

June 14, 1932.

G. PIERSIMONI

1,863,500

INCANDESCENT LAMP

Filed Dec. 10, 1930

*Fig. 1.*

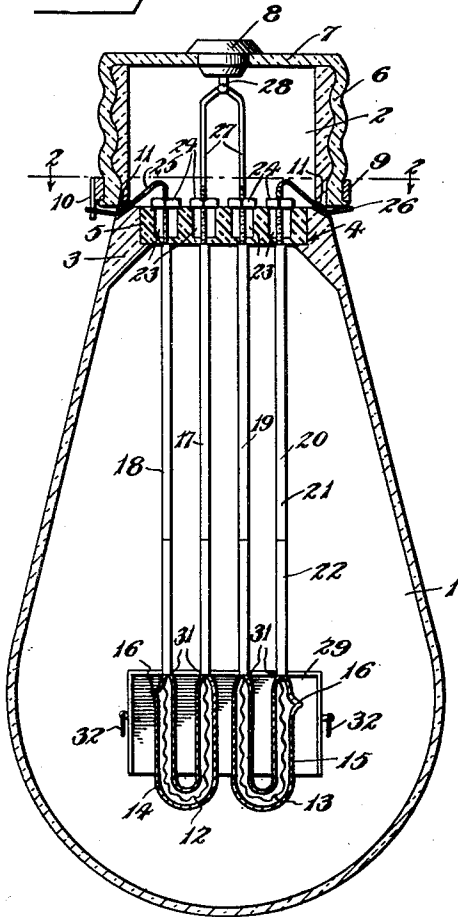


*Fig. 2.*

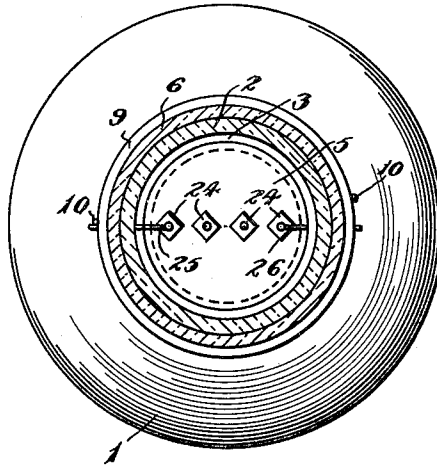
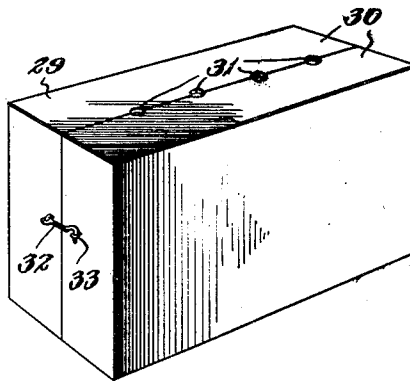


*Fig. 3.*



Inventor

*Giovanni Piersimoni*

By

*Lacey Lacey,*

Attorneys

## UNITED STATES PATENT OFFICE

GIOVANNI PIERSIMONI, OF AKRON, OHIO

## INCANDESCENT LAMP

Application filed December 10, 1930. Serial No. 501,392.

This invention relates to an incandescent lamp and more particularly to an incandescent lamp of the multiple filament type.

One object of the invention is to provide an incandescent lamp embodying a plurality of filaments by means of which the lamp may be selectively illuminated and the color of the light emitted by the lamp controlled according to which filament is in use.

Another object of the invention is to provide improved means for mounting the filaments in a bulb and permit the mounting together with the filaments carried thereby to be removed, thereby permitting replacements to be easily effected in case one or more of the filaments should become burned out.

Another object of the invention is to provide an incandescent lamp wherein each filament is enclosed in a vacuum tube, thereby making it unnecessary to establish a vacuum in the bulb itself and permitting the filaments and the carrier to be very easily inserted into the bulb or removed therefrom.

Another object of the invention is to so dispose the filaments with respect to each other that when the bulb is in use, colored light emitted by one filament will not be affected by the presence of the other filament and to further permit a reflector to be mounted in operative relation to the filaments and cause the light to be directed towards the outer end of the bulb instead of through side portions thereof.

