J. H. JOHNS.

ELECTROLIER.

APPLICATION FILED JULY 2, 1912.

1,090,154.

Patented Mar. 17, 1914.

3 SHEETS—SHEET 1.

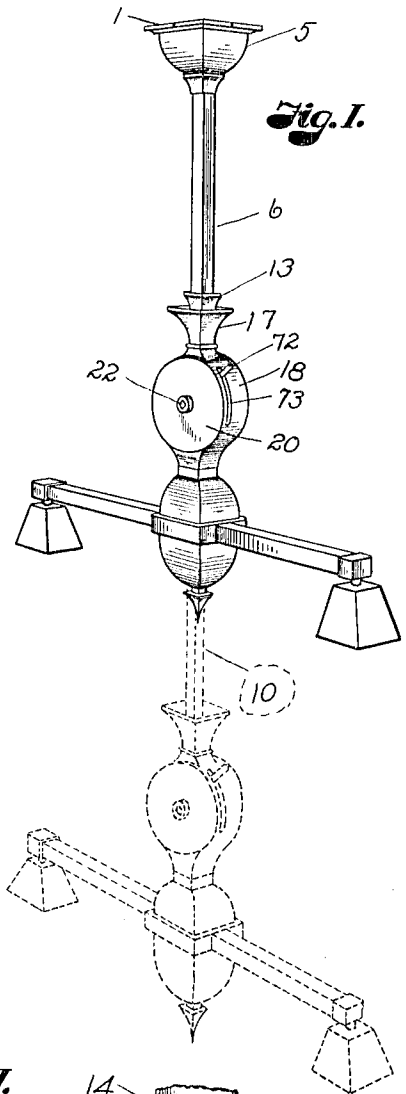
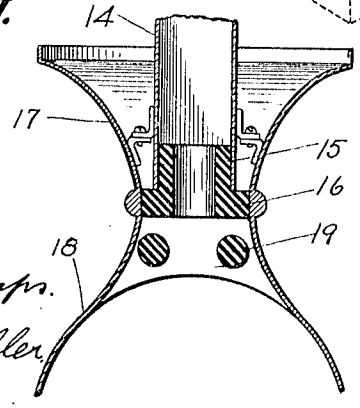


Fig. I.

Fig. II.



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3 SHEETS—SHEET 2.

Fig. IX.

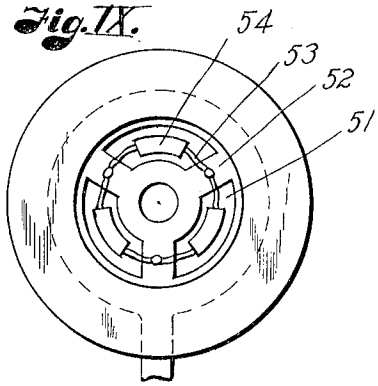


Fig. VI.

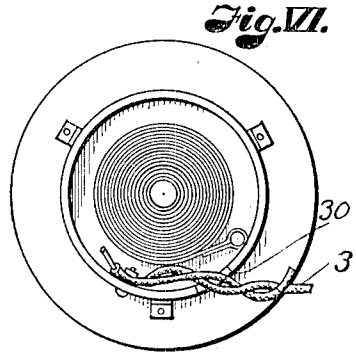


Fig. X.

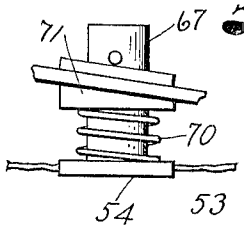


Fig. XII.

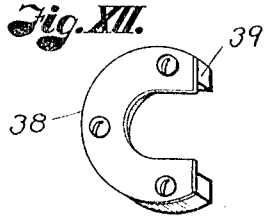


Fig. III.

