

No. 619,090.

Patented Feb. 7, 1899.

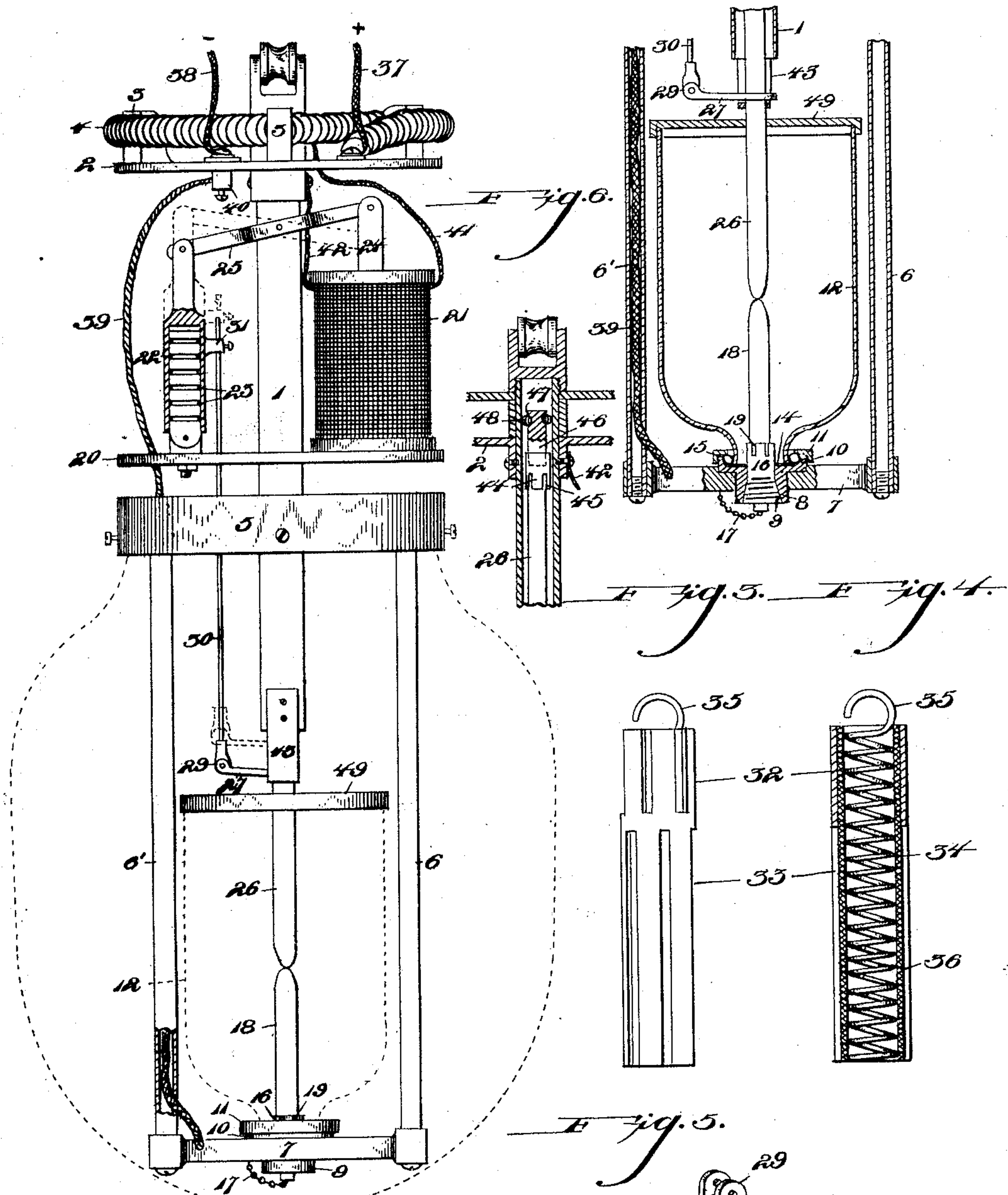
A. SCHWEITZER.
ELECTRIC ARC LAMP.