The invention is illustrated in the accompanying drawing, wherein

Fig. 1 is a longitudinal sectional view through the improved bulb,

Fig. 2 is a transverse sectional view through the base portion of the bulb taken along the line 2—2 of Fig. 1, and

Fig. 3 is an enlarged perspective view of the reflector.

The bulb (1) is formed of glass or any other suitable material and may be transparent or translucent. At its inner end or

base portion the bulb terminates in a neck (2) which is open at its ends and at the inner end of the neck the bulb is internally thickened as shown at (3) to form an annular seat or shoulder (4) upon which rests a block or disc (5) formed of glass or any other insulating material found suitable. The neck is externally threaded as clearly shown in Fig. 1 for engagement by the threaded walls (6) of a base (7) which is therefore removably mounted upon the neck and may be easily detached therefrom when it is desired to extract the block (5) and filaments carried thereby. A center or top contact (8) is carried by the head of the base and about the walls of the base is disposed a ring (9) formed of conductive material and having pins (10) secured thereto and extending downwardly from the ring as shown in Figs. 1 and 2. Openings (11) are formed through the neck immediately above the thickened portion (3) and have their outer ends disposed just below the walls of the cap or base (7) when the base or cap is screwed tightly upon the neck.

The filaments (12) and (13) are enclosed in glass tubes (14) and (15) which are tightly sealed about the end portions of the filaments and sealed as shown at (16) after air has been extracted from the tubes in order to create vacuums. It will thus be seen that the filaments are enclosed in evacuated tubes instead of having the bulb evacuated.

Conductors (17), (18), (19) and (20) lead from ends of the filaments and each has its upper portion (21) formed of stiff metal such as steel wire and its lower portion (22) formed of copper wire. The upper ends of these conductors are reduced and threaded and portions passed upwardly through openings (23) formed in the insulating block (5). Securing nuts (24) which are threaded upon the upper ends of the conductors bear against the upper face of the insulating block and when tightened cause the conductors to be firmly held in place. From the upper ends

of the conductors (18) and (20) extend copper wires (25) and (26) which are passed outwardly through the openings (11) in the neck (2) and this wire is sufficiently stiff to prevent it from being easily bent out of position radially of the neck. Therefore by turning the ring, one of the pins (10) carried thereby may be moved into contact with a selected one of the wires (25) or (26) and the current caused to pass through either the filament (12) or the filament (13).

By having the evacuated tubes (14) and (15) formed of colored glass, the lamp may be caused to emit a desired colored light by energizing the proper filament. It will be understood that if so desired, the evacuated tubes may be formed of clear glass in which case a white light will be emitted when either filament is energized and the other filament merely serves as a reserve filament to be used in case the one in use should burn out. It will also be obvious that additional filaments may be provided instead of merely two as shown. Stiff wires (27) extend upwardly from the conductors (17) and (19) and have their ends twisted together or otherwise united as shown at (28), thereby providing a stiff end portion for engagement with the center contact (8) of the base. Therefore, current from a center contact of a socket may enter through the wires and conductors (17) and (19) and pass outwardly through the ring (9) and shell of the socket after energizing a selected filament.

By referring to Fig. 1 it will be seen that the filaments are disposed in side by side relation to each other. Therefore light which passes from an energized filament through the free end portion of the bulb will not be affected by the color of the glass from which the evacuated tube of the other filament is formed and a light of the desired color will be produced.

In order to insure passage of the light through the free end portion of the bulb there has been provided a reflector (29) which is open at its bottom and consists of companion sections (30) having their top and end walls disposed in edge to edge contact with each other. Recesses are formed in the edges of the upper walls to register when the sections are in engagement with each other, thereby forming openings (31) through which the conductors (17), (18), (19) and (20) pass, and since the evacuated tubes are of greater diameter than the conductors, this reflector will be supported by the ends of the tubes as shown in Fig. 1. Hooks (32) are carried by the end walls of one section of the reflector and when engaged with eyes (33) carried by the end walls of the other section, will serve to securely but releasably retain the sections in operative relation to each other. This reflector is of such size that the greater portion of each tube will be enclosed therein and

since it is open at its bottom, light from an energized filament will be directed downwardly through the free end portion of the bulb.

