

Aug. 16, 1938.

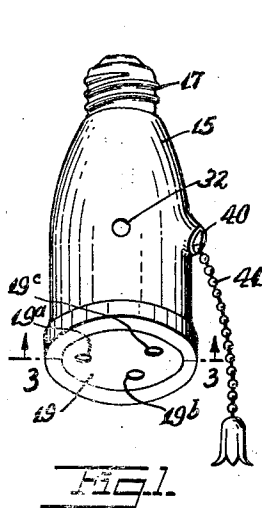
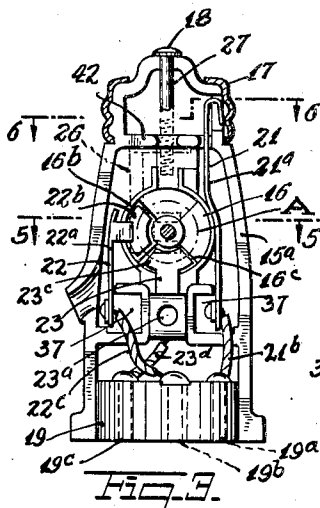
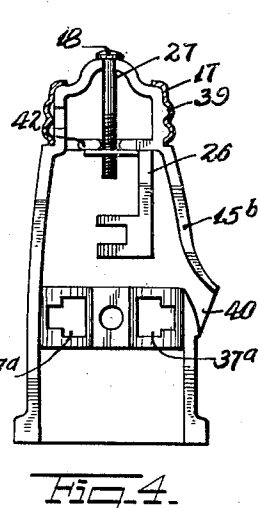
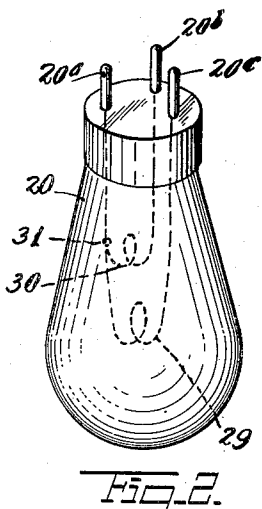
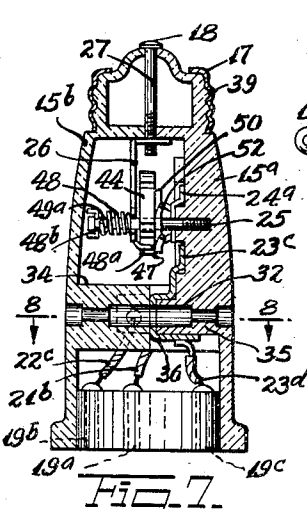
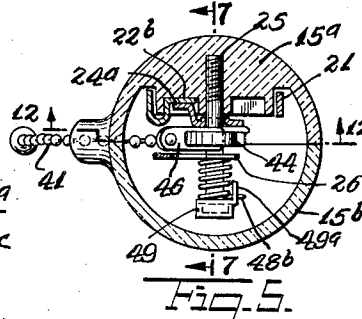
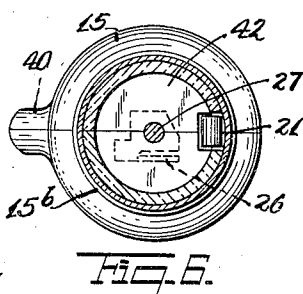
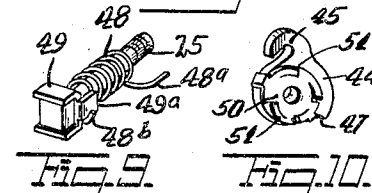
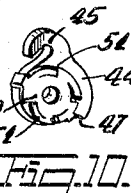
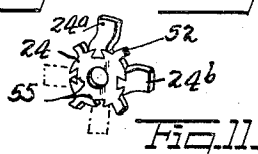
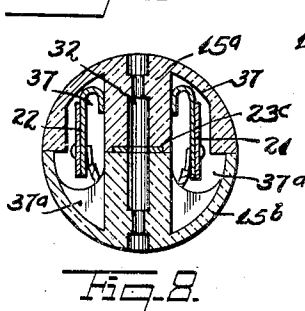
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2,127,370

THREE-WAY SOCKET AND LAMP

Filed March 22, 1937

2 Sheets-Sheet 1



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2,127,370

THREE-WAY SOCKET AND LAMP

Filed March 22, 1937

2 Sheets-Sheet 2

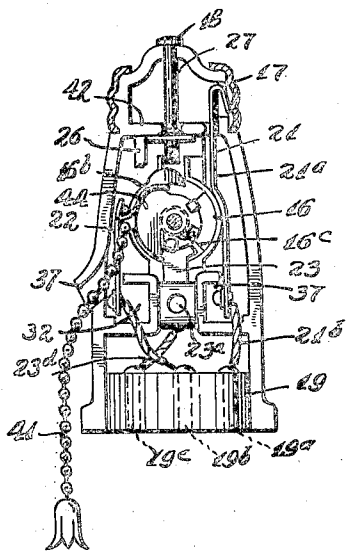


Fig. 12.

