

No. 860,325.

PATENTED JULY 16, 1907.

W. J. PHELPS.  
LAMP HOLDER.

APPLICATION FILED DEC. 20, 1902.

Fig. 1.

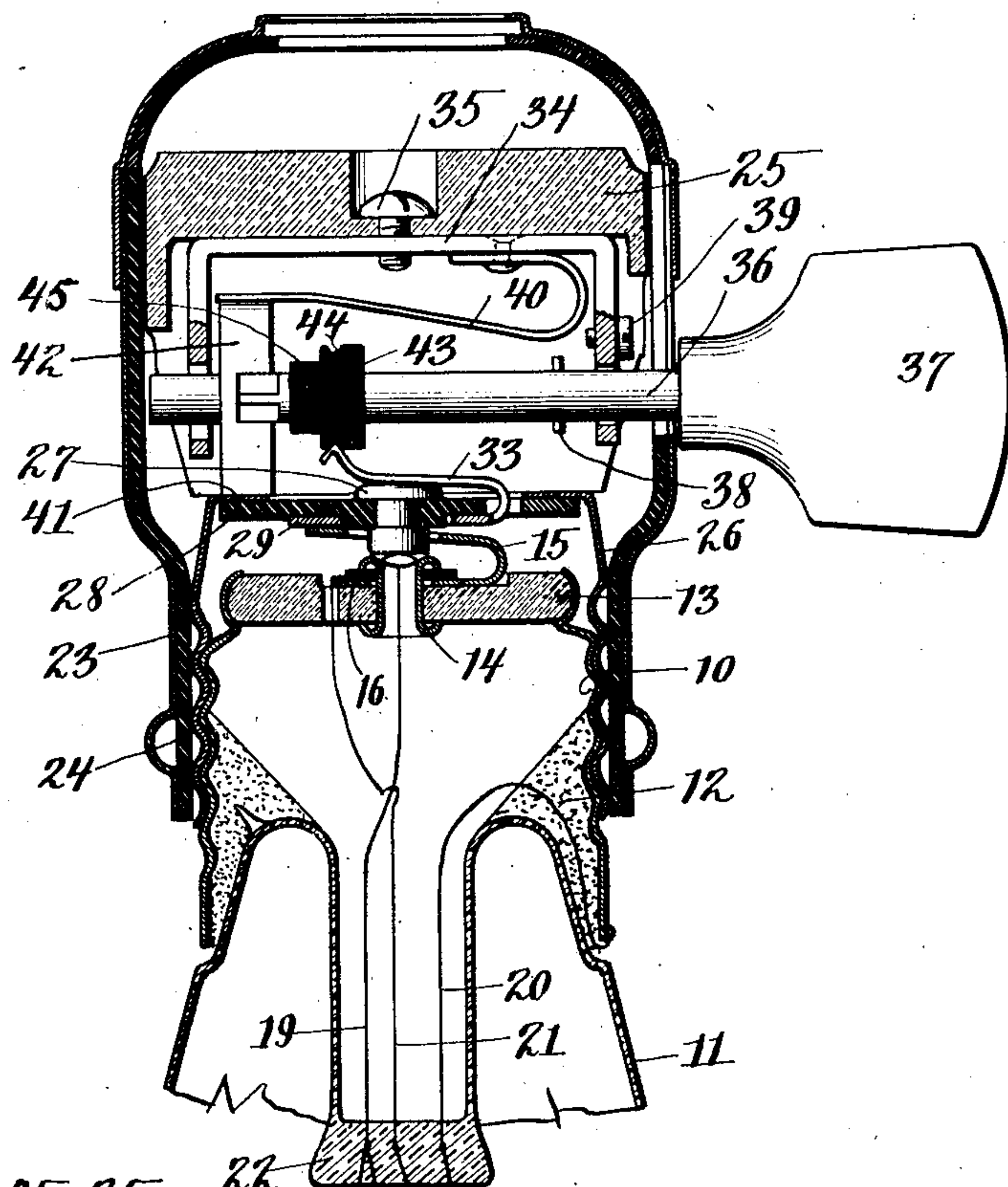
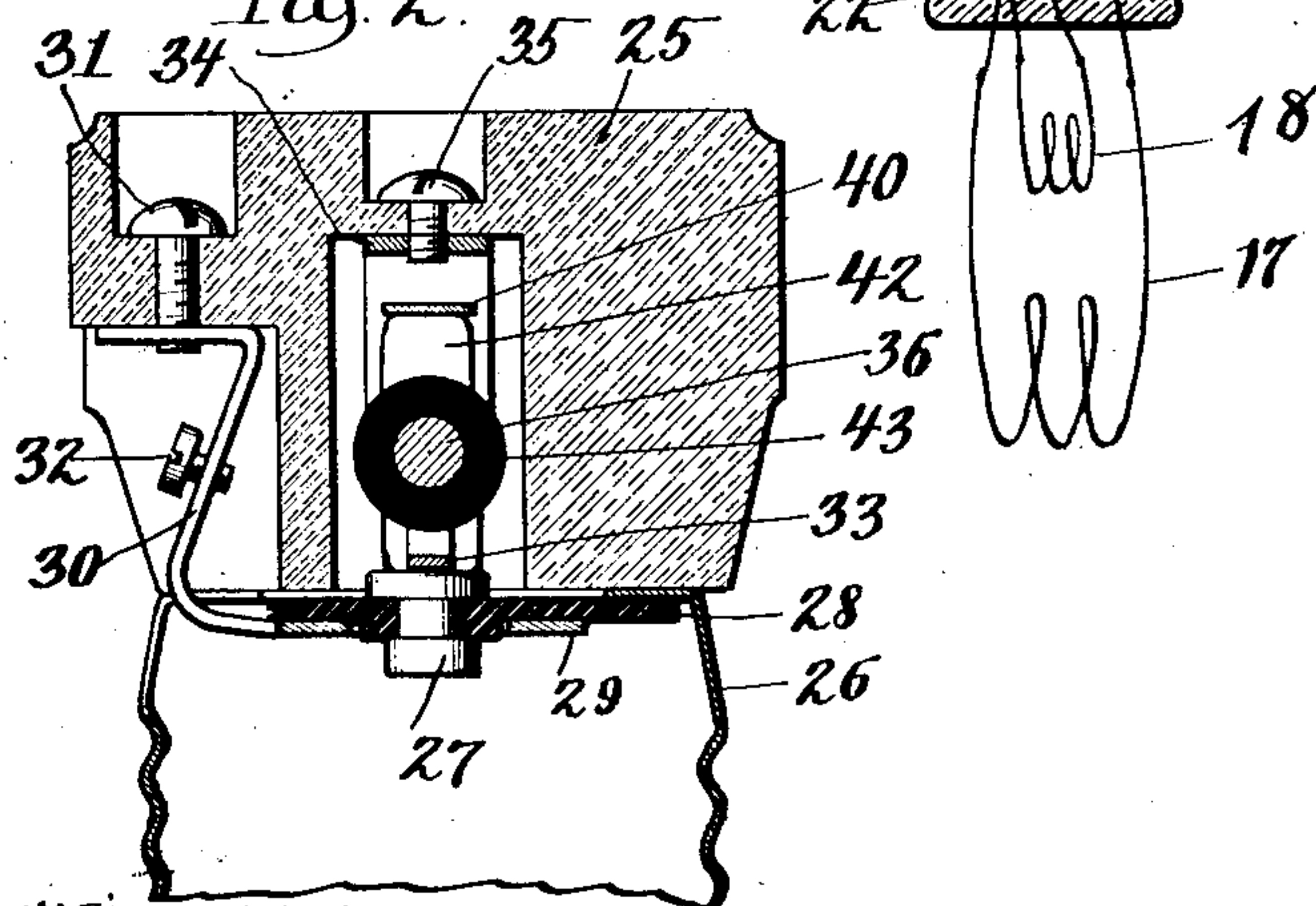


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## LAMP-HOLDER.

No. 860,325.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed December 20, 1902. Serial No. 135,974.

