(No Model.)

J. JAMESON.

INCANDESCENT ELECTRIC LAMP.

No. 259,763. Patented June 20, 1882.

Fig. 3.

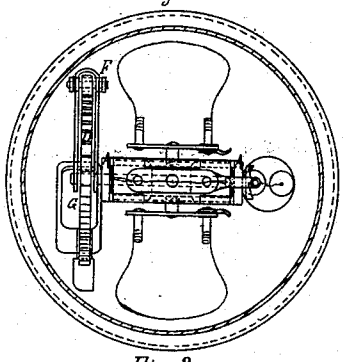


Fig. 1.

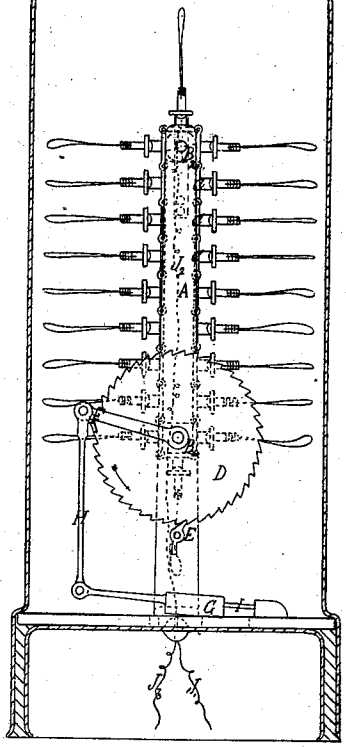
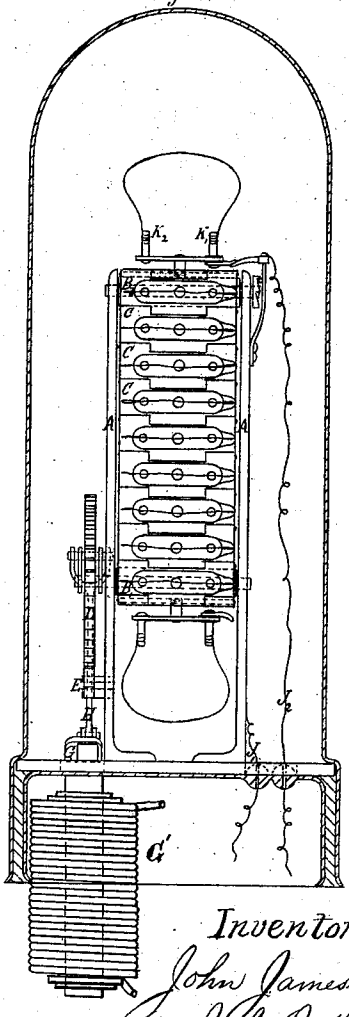


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN JAMESON, OF NEWCASTLE-UPON-TYNE, ENGLAND.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 259,763, dated June 20, 1882.

Application filed February 1, 1882. (No model.) Patented in England October 12, 1881, No. 4,439.

To all whom it may concern:

Be it known that I, JOHN JAMESON, a subject of the Queen of Great Britain, residing at Newcastle-upon-Tyne, England, have invented new and useful Improvements in Incandescent Electric Lamps, (for which I have obtained a patent in Great Britain, No. 4,439, dated 12th October, 1881, sealed 17th January, 1882,) of which the following is a specification.

My invention consists in providing sealed-up relays of mounted carbons or other filaments intended for incandescence in vacuous electric lamps, and in arrangements whereby on the failure of a carbon or filament it may be removed from its position, and a fresh one may be substituted without access to the interior of the lamp and without destroying the vacuum, such substitution of fresh carbons being continuous, as required, until the whole number of filaments provided in reserve and sealed up shall have been used in succession.

