(No Model.)

O. P. LOOMIS & H. W. COOLEY.

ELECTRIC ARC LAMP CUT-OUT.

No. 332,721. Patented Dec. 22, 1885.

Fig. 2.

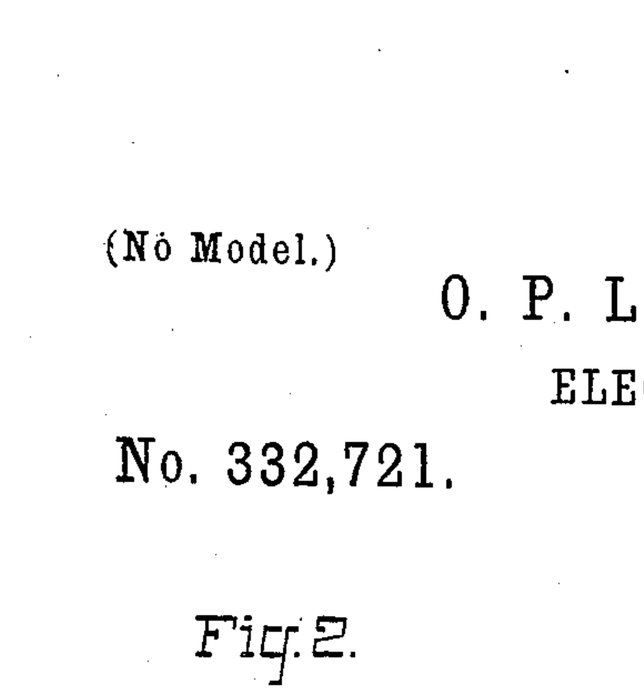
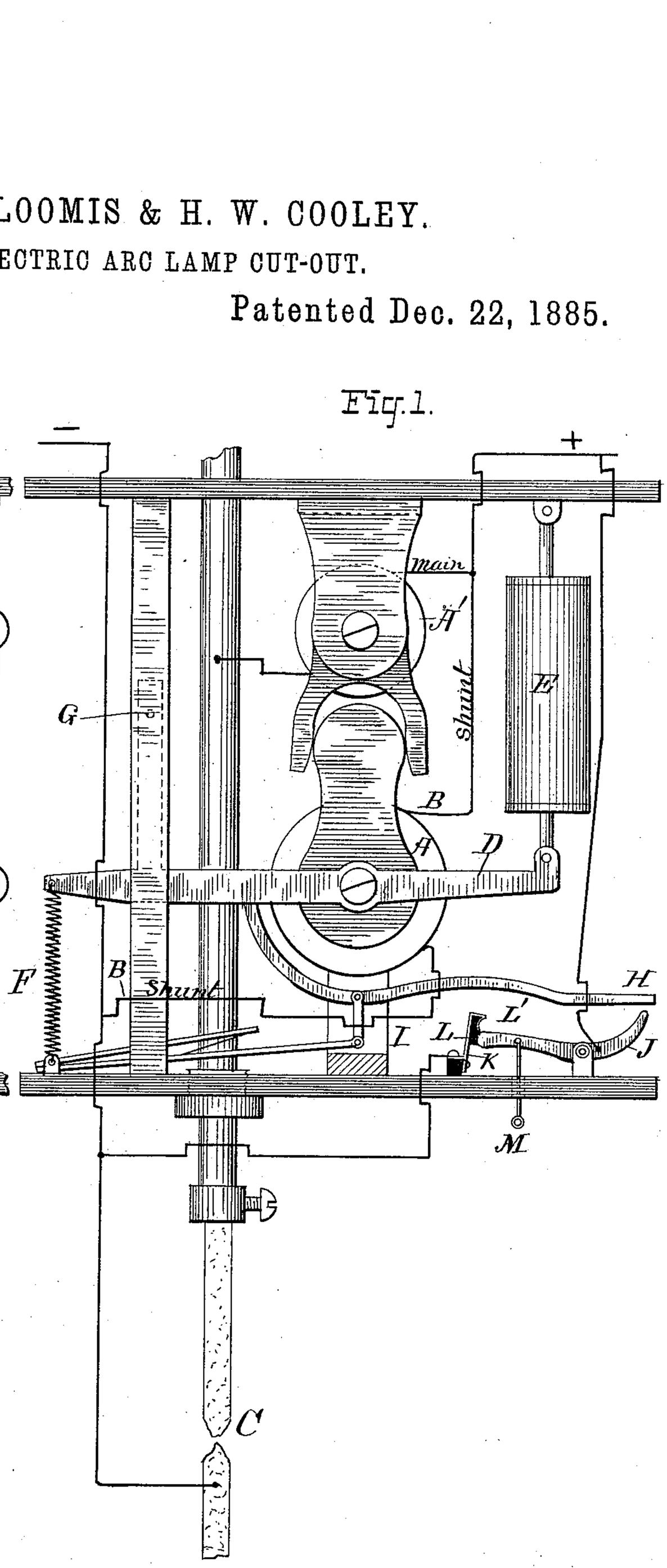


Fig. 1.