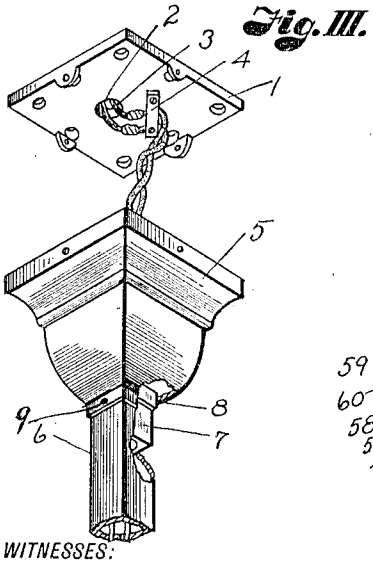
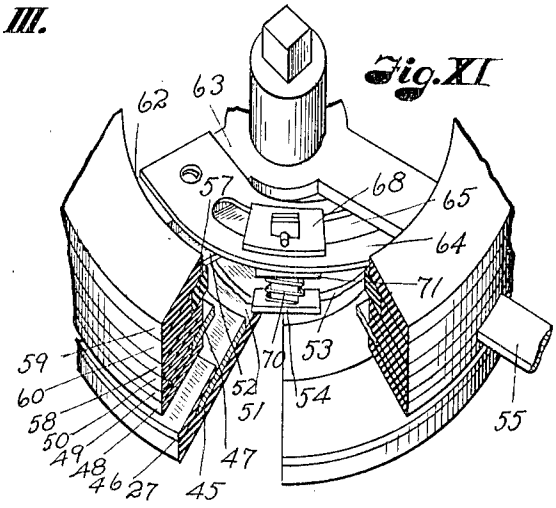


Fig. XI.



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3 SHEETS—SHEET 3.

Fig. XIII.

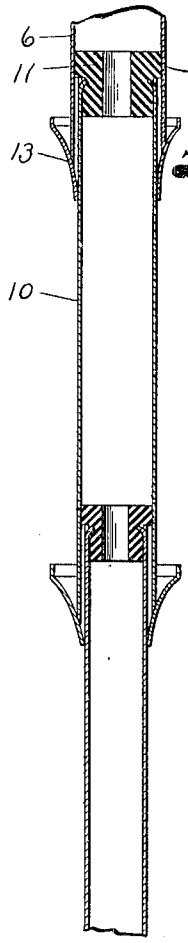


Fig. IV.

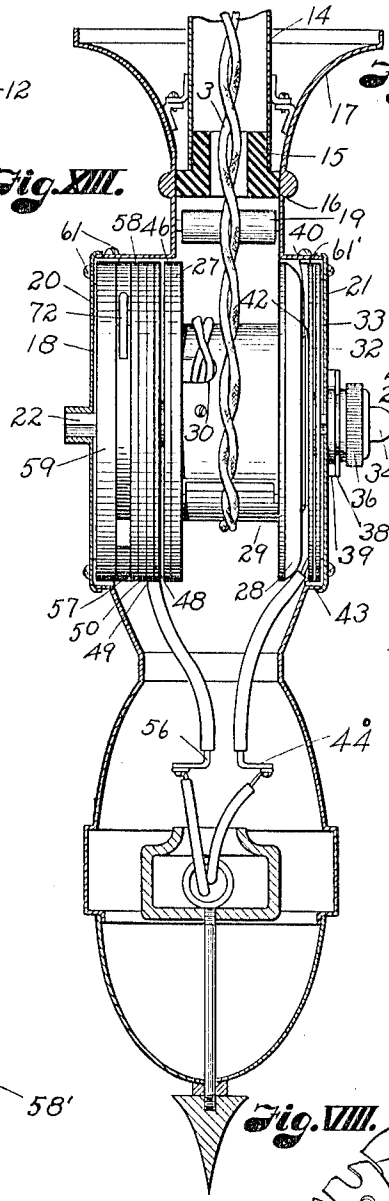


Fig. V.

