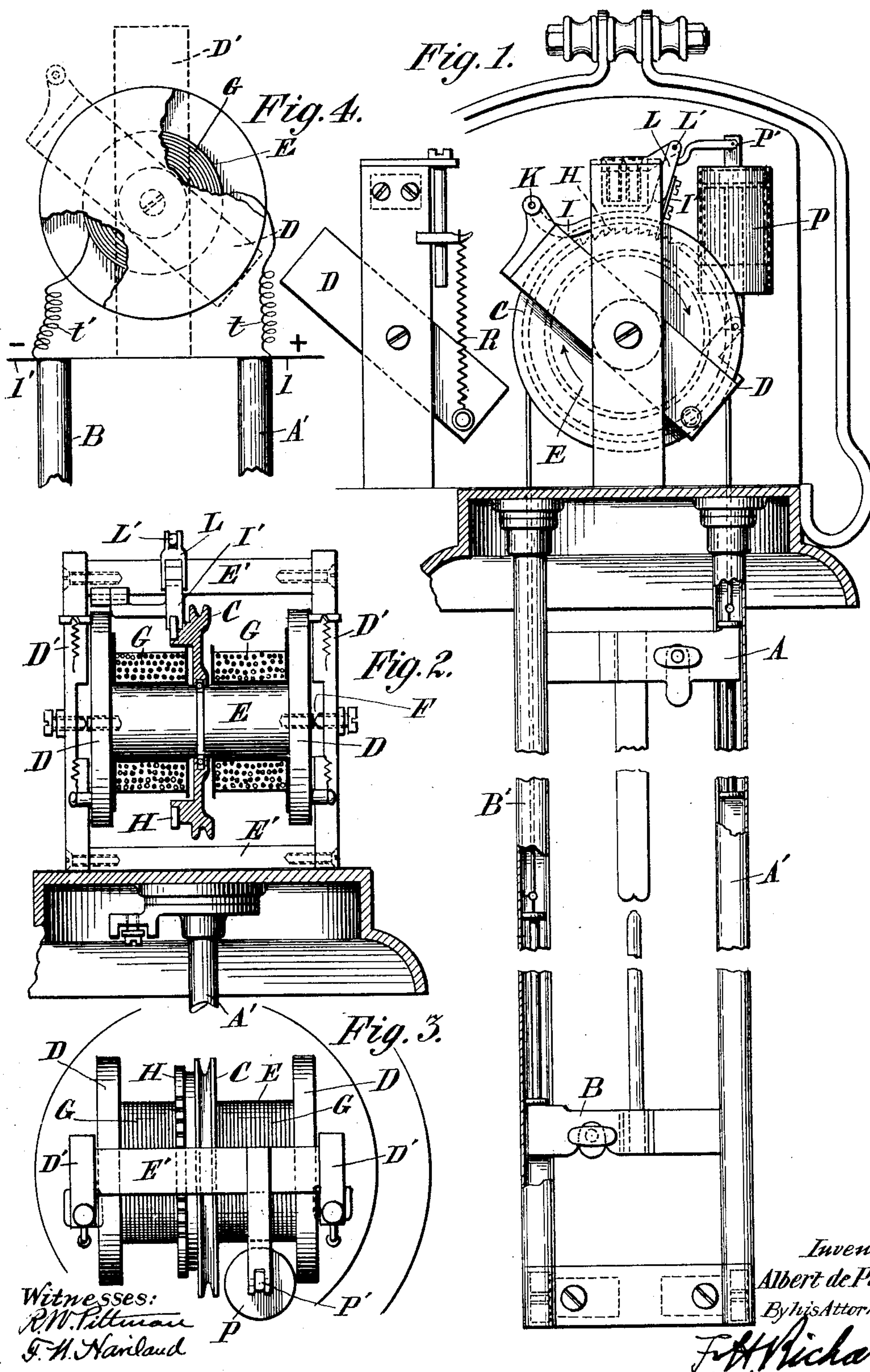


Patented Apr. 23, 1901.

(No Model.)



UNITED STATES PATENT OFFICE.

ALBERT DE PUYDT, OF LIEGE, BELGIUM.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 672,597, dated April 23, 1901.

Application filed December 4, 1900. Serial No. 38,610. (No model.)

To all whom it may concern:

Be it known that I, ALBERT DE PUYDT, a citizen of the Kingdom of Belgium, residing at Liege, Belgium, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification.

This invention refers to arc-lamps; and the object is to provide an arc-lamp the feed of which is of a positive character as distinguished from the slipping feed obtained in the well-known manner by the use of a brake, friction-clutch, or the like, the mechanism being simple, effective, and cheap.

The accompanying drawings represent the object of my invention by way of example.

Figure 1 is an elevation, partly in section. Fig. 2 is a section. Fig. 3 is a view from above. Fig. 4 is a detail in elevation, showing the lamp connections.

A and B are the two carbon-holders, guided, respectively, in the fixed tubes A' and B', which are insulated from each other and from the body of the lamp and which act as conductors as well as guides. The positive carbon-holder A being heavier than the negative holder B tends to bring the two carbons together, drawing B upward by means of a small cord passing over a large pulley C, which serves as an actuator for the carbon-holders.

