M. SCHWARTZ.

ELECTRIC LAMP SOCKET.

APPLICATION FILED JAN. 31, 1912.

1,079,028.

Patented Nov. 18, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

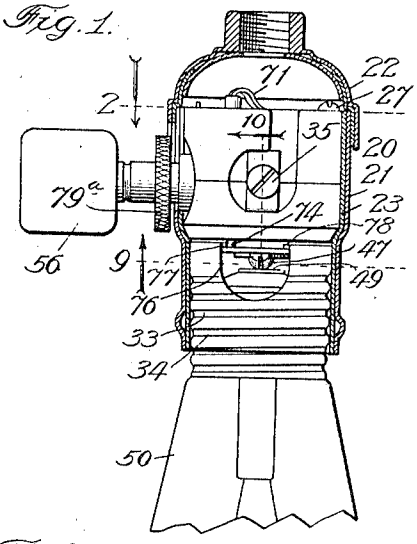


Fig. 3.

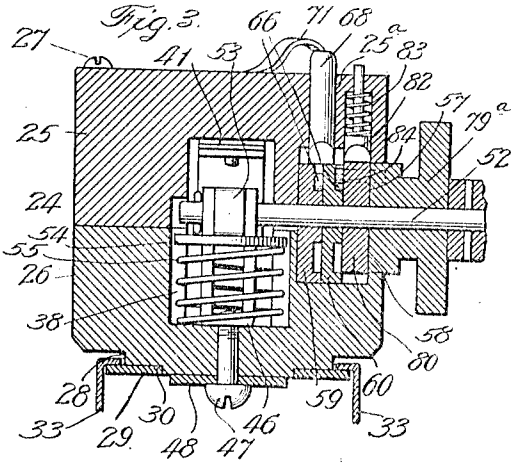


Fig. 5.

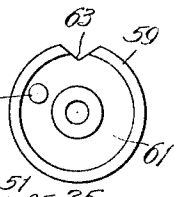


Fig. 6.

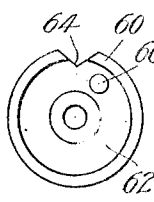


Fig. 7.

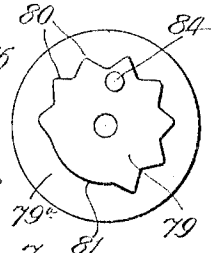


Fig. 9.

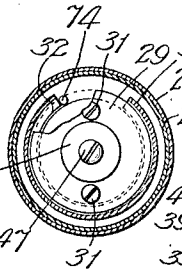


Fig. 10.

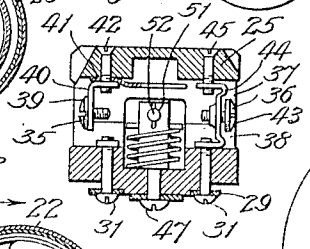


Fig. 4.

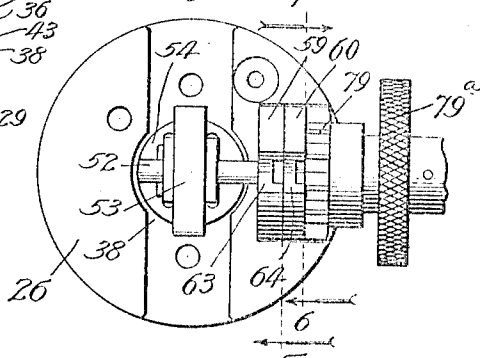


Fig. 2.

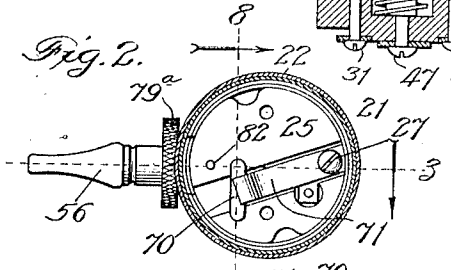


Fig. 8.

