(No Model.)

F. WRIGHT.

ELECTRIC ARC LAMP.

No. 606,108. Patented June 21, 1898.

Fig. 1.

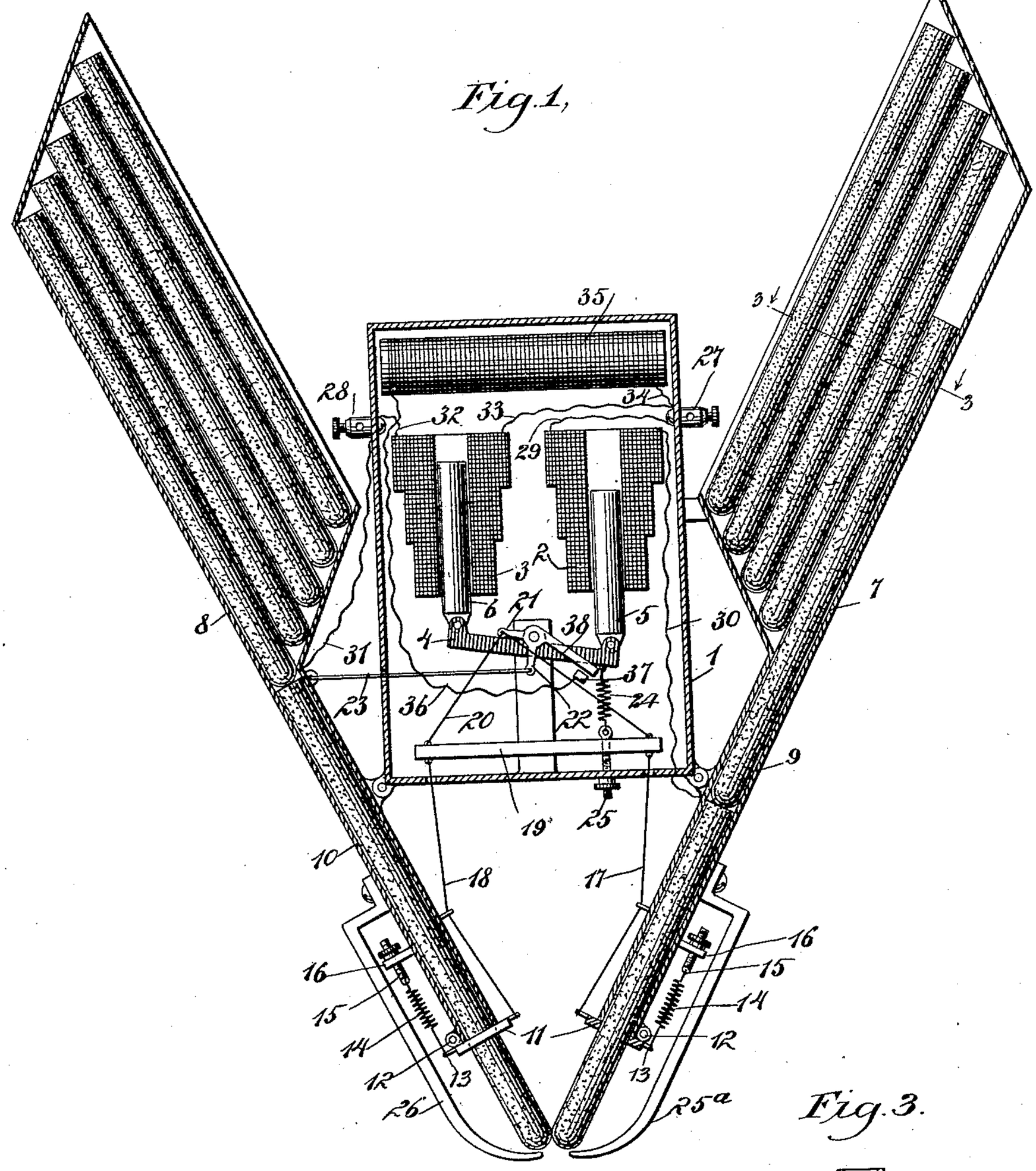


Fig. 3.