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OSBORN P. LOOMIS AND HENRY W. COOLEY, OF LYNN, MASSACHUSETTS.

ELECTRIC-ARC-LAMP CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 332,721, dated December 22, 1885.

Application filed September 22, 1885. Serial No. 177,793. (No model.)

To all whom it may concern:

Be it known that we, OSBORN P. LOOMIS and HENRY W. COOLEY, citizens of the United States, and residents of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Electric-Arc-Lamp Cut-Outs, of which the following is a specification.

Our invention relates to that portion of an arc lamp called the "automatic cut-out." Its object is to provide automatically a path around a defective lamp, so that the remaining lamps may continue to burn without interruption.

In order to illustrate the practical manner of carrying out our invention, drawings are hereunto annexed and described, in which similar letters of reference represent corresponding elements, and in which each part referred to is designated by a single letter. Those parts not alluded to we do not claim in this our present invention, having obtained a patent upon the general features of the lamp, including the clutch, on August 18, 1885, No. 324,778. The materials of construction employed, the exact forms of design, and the proportional dimensions are not fully given, as they are best determined by those versed in the art.

Figure 1 is a side view, and Fig. 2 an end view, of the lamp embodying our invention. The part relating especially to our invention is shown principally in Fig. 1.

As far as the present invention is concerned, it may be described as consisting of the combination of the armature A in a shunt-circuit, B, to the arc C, a lever, D, supporting said armature, one end of the lever being connected to the dash-pot E and the other to a spring, F, and the armature being located between the dash-pot and the fulcrum G of said lever, a projecting arm, H, from said lever, an iron post, I, under each pole of said armature, a second smaller lever, J, located under said first-named lever, and a spring, K, having a surface, L, of insulating material, and a surface, L′, of conducting material. The spring K is connected to one pole of the main circuit, and the lever J, being a conductor, is connected to the opposite pole of the main circuit. When, for any reason whatever, the current passing through the arc is very small, the magnetism of the shunt-magnet A becomes greatly increased, while that of the main magnet A′, located just above the former, becomes diminished. Since a magnet is attracted by a piece of iron, therefore the magnet A becomes attracted by the iron posts I, and in moving toward the same communicates motion to the arm secured thereto, and operates the cut-out as the lever J moves and comes in contact with the conducting surface L′, and the two poles of the main circuit are electrically connected. At any subsequent time the cut-out may be reset by operating the suspended rod or handle M, attached to one end of the lever J.

The invention is not limited to the precise construction hereinbefore described and shown, as it is evident that many modifications may be made therein without departing from the spirit of our invention.

Instead of attaching the handle M at the left end of the lever J, it may, if desired, be secured to the opposite end.

Having now stated the title, object, and relation of the said invention, having described its practical realization by reference to the accompanying drawings, having particularly ascertained the manner in which the same operates to accomplish the said object, and further stating that it is not necessary to state all the uses to which the invention may be applied, what we consider to be novel and original, and therefore claim as our invention, is—

1. In an arc lamp, the combination of an armature in a shunt-circuit to the arc, a lever supporting said armature, one end of the lever being connected to a dash-pot and the other to a spring, and the armature being located between the dash-pot and the fulcrum of said lever, a projecting arm from said lever, an iron post under each pole of said armature, a second lever located under said first-named lever, and a spring having a surface partly of insulating substance and partly of conducting substance, and pressing upon one end of said second lever, said second lever being a conductor of electricity and connected to one pole

of the main circuit, and said spring being connected to the other pole of the main circuit, substantially as and for the purpose specified.

2. In an arc lamp, the combination of a swinging shunt-armature and a projecting arm thereto, a lever having one end in movable contact with said arm and supported by a pillar upon the base of said lamp, a swinging rod or handle hanging from the said lever and passing through the said base, a flat spring fixed to said base, and having a portion of its surface made of insulating material and pressing against one end of said lever, and electrical connections from the main wires, respectively, with the said lever and with the said spring, substantially as and for the purpose specified.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 7th day of September, 1885.

OSBORN P. LOOMIS.
HENRY W. COOLEY.

Witnesses:
EBEN F. P. SMITH,
WALTER F. FISHER.