(No Model.)

J. R. FINNEY.

ELECTRIC ARC LAMP.

No. 271,576. Patented Jan. 30, 1883.

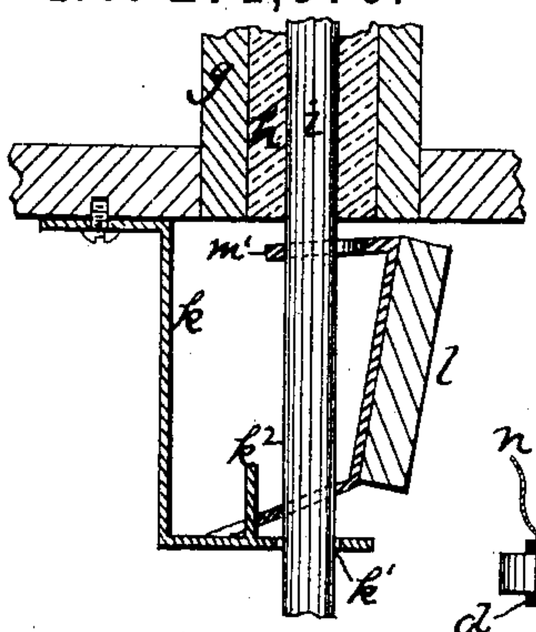

Fig. 2.

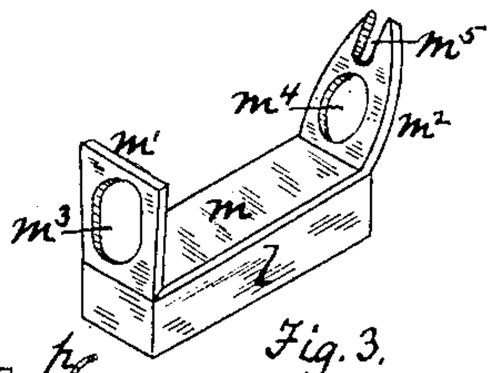

Fig. 3.

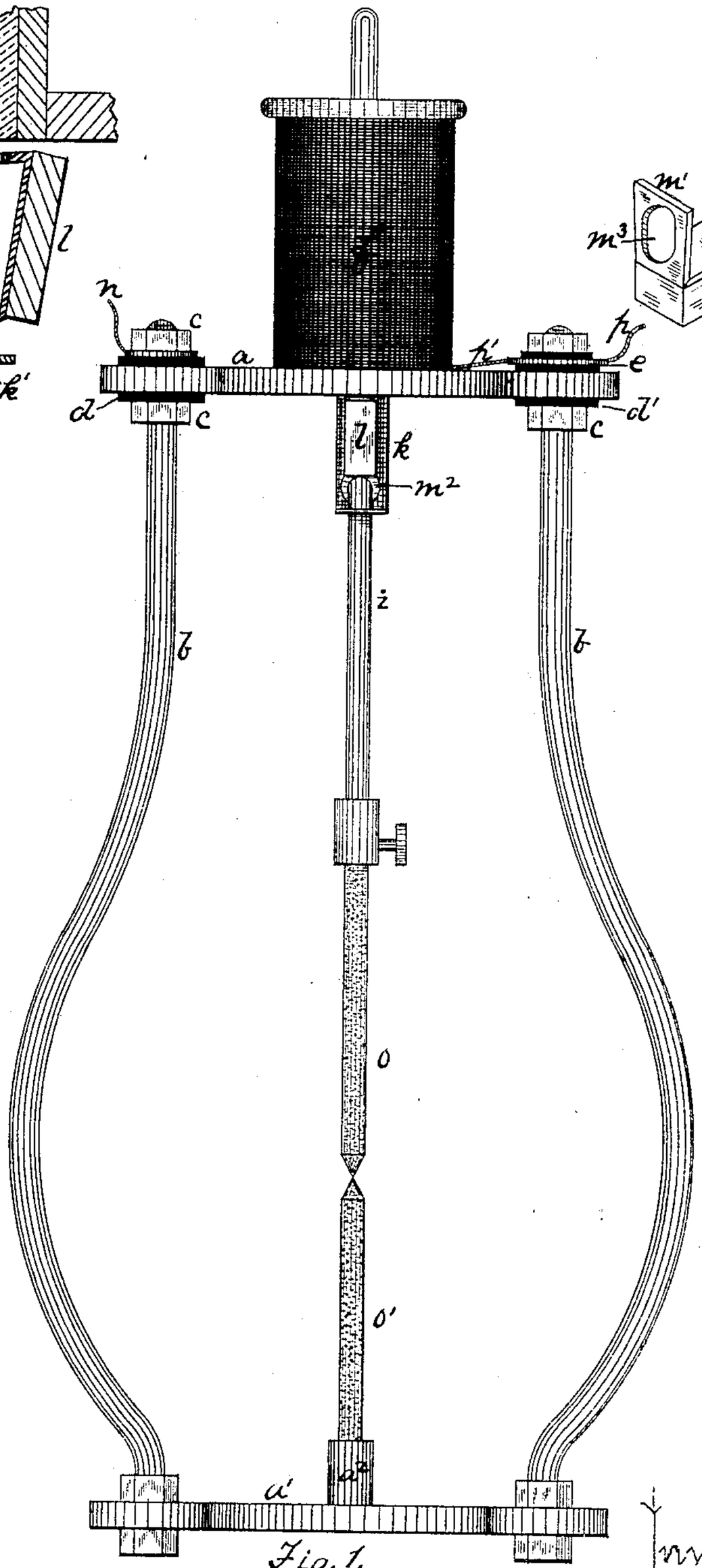

Fig. 1.