(Application filed June 7, 1898.)

(No Model.)

Fig. 1.

Fig. 2.



WITNESSES:

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ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 619,090, dated February 7, 1899.

Application filed June 7, 1898. Serial No. 682,797. (No model.)

To all whom it may concern:

Be it known that I, ALBERT SCHWEITZER, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in electric-arc lamps.

The object of my invention is to provide a simple, cheap, and durable mechanism for regulating the feed of the carbons automatically, and thereby establish the arc by means of the current when turned on and maintaining the same as the carbons are consumed.

A further object of my invention is to provide an electric-arc lamp which can be utilized either upon a direct or alternating current, and to this end I provide an interchangeable core for the electromagnet, the mechanism of which will be hereinafter described.

A still further object of my invention is to provide an air-tight globe which surrounds that portion of the carbons whereat the arc is formed, thereby increasing the light and the efficiency of the carbon.

My invention aims, further, to construct a novel form of dash-pot having air-cushions formed therein, which serves to regulate the feed of the upper carbon in a steady manner.

My invention particularly resides in the novel means for feeding the upper carbon, whereby the same is gradually and steadily fed until such time as a sufficient or desired amount of the same has been used, when a cut-off of the same will be automatically effected.

My invention further consists in the novel combination and arrangement of parts to be hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In the drawings, Figure 1 is a side view of my improved lamp, partly in section. Fig. 2 is a vertical sectional view of a portion of the same. Fig. 3 is a side view of the core employed in the electromagnet when the alter-

nating current is employed. Fig. 4 is a vertical sectional view of the core. Fig. 5 is a perspective view of the grip which engages the upper carbon. Fig. 6 is a vertical sectional view of the lamp, showing the feeding mechanism for upper carbon.

Like figures of reference indicate similar parts throughout the several views of the drawings, in which—

1 indicates a central tubular support or column from which the various mechanism of the lamp is suspended. Arranged near the upper end of this support or column 1 is a circular plate 2, which is attached to and supported by said column and is or may be provided with extensions 3 on its upper face, which are suitably disposed thereon, so that the resistance-coil 4 may be retained in its position.

The globe and lower carbon are supported by attaching to the central column or support 1, about midway thereof, a circular plate 5, to which are connected two vertically-extending tubes 6 and 6', each of which is connected at its lower end to a cross-head 7, said cross-head forming a support for the globe and lower-carbon holder. The cross-head 7 is provided with a centrally-disposed screw-threaded opening 8 for the reception of the globe support and holder 9, the said support and holder being provided with an upwardly-extending flange 10, screw-threaded on its periphery to receive the globe-securing nut 11. The globe 12 rests upon the face of its support 9 and has interposed between its base and the said support a suitable gasket 14. For the purpose of retaining the nut 11 and holding the globe in position a coil-spring 15 is interposed between the nut and the gasket 14. The holder is provided with a central aperture screw-threaded to receive the lower-carbon holder 16, which has or may have attached thereto and to the cross-head 7 a chain or other connection 17. In order to retain the lower carbon 18 firmly in its holder, I preferably form this holder with vertically-extending slots 19, which is somewhat contracted at its end and permits the expansion of the same as the carbon is forced therein.

Secured to the central support or column 1,

a short distance above the plate 5, is a circular plate 20, which forms a base for the electromagnet 21 and the dash-pot 22. This latter is formed with a series of cylindrical grooves 23, which act as air-cushions to steady the operation of the dash-pot. The dash-pot and the core 24 of the electromagnet are connected together by a cross-head 25, which is pivotally connected at its center to the central tube or column 1.

The feeding mechanism for the upper carbon 26 is composed of a bar 27, having an aperture 28 to receive the said carbon and having at its opposite end upturned lugs 29, between which is pivotally secured the lower end of a rod or bar 30, which passes upward through the plates 5 and 20 and is adjustably connected at its upper end to a binding-post 31, which is carried by the dash-pot 22.

