

No. 697,077.

Patented Apr. 8, 1902.

J. EBERHARDT.
ELECTRIC ARC LAMP.

(Application filed Aug. 13, 1901.)

(No Model.)

Fig. 1.

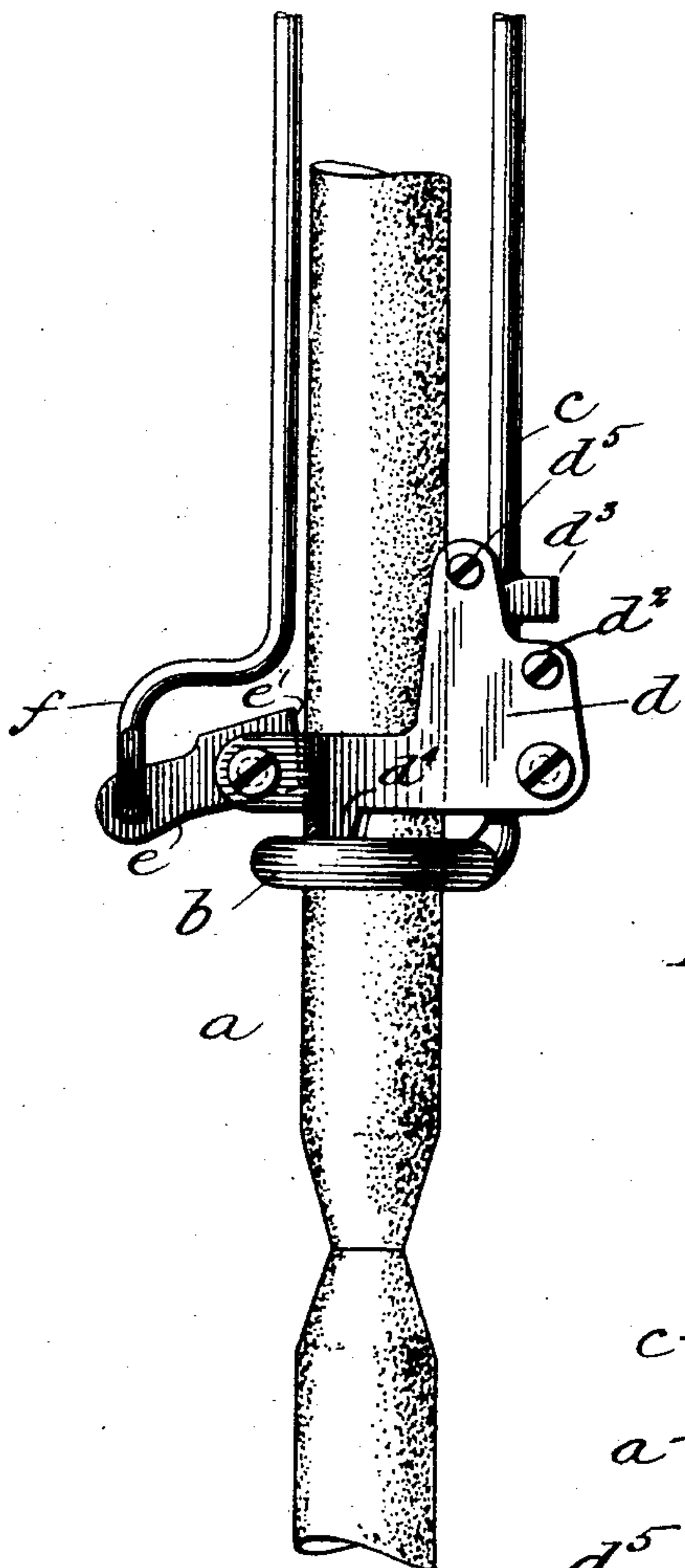


Fig. 2.

