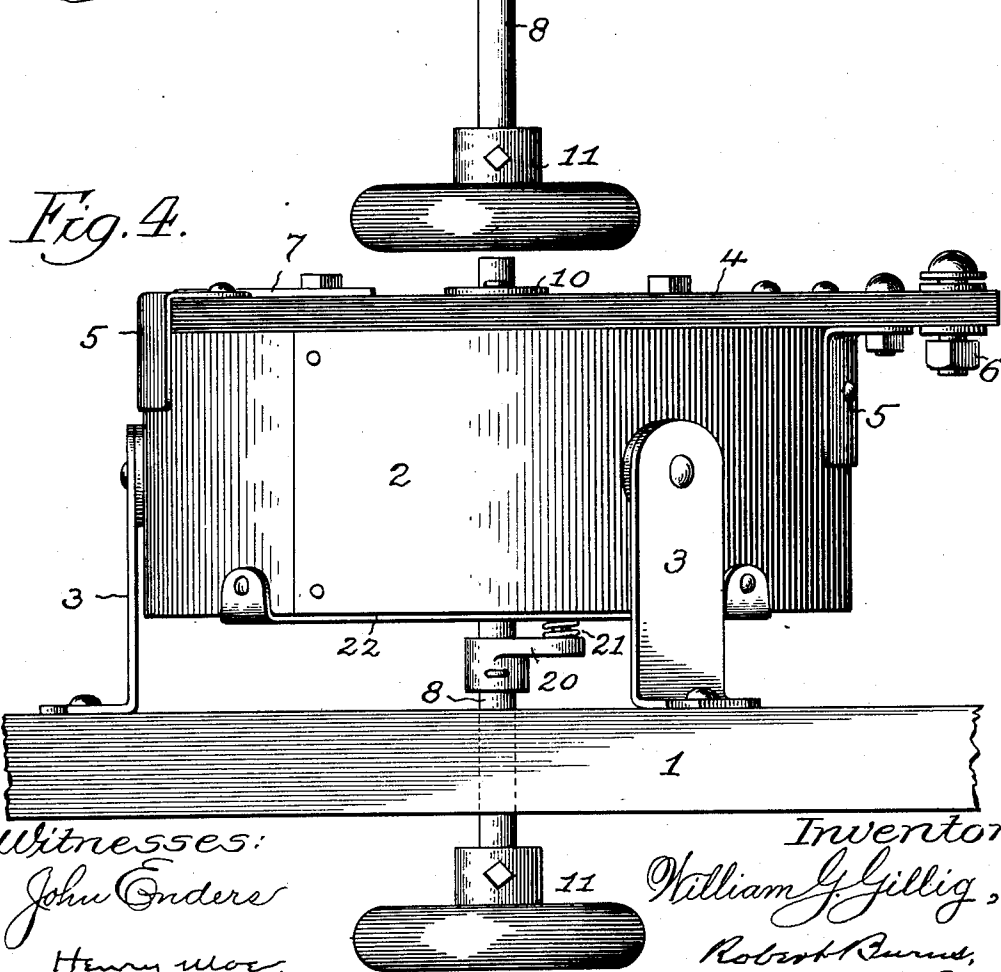


Fig. 4.

Witnesses:
John Enders
Henry Wood.

Inventor:
William G. Gillig,
Robert Burns,
Atty

UNITED STATES PATENT OFFICE.

WILLIAM G. GILLIG, OF CHICAGO, ILLINOIS.

RHEOSTAT.

1,064,722.

Specification of Letters Patent.

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Application filed February 1, 1913. Serial No. 745,548.

To all whom it may concern:

Be it known that I, WILLIAM G. GILLIG, a citizen of the United States of America, and a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Rheostats, of which the following is a specification.

This invention relates to that class of rheostats in which the stationary resistance element is of a circular form and comprises spiral windings or convolutions of resistance wire upon a suitable insulating wire or support, and a coating movable contact element, the shifting of which is adapted to introduce the required electrical resistance into the circuit. And the present improvement has for its object to provide a simple and efficient structural formation and combination of parts whereby the usual frictional rubbing or rolling contact directly upon the windings of the resistance wire is entirely avoided and the consequent injurious wear of said wire prevented, all as will hereinafter more fully appear.

In the accompanying drawings: Figure 1, is a top plan of a rheostat embodying the present improvements, the axial operating shaft being shown in section. Fig. 2, is a bottom plan of the same. Fig. 3, is an axial sectional elevation of the rheostat, showing the same mounted on the front of its supporting board. Fig. 4, is a side elevation showing the rheostat mounted on the rear of its supporting board.

Similar reference numerals indicate like parts in the several views.

Referring to the drawings, 1 represents the usual supporting board upon which the rheostat and its usual accessories are mounted.

2 is the inclosing shell of the rheostat, preferably of the circular form as shown, and which is attached to the supporting board 1, aforesaid, by means of a plurality of legs 3, which in the present improvement are pivoted at one end to the shell 2 midway its width as shown, and so that said legs may be swung to either end of the shell 2, to enable the same to be supported from either its front or its rear end, as illustrated in Figs. 3 and 4. With such construction a ready mounting of the rheostat upon either the front or rear face of the supporting board 1 is easily and conveniently attained.

