

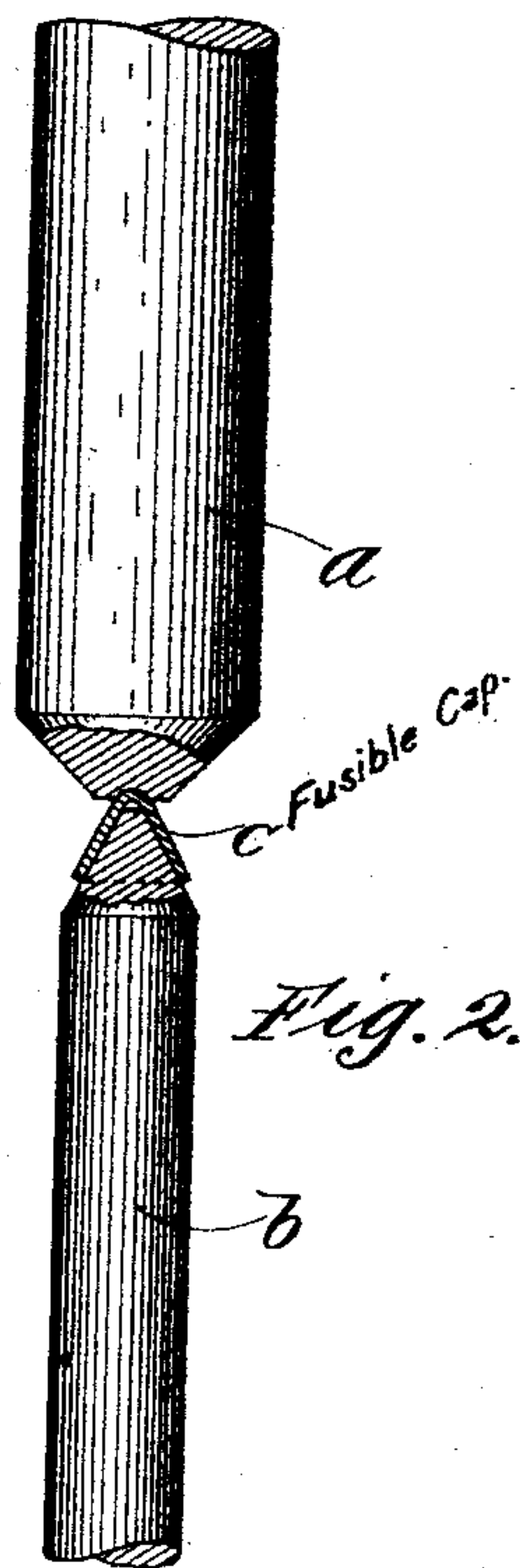
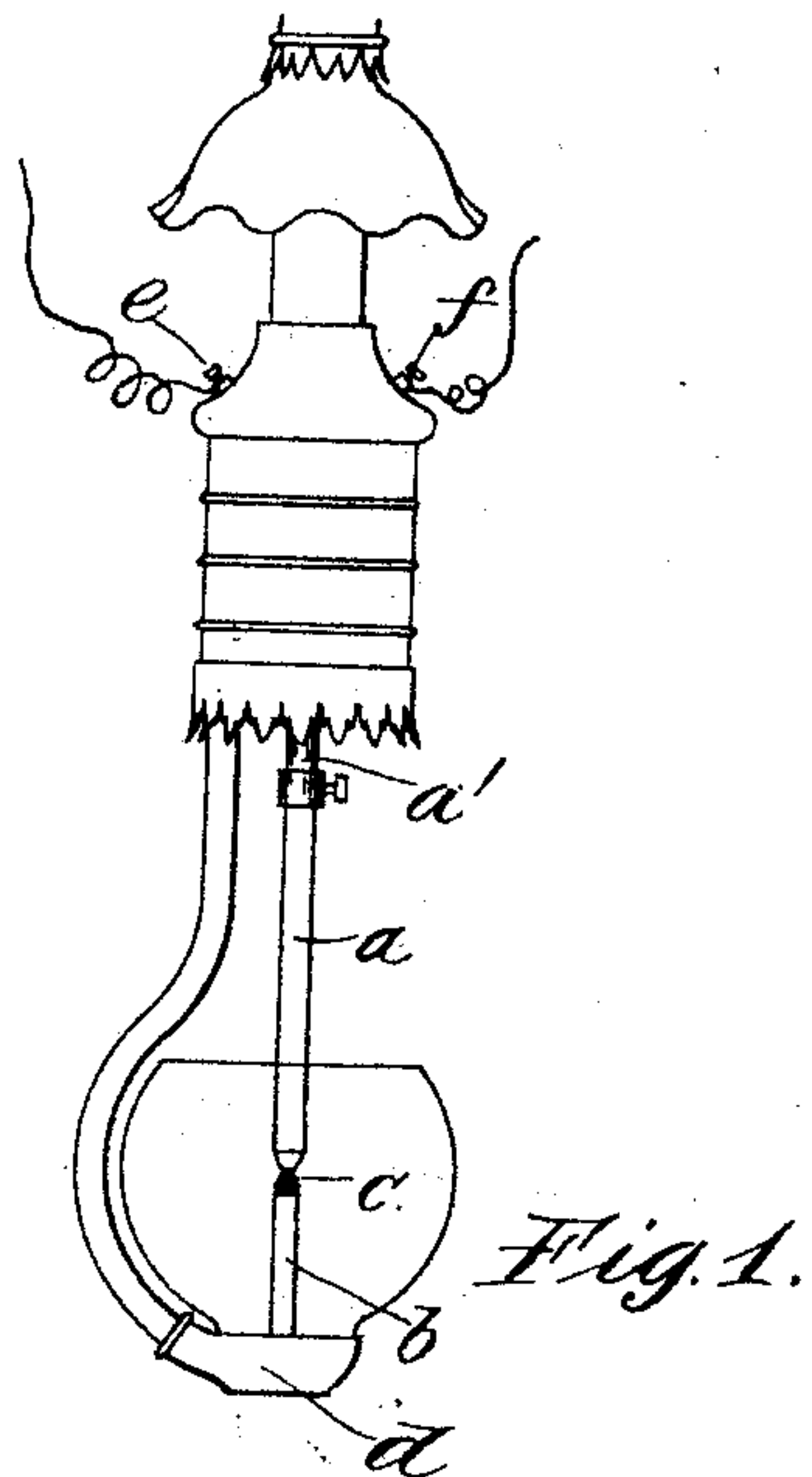
No. 622,759.

