

(No Model.)

A. C. SEIBOLD.
ELECTRODE FOR ARC LAMPS.

No. 448,084.

Patented Mar. 10, 1891.

Fig. 1.

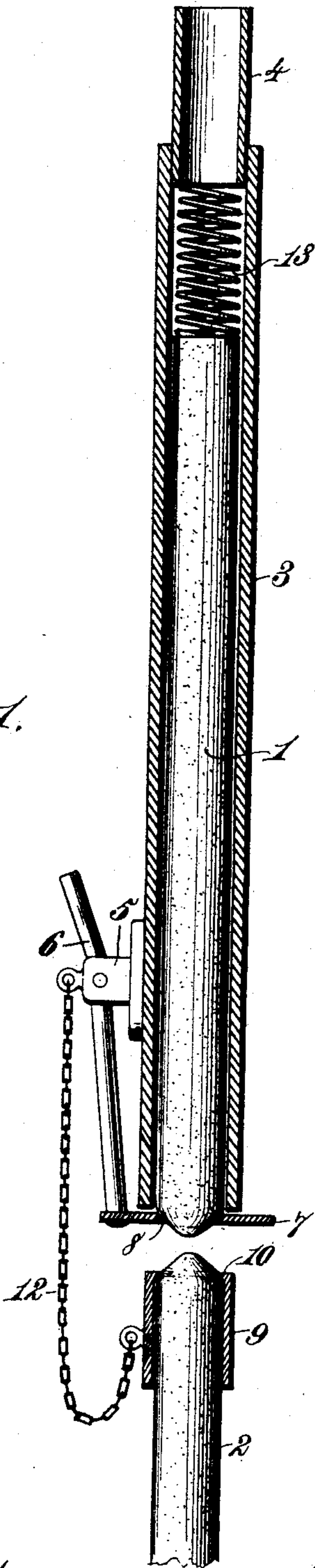
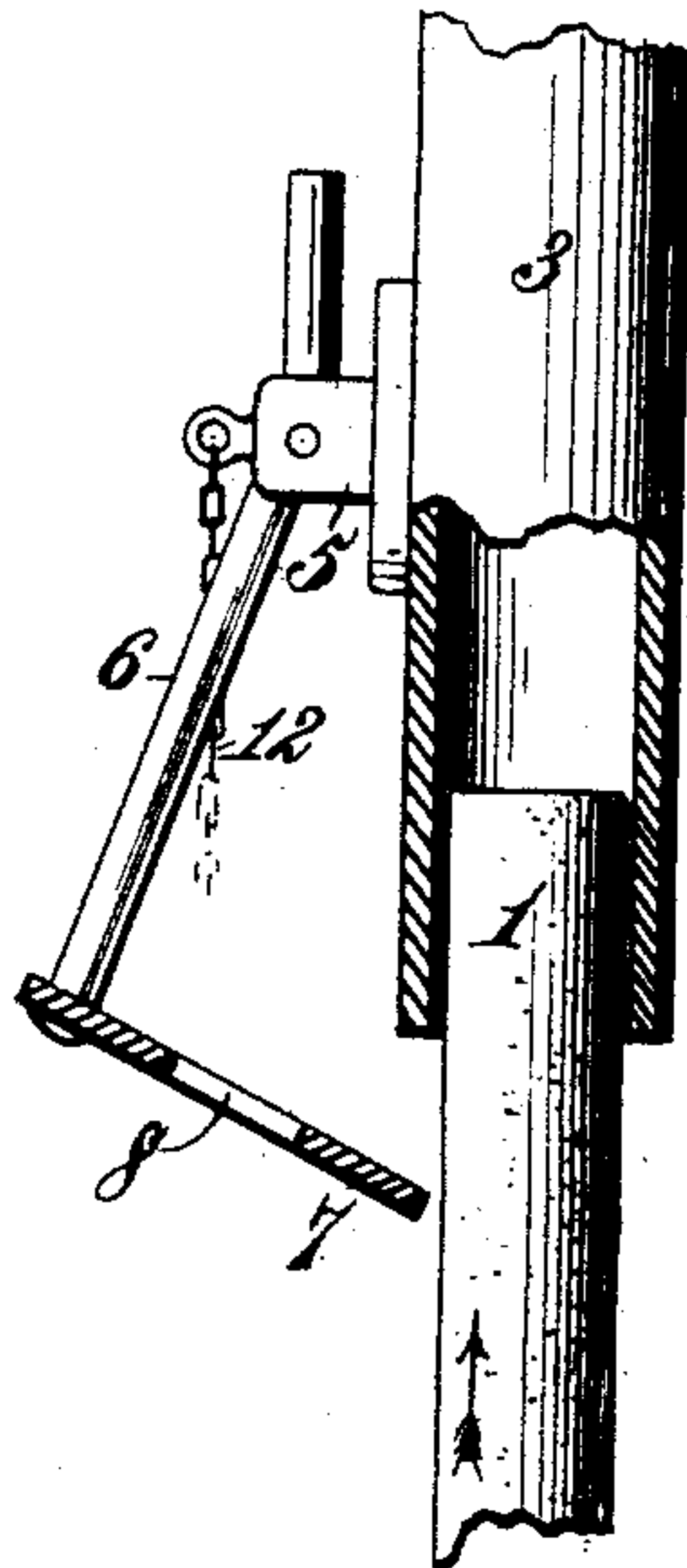