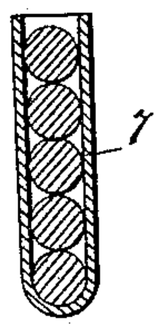
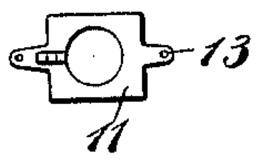


Fig. 2.



WITNESSES:

Edward Thorpe.

C. R. Ferguson

INVENTOR

F. Wright

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

FREDERIC WRIGHT, OF NEWBURG, NEW YORK.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 606,108, dated June 21, 1898.

Application filed October 7, 1897. Serial No. 654,374. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC WRIGHT, of Newburg, in the county of Orange and State of New York, have invented a new and Improved Arc-Lamp, of which the following is a full, clear, and exact description.

This invention relates to electric-arc lamps; and the object is to provide a lamp of this character having a series of carbons arranged in magazines and also having a central main for automatically feeding the carbons one after another as they are consumed; and a further object is to so arrange the carbons that there will be practically little or no shadows formed.

I will describe an arc-lamp embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section of an arc-lamp embodying my invention. Fig. 2 is a plan view of a carbon-lock employed, and Fig. 3 is a section through the line 3 3 of Fig. 1.

Referring to the drawings, 1 designates a casing, in which is arranged a main solenoid 2 and an auxiliary or shunt solenoid 3. A swinging lever 4, of insulating material, is pivotally connected at one end to the core 5 of the solenoid 2 and at the other end to the core 6 of the solenoid 3.

Rigidly fixed to one side of the casing 1 is a magazine 7 for holding a series of carbons, and pivotally connected to the opposite side of the casing 1 is a similar magazine 8 for holding carbons. These magazines are arranged on an incline, so that the feed-tubes 9 and 10, leading from the lower end of the respective magazines, will converge, as plainly shown in the drawings.

Arranged on the lower end of each of the tubes 9 and 10 is a locking device for holding carbons. The locking device consists of a plate 11, having an opening through it slightly larger than the carbon, said plate being pivoted to the lower end of the tube, as indicated at 12. At its outer side each locking-plate has a lug 13, from which a spring 14 passes to a connection with a screw 15, extended through a lug 16 on the tube and having a nut on its upper end above said lug. By means of these screws it is obvious that the tension of the springs 14 may be regulated. From the inner ends of the plates 11 flexible connections 17 18 extend upward through eyes on the tube and into the casing 1, where they are respectively connected to opposite ends of a bar 19, and from the ends of this bar 19 a cord 20 extends to a connection with a finger 21, attached to the lever 4. It will be seen that the connection of the cord 20 with the arm 21 is at one side of the pivotal point of the lever 4, so that when said lever is rocked in one direction the clamping-plate will be drawn upward and momentarily release the carbon and allow it to drop a short distance.

Extended downward from the lever 4 is a finger 22, from which a rod 23 extends to a connection with the magazine 8. From the end of the lever 4, at the opposite side of its pivotal point from that to which the cord 20 is attached, a spring 24 extends to an adjusting-screw 25. This adjusting-screw 25 passes through a perforation in the bottom of the casing 1 and is provided with a nut at its outer end.

To prevent the carbons from falling too far or from falling out by accident, I provide stop-fingers 25^a and 26. The stop-finger 25^a is connected to the tube of the magazine 7 and has its free end curved inward to the line of movement of the carbon. The finger 26 is connected to the tube 10 and is of similar construction to the finger 25^a. The leading-in wire is designed to be connected with a binding-post 27, and the leading-out wire is designed to be connected to a binding-post 28. From the post 27 a wire 29 leads to the solenoid 2, and from this solenoid a wire 30 leads to a connection with the tube 9. From the tube 10 a wire 31 leads to the binding-post 28, and from this binding-post 28 a wire 32 leads to the solenoid 3, and a wire 33 connects said solenoid 3 to the binding-post 27. Also extending from the binding-post 27 is a wire 34, connecting with a resistance 35, arranged in the casing 1, and from the other end of this resistance a wire 36 leads to a contact-piece 37 in the casing and designed to be engaged by a contact-arm 38, carried by

the lever 4 and in connection with the rod 23 by means of the arm 21.

