

(No Model.)

L. G. BRONSON.
ELECTRIC ARC LAMP.

No. 348,542,

Patented Sept. 7, 1886.

Fig. 1.

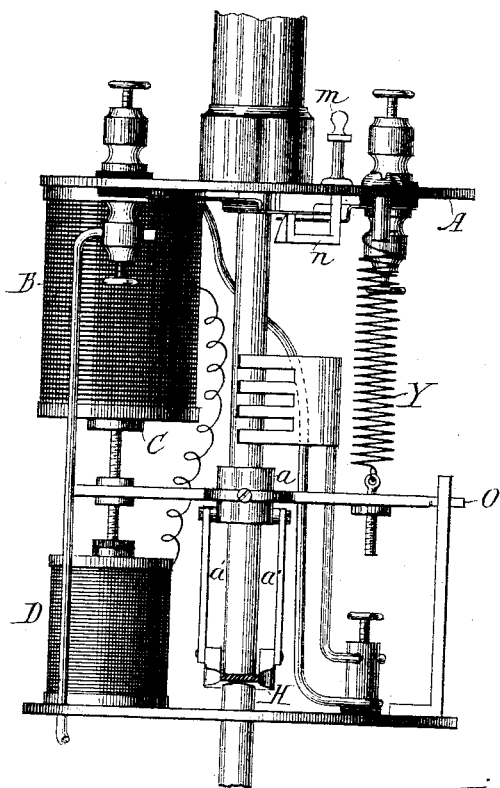


Fig. 2.

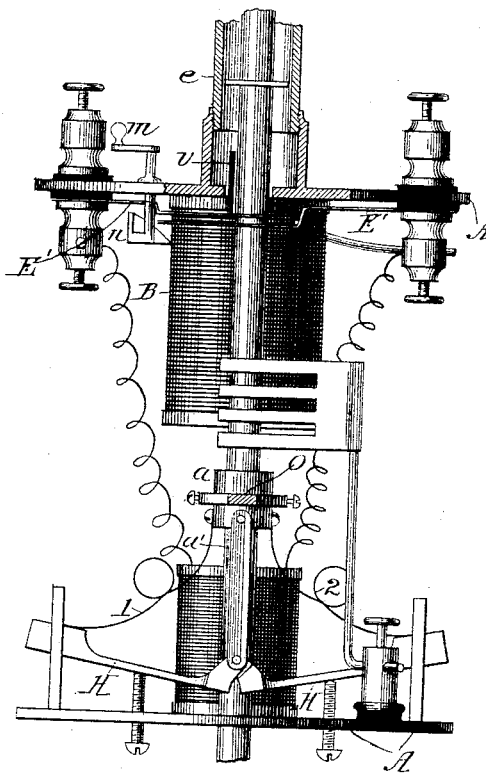


Fig. 3.

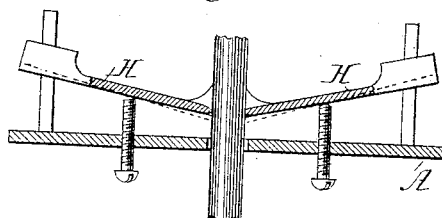
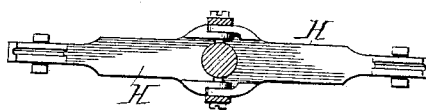


Fig. 4.



Witnesses:

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Harris W. Hurl

Inventor:

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UNITED STATES PATENT OFFICE.

LEWIS GUE BRONSON, OF CHICAGO, ILLINOIS.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 348,542, dated September 7, 1886.

Application filed October 19, 1885. Serial No. 180,992. (No model.)

To all whom it may concern:

Be it known that I, LEWIS GUE BRONSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Electric-Arc Lamp, of which the following is a specification.

My invention relates to improvements in electric-arc lamps. I attain these improvements by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a view taken at right angles to Fig. 1; Fig. 3, a sectional view of the clamp; Fig. 4, a plan view of clamp.

Similar letters refer to similar parts throughout the several views.

