T. J. & W. H. PRISK.

ARC LAMP.

APPLICATION FILED MAR. 21, 1911.

1,016,773.

Patented Feb. 6, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

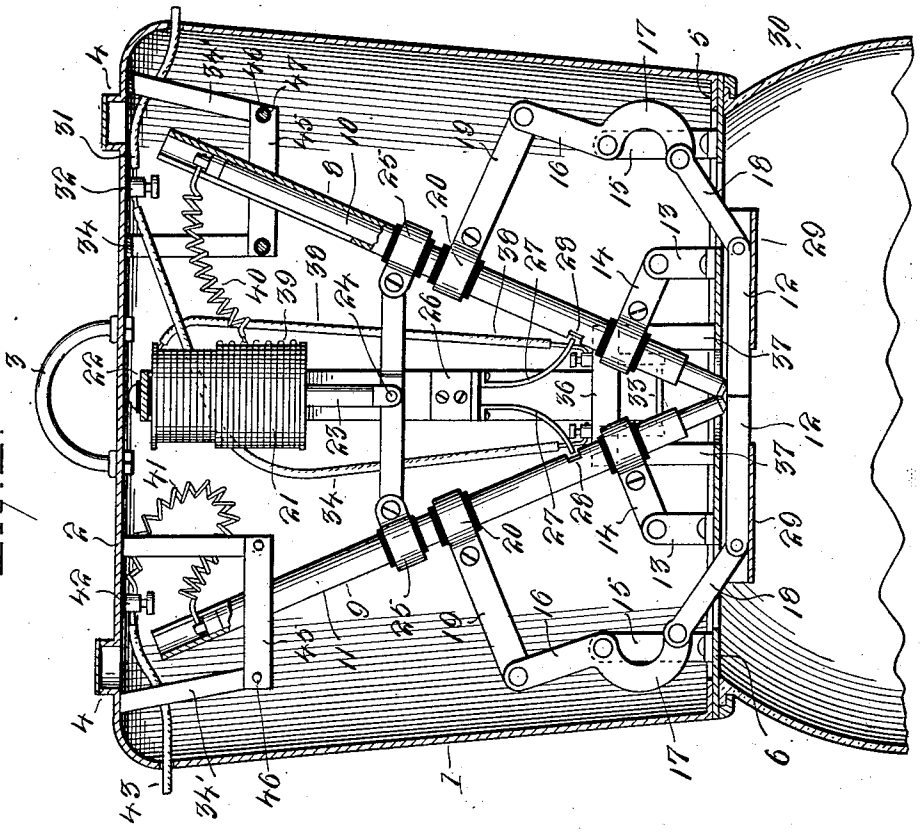
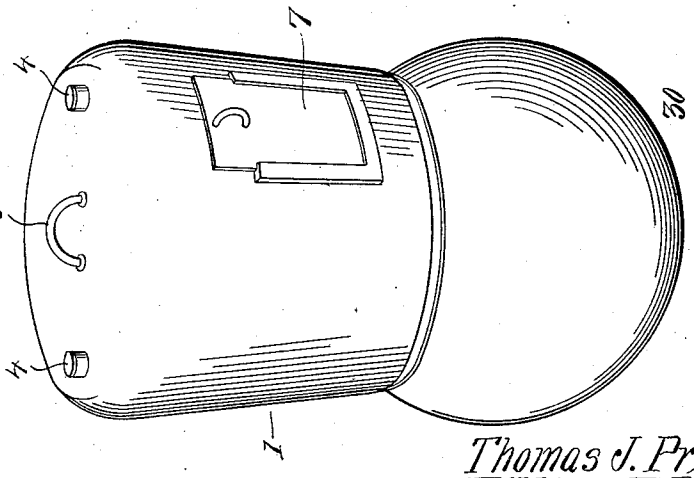


Fig. 7.



Witnesses

E. R. Ruppert.

E. Edwonston Jr.

Inventors

Thomas J. Prisk and

William H. Prisk

By Victor J. Evans

Attorney

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2 SHEETS—SHEET 2.