I prefer to employ for the replacement of carbons such arrangements as are sometimes used for the display of stereoscopic photographs, consisting of an endless band passing over the roller and bringing each picture into a vertical position by itself successively. If this method be employed, I prefer to mount the filaments on a series of bars having insulation between the points at which the ends of the filaments are attached, and to make the electrical contact by pressure of the connecting-wires at fixed points in the mechanism, and I prefer to operate the movements of the carbons by means of clock-work wound up before insertion in the lamp, or capable of being wound by magnetism, but restrained from movement by means of a catch, which may be released at will by means of a magnet outside or the passage of a current of electricity round a magnet inside the lamp. It may, however, be arranged to be operated by gravity by alteration in the position of the lamp, or wholly by magnets outside, or by passage of a current of electricity to a magnet or magnets inside, or otherwise. By these means I am enabled to produce change of filaments, while only one at a time is yet in the part of the lamp intended to give light.

Having thus described the nature of my invention, I will proceed to describe more particularly the manner in which the same is to operated, having reference to the drawings hereto annexed.

Figure 1 is a front view, Fig. 2 a side view, and Fig. 3 a plan, of a lamp in accordance with my invention.

Similar letters mark similar parts in each view.

A A are standards carrying the mechanism. B′ B^2 are two rollers, and C C C are links of an endless chain passing round the rollers.

D is a toothed ratchet-wheel fast on the axis of the roller B′, having a pawl at E and a lever and pawl, as shown at F.

G is the armature of a magnet, preferably in the form of an electro-magnet, G′, this armature forming part of a lever operating by its movement, through the connecting-rod H, the ratchet-wheel D.

I is a spring tending to lift the armature and arm G. When a current of electricity is sent round the electro-magnet the armature is attracted and the ratchet-wheel is dragged forward in the direction of the arrow, and when the current of electricity is suspended the spring I raises the lever and armature, and puts it in position to perform a second similar movement and advance the ratchet-wheel D another tooth.

Each carbon is mounted on a support attached to each chain-link by means of platinum wires, whereof one, K′, is insulated from the support and the other, K^2, is in electrical contact with the frame-work of the lamp. The conducting-wire J′ is attached to the frame of the lamp and the wire J^2 to a spring arrangement giving contact to the insulated platinum wire before described, when by the movement of the mechanism it is brought into the position in which it is intended to give light, but bearing on insulating material during the transition from one filament to another. The whole arrangement is inclosed within a vessel from which the air may be exhausted, either by forming it wholly of glass and sealing it up or by forming it of glass and other materials to which air-tight cement may be applied, and the vessel is then exhausted of air. When electrical contact is complete through one filament and adequate current is supplied, the light is produced, and when the

carbon fails I send, automatically or otherwise, a current of electricity round the electro-magnet before described, and alternately make and break contact, so as partially to revolve the rollers and to cause the endless chain to advance one link, and thus bring a new carbon into circuit.

Incandescent electric lamps have been made with more than one mounted carbon to be used in succession. Such carbons, however, have hitherto been arranged in definite and fixed position in the lamp, and so as that those not in use to some extent interfere with the light given by the one in use; and lamps have also been made in which a slender rod of carbon has been advanced, so as to compensate for its waste; but I believe no arrangement has been employed, such as that which I have invented, of the actual removal of filaments from one position to another, for the purpose described.

I have described, for the sake of clear illustration, a form of lamp which I conceive gives the best idea of the principle of my invention; but I would have it understood that I do not confine myself to the form of lamp illustrated or the arrangement of mechanism; but

What I claim is—

1. The combination of an endless series or chain of mounted carbons within a stationary vacuous vessel, wheels for supporting such chain, stationary contacts, and means, substantially as described, whereby the carbons may be brought successively in operative connection.

2. The combination, within a stationary vacuous vessel, of standards A A, rollers B B′, the endless series of mounted carbons, ratchet-wheel D, pawl E, lever and pawl F′, armature G, an electro-magnet, connecting-rod H, and wires J′ J^2 and K′ K^2, substantially as shown and described.

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Witnesses:

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