Patented Apr. 11, 1899.

J. CZIKOWSKI.  
ELECTRIC ARC FORMING DEVICE.

(Application filed Nov. 29, 1897.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOSEF CZIKOWSKI, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR TO THE  
SIEMENS & HALSKE ELECTRIC COMPANY OF AMERICA, OF CHICAGO,  
ILLINOIS.

## ELECTRIC-ARC-FORMING DEVICE.

SPECIFICATION forming part of Letters Patent No. 622,759, dated April 11, 1899.

Application filed November 29, 1897. Serial No. 660,052. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEF CZIKOWSKI, a subject of the Emperor of Austria-Hungary, residing at III Hamburgerstrasse 56, Vienna, Empire of Austria-Hungary, have invented new and useful Improvements in Electric-Arc-Forming Devices, (Case No. 132,) of which the following is a specification, and for which Letters Patent have been granted in Germany, No. 94,311, dated March 12, 1897, and in Austria, No. 47/599, dated February 26, 1894.

My invention relates to an electric-arc-forming device, and has for its object the provision of means for striking or forming an arc between electrodes, such as the carbons of an electric-arc lamp, immediately the current is switched into circuit with said lamp or electrodes. It is found quite frequently in practice that the arc is not readily formed between the carbons of an arc-lamp, and it is necessary that the current be materially increased before the carbons are properly separated and the arc is formed. This is occasioned by reason of the carbons sticking together or remaining in contact, which may result from various causes. For instance, when the lamp is subjected to vibrations the carbons may become slightly displaced and slip partly past each other at the tips, thus maintaining contact after the current has been switched into circuit with the lamp. From this and other causes the lamp-carbons are not always properly separated the proper distance to form an arc the moment current is turned on, which manifestly is undesirable and causes the unsatisfactory operation of the lamp. The device of my invention is designed to obviate these difficulties and may be described as consisting of a stratum or cap preferably formed of metal having a low melting-point, which is interposed between the abutting ends of the electrodes or carbons.

