

No. 626,661.

Patented June 13, 1899.

D. BACON.
ELECTRIC ARC CARBON.

(Application filed Jan. 13, 1898.)

(No Model.)

Fig. 1,

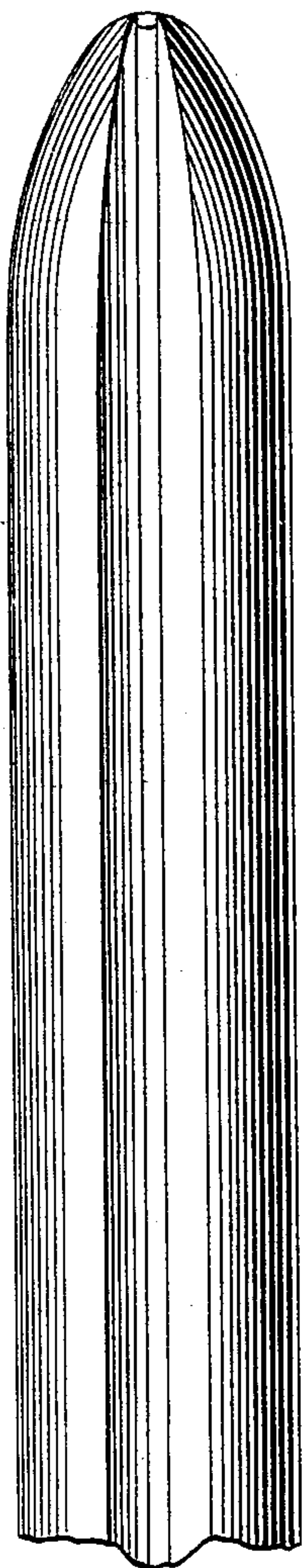


Fig. 2,

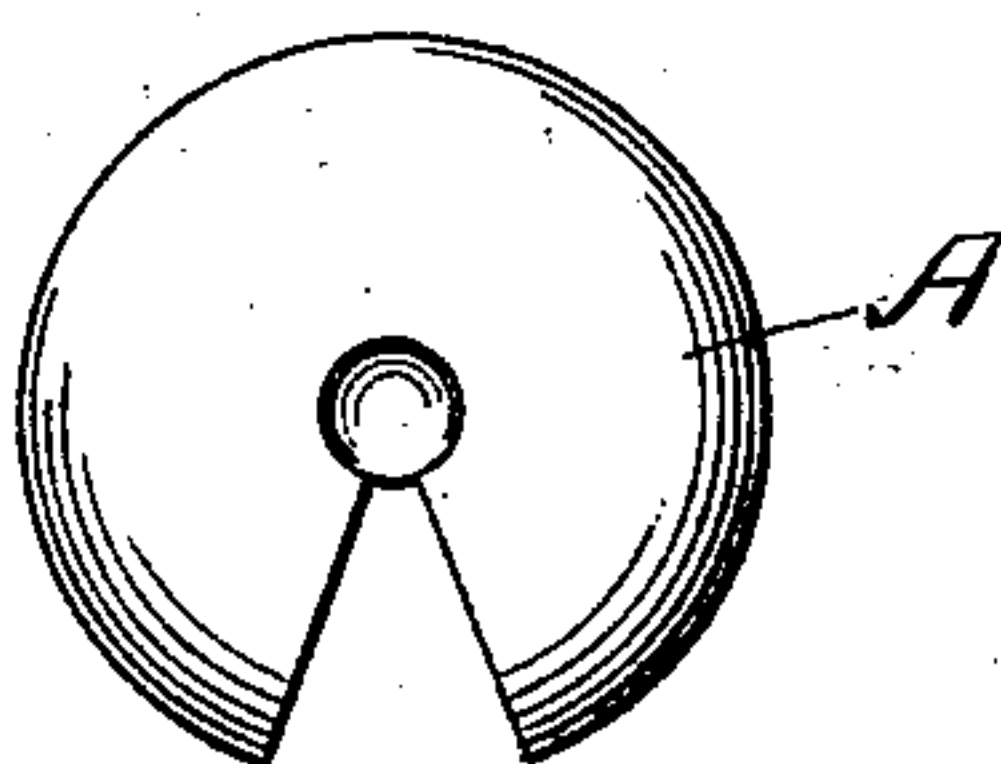


