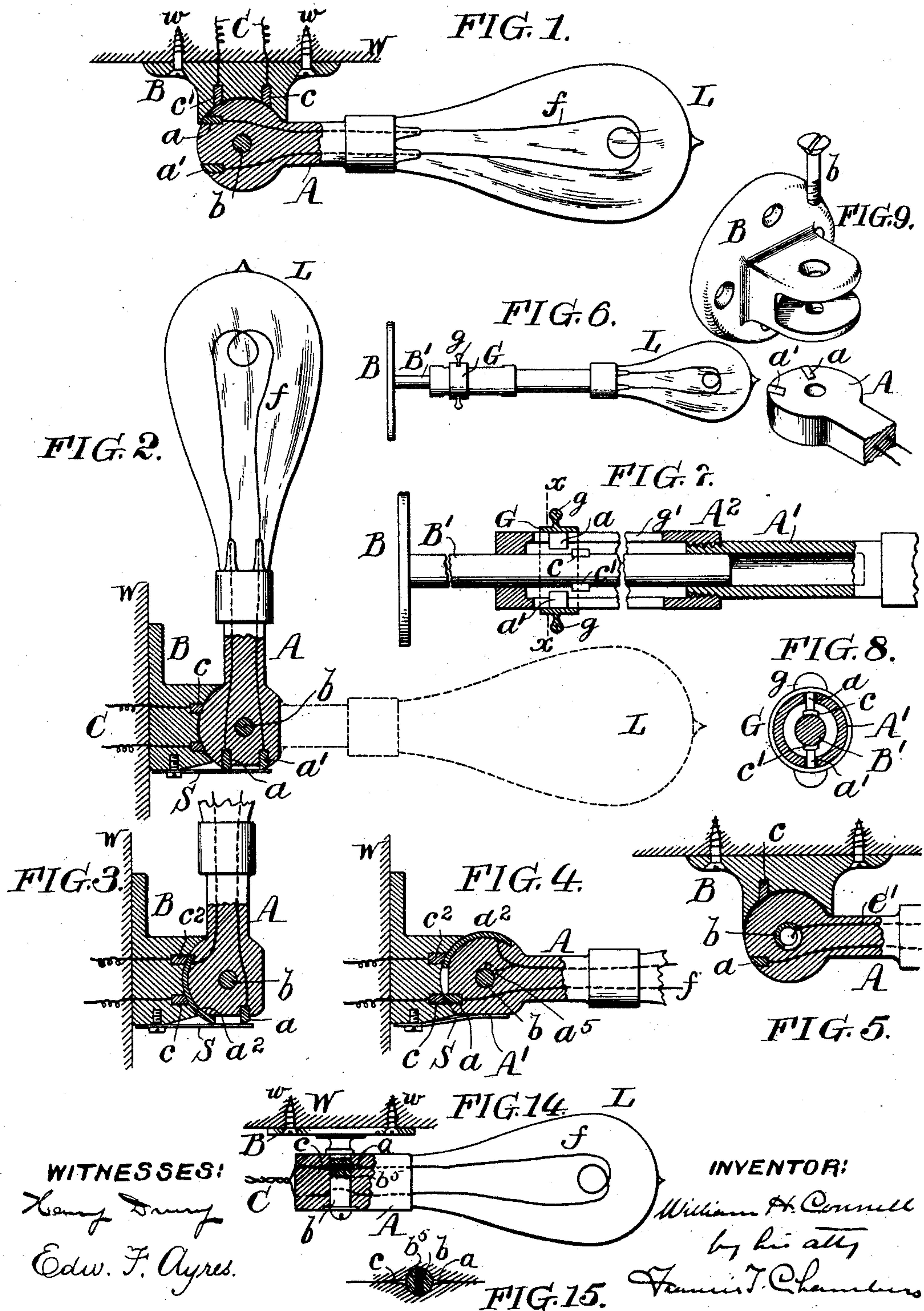


W. H. CONNELL.  
ELECTRIC LIGHT SUPPORT.

No. 524,706.

Patented Aug. 21, 1894.



(No Model.)

2 Sheets—Sheet 2.

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FIG. 10.

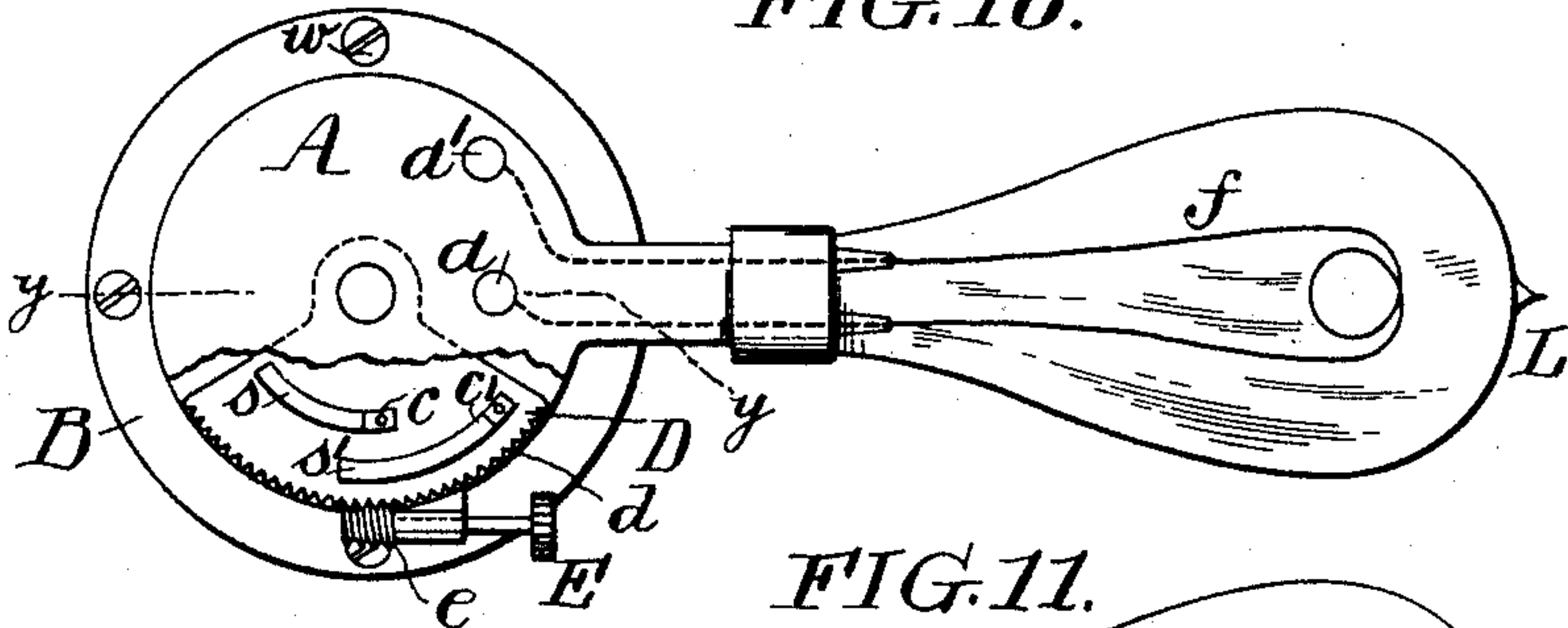


FIG. 11.

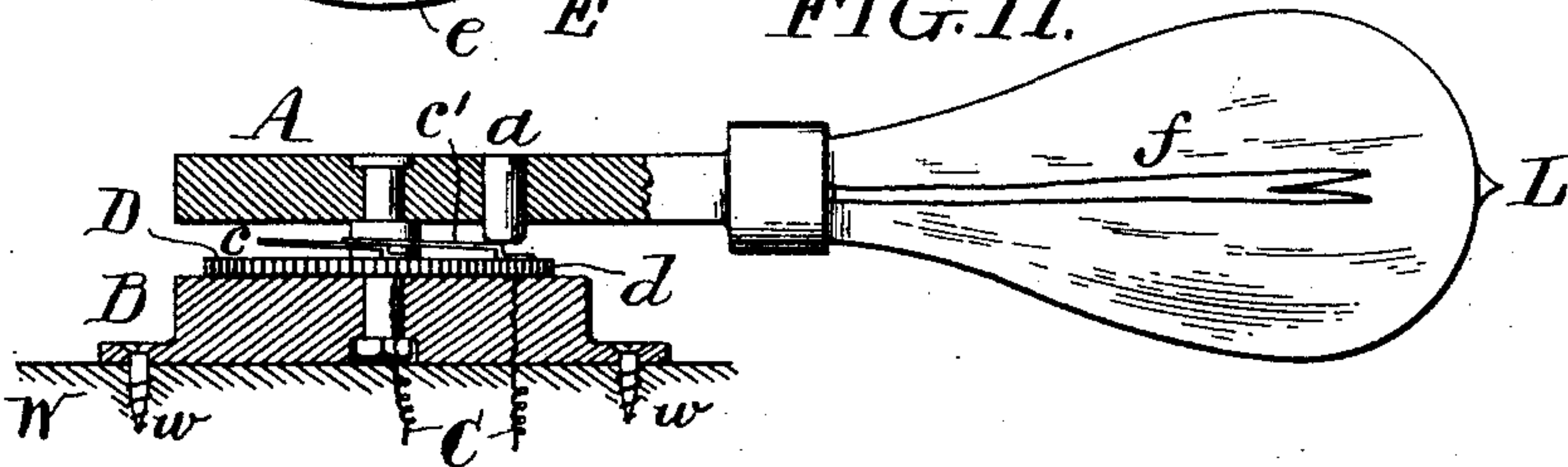


FIG. 12.

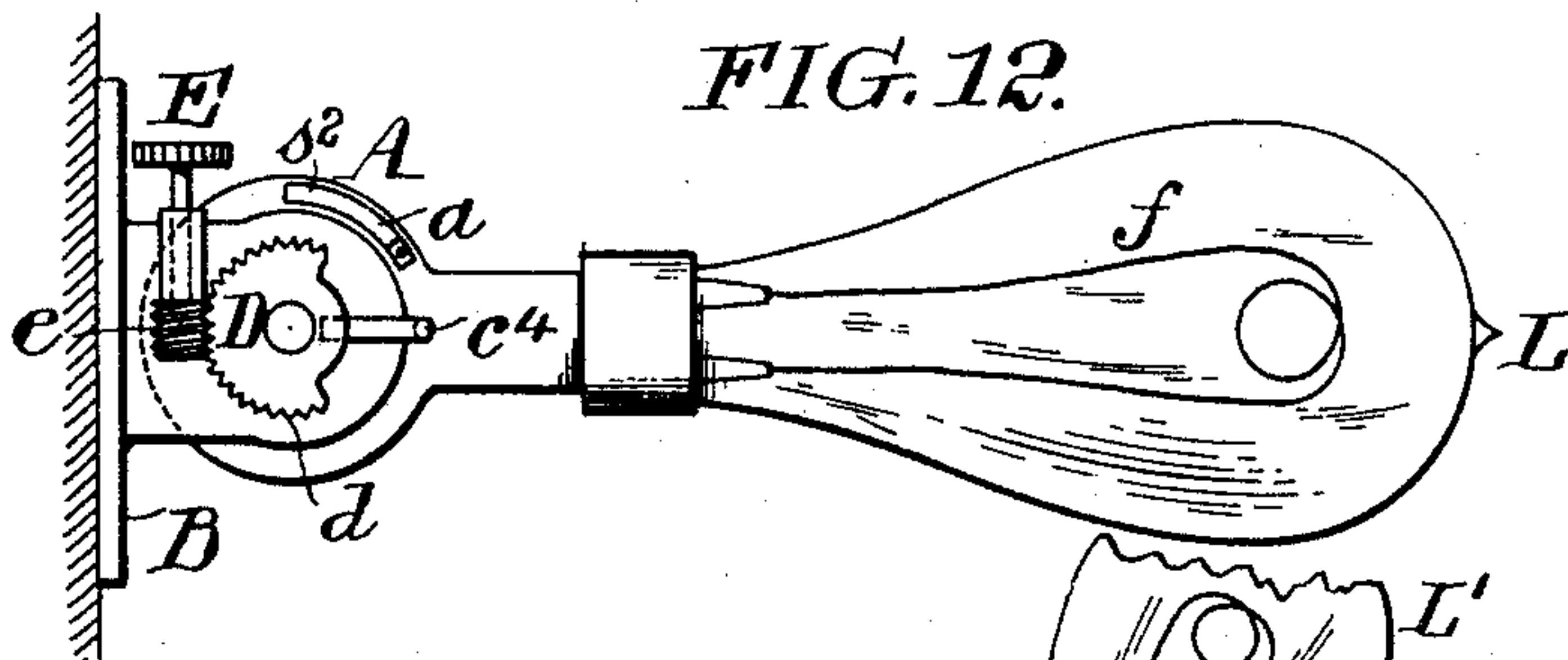
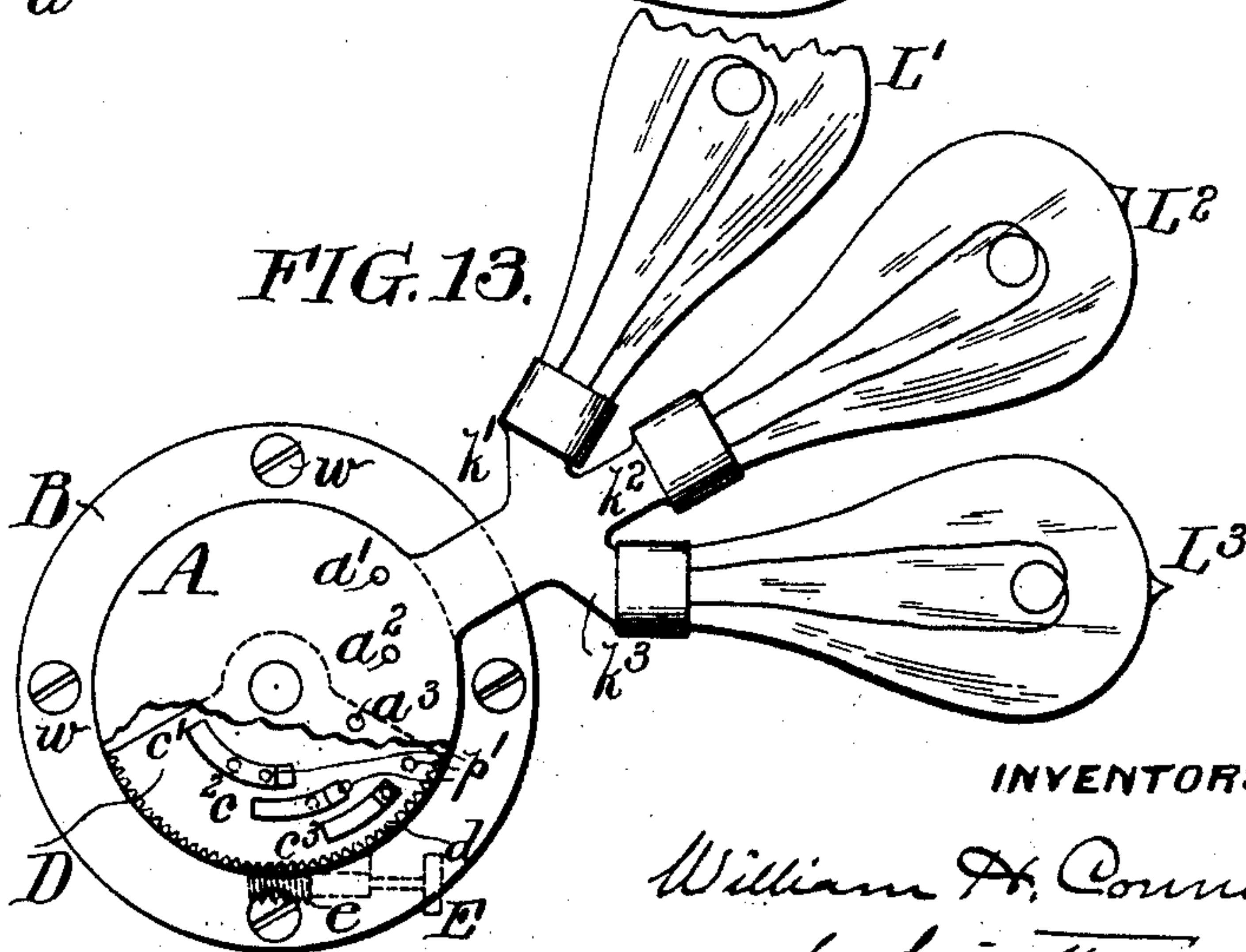


FIG. 13.



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# UNITED STATES PATENT OFFICE.

WILLIAM H. CONNELL, OF WILMINGTON, DELAWARE.

## ELECTRIC-LIGHT SUPPORT.

SPECIFICATION forming part of Letters Patent No. 524,706, dated August 21, 1894.

Application filed January 24, 1894. Serial No. 497,880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. CONNELL, a citizen of the United States, residing at Wilmington, in the county of New Castle, in the State of Delaware, have invented a certain new and useful Improvement in Electric-Light Supports, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to supports for electric lamps, and has for its main object to provide a support which, as it is swung around on the bracket to which it is pivoted, will close a circuit leading to the lamp; a further object is to so arrange the connections that the circuit can be completed and the lamp lighted at any desired position, and further to arrange a series of lamps so that any desired number of them may be lighted by a single movement of the lamp support. These objects are attained and various improvements in the details of construction are embodied in the devices illustrated in the accompanying drawings, in which—

Figure 1 is a plan view, partly in section, of a lamp adapted to swing in a horizontal plane; Fig. 2, a side view, partly in section, of a lamp adapted to swing in a vertical plane; Fig. 3 a view of a lamp similar to that shown in Fig. 2, in which one set of contact terminals are always engaged. Fig. 4 shows the arrangement illustrated in Fig. 3 when the circuit is closed. Fig. 5 illustrates a modification. Fig. 6 is a side view of a lamp adapted to have the circuit through it closed and to be lighted by a longitudinal movement along a standard secured to a suitable bracket. Fig. 7 is an enlarged sectional view of the lamp support shown in Fig. 6, showing the circuit closing device. Fig. 8 is a section on the line  $x-x$  of Fig. 7. Fig. 9 is a detail view of one of the brackets used to support the lamp shown in Fig. 1. Fig. 10, is a view, partly broken away, showing means for changing the position at which the circuit will be closed and the lamp lighted. Fig. 11 is a side view partly in section on the line  $y-y$  of Fig. 10. Fig. 12 is a view of a modification of the device shown in Figs. 10 and 12. Fig. 13 is a top view, partly broken away, showing a further application of my invention.

Fig. 14 illustrates a lamp mounted in a very similar manner to that shown in Fig. 4, and Fig. 15 is a cross section of the standard on which the lamp is pivoted.

W is a wall, the side of a desk or any other solid support on which a lamp bracket can be secured.

B is a lamp bracket adapted to be secured to the wall, or other support, by screws  $w$ .

A is a lamp supporting arm which is pivoted on the bracket B, a pin, stud or standard  $b$  being shown, in several of the figures of the drawings, as projecting through a suitable pivot hole in the lamp supporting arm, though obviously, any suitable mode of pivoting the arm may be adopted.

L is an electric lamp supported on the arm and with its axis out of line of the pivotal axis of the arm A and C is an electric circuit, which is adapted when closed, to lead through the lamp, and raise the filament  $f$  therein to incandescence if an incandescent lamp be used.

The circuit C is adapted to be closed through the lamp by the swinging of the pivoted supporting arm on its bracket; various arrangements may be made to accomplish this, in Fig. 1 I have shown the circuit C provided with two terminals or contact points  $c c'$  and two terminals or contact points  $a a'$  are arranged in the lamp supporting arm A so that they will engage when put in proper position with the terminals  $c c'$  and when so engaged the circuit is of course closed. In Fig. 2 a vertically swinging lamp is shown with practically the same arrangement of circuit and contacts, a spring S being employed to hold the lamp in a fixed position and serves as a positive motion device to hold the lamp in or out of circuit. In Figs. 3 or 4 an arrangement is shown wherein one set of contacts  $a^2 c^2$  are always engaged and the circuit is completed by the other set  $c a$ .

In Fig. 4 an arrangement is shown in dotted lines which is preferable to the one shown in Fig. 3, as here the pivot  $b$  forms part of the circuit and always is in electrical engagement with the lamp terminal  $a^5$ , this arrangement is somewhat similar to that shown in Fig. 5, where however, the pivot standard  $b$  is hollow and the wire C' comes up through the hollow post and goes to the lamp. Fig.



14 illustrates a very similar arrangement,  $b^5$  being a conducting portion in an otherwise insulating standard, and when the lamp is in the position shown in Fig. 14 a current will pass, while when it is swung around as shown in Fig. 15 the circuit will be broken.

Obviously, various other arrangements can be made and, except where I have so specifically claimed it, I do not wish to be considered as limiting myself to the particular construction shown.

It is often very important to be able to change the point in the swing or movement of the lamp at which it will be lighted and to accomplish this I provide means for changing, at will, the relative position of the contact points.

In Fig. 10, which shows a lamp very similar to that shown in Fig. 1, D is a movable plate arranged between the bracket B and arm A and which plate is adapted to be turned around the post  $b$  on which it is pivoted by means of a small milled wheel E which is connected to a worm  $e$  which engages teeth  $d$  on the plate D so that by turning the small milled wheel E the plate will be turned around the pivot.  $c c'$  are the terminals of the circuit C shown as small contact springs  $s s'$  and are carried by the plate D, the terminals  $a a'$  and  $c c'$  will engage and the lamp will be lighted at any desired point.

In Fig. 12 the plate D is shown provided with a stud  $c^4$  which is adapted to complete the circuit by engaging with a spring  $s^2$  which is on the lamp carrying arm.

In connection with means to change the point at which the lamp may be lighted, I do not wish to be considered as limiting myself to a swinging movement of the lamp support, since it can be applied to a support having a longitudinal or any other movement.

In Figs. 6 and 7 I have shown an arrangement wherein a longitudinal movement of the lamp completes the circuit. B' is a standard projecting from the bracket B and carrying the terminals  $c c'$ , sliding on the standard B' is the arm A' on which the lamp is carried having a portion  $A^2$  arranged like a sleeve and adapted to slide on the standard B'; the sleeve has a slot  $g'$  through which extends the contact terminals  $a a'$  which are secured to a ring G which is provided with finger pieces  $g$  whereby the contact terminals  $a a'$  may be slid along the sleeve  $A^2$  and be made to engage with the terminals  $c c'$  at any desired point.

Another important application of my invention is shown in Fig. 13; here the arm A is provided with branches, three,  $k' k^2 k^3$  being shown, on each of which branches a lamp  $L' L^2$ , &c., is arranged; each lamp is connected to a separate terminal, the lamp  $L'$  to the terminal  $a'$ , the lamp  $L^2$  to a terminal  $a^2$  and so on, the terminals  $c' c^2 c^3$  on the bracket are not arranged at the same distance apart as the terminals  $a' a^2$ , &c., therefore the sets of contact terminals  $a' c'$  and  $a^2 c^2$  will not be

engaged on the movement of the lamp arm relatively to the bracket simultaneously; in the construction shown, the set  $a^2 c^2$  will be engaged later than the set  $a' c'$ , in the position occupied by the terminals  $a' a^2 a^3$  as indicated by the letter  $p'$ ; it will be observed that the lamp  $L'$  is lighted and has been for a short space of time, the lamp  $L^2$  is just lighted as its set of contacts  $a^2 c^2$  are engaged while the lamp  $L^3$  is not lighted as its terminals  $a^3 c^3$  are not engaged, by a slight further movement the lamp  $L^3$  will be lighted also, it will therefore be seen that by moving the lamp supporting arm one lamp or any number of the cluster of lamps carried by the arm can be lighted; the plate D or any equivalent device can be added as shown, to vary the point at which the lamps are thrown on.

It will be obvious that where it is desired to light one or more lamps of a cluster by a movement of the support that any movement, and not simply a swinging movement can be employed.

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

1. The combination with a bracket B, of an arm pivoted on and supported entirely by said bracket, an incandescent electric lamp secured to the end of the arm so that the pivotal axis of the arm and the axis of the lamp are out of line with each other, an electric circuit leading to said lamp and contact points operated by the swinging of the lamp carrying arm for closing said circuit at a definite point in the travel of the lamp.

2. The combination with a movable electric lamp, of an electric circuit leading thereto, a pair of terminals adapted when engaged to close the circuit through the lamp, means operated by the movement of the lamp for putting the terminals, which close the circuit, in engagement with each other, and means for moving one of said terminals relatively to the other in whatever position the lamps may be whereby the circuit can be closed through the lamp at any desired point in its travel.

3. The combination with a bracket B adapted to be secured to a wall or other suitable place, of an arm pivoted to said bracket so as to swing or turn thereon and be supported entirely thereby, said arm being adapted to carry an incandescent lamp secured to the end thereof from one place to another, said incandescent lamp, an electric circuit leading to said lamp, contact points adapted to be moved into and out of engagement by the swinging of the lamp carrying arm, and adapted, when engaged, to close the circuit through the lamp, and means for moving one of the terminals relatively to the other in whatever position the lamps may be whereby the circuit can be closed through the lamp at any desired point in the swing of the lamp on the end of the pivoted arm.

4. The combination with a bracket of a lamp supporting arm pivoted on said bracket, an



electric circuit leading to the lamp, a terminal *a* on the lamp carrying arm connected to the part of the circuit which traverses the lamp, a terminal *c* on the bracket, the terminals *a c* being so situated relatively to each other that they will become engaged and close the circuit on the rotation of the lamp carrying arm on its bracket, a toothed plate *D* on which one of the terminals is situated, and a worm *E* adapted to turn the plate substantially as and for the purpose specified.

5. The combination with a movable support, of two or more filaments, each inclosed in a separate bulb and constituting an incandescent lamp, carried by said support, independent circuits in which a single filament is included and means operated by the movement of the support for closing the circuits successively whereby the number of independent lamps lighted may be varied by changing the position of the lamp support.

6. The combination with an electric lamp of an arm adapted to carry the lamp, a pin or standard on which the support is pivoted and which forms part of the circuit, and a single

pair of terminals *a c* adapted to be engaged as the lamp carrying arm swings to a proper position so that the lamp will be lighted or extinguished by the movement of the lamp carrying arm.

7. The combination with an electric lamp, of an arm adapted to carry the lamp, a hollow pin or standard on which the arm is pivoted, a circuit leading to the lamp through the hollow pin and a single pair of terminals adapted when engaged by the swinging of the lamp carrying arm to complete the circuit.

8. The combination with a bracket *B* of a supporting arm *A*, a lamp *L* carried on the end of said arm, whereby the lamp can be moved to different positions by the swinging of the arm, a pair of terminals *a a'* connected through the lamp, a corresponding pair of terminals *c c'* on the bracket normally insulated from the terminals *a a'* but adapted to engage therewith on the rotation of the arm *A*.

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Witnesses:

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