

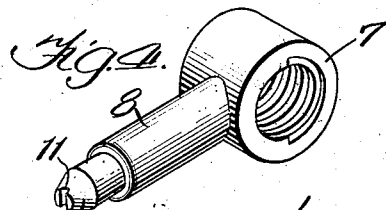
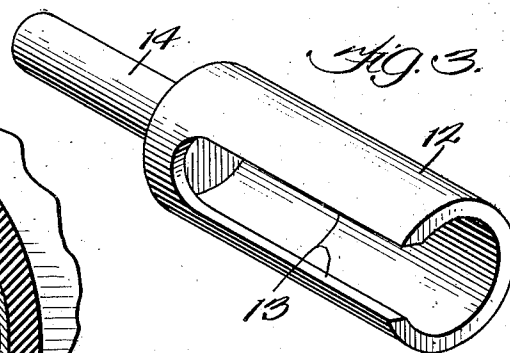
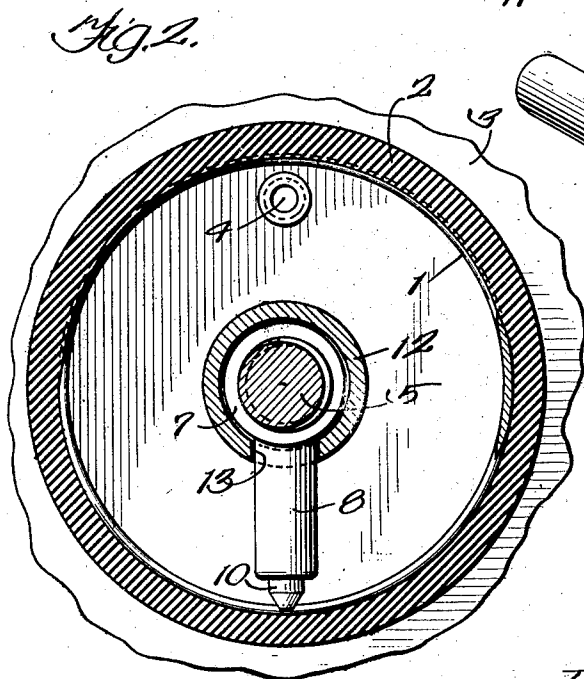
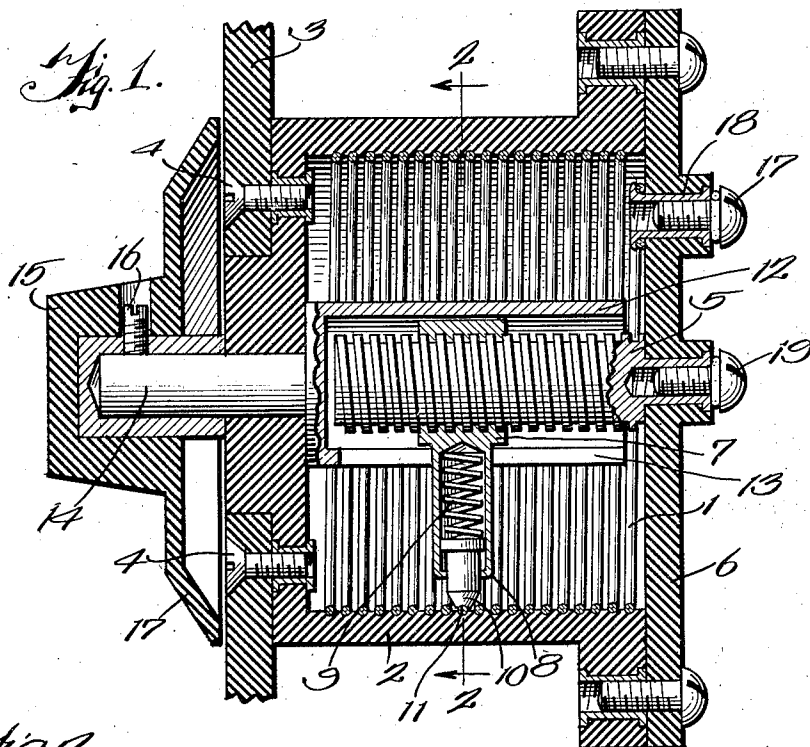
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H. A. DOUGLAS

1,606,153

RHEOSTAT

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UNITED STATES PATENT OFFICE.

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RHEOSTAT.

Application filed January 27, 1926. Serial No. 84,100.

My invention relates to electrical apparatus employing a spirally coiled wire winding and a contacting wiper engaging the wire of such winding for varying the am-
 5 pere turns thereof. The device of my invention is useful in connection with rheostats having spiral windings or in connection with other electrical apparatus having spiral windings. My invention, in its preferred embodiment, is an improvement upon
 10 the structure disclosed in my United States Patent No. 1,438,753, dated December 12, 1922. The device of my present invention includes an improved construction of the
 15 wiper and the provision of improved operating mechanism which preferably includes no parts that are projected to varying extents beyond the winding, in effecting adjustment.

20 My invention, in accordance with one of its characteristics, includes two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper engaging
 25 said winding, and a guide engaging one of the aforesaid member portions to force relative turning movement of said two member portions and along which guide the member portion engaged thereby moves during
 30 such relative turning movement. In the preferred embodiment of the invention the threading of said engaged member portions and the spiral of the coiled wire are of the same pitch. The wiper is desirably
 35 surrounded by and engaged with the interior of the wire winding. This wiper is preferably in the form of an outwardly spring pressed plunger projecting from a
 40 spring barrel carried by a nut which is threaded upon a post that is assembled with and surrounded by the spiral winding and constituting a part of the winding member.

45 The invention will be more fully explained in connection with the accompanying drawing in which Fig. 1 is a longitudinal sectional view illustrating the preferred
 50 embodiment of the invention; Fig. 2 is a sectional view on line 2—2 of Fig. 1; Fig. 3 is a perspective view of the guide shown in Figs. 1 and 2; and Fig. 4 is a perspective
 view of the nut and the wiping plunger carried thereby.

55 The wire 1 of the rheostat or other wound electrical instrument is spirally disposed preferably upon the interior of a hollow

drum 2. This drum is cup-shaped and is mounted at its front and bottom end upon any suitable support 3 by means of the attaching screws 4. A threaded post 5 is co-
 60 axial with and surrounded by the drum or cup and is fixed upon the closure 6 for the rear end of the cup to be fixed with the winding 1 as is preferred, the post thus constituting a part of the winding member. A
 65 nut 7 is screwed upon said post. This nut is formed with a hollow radial extension 8 constituting a barrel which houses a spring 9. The wiping contact is in the form of a
 70 metallic plunger 10 which is pressed outwardly by the spring into engagement with the interior surface of the spiral winding 1. A groove 11 is formed in the contacting end of the plunger to receive and afford good
 75 contact with the wire. A guiding sleeve 12 encloses the threaded post 5 and the nut 7. This sleeve is formed with a slot 13 extending along the same and through which
 80 the nut extension 8 passes. Said sleeve is provided with a shaft extension 14 which is journaled within the front end wall of the cup 2. This shaft projects forwardly beyond the cup and its mounting 3 and has
 85 the knob or handle 15 secured to its front end by a set screw 16. The knob is provided with the usual dial flange 17.

As the handle is turned, the shaft 14 and the sleeve 12 are turned. One longitudinal
 90 side or the other of the slot 13 engages the nut extension and forces the nut to turn upon the stationary post 5. As the nut is turned it slides or moves along the slot 13 causing the wiper to move along the
 95 axis of the winding as the wiper turns with the nut. The threading of the portion 5 of the winding member and the spiral of this winding are of the same pitch so that the
 100 contacting end of the wiper 10 will follow the wire engaged thereby as the handle is turned. The handle 15 is confined to a fixed plane so as not to move in and out as it is turned, the latter characteristic being
 105 present in the construction shown in my aforesaid patent.

The instrument may be included in circuit in any suitable way. I have shown a
 110 terminal binding screw 17 within a threaded bushing 18 which is connected with one end of the winding 1, and a terminal binding screw 19 within the reduced rear end of the metallic post 5. As the parts 5, 7, 8, 9 and 10 are metallic and in electrical

connection, the circuit wire clamped by the screw 19 is electrically connected with the wiper 10. The portion of the wire coil 1 between the selected point of contact thereof with the wiper and the screw 17 is thus included in circuit with the wiring that is connected with the screws 17 and 19.

Changes may be made without departing from the invention.

10 Having thus described my invention, I claim:

1. The combination with two relatively rotatable members, one surrounded by the other and one being provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper engaging said winding; and a guide engaging one of the aforesaid member portions to force relative turning movement of said two member portions and along which guide the member portion engaged thereby moves during such relative turning movement, the threading of said engaged member portions and the spiral of the coiled wire being of the same pitch.

2. The combination with two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper engaging said winding; and a guide in turning relation to one of said members and engaging the said member portion of the other member to force relative turning movement of said two member portions and along which guide the member portion engaged thereby moves during such relative turning movement, the threading of said engaged member portions and the spiral of the coiled wire being of the same pitch.

3. The combination with two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper surrounded by and engaging the interior of said winding; and a guide engaging one of the aforesaid member portions to force relative turning movement of said two member portions and along which guide the member portion engaged thereby moves during such relative turning movement, the threading of said engaged member portions and the spiral of the coiled wire being of the same pitch.

4. The combination with two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper surrounded by and engaging the interior of said winding; and a guide in turning relation to one of said members and engaging the said member portion of the other mem-

ber to force relative turning movement of said two member portions and along which guide the member portion engaged thereby moves during such relative turning movement, the threading of said engaged member portions and the spiral of the coiled wire being of the same pitch.

5. The combination with two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and a threaded post surrounded by and extending along the axis of said winding and the other member including a wiper also surrounded by and engaging the interior of the wire winding, and a nut in threaded engagement with said post; and a guide also surrounded by said winding and in engagement with the nut to force relative turning movement of the nut and post and along which the nut moves during such relative turning movement, the threading of the post and the spiral of the winding being of the same pitch.

6. The combination with two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and a threaded post surrounded by and extending along the axis of said winding and the other member including a nut in threaded engagement with said post, a spring barrel constituting a continuation of the nut, a spring within the spring barrel, and a wiper in the form of a plunger pressed by said spring against the interior of said winding; and a guide also surrounded by said winding and in engagement with the nut to force relative turning movement of the nut and post and along which the nut moves during such relative turning movement, the threading of the post and the spiral of the winding being of the same pitch.

7. The combination of two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and a threaded post surrounded by and extending along the axis of said winding and the other member including a wiper also surrounded by and engaging the interior of the wire winding, and a nut in threaded engagement with said post; and a guide also surrounded by said winding and in engagement with the nut to force relative turning movement of the nut and post and along which the nut moves during such relative turning movement.

8. The combination with two relatively rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and a threaded post surrounded by and extending along the axis of said winding

and the other member including a nut in threaded engagement with said post, a spring barrel constituting a continuation of the nut, a spring within the spring barrel, 5 and a wiper in the form of a plunger pressed by said spring against the interior of said winding; and a guide also surrounded by said winding and in engagement with the nut to force relative turning movement of the nut and post and along which 10 the nut moves during such relative turning movement.

9. The combination with two relatively rotatable members, one surrounded by the 15 other and one being provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper engaging said winding; and a guide engaging one 20 of the aforesaid member portions to force relative turning movement of said two member portions and along which guide the member portion engaged thereby moves during such relative turning movement.

10. The combination with two relatively 25 rotatable members, one surrounded by the other and one being provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper engaging 30 said winding; and a guide in turning relation to one of said members and engaging the said member portion of the other member to force relative turning movement

of said two member portions and along 35 which guide the member portion engaged thereby moves during such relative turning movement.

11. The combination with two relatively 40 rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper surrounded by and engaging the interior of 45 said winding; and a guide engaging one of the aforesaid member portions to force relative turning movement of said two member portions and along which guide the member portion engaged thereby moves during 50 such relative turning movement.

12. The combination with two relatively 55 rotatable members provided with portions in threaded engagement, one of said members including a spirally coiled wire winding and the other including a wiper surrounded by and engaging the interior of 60 said winding; and a guide in turning relation to one of said members and engaging the said member portion of the other member to force relative turning movement 65 of said two member portions and along which guide the member portion engaged thereby moves during such relative turning movement.

In witness whereof, I hereunto subscribe 65 my name.

HARRY A. DOUGLAS.