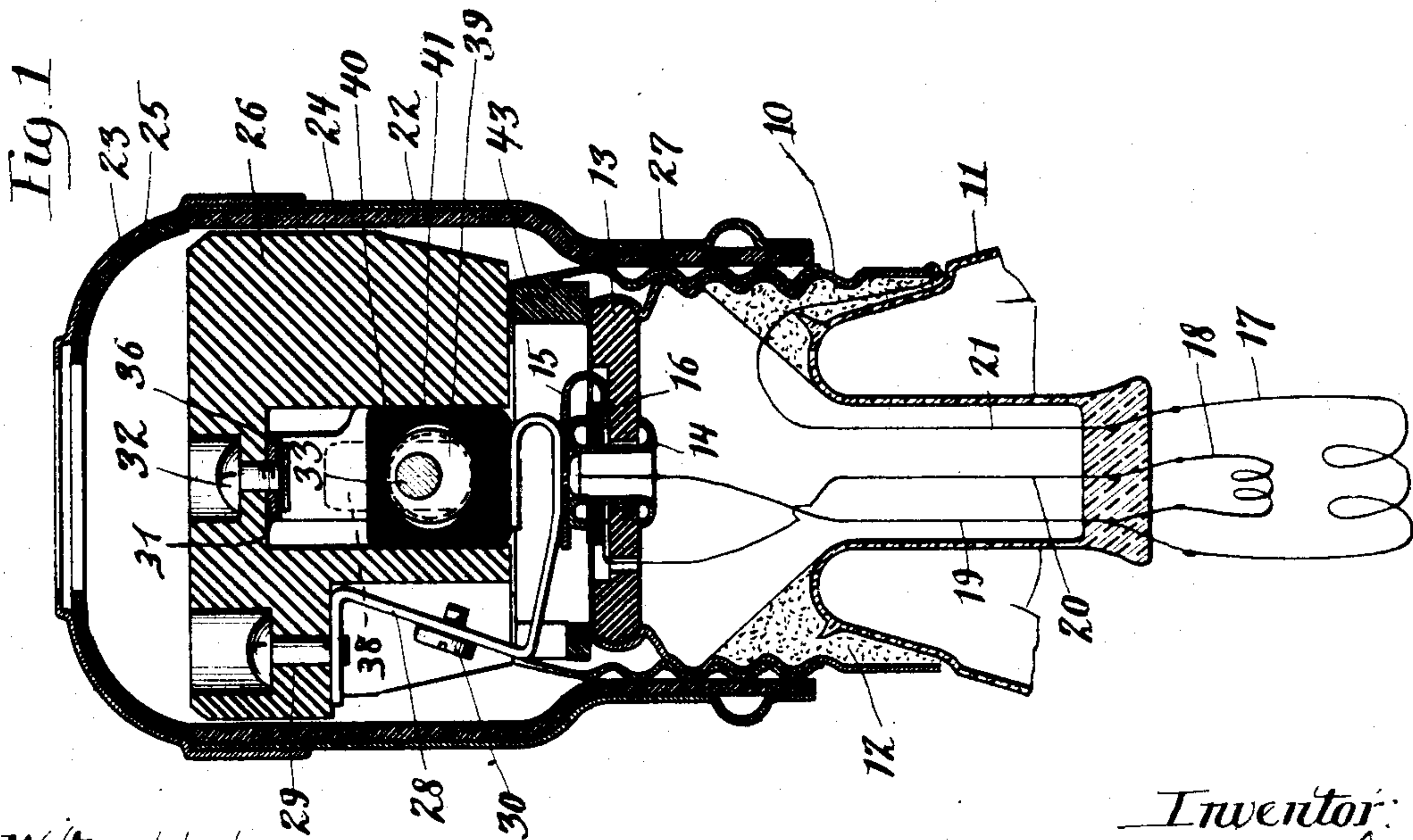