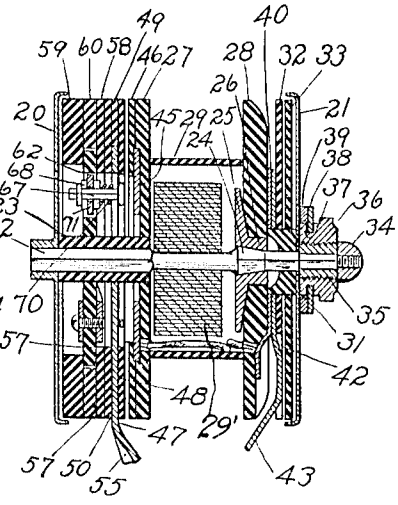


Fig. XIV.

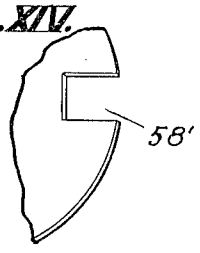


Fig. VII.

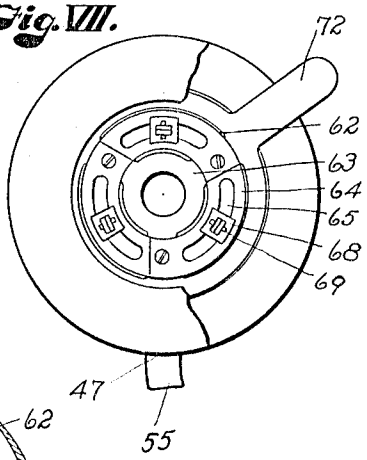
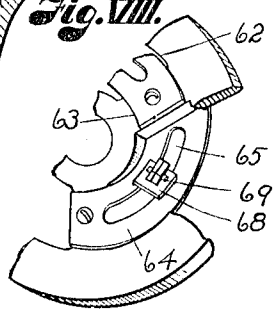


Fig. VIII.



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ELECTROLIER.

1,090,154. Specification of Letters Patent. Patented Mar. 17, 1914.

Application filed July 2, 1912. Serial No. 707,269.

To all whom it may concern:

Be it known that I, JOHN H. JOHNS, a citizen of the United States, residing at Leavenworth, in the county of Leavenworth and State of Kansas, have invented certain new and useful Improvements in Electroliers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to electroliers, and has for its principal object to provide an extensible electrolier which may be lowered from a ceiling position so that it may be used as a reading or desk lamp and returned to its upper position. In accomplishing this object, I have provided extensible circuit members which may travel with the fixture, together with a switch which is operable from the fixture, so that the current is controlled at the fixture and whereby the latter may be raised or lowered without interrupting the current.

I have also provided improved details of structure by which the above named objects are accomplished, the preferred form being illustrated in the accompanying drawings, wherein:—

Figure I is a perspective view of an electrolier, constructed according to my invention, showing the fixture in lowered position, in dotted lines. Fig. II is an enlarged vertical section of part of the top of the fixture, showing the circuit conduit and anti-friction, non-conducting fiber rollers over which the circuit wires are conducted. Fig. III is a perspective view of the upper part of the hanger showing its combination with a ceiling plate. Fig. IV is a vertical section of the base of the fixture showing the take-up spool for the circuit wires, with the contact devices and connections from the contact devices to the lamps. Fig. V is a cross section of the take-up spool and contact devices. Fig. VI is a side view of the spool, showing the intake for the circuit wires. Fig. VII is a face view of the switch. Fig. VIII is an enlarged perspective of part of the switch disk, showing the arrangement of the inclined tracks. Fig. IX is a face view of the flexible brush. Fig. X is an enlarged side elevation of one of the tracks, the brush and an actuating post. Fig. XI is a perspective view of parts of the switch, the brush plate and the parts carried or actuated thereby. Fig. XII is a detail view of the keeper for the spool tightening nut. Fig. XIII is a vertical section of the telescoping fixture hanger. Fig. XIV is a detail view of part of one of the fiber disks in the contact mechanism, showing a slot by which the disk is fixed in the case.

