

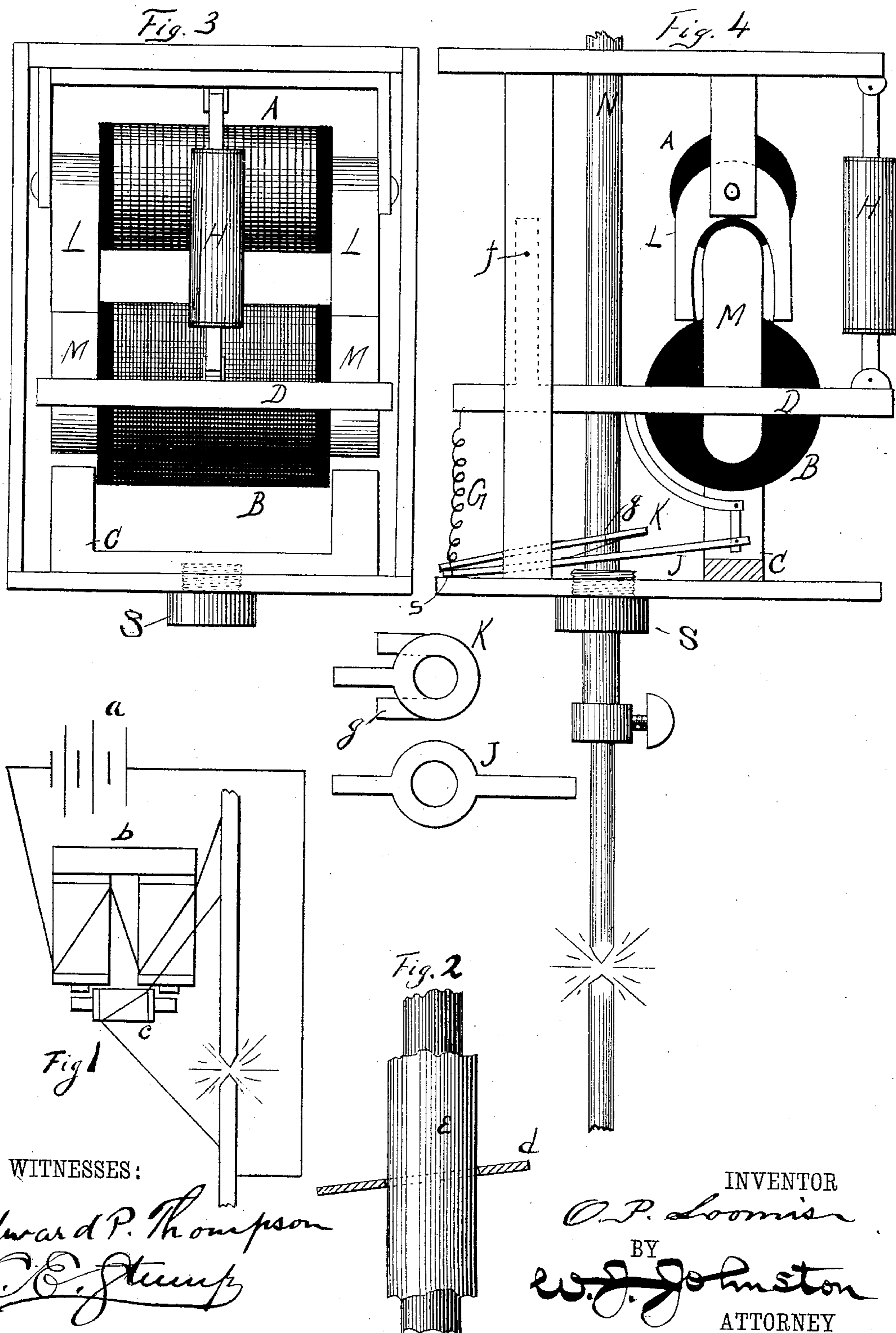
(No Model.)

O. P. LOOMIS.

ARC LAMP.