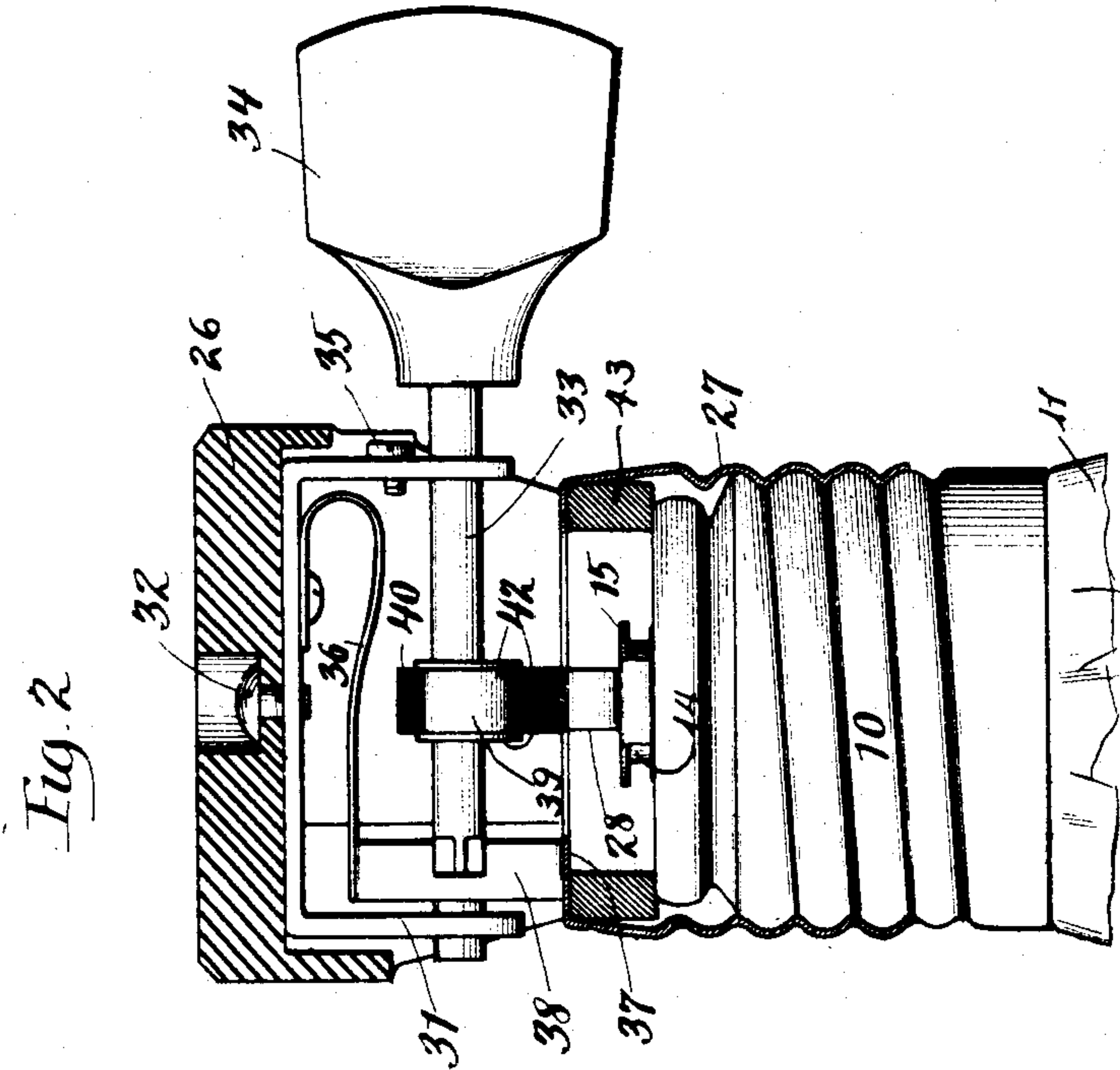