Referring more in detail to the parts:—1 designates a ceiling plate, which may be attached to a fixture stand, and has an aperture 2 through which circuit wires 3 are projected, said wires being attached to the bottom of the plate by a strap 4, or the like, so that should the fixture be removed from the plate the strain on the wires would be carried by the strap to prevent disconnection of the wires from the house circuit above the plate.

Fixed to the plate 1 is a cap 5 which carries a hollow hanger 6, the latter having a non-conducting fiber plug 7 in its upper end, comprising a tubular body portion and a flange 8, which latter fits snugly within the hanger and is secured thereto by screws 9, which extend through the cap and hanger and fix all of said parts together.

Telescoping within the upper hanger section 6 is a lower section 10, which is necessarily smaller than the first section, and has a fiber plug 11 fixed snugly within its upper end and provided with a flange 12 which projects over the end of the hanger section 10 and bears snugly against the inner surface of the upper section 6.

Depending from the upper section 6 is a cap 13 which is turned under the lower edge of said section 6 and bears snugly against the lower section 10, so that it will allow free telescoping movement of the lower section within the upper, but will engage the flange of the fiber plug 11 and prevent the removal of the lower section from the upper.

It is apparent that any desired number of hanger sections may be provided according to the height through which it is desired to adjust the fixture.

In the lower fixture section 14 is an inverted plug 15, the flange 16 of which extends laterally below the hanger section and connects with the inside of the dome 17 of the spool casing 18, a pair of rollers 19 being extended transversely within the spool at opposite sides of the plug channel to form

anti-friction guides for the circuit wires 3, as the latter pass from the hanger into the spool.

Fixed in the front plate 20, of the spool casing 18, preferably by swaging, and extending through an aperture in the back plate 21 is a shaft 22, the front end of the shaft being preferably squared and provided with a fiber bushing 23, the opposite end also being squared and having a tapered section 24 spaced inwardly from the back plate. Slidably mounted on the tapered portion 24 is a disk 25, having an outwardly projecting hub 26 and having a beveled outer face.

Revolubly mounted on the bushing 23 and the hub of disk 25 are the end disks 27 and 28, of a take-up spool 29, having a slot 30 (Fig. VI) through which the circuit wires 3 are projected. Fixed to the spool, and to the shaft 22, and wound upon the shaft within the spool, is a clock, or a like spring, 29′, whereby the spool is tensioned to take up the circuit wires, as will presently be more fully explained.

Extending over the squared portion of the rear end of shaft 22, and bearing against the fiber disk 28, is a spacing washer 31, which separates the spool disk from the back of the base and forms a bushing for supporting the contact disk 32 and the insulating disk 33.

Fixed on the rear end of shaft 22 is a nut 34 and separating the nut from the back plate of the casing is a washer 35 having a threaded outer surface carrying a thumb nut 36. The inner end of nut 36 has a circumferential groove 37 into which a circular keeper plate 38, that is fixed on a spacing block 39, carried by the back plate of the casing, is projected, so that when the nut is turned the collar will be forced inwardly or outwardly to allow the shaft to move inwardly or to force the same outwardly.

It is apparent that when the shaft is drawn outwardly by the adjusting nut, the bevel faced disk 25 is drawn against the inner face of the spool disk 28 to act as a brake for the spool, whereas adjustment of the nut in the opposite direction will tend to loosen the spool, thereby regulating the freedom of the spool.

In order to extend the lighting circuit to the exterior of the spool, and to the lamps, I provide the spool with contacts, one of which comprises a copper, or like, plate 40, which is fixed on the outer face of the spool disk 28, and to which one of the circuit wires is connected.