Fig. 3,

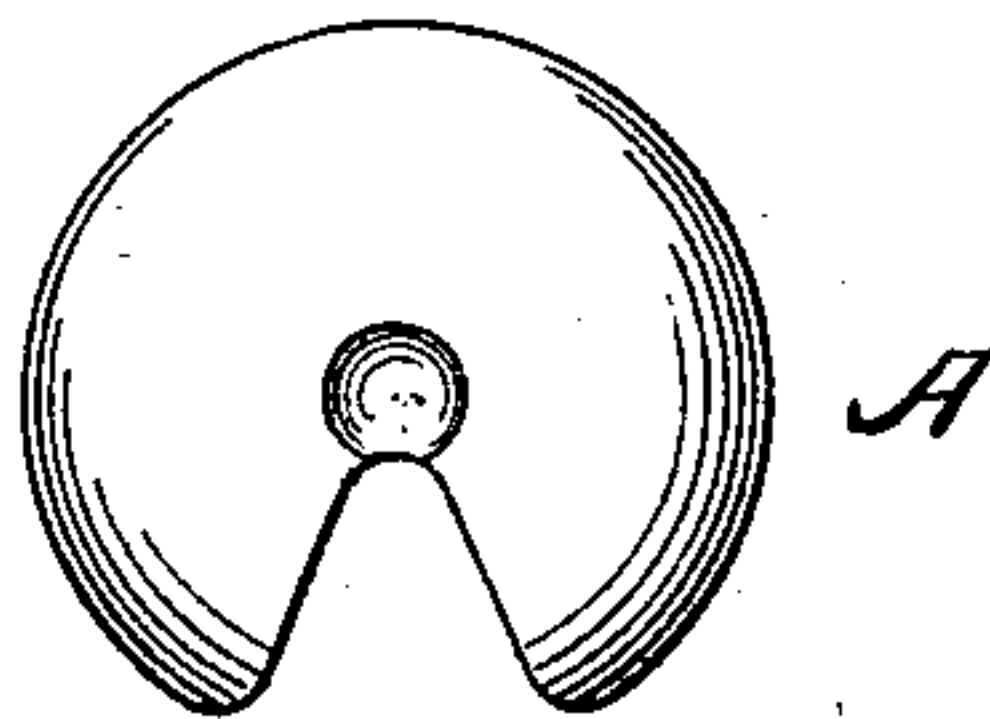
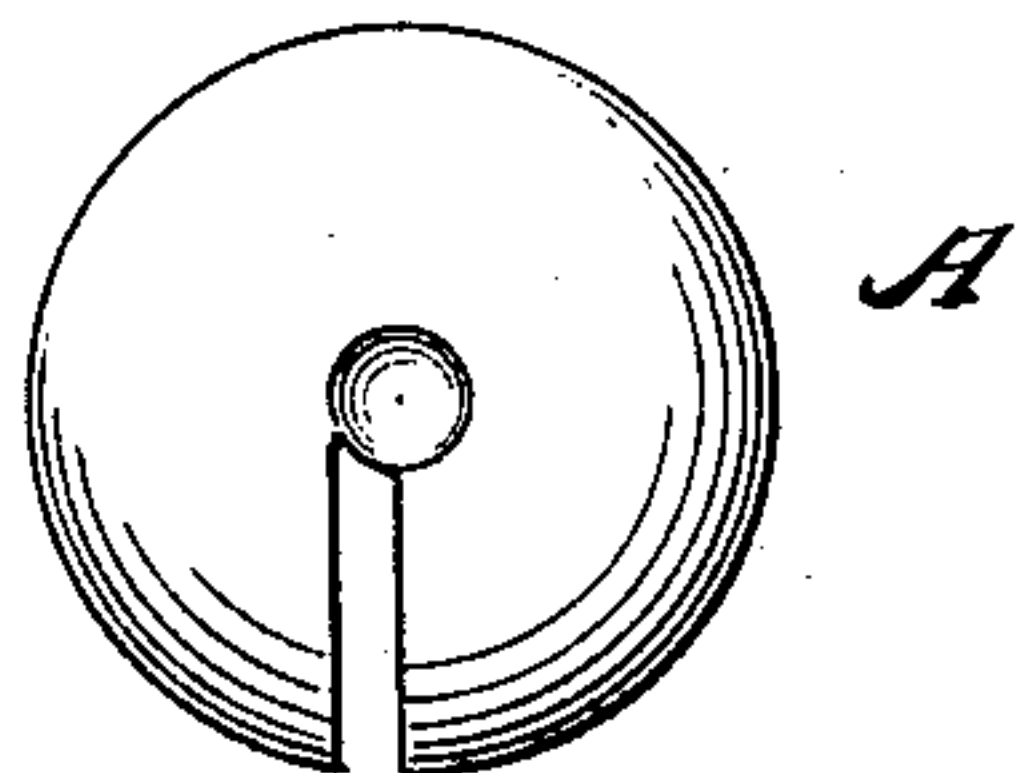


Fig. 4,



WITNESSES:

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UNITED STATES PATENT OFFICE.