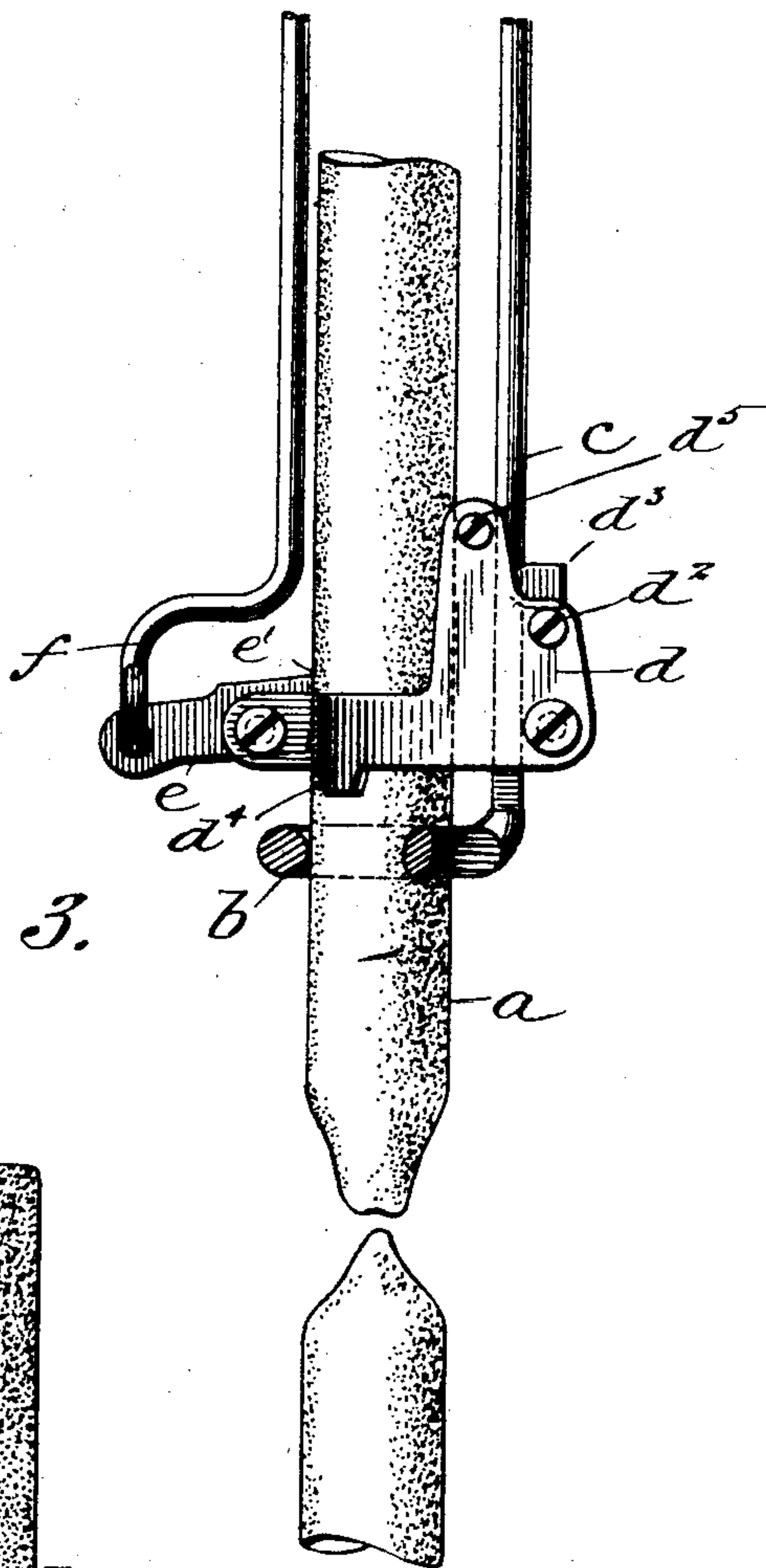