W. J. PHELPS.
LAMP HOLDER.

APPLICATION FILED SEPT. 22, 1902.

2 SHEETS—SHEET 1.



Witnesses:
Frederick
Harry L. Clapp

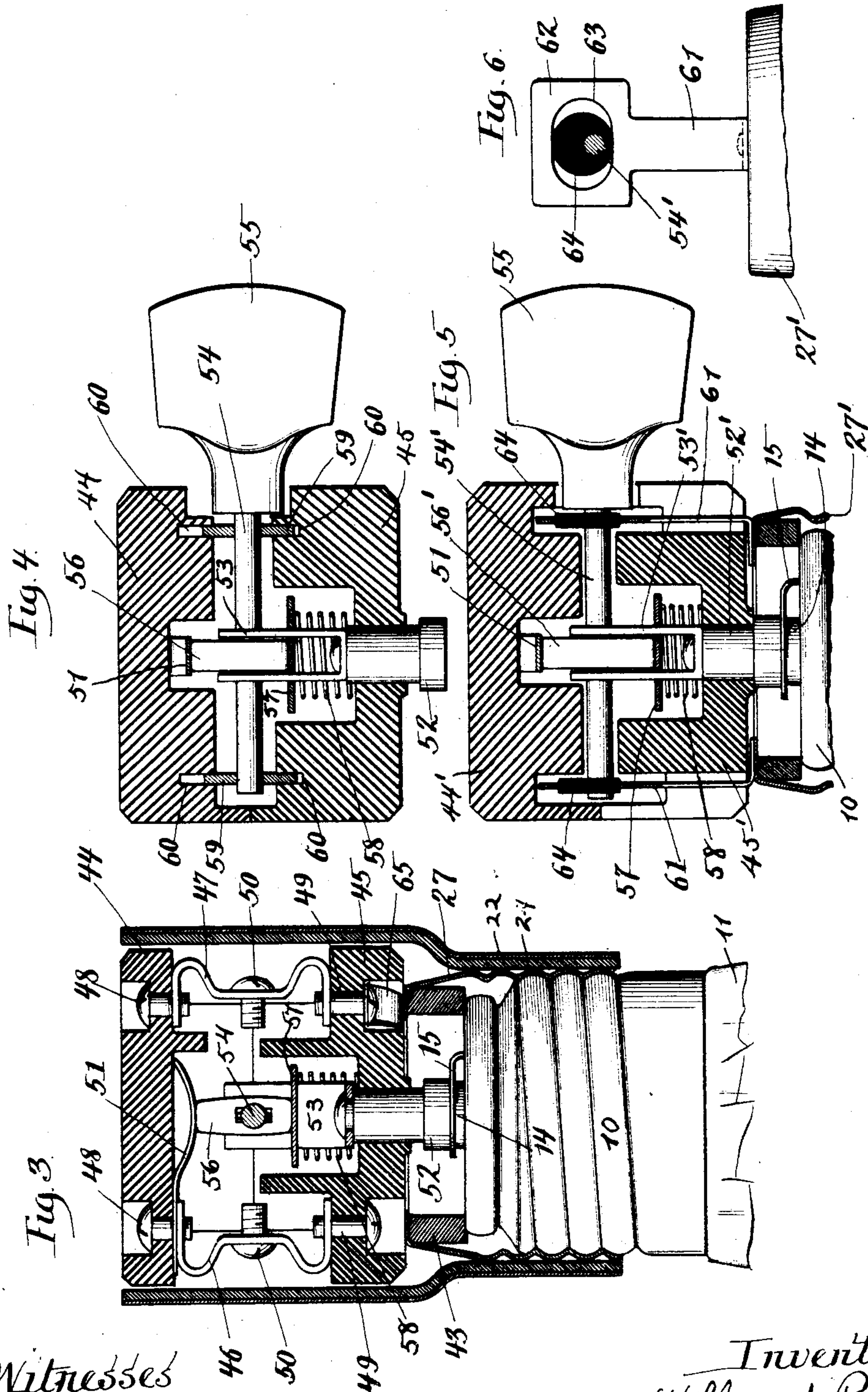
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William J. Phelps
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2 SHEETS—SHEET 2.



Witnesses
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 Harry L. Clapp

Inventor
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UNITED STATES PATENT OFFICE.

WILLIAM J. PHELPS, OF DETROIT, MICHIGAN, ASSIGNOR TO THE PHELPS COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

LAMP-HOLDER.

SPECIFICATION forming part of Letters Patent No. 792,552, dated June 13, 1905.

Application filed September 22, 1902. Serial No. 124,407.

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, county of Wayne, and 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 holders designed for use in connection with a lamp having two or more incandescing filaments or filament-sections designed to emit light of varying intensity—such, for example, as disclosed in prior Letters Patent of the United States issued to me, No. 603,705, dated May 10, 1898. In the construction shown in said prior Letters Patent the flow of current to the separate filaments or sections was modified by turning the lamp within the holder to cause it to glow with varying candle-power.