Fig. 5.

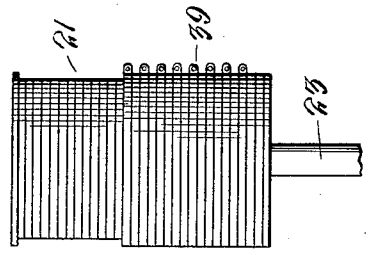


Fig. 3.

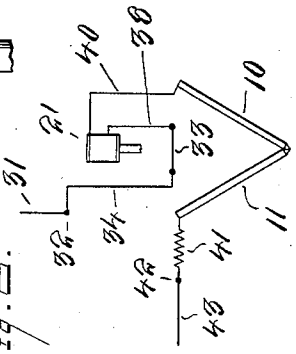


Fig. 4.

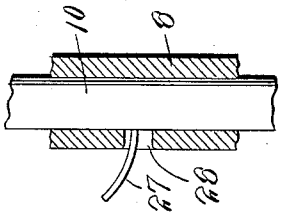


Fig. 2.

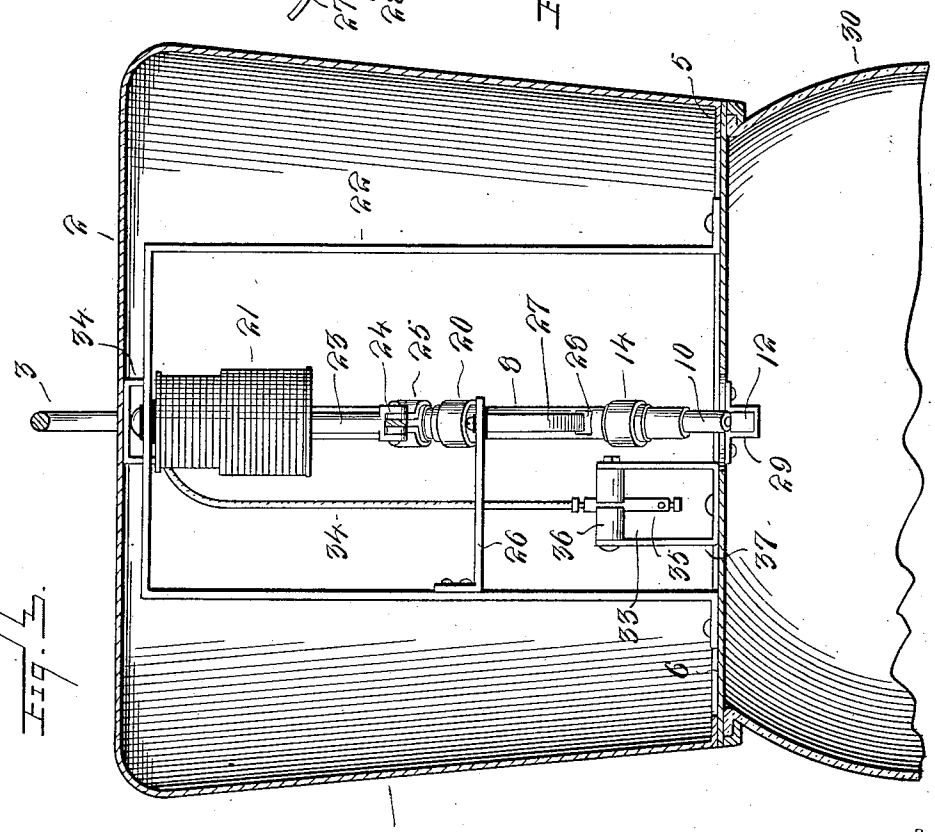
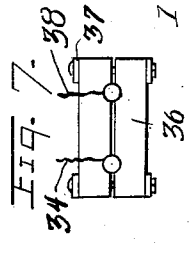


Fig. 7.



