

(No Model.)

W. A. TURBAYNE.
ELECTRIC ARC LAMP.

No. 458,987.

Patented Sept. 1, 1891.

Fig. 1.

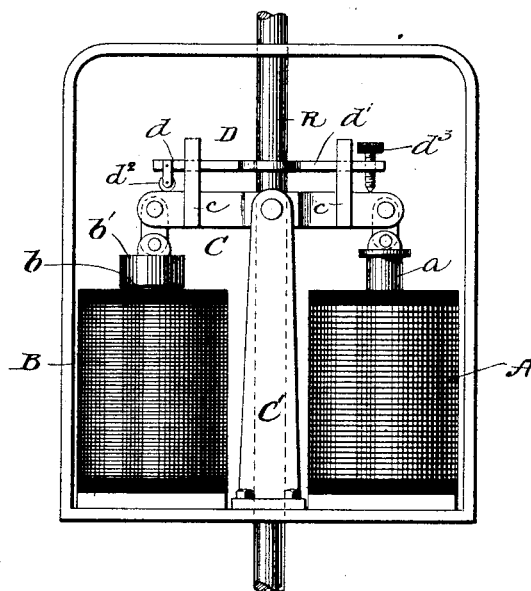


Fig. 2.

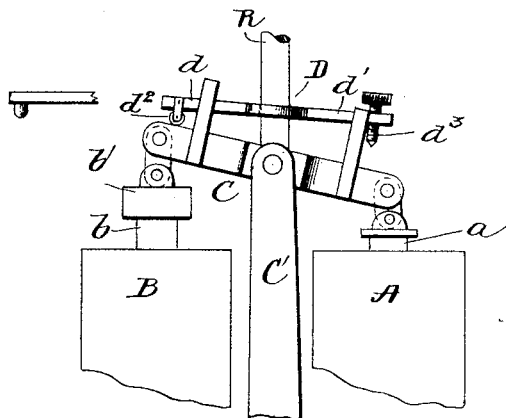
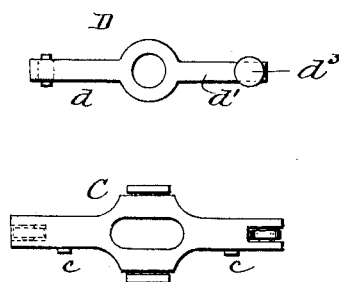


Fig. 3.



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ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 458,987, dated September 1, 1891.

Application filed April 14, 1891. Serial No. 388,906. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ARTHUR TURBAYNE, a subject of the Queen of Great Britain, residing in Toronto, Canada, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

This invention relates to electric-arc lamps, the object being to provide the simplest means possible for striking the arc and regulating the feed of the upper carbon.

The invention consists of the structure hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 represents a section of the lamp-casing, showing the mechanism in side elevation. Fig. 2 is a side elevation of the mechanism while in operation, parts being broken away; and Fig. 3 represents plans of the lever and ring-clutch.

Referring to the drawings by letter, A represents a coarse-wire solenoid or electro-magnet in the main circuit of the lamp and in series with the carbons. *a* represents its movable core or armature.

B represents a high-resistance solenoid or electro-magnet in a circuit shunting the carbons. Its core or armature is represented by *b*. A weight *b'* is attached to the core, for a purpose which will hereinafter appear.

C represents a lever connected at its ends through links with the respective cores *a* and *b*. It is provided with lateral arms or trunnions at its middle portion, which are mounted in the upper ends of two standards C'. The center of this lever is provided with an elongated opening, through which the upper carbon-rod R passes.

D represents the clutch consisting of a ring having arms *d* *d'*, extending in opposite directions from it. The carbon-rod passes through the ring, and the internal diameter of the ring is such that when the clutch is perfectly horizontal the rod is free to move through the ring; but as soon as the clutch is tilted to a slight extent the edges of the ring grip the rod and lock the clutch and rod together. The clutch is located just above the lever C. It has no positive connection, however. It simply rests upon it. The arms *d* and *d'* are in the same vertical plane as the lever C. The arm *d* at its extremity is pro-

vided with an anti-friction roller *d*², which bears upon the top of the lever C, and the arm *d'* is provided at its extremity with a vertical adjusting-screw *d*³, the point of which is adapted to rest at times upon the top of the said lever C. The arm *d* stands above the shunt-magnet and the other arm above the main magnet.

c c represent two guides, which are attached to the side of the lever C and extend upward beside the clutch for the purpose of preventing it from swinging around and keeping it in the same vertical plane with the lever C.

The operation of my invention is as follows: When the lamp is not burning, the lever C is horizontal and is maintained so by the weight *b* on the shunt-solenoid core. The core may be provided with a stop, which will prevent its downward movement; or, as shown, the weight itself serves as a stop by striking the top of the solenoid. When the lever is in its horizontal position, core A is withdrawn from the solenoid to its full extent. Now when the current is turned on magnet A first becomes energized and draws down its core or armature. This tilts the lever C and allows the edges of the clutch to become engaged with the sides of the carbon-rod. This takes place upon the slightest movement of the lever C. After the engagement of the clutch the further movement of the lever C causes the clutch to move upward, and thus establish the arc. In its upward movement the roller *d*² on the clutch rides on the top of the lever C. When the arc becomes too long, owing to the consumption of the carbons, current is shunted into the magnet or solenoid B, which attracts its armature and pulls the lever C into its horizontal position, thus releasing the clutch and allowing the carbon to feed. The pull of the two magnets will be very nearly balanced, so that the feed of the carbon-rod will be regular.

The object of the adjusting-screw *d*³ is to adjust the normal length of the arc. By means of the screw the end of the clutch may be raised or lowered, and consequently the distance which the carbon-rod is raised when the lever C moves is determined.

If desired, the anti-friction roller *d*² may be substituted by a lug or projection having a

rounded surface like that of an egg, which will slide upon the smooth top of the lever C with very little friction.

Having thus described my invention, I
5 claim—

In an electric-arc lamp, the combination of main and shunt magnets or solenoids, a lever pivoted intermediate of its extremities and connected at its opposite ends with the arma-
10 tures or cores of the respective magnets, and a ring-clutch for the carbon-rod provided with lateral arms extending in opposite directions,

one arm carrying a roller or other anti-friction device bearing upon the said lever and the other arm carrying an adjusting-screw, 15 the end of which also bears upon said lever, for the purpose described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM ARTHUR TURBAYNE.

Witnesses:

SAMUEL WEYLIE McKEOWN,

THOMAS SYDNEY McMORSAN.