The present invention seeks to provide a construction of lamp-holder which may be used with ordinary lamps, but which is particularly adapted for use in connection with turn-down lamps of the character described, and in which the actuating means for controlling the modification of the flow of current to the separate filaments of the lamp is carried by the holder itself and is preferably controlled by the manipulation of the ordinary holder switch-key, the latter coöperating with contacts for completing 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 one form of the improved holder and of the upper portion of a turn-down lamp held in position therein. Fig. 2 is a sectional view taken at right angles to the section shown in Fig. 1, the outer shell being omitted. Fig. 3 is a view similar to Fig. 1, showing a modified form of the invention. Fig. 4 is a sectional view of the same, taken at right angles

to the section shown in Fig. 3, the outer shell of the holder being omitted. Fig. 5 is a vertical section of a still further modification of the invention, and Fig. 6 is a detailed view of parts shown in Fig. 5.

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

As shown in the drawings and as illustrated in the prior patent referred to, 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 the glass globe or vacuum-bulb 11, held therein by the suitable composition filling 12. An insulating-disk 13 is mounted within the inner end of the screw-shell 10 and carries a central contact 14 in the form of a tubular rivet extending through a hole in the insulating-disk 13 and flanged outwardly at either end. A bent spring-piece 15 is held upon the outer face of the insulating-disk 13 by the upper edge of the tubular rivet or contact 14, but, as shown, is insulated therefrom by a suitable washer 16. The bent spring-piece 15 forms a second lamp-terminal for the reception of current and normally stands out of engagement with the contact 14, but is axially movable and may be depressed into engagement with said contact 14. Lamp-filaments or filament-sections 17 and 18 are employed which are preferably of different candle-power, and high-power filament 17 is preferably of greater resistance per unit of length than low-power filament 18. Three leading-in wires 19, 20, and 21 are connected, respectively, to the contact 14, the spring-terminal 15, and the screw-shell terminal 10. 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 low and high power filaments. When the spring-terminal 15 is depressed into engagement with the contact 14, the low-power filament 18 is short-circuited, and the current

will pass from terminal 15 to contact 14, by leading-in wire 19 to the high-power filament 17, and by leading-in wire 21 to the shell 10, which forms the other terminal of the lamp, and the lamp will glow with its full candle-power. When the spring-terminal 15 is out of engagement with the contact 14, the current will flow from terminal 15 by leading-in wire 20, through the filaments 18 and 17 in series, and by leading-in wire 21 to the lamp-terminal 10. The lamp is designed for use with a current of constant or fairly-constant potential, and in this instance—*i. e.*, when the terminal 15 is out of engagement with the contact 14—the low-power filament 18 alone will glow, while the high-power filament 17 will act as a dark and dead resistance, since, as above stated, the filament 17 is of higher resistance per unit of length than the low-power filament 18. Moreover, there will be considerable cutting down in the amount of current used.

In prior Letters Patent above referred to the relative movement of the spring-terminal 15 and contact 14 was effected by partially unscrewing the lamp from its holder, while in the present invention means are provided within the holder itself for effecting this relative movement.

It will be understood that the holder may be modified for use with lamps of various types and that the arrangement of filaments 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 selected to illustrate the invention comprises the usual outer shell 22 and cap-piece 23, having suitable insulating-linings 24 and 25, respectively. A block 26, of insulating material, is supported within the shell of the holder and carries within the outer end of the holder the screw-shell 27, which constitutes one of the holder-terminals for the transmission of current to the lamp. The other terminal of the lamp-holder comprises a Z-shaped piece 28 of spring metal, held within a recess on one side of the insulating-block 26 by a screw 29 and provided with a suitable binding-screw 30 for one of the conductors of the electric supply. The insulating-block 26 is provided with a central recess or cut-away portion, which extends from side to side and within which is seated a U-frame 31, held in place therein by a screw 32. Within the ends of the U-frame 31 is suitably journaled a rotatable key 33, having at its outer end a thumb-piece 34, which in the usual manner is positioned outside of the shell of the lamp-holder. A binding-screw 35 upon one limb of the U-frame 31 serves to secure the second conductor of the electrical supply in electrical contact with the metal U-frame 31. A spring-metal contact 36 is secured, as shown, to the U-frame 31, and the gap between the free end of this spring-contact and a contact-shoulder 37, formed in

piece with the screw-shell 27, is adapted to be bridged by a rotatable switch-block 38, mounted upon and actuated by the rotatable key 33.