*To all whom it may concern:*

Be it known that I, WILLIAM J. PHELPS, a citizen of the United States, and a resident of Detroit, Wayne county, State of Michigan, have invented certain new and useful Improvements in Lamp-Holders, of which the following is declared to be a full, clear, and exact description.

The invention relates to holders for electric incandescent lamps and more particularly to those designed for use in connection with a lamp having two or more filaments or filament sections designed to emit light of varying intensity such, for example as is disclosed in prior Letters Patent of the United States issued to me No. 603,705, dated May 10th, 1898. In the construction shown in said prior Letters Patent, a flow of current to the separate filaments or sections of the lamp was modified by turning the lamp within its holder and thus cause it to glow with varying candle power.

The present invention seeks to provide a construction of lamp-holder which is adapted for supporting ordinary lamps, but which is particularly adapted for use in connection with turn-down lamps of the character described, and in which devices for modifying the flow of current to the separate filaments of the lamp are carried by the holder itself and preferably actuated by the ordinary holder switch-key, the latter coöperating with contacts in the ordinary manner for making and breaking the circuit through the lamp-holder.

With these objects in view the invention consists in the features of construction, combinations and arrangements of parts set forth in the following description, illustrated in the accompanying drawings and more particularly set forth in the appended claims.

In the drawings, Figure 1 is a longitudinal section of the improved lamp-holder and of the upper portion of a turn-down lamp held in position therein. Fig. 2 is a partial sectional view of the improved holder taken at right angles to the section shown in Fig. 1.

The holder and lamp-base supported thereby may be of any well known or desired type but the Edison type of holder and lamp-base is illustrated in which each are provided with inter-engaging screw-shells which form respectively terminals of the holder and base.

As shown in the drawings, the lamp comprises a screw-shell 10, which forms one of the lamp terminals for the reception of current and which supports within its outer end a glass globe or vacuum bulb 11 held therein by suitable composition filling 12. A porcelain disk 13 is mounted within the inner end of the screw-shell 10 and carries, in the particular form shown, two terminals for the reception of current for the lamp-holder. One of these terminals comprises a metallic tubular rivet 14 extending through a hole in the porcelain disk 13 and flanged outwardly at either end. The other of said terminals comprises a bent spring-piece 15 which is held upon the outer face of the insulating disk 13 by

the upper flanged end of the tubular rivet or terminal 14, but, as shown, the terminal 15 is insulated from the terminal 14 by a suitable washer 16. The upper end of the spring terminal 15 is provided with an annulus or loop and the spring terminal 15 and central terminal 14 of the lamp are arranged to engage respectively with an annular and a central terminal carried by the lamp-holder, as will presently appear.

Lamp filaments or filament sections 17 and 18 are employed, which are preferably of different candle power and low power filament 18 is preferably of greater resistance per unit of length than high power filament 17. Three leading in-wires 19, 20 and 21 are connected respectively with the central terminal 14, the screw-shell terminal 10 and the spring terminal 15 of the lamp. The leading in-wires extend within the neck 22 of the lamp and wire 19 is connected to the joined ends of the filaments or filament sections and the wires 20 and 21 are connected respectively to the free ends of the high and low power filaments 17 and 18.

When the current through the lamp passes from terminal 14 to terminal 10, the low power filament 18 is short circuited and the high power filament 17 will alone glow with the full candle power of the lamp. When the current passes from terminal 15 to terminal 10 it will pass through the filaments in series, and because of the different relative resistance of the filaments 17 and 18 the low power filament 18 alone will glow, while the high power filament 17 will act as a dark or dead resistance or will only glow with more diminished power, for example dull red, and with considerable cutting down in the amount of current used.

It will be understood that the holder may be modified for use with lamps of various types and that the arrangements and terminals of the lamp used with the holder may be modified within wide range without departure from the scope of the invention.