Fixed on the disk 32, so that it is wiped by the contact plate 40 on the spool, is a copper, or like, disk 42, having an arm 43 projected from the contact device and connecting with a wire 44 leading to a lamp. The outer face of the other spool disk 27 is countersunk, and lying within the countersink is a copper, or like, ring 45, the outer edge of the ring being covered by a fiber ring 46 carried by the disk 27 and spacing the contact member from the rest of the device, and particularly protecting same from the switch brush.

Mounted on the bushing 23 is a copper disk 47, of less diameter than the other disks in the contact device, and covered on both sides and at its periphery by fiber washers and a ring numbered 48, 49 and 50. The copper disk has arcuatile slots 51, and fixed to the ribs 52, at the ends of the slots, is a conductor wire 53, the portions of the wire projecting through the slots being loose so that they will have play transversely of the disk. Fixed on the wire 53 in each of said slots is a brush 54 which is adapted for contacting the copper plate on the outer spool disk when the wire is pushed inwardly, as will presently be described. The brush disk 47 has an end 55 projected into the spool casing and connected with a wire 56 which leads to a lamp and forms the opposite terminal to wire 44.

Mounted on the bushing 23 is a fiber disk 57 and fixed to opposite sides of the disk 57 are insulating washers and a ring numbered 58, 59 and 60, the latter being fixed to the casing by a screw 61, and by the engagement of slotted portions 58′, etc., with lips 61′ on the inside of the casing through which the screws 61 are projected, so that the washers and disk are held against revoluble movement within the casing. The disk 57 has arcuatile slots 62 corresponding to the slots 51 of the brush disk, and mounted on the ribs 63, at the ends of the slots, are guide plates 64, having longitudinal slots 65, each guide plate having one end fixed to the outer face of a rib and its opposite end fixed to the inner face of a next rib so that the plates are inclined.

Fixed to each brush 54 on the wire 53, carried by the copper disk 47, is a post 67 which extends outwardly through the slot 65 in one of the inclined guide plates 64 of the switch disk and has a keeper 68 held to the outer face of the guard by a pin 69. A coil spring 70 surrounds each post and bears against the brush and against a washer 71 which is slidably mounted on the post and adapted to bear against the inner face of the guard plate to hold the parts yieldingly together.

The switch disk 57 has a handle 72 projected through a slot 73 in the spool casing so that the switch may be operated from the outside of the casing when the electrolier is in either its elevated or lowered position.

In using the device, presuming the parts to be assembled as described, and the spool spring tensioned, the tension of the spring and friction of the telescoping hanger mem-

bers will retain the electrolier in its upper position. When it is desired to use the electrolier as a desk or reading lamp, it is lowered against the tension of the spool spring so that the cord will unwind from the spool while the hanger members are extended, the raising or lowering merely tending to unwind or wind the cord and revolve the spool without affecting the parts of the contact device. When the lamps are to be lighted, when the electrolier is at either its upper or lower position, the switch handle is moved in the slot to force the brush post inwardly so that the brush will contact the copper plate on the outer spool disk, thereby completing a circuit through the lamp to the copper disk on the rear of the spool and energizing the lamp. When the current is to be cut off the switch handle is moved in the opposite direction to move the post outwardly and break the contact with the spool plate, thereby breaking the circuit.

It is apparent that a contact may be made or maintained when the electrolier is at any point within its extensible limits, as the contact member on the rear spool plate constantly wipes its coöperating member, and the contact member on the front spool plate may be engaged by the brush irrespective of the position or action of the drum. It is also apparent that the device may be used as with a drop light or specific form of electrolier, as the particular design shown herein was selected merely for the purpose of illustration.

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

1. In an electrolier, a casing, a spool revolubly mounted within said casing and provided with contact members, circuit wires wound on the spool and connected with said contact members, a switch, and a brush operable from the switch, and adapted for wiping one of the spool contacts to close a circuit, for the purpose set forth.