Centrally fixed upon the rotatable key 33 is an eccentric 39, preferably of metal and mounted in such position that, when the eccentric is either in its lowermost or uppermost position, the gap between the contacts 36 and 37 will be bridged by the switch-block 38. A square piece 40 of suitable insulating material surrounds the eccentric 39 and is provided with laterally-elongated slot 41, within which the eccentric plays. The block 40 may be held against displacement upon eccentric 39 by suitable flanges 42 on the latter, as indicated in Fig. 2, or in any other suitable manner. As shown, the insulating-block 40 slides vertically within the central recess of the insulating-piece 36 and is arranged to bear upon the free end of the spring-terminal 28, which, as shown in Fig. 1, is preferably U-shaped or reversely bent. When the key 33 is turned in such position that the switch-block 38 and eccentric 39 occupy central or mid positions, the flow of current through the holder will be interrupted and the lamp will be dark. When the key 33 is turned to bring the eccentric 39 in its lowermost position, the switch-block 38 will bridge the gap between contacts 36 and 37, and the insulating-block 40 will force the free end of the spring-terminal 28 against the spring lamp-terminal 15 and force the latter into engagement with the contact 14, as shown in Figs. 1 and 2. In this position the low-power filament 18 is short-circuited and the high-power filament 17 alone will glow with the full candle-power of the lamp. When, however, the key 33 is turned to bring the eccentric 39 in its uppermost position, the switch-block 38 will again bridge the gap between contacts 36 and 37; but the insulated block 40 will be moved upwardly, relieving the pressure upon the spring-terminal 28 and permitting the lamp-terminal 15 to move out of engagement with the contact 14. In this position, as previously described, the current will flow through the filaments in series and the low-power filament will glow, while the high-power filament acts as a dark resistance or will only glow with much diminished power and with a corresponding cutting down in the amount of current used.

In order to hold the cooperating lamp and holder terminals 15 and 28 in proper relative position, means are provided for definitely limiting the inward movement of the lamp as it is screwed into the holder. Such means preferably comprises a washer 43 within the inner end of the screw-shell 27 of the lamp-holder with which the end of the lamp engages as it is screwed into position.

In the modified form shown in Figs. 3 and 4 two insulating blocks or pieces 44 and 45 are provided and are connected together by

metal strips 46 and 47, which are mounted within recesses formed in the insulating-pieces 44 and 45 and are secured to the upper piece by screws 48 and to the lower piece by screws 49. Binding-screws 50 are secured to the metal pieces 46 and 47. To these screws the ends of the conductors of the electrical supply may be connected. One of the screws 49 in engagement with the metal strip 47 extends through the insulating-block 45 and is electrically connected by a spring-strip 65 with the upper edge of the screw-shell 27, which forms one of the lamp-terminals. A bow-shaped spring-contact 51 is secured to the upper insulating-piece 44 and in electrical contact with the metal strip 46 by the screw 48. The central holder-terminal, which engages the central lamp-terminal 15 in this form of the invention, comprises a plunger 52, arranged to reciprocate or move axially through a hole formed in the lower insulating-block 45. A U-shaped metal strip 53 is secured to the upper end of the plunger-terminal 52 and extends within a central recess formed in the insulating-blocks 44 and 45. Within the upper ends of the U-shaped piece 53 is journaled a rotatable key 54, having at its outer projecting end an operating thumb-piece 55. A switch-block 56 is mounted upon the key 54 between the arms of the U-shaped piece 53 and is arranged to engage with the spring-contact 51 and with a contact-plate 57, which is upwardly pressed by a coil-spring 58, which is provided with an opening through which the arm of the U-shaped piece 53 extends. As shown in Fig. 3, the opposite ends of the switch-block 56 are of different lengths, and it will be observed that the terminal 52, U-shaped piece 53, key 54, and switch-block 56 are capable of an axially or longitudinal movement within the insulating-blocks 44 and 45 of the lamp-holder. In order to prevent displacement of the key 54, washers 59 are provided near each end, which slide freely within suitable grooves or recesses 60, formed in the insulating-blocks 44 and 45. When the key 54 is turned to bring the block 56 in central or horizontal position, the flow of the current through the holder will be interrupted, and the lamp supported thereby will be dark. When the key 54 is turned to bring the long arm of the switch-block 56 uppermost, it will bridge the gap between the contacts 57 and 51, and the spring-contact 51 is made of sufficient strength to depress the switch-block 56, the U-shaped piece 53, and the terminal 52, carried thereby, so that the lamp-terminal 15 will be depressed into engagement with the contact 14. In this position, as previously described, the high-power filament of the lamp alone will glow with the full candle-power. When, however, the key is turned to bring the short arm of the switch-block 54 uppermost, the holder-ter-