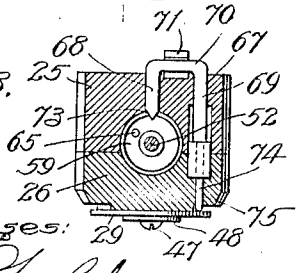
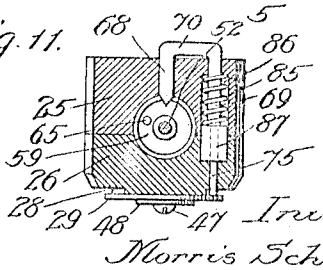


Fig. 11.



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2 SHEETS—SHEET 2.

Fig. 17.

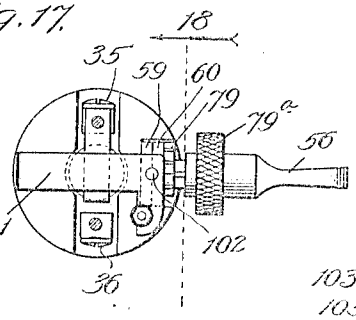


Fig. 19.

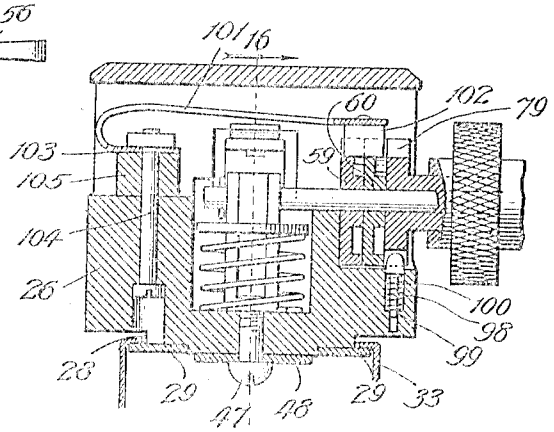


Fig. 18

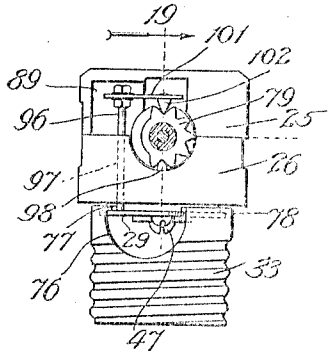


Fig. 15.

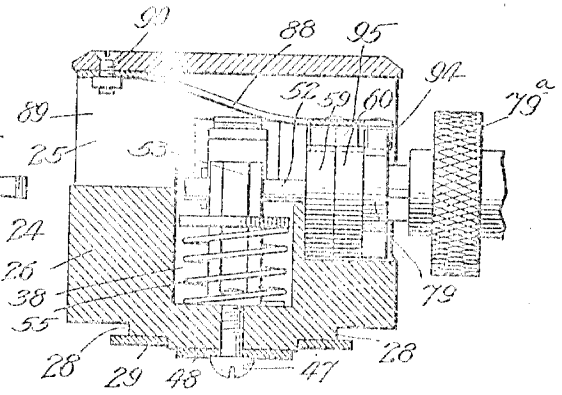


Fig. 12.

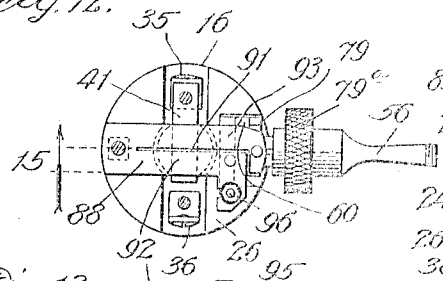


Fig. 13

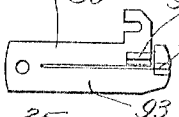


Fig. 14.

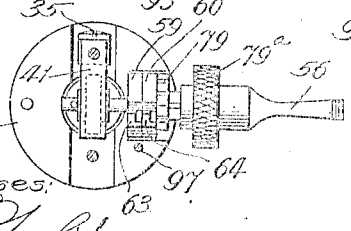
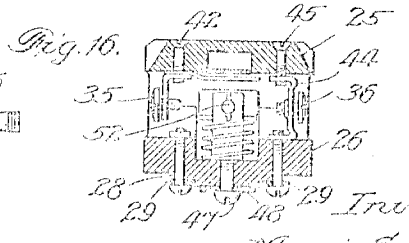


Fig. 16.