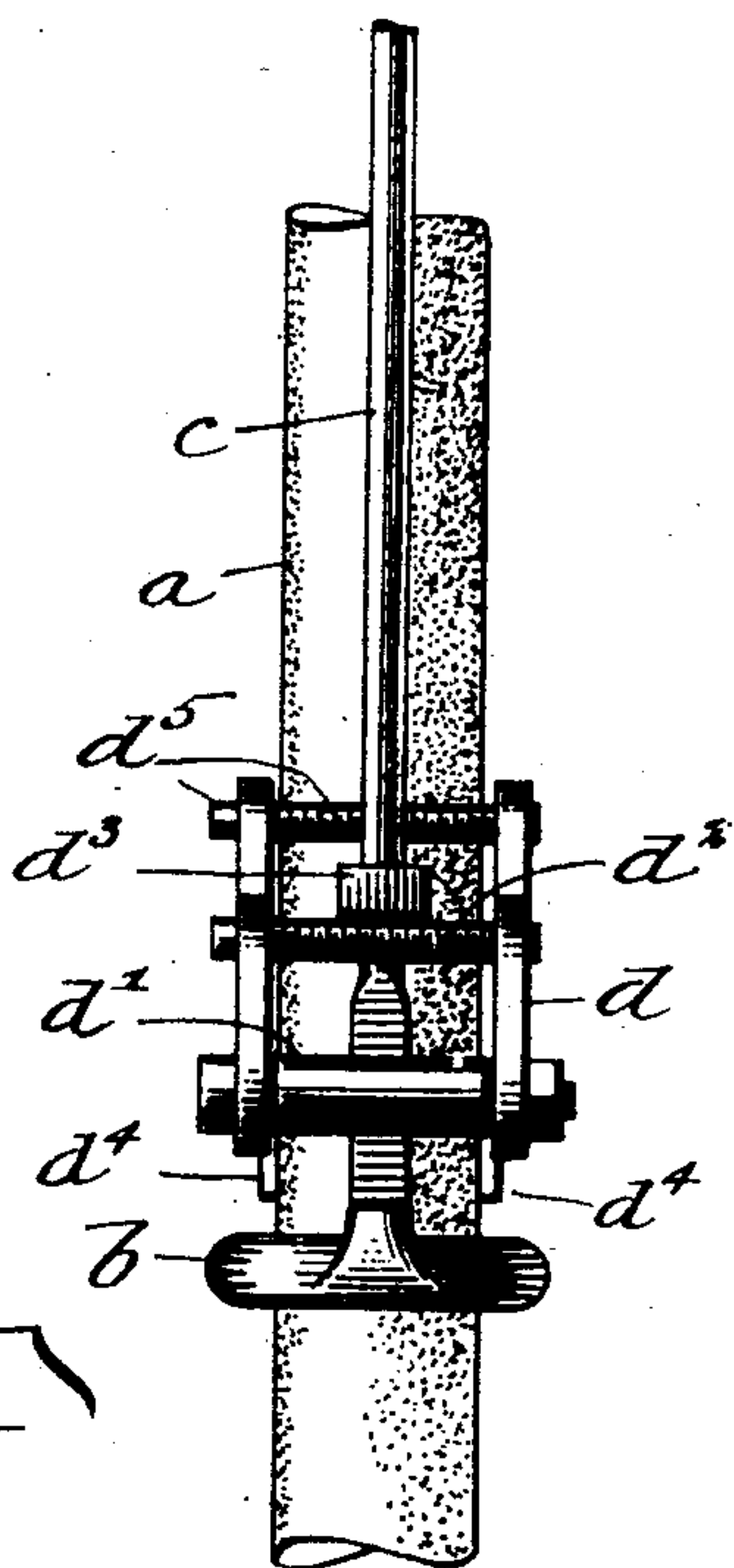