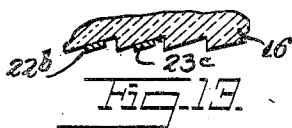


Fig. 13.

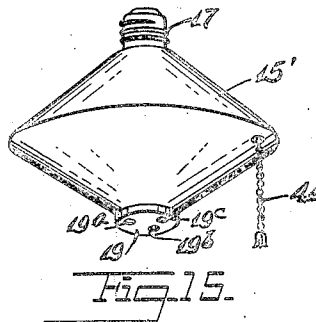


Fig. 15.

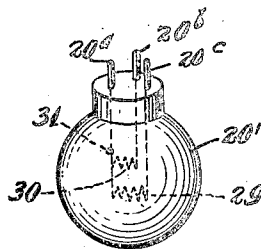


Fig. 16.

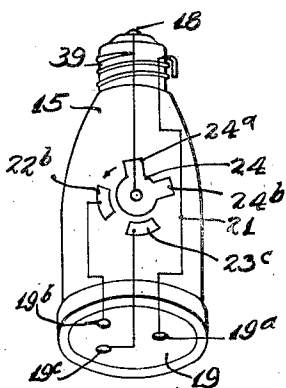


Fig. 14.

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2,127,370

THREE-WAY SOCKET AND LAMP

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Application March 22, 1937, Serial No. 132,307

1 Claim. (Cl. 173-347)

This invention relates to new and useful improvements in a three way socket and lamp.

The invention has for an object the construction of a device as mentioned which is characterized by a socket for receiving a three contact lamp and which is constructed to act as an adapter and be screwed into a conventional socket of a household or other electric circuit. The invention contemplates the provision of a mechanism within said socket which may be operated manually to place the socket into a plurality of different possible conditions.

It is proposed that in one condition the socket controls the passage of electricity through a pair of the contacts of the lamp and so lights one filament within the lamp. In a second position it is proposed that the socket control passage of current to the three contacts of the lamp and so light two filaments in the lamp. In the third position, that the socket control the passage of current to the second filament in the lamp only; and in the fourth position it is proposed that the socket cut off the passage of current so that the lamp is unlit.

The invention has for an object the construction of a control mechanism of the socket, which is characterized by a two finger conductor associated with a ratchet mechanism and an arrangement by which the two finger conductor may assume any one of the four possible positions of rotation. It is proposed to associate this two finger conductor with an annular area provided with two contacts each one of which is connected with a different socket opening of said socket. It is proposed to provide an arrangement for periodically turning the two finger conductor whenever this is desired to obtain the four position combination previously mentioned.

Still further the invention proposes an arrangement whereby the fingers of the conductor are readily removable and replaceable, and an arrangement whereby the conductor is adapted to receive additional fingers so that by a small alteration it is possible to change the operative sequence of the device.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings, forming a material part of this disclosure:—

Fig. 1 is a perspective view of a three way socket constructed according to this invention.

Fig. 2 is a perspective view of a lamp adapted to engage in a socket shown in Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is an elevational view looking in the opposite direction to the line 3—3 of Fig. 1.

Fig. 5 is a horizontal sectional view taken on the line 5—5 of Fig. 3.

Fig. 6 is a horizontal sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is a transverse sectional view taken on the line 7—7 of Fig. 5.

Fig. 8 is a horizontal sectional view taken on the line 8—8 of Fig. 7.

Fig. 9 is a perspective view of a pintle screw and spring clearly shown in Fig. 7.

Fig. 10 is a perspective view of an insulation hook and ratchet element shown in Figs. 5 and 7.

Fig. 11 is a perspective view of the two finger conductor per se.

Fig. 12 is a sectional view taken on the line 12—12 of Fig. 5.

Fig. 13 is a schematic developed sectional view taken on the dot and dash circle A in Fig. 3.

