

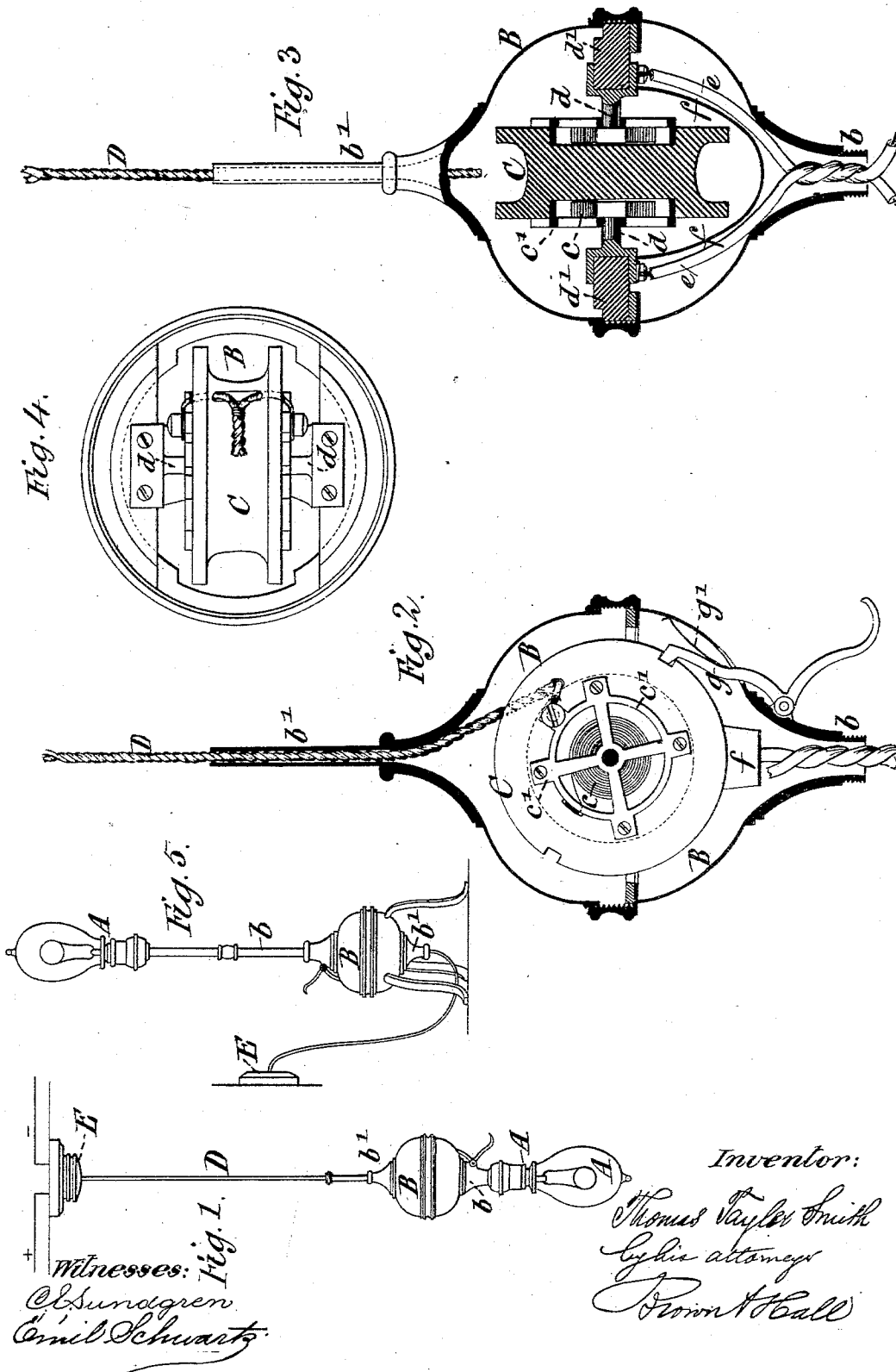
(No Model.)

T. T. SMITH.

ELECTRIC LIGHT APPARATUS.

No. 315,674.

Patented Apr. 14, 1885.



UNITED STATES PATENT OFFICE.

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ELECTRIC-LIGHT APPARATUS.

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To all whom it may concern:

Be it known that I, THOMAS TAYLER SMITH, of 4 Circus Place, Finsbury, in the city of London, England, architect, have invented an Improvement in Electric Lamps, of which the following is a specification.

This invention relates, mainly, to hanging electric lamps supported by a flexible conductor containing both the flow and return wires suitably insulated; and it consists in the adaptation thereto of a spring reel or bobbin, on which the said cord may be wound up or from which it may be paid off, and the lamp be raised or lowered, as required, and fixed at the desired level.

The invention also relates to table or standard lamps which are supplied with the electric current through a cord or cords containing both the flow and return wires suitably insulated, and consists in the adaptation thereto of a spring reel or bobbin mounted on or forming part of the said table or standard lamp, on which spring reel or bobbin the said flexible cord may be wound up or from which it may be drawn off, as required, thus allowing the lamp to be used at many different distances from the point of attachment of the flexible conductor without the inconvenience of the slack cord trailing about the floor.

In carrying my invention into effect, I use a reel or bobbin, of wood or other non-conducting material, fitted with a pair of spiral springs, and mounted on insulated stud-axes carried by a ring or within a box having an aperture or guide at one side for the passage of the flexible conductor, and a nozzle or stem at the other side for the attachment of a lamp-stem fitted with a socket and lamp, or of a socket and lamp only.

In the accompanying drawings, Figure 1 is an elevation, on a small scale, of a pendent electric lamp fitted with a spring-reel according to my invention. Fig. 2 is a side view of the interior of the spherical case containing the spring-reel, one side or portion of the case being removed. Fig. 3 is a vertical transverse sectional view through the center of the spring-reel and its inclosing case or box. Fig. 4 is a plan of the spring-reel and its fittings,

the upper half of the inclosing case or box being removed; and Fig. 5 illustrates in elevation the adaptation of the spring-reel to a standard or table lamp according to my invention.

The same letters of reference indicate corresponding parts in all the figures.

A is the lamp-socket and lamp fixed by a hollow stem or nozzle, *b*, to the spherical box or case B, within which is mounted the spring-reel C.

D is the flexible conductor containing the flow and return wires, suitably insulated and secured overhead, in the case of a pendent lamp, to the main or lead wires by any suitable means, but preferably by a detachable electrical ceiling-connector protected by a screw-cap or guard, E.

In carrying my invention into effect I prefer to make the bobbin or reel C of wood or other non-conducting material—such as china or earthen ware—so that the springs *c c*, adapted to each side thereof, and through which the electric current is to pass, shall be completely insulated the one from the other. The reel C has attached to it a metal disk or frame, *c'*, at each side, forming bearings, which support the reel upon a pair of short insulated stud-axes, *d d*, mounted within the case or box B, the springs *c* being attached, respectively, at one end to one of the metal frames or disks *c'*, and at the other end to one of the stud-axes *d d*. These springs form an elastic continuous path for the electric current between the rotating reel and the inclosing-case, and serve also as brakes, restraining the over-running of the reel when the cord is drawn off therefrom.

b' is a guide tube or nozzle on the upper part of the spherical case or box B, and through it the conductor D passes, the strands containing the insulated flow and return wires being separated as they reach the reel C, and being led through suitably-formed passages to opposite sides of the said reel when the wires are brought into metallic connection with the springs *c c* through the two side frames or disks, *c' c'*, respectively, as clearly seen in Figs. 2 and 4. From these frames the current is able to pass through the springs *c c* to the

stud-axes *d d*, and thence by fixed insulated conductors *ee* to the lamp-socket and lamp A, fixed on the tubular nozzle *b*.

The better to maintain the insulation of the two currents, a shield of vulcanite, *f*, is preferably fitted between the conductors *ee* to the bases of the stud-axes *d d*, so as to underlie the reel.

It is important to notice that the springs, instead of being carried by the reel, might be mounted on the case, and the stud-axes with which they are connected might be carried by the reel or drum. The arrangement illustrated is, however, preferred.

g is a pawl engaging with notches in the periphery of the reel C, and fitted with a spring, *g'*, for throwing it into gear therewith, and with a lever-handle for disengaging it therefrom.

Other means for rapidly releasing or arresting the motion of the reel—such as a strap-brake and tension-screw—might also be used.

From the foregoing it will be seen that an unbroken elastic connection exists between the fixed main or lead wires overhead and the suspended lamp-socket and lamp, and that the lamp may be raised or lowered by releasing the pawl *g* from engagement with the spring-reel C and moving the spherical case or box B up or down, the pawl *g* being allowed to snap into a notch in the reel C, and thus retain the lamp when at the desired level.

Instead of two springs, I might use one only, the current on the side where no spring was fitted passing to the stud-axle by rubbing contact of the metal disk or frame *c'* with the said axle, or with a disk mounted thereon; but the double-spring arrangement is more efficient, and avoids all tendency to sparking.