DANIEL BACON, OF NEW YORK, N. Y., ASSIGNOR TO THE OPEN ARC CARBON COMPANY, OF SAME PLACE.

ELECTRIC-ARC CARBON.

SPECIFICATION forming part of Letters Patent No. 626,661, dated June 13, 1899.

Application filed January 13, 1898. Serial No. 666,492. (No model.)

To all whom it may concern:

Be it known that I, DANIEL BACON, of New York, (Brooklyn,) Kings county, New York, have invented a certain new and useful Improvement in Electric-Arc Carbons, of which the following is a specification.

My invention relates to electric-arc-lamp carbons, and has for its object to provide a carbon that shall be practical and commercial and which shall overcome the tendency of the electric arc to shift or travel about the crater and one which shall give a better light in that the arc is steady and the light-rays are diffused uniformly; and to these ends my invention consists in an electric-arc carbon having a longitudinal groove or opening extending inwardly as far as the circumferential line of the crater formed during the use of the carbon, as more fully set forth herein-
after.

In the accompanying drawings, Figure 1 is a side view of an electric-arc-lamp carbon embodying the invention. Figs. 2, 3, and 4 are transverse sections, one of which corresponds to the carbon illustrated in Fig. 1 and the others of which illustrate modifications.

It is well known that in the use of electric-arc-lamp carbons a crater is formed in the end of the positive carbon and that the arc moves or travels around this crater during the burning operation, causing unsteadiness of the light and other well-known disadvantages. My invention is based on the discovery that if a groove or opening is made extending inwardly as far as the circumferential line of the crater these objections will be avoided. It is also well known that the size of this crater depends upon many considerations, principal among which is that in a given arc-lamp carbon used under a constant potential current it varies according to the strength of the current passing through the carbon. Further, in the commercial use of electric-arc lamps it has been the general practice to standardize them and to provide carbons of a certain definite length, which will burn for a certain definite time under ordinary conditions, and of course the strength of the current used is an important consideration. For instance, it is generally assumed that for commercial use electric-light car-

bons should be eight inches long and that they should burn eight hours, and in supplying carbons it becomes necessary, of course, to know not only the potential of current used, but the strength of the current, so that proper carbons can be supplied to meet these requirements. While the potential of the current may vary, as a general rule a current of from one hundred and ten to one hundred and twenty volts is used, and the amperage varies according to the system or the purposes for which the light is utilized and may be from three to forty amperes, more or less. It is evident that this variation in amperage causes large variations in the intensity of the heat developed at the arc, and the crater formed varies accordingly.

As above stated, I have discovered that by forming a groove or opening in the lamp-carbon which extends inwardly as far as the circumferential line of the crater the objects and purposes of the invention will be maintained, and knowing the value of the current proposed to be used I can form electric-light carbons of standard size which will burn for the standard time and accomplish the objects of the invention. Of course the size of the carbon and the resistance thereof will also be properly proportioned in forming the standard carbon for a given value of current, and it will thus be seen that my invention is capable of use under all the varying conditions under which electric-arc-lamp carbons are needed.

I am aware that it has heretofore been proposed to provide an electric-arc-lamp carbon with a longitudinal groove therein including the center or core of the crater, and while this will to a greater or less extent overcome the tendency of the arc to travel around the crater it differs materially from my invention in that the groove extends not only into but practically through the crater and can be utilized only for one certain value of current, and even then at the expense of rapid disintegration of the carbon, while by my invention I extend the groove only to the circumferential line of the crater, and consequently groove the carbons differently in accordance with the strength of the current with which they are to be used, or, in other words, the size

of the crater formed, and I am thereby enabled to prevent waste of carbon and to standardize electric-lamp carbons adapted for use with any desired current value.

5 Referring to the drawings, A designates the carbon, which in Figs. 1 and 2 is shown generally of cylindrical form and provided with a longitudinal groove or opening extend-
10 ing as far as the circumferential line of the crater formed during the use of the carbon, which is indicated by the inner circle in said figure. In Fig. 3 a similar carbon is shown with a groove of a somewhat different shape, while in Fig. 4 a carbon of elliptical or ellip-
15 soidal cross-section is shown having an oblique groove or aperture. These serve to show the general applicability of my invention, and, as above stated, it can be universally applied to different forms of carbons

and will accomplish the desired results under 20 different conditions of current in the manner above indicated.

What I claim as my invention, and desire to secure by Letters Patent, is—

An electric-arc-lamp carbon having a lon- 25 gitudinal groove or opening extending inwardly as far as the circumferential line of the crater or arc which will be formed during the use of the carbon, but not to the center or axis of the carbon, substantially as specified. 30

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL BACON.

Witnesses:

W. F. WHITING,
ARTHUR J. RAYMOND.