Witnesses

E. R. Ruppert.

E. Edwards Jr.

Inventors

Thomas J. Prisk and

William H. Prisk

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

THOMAS J. PRISK AND WILLIAM H. PRISK, OF JOHNSTOWN, PENNSYLVANIA.

ARC-LAMP.

1,016,773. Specification of Letters Patent. Patented Feb. 6, 1912.

Application filed March 21, 1911. Serial No. 615,820.

To all whom it may concern:

Be it known that we, THOMAS J. PRISK and WILLIAM H. PRISK, citizens of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented new and useful Improvements in Arc-Lamps, of which the following is a specification.

This invention relates to arc lamps and one of the principal objects of the invention is the provision of means which will be automatically projected into and withdrawn from the path of the carbons for supporting the carbons when the lamp is not burning and which are automatically withdrawn as the arc is drawn.

A further object of the invention is the provision of novel means for moving the carbons into engagement with the supporting devices when the arc is drawn and for withdrawing the carbons out of engagement with the supporting devices when the lamp is not burning or when the arc is disrupted and for simultaneously moving into the path of the carbons or carbon supporting devices.

Further objects of the invention will appear as the following specific description is read in connection with the accompanying drawings, which form a part of this application, and in which:—

Figure 1 is a perspective view of the lamp case and globe. Fig. 2 is a vertical section through the casing. Fig. 3 is a similar view taken at right angles to Fig. 2 and showing the parts in elevation. Fig. 4 is a detail vertical sectional view through a portion of the carbon tubes and support slides. Fig. 5 is a detail elevation of the coil. Fig. 6 is a diagrammatic view of the circuits employed. Fig. 7 is a top plan view of one of the clamps.

Referring more particularly to the drawings, 1 represents a casing preferably in the form of a frustum of a cone and having its top 2 provided with a supporting eye or clevis 3, whereby the lamp may be flexibly suspended. The top is also provided with covered tubes 4 through which the carbons may be inserted in the lamp, as will hereinafter be described. The lower portion of the casing is provided with an internal flange 5 to which the bottom plate 6 is secured. The casing is also provided with a door 7 by which access may be had to the interior thereof without lowering the supporting plate 6.

In the present type of lamp a pair of downwardly converging carbon tubes 8 and 9 are shown having the carbons 10 and 11 slidably mounted therein and so arranged that their arcing points will contact and rest upon the slides 12. Each tube is pivotally connected to a supporting bracket 13 by means of a clamping arm 14 which is properly insulated therefrom.

Suitable bracket arms 15 extend vertically from the plate 6 on opposite sides of the brackets 13 and have pivotally mounted upon their upper ends the levers 16, whose lower ends 17 are connected by means of the links 18 to the slides 12. The straight upper ends of the levers 16 are pivotally connected to the arms 19 whose opposite ends are connected to clamping members 20 surrounding the tubes and properly insulated therefrom, as by mica or rubber rings. The operation of these levers and the consequent movement of the slides 12 is controlled by the combined resistance coil and magnet 21 which depends from the U-shaped frame 22 extending vertically from the bottom plate 6. The magnet 21 is in the form of a solenoid and its core or plunger 23 is connected to the central joint 24 of the toggle lever, whose opposite ends are pivoted to the clamp members 25 which surround and are insulated from the tubes 8 and 9. When the magnet is operated, as will hereinafter be described, the core is drawn thereinto in the well known manner and the toggle lever rises so as to draw the upper ends of the tubes together and separate their lower ends, which acts to draw the arc between the carbons. When the core of the magnet is down the ends of the slides 12 will be together and when raised they will be separated so as not to cause a shadow from the arc. These slides 12 support the carbons when the lamp is not burning and in order to prevent them from coming into contact with each other when the lamp is burning and their arcing points separated, a bracket 26 is secured to one of the legs of the frame 22 and has its outer end arranged between the carbon tubes 8 and 9. Secured to this bracket but insulated therefrom are a pair of stationary spring arms 27 which enter apertures 28 in the tubes when their upper ends are drawn together, so as to engage the carbons and prevent them from falling. When the magnet releases its hold upon its core, or in other words is demagnetized, the tubes

will be separated and the spring arms will be released from the carbons so that they may drop by gravity on to the slides 12 which, at this time, will be projected into their path. The slides 12 preferably operate in suitable casings 29 carried upon the under side of the plate and are arranged within the globe 30.