The box or case B is preferably made in two parts united by screwing, and thus, while protecting the parts within it from sight and touch, easy access to the connections may be had when desired.

The stud-axes *d d* are each conveniently formed with a flanged base screwed to a block of wood or vulcanite, *d'*, secured to the case or box B, by which construction and arrangement their complete insulation is effected and they are rigidly held in position.

I do not limit myself, however, to these precise details of construction, nor to the form of the case or box B and its guides *b b'*, as these may be considerably varied without departing from the tenor of my invention.

Although my invention is mainly applicable to pendent electric lamps, it is capable of application to standard or table lamps in the manner illustrated in Fig. 5, precisely the same combination of parts being employed, but their position being inverted.

The same letters of reference indicate similar parts to those already described.

In this lamp the ball or case B, containing the spring-reel, serves as the base or body of the lamp, and the nozzle or hollow stem *b* is prolonged to carry the lamp and lamp-socket

at a proper height above the table. The said case B is also fitted with legs, or is so shaped as to stand firmly.

b' is the guide tube or nozzle for the flexible conductor, made bell-mouthed in this form of lamp; and E is an electric coupling of any suitable kind.

I claim as my invention—

1. The combination, with an electric lamp, a socket for the same, a ceiling connector or coupling, E, and a single flexible cord containing both the flow and return wires suitably insulated for conveying the current from the said coupling or connector to said lamp and lamp-socket, of a single spring reel or pulley, C, movable with the lamp, through which reel the current can pass to and from the lamp in all positions of the said reel and lamp, and means, substantially as described, for positively locking or releasing the said spring-reel to prevent the winding up or unwinding of the cord when the lamp is adjusted to or placed in its required position, as set forth.

2. In a pendent electric lamp, the combination, with the lead wires, suitable overhead connections, and a flexible cord containing both the flow and return wires suitably insulated, of the lamp-socket and lamp A, case or frame B, spring reel or pulley C, mounted to rotate within the said case and connected therewith by insulated springs *cc*, guides or nozzles *b b'*, conductors *ee*, and pawl *g* or its equivalent, substantially as and for the purpose described.

3. In a pendent electric lamp, the combination, with one or more lamps and lamp-sockets attached to a case or frame, and a flexible conductor or conductors conveying a current or currents of electricity thereto, of a ball or case, B, reel C, insulated springs *cc*, metallic disks or frames *c' c'*, and insulated stud-axes *d d*, substantially as described.

4. In a fitting for pendent electric lamps, the combination, with a flexible conductor or conductors supporting the lamp and conveying the current thereto, of a reel or hobbin mounted to rotate within a suitable case or ball, a pair of insulated stud-axes, and insulated springs, the said stud-axes and springs serving to elastically and electrically connect the wires or sets of wires in the flexible conductor with other wires or sets of wires in a conductor or conductors leading from the ball or case to the lamp, substantially as set forth.

5. As a fitting for electric lamps, a closed divisible case or box, B, having guide-stems, apertures, or nozzles *b b'* for the passage of flexible cords or insulated conductors conveying a current to and from the lamp or lamps, and containing within it a spring reel or pulley adapted to wind up or pay out one or more of the said flexible conductors without breaking the continuity of the electric current, and to be secured in the desired position, substantially as set forth.

6. In a fitting for electric lamps, the combi-

nation, with a set of flow and return wires suitably insulated, and a pair of fixed insulated stud-axes, such as $d\ d$, suitably supported and in electric connection with the lamp, of a
5 ball or case, B, reel C, insulated metal disks or frames $c' c'$, mounted on and making contact with the said axes, a spring or springs c
 c , and apertures or guides $b' b'$ for the passage of the insulated wires to and from the lamp,
10 substantially as set forth.

7. In a fitting for electric lamps, the combination, with a single flexible cord containing wires in unbroken electrical connection with the lamp or lamps, of a single reel rotating
15 around a fixed axle or axes, a spring or springs tending to wind up the cord upon the said reel, and a positive stop applied to the said reel for arresting its motion at any desired position of the lamp, substantially as set forth.

8. A standard or table electric lamp having within its base or body a spring-reel adapted to wind up or give out a single flexible conductor or cord containing both the flow and return wires suitably insulated, and a stop for locking or releasing the said reel at pleasure,
20 the wires in the said flexible cord being in unbroken electrical connection with the conductors leading to the lamp-socket and lamp by means of insulated springs and stud-axes, substantially as and for the purpose set forth.

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