(No Model.)

A. L. CLOUGH.

MULTIPLE FILAMENT LAMP.

No. 523,395. Patented July 24, 1894.

Fig. 1.

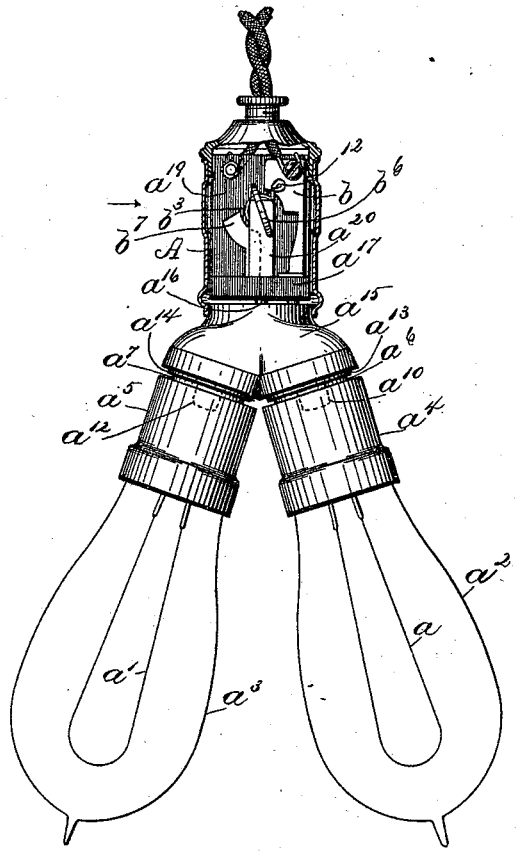


Fig. 2.

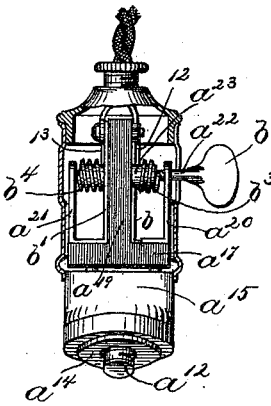
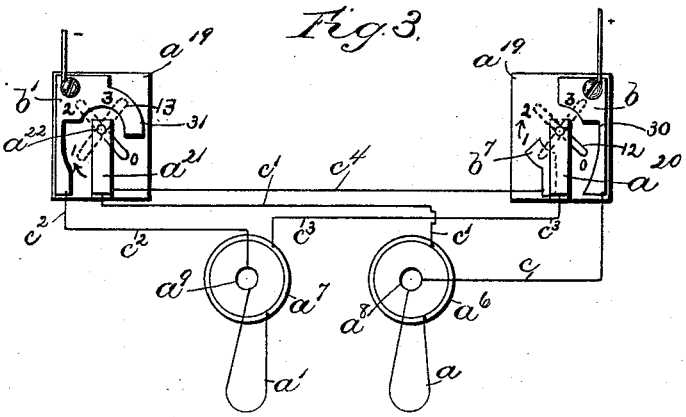


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

ALBERT L. CLOUGH, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF TO WALTER G. CHASE, OF BOSTON, MASSACHUSETTS.

MULTIPLE-FILAMENT LAMP.

SPECIFICATION forming part of Letters Patent No. 523,395, dated July 24, 1894.

Application filed August 2, 1893. Serial No. 482,176. (No model.)

To all whom it may concern:

Be it known that I, ALBERT L. CLOUGH, residing in Manchester, in the county of Hillsborough and State of New Hampshire, have invented an Improvement in Multiple-Filament Lamps, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object the production of a multiple filament incandescent electric lamp in which the filaments may be illumined together in one order to produce a dim light and in another order to produce a brilliant light or one may be separately lighted for purposes as will be described.

In the present instance, I have chosen to illustrate my invention in an incandescent electric lamp in which two filaments are employed, each contained in a separate globe or bulb of any desired, usual or suitable construction. The lighting of the filaments is controlled by means of a switch constructed to effect the results desired and located in a suitable socket attached to a base to which the lamp globes or bulbs are secured. The switch referred to, is preferably constructed as will be described so as to produce distinct lighting effects, which, in the embodiment herein shown of my invention, are three in number; first, both filaments are included in the circuit in series with one another so that they are dimly lighted; second, one filament is cut out of circuit while the other remains in circuit, and is brilliantly or fully lighted; and third, both filaments are again included in the circuit in multiple with one another so that both become fully or brilliantly lighted. The multiple filament lamp, such as above described, is especially adapted among other things to be used as a night lamp in sick-rooms and like places wherein the said lamp may be left dimly lighted and may be quickly lighted to full brilliancy when needed.