The lamp-holder comprises the usual outer shell 23 having a suitable insulating lining 24. A block 25 of insulating material is supported within the shell of the holder and carries, within the outer end of the holder, the screw-shell 26, which constitutes one of the holder terminals for the transmission of current to the lamp. Another terminal of the lamp holder comprises a central rivet or stud 27 fixed to an insulating disk 28, which is secured within the inner end of the screw-shell 26 and is adapted to engage with the central terminal 14 of the lamp. A third holder terminal comprises the annular piece 29 held in place against the underside of the insulating disk 28 and provided with an extending portion 30 which is secured to the insulating block 25 by means of a screw 31 and which is provided with a suitable binding screw 32 to which is connected one of the conductors of the electrical supply. A spring strip or contact 33 is secured to or formed in piece with the terminal 29 and extends through an



opening in the insulating disk 28 and then extends inwardly and above the central terminal 27 in such a manner that it may be depressed into engagement therewith. Spring contact 33 is thus axially movable and arranged to electrically connect the holder terminals 27 and 29.

The porcelain block 25 is provided with a central recess or cut-away portion which extends from side to side and within which is seated a U-frame 34 held in place therein by a screw 35. Within the ends of the U-frame 34 is suitably journaled a rotatable key 36 having a thumb piece 37, which in the usual manner is positioned outside of the shell of the lamp-holder. Key 36, besides being rotatable is capable of a certain amount of longitudinal movement or end-thrust, the extent of which is limited by a stop-pin 38 fixed to the key 36 and arranged to engage one of the arms of the U-frame 34. A binding screw 39 upon one limb of the U-frame serves to secure the second conductor of the electrical supply in electrical contact with the metal U-frame 34. A spring metal contact 40 is secured, as shown, to the U-frame 34 and the gap between the free end of this spring contact and a contact shoulder 41 formed in piece with the screw-shell 26, is adapted to be bridged by a rotatable switch block 42 mounted upon and actuated by the rotation of the key 36.

A cylindrical block 43 of insulating material is mounted upon the key 36 and is fixed thereto and, in the inmost position of the key, is arranged to engage and depress the spring contact 33, so that the latter will engage and be in electrical connection with the central terminal 27. To securely lock the contact in this position, the insulating block is preferably provided with an annular groove 44 arranged to engage the V-shaped end portion of the spring contact 33. When however the key is shifted end-wise or pulled out to a slight extent, the spring contact 33 is permitted to move upwardly and rest upon a reduced portion 45 of the insulating block 43 and the contact engagement between the spring contact 33 and terminal 27 is broken, but the spring contact 33 is still insulated from the rotating key 36.

When the switch-key 36 is turned to such position that the switch-block 42 bridges the gap between the contacts 40 and 41, current will flow to the lamp supported in the holder and the flow of current may be interrupted by turning the key a quarter turn and opening the gap between contacts 40 and 41. When the current is flowing to the lamp, i. e. when switch-block 42 bridges the gap between contacts 40 and 41, and when the key 36 is in its in-most position, the insulating block 43 will depress spring contact 33 into engagement with lamp-holder terminal 27 and the flow of current from the lamp-holder terminal 29 will be shunted through the lamp-holder terminal 27 and will flow therefrom to lamp terminal 14, leading in-wire 19, high power filament 17, leading in-wire 20, lamp terminal 10 to holder terminal 26. In this position the low power filament 18 is short circuited and the high power filament will alone glow with a full candle power of the lamp. If now, the key 36 be pulled out to a slight extent permitting the spring contact 33 to lift out of engagement with the terminal 27, the current will flow from lamp-holder terminal 29 to lamp terminal 15, by leading in-wire 21 through the low and high power

filaments 18 and 17 in series and by leading in-wire 20 to lamp terminal 10 and lamp-holder terminal 26. In this instance, as above stated, the high power filament will act as a dark resistance considerably cutting down the amount of current used, while the low power filament will alone glow with a small candle power. It will thus be seen, that the current to the lamp may be turned on and off by rotating the lamp-holder switch-key and the lamp may be turned up and down and caused to glow with different candle power by shifting the key longitudinally within its socket.

It may be noted that the lamp may be turned up and down by unscrewing the lamp within its socket, thus making and breaking the electrical contact between terminals 14 and 27, as in the prior construction.

