

(No Model.)

C. B. NOBLE.

CLUTCH FOR ELECTRIC LAMPS.

No. 346,217.

Patented July 27, 1886.

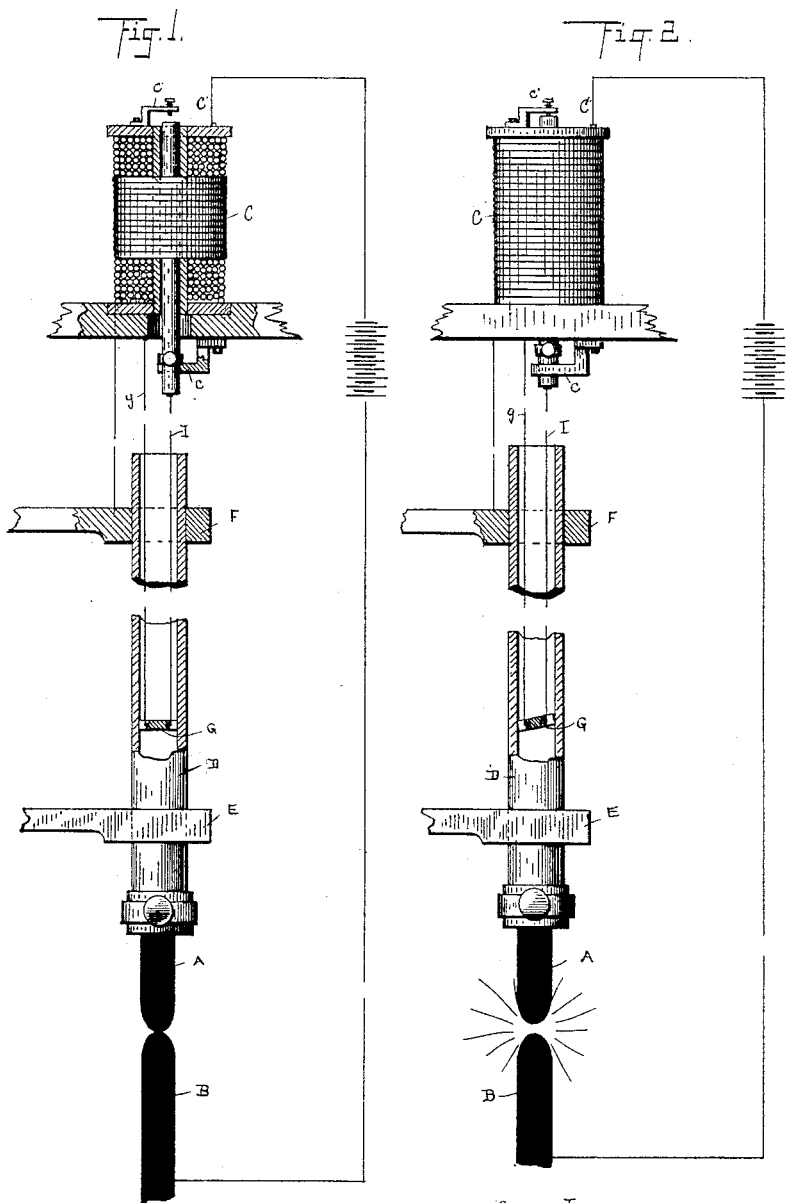


Fig. 3.

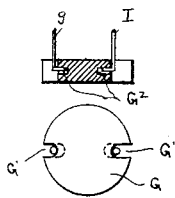
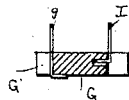


Fig. 4.



WITNESSES

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CLUTCH FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 346,217, dated July 27, 1886.

Application filed March 13, 1886. Serial No. 195,109. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE B. NOBLE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Clutches for Electric Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use
10 the same.

My invention relates to an improved clutch for electric-arc lamps; and it consists in certain features of construction and in combination of parts, hereinafter described, and pointed
15 out in the claims.

In the accompanying drawings, Figures 1 and 2 are elevations, partly in section, of my improved clutch and attachments, showing, respectively, different working positions of the
20 same. Fig. 3 is an enlarged elevation in plan of the clutch. Fig. 4 is an enlarged detail hereinafter described.

A and B are the carbons of an electric lamp, and are connected in an electric circuit in the
25 usual manner, as is also the helix C.

D is the upper-carbon holder, the same consisting of a hollow cylinder or tube, to the lower end of which is attached the carbon A, any suitable means for such attachment being
30 employed. The holder passes through suitable guides—as, for instance, E and F—and is arranged to move easily in a vertical direction.

