No. 780,678. PATENTED JAN. 24, 1905.

H. E. MEYERS.

INCANDESCENT LAMP SOCKET.

APPLICATION FILED DEC. 11, 1902. RENEWED JUNE 20, 1904.

Fig. 1.

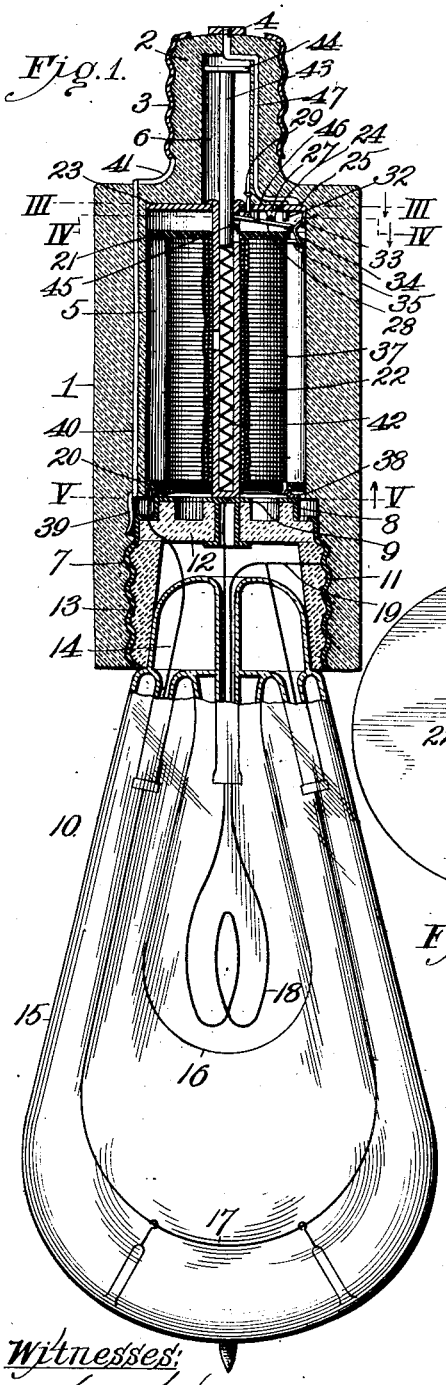


Fig. 2.

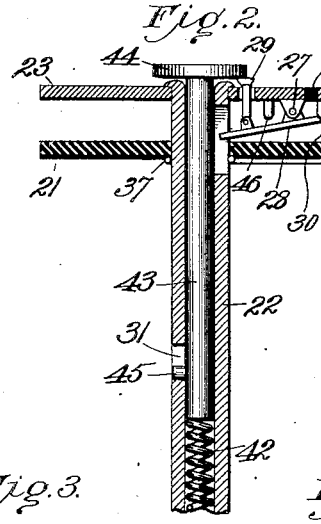


Fig. 6.

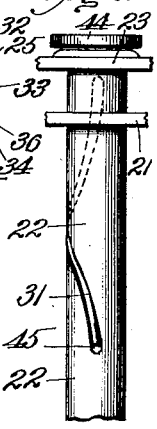


Fig. 3.

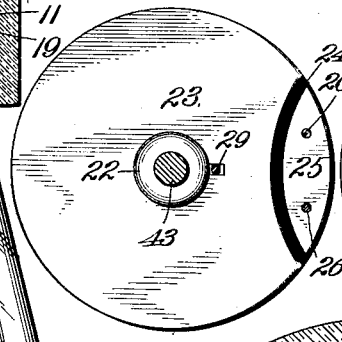


Fig. 4.

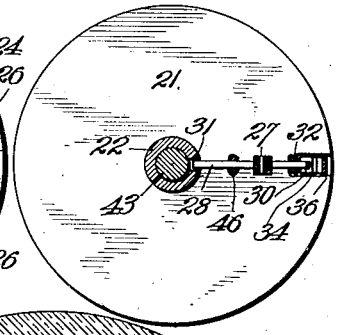
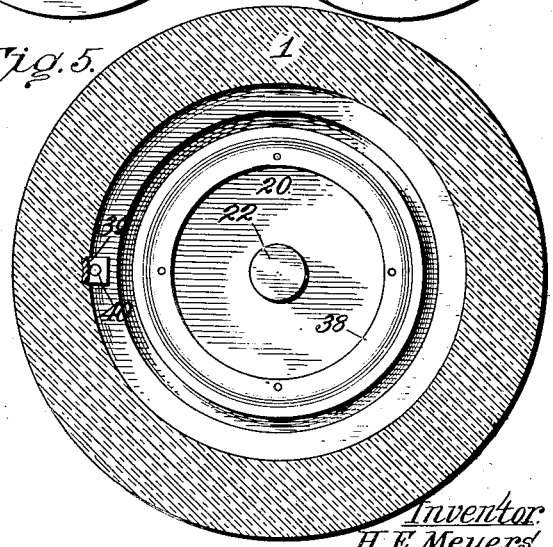


Fig. 5.