My invention will be more readily understood by reference to the accompanying drawings, in connection with which I will set forth the same more particularly, wherein—

Figure 1 illustrates in elevation an arc-lamp the carbons of which are fitted with the improvement of my invention, and Fig. 2 is an enlarged detail view of the tips of the carbons and the interposed cap.

The same letter of reference is used to designate like parts in each of said figures of the drawings, which form a part of this specification.

In the arc-lamp shown in Fig. 1 the carbons or electrodes *a* and *b* are disposed in the usual manner, the upper carbon *a* being mounted in the adjustable carbon-carrier *a'*, while the lower carbon *b* is stationarily mounted in the lower part of the lamp-frame *d*. Interposed between the said carbons is the arc-forming device *c* of my invention, a specific form of which is more particularly shown in the detail view Fig. 2. This device, as previously stated, is preferably made of a metal or an alloy having a low melting or fusing point and may be given any desired shape suitable for its interposition between the lamp-carbons or other electrodes.

In the specific form herein shown the device is made of conical form and caps the tip of the lower carbon, while the upper carbon is slightly recessed to receive the upper extremity of the fusible metallic cap or tip *c*. The cap may be given any desired shape or size, so that the carbons are maintained at the proper distance from one another, and immediately the current is switched into circuit with said carbons between the line-terminals *e f* of the lamp the current will at once fuse and dissipate the metallic cap *c*, and the arc will immediately be formed between the said carbons. It will be seen, moreover, that if the construction specifically shown in Fig. 2 is employed the carbons will be maintained in position until the lamp is thrown into circuit, since the cap fitting upon the tip of the lower carbon within the recess of the upper carbon will serve to secure them in their relative positions to one another. I do not, however, desire to be understood as limiting myself to the precise construction shown and described, as my invention contemplates an arc-forming device consisting of an interposed stratum of material or metal readily fused or dissipated by the electric arc.

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

1. As a new article of manufacture a device of the class described, consisting of a body of



metal *c* readily fused or dissipated by the electric current, the said device being suitably shaped to fit upon or conform to the opposing tips of two alined carbon electrodes of an electric-arc lamp and maintain the same against lateral displacement while serving to establish the arc therebetween when said electrodes are connected in circuit, substantially as described.

2. In an arc-lamp, the combination with feeding mechanism for securing the adjustment of the carbons, of the upper and lower carbons *a b* disposed in said lamp substantially in alinement and with their ends abutting, and the device *c* of the class described formed of material readily fused or dissipated by the electric current, the said device being provided with portions designed to receive the abutting ends of the two carbons and adapted to hold the same against lateral displacement previous to connecting the lamp in circuit, substantially as described.

3. In an electric-arc lamp, the combination with feeding mechanism, of an upper-carbon carrier adjusted thereby, carbon electrodes *a b* disposed in said lamp substantially in

alinement and with their ends abutting, and a device *c* formed of a metal having a relatively low fusing temperature, the said device being interposed between the abutting ends of the carbons and fitting upon or conforming to the said ends whereby the carbons are held normally in their relative positions and the arc is at once established and the metal is dissipated when current is supplied to the lamp, substantially as described.

4. The combination in an electric-arc lamp with the carbon *a* having a recessed tip of the carbon *b* disposed in said lamp in alinement with the carbon *a*, and a fusible metallic cap *c* fitting between the abutting ends of said carbons adapted normally to maintain the same in their relative positions and to form an arc therebetween immediately current is supplied to the carbons, substantially as described.

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

JOSEF CZIKOWSKI.

Witnesses:

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CHAS. E. CARPENTER.