minal 52 and the parts connected thereto will be lifted by the spring-terminal 15 of the lamp, and the latter will move out of engagement with the contact 14. Then, as previously described, the low-power filament of the lamp will alone glow with much diminished power.

The form of the invention shown in Figs. 5 and 6 is similar to construction shown in Figs. 3 and 4, except that the central terminal 52', the U-shaped piece 53', and the rotatable key 54' have no longitudinal play and the arms of the switch-block 56' are of equal length. In this form the relative movement of the lamp-terminal 15 and contact 14 is effected by shifting the shell 27' of the lamp-holder, which, as stated, forms one of the terminals of the lamp. For this purpose vertically-disposed strips 61 are connected to the upper end of the shell 27', extended upwardly through recesses or grooves formed in the insulating-blocks 44' and 45', and are provided at their upper ends with enlarged portions 62, having laterally-elongated slots 63. The rotatable key 54' extends through the slots 63 of the pieces 61, and within these slots play suitable eccentrics 64, which are of insulating material and which are fixed to the rotatable key 54'. The eccentrics 64 are so positioned upon the rotatable key 54' that when they occupy their uppermost or their lowermost position the switch-block 56' will bridge the gap between contacts 51 and 57; but when the eccentrics 64 are in central position the switch-block 56 will also be in central position and the flow of current through the lamp-holder is interrupted. In this manner the screw-shell 27' may be shifted up and down and the spring-terminal 15 of the lamp be moved into and out of engagement with the contact 14 and the lamp turned up and down, as previously described. For example, when the eccentrics 64 are turned by the key 54' to their uppermost position switch-block 56' will bridge the gap between contacts 51 and 57 and the lamp-terminal 15 will be depressed into engagement with contact 14, when the high-power filament of the lamp will alone glow. When, however, the key 54' is turned to bring the eccentrics 64 in their lowermost position, the switch-block 56' will still bridge the gap between the contacts 51 and 57, but the screw-shell 27' will be shifted so as to permit the spring-terminal 15 to move out of engagement with the contact 14.

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

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

1. A lamp-holder having suitable terminals for the transmission of current to the lamp, means for shifting one of said terminals and

make-and-break contacts for the electric supply mounted within the holder.

2. A lamp-holder having suitable terminals for the transmission of current to the lamp, make-and-break contacts within the holder, a key for shifting said contacts and means controlled by the movement of said key for shifting one of said terminals.

3. A lamp-holder having suitable terminals for the transmission of current to the lamp, one of said terminals being axially movable, means for shifting said axially-movable terminal and make-and-break contacts within the lamp-holder.

4. A lamp-holder having suitable terminals for the transmission of current to the lamp, one of said terminals being axially movable, contacts and a cooperating switch mounted within the lamp-holder, a key for shifting said switch, and means controlled by the movement of said key for shifting said axially-movable terminal.

5. A lamp-holder having suitable terminals for transmission of current to the lamp, a rotatable key mounted within said holder, a shifting switch member controlled by said key, contacts cooperating with said shifting switch member, and means controlled by the rotation of said key for shifting one of said terminals.

6. A lamp-holder having suitable terminals for the transmission of current to the lamp, a spring-contact mounted within said holder, a switch-block arranged to bridge the gap between said spring-contact and one of the lamp-terminals, a rotatable key for shifting said switch-block and means controlled by the rotation of said key for shifting one of said terminals.