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UNITED STATES PATENT OFFICE.

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ELECTRIC-LAMP SOCKET.

1,079,028. Specification of Letters Patent. Patented Nov. 18, 1913.

Application filed January 31, 1912. Serial No. 674,486.

To all whom it may concern:

Be it known that I, MORRIS SCHWARTZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electric-Lamp Sockets, of which the following is a specification.

My invention relates to improvements in electric-lamp sockets of the variety in which provision is made for preventing the removal of the lamps from the sockets except by an authorized person, to avoid theft of the lamps; my object being to provide a novel and simple construction of socket of the variety above referred to, and one in which the locking-means for preventing removal of the lamp, while being adapted for operation only by an authorized person, do not require the use of a key.

Referring to the accompanying drawings, wherein certain of the embodiments of my invention are illustrated Figure 1 is a longitudinal sectional view of a lamp-socket constructed in accordance with my invention, showing the lamp-receiving shell in elevation and a lamp, shown in broken sectional elevation, screwed into the socket. Fig. 2 is a section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow. Fig. 3 is an enlarged section taken at the line 3 on Fig. 2 and viewed in the direction of the arrow. Fig. 4 is a plan view of the lower one of the two sectional insulating members located in the socket and the parts carried thereby. Figs. 5, 6 and 7 are sections taken at the lines 5, 6 and 7 on Fig. 4 and viewed in the directions of the arrows. Fig. 8 is a section taken at the line 8 on Fig. 2 and viewed in the direction of the arrow. Fig. 9 is a section taken at the line 9 on Fig. 1 and viewed in the direction of the arrow. Fig. 10 is a section taken at the line 10 on Fig. 1 and viewed in the direction of the arrow. Fig. 11 is a view similar to that of Fig. 8 of another embodiment of my invention. Fig. 12 is a plan view of the lower one of the two sections of insulating material to which the operative parts of the socket forming another embodiment of my invention are secured, this view also showing in plan the operating parts carried by said lower member. Fig. 13 is a bottom plan view of spring-devices forming parts of the locking mechanism of the construction. Fig. 14 is a view like that of Fig. 12 with the spring-devices of Fig. 13 removed. Fig. 15 is an enlarged sectional view taken at the line 15 on Fig. 12 and viewed in the direction of the arrow. Fig. 16 is a section taken at the line 16 on Fig. 12 and viewed in the direction of the arrow. Fig. 17 is a view similar to Fig. 12 of still another modification of my invention. Fig. 18 is a view in elevation, partly sectional, of the construction illustrated in Fig. 17 with the upper section of the insulating block in place; and Fig. 19, an enlarged section taken at the line 19 on Fig. 18 and viewed in the direction of the arrow.

The type of socket in connection with which I have chosen to illustrate my invention is that in which a screw-threaded shell is provided into which an incandescent lamp of ordinary externally-threaded type is adapted to be screwed, though it will be understood that my invention may be embodied in sockets of other types.

Referring particularly to the construction illustrated in Figs. 1 to 10 inclusive, the casing of the socket, which is illustrated at 20, is formed of a main-section 21 and the usual cap-section 22, the section 21 being lined with insulating material 23. Located in the casing 21 is a block 24 of insulating material, such as porcelain, formed of upper and lower abutting sections 25 and 26, respectively, connected together as through the medium of screws 27. The lower end of the section 26 is peripherally recessed as indicated at 28, and in connection with a ring 29 of current-conducting material secured to a shouldered face 30 of the section 26 as by screws 31 affords a channel into which the inwardly-turned flange 32 of an outwardly-opening shell 33, internally screw-threaded as represented at 34, extends. By this feature of the construction, the shell 33 is rotatable upon the block 24, and is held against displacement thereon by means of the ring 29. The binding-posts for connection with the wires for conducting the current to the socket are represented at 35 and 36 and are located in recesses 37 and 38 in the opposed faces of the sections 25 and 26, the binding-post 35 being formed of a screw 39 which screws into one arm of a bracket 40, this bracket being secured in position and held in close electrical contact at its other arm with a spring-finger 41 by means of a screw 42 passing through the upper sec-