These and other features of my invention will be pointed out in the claims at the end of this specification.

Figure 1 is an elevation partially broken out of one form of multiple filament lamp embodying my invention, the case or shell of the lamp socket being broken out to show the controlling switch; Fig. 2, an end elevation of the base and socket shown in Fig. 1, looking in the direction of the arrow thereon, the case or shell being broken out and the globes being removed, and Fig. 3, a diagram of circuits to enable my invention to be more readily comprehended.

Referring to Fig. 1, the multiple incandescent electric lamp is shown as composed of two filaments a a', in the present instance, located within separate globes or bulbs a^2 a^3 provided with the neck pieces a^4 a^5 which are and may be of any usual or suitable construction, the said necks being herein shown as provided with metal rings a^6 a^7, represented in Fig. 3, and threaded sockets a^8 a^9 constituting terminals for the filaments a a' which terminals are electrically disconnected from each other.

The threaded terminals a^8 a^9 are adapted to be screwed upon threaded studs or projections a^{10} a^{12}, and the terminal rings a^6 a^7 are adapted to co-operate and make contact with terminal rings a^{13} a^{14} attached to a base a^{15}, to which is secured the socket A of the switch controlling the lighting of the filaments a a' as will be described. In the present instance, the base a^{15} has secured to it, as by a screw a^{16}, a disk or plate a^{17} of insulating material upon which is erected a substantially central upright or plate a^{19} of insulating material, to the opposite sides of which are secured positive and negative terminal plates b b' connected in circuit with the filaments as will be described.

The disk or plate a^{17} has erected upon it on opposite sides of the upright a^{19} standards a^{20} a^{21} preferably of conducting material, which form bearings for a shaft a^{22} upon which is fixed a cylinder or barrel a^{23} of insulating material, the said shaft and cylinder being extended through a suitable hole or opening in the upright a^{19}.

The shaft or barrel a^{23} carries with it the movable members of the multiple switch, which movable members are herein represented as spiral springs b^3 b^4 located on opposite sides of the upright a^{19} and adapted to respectively co-operate with the terminals b b', one end of each spiral spring being electrically secured to the shaft a^{22} and the other

ends of the said springs being prolonged to form arms 12 13, which are adapted to be brought into engagement with the terminals b b' by the revolution of the shaft a^{22}, effected in the usual manner by means of a key or handle b^6 of insulating material.

The upright a^{19} has secured to it on one of its faces a contact plate or terminal b^7, with which the arm 12 of the spring b^3 is adapted to engage as will be described, the contact or terminal b^7 being electrically connected to the metallic upright a^{21}, which may be effected by carrying the contact plate b^7 down under the upright a^{19} and under the upright a^{21}. The movable members b^3 b^4 of the switch in the present embodiment of my invention, are adapted to be turned from the normal or zero position into three operative positions with relation to the terminals b b', which positions are marked in Fig. 3 by the numerals 1, 2, 3. With the switch constructed as herein shown, the filaments a a' are both cut out of circuit when the arms 12, 13, are in the position marked o, Fig. 3, and the said filaments may be both dimly lighted when the arms 12, 13, of the switches b^3 b^4 occupy the position marked "1," and when the switch is turned so as to bring the arms 12 13 into the position marked "2" the filament a' will be cut out of circuit, while the filament a will remain in circuit and will be lighted to its full brilliancy. When the arms 12 13 of the movable members b^3 b^4 are brought into the position marked "3," both filaments a a' will at such time be in multiple with each other and will be fully lighted.

The terminal studs a^{10} a^{12} secured to the base a^{15} are respectively electrically connected to the contact terminals b b', and the terminal rings a^{13} a^{14} are respectively electrically connected to the uprights a^{21}, a^{20}. These connections are and may be effected in the usual manner by means of suitable wires extended up through the base a^{15}.

In order to enable the operation of the multiple filament lamp herein shown to be clearly understood, I have represented in diagram in Fig. 3, the connections between the multiple switch and the terminals of the filaments disregarding the terminals a^{10}, a^{12}, a^{13}, a^{14} on the base a^{15}, and representing the portion of the contact terminal b^7, which is extended under the upright a^{19} and connected to the upright a^{21}, by the wire c^4.