In the utilization of the lamp upon an alternating current I prefer to use the form of core for the electromagnet shown in Figs. 3 and 4 of the drawings. In this construction the shell 32 of the core is provided with irregularly-disposed vertical slots 33 and may have the upper end of the spring 34 formed in the hook 35 for engaging it with the cross-beam 21. Between the spring 34 and the shelf 32 is a non-conducting casing 36. By providing irregularly-disposed slots in the casing of the core the circulation of the induced eddy-currents will be prevented, the effect of which is to prevent heating and to render the solenoid more sensitive.

Connection is made from the feed-wire 37 to the resistance-coil 3 and the plate 2. The feed-wire 38 is likewise connected to the plate 2, and connection is made with the lower carbon by means of the wire 39, which is attached at its upper end to contact 40, carried by the plate 2, and passes downward through plates 20 and 5 and through the tube 6' to the cross-head 7. The electrical circuit is completed by means of the wire 41, connected to the electromagnet 21 and resistance-coil 4, and by wire 42, connecting the electromagnet with the central tube or supporting-column 1, which contains the upper carbon.

The upper carbon 26 is held in alinement with the lower carbon 18 by means of a keeper or yoke 43, which is attached to the lower end of the tubular support or column 1. This upper carbon is secured in a holder 44, which is or may be provided with vertically-expanding slots 45 to permit the expansion of the holder as the carbon is forced therein, thereby securely holding the same. Arranged above the holder 44 and within the tubular support or column 1 is a rod 46, provided near its upper end with a circumferential groove 47, in which is arranged a spring 48, which is of a size to neatly fill the space between the rod 46 and in the inner face of the tube or column and engage with a slight frictional contact upon the aforesaid inner face.

Thus as the upper carbon is fed down, as aforescribed, until nearly consumed the holder 44, by reason of its being larger than the opening in the keeper 43, will engage thereon and will prevent further movement of the upper carbon, thereby cutting out the arc and preventing any injury to the lamp which might be caused by the dropping of the upper carbon.

To form a seal over the top of the globe 12, I provide a cap or plate 49, which is adapted to fit neatly upon the top of the said globe.

Owing to the simplicity of my improved electric-arc lamp, no further operation is deemed necessary, as it is thought that it can be readily understood from the foregoing description when taken in connection with the accompanying drawings.

It may be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an arc-lamp, the combination of a central support or column having a plate secured thereto, an electromagnet and dash-pot mounted on said plate, a cross-beam connecting said magnet and dash-pot, a rod or bar pivotally secured to said dash-pot and connected to the upper-carbon holder whereby a steady feed of the upper carbon to the lower carbon is attained, substantially as herein shown and described.

2. In an arc-lamp, the combination of a central column or support having a plate secured thereto, an electromagnet and dash-pot mounted on said plate, a casing surrounding the core of said magnet having irregular slots formed therein, a rod pivotally secured to said dash-pot, and connected to the upper-carbon holder whereby a steady feed of the upper carbon to the lower carbon is attained, substantially as shown and described.

3. In an arc-lamp, the combination of a central support or column having a plate secured thereto, a resistance-coil mounted on said plate with suitable wire connections, a plate 20, mounted on said column or support, an electromagnet mounted on said plate and having suitable wire connections, a dash-pot mounted on said plate and having circumferential grooves therein forming air-cushions when in operation, a cross-beam connecting said dash-pot and said electromagnet and pivotally connected to said central support or column, a casing surrounding the core of the said magnet having irregular openings therein, a rod connecting the dash-pot and the upper-carbon holder whereby a steady feed of the upper to the lower carbon is attained, substantially as herein shown and described.

4. In an arc-lamp, the combination of a central support or column, a holder and au-

5 tomatic cut-off for the upper carbon arranged within said central support or column, a plate secured to the said central support or column, an electromagnet and dash-pot mounted on said plate, a cross-beam connecting said magnet and dash-pot, a rod or bar pivotally connected to the dash-pot and upper carbon and suitable electric connection between the up-

per and lower carbons, substantially as herein shown and described.

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

ALBERT SCHWEITZER.

Witnesses:

JOHN NOLAND,
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