tion 25 of the block 24. The other binding-post is formed of a screw 43 screwing into a metal clip 44 secured at its upper end to a screw 45 in the block-section 25 and at its lower end is connected with one of the screws 31 whereby the binding-post 36 is electrically connected with the ring 29, and when the lamp is screwed into the shell 33 is electrically connected with said shell. The recess 38 in the block-section 26 contains a yoke-shaped member 46 which is rigidly held in upwardly-extending position, as represented in Fig. 3, by a screw 47 passing through a metal plate 48 held against the under side of the block-section 26, the screw 47 serving as one of the contacts for the socket and against which one of the terminals 49 of the lamp, illustrated at 50, bears. Journaled in opposed openings 51 in the member 46 is a metal shaft 52 carrying a contact-making-and-breaking head 53 rigid thereon. Slidable upon the yoke 46 is a plate 54, between which and the base of the recess 38 a coiled spring 55 is confined, it being understood that the head 53, by the arrangement described, is electrically connected with the contact 47. The shaft 52 is so positioned relative to the spring-arm 41 that when this shaft is turned as through the medium of the finger-grip 56 thereon, the head 53 will be moved into engagement with the spring-arm 41, thereby electrically connecting the terminals of the lamp 50 with the binding-posts 35 and 36, the spring-pressed plate 54 serving to insure proper electrical contact of the shaft 52 with the walls of the openings 51.

In carrying out my invention, I provide means for releasably locking the shell 33 against movement upon the block 24 for the purpose of permitting the lamp 50 to be screwed into, or unscrewed out of, the shell 33, by an authorized person, as desired, it being understood that it is intended that the shell 33 be free to rotate on the block 24 when the lamp is in use, thereby preventing the latter from being unscrewed from the socket, the description of the means above referred to being as follows: Journaled on the shaft 52 in recesses 57 and 58 in the block-sections 25 and 26, respectively, are disks 59 and 60, containing grooves 61 and 62, respectively, in the faces thereof. The disks 59 and 60 contain in their peripheries notches 63 and 64 and are equipped with pins 65 and 66 in their grooves 61 and 62, respectively, the pin 66 also projecting beyond the opposite face of the disk opposite to that containing the groove 62. Slidable in openings 25[a] and 67 in the block-section 25 are pins 68 and 69 connected together at their upper ends by a cross-bar 70 against which the free end of a leaf-spring 71, secured to the top of the block-section 25 as by one of the screws 72 bears. The pin 68, which is in effect a dog, is beveled at its lower end at opposite sides as indicated at 73 and is adapted, when the disks 59 and 60 are moved to a position, as hereinafter described, in which the recesses 63 and 64 therein aline and register with the lower end of this pin, to be projected into the recesses 63 and 64 under the action of the spring 71. The lower end of the pin 69 is of reduced diameter, as represented at 74, at which it is slidable in an opening 75 in the block-section 26, this pin, extending at its lower end, into the groove 28 when the dog 68 extends into the recesses 63 and 64 of the disks 59 and 60, the shell 33 having its body-portion and flange 32 cut away as indicated at 76 to form shoulders 77 and 78 into the path of movement of which, when the shell 33 is partially rotated in either direction, the pin 74 extends, whereby the shell 33 is held against rotation on the block 24, thus permitting a lamp to be screwed into or unscrewed out of said shell. The shaft 52 adjacent to the disk 60 carries a ratchet-wheel 79 journaled thereon and rigid with a thumb-piece 79[a] of insulating material likewise journaled on the shaft, the ratchet 79 being provided about a portion only of its periphery with teeth 80, the untoothed portion of its periphery being represented at 81. The ratchet 79, which engages at its teeth with a spring-pressed dog 82 located in a recess 83 in the block-section 25, is provided on its face adjacent to the disk 60 with a pin 84 so positioned as to extend into the groove 62.