It is obvious that numerous changes in the detail of construction and arrangements of parts may be made without departure from the invention, as defined by the claims.

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

1. A holder for electric incandescent lamps having three terminals for the transmission of current to the lamp supported thereby, make and break contacts cooperating with one of said terminals, a switch-key rotatably mounted in said lamp-holder and capable of longitudinal movement, means actuated by the rotation of said key for operating said make and break contacts, and means actuated by the longitudinal shift of said key for modifying the flow of current through two of said terminals.
2. A holder for electric incandescent lamps having two terminals for the transmission of current to the lamp supported thereby, means for connecting said terminals to the conductors of the electrical supply, make and break contacts interposed in the connection to one of said terminals, a key rotatably mounted in said lamp-holder and capable of longitudinal movement, means actuated by the rotation of said key for controlling said make and break contacts, a third terminal for the transmission of current to the lamp and means for shunting the flow of current from one of said first mentioned terminals through said third terminal, said means being controlled by the longitudinal shift of said key.
3. A holder for electric lamps, comprising a conducting shell forming one terminal, an insulating disk in the end of said shell, two terminals on said disk, make and break contacts cooperating with one of said terminals, a shiftable contact for electrically connecting and disconnecting the other two terminals, and means for actuating said contacts.
4. A holder for electric incandescent lamps, comprising a screw shell terminal, insulating disk in the end of said shell, two terminals carried by said disk, a contact connected to one of said last mentioned terminals arranged to engage the other, make and break contacts cooperating with said shell terminal, and a switch-key for actuating said contacts.
5. A holder for electric incandescent lamps having three terminals for the transmission of current to the lamp supported thereby, make and break contacts cooperating with one of said terminals, a shiftable spring contact connected to one of said terminals and arranged to engage another of said terminals, a switch key shiftable in different directions at an angle to each other, means actuated by the switch key when moved in one direction for controlling said make and break contacts and means actuated by said switch key when moved in another direction for shifting said spring contact into and out of engagement with said last mentioned terminal.
6. A holder for electric incandescent lamps having three terminals for the transmission of current to the lamp supported thereby, a rotatable and longitudinally movable switch key mounted in said holder, make and break contacts operated by the switch key when moved in one direction and cooperating with one of said terminals



to open and close the circuit through the holder and means controlled by the movement of the switch key in another direction for connecting and disconnecting two of said terminals to modify the flow of current to the lamp, substantially as described.

7. A holder for electric incandescent lamps having two terminals for the transmission of current to the lamp supported thereby, means for connecting said terminals to the conductors of the electrical supply, make and break contacts interposed in the connection with one of said terminals, a rotating switch-block cooperating with said make and break contacts, a rotatable key mounted in said lamp-holder for actuating said switch-block, said key being also longitudinally shiftable, a third terminal for the transmission of current to the lamp, a spring contact connected to one of said first mentioned terminals and arranged to engage said third terminal and means actuated by the longitudinal movement of said key for shifting said spring contact into and out of engagement with said third terminal.

8. A holder for electric incandescent lamps having two terminals for the transmission of current to the lamp supported thereby, make and break contacts and a cooperating switch-block for one of said terminals, a rotatable key whereon said switch-block is mounted, said key being also longitudinally shiftable, a third terminal for the transmission of current to the lamp, a spring contact connected to one of said first mentioned terminals and arranged to engage said third terminal and a cylindrical insulating block mounted upon said key and having a grooved and a reduced portion for effecting the shift of said contact into and out of engagement with said third terminal as said key is moved longitudinally.

9. A holder for electric incandescent lamps, a screw-threaded sleeve forming one of the terminals of said holder for the transmission of current, an insulating disk mounted at the inner end of said sleeve, a central and a concentric annular terminal for the transmission of current mounted upon said insulating disk, make and break contacts cooperating with said screw-shell terminal, a spring contact connected to said annular terminal and arranged to engage said central terminal and a key arranged to control said make and break contacts and said spring contact.