Fig. 14 is a schematic wiring diagram of the socket.

Fig. 15 is a perspective view similar to Fig. 1, but illustrating another form of the invention.

Fig. 16 is a perspective view, similar to Fig. 2, but illustrating another form of lamp.

The three way socket and light, according to this invention, comprises an insulation body 15 with an internal annular area 16 which is divided into four quadrants as clearly shown in Figs. 3 and 13. A shell contact 17 and an end contact 18 is mounted upon one end of the body 15. A three opening plug socket 19 is mounted on the other end of the body 15 for receiving the three terminals of a multi-filament lamp 20.

There is an electrical connection 21 extended between the shell contact 17 and one of the opening in the plug socket 19, namely, the opening 19^a. There is an electrical connection 22 from one of said quadrants, namely the quadrant 16^b into the opening 19^b. There is an electrical connection 23 from the quadrant 16^c to the opening 19^c. A two finger conductor 24 is coaxial with the annular area 16 and is rotatively mounted, and is in a circuit which terminates in the end contact 18. This circuit may be traced from the conductor 24 to a screw 25 which coaxially supports the conductor to a bracket 26 which is in contact with a portion of the screw 25 and which extends upwards and connects with a screw 27 having a head 18 comprising the said end contact

18. There is also a means for manually controlling the turning of the conductor 24 in steps of 90° as desired.

The lamp 20 has a multiple filament consisting of the sections 29 and 30. These sections have a common lead 31 which connects with the terminal 20^a adapted to engage in the opening 19^a. The filament 29 also connects with a terminal 20^c adapted to engage in the opening 19^c. The filament 30 connects with a terminal 20^b adapted to engage in the opening 19^b. It will be noted that if current is supplied to the terminals 20^a and 20^c the filament 29 will be lighted. If supplied to the terminals 20^a and 20^b the filament 30 will be lighted, and if supplied to all of the three terminals 20^a, 20^b, and 20^c both filaments will be lighted. While one lamp with a multiple filament has been illustrated separate lamps or separate electrical mechanisms may be substituted for the multiple filament without changing the operation and intention of the invention.

The insulation body 15 is made from two half sections 15^a and 15^b. These half sections are placed against each other and secured in this position by a bolt 32 engaged through the sections. At the area where the bolt 32 passes through the sections the sections have a transverse partition 33, 34 for the purpose of making the insulation body solid at this area. At other areas the sections of the insulation body are hollow. The partitions 34 and 35 are recessed and hollowed out slightly to permit the passage of certain electrical connections. There is a recess 36 in the partition 35 through which the connector 23 passes. This connector is formed with an opening 23^a through which the bolt 32 passes. There are recesses 37 formed in the parts 35 through which portions of the connectors 21 and 22 pass. There are complementary recesses 37^a formed in the partition 34 through which portions of the connectors 21 and 22 extend.

At one end the body 15 is formed with a threaded portion 39 upon which the contact shell 17 is set and clamped. The body 15 is also formed with a side opening 40 through which a pull chain 41 extends. This pull chain controls the rotating of the conductor 24 as hereinafter further explained. There is a horizontal partition 42 within the body 15 which forms a support for the bracket 26. The bracket is held against this partition by the screw 27.

The shell contact 17 is of standard dimensions so that the socket may be screwed into a conventional household electric socket or similar socket. The three openings 19^a, 19^b, and 19^c in the plug socket 18 are adapted to receive the three terminals 20^a, 20^b and 20^c and to then make electrical connection with the connectors 21, 22 and 23.

The electrical connection 21 comprises a metallic strip connector 21^a one end of which extends through an opening in the body 15 and engages the shell 17, and the other end of which connects with a spaghetti covered lead 21^b which in turn is connected with the socket opening 19^a. The electrical connection 22 comprises a strip of metal 22^a which is connected at one end with a segment 22^b within the quadrant 16^b and which is connected at the other end with a spaghetti covered wire 22^c connected with the socket opening 19^b. The electrical connection 23 comprises a strip of material which is connected at one end with a segment 23^c in the quadrant 16^c and

which is connected at the other end with a spaghetti covered wire 23^d connected with the plug opening 19^c.

The means for rotating the conductor 24 in steps of 90° includes an insulation washer 44 free upon the screw 25 and having a hook 45 at one end which is engaged by a connector element 46 in turn connected with the chain 41. This chain extends through the opening 40. The insulation washer 44 is also provided with a shoulder 47 which is engaged by one end 48^a of a spring 48 which is coaxially mounted on the screw 25. The other end of this spring 48^b engages a lug portion 49^a of a head element 49 which is mounted upon the head of the screw 25.

The spring 48 acts against the shoulder to normally turn the insulation washer 44 clockwise when looking towards the right in Fig. 7. The chain 41 may be pulled to turn the insulation washer 44 anti-clockwise. On one face of the insulation washer 44 there is a ratchet disc 50 fixedly mounted. This ratchet disc has ratchet fingers 51 which are cooperative with fingers 52 formed on the two finger connector 24.

The annular area 16 has its quadrants formed of ratchet shape as shown in Fig. 13. The arrangement is such that when the insulation washer turns anti-clockwise, looking towards the right in Fig. 7, then the fingers 51 engage the fingers 52 and turn the two fingered connector 24, through 90° and the fingers 24^a and 24^b of the conductor are then snapped into different quadrants of the annular quadrant area 16. When the chain 41 is released the spring 48 will turn back the insulation washer 44 but make the fingers 51 merely slide over the fingers 52 and the two finger conductor 24 maintains its position while the insulation washer 44 idles back to its initial position to be ready for the next pull on the chain.

The two finger conductor 24 is formed with several dovetailed slots 55. Each of the fingers 24^a and 24^b are formed with dove tailed tongues engageable in the slots 55. The fingers 24 are then locked in position by drops of solder engaged over the dove tailed tongues and grooves. With this arrangement it is possible to merely apply a hot iron to release any one of the fingers so that it may be removed and replaced, or its position on the body of the conductor 24 changed. The dot and dash lines in Fig. 11 indicate additional fingers applied to the conductor 24. In this manner the conductor may be provided with three fingers or four fingers to change the operation of the device.

With the two fingers the operation of the device is as follows: It may be best understood by an examination of Fig. 14. In the position of the two finger conductor shown in this figure the circuit is completely open through the socket. When the chain 41 is pulled once and released the two finger conductor 24 will turn through 90°. Now the finger 24^a of the conductor will engage the segment 22^b and the circuit will be closed through the plug opening 19^b. The return opening is 19^a. In this condition the filament 30 will be illuminated if the lamp 20 is engaged in the socket.

When the conductor 24 is caused to rotate another 90° then the finger 24^a will engage the segment 23^c and the finger 24^b will engage the segment 22^b. The circuit is now closed through all three of the plug openings 19^a, 19^b and 19^c. Upon another 90° turn of the conductor 24 the finger 24^a will be in an inoperative position and the

finger 24^a will be engaging the segment 23^c. The circuit will now be closed through the socket openings 19^a and 19^c and thus the filament 20 of the lamp 20 will be illuminated, when the lamp is in the socket. Another 90° turn of the conductor 24 and it is back to its original inoperative position as shown in full lines in Fig. 14.

If it is desired to alter the operation of the device it is merely necessary that the bolt 32 be taken out, the body sections 13^a and 13^b be separated, and that the screw 25 be removed. Then the two finger conductor 24 is accessible and additional fingers may be added. When there are four fingers on the conductor and the device re-assembled all filaments will be illuminated in all positions of the conductor, and so on, it is possible to obtain different combination and operations of the three way socket.

Fig. 15 illustrates another embodiment of the invention. This form of the invention differs from the prior form in matters of design only. According to this form the three way socket device has a body portion 18' of the "dual" frusto-conical shape. The large diameters are in a common plane. In other respects the device is identical to the previous form. The parts which are exposed are indicated by the same reference numerals. The interior parts are not shown since it would be a mere repetition to show them.

In Fig. 16 another embodiment of the lamp for the three way socket is shown. According to this embodiment the lamp has a body portion 23' of spherical shape contrasted with the pear shape

of the body shown in Fig. 2. In other respects this form of the invention is similar to the previous form and similar parts may be recognized by corresponding reference numerals.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

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

In a device of the class described, a body having a contact, a conductor rotatively supported adjacent said contact and having an extending finger for engaging said contact, a member rotatively supported coaxially with said conductor, fingers on said member, said conductor comprising a body portion, finger portions on said body portion and coactable with said fingers on said member for turning said conductor, solder for holding said first-mentioned finger in position on said conductor, anchorage elements on the periphery of said body portion, and a complementary anchorage element on said first-mentioned finger and engageable selectively with said anchorage elements for assisting in releasably holding said first-mentioned finger in various fixed positions on said body portion.

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