When this bulb is in use, the block of insulating material carrying the conductors for the filaments is thrust into the neck of the bulb and rests upon the shoulder (4) with the conductors extending longitudinally in the bulb and the filaments located near the free end portion of the bulb. It will be understood that the reflector may be omitted if so desired. After the insulating block has been set in place, the wires (25) and (26) are passed outwardly through the openings (11) and the cap or base then screwed tightly in place upon the neck. The terminal (28) has engagement with the center contact (8) of the base and the ring (9) is turned to engage one of its pins (10) with a selected one of the wires (25) or (26).

The bulb may now have its base screwed into an electrical socket in the usual manner and if the ring (9) has a pin in engagement with the wire (25) as shown, current when turned on will pass through the conductors (17) and (18) and illuminate the filament (14). If it is desired to change the color of the light, or use the other filament in case the one in use should burn out, the ring (9) is turned to move its other pin into engagement with the wire (26) and the current will then pass through the conductors (19) and (20) and energize the filament (13). When it is desired to replace burned out filaments, the base or cap can be easily unscrewed and the block (5) together with the conductors and filaments withdrawn from the bulb and a block carrying new filaments and conductors substituted. It will thus be seen that burned out filaments can be very easily replaced and also different color combinations provided for.

What is claimed is:

1. An electric light comprising a bulb having one end open and forming a neck, an insulating block removably seated in said neck, a base removably carried by said neck, a top contact carried by said base, a side contact carried by said base, conductors carried by said block and extending therefrom towards the closed end of said bulb, outer portions of said conductors being disposed for engagement by the contacts of said base, a filament connected with inner ends of said conductors, and a vacuum tube enclosing said filament.
2. An electric light comprising a bulb having one end open and forming a neck, an insulating block removably seated in said neck, a base removably carried by said neck, a center contact carried by said base, a ring of conductive material rotatably engaged about said base and having pins spaced from each other circumferentially of the ring, sets of conductors carried by said block and extend-

ing longitudinally of the bulb with their outer portions within the neck, one conductor of each set being connected to the center contact and the other conductor of each set projecting outwardly through the side walls of the neck for selective engagement by pins of the ring when the ring is turned about the neck, and filaments enclosed in vacuum tubes and each having its ends connected with inner ends of a set of conductors.

3. An electric light comprising a bulb having one end open and forming a neck, a base carried by said neck and having a top contact and a side contact, conductors extending longitudinally in said bulb with their outer end portions engaged by the contacts of said base, a filament connected with inner ends of said conductors, and a reflector for said filament carried by said conductors and disposed about the upper portions of the filament for directing light through the closed outer end of the bulb.

4. An electric light comprising a bulb having one end open and forming a neck, a base carried by said neck and having a center contact and a side contact, conductors extending longitudinally in said bulb with their outer end portions engaged by the contacts of said base, the base being detachable from said neck, an insulating block carrying said conductors and removably seated in said neck whereby the block and conductors may be removed as a unit when the base is detached, filaments having their ends connected with inner ends of companion conductors, vacuum tubes enclosing said filaments and attached to said conductor, and a reflector removably engaged about said conductors and disposed about said filaments and tubes with its bottom open whereby light will be directed through the closed outer end of the bulb.

5. An electric light comprising a bulb having one end open and forming a neck, a base carried by said neck and having a center contact and a side contact, conductors extending longitudinally in said bulb with their outer end portions engaged by the contacts of said base, the base being detachable from said neck, an insulating block carrying said conductors and removably seated in said neck whereby the block and conductors may be removed as a unit when the base is detached, filaments having their ends connected with inner ends of companion conductors, vacuum tubes enclosing said filaments and attached to said conductors, the side contact of said base being adjustable whereby a selected filament may be energized and the filaments being located in side by side relation to each other.