Fig. 2.



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UNITED STATES PATENT OFFICE.

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ELECTRODE FOR ARC LAMPS.

SPECIFICATION forming part of Letters Patent No. 448,084, dated March 10, 1891.

Application filed December 24, 1890. Serial No. 375,701. (No model.)

To all whom it may concern:

Be it known that I, ALBERT C. SEIBOLD, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

My invention relates to certain improvements in electric-arc lamps, the purpose thereof of being to provide simple means applicable to any arc lamp without change in its construction or mechanism, whereby the life of the carbons may be very materially prolonged and a corresponding economy effected in the operation of the lamp.

It is my purpose, in other words, to provide an extremely simple and comparatively inexpensive attachment for arc lamps whereby those portions of the carbon electrodes adjacent to the points where the electric arc is formed shall be retained at a temperature considerably below that which is imparted under systems of arc lighting now in use, whereby I am able to retard the consumption of carbon or diminish the bulk thereof consumed within a given time without in any degree affecting the brilliancy of the light.

My invention consists to these ends in the novel parts and combinations of parts hereinafter fully set forth, and then more particularly pointed out and defined in the claims following this specification.

To enable others skilled in the art to understand my invention and to make, construct, and use the same, I will describe it in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section illustrating my invention applied to the carbon electrodes of an arc lamp. Fig. 2 is a detail section showing the construction by which the positive electrode is inserted.

In the said drawings the reference-numeral 1 denotes the upper or positive carbon electrode, and the numeral 2 designates the lower or negative carbon, both being arranged in a lamp of usual or ordinary form in the well-known manner.

The lamp and its mechanism being old and having no necessary connection with the pres-

ent invention are not shown and described in this specification.

The reference-numeral 3 denotes a casing or cylindrical holder formed of any suitable metal and having such interior diameter that the carbon 1 may move longitudinally therein with ease. In the upper end of the cylindrical holder is inserted and fastened a metallic tube 4, having substantially the same diameter as the positive carbon, to enable said casing 3 to be sustained by the carbon-holder of any arc lamp. Upon the outer surface of the casing or holder 1 is attached an insulated bracket 5, upon which is pivoted a lever 6, its lower end extending down a little below the lower end of the casing 3 and having a metallic plate 7 mounted thereon in such manner that it lies substantially at right angles with the axis of the holder or casing, an opening 8 being formed therein substantially concentric with the holder or casing 3, but having a diameter somewhat less than the diameter of the carbon 1, whereby the point of the latter only will project below the plate 7. The lever 6 is so constructed that it will normally hold said plate in the required position, so that it may support the carbon. A spring or any other suitable means may be employed for this purpose, if necessary.