D E D represents an electromagnet oscillating on the points F F, engaging the ends of the round magnet-core E, surrounded by the coils of fine wire, (here shown as two in number and designated as G G,) and D D are the cheeks or pole-pieces of the magnet. D' E' D' forms a fixed armature for this electromagnet. The fine wire G G receives a shunt-current between the two carbon-holders A and B.

The large pulley C turns upon balls around the magnet-core E between the coils; but a toothed wheel H is fixed to this pulley and the pawl I I' connected to the electromagnet by the pivot K. This ratchet mechanism serves to couple together the electromagnet and the wheel C, and consequently causes the two carbon-holders A and B to partake of the oscillatory movement of the electromagnet D E D. On the other hand, the pawl I is guided at its extremity I' by a small link or rod L, which pivots about the fixed point L'. When the electromagnet swings to the end of its stroke

in the direction of the arrows, the pawl I is raised by the link L until it is disengaged from the teeth of the wheel H, which then becomes free and allows the carbons to approach. The carbons are normally not in contact. As soon as the current is sent into the carbon-holders the electromagnet swings to the end of its stroke in the direction of the arrows notwithstanding the action of the opposing springs R R. As already stated above, this movement to the end of the stroke has the effect of releasing the toothed wheel by the action of the small link L, which lifts the pawl I I'. The carbons therefore move at once into contact. The shunt-current in G G at once diminishes, and consequently the attraction of the electromagnet. The opposing springs R R then moving the electromagnet in the direction reverse to the arrows the pawl reengages and moves the wheels in such a manner as to separate the two carbons, which so strike the arc. In proportion as the arc lengthens as a result of the combustion of the carbons the voltage tends to rise at the terminals of the electromagnet, which causes the latter and the pulley C to swing around their common axis in such manner as to bring the carbons closer together. When these movable pieces reach the limit of movement in the direction of the arrows, the pawl is again disengaged and the electromagnet, by a recoil movement, causes it to engage with the following tooth. An air dash-pot P prevents all abrupt movement; but a play of some millimeters in the joint P' nevertheless allows the recoil movement in passing from one tooth to the other to occur quickly enough to avoid a jump in the light.

In Fig. 4 are more particularly illustrated the lamp connections. The line enters the lamp at l and is connected with the insulated tube A', which has electrical connection with the positive carbon-holder, and leaves at l' from the insulated tube B' of the negative carbon-holder. The magnet-coil G is shunted across the circuit through the carbons by connecting its terminals t t' with the rods A' and B', respectively. These terminals may be coiled, as shown, so that they may yield sufficiently to permit the swing of the magnet.

Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination, with carbon-holders, of
5 an electromagnet; fixed supports engaging the ends of the core of said electromagnet to permit its oscillation; an actuator for the carbon-holders rotatable about the electromagnet; and means for coupling the actuator and
10 the electromagnet together.

2. The combination, with carbon-holders, of an electromagnet; fixed supports engaging the ends of the core of said electromagnet to permit its oscillation; an actuator for the
15 carbon-holders rotatable about the electromagnet; and a ratchet mechanism for coupling the actuator and electromagnet together.

3. The combination with carbon-holders, of an electromagnet; fixed supports engaging
20 the ends of the core of said electromagnet to permit its oscillation; an actuator for the carbon-holders rotatable about the electromagnet; means for coupling the actuator and electromagnet together; and a spring connected to the latter and to a support.
25

4. The combination, with carbon-holders, of an electromagnet; fixed supports engaging the ends of the core of said electromagnet to permit its oscillation; a pulley for actuating
30 the carbon-holders rotatable about the electromagnet; and means for coupling the actuator and electromagnet together.

5. The combination, with carbon-holders, of an oscillatory electromagnet; an actuator for
35 the carbon-holders rotatably supported upon the core of said electromagnet; and means for coupling the actuator and electromagnet together.

6. The combination with carbon-holders, of
40 an oscillatory electromagnet comprising a

core and two coils; an actuator for the carbon-holders rotatably supported upon the core between two coils; and means for coupling the actuator and electromagnet together.

7. The combination, with carbon-holders, of
45 an electromagnet and an armature therefor, one of which is capable of oscillation; an actuator for the carbon-holders; and ratchet mechanism for coupling the actuator and oscillatory member together, the pawl of which
50 ratchet mechanism is connected by a pivoted link to the oscillatory member and to a fixed support.

8. The combination, with carbon-holders, of an electromagnet and an armature therefor,
55 one of which is capable of oscillation; an actuator for the carbon-holders; ratchet mechanism for coupling the actuator and oscillatory member together, the pawl of which ratchet mechanism is connected to the oscillatory member and to the fixed support; and
60 a dash-pot cooperating with the oscillatory member.

9. The combination with carbon-holders, of an electromagnet and an armature therefor,
65 one of which is capable of oscillation; an actuator for the carbon-holders; a ratchet mechanism for coupling the actuator and oscillatory member together, the pawl of which ratchet mechanism is connected to the oscillatory
70 element and to a fixed support; and a dash-pot cooperating with the oscillatory member through connections in which some play is allowed.

Signed at Liege, in Belgium, this 13th day
75 of November, 1900.

ALBERT DE PUYDT.

Witnesses:

HENRY SCHUERMANS,
ARMAND BODSON.