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No. 780,678. Patented January 24, 1905.

UNITED STATES PATENT OFFICE.

HENRY EDWARD MEYERS, OF DENVER, COLORADO, ASSIGNOR TO THE ELECTRIC FLASH LIGHT COMPANY, OF DENVER, COLORADO.

INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 780,678, dated January 24, 1905.

Application filed December 11, 1902. Renewed June 20, 1904. Serial No. 213,414.

To all whom it may concern:

Be it known that I, HENRY EDWARD MEYERS, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Incandescent-Lamp Sockets, of which the following is a specification.

My invention relates to incandescent lamps; and my object is to produce a lamp-socket adaptable for use in connection with any of the standard makes of globes and sockets and containing at least two outgoing and one return connection and means for automatically causing the current to pass through the outgoing connections alternately, and thus flash light first from one set of lamps and then from another where lamps of the ordinary type are employed or from one set of filaments or the other where are employed one set of plural-filament globes of the type described in my application for patent on incandescent-light globes pending concurrently with this, said globes consisting of two differently-colored shells, one within the other and each having its filament connected to an independent outgoing and to a common return connection, to the end that lights of different colors may be flashed from the same globe. A socket of this character may be directly or indirectly connected to an ordinary socket and one of my improved globes above referred to. Where used with ordinary globes, it may be connected directly to an ordinary socket; but its outgoing connections must connect with filaments of different lamps.

By means of my improved socket lights of different color may be flashed in a sign as reliably as by the commonly-used motor-switch without the noise attending the operation of the latter. Furthermore, such socket can be manufactured and sold far cheaper than said motors and when used with my bicolor globes will displace an equal number of lamps of the ordinary type.

The uses to which this socket can be put with greater economy and convenience than two or more independent lamps of different colors are so numerous that it is inconvenient and undesirable to attempt to enumerate them herein. It is to be understood, of course, that I reserve the right to make all changes which properly fall within the spirit and scope of this invention.

With the object in view of producing a lamp-socket of the character above outlined the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a central longitudinal section of an incandescent-lamp socket embodying my invention and showing it equipped directly with one of my bicolor globes. Fig. 2 is a similar but enlarged section of a part of the device. Fig. 3 is an enlarged horizontal section taken on the line III III of Fig. 1. Fig. 4 is a similar view taken on the line IV IV of Fig. 1. Fig. 5 is a view, on the same scale, taken on the line V V of Fig. 1. Fig. 6 is an elevation of part of the spool to show the spiral groove therein.

Referring to the drawings in detail, 1 designates a porcelain or equivalent block having one end reduced in diameter to form a plug 2, equipped with a threaded metallic sleeve 3 and a contact-plate 4, the contact portions 3 4 of this plug being modified to adapt it to any particular make of incandescent-lamp socket, though it is to be understood that it may be otherwise connected to a source of electric supply. The block is formed with a central chamber, as at 5, which is contracted at one end to form the smaller passage 6 of the plug and enlarged and internally threaded at its opposite end, as at 7, in order that an incandescent-lamp globe of a type hereinafter described may be secured therein. Where my improved socket is not connected to a lamp-globe of the type just referred to, there is no necessity for internally threading block 1, as lamps of the ordinary type are not adapted to be applied directly to—that is, screwed into—this socket. As said connection, however, would be simply three electric conductors, two outgoing and one return, between

the socket and two lamps or two sets of lamps, it is not deemed necessary to disclose it herein. The socket ends of the outgoing conductors correspond to the ring 8 and contact-plate 9 of the globe 10, while the socket end of the return-conductor corresponds to the threaded sleeve 11 of such globe, said ring, plate, and threaded sleeve being insulated from each other by the usual insulatory disk 12 and cement lining 13 of the sleeve, said lining engaging the stem portion 14 of the globe. Said globe consists of the outer shell 15, preferably of clear or crystal glass, and the inner shell 16 of colored glass, the former having a filament 17 and the latter a filament 18. The outgoing ends of said filaments 17 18 are respectively connected to ring 8 and contact-plate 9, while their return ends are connected by conductors 19 to the threaded sleeve 11.