No. 324,778.

Patented Aug. 18, 1885.



WITNESSES:

Edward P. Thompson  
C. E. Stump

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# UNITED STATES PATENT OFFICE.

OSBORN P. LOOMIS, OF LYNN, MASSACHUSETTS.

## ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 324,778, dated August 18, 1885.

Application filed January 24, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, OSBORN P. LOOMIS, a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Arc Lamps, of which the following is a specification.

The object of my invention is to provide improvements in arc lamps, said improvements being fully described by reference to the accompanying drawings.

Figure 1 shows a magnet and its armature, and the way in which the armature is connected up in circuit. Fig. 2 shows an ordinary ring-clutch, upon which my invention is an improvement. Figs. 3 and 4 show, respectively, a front and side view of the important parts of the lamp.

In a suitable frame, and upheld by suitable supports, is the magnet A in the main circuit, located above the armature B in a shunt-circuit, said armature being located above a fixed permanent magnet, C.

The armature B is supported upon a lever, D, fulcrumed at *f*, counterbalanced by a spring, G, steadied in its movements by a dash-pot, H, and connected up with the perforated disks J and K, having projections, and shown in top view separately just below Figs. 3 and 4.

The upper disk is supported by the lower one, which rests at one end upon the frame, while at the other end it is connected to the armature-support and lever D by means of two levers, as shown.

The carbon-holder N passes through the bolt S, which serves as an adjustable abutment for the perforated disk J. To the disk K is secured a spring, *g*, so that a portion of said spring rests loosely upon the lower disk, thereby forming an elastic support for the upper disk.

Fig. 1 shows how any armature B is connected up in shunt, the terminals of the armature being connected, respectively, at any two convenient points each side of the arc, and any magnet being in the main circuit. In like manner the armature and mag-

net are arranged in the lamp embodying my invention.

Fig. 2 shows a ring-clutch, over which mine is an improvement. When the ring is horizontal, the rod E is free to move through it. When the ring is inclined, as shown, it retains the rod E in position. In like manner my ring-clutch operates only more effectually, because there are two rings separated by a spring.

The operation of my lamp is as follows: The carbon electrodes being in contact, the magnet A becomes magnetized and lifts the carbon-holder by means of the clutch, consisting of the disks J and K and spring *g*. The arc forms and gradually consumes the carbon electrodes until the resistance is so much increased as to diminish the magnetic force of the magnet A, and to increase that of the armature B. The resultant force between the magnet and armature becomes diminished because the magnet and armature are so wound as to neutralize, or tend to neutralize, each other. Further, the presence of the fixed permanent magnet C causes the armature B to be attracted when the strength of the latter increases. This total diminution of upholding effect upon the armature B, together with a downward pull, results in a downward movement of the disks J, and subsequently (almost instantly) of the disk K and of the carbon-holder N.

I am aware that it is not new to employ two ring-clutches, nor to wind the armature with wire in a shunt-circuit.

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

1. In an electric-arc lamp, a double ring-clutch, which consists of the two annular disks J and K, through which passes the carbon-holder N, and which are adapted to be set at different angles by the movements of the armature B, the two disks being separated by a spring, one end of which is fastened to one disk, and the other end of which presses upon the other disk, substantially as specified.

2. In an electric-arc lamp, the combina-

tion of the following elements: the armature  
B, located above the fixed permanent mag-  
net C, and supported on a lever, D, which is  
fulcrumed at *f*, counterbalanced by a spring,  
5 G, and connected up with the dash-pot H  
and with the clutch by means of levers, the  
said armature B being in the shunt-circuit  
and located just below the main magnet A,  
substantially as described and illustrated.

In testimony that I claim the foregoing as 10  
my invention I have signed my name, in pres-  
ence of two witnesses, this 22d day of Jan-  
uary, 1885.

OSBORN P. LOOMIS.

Witnesses:

HENRY W. COOLEY,  
WILBUR F. NEWHALL.