The incoming wire of the line is indicated at 31 as connected to a binding post 32 and from thence to a fuse member 33 by way of a lead 34 mounted on standards 35 which are secured in insulators 36 supported upon brackets 37 extending vertically from the plate 6. On the opposite side of the fuse member a lead wire 38 is connected to one of a plurality of terminals 39 which project from and are connected in the winding of the magnet 21. The opposite end of the winding of the magnet is connected to the carbon 10 through a pig tail 40, while the opposite carbon 11 is connected by a pig tail 41 to a binding post 42, also to which is connected the outgoing wire of the line, indicated at 43.

In order to hold the free upper ends of the tubes in proper position and prevent them from shaking, we secure to the under side of the top 2 of the casing, immediately adjacent the binding post and in light tubes, the double brackets 34 in which are mounted the insulators 45 connected together and held in separated relation by the bolts 46 which have the insulating sleeves 47 mounted thereon.

In the operation of the device current is turned on the line so that it passes from the line 31 over the lead wire 34, fuse 33 and to the magnet through the lead 38. From thence it passes over the pig tail 40 to the carbon 10 and carbon 11 over the pig tail 41 and out the line. The magnet will be energized and its core drawn inwardly so as to raise the toggle lever and draw the upper ends of the tubes together. This action tends to lower the tubes and to support their lower ends so that the arc is drawn at the point of contact of the carbons. At the same time the levers 16, through their connection with the tubes and with the slides, draw the latter members of the path of the arc so that no shadow will be projected thereby. In the inward movement of the tubes the springs 27 will enter the apertures 28 in the tubes and engage the carbons, thus preventing them from dropping by gravity. When the arcing points of the carbons are sufficiently worn away to disrupt the arc the circuit through the lamp will be broken and the magnet deënergized, permitting the core to drop and thus operating upon the toggle lever to separate the tubes. This action throws the slides 12 beneath the carbons and simultaneously withdraws the springs so that the carbons are permitted to drop upon the slides and contact with each other, whereby the circuit is reëstablished and the former operation repeated.

Having thus described the invention, what we claim as new is:—

1. In combination with converging tubes, carbons therein, means for supporting the carbons in contacting position, means for separating the contacting points of the carbons and simultaneously withdrawing the supporting means, and means for supporting the carbons when separated.

2. In combination, converging tubes, carbons therein, means for supporting the carbons in contacting position, means for separating the contacting points of the carbons and simultaneously withdrawing said supporting means, and stationary springs for holding the carbons when in separated position.

3. In combination, converging carbons, means for supporting the ends of the carbons in contacting relation, means for simultaneously withdrawing said supporting means and separating the contacting ends of said carbons, and stationary spring members for supporting the carbons when in separated position.

4. In combination, converging carbons, an electric circuit in which said carbons are connected, a magnet connected in the circuit in series with said carbon, supporting members for the contacting ends of the carbons, means operated by the magnet for withdrawing said supporting means and simultaneously separating said carbons and stationary supporting springs for supporting the carbons when separated.

5. In combination, a pair of converging carbons, an electric circuit in which said carbons are included, a magnet included in series of the said carbons in circuit, slidable members adapted to support the contacting ends of the carbons, means operated by the magnet for withdrawing the supporting members and simultaneously separating the contacting ends of said carbons, and stationary means, said withdrawing means adapted to pull the carbons into engagement with the stationary means to support the carbon when their contact points are separated.

In testimony whereof we affix our signatures in presence of two witnesses.

THOMAS J. PRISK.
WILLIAM H. PRISK.

Witnesses:
CHARLEY F. SCHNABEL,
HARRY J. MCCHESNEY.