An automatic switch mechanism for alternately throwing ring 8 or its equivalent and plate 9 or its equivalent in circuit, so as to flash light from filament 17 and then from filament 18 or from one series of ordinary lamps and then from another, is constructed as follows:

20 21 designate the usual insulatory ends of an electromagnet-spool, the central portion of the same being in the form of a hollow core 22, having its lower end by preference closed and projecting below the plane of the spool end 20 and its upper end projecting above the ends 21 and riveted or otherwise suitably secured to a metallic disk 23, said disk being notched at one edge to receive an insulating-strip 24 and a contact-plate 25, the latter being adapted to be secured to the block by means of screws or pins 26.

Pivoted, as at 27, to disk 23 is a switch-lever 28, the inner end of said lever carrying pivotally a pin 29, which projects up through said plate for a purpose which hereinafter appears, and its outer end an insulatory shoe 30 for a purpose which is presently explained.

The inner end of the switch-lever engages the upper end of a slot 31 in hollow core 22, said slot extending downwardly and spirally half-way round said rod and for about half its length, as shown most clearly in Fig. 6.

Depending from contact-plate 25 and adapted for the dual purpose of electric connection with the switch-lever 28 and to hold the insulated end of the same elevated when opposed only by gravitative tendency is the usual spring-fork 32, and depending from said plate outward of the lever is a spring contact-arm 33.

34 designates a contact-arm pivoted to a metallic plate 35, secured to spool end 21, and projecting up through a notch 36 in said end and between the insulated end of the lever and contact-arm 33 and adapted at times to be forced by the former into contact with the latter.

The coil 37 of the spool is electrically connected at one end to plate 35 and at its opposite end to the metallic ring, preferably a spring-ring 38, secured to the under side of spool end 20 and adapted for electric connection with one of the outgoing conductors, hereinbefore referred to, in this instance with ring 8, the threaded sleeve of return-conductor 11 being electrically connected by preference to a spring or equivalent contact 39, secured in the block, so as to have positive connection with said sleeve and in turn connected by rod 40 to the extension 41 of threaded sleeve 3 or its equivalent.

The hollow and spirally-slotted spool-core 22 is normally in contact with the other outgoing conductor—viz., in this instance with contact-plate 9, as shown—and arranged within said core is an expansive coil-spring 42, the same being adapted when unopposed to hold the cylindrical armature 43 of said core in the position shown in Fig. 1, said armature having a head 44 at its upper end and a pin 45 near its lower end engaging the spiral slot and adapted as it reaches its upward limit of movement to raise the inner end of the lever, and thereby break the electrical connection between its outer end and spring-fork 32 and force pivoted arm 34 into contact with spring-arm 33. The same action causes the lever to engage a spring-fork 46, depending from disk 23, for the purpose of holding the inner end of the lever elevated. After the armature has started to descend such relation between arms 33 and 34 continues until the armature about completes its downward movement, at which time its head 44 engages pin 29, and thereby causes the lever to resume its original position, as shown in Fig. 2.

The upward movement of this armature is caused by spring 42 when the circuit through the coil is broken by the disengagement of arms 33 and 34, the former through plate 25 being electrically connected to plate 4 by means of the conductor 47. The upper end of said conductor 47 is preferably threaded, so that contact-plate 4, in the form of a nut, may clamp it reliably in position.

Assuming now that the spring has just elevated the armature to its limit of movement and that in consequence pin 45 has by raising the inner end of the lever 46 established electric communication between arms 33 and 34, it will be seen that the current flows out through plate 4, conductor 47, plate 25, arms 33 34, and the coil which is energized, from the coil through ring 38, conductor or ring 8, and the outer filament 17, thence through return-conductor 19, sleeve 11, contact-arm 39, and conductors 40 41, and sleeve 3. The instant this circuit is established light is emitted by filament 17 and the magnetic influence of the coil overcomes the resistance of spring 42 and draws the armature downward in the core. As such downward movement is about completed the plunger-head descending on rod 29 forces the inner end of

lever 28 downward, and thereby shunts the current from the coil, the spring tendency of arm 33, together with the gravitative tendency of arm 34, effecting reliable disengagement thereof as soon as the outer end of the lever is raised.

In the new position of the lever the current passes from plate 25 through fork 32 and the lever to core 22, thence through the outgoing conductor or plate 9 to the filament of the inner shell, returning from the latter through the common return-conductor hereinbefore enumerated.

At the instant the coil is shunted out of circuit its magnetic force is practically all destroyed, and as a result spring 42 reëlevates the armature, the pin on the latter as it reaches such limit of action causing the circuit to pass through the coil, as hereinbefore explained.

It will thus be seen that this switch mechanism is automatic in its action and that by it light can be alternately flashed through different filaments of the same lamp or through filaments of different lamps. It will also be apparent that there is but little liability of the mechanism getting out of order and that the entire mechanism can be easily and quickly placed in or removed from the block 1.