4 is a longitudinal rail of insulating material secured to one end of the inclosing shell 2, by attaching ears or brackets 5, and in diametric relation to said shell, as shown.

6 are binding posts disposed at one end of the rail 4 for connection with the line wires of the circuit, and having in turn connections with the hereinafter described resistance element and movable contact member.

7 is a bracket support attached to the aforesaid longitudinal rail 4, and having a pair of insulating clamping jaws between which the above mentioned resistance element is clamped and held in proper position.

8 is the axially disposed operating shaft of the present construction, supported at one end by a bearing orifice in the longitudinal rail 4, aforesaid, in connection with a bearing yoke 9 secured to said rail as shown. In the specific construction shown in Fig. 3, said shaft is provided with bearing collars 10, at opposite faces of the rail 4, to prevent endwise movement of the shaft. At its outer end the shaft 8 is provided with a hand wheel 11, or other usual operating means.

The stationary resistance element or member before referred to, is preferably of a cylindrical form and disposed concentrically to the axis of the operating shaft 8, above described. Said resistance element comprises the usual ring shaped core 12 of insulating material, upon which the usual winding or convolutions of resistance wire 13 are wound in the usual spiral manner. One end of the wire 13, is electrically connected by a branch wire 14 to one of the binding posts 6 before described, as illustrated in Figs. 1 and 2, while the other end of said wire 13 is left unconnected electrically.

15, is a thin and flexible non-rotatable disk of metal or like conducting material, loosely mounted on the operating shaft 8, and supported a short distance away from the above described stationary resistance member by the bearing yoke 9 of said shaft. In the present construction the disk 15 is adapted to be tilted by means hereinafter described, so that different portions of its margin may be successively brought into electrical contact with successive portions of the windings of resistance wire 13 in the operation of introducing a greater or less extent of said resistance wire into the line

circuit. In the preferred arrangement of said disk, as illustrated in Fig. 3, the same is mounted in an insulated manner on its before described central supports, and is
 5 slitted radially at its periphery to form a spring tongue 16, which in the ordinary use of the rheostat is adapted to be forced against an unwound portion of the core 12 of the stationary resistance element, to
 10 break the circuit.

17 is a branch wire connecting the disk 15 to the other of the binding posts of the apparatus.

18 is a radial arm pivoted on the operating shaft 8 in adjacent relation to the aforesaid disk 15, and carrying at its outer end a bearing shoe or rubber 19 that has bearing upon the disk 15, near the periphery of the same, and adapted to tilt or force the
 20 portion of said disk beneath said shoe or rubber into electrical contact with the adjacent portion of the windings of resistance wire 13, above described. The construction is such that by a turning adjustment of the
 25 arm 18 and shoe or rubber 19, any desired extent of the resistance wire 13 can be introduced into the line circuit, without any rubbing or friction upon said wire, and the consequent injurious wear of the same.

30 20 is a lateral arm fixedly secured to the shaft 8, in separated relation to the radial arm 18, and adapted to support an intermediate spring 21, by which said arm 18 and its shoe or rubber 19 is forced in a direction which causes a tilting of the adjacent marginal portion of the contact disk 15 into electrical contact with an adjacent portion of the resistance winding aforesaid.

22 is a spider attached to the end of the inclosing shell 2, opposite to that at which the insulating rail 4, is attached.

23 is a stop pin or lug carried by the spider 22, and disposed in the path of the radial arm 18 to stop the same in a position
 45 in contact with the spring tongue 16 of the contact disk 15, heretofore described.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent is:—

50 1. In a rheostat, the combination of a re-

sistance wire formed into a series of convolutions, a flexible contact member having its free margin in adjacent relation to such convolutions, and a movable pressure member adapted to force successive portions of
 55 said contact member into contact with successive portions of said convolutions.

2. In a rheostat, the combination of a resistance wire formed into a series of convolutions and curved into a ring form, a non-revoluble contact disk having its free margin in adjacent relation to said convolutions, and a shiftable pressure member adapted to force successive marginal portions of the disk into contact with successive portions
 60 of said convolution.

3. In a rheostat, the combination of a resistance wire formed into a series of convolutions and curved into a ring form, a non-revoluble contact disk having its free margin in adjacent relation to said convolutions, and a shiftable pressure member adapted to force successive marginal portions of the disk into contact with successive portions
 70 of said convolutions, the said disk being slotted radially to form a spring tongue.

4. In a rheostat, the combination of an inclosing shell, a longitudinal rail of insulating material secured at one end of said shell, and carrying the connecting wires of
 80 the apparatus, a ring shaped resistance element disposed axially in the inclosing shell, a non-revoluble and flexible contact disk having its free margin in adjacent relation to the aforesaid ring shaped resistance element, a centrally arranged operating shaft, a radial spring impelled radial arm on said shaft, and a pressure member on the outer end of said arm, bearing and sliding upon the marginal portion of the contact disk
 90 and adapted to force successive marginal portions of the disk into contact with successive portions of the aforesaid ring shaped resistance element.

Signed at Chicago, Illinois, this 27th day
 of January, 1913.

WILLIAM G. GILLIG.

Witnesses:

ROBERT BURNS,
 HENRY MOE.