G is the clutch-disk, that when laying in a position at right angles to the interior of the
35 holder moves easily therein; but owing to the thickness of the disk, when the latter is tilted, it clutches or binds on the interior walls of the holder. One side of the disk is suspended by a tripping-wire, *g*, the latter being attached
40 above to some stationary support—as, for instance, the lamp-frame—by means of which this side of the disk is tripped up when it descends with the carbon-holder on the increase of resistance of the circuit to make the disk
45 assume a position at right angles to the interior of the holder, and allow the holder to slide by gravity over it and the carbons to approach each other. The opposite side of the disk is supported by a wire, I, that is at-
50 tached above to the core or armature *c* of the helix C. It follows, then, that with the carbons

in contact or in close proximity there will be little resistance in the circuit, and consequently considerable magnetic force in the helix C, by reason of which the core *c* will be elevated. 55
By reason of the wire-connection I the disk G will be tilted, causing it to assume the angular position shown in Fig. 2, and make it clutch the holder and lift it, with the holder and upper carbon, a trifle, more or less, accord- 60
ing to the adjustment of the stops *c'* and *c'*, that limit the vertical movement of the core. By the preceding arrangement the carbons will be separated a suitable working distance, and so held for the time being. 65

As the carbons waste away, and the resistance in the circuit consequently becomes greater, and the magnetic force in the helix becomes less, the core *c* descends, as do also the holder and disk, until the disk reaches the tripping- 70
wire, from which it started, when it is tripped and made to assume a position at right angles to the interior of the carbon-holder, thereby releasing its impingement against the interior of the holder, and allowing the holder to slide 75
by gravity over the disk and the carbons to feed.

A convenient means of attaching the wires *g* and I to the disk G is shown in Fig. 3, where notches *G'* are made in the edges of the disk 80
for the passage of the respective wires, and lateral holes are cut in the disk to receive the bent ends of the wires, as shown at *G''*.

In Fig. 4 the wire I is shown connected in the manner just described, while the wire *g* is 85
shown hooked under the bottom of the disk. These and various modifications may be had without departing from the spirit and design of my invention.

It will be seen that the clutch is extremely 90
simple, and can be made at a small initial cost, and in practice is found efficient and in every way desirable.

A tight joint may be placed on the lower end of the carbon-holder, so that any suitable 95
lubricant may be kept therein.

What I claim as new, and desire to protect by Letters Patent, is—

1. In a clutch for electric-arc lamps, a vertically-moving hollow carbon-holder, contain- 100
ing within itself a loosely-fitting tilting friction-disk held stationary on one side by a

- wire or rod, also contained within the holder, and attached above to the lamp-frame, with the opposite side of the disk supported by a wire or rod contained within the holder, and
- 5 connected above to the core or armature of a helix, said helix being connected in circuit with the lamp-carbons, for tilting the disk and causing it to impinge against the inside of holder to grip and elevate it, the parts being
- 10 arranged substantially as shown.
2. In clutches for electric-arc lamps, the hollow carbon-holder consisting of a tube or cylinder, and containing within itself a loosely-fitting tilting friction-disk and wires for tilting and tripping the disk, to respectively
- 15 tighten and loosen the grip of the disk against the interior of carbon-holder for separating and feeding the carbons, the said wires passing up through the holder and being connected, one with the lamp-frame, the other with the
- 20 armature-core of the helix, said helix being in electric circuit with the lamp-carbons, the parts being arranged substantially as described.
- 2.5 3. The combination, in a clutch for electric-arc lamps, of a hollow carbon-holder, a loosely-fitting clutch-disk operating therein and supported on opposite sides by wires passing up through said holder, one wire or rod sup-
- 30 porting one side of the disk and attached above to lamp-frame, with the other wire or rod supporting the opposite side of the disk and attached above to the armature or core of

the helix, said helix being electrically connected in circuit with the lamp-carbons, for 35 tilting the disk and causing it to impinge against the inside of carbon-holder to grip and elevate it, and adjustable stops to limit the upward movement of the helix-core, for regulating the length of the arc, all the parts being 40 arranged substantially as and for the purposes shown.

4. The combination, in clutches for electric-arc lamps, of a hollow carbon-holder, D, and wires I and g, for respectively tilting and trip- 45 ping the disk G, to tighten and loosen its grip on the inside of the carbon-holder, for separating and feeding the carbons, the said wires passing up through the holder, and being connected above g with the lamp-frame, and I 50 with the helix or armature-core c of the helix C, said helix being electrically connected in circuit with the lamp-carbons A and B, and the adjustable stop c', or its equivalent, located over the helix-core, to limit the upward move- 55 ment of the core and regulate the length of the arc, the parts being arranged substantially as specified.

In testimony whereof I sign this specification, in the presence of two witnesses, this 60 12th day of February, 1886.

CLARENCE B. NOBLE.

Witnesses:

CHAS. H. DORER,
ALBERT E. LYNCH.