6. An electric light comprising a bulb having a neck at one end externally threaded and formed with an internal annular shoulder adjacent its inner end and with side openings between the shoulder and its outer end,

a removable insulating block in said neck seated against said bulb with their outer portions extending through said block and removably secured thereto, filaments connecting inner ends of pairs of conductors, vacuum tubes enclosing said filaments and anchored to companion conductors, the outer portions of said conductors extending from said block into said neck and one of each pair being extended out through a side opening of the neck, the other conductors having their outer ends united to form a terminal, a base of insulating material threaded upon said neck and carrying a center contact engaged by said terminal, and a ring of conductive material rotatably engaged about said base and constituting an adjustable side contact, said ring having pins extending therefrom adapted to be selectively moved into engagement with the conductors projecting from sides of the neck by turning the ring about the base and energize a selected filament.

7. An electric light comprising a bulb, a base for said bulb detachable therefrom, an insulating block removable when the base is detached, conductors carried by said block and extending longitudinally of the bulb, filaments each enclosed in a vacuum tube and attached at its ends to a pair of companion conductors, a top contact carried by said base and engaged by one of each pair of conductors, and a side contact carried by said base and adjustable for selective engagement with a selected one of the other conductors whereby a selected filament may be energized.

8. An electric light comprising a bulb, a base for said bulb detachable therefrom, an insulating block removable when the base is detached, conductors carried by said block and extending longitudinally of the bulb, filaments each enclosed in a vacuum tube and attached at its ends to a pair of companion conductors, a center contact carried by said base and engaged by one of each pair of conductors, and a side contact carried by said base and adjustable for selective engagement with a selected one of the other conductors whereby a selected filament may be energized, the filaments being disposed in side by side relation to each other and having their vacuum tubes of contrasting colors.

9. An electric light comprising a bulb, a base for said bulb, having a top contact and a side contact, pairs of conductors in said bulb, one of each pair having its outer end engaged by the top contact and the other having its outer end disposed for selective engagement by the side contact, filaments connected with the inner ends of companion conductors, independent vacuum tubes disposed within the bulb and each enclosing a filament, the filaments being disposed in side by side relation to each other and the tubes being of contrasting colors.

10. An electric light comprising a bulb, conductors in said bulb, filaments connected with inner ends of pairs of conductors and disposed in side by side relation to each other, independent vacuum tubes disposed within the bulb and each enclosing a filament, and a base for said bulb having means to control flow of current through the conductors and selectively energize said filaments. 70
11. An electric light comprising a bulb, conductors in said bulb, filaments connected with inner ends of pairs of conductors and disposed in side by side relation to each other, a vacuum tube for each filament, a reflector engaged about said conductors and supported in operative relation to the filaments and tubes, and a base for said tube having means to control flow of current through the conductors and selectively energize said filaments. 80
12. An electric light comprising a bulb, conductors in said bulb, filaments connected with inner ends of pairs of conductors and disposed in side by side relation to each other, a vacuum tube for each filament, a reflector engaged about said conductors and supported in operative relation to the filaments and tubes, said reflector being open at its bottom and consisting of sections having their walls disposed in edge to edge contact with each other and certain of the walls having their meeting edges formed with recesses defining openings receiving said conductors, means to releasably secure said sections in operative relation to each other, and a base for said tube having means to control flow of current through the conductors and selectively energize said filaments. 85
13. An electric light comprising a bulb, conductors in said bulb, filaments connected with the inner ends of pairs of conductors, independent vacuum tubes disposed within the bulb and each enclosing a filament, and a base for said bulb having means to control the flow of current through the conductors and selectively energize said filaments. 90
14. An electric light comprising a bulb, a base for said bulb, an insulating block seated in the base, conductors carried by said block and extending longitudinally of the bulb, filaments each enclosed in a vacuum tube and attached at its ends to a pair of companion conductors, a top contact carried by the base and engaged by one of each pair of conductors, and a side contact carried by said base and adjustable for selective engagement with one of the other conductors whereby a selected filament may be energized. 100
15. An electric light comprising a bulb, a base for said bulb, conductors extending longitudinally of the bulb and arranged in pairs, filaments each enclosed in a vacuum tube and connected with the conductors, a top contact operatively connected with one of the conductors of each pair, side contacts carried by the base and operatively connected to the other of the conductors of each pair, and an annular member mounted for rotary movement on said base and provided with depending pins for engagement with the side contacts whereby a selected filament may be energized. 105
- In testimony whereof I affix my signature.  
GIOVANNI PIERSIMONI. 110
- 115
- 120
- 125
- 130