10. The combination with an electric incandescent lamp having two incandescing filaments or sections, of a lamp-holder therefor, said lamp and said lamp-holder each having three cooperating terminals means for connecting two of said holder terminals to the conductors of the electrical supply, make and break contacts interposed in the connection for one of said terminals, a key mounted in said lamp-holder and shiftable in different directions at right angles to each other, means actuated by the shift of said key in one direction for controlling said make and break contacts and means controlled by the shift of the key in another direction for shunting the flow of current from one of said terminals to a third terminal.

11. The combination with an electric lamp having two filaments, of a lamp holder therefor, said lamp and said holder having interlocking metal shells forming terminals, insulating disks in the ends of said shells, two pairs of cooperating terminals on said disks, make and break contacts cooperating with one of said holder terminals, a contact arranged to connect and disconnect the other two holder terminals and a switch key for operating said contacts.

12. The combination with an electric incandescent lamp having two filaments or sections, three or more terminals to which the ends of said filaments are connected, of a suitable lamp-holder having three terminals cooperating with said lamp terminal, means for connecting two of said lamp terminals to the conductors of the electrical supply, make and break contacts interposed in the connection with one of said terminals, a spring contact connected to one of said terminals and arranged to engage a third terminal, a rotatable switch-key mounted in said lamp-holder capable of longitudinal movement, a switch

block cooperating with said make and break contacts and actuated by the rotation of said key and an insulating block mounted upon said key and brought into operation by the longitudinal shift thereof for moving said spring contact into and out of engagement with said third terminal to modify the flow of current to the separate filaments or sections.

13. A holder for electric incandescent lamps having two or more terminals for the transmission of current to the lamp supported thereby, make and break contacts cooperating with one of said terminals, an axially movable resilient member cooperating with one of said terminals, a shift-key movable in different directions, means brought into operation by the movement of said key in one direction for controlling said make and break contacts and means brought into operation by the shift of said key in another direction for actuating said axially movable member.

14. A holder for electric incandescent lamps having two or more terminals for the transmission of current to the lamp supported thereby, make and break contacts and a rotary switch-block cooperating with one of said terminals, an axially movable resilient member cooperating with one of said terminals, a rotatable key whereon said switch-block is mounted, said key being longitudinally shiftable and a block of insulating material mounted on said key and arranged to shift said axially movable member when said key is shifted end-wise.

15. The combination with an electric incandescent lamp having two or more filaments or sections, of a lamp-holder, cooperating lamp and holder terminals, a key shiftable in different directions at right angles to each other mounted within said holder, means brought into operation by the shift of said key in one direction for controlling the flow of current to said filaments or sections and means brought into operation by the shift of said key in another direction for modifying the flow of current to said filaments or sections.

16. The combination with an electric incandescent lamp, having two or more filaments or sections, of a lamp-holder, cooperating lamp and holder terminals, make and break contacts cooperating with one of said lamp terminals, a key rotatably mounted in said lamp-holder and capable of longitudinal movement, means actuated by the rotation of said key for controlling said make and break contacts and means actuated by the longitudinal movement of said key for modifying the flow of current to said separate filaments or sections.

17. The combination with an electric incandescent lamp having two or more filaments or sections, of a lamp-holder, cooperating lamp and holder terminals, means carried by said lamp-holder for interrupting the flow of current to said filaments or sections, means carried by said lamp-holder for modifying the flow of current to said filaments or sections and a key carried by said lamp-holder shiftable in different directions, said key being arranged when shifted in one direction to control said circuit interrupting means and when shifted in a different direction to control said circuit modifying means.

18. The combination with an electric incandescent lamp having two or more filaments or sections, of a lamp-holder, cooperating lamp and holder terminals, make and break contacts and a rotatable switch-block for one of said holder terminals, an axially movable, resilient member carried by said lamp-holder and arranged to modify the flow of current to said filaments or sections, a switch-key rotatably mounted within said lamp-holder and capable of longitudinal movement, a switch-block actuated by the rotation of said key and cooperating with said make and break contacts and means carried by said key and brought into operation by the longitudinal shift thereof for actuating said axially movable member.

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