Fig. 3.



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ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 697,077, dated April 8, 1902.

Application filed August 13, 1901. Serial No. 71,897. (No model.)

To all whom it may concern:

Be it known that I, JOHN EBERHARDT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a full, clear, and exact description.

This invention relates to electric-arc lamps, and has reference especially to clutches by means of which the feeding of the upper-carbon electrode is controlled.

The object of the invention is to provide a clutch which will hold the carbon at its proper position regardless of shocks or jarring to which the lamp may be subjected while in use, thus especially adapting it for a lamp located on a car or train—as, for instance, a headlight.

A further object is that the clutch shall be sensitive to variations in the length of the arc and will tend to maintain the same at a constant candle-power.

My improved clutch consists of the details of construction and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of the clutch, showing its position when the lamp is not burning. Fig. 2 is a similar view showing the position of the parts when the arc is first established. Fig. 3 is a rear elevation of the clutch and a portion of the vertical standard by which it is guided.

Similar letters indicate like parts in each view.

The carbon electrode is indicated by *a*. It passes through a guiding-ring *b*, fixed horizontally to the lower end of a vertical standard *c*, forming a part of the lamp-frame. Above the ring *b* is the clutch-frame *d*, loosely encircling the rod *a*. *d'* represents a roller adapted to roll against the flat surface of the lower end of the standard *c* to reduce friction in the movements of the clutch.

*d*² is a screw passing through the clutch-frame and adapted to impinge against the lug *d*³ on the standard *c* and limit the upward movement of the clutch. Opposite the roller the frame *d* is split to form ears, between which is pivoted a dog *e*, having a gripping edge *e'*. The frame *d* is provided with the lugs *d*⁴, adapted to strike upon the upper side

of the fixed ring *b*. To the outer end of the dog is freely attached a rod *f*, through which the clutch is operated.

*d*⁵ represents a guiding-screw for the carbon *a*.

It is not considered necessary to show the usual electromagnet or solenoid which actuates the clutch, it being understood that the rod *f* is raised or lowered by such a regulating magnet or solenoid as is commonly used.

In explaining the operation of the clutch it may be assumed that when the lamp is not burning the upper carbon *a* is resting upon the lower carbon. When the current is turned on, the regulating-magnet raises the rod *f*, causing the edge *e'* of the dog *e* to bear against the side of the carbon and clamp it against the guide *d*⁵. Further movement of the rod *f* is accompanied by the carbon and continues until stopped by the screw *d*² coming into contact with the lug *d*³. In this upward movement to strike the arc the traverse of the carbon is in a perfectly vertical line, and no binding can take place because of the action of the roller *d'*. As the arc settles down to its normal burning length the clutch lowers to an intermediate position between those shown in Figs. 1 and 2. As the carbon consumes the clutch gradually lowers until the lugs *d*⁴ strike the ring *b*, and the edge *e'* is released from the carbon by the further downward movement of the rod *f*. When the carbon is thus released, it feeds by gravity until again gripped and held by the dog actuated by the controlling-magnet.

The location of the roller back of the standard makes every movement of the clutch positive and exact, there being no loose joints or open places which might permit of the carbon working loose from the clutch in case the lamp is subjected to jarring or shocks.

In the case of clutches heretofore used in this kind of service much difficulty has been encountered because of slight variations in the diameter of the various carbons, the smallest departure of this nature from the standard size for which the clutch is made resulting in irregular feeding of the carbon. A variation of more than one-sixteenth of an inch, however, is seldom, if ever, met, and this my improved clutch takes care of without liability to faulty feeding, as will be readily

understood from the foregoing description. This clutch also dispenses with all springs, the care necessary in keeping them in adjustment, extra parts required for their operation, &c.

Having described my invention, I claim—

1. A clutch for arc-lamps, consisting of a frame carrying a pivoted gripping-dog on one side, and a roller on the opposite side, in combination with a stationary part, against which said roller bears and which is located between the roller and the opening in the frame, substantially as described.

2. A clutch for arc-lamps, consisting of the combination of a frame provided with tripping-lugs d^4 , a dog e pivoted thereto, a roller d' carried by said frame, the standard c against which said roller bears, and a support against which the lugs d^4 are adapted to strike.

In witness whereof I subscribe my signature in presence of two witnesses.

JOHN EBERHARDT.

Witnesses:

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