The numeral 9 denotes a cap or shield for the negative carbon, consisting of a short metallic tube having an interior diameter slightly greater than the diameter of the carbon 2. The upper end of the cap or shield 9 is provided with an inwardly-projecting edge 10, whereby the opening in the upper end of the cap is of less diameter than the carbon negative, whereby said cap will rest upon the upper end of the carbon, which will project somewhat above the contracted open end of the cap. In order to prevent the parts from being lost inadvertently, they are connected by a chain or cord 12 or other suitable device.

The operation of these parts as thus far described is as follows: The carbon holder or case 3 is placed in the lamp by inserting the tube 4 in the upper-carbon clamp, and the positive carbon electrode is inserted in the holder or case by operating the lever 6 in such manner as to swing the plate 7 away from the

lower end thereof. The carbon 1 is then introduced and pushed up until its point only projects beyond the open lower end of the casing, when the lever is restored to its original position, whereupon the plate 7 will support the carbon with its end projecting somewhat through the opening 8. A spiral spring 13 is arranged above the carbon 1 and between it and the tube 4 to press the end of said carbon through the opening 8. The negative electrode 2 is placed in the lower-carbon clamp of the lamp, and the cap or shield 9 is placed thereon. Both the attachments for the chain or other fastening 12 are insulated from the holder or casing and from the shield or cap. When the current is cut off, the points of the two electrodes 1 and 2 are in contact; but when the current is turned on the feeding devices of the lamp raise the positive electrode 1 slightly and separate its point from the negative electrode, the electric arc being formed between the two. Both the carbon points, being in contact with the arc, become intensely heated; but those portions which are inclosed by the metal holder or casing and by the cap or shield are necessarily kept at a low temperature as compared with the exposed ends, and the rapidity of consumption of the carbons is thereby largely decreased. As the consumption proceeds, the positive carbon is lowered in the holder or casing 3 by the tension of the spring 13, and as the negative carbon burns away the feeding mechanism of the lamp lowers the holder 3, so that the arc is constantly maintained. As the negative carbon 2 is consumed, the tubular cap or shield 9 gradually descends by gravity, so that a portion or point of the carbon always projects above the surrounding metal.

By my invention I not only effect a great economy in the consumption of the carbons, but the use of the holder or casing 3 for the positive carbon permits the use of short pieces of carbon, several of which may be arranged therein at once. These pieces, which are now thrown away as useless, may thus be used, with a considerable resulting economy.

What I claim is—

1. In an electric-arc lamp, a holder or casing

for the positive-carbon electrode, consisting of a metallic tube having an interior diameter freely admitting the carbon, the lower end of said tube being provided with a removable flat plate arranged in immediate proximity to the arc and having an opening of somewhat less diameter than the carbon, substantially as described.

2. In an arc lamp, the combination, with the clamp for the upper-carbon electrode, of a metallic tubular holder or casing having an interior diameter freely admitting the positive carbon and provided upon its lower open end with a removable flat plate arranged in immediate proximity to the arc and having an opening of less diameter than the carbon electrode to receive and sustain the point of the latter, substantially as described.

3. In an arc lamp, the combination, with a metallic holder or casing adapted to receive the positive-carbon electrode and attachable to the upper-carbon clamp of the lamp, of a lever fulcrumed on said holder and having a metallic plate upon its end provided with an opening of less diameter than the carbon, said plate being normally held by the lever beneath the lower open end of the carbon-holder to sustain the carbon projecting through the said opening, substantially as described.

4. An arc lamp having a metallic tubular holder inclosing the positive carbon and provided with a removable flat plate arranged in immediate proximity to the arc to sustain the carbon, through an opening in which the point of the carbon projects, and a metallic cap or shield consisting of a short cylinder having an inwardly-turned edge upon its upper end, said cylinder surrounding the upper portion of the negative carbon and sustained thereon by the inwardly-turned edge, which rests upon the end or point of said carbon, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

ALBERT C. SEIBOLD. [L. S.]

Witnesses:

HENRY HOYT,

CHRISTIAN G. MORITZ.