2. In an electrolier, a revoluble spool having contact plates on its outer faces, circuit wires fixed to the spool and connected with said contact members, a permanent contact member constantly engaging one of the spool contacts, a brush adapted for engaging the other spool contact, a switch for actuating said brush, and means for connecting the permanent contact and brush with a lamp, for the purpose set forth.

3. In an electrolier, the combination with a revoluble spool, of separate contact plates on opposite ends of the spool, a permanent contact plate having constant engagement with one of the drum plates, a brush carrier, a brush mounted on the carrier and adapted for movement into and out of contact with the second spool plate, a switch for actuating the brush, and means for closing a circuit from the permanent contact to the brush, for the purpose set forth.

4. In an electrolier, the combination with a revoluble spool, having separate contact plates, of a fixed contact member constantly engaging one of the spool plates, a brush carrier, a brush on said carrier comprising a flexible conductor, a switch adapted for flexing the conductor toward or from the second spool plate, and means for closing a circuit from the fixed contact to the brush.

5. In an electrolier, the combination with a revoluble spool, of contact members carried by the spool, circuit wires fixed to the spool and connected with the contact members, a fixed contact member adapted for constant engagement with one of the spool plates, a brush carrier comprising a slotted conductor, wires carried by the conductor and crossing the slots thereof, brush members carried by the wire and adapted for contacting the second contact member on the spool, and a switch connected with said wire and adapted for flexing same toward or from the spool contact, for the purpose set forth.

6. In an electrolier, the combination with a revoluble spool, of contact members carried by the spool, circuit wires fixed to the spool, and connected with the contact members, a brush carrier, a brush on said carrier adapted for movement toward and from the spool, a switch comprising an inclined guide, pins connected with the brush and projecting to the guide, and means adapted for travel on the guide and connected with the pin for moving the brush laterally when the guide is moved across said means.

7. In an electrolier, the combination with a revoluble spool, having contact members, of circuit wires fixed to the spool and connected with the contact members, a laterally movable brush adapted for contacting one of the spool members, a slotted disk, inclined guides extending across the disk slots and provided with slots, pins on the brush extending through the guide slots, and keepers on the ends of the pins and engaging the guides whereby the brush is moved laterally when the disk is revolved.

8. In an electrolier, the combination with a revoluble spool, having contact members, of circuit wires fixed to the spool and connected with the contact members, a laterally movable brush adapted for contacting one of the spool members, a revoluble, slotted disk, guide plates extending across the disk slots and fixed to opposite faces of the ribs at the ends of said slots to provide an incline, said guides being provided with arcuatile slots, pins on said brush projecting through the guide slots, and keepers on said pins whereby the latter are actuated when the disk is revolved, for the purpose set forth.

9. In an electrolier, the combination with a casing, a spool revolubly mounted within the casing and provided with contact members, circuit wires fixed to the spool and connecting with the contact members, a laterally movable brush adapted for contacting one of the spool members, spacing disks mounted within the casing, a slotted switch disk revolubly mounted within the casing between said spacing disks and having a handle portion projecting through a slot in the casing, guides extending at an incline through the switch disk slots, pins on the brush projecting through said slots, keepers on said pins whereby the pins are moved laterally when the switch disk is revolved, and means for closing the circuit from the first spool plate to said brush, substantially as set forth.

10. In an electrolier, the combination with extensible hangers, of a casing carried by the hangers, a shaft extending through said casing, a spool revolubly mounted on the shaft, wires extending through the hangers and fixed to the spool, a brush within the casing, a switch within the casing and having a handle extending to the exterior thereof, means operatively connecting the brush with the switch, a tension member on said shaft and contacting the spool, a sleeve on said shaft outside the spool and contacting therewith, a keeper fixed to the outside of the spool, a nut on said shaft at the end of the sleeve, and a thumb nut threaded on said sleeve and held by the keeper, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. JOHNS.

Witnesses:
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LETA E. COATS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."