The movement of the disks 59 and 60 to a position in which their recesses 63 and 64 are brought into alinement with each other and into registration with the dog 68, is effected through the medium of the hand-piece 79[a] and the pins 65, 66 and 84, these parts of the construction forming a permutation lock, it being understood that when the thumb-piece 79[a] is turned to the left, the engagement of the pin 66 with the pin 65 and the engagement of the pin 84 with the pin 66 will cause the disks 59 and 60 and ratchet 79 to turn in the same direction on the shaft 52 and that when the disk 60 is rotated through the medium of the thumb-piece 79[a] by engagement of the pins 66 and 84 with each other, in a direction to move the pin 66 in a direction in which said last referred to pin does not engage with the pin 65, the disk 59 will remain in the position to which it was rotated by the pin 66 while engaging with the pin 65. It will thus be understood that by varying the positions of any one of the pins 65, 66 or 84, the number of turns which must be given to the hand-piece 79[a] to the right and to the left, to cause the recesses 63 and 64 to aline with each other and register with the dog 68, may be varied as desired. In the construction illustrated, the combination for moving the disks 59 and 60 to a position in

which the recesses 63 and 64 aline with each other and register with the dog 68, is five turns to the left and four turns to the right, and in working the combination the operator will first rotate the thumb-piece 79ª sufficiently far to the left to cause the pin 84 to engage with the pin 66 and the pin 66 to engage with the pin 65 and to bring the ratchet 79 to a position in which its smooth portion 81 opposes the dog 82. The operator then continues turning the thumb-piece 79ª to the left and into engagement at its teeth 80 with the dog 82, until the latter has, by its movement over the teeth 80, made five clicks. By thus operating the thumb-piece 79ª, the disk 59 will be moved to a position in which its recess 63 opposes the dog 68. The operator then rotates the thumb-piece 79ª to the right sufficiently far to cause the smooth portion 81 of the ratchet 79 to pass across the face of the dog 82 and thereupon continues to turn the thumb-piece 79ª to the right until the dog 82 in passing over the teeth 80 clicks four times, it being understood that in the movement of the finger-piece 79ª to the right as stated, the disk 59 remains stationary. Thus operating the thumb-piece 79ª moves the disk 60 to a position in which its recess 64 alines with the recess 63 and both of these recesses oppose the dog 68, (Figs. 3 and 4), the dog 68 springing into these recesses and causes the pin 75 to project into the path of the shoulders 77 and 78 for locking the shell 33 against rotation for the purpose hereinbefore stated, it being understood that the disk 59 is moved to the position stated by the engagement of its pin 65 with the pin 66 when the ratchet 79 is turned to the left and that the disk 60 is moved into said position by the engagement of the pin 84 with the pin 66 in the movement of the thumb-piece 79ª to the right.

When it is desired that the pin 75 be withdrawn from the path of movement of the shoulders 77 and 78 of the shell 33, as for example after the lamp 50 has been screwed into place, to prevent its removal from the shell 33, the operator rotates the thumb-piece 79ª to the right or left sufficiently far to move at least one of the disks 59 or 60 into a position in which its recess is out of registration with the dog 68, which operation forces the latter and the pin 67 upwardly against the action of the spring 71 to a position in which the pin 75 is withdrawn from the groove 28.

In Fig. 11 is illustrated a modification of the spring-means tending to force the shell-engaging pin 75 and the dog 68 into the path of movement of the shoulders 77 and 78 and into the recesses 63 and 64, respectively. In this construction instead of employing a leaf-spring 71, I provide a coiled spring 85 which surrounds the pin 69 and is confined in a recess 86 in the block-section 25 between the upper wall of said recess and the upper end of a sleeve 87 of insulating material fixed on the reduced portion 75 of the pin 69, the spring 85 tending to force the dog 68 and pin 69 downwardly, for the purpose described of the preceding construction.

The construction illustrated in Figs. 12 to 16 inclusive is the same as that illustrated in Figs. 1 to 10 inclusive, excepting as to the spring-controlled devices which coöperate with the disks 59 and 60 and the ratchet 79. