

No. 688,176.

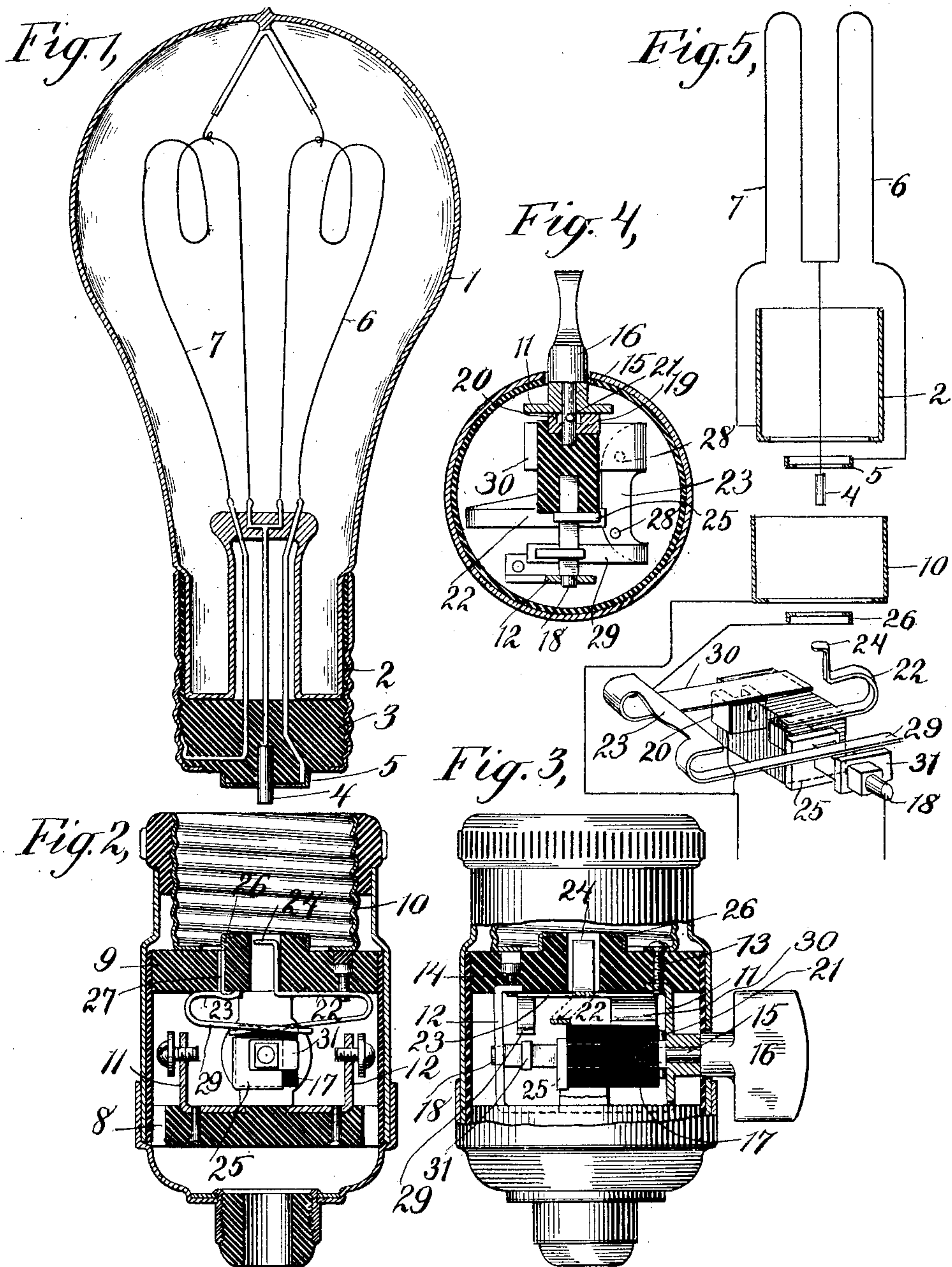
Patented Dec. 3, 1901.

C. A. HUSSEY.

REGULATING SOCKET FOR MULTIFILAMENT INCANDESCENT LAMPS.

(Application filed Mar. 16, 1901.)

(No Model.)



WITNESSES:

W. H. Raymond
A. H. Peles.

INVENTOR

Charles A. Hussey

BY

E. J. Marshall & Son

ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES A. HUSSEY, OF NEW YORK, N. Y., ASSIGNOR TO WILLIAM P. PINCKARD, OF BIRMINGHAM, ALABAMA.

REGULATING-SOCKET FOR MULTIFILAMENT INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 688,176, dated December 3, 1901.

Application filed March 16, 1901. Serial No. 51,549. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HUSSEY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Regulating-Sockets for Multifilament Incandescent 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 appertains to make and use the same.

My invention relates to improvements in regulating-sockets for multifilament incandescent electric lamps, and more particularly for two-filament incandescent lamps; and it consists in the novel construction of a switch adapted to throw one of two filaments into circuit singly or to throw both of said filaments into circuit in series or in multiple at will.

The objects of my invention are to improve and simplify regulating-switches for multifilament incandescent lamps, and more particularly switches intended for throwing one of the filaments of a two-filament lamp into circuit singly or for throwing both filaments into circuit in series or in multiple at will and to make the switch as inexpensive as possible. These objects are attained in the switch here- in described, and illustrated in the drawings which accompany and form a part of this specification, in which the same reference-numerals indicate the same or corresponding parts, and in which—

Figure 1 is a central vertical section of a two-filament lamp, such as that with which my socket is particularly intended to be used. Fig. 2 is a corresponding central vertical section of the socket. Fig. 3 is an elevation and partial section of the socket looking from the left of Fig. 2. Fig. 4 is a horizontal section of the socket and commutator, the section being taken looking upward; and Fig. 5 is a diagram illustrating the electric circuits.

In the drawings, 1 indicates the lamp-bulb. It may be of the ordinary construction and may be provided with the usual screw-threaded base-sleeve 2, adapted to fit into a corresponding socket-bushing of the lamp-socket. 3 indicates the usual insulation of the base of the lamp.

4 is a center contact-pin, and 5 a contact-ring concentric with pin 4 and sleeve 2, but insulated therefrom by the insulating material 3.

6 and 7 indicate the two filaments. One end of each of these filaments is connected to the contact-piece 4 by a suitable conductor. The remaining end of filament 6 is connected to the contact-ring 5, and the remaining end of filament 7 is connected to the base-sleeve 2, which therefore forms a contact-piece for this filament.

The socket is provided with the usual base-piece 8 and top piece 9 of the switch mechanism, both base-piece and top piece being of insulating material and with the usual screw-threaded socket-bushing 10, adapted to receive the base of the lamp. The base-piece 8 of the socket and the top piece 9 are connected by two brackets 11 and 12, provided with suitable binding-screws. These brackets form the line-terminals of the switch. Bracket 11 is electrically connected with the socket-bushing 10 by a screw 13. The screw 14, which connects the bracket 12 to the top piece 9, does not make contact with bushing 10, which bushing is therefore insulated from bracket 12. The spindle 15 of the key 16 is revolvably mounted in bracket 11. Between brackets 11 and 12 is a commutator 17, provided at one end with a pivot-pin 18, fitting into a bearing-hole in bracket 12 and supported at the other end by the spindle 15 of the key 16, which spindle enters the center bore of the commutator. Said commutator consists of a square block of insulating material, preferably porcelain, and the ends of the pivot-pin 18 and spindle 15 fit into recesses in its ends, but do not meet, and are insulated from each other by the said block of insulating material. Pin 18 is securely connected to the block of insulating material, so as to revolve therewith by suitable means—as, for instance, by cement. Pin or spindle 15 is not so secured, but is mounted in a bearing-bushing 20, mounted in the end of the block of insulation adjacent to the spindle 15. One portion of this bearing-bushing projects up slightly beyond one face of the block of insulation, so as to make contact with one of the spring contact-pieces of the switch mech-

anism in one position of the commutator. In the sides of the bushing 20 are openings through which project the ends of a pin 21, carried by spindle 15. The openings are of such width as to permit some play of the pin in them.

To the top piece 9 of the socket are connected two spring contact-pieces 22 and 23. Of these that numbered 22 is U-shaped and one end projects up into a central orifice of the top piece 9 and is bent over, forming a contact-pin 24, adapted to make contact with contact-pin 4 on the base of the lamp when the latter is in place within the socket. The other end of spring contact-piece or brush 22 is adapted to make contact in two positions of the commutator with a contact-cam 25, carried by the pivot-pin 18 of said commutator.

The contact-piece 23 is connected to a contact-ring 26, carried by the top piece 9 of the socket and surrounding the contact-pin 24, but having a central aperture for the passage of the pin 4. Such connection is effected in the following manner: The ring 26 has an extension 27, projecting through an orifice in the top piece 9 and fitting between said top piece and the contact-piece 23, which latter piece is drawn up against the extension 27 by means of screws 28, the heads of which are countersunk into the top piece 9 and are covered with insulating-cement.

Contact-piece 23 has two U-shaped spring-brushes 29 and 30, preferably formed integrally with it. Of these 29 is adapted to make contact with a contact piece or cam 31, carried by the pin 18 in one position of the commutator, and 30 is adapted to make contact with the projecting end of bearing-bushing 20 in another position of the commutator, which is one of the positions in which brush 22 and contact-piece 25 are in contact.

The circuits may be followed upon Fig. 5. When the parts are in the position shown in that figure and in Figs. 2 and 3, both filaments are out of circuit. From that position a quarter-turn of the key brings cam 31 into contact with brush 29, thereby completing a circuit through both filaments in series, as follows: from bracket 11 and socket-bushing 10 to the base-sleeve 2 of the lamp, and thence through filaments 7 and 6 to contact-rings 5 and 26, contact-piece 23 and its brush 29, cam 31, pin 18, and bracket 12. The filaments being in series the light produced is of the lowest intensity. From this position a quarter-turn of the key breaks contact between cam 31 and brush 29 and completes contact between brush 22 and cam 25. A circuit is then complete through filament 7, as follows: from socket-bushing 10 and bracket 11, as before, and the base-sleeve 2 of the lamp through filament 7 to pin 4, thence to brush 22, cam 25, pin 18, and bracket 12. With the commutator in this position the light produced is of medium intensity. If the commutator be given a further quarter-

turn from this position, brush 22 remains in contact with cam 25, but brush 30 of contact-piece 23 makes contact with bushing 20. The circuit just described through filament 7 remains as before, but the contact of brush 30 with bushing 20 establishes a circuit through filament 6 in multiple with that through filament 7, as follows: from bracket 11 and bushing 20 through brush 30, ring 26, ring 5 on the base of the lamp, and filament 6 to pin 4, and thence to bracket 12, the same as the circuit through filament 7. The filaments being connected to the line in multiple in this position of the commutator, the light produced is of maximum intensity. A further rotation of the commutator breaks the circuit.

The commutator may be turned in either direction. Because of the loose connection between the key and the commutator the spring-brushes 22, 29, and 30 are enabled to move the commutator sufficiently independently of the key to break the circuit quickly and to prevent arcing.

The construction of the socket is such that it will receive a single-filament lamp of the ordinary type, and the switch may be used to make and break the circuit of such single-filament lamp, though of course it cannot regulate the intensity of the illumination produced by a single-filament lamp. Likewise the base of the lamp is of such construction that it may be used as a single-filament lamp in an ordinary socket.

The contact-pieces 10, 24, and 26 may be termed "socket" contact-pieces to distinguish them from contact-pieces 2, 4, and 5, which are lamp contact-pieces, and from contact-piece 23 and its brushes 29 and 30 and from contact piece or brush 22, which may be termed "switch" contact-pieces. Likewise brush 22 may be termed a "two-filament" brush, since it is connected to both filaments 6 and 7, and contact-piece 23 or either of its brushes may be termed a "single-filament" contact piece or brush, since it is connected to but one filament.

Having thus completely described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a switch for connecting two branch circuits singly, in series or in multiple with a line-circuit, the combination, with three contact-brushes, of a movable commutator having insulated contact-pieces adapted to connect two of said brushes with different sides of the line-circuit in different positions of the commutator, and to connect the third brush with one side of the line-circuit in one of the said positions of the commutator, and also in a third position of the commutator.

2. In a switch for connecting two branch circuits singly, in series, or in multiple with a line-circuit, the combination, with three contact-brushes, two of which are electrically connected, of a movable commutator having contact-pieces adapted to be connected with both sides of the line-circuit and to connect

said electrically-connected brushes with different sides of the line-circuit in different positions of the commutator, and also to connect the third brush with the line-circuit in one of the said positions of the commutator, and also in a third position.

3. In a switch for connecting two branch circuits singly, in series or in multiple with a line-circuit, the combination, with an electrically-conductive contact-piece having two contact-brushes adapted to make contact with a movable commutator, and a third contact-brush, separate from the said first contact-piece and its brushes, but likewise adapted to make contact with said commutator, of a movable commutator, having contact-pieces adapted to be connected with both sides of the line-circuit and to connect said electrically-connected brushes with different sides of the line-circuit in different positions of the commutator, and also to connect the third brush with the line-circuit in one of the said positions of the commutator, and also in a third position.

4. In a switch for connecting two branch circuits singly, in series or in multiple with a line-circuit, the combination, with three contact-brushes, of a movable commutator, having electrically-conductive members insulated from each other but adapted each to be electrically connected to one side of the line-circuit, one of said electrically-conductive members having contact projections adapted to make contact with two of said brushes, and to connect one of said brushes to the line in one position of the commutator and to connect the other of said brushes to the line in two other positions of the commutator, the other conductive member of the commutator having a contact projection adapted to connect the third brush with the line-circuit in one of the last-mentioned positions of the commutator.

5. In a switch for connecting two branch circuits singly, in series or in multiple with a line-circuit, the combination, with three contact-brushes, two of which are electrically connected, of a movable commutator having electrically-conductive members insulated from each other but adapted to be electrically connected to one side of the line-circuit, one of said electrically-conductive members having contact projections adapted to make contact with one of said electrically-connected brushes in one position of the commutator, and with the separate contact-brush in two other positions of the commutator, the other electrically-conductive member having a contact projection adapted to connect the third contact-brush with the line-circuit in one of the last-mentioned positions of the commutator.

6. A commutator for electrical switches, comprising a four-sided block of insulating material, having at one end a pivot-pin of electrically-conductive material, secured to the insulating-block to rotate therewith, and

having two contact projections, one adapted to make contact with a brush when one side of the insulating-block is uppermost and the other adapted to make contact with the other brush when two other sides of the insulating-block are uppermost, said block having at its other end a contact-piece adapted to make contact with a brush in one of the last-named positions of the commutator.

7. The combination, with a two-filament lamp having contact-pieces for its filaments, adapted to permit connection thereof to a line-circuit, singly, in series or in multiple, of a socket having corresponding contact-pieces, and having also two line-terminals, to one of which one end of one filament is electrically connected, two contact-brushes in the socket, electrically connected to one end of the other filament, a third contact-brush connected to the other ends of both filaments, and a movable commutator, having contact-pieces connected to both line-terminals and adapted to coact with said brushes, and arranged to connect said filaments to the line in series, singly or in multiple, according to the position of the commutator.

8. The combination, with a two-filament lamp having contact-pieces for its filaments, adapted to permit connection thereof to a line-circuit, singly, in series or in multiple, of a socket having corresponding contact-pieces and having also two line-terminals, to one of which one end of one filament is electrically connected, two contact-brushes in the socket, electrically connected to the one end of the other filament, a third contact-brush connected to the other ends of both filaments, said brushes being adapted to coact with the commutator, and a movable commutator having contact-pieces connected to that line-terminal to which no filament is normally connected, and adapted in one position of the commutator to connect the single-filament brush with that terminal, and in two other positions of the commutator to connect the two-filament brush with that terminal, and having also a contact-piece, insulated from the other contact-pieces and connected to the other line-terminal, adapted to connect the other of said electrically-connected contact-brushes with the line in one of the last-mentioned positions of the commutator.

9. The combination, with a two-filament lamp having contact-pieces for its filaments, adapted to permit connection thereof to a line-circuit, singly, in series or in multiple, of a socket having corresponding contact-pieces and having also two line-terminals, to one of which one end of one filament is electrically connected, two contact-brushes in the socket, one electrically connected to one end of the other filament, the other electrically connected to the other ends of both filaments, a movable commutator having contact-pieces connected to that line-terminal to which no filament is normally connected, and adapted to coact with said brushes, and to connect the

single-filament brush with the line in one position of the commutator and to connect the two-filament brush with the line in two other positions of the commutator, and a third contact-brush, electrically connected to the same filament to which said single-filament brush is connected, and coacting with a commutator contact-piece which is electrically connected to that line-terminal to which the first filament is normally connected, and which is

adapted to make contact with such third brush in one of the positions of the commutator in which the two-filament brush is connected with the line.

In testimony whereof I affix my signature 15
in the presence of two witnesses.

CHARLES A. HUSSEY.

Witnesses:

HARRY M. MARBLE,
A. H. PERLES.