7. A lamp-holder having suitable terminals for the transmission of current to the lamp, one of said terminals being movable, a shifter for said movable terminal and make-and-break contacts within the lamp-holder.

8. A lamp-holder having suitable terminals for the transmission of current to the lamp, one of said terminals being axially movable, a shifter for actuating said movable terminal, a switch and cooperating contacts mounted within the lamp-holder, and a key for actuating said shifter and said switch.

9. A lamp-holder having suitable terminals for the transmission of current to the lamp, one of said terminals being axially movable, an actuating-shifter for said movable terminal, a rotatable switch-block and cooperating contacts mounted within the lamp-holder, and a rotatable actuating-key whereby said switch-block and shifter are mounted.

10. A lamp-holder having suitable terminals for the transmission of current, one of said terminals being axially movable, a rotatable key mounted within said holder, a shifting eccentric for said movable terminal

mounted upon said key, a switch-block mounted upon said key and contacts mounted within the lamp-holder cooperating with said switch-block.

11. A lamp-holder comprising an insulating-block, a screw-shell carried thereby and forming one of the holder-terminals, a centrally-disposed member mounted upon said insulating-block and forming the second holder-terminal, means for shifting one of said terminals relatively to the body of said lamp-holder and cooperating make-and-break contacts mounted upon said insulating-block.

12. A lamp-holder comprising an insulating-block, a suitable shell surrounding same, a screw-shell carried by said block and forming one of the lamp-terminals, a centrally-disposed member mounted upon said insulated block and forming the other lamp-terminal, one of said terminals being axially movable, a rotatable key, an actuating-shifter for said movable terminal mounted upon said key, a switch-block mounted on said key and cooperating contacts mounted upon said insulating-block.

13. A lamp-holder comprising an outer shell, an insulating-block mounted within said shell, a screw-shell mounted upon the end of said block and forming one of the lamp-terminals, an axially-movable centrally-disposed spring-held member forming the other lamp-terminal, a key carried by said lamp-holder, a shifter for said movable terminal and a switch-block mounted upon said key and contacts cooperating with said switch-block.

14. The combination of a lamp having two or more filaments or sections, of a lamp-holder therefor, cooperating lamp and holder terminals, means for shifting one of said terminals, a key carried by said lamp-holder and means controlled by the movement of said key for actuating said movable terminal to modify the flow of current to said separate filaments or sections.

15. The combination with a lamp having two or more filaments or sections, of a lamp-holder, cooperating lamp and holder terminals, one of said lamp-terminals being movable and means within the holder and forming a part thereof for shifting said lamp-terminal to modify the flow of current to said separate filaments or sections.

16. The combination with a lamp having two or more filaments or sections, of a lamp-holder, cooperating lamp and holder terminals, one of said lamp-terminals being movable, a shifter forming a part of said lamp-holder and arranged to actuate said movable lamp-terminal, a key for actuating said shifter and make-and-break contacts controlled by the movement of said key.

17. The combination with a lamp having two or more filaments or sections, of a lamp-holder, cooperating lamp and holder terminals, one

of said lamp-terminals being movable, a contact coöperating with said movable terminal mounted upon the lamp-base, and means within the lamp-holder and forming a part thereof, for shifting said lamp-terminal into engagement with said contact for modifying the flow of current to the separate filaments or sections.

18. The combination with a lamp having two or more filaments or sections, a lamp-holder, coöperating lamp and holder terminals, one of said lamp-terminals and one of said holder-terminals being axially movable, a key carried by said lamp-holder, make-and-break contacts actuated by said key and means controlled by the movement of said key for shifting said movable lamp and holder terminals for modi-

fying the flow of current to the separate filaments or sections.

19. The combination with a lamp having two or more filaments or sections, of a lamp-holder coöperating lamp and holder terminals, one of said lamp-terminals and one of said holder-terminals being axially movable, a rotatable key carried by said holder, a switch-block carried by said key, coöperating contacts mounted within the lamp-holder, and a shifter for said lamp-terminals carried by said key, whereby the flow of current to said separate filaments or sections may be modified.

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