The slot 31 is shown as of the spiral type in order to restrain the action of the plunger sufficiently to hold the light in each filament momentarily, though it is obvious that without departing from the invention a straight slot may be used, if desired. It will also be apparent that while I have illustrated and described the preferred embodiment of the invention numerous changes of detail construction and organization might be made and that obvious mechanical equivalents could be employed.

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

1. The combination of a pair of outgoing conductors and a common return-conductor for an electric current, an automatic switch mechanism for alternately making and breaking the circuit through said outgoing conductors, and a two filament globe, having the outgoing end of one of its filaments connected to one of the said outgoing conductors, and the corresponding end of the other filament to the other outgoing conductor, and their opposite ends to said return-conductor.

2. The combination of a pair of outgoing conductors and a common return-conductor for an electric current, an automatic switch mechanism for alternately making and breaking the circuit through said outgoing conductors, and a globe consisting of an inner and an outer shell of different colors and equipped with filaments having their return ends connected to said return-conductor and their outgoing ends to different outgoing conductors.

3. The combination of a pair of outgoing conductors and a common return-conductor for an electric current, one of said outgoing conductors being the coil of an electromagnet; the armature for said magnet; instrumentalities actuated by the moving armature to pass the current through the coil or the other outgoing conductor, and an incandescent globe having two independent filaments, having their return ends connected to the return-conductor, and the outgoing end of one of them connected to the coil, and the corresponding end of the other connected to the other outgoing conductor.

4. The combination of a pair of outgoing conductors and a common return-conductor for an electric current, one of said outgoing conductors being the coil of an electromagnet; the armature of said magnet; instrumentalities actuated by the moving armature to pass the current through the coil or the other outgoing conductor; and an incandescent-lamp globe, consisting of an outer and an inner shell of different colors, and each equipped with a filament having the return end connected to the return-conductor; the outgoing ends of the filaments being connected to different outgoing conductors.

5. The combination of a pair of outgoing conductors and a common return-conductor for an electric current, one of said conductors being the coil of an electromagnet; the armature of said magnet; and a lever adapted by one movement of the armature to shunt the current out of the coil and into the other outgoing conductor, and by the other movement of the armature to break the circuit through said other outgoing conductor and reestablish it through the coil.

6. The combination of a pair of outgoing conductors, and a common return-conductor for an electric current, one of said conductors being the coil of an electromagnet; the armature of said magnet; a lever adapted by one movement of the armature to shunt the current out of the coil and into the other outgoing conductor, and by the other movement of the armature to break the circuit through said other outgoing conductor and reëstablish it through the coil; and means for holding said lever in either position of adjustment until moved by positive pressure applied by the armature.

7. The combination of a pair of outgoing conductors and a common return-conductor for an electric current, one of said conductors being the coil of an electromagnet, and the other the hollow core of said coil; the armature of said magnet to operate in said core; a spring to hold the armature normally withdrawn from said core as far as possible; lateral projections at or near the upper and lower ends of the armature; and a lever in electric contact with the core and adapted by pressure of the lower projection on the arma-

ture to establish the circuit through the coil, and through the engagement of the upper projection of the armature to shunt the current out of said coil and through said core.

8. The combination of a pair of outgoing conductors and a common return-conductor for an electric current, one of said conductors being the coil of an electromagnet, and the other the hollow core of said coil; the armature of said magnet to operate in said core; a spring to hold the armature normally withdrawn from said core as far as possible; lateral projections at or near the upper and lower ends of the armature; a lever in electric contact with the core and adapted by pressure of the lower projection on the armature to establish the circuit through the coil, and through the engagement of the upper projection of the armature to shunt the current out of said coil and through said core; and means to hold the lever in either position of adjustment against accidental movement.

9. A non-conducting block having an outgoing and a return conductor at its upper end, an electromagnet within said block and having its core hollow and slotted and projecting above the magnet and equipped with a plate, a lever fulcrumed upon said plate and having one end in said slot, a plate electrically connected to the outgoing conductor at the upper end of the block, a contact-arm to be moved by but insulated from said lever and electrically connected to the magnet-coil, a plate connected to the opposite end of said coil, outgoing conductors connected to the last-named plate and the core of the magnet, a return-conductor electrically connected to the return-conductor at the upper end of the block, the armature fitting slidingly in the core and provided with a pin engaging its slot to cause the lever to establish electric contact between said movable arm and said contact-plate, and a head to reverse the position of the lever and break the circuit through the coil and establish it from said contact-plate through the lever to the core, and a spring for raising the armature when the magnet is deënergized.

In testimony whereof I affix my signature in the presence of two witnesses.

HENRY EDWARD MEYERS.

Witnesses:

I. J. DE VAY,

ANNA WOOD.