(No Model.)

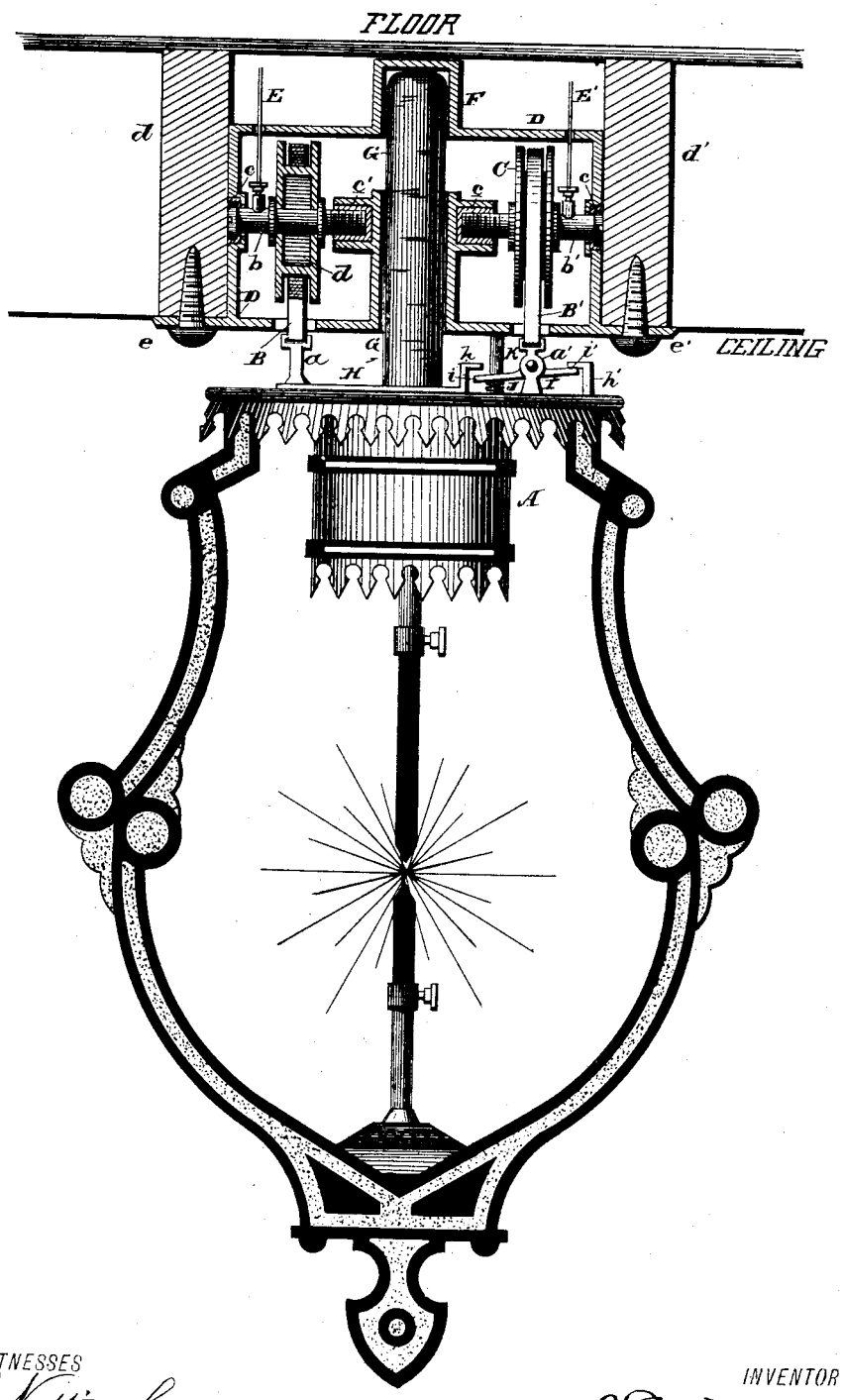
4 Sheets—Sheet 1.

H. A. SEYMOUR.

ELECTRIC LIGHT APPARATUS.

No. 261,262. Patented July 18. 1882.

Fig. 1.



WITNESSES

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(No Model.) 4 Sheets—Sheet 2.

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Fig. 2.

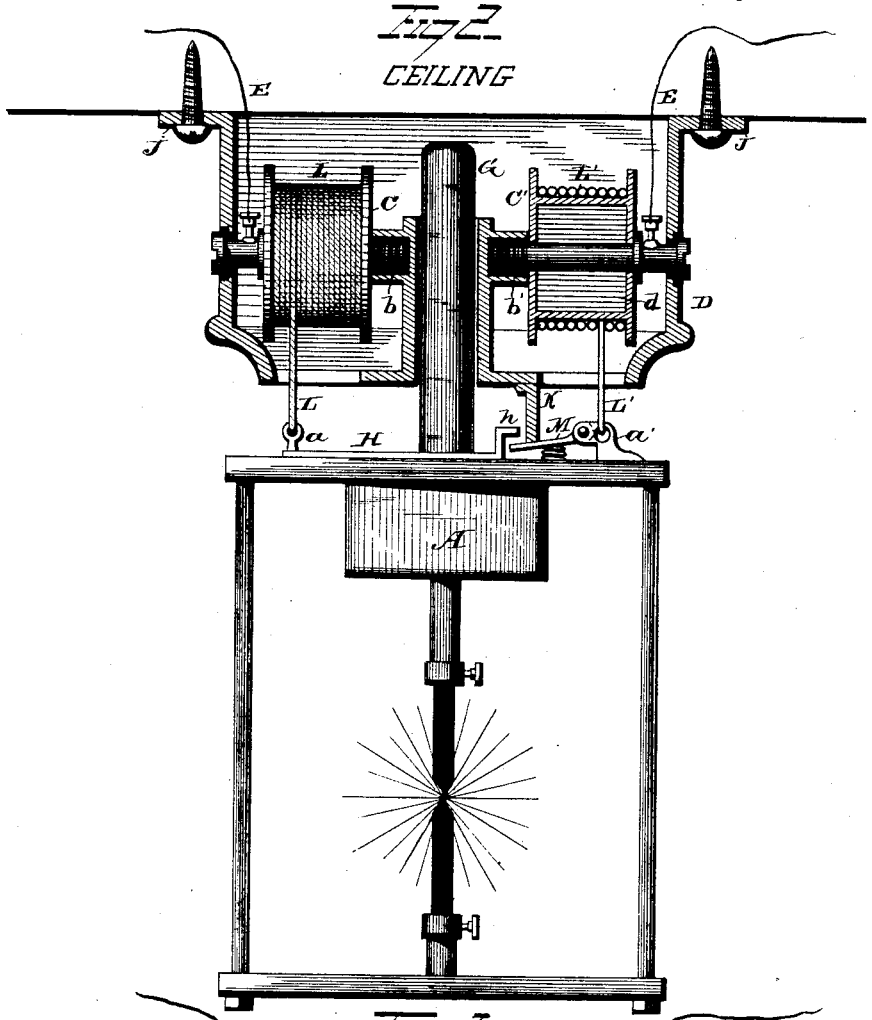
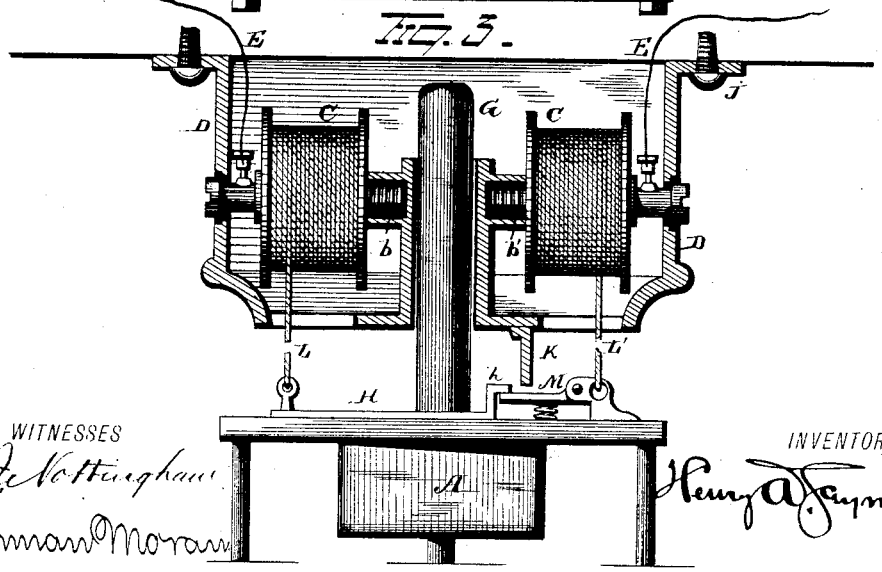


Fig. 3.



WITNESSES

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(No Model.) 4 Sheets—Sheet 3.

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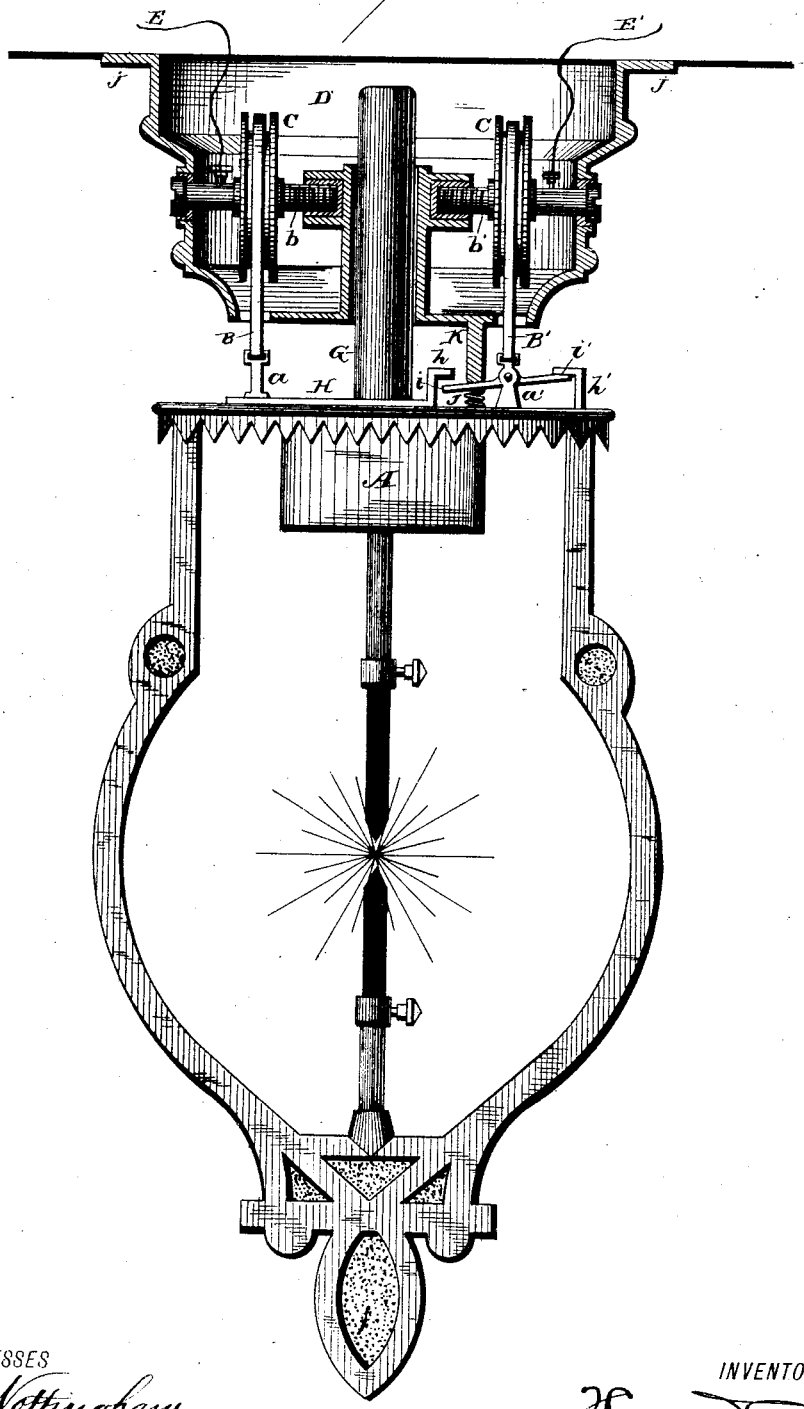
ELECTRIC LIGHT APPARATUS.

No. 261,262. Patented July 18, 1882.

Fig 4.



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4 Sheets—Sheet 4.

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ELECTRIC LIGHT APPARATUS.

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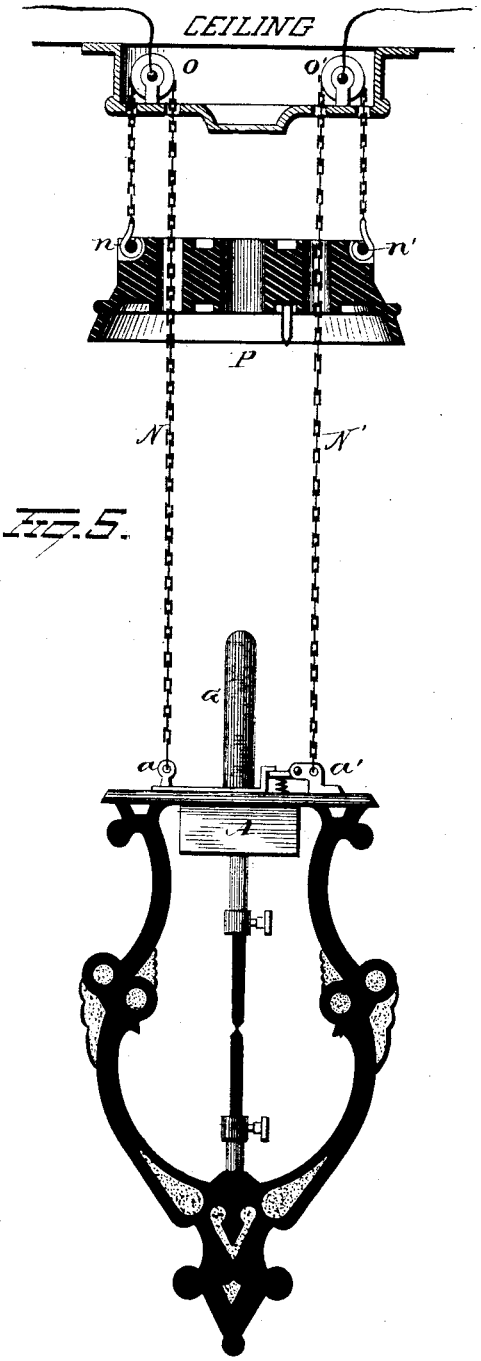

Fig. 5.

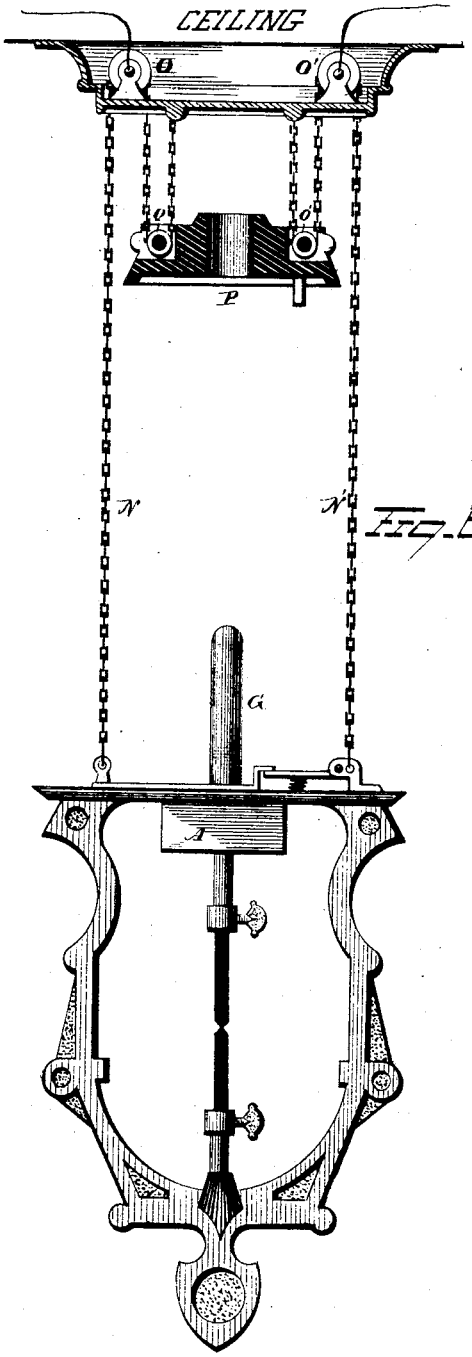

Fig. 6.

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UNITED STATES PATENT OFFICE.

HENRY A. SEYMOUR, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO GEORGE W. STOCKLY, OF CLEVELAND, OHIO.

ELECTRIC-LIGHT APPARATUS.

SPECIFICATION forming part of Letters Patent No. 261,262, dated July 18, 1882.

Application filed January 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. SEYMOUR, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Electric-Light Apparatus; 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 the same.

My invention relates to an improvement in electric-light apparatus.

The object of the invention is to provide vertically movable or adjustable electric lamps with devices for causing the current to pass through the lamp when it is in its elevated position and for automatically shunting or short-circuiting the current around the lamp when it is lowered for cleansing and renewing the carbons or extinguishing the light. By shunting the current around the lamp when it is lowered it enables the different parts of the lamp to be handled by inexperienced attendants without danger of injury from electric shocks.

A further object of my invention is to provide electric lamps with devices for raising the lamp to the greatest possible height in the room when it is to be used, experience having shown that in the use of electric lights in stores, factories, and other like places the effect of the light is much more agreeable when it is situated at the highest possible point in the room where it is to be employed.

With these ends in view my invention consists, first, in the combination, with an adjustable electric lamp and electric conductors connected therewith, of a switch mounted on the lamp, and devices for automatically opening the switch when the lamp is raised to its position for use and causing the current to pass through the lamp, and for automatically closing the switch when the lamp is lowered, and thereby shunting or short-circuiting the current around or past the lamp.

My invention further consists in the combination, with an adjustable electric lamp and electric conductors connected therewith, of a switch mounted on the lamp, and devices for automatically opening the switch when the lamp is raised to its position for use and causing the current to pass through the lamp, and for automatically closing a shunt-circuit and opening the lamp-circuit when the lamp is lowered, and thereby short-circuiting the entire current around the lamp.

My invention further consists in certain details of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view partly in side elevation and partly in vertical section of one form of electric-light apparatus embodying my invention, the lamp being shown in its raised position. Fig. 2 is a similar view of another form of apparatus constructed in accordance with my invention, the lamp being shown in its raised position. Fig. 3 shows the lamp illustrated in Fig. 2 when lowered for the renewal of the carbons or other purpose. Fig. 4 illustrates another construction and arrangement of parts in electric-light apparatus embracing my improvement, the lamp being shown in its raised position. Figs. 5 and 6 show the improved apparatus wherein counter-weights are employed in lieu of springs for retaining the lamp at any desired point of adjustment.

In the several figures, A represents the electric lamp, which may be of any desired type, form, or construction. In Fig. 1 the lamp is suspended by flat metal ribbons B B′, which are good conductors of electricity and constitute part of the lamp-circuit. The lower ends of the metallic ribbons B B′ are fastened to the staples or hooks *a a′*, constituting the terminals of the lamp, the current passing through one of the ribbons and one of the hooks to the lamp, and passing from the lamp through the other hook and ribbon. The metal ribbons B B′ are wound on drums C C′, mounted on stationary journals *b b′*, supported in non-conducting blocks *c c′*, suitably secured to the casing D. The drums C C′ are hollow, and are provided with springs *d* for retaining the lamp at any desired point of adjustment.

E E′ represent the main wire of the circuit, portion E of the wire being secured to the axle of the drum C and portion E′ of the wire to

the axle of the drum C′. In order that the lamp may be raised to the highest point possible, the casing D is inserted in the ceiling between the joists *d d′*, and constructed with the outwardly-projecting flanges *e e′*, by which it is firmly secured to the ceiling and practically flush therewith. The central portion of the casing is constructed to form a receptacle, F, for the lamp-tube G when the lamp is in its raised position. This construction and arrangement of the raising and lowering apparatus are such that the ceiling is not disfigured, and the lamp may be raised to the highest possible point. The flat metal ribbons offer but little resistance in coiling and uncoiling, and when coiled the current passes over the surface of the coil to the lower ends of the ribbons, and thence to the lamp, thereby offering but little resistance to the passage of the current. A metal strip or plate, H, is attached at one end to the hook or staple *a*, and at its other end is bent upwardly and then horizontally, as at *h*. The frame of the lamp has a metal projection, *h′*, extending upwardly therefrom.

To the hook or post *a′* is pivoted the lever or switch I, the arm *i* of which is forced in electrical contact with the part *h* and the arm *i′* with the part *h′* by the spiral spring J when the lamp is lowered. When the lamp is raised the stud K, made of any non-conducting material or conducting material insulated from the casing and fastened to the casing, strikes the arm *i* of the switch or lever I, depressing it, as illustrated in Fig. 1, and thereby opening the circuit between the parts *h* and *i*, and closing the circuit from the post *a′* through the arm *i′* and contact-point *h′*, causing the current to pass through the lamp. When the lamp is lowered the spring closes the circuit from the post *a′* through the arm *i* and contact-point *h′* and metal strip or conductor H to the post *a*, thereby short-circuiting the circuit, and also depresses the arm *i′* and breaks its contact with *h′* and opens the circuit through the lamp. Hence when the lamp is lowered no portion of the current can pass through the lamp, the entire current being automatically diverted through the shunt mounted on the lamp, thus rendering it perfectly safe to handle the lamp in cleansing and renewing the carbons. The lamp being raised, the shunt is opened and the current caused to pass through the lamp and produce the light. In Figs. 2 and 3 the casing containing the winding-drums is suspended from the ceiling, it being fastened thereto by means of screws inserted through the outwardly-projecting flange *j* at the upper end of the casing. In this form of construction the lamp is suspended by wire cables or cords L L′.

Instead of a two-armed lever or switch, as shown in Fig. 1, for opening and closing a shunt-circuit between the terminals of the lamp, a switch, M, is used, which is depressed by the stud when the lamp is raised, as illustrated in Fig. 2, and causes the current to pass through the lamp, and when the lamp is lowered, as in Fig. 3, the spring closes the shunt, and thereby short-circuits the current around the lamp. As the shunt-circuit affords a path of very slight resistance to the passage of the current, practically all of the current will flow through the shunt and around the lamp, and hence no provision is made in this case for opening and closing the lamp-circuit when the shunt-circuit is opened and closed. Either form of construction may be used, as may be deemed preferable, my invention including both forms. In Fig. 4 the construction and arrangement of parts are the same as illustrated in Fig. 1, with the exception that the casing D is located below instead of above the ceiling.

In Figs. 5 and 6 I have represented my improvement as embodied in lamp raising and lowering apparatus, provided with counter-weights instead of springs for retaining the lamp in any desired position, and showing the employment of chains as the flexible conductors for suspending the lamp. In Fig. 5 the chains N N′ pass over sprocket-wheels O O′, which are in electrical connection with the main line, and hence the current passes from one sprocket-wheel and over one chain to the lamp, and from the lamp by the other chain and sprocket-wheel. Chains N N′ are secured at one end to the lamp-terminals *a a′*, and at their other ends to hooks, staples, or pins *n n′*, insulated from the counter-weights P. The counter-weights in both Figs. 5 and 6 are provided with depending studs made of non-conducting material, said studs serving to open the shunt-circuit when the lamp is raised. In Fig. 6 the chains pass over the sprocket-wheels O O′, thence downwardly around pulleys *o o′*, journaled on insulated axles mounted on the counter-weights, and thence upwardly, their upper ends being attached to insulated hooks or pins. This construction of lamp is adapted for use in places having very high ceilings, and in which the lamps are not raised to the ceiling, as in railroad-depots, halls, &c. Instead of employing flexible conductors for supporting the lamp, I may use telescopic supports; or stationary columns or guide-bars might be used, and the automatic shunt combined with the lamp.

It is evident that many slight changes in the construction and relative arrangement of parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not restrict myself to the exact construction and arrangement of parts shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with an electric lamp and adjustable supporting-conductors connected with the lamp, whereby the same may be raised and lowered, of a switch mounted on the lamp, and devices for automatically operating the switch when the lamp is elevated to its position for use, and causing the current

to pass through the lamp, and for automatically shunting the current around or past the lamp when lowered out of position for use, substantially as set forth.

2. The combination, with a vertically-adjustable electric lamp and flexible supporting-conductors connected therewith, of a switch mounted on the lamp, a spring or equivalent device for moving the switch in one direction, and a stationary stud or projection arranged to automatically move the switch in the opposite direction when the lamp is raised to its position for use, substantially as set forth.

3. The combination, with a vertically-adjustable electric lamp, and conductors arranged to be in electrical connection therewith in its different positions of adjustment, of a switch mounted on the lamp, and devices for automatically opening the shunt-circuit and closing the lamp-circuit when the lamp is raised to the proper position for use, and for automatically closing the shunt-circuit and opening the lamp-circuit when the lamp is lowered, substantially as set forth.

4. The combination, with a vertically-adjustable electric lamp and flexible supporting-conductors connected therewith, of a pivoted switch mounted on the lamp, a contact-point at each end of the switch, one being the terminal of a short circuit and the other being one of the lamp-terminals, a spring or equivalent device for moving the switch in one direction, and a stationary stud or projection arranged to automatically move the switch in the opposite direction when the lamp is raised to its position for use, substantially as set forth.

5. The combination, with a vertically-adjustable electric lamp and flexible supporting-conductors connected therewith, of a supporting-casing provided with spring-actuated drums to which the upper ends of the flexible conductors are attached, said casing being constructed with an opening within which the tube of the lamp may enter when the lamp is raised to its position for use, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY A. SEYMOUR.

Witnesses:
HERMAN MORAN,
E. I. NOTTINGHAM.