A is a frame that carries the several devices for feeding the upper-carbon holder.

B is a coil of wire wound round a core and is of about the size of the circuit-wire.

C is an armature that plays in said core. As the electrical current passes over the wire wound round the core, it magnetizes this armature and causes it to move perpendicularly. This forms the main or lift magnet that operates the carbon-holder.

It is necessary in this class of electric lamps to shunt off from the lift-magnet a portion of the electric current to weaken the lift-magnet so it will allow its armature to fall. This is done as follows: A shunt-magnet, D, is placed between the positive and negative poles of the lamp. This magnet is made of a core and armature the same as the lift-magnet B, said core being wound with wire small enough to offer such resistance to the current as to compel it to travel over and through the carbon-holder and carbons until the resistance in the arc is greater than the resistance in the shunt-coil D. Then a part of the current is shunted off from the lift-magnet and it is demagnetized, allowing it to drop its armature, thereby causing the carbon to fall to the proper arc and do away with the surplus resistance in the arc, making the lift-magnet B sufficiently strong to lift the holder and carbon to the proper arc. The connection to the lift-magnet consists of a clamp, H, formed of two pieces and hinged together at the point where the carbon-holder passes through, as shown in

Fig. 4. This clamp is connected to a ring, *a*, by rods *a'*. To this ring also is attached a cross-lever, O, pivoted to one side of the frame A. The other end is connected to the armatures of both magnets in such manner as to be acted on by both magnets, and is also suspended on spring Y. This spring acts as a balance to the carbon-holder and carbon, helping to lift the same, thereby allowing a much smaller lift-magnet to be used. To the ring *a* are attached springs 1 and 2, their outer ends resting on the outer end of clamp H, thereby pressing them down and making the clamp hold tighter the more it is raised.

Between the positive and negative poles I place a safety-switch, E and E', so arranged that when the carbons have burned off to any desired length the current is switched off direct from the positive to the negative pole. This is done by putting a stop, *e*, on the end of the carbon-holder that will strike the pin *v* at a given time and force the switch E down in contact with switch E', thereby making a short circuit from the positive to negative pole. I also use this switch for turning the light off and on at will by putting an inclined lever, *n*, under switch E' and extending up and through the top of lamp to a handle, *m*. If it is desirable for any cause to switch out the lamp, then, by turning handle *m*, I cause the incline to move under the switch E', thereby raising it in contact with switch E, thus making the contact and short circuit.

The operation of this lamp is as follows: The dynamo being started, the current passes into the lamp at the positive pole around the lift-magnet B, causing it to become magnetized and lifting its armature with the connection and clamp and causing the arc to be formed. Light is then produced. The current follows down through the carbon across the frame to the side rod, then up to the negative pole. After the lamp has burned a short time the arc becomes a trifle longer, thereby forming a greater resistance. When this resistance has become more than the resistance in the shunt-magnet D, then part of the current is taken off from the lift-magnet through the shunt-magnet. This weakens the lift-magnet and allows the shunt-magnet to operate, pulling down the clutch until the hole allows the

carbon-holder to pass through and fall until the carbons are again close enough together to have less resistance in the arc than the shunt-magnet. Then the current is again passed back
5 over the lift-magnet and through the carbons, causing it to act as before.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. The combination, with the frame A, of
10 the sectional clamp H, through which the carbon-holder passes, the ring a, the rods a', pivotally connecting the ends of the sections composing the clamp with the ring a, set-screws
15 working in the frame and supporting the outer ends of the sections, and springs 1 2, secured to the ring a and bearing on the upper sides

of the sections to hold them in place upon the set-screws, as set forth.

2. The combination, with the lift and shunt magnets and the armature arranged between
20 them, of the ring a, the cross-lever pivoted thereto and connected with the armature, the spring Y, connecting the free end of the cross-lever with the frame, the hinged sectional
25 clamp H, connected with the ring a by rods a', and the springs 1 2, bearing against the clamp, as set forth.

LEWIS GUE BRONSON.

Witnesses:

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