Referring to Fig. 3, it will be noticed that the terminal a^8 for the filament a is connected by wire c to the terminal or contact plate b, which may be regarded as the positive pole of the switch, while the negative terminal or ring a^6 for the filament a is connected by wire c' to the upright or standard a^{21}. The positive terminal a^9 of the filament a' is connected by wire c^2 to the negative terminal b' of the switch, and the negative terminal or ring a^7 for the filament a' is connected by wire c^3 to the upright or standard a^{20}. The contact plate or terminal b^7 is connected by wire c^4 to the upright a^{21}. The positive terminal b is constructed as shown in Fig. 3, so that, in the third position of the arm 12, the latter will engage with the terminal b, and the said terminal is cut away as at 30 to permit the arm 12 to engage the insulated upright a^{19} and be electrically disconnected from the terminal b when the switch is turned into the zero position.

The negative terminal plate b' is provided as shown in Fig. 3 with an extended arm 31, which is engaged by the arm 13 of the movable member b^4 when the switch is turned into the third position, and the said terminal plate is also constructed as herein shown, so that, when the switch is turned into its second position, the arm 13 engages the said terminal.

In the first position of the arms 12, 13, represented in Fig. 3, both filaments a a' are included in circuit in series with each other and are therefore dimly lighted, the circuit for the filament a being traced as follows: from the positive terminal b by wire c, through the filament a to the ring a^6, thence by the wire c' to the upright a^{21}, thence by wire c^4, terminal plate b^7, arm 12, spring b^3, upright a^{20}, wire c^3, ring a^7, filament a', and wire c^2 to the negative terminal b'.

When the switch is turned into the second position, filament a' is cut out of circuit, while the filament a remains in circuit, the circuit for the filament a' being interrupted between the arm 12 and the positive terminal b, and the circuit for the filament a being traced as follows:—from the positive terminal b, wire c, through the filament a, ring a^6, wire c', to upright a^{21}, through the arm 13 in the position No. 2, to the negative terminal b'. In this instance, the filament a is burning at full brilliancy. When the switch is turned into the No. 3 position, the arm 13 is still in engagement with the terminal b' while the arm 12 is brought into engagement with the terminal b. In this case, both filaments a a' are included in circuit in multiple and are lighted to their full brilliancy, the circuit of the filament a being traced as follows:—from the positive terminal b, wire c through the filament a, terminal ring a^6, through the wire c' to upright a^{21}, thence by arm 13 to the negative terminal b'.

The circuit for the filament a' with the arms 12 13 in the No. 3 position is as follows:—from the positive terminal b, through the arm 12, member b^3, upright a^{20}, wire c^3, terminal ring a^7, filament a', terminal a^9, wire c^2, to negative terminal b'.

I prefer to retain the intermediate postion between a dim light by both filaments and a full light by both filaments, but it can be readily seen that this intermediate light effect could be dispensed with if desired.

I have herein shown the filaments a a' as inclosed in separate globes or bulbs, but I do not desire to limit my invention in this respect, as it may be found desirable to inclose

both filaments in one globe with separate terminals connected to the switch substantially in the manner shown. Furthermore, I do not desire to limit my invention to the particular number of filaments herein shown, as it may be found advantageous to increase the number of filaments and modify the construction of the switch, so that they may all be included in series in one position of the switch or included in multiple or individually or in various groups.

I claim—

1. The combination with a multiple filament incandescent electric lamp having each filament provided with independent terminals electrically disconnected from the terminals of the other filaments, of a switch provided with line terminals and with a terminal separate from the line terminals, and means to co-operate with said terminals and with the separate terminals of each filament to connect in the line circuit each filament individually and also the said filaments collectively in series and in multiple, substantially as described.

2. In a multiple filament incandescent electric lamp, the combination with a base provided with a plurality of terminals, and a plurality of filament containing globes or bulbs attached to the said base, and each provided with separate terminals for its filament co-operating with corresponding terminals on the said base, and a single switch connected to the terminals of the said base and constructed to connect the said filaments in circuit in series, and in multiple, and also to connect the terminals of each filament in circuit independent of each other substantially as described.

3. The combination with a multiple filament incandescent electric lamp provided with separate terminals, of a switch provided with line terminals, an independent terminal b^7, and movable members co-operating with said terminals, substantially as described.

4. A switch for multiple filament incandescent electric lamps, consisting of line terminals, an independent terminal b^7, and movable members co-operating with said terminals, substantially as described.

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

ALBERT L. CLOUGH.

Witnesses:
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