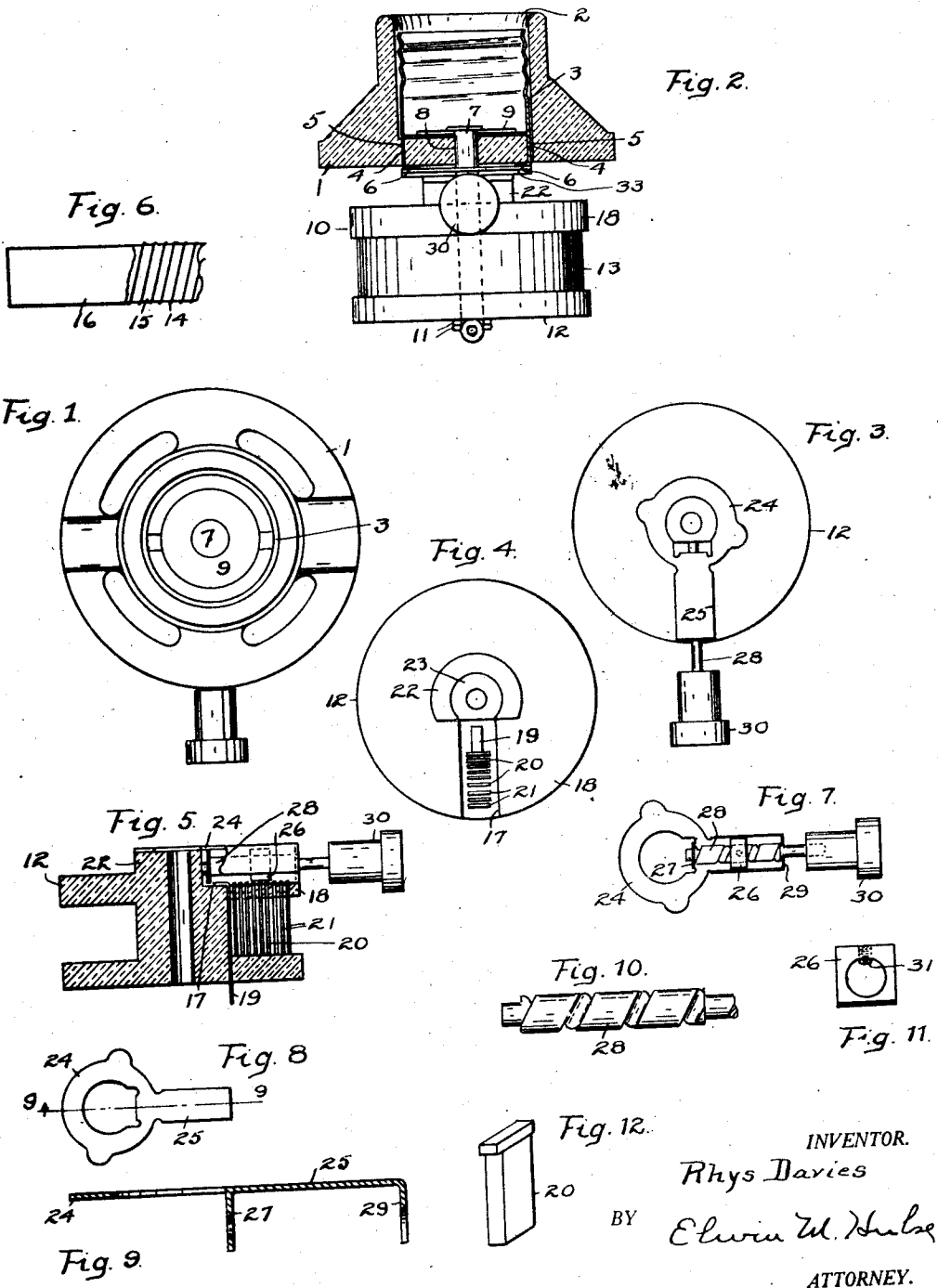


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1,603,271

R. DAVIES
ELECTRIC REGULATOR
Filed June 20, 1924



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ELECTRIC REGULATOR.

Application filed June 20, 1924. Serial No. 721,206.

The invention relates to electric regulators and particularly to improvements in the type of regulator described in my previous Letters Patent, No. 1,374,285, wherein a swinging contact is arranged to engage successively a series of contacts connected into a resistance coil for regulating the voltage of electric current for various purposes.

The object of the present invention is to provide a simple and efficient electric regulator for various purposes, another object is to provide such device with a novel movable switch or contact member. Other objects will appear hereinafter.

The invention is illustrated in the accompanying drawings in which

Figure 1 is a plan view of the regulator connected to an electric socket; Fig. 2 an elevational view of the same, the socket being in cross section; Fig. 3 a plan view of the regulator; Fig. 4 a plan view of the regulator with the movable contact member removed; Fig. 5 a central vertical cross section of the regulator with the resistance removed; Fig. 6 an elevational view of a fraction of the resistance strip; Fig. 7 a bottom view of the movable contact member and support; Fig. 8 a plan view of the support for the movable contact; Fig. 9 a cross section on line 9-9 of Fig. 8; Fig. 10 a plan view of the screw portion of the movable contact member; Fig. 11 an elevational view of the movable contact and Fig. 12 a perspective view of one of the fixed contacts.

In the drawings I have illustrated the regulator as applied to a lamp socket, but it will be noted that the device is adapted for use in a variety of electrical circuits and with many devices to which it is desirable or advantageous to conduct a regulated supply of electric current.