In operation the current from the leading-in wire will flow through the main solenoid 2 and thence to the tube 9, thence through the carbon in said tube 9 and across to the carbon in the tube 10, and from this tube 9 the current will flow through the wire 31 to the leading-out wire. When the above current is established, the solenoid 2 will draw the core 5 upward, and this core will rock the lever 4, and this rocking of the lever 4 by drawing upon the rod 23 will slightly rock the magazine 8, thus causing the carbon in the tube 10 to separate from the carbon in the tube 9, thus establishing the arc. The parts will retain this position until the arc has received the same resistance as that of the solenoid 3, when the current will flow through said solenoid 3, and by drawing upward the core 6 will rock the lever 4, and this rocking of the lever 4 will draw the clamping or locking plates 11 upward and allow the carbons to slide slightly and decrease the resistance of the arc. Then when the normal resistance is again established the lever 4 will be rocked to its first position, and the springs 14 will cause the plates 11 to clamp tightly against the carbon.

It will be seen that when the lower carbons are so far consumed that their upper ends will be substantially level with the upper ends of the tubes 9 and 10 other carbons will roll into place in the magazine and follow downward to the first carbons. Of course when a carbon is so far consumed that it can be no longer engaged by the locking or clamping plate the point will fall out, and then the next carbon will move through the clamping or locking plate. When the carbons are changing, the current will flow from the binding-post 27 through the resistance 35, the wire 36, the contact-point 37, the contact-arm 38, the arm 21, the rod 23, and the wire 31 to the leading-out wire. The spring 24 by rocking the lever 4 will establish a connection between the parts 37 and 38. Of course at this time the main current through the solenoid 2 will be broken; but the current will be maintained through other lamps that may be in the series.

By arranging the carbons to converge, as shown in the drawings, it is obvious that the disagreeable shadows of the ordinary lamp will be avoided. The magazines may be made of any desired size or to hold anywhere from two to fifty carbons.

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

1. An arc-lamp, comprising a casing, carbon-magazines mounted on said casing, carbon-holder tubes extended from the magazines and converging, carbon-locking plates on the tubes, and means for automatically operating said plates, substantially as specified.

2. An arc-lamp, comprising two magazines for containing carbons, tubes extended from the lower ends of said magazines and converging, carbon-locking devices on said tubes, means for automatically operating said locking devices, and stop-fingers on the tubes, substantially as specified.

3. An arc-lamp, comprising a casing, a magazine rigidly attached to one side thereof, a magazine pivotally connected to the other side thereof, carbon-holding tubes extended from said magazines, a rocking lever, a connection between said rocking lever and the pivoted magazine, and electric means for rocking said lever, substantially as specified.

4. An arc-lamp, comprising a casing, a magazine rigidly attached to one side thereof, the said magazine having converging tubes, a rocking lever in the casing, a rod connecting said lever with the swinging magazine, a solenoid in the main circuit, and a core for said solenoid, having connection with the rocking lever, substantially as specified.

5. An arc-lamp, comprising a casing, carbon-magazines mounted on said casing, one of said magazines being mounted to swing relatively to the casing, locking-plates for the carbons, a rocking lever in the casing, connections between said lever and the locking-plates, a connection between said lever and the swinging magazine, a solenoid in the main circuit, having its core connected to one end of the rocking lever, and a solenoid in a shunt-circuit, having its core connected to the opposite end of said lever, substantially as specified.

6. An arc-lamp, comprising a casing, carbon-magazines mounted on said casing, carbon-holding tubes extended from the lower ends of said magazines, locking-plates pivoted to the lower ends of said tubes, adjustable springs for holding said plates in a locking position, a lever mounted to swing in the casing, flexible connections between said locking-plates and said lever at one side of its pivotal point, a solenoid in the main circuit, having its core connected to one end of said lever, a solenoid in a shunt-circuit, having its core connected to the opposite end of said lever, a rod extended from a metallic part carried by said lever to a connection with one of the magazines, the said rod forming a conductor, a contact point or arm operated by said lever, to engage with a fixed contact, a wire leading from said fixed contact through a resistance to the leading-in wire, and a wire leading from a magazine to the leading-out wire, substantially as specified.

FREDERIC WRIGHT.

Witnesses:
EDWARD STOCKER,
SAMUEL G. DIMMICK.