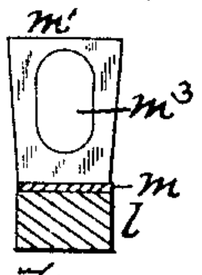

Fig. 4.

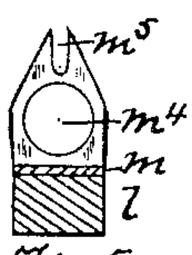

Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH R. FINNEY, OF PITTSBURG, PA., ASSIGNOR TO THE FINNEY ELECTRIC LIGHT & TELEGRAPH COMPANY, (LIMITED,) OF SAME PLACE.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 271,576, dated January 30, 1883.

Application filed November 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. FINNEY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Electric-Arc Lamps; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation of my improved electric-arc lamp. Fig. 2 is a sectional view of the feeding device. Fig. 3 is a perspective view of the armature which sustains the carbon feed-rod. Figs. 4 and 5 are sectional views of the same.

Like letters of reference indicate like parts in each.

The frame of the lamp is composed of cross-heads *a a'* and side rods, *b b'*, all made of conducting material. They are secured together by nuts *c*. The cross-head *a* is insulated from the rods *b b'* and nuts *c* by non-conducting collars *d d'*, having flanges which extend under the nuts. Secured to the insulator *d'* is a ring, *e*, of conducting material. On the cross-head *a* is an electro-magnet, *f*, the coils of which are formed of one of the circuit-wires, *p'*. The core *g* is hollow and lined with a brass tube, *h*, so as to permit the feed-rod *i* to slide freely through it. Fastened to the under side of the cross-head *a* is a step or stirrup, *k*, which extends close to or around the rod *i*. In the latter case it has a hole, *k'*, for the passage of the rod. It has a pin, k^2, which acts as a fulcrum and guide for the armature. The armature *l* is secured to a plate, *m*, preferably of brass, the ends of which are longer than the armature and bent at an angle thereto. The upper end, *m'*, has an oblong slot or hole, m^3, and the end m^2 a hole, m^4, which is somewhat larger than the diameter of the rod. The point of the end m^2 is notched, as at m^5, to receive the pin k^2. The feed-rod *i* is passed up through the holes m^4 m^3 and the tube *h* and the point of the plate *m* rested against the pin k^2 on the support *k*. Thus arranged, the position of the armature is at the side of the feed-rod and beyond the vertical plane of the core *g* of the magnet, so that the attraction of the core shall cause it to be drawn inward radially until the plate m^2 grasps the rod, and then vertically; but the presence of the feed-rod *i* prevents the armature from coming into coincidence with the vertical plane of the core, and so the attraction is exerted on the armature inwardly, even when it is at the highest point of its movement. The circuit-wire *p* is connected to the ring *e* and the wire *n* to the ring *n'*. The wire *p'*, forming the coils of the magnet *f*, is connected to the ring *e*. The carbons *o* and *o'* are secured in sockets *f'* and a^2. The circuit is by wire *p*, ring *e*, wire *p'*, magnet *f*, rod *i*, carbons *o o'*, cross-head *a'*, side rod, *b*, and wire *n*. When the core *g* becomes magnetized it draws the upper end of the armature *l* inward by a radial movement, the point of the plate *m* being the center, until the sides of the hole m^4 bite on the rod *i*. This movement is permitted by the slot m^3 in the upper end, *m'*, which is provided only to keep the armature in place. Then the attraction of the magnet gives the armature and the rod *i* an upward axial movement, which effects the separation of the carbons for the purpose of establishing the arc.

When this feeding device is used with lamps having devices at the lower holder for separating the carbons to establish the arc—as, for instance, in my Patent No. 268,394—the armature need have the radial movement only, as its whole function would then be to grasp and release the rod alternately.

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

1. The combination, in an electric-arc lamp, of a hollow electro-magnet, through which the feed-rod passes, a pivoted armature arranged at the side of the feed-rod, and a perforated plate or ring attached diagonally to the armature and encircling the feed-rod, substantially as and for the purposes described.

2. The combination, in an electric-arc lamp, of an electro-magnet, a feed-rod, a pivoted armature arranged at the side of the feed-rod and beyond the vertical plane of the core of the magnet, and a perforated plate or ring attached diagonally to the armature and encircling the feed-rod, substantially as and for the purposes described.

3. The combination, in an electric-arc lamp, of an electro-magnet, an armature capable of an axial movement, and having a slotted projec-

tion to encircle the feed-rod to keep it from falling, and a circular clamp to grasp the feed-rod, and a stirrup or support to sustain the armature, substantially as and for the purposes described.

4. The combination, in an electric-arc lamp, of an electro-magnet, an armature capable of a radial and an axial movement, and a stirrup or support for the armature, having a guide-pin to guide the armature in its movements, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 28th day of October, A. D. 1882.

JOSEPH R. FINNEY.

Witnesses:
W. B. CORWIN,
T. B. KERR.