In the illustrative embodiment of the invention 1 represents an insulating base, formed of porcelain or other insulating material, in the cavity 2 of which is a screw shell 3 of usual form. The bottom of the shell is punched out to form two ears 4 that are bent downwardly and projected through two openings 5 formed in the base 1. The terminals 6 of the ears are bent under the bottom of the base 1. A bolt 7 projects through an opening 8 formed in

the base, the head of the bolt being insulated from the shell 3 by a suitable insulating washer or washers 9.

The bolt 7 is of suitable length to pass through the regulator 10, the nuts 11 at the lower end of the bolt serving to clamp the socket and the base together, one of the circuit wires being connected to said end of the bolt.

The body 12 of the regulator is preferably in spool form of porcelain or other suitable insulating material, the spool being apertured to receive the bolt 7. The resistance 13 is wound on the spool and is formed by winding a selected length of wire 14 about a ribbon of asbestos cloth or mica 15 or other suitable material and then winding this wire wound ribbon together with another ribbon 16 of the insulating material upon the body 12.

A radial depression or channel 17 is formed in the top flange 18 of the body 12 and the bottom wall of this channel is apertured at selected points to receive the contacts 19, 20 and 21. The innermost contact 19 extends entirely through the body 12 and its lower end is adapted to be connected to the other circuit wire. The inner end of the wire 14 is connected to or engages the contact 19. The contacts 20 project into the resistance coil and engage the winding at intervals and the contacts 21 are exterior of the winding and do not engage any portion of the same. Hence the contacts 20 connect more and more of the resistance into the electrical circuit of the socket when the travelling contact is moved outwardly as is about to be described whereas the contacts 21 are blanks and no current flows when the travelling contact engages them.

A boss 22 projects upwardly from the center of the top flange of the body 12 and a reduced portion 23 is formed at the top of the boss. A resilient metallic member 24 is engaged on the reduced portion 23 of the boss and projects laterally therefrom to form a guide support 25 for the travelling contact 26. This guide support is an inverted channel formed by bending down the opposite sides of the projecting portion of the member 24, a portion of the material that is cut out of the member to form the ring which engages on the boss, being bent downwardly and apertured to form a bearing

ing 27 for the reduced inner end of the screw shaft 28. The bearing 29 at the outer end of the support being formed by bending downwardly a portion of the support which projects beyond the outer end of the side walls. This end portion is apertured or slotted to receive the reduced end of the screw shaft. The support thus formed engages in the radial channel 17 in the body 12.

The screw shaft 28 is provided with threads of proper pitch and with a suitable finger grip 30 at its outer end by which it may be rotated. The contact 26 is an apertured block having a pin 31 projecting inwardly into its opening and adapted to engage the threads on the screw shaft. The bearings prevent longitudinal movement of the shaft hence when the shaft is rotated the contact 26 travels along the shaft, rotation of the contact being prevented by the walls of the channel support. The contact engages the fixed contacts in the channel 17.

In assembling the parts suitable washers 33 may be inserted between the support 25 and the terminals 6 and the resilience of the support 25 ensures engagement of the travelling contact with the fixed contacts. As shown in Fig. 11 the fixed contacts 20 and 21 are T-shaped, the heads of which form effective surfaces for engagement by the travelling contact 26.

When the regulator is assembled on a socket as above described and a lamp or other device or plug of a cord circuit is engaged in the socket, the lamp or plug closes the circuit between the shell 3 and the bolt terminal 7 and the full current entering the regulator will flow to the lamp or cord circuit only when the contact 26 engages the central contact 19. As the shaft is rotated in proper direction the contact is moved outwardly over the intermediate contacts 20 and cutting in more and more of the resistance and thereby reduce the brilliance of the lamp or the amount of current flowing through the cord circuit or other device. To cut off the flow of all current the contact 26 is moved outwardly to the limit of its travel, where it engages the contacts or contact 26 by which the circuit is broken.

What I claim is:—

1. In an electric regulator, the combination with an insulating body, of a resistance coil wound on the body, a row of fixed con-

tacts on one outer face of the body and projecting through said face directly into the resistance at selected points thereof and connected thereto, a movable contact adapted to be moved into engagement with the fixed contacts successively and rotatable means engaging the movable contact and adapted to cause it to travel back and forth across the fixed contacts.

2. In an electric regulator the combination with an insulating body, of a resistance coil wound on the body, a radial channel formed in one face of the body, a series of fixed contacts projecting into the resistance coil at selected points and having their outer ends exposed in said channel, a revolvable shaft resiliently mounted in the channel and a contact on the shaft adapted to engage each of the contacts, the shaft when rotated being adapted to cause the contact thereon to travel back and forth.

3. In an electric regulator the combination with an insulating body, of a resistance coil wound on the body, one face of the body having a channel therein extending from the outer edge towards the center thereof, a resilient member mounted in the channel, a screw shaft revolvably mounted in said member, a contact on the screw shaft adapted to be moved back and forth in the channel by the rotation of the shaft, and a series of contacts exposed in the channel and projected into the resistance coil at selected points and adapted to be engaged successively by the movable contact.

4. In an electric regulator, the combination of a socket, an insulating flanged spool, means connecting the socket and the spool and forming one terminal of the socket, a resistance wire wound on the spool between the flanges, a plurality of fixed contacts extending through one of the flanges into the resistance winding at selected points and making contact with said wire, a travelling contact on the outer side of the spool and adapted to engage the heads of the fixed contacts successively, revolvable means to cause the contact to move to a selected contact and means to support and electrically connect the travelling contact to the other terminal of the socket.

In witness whereof, I hereunto subscribe my name this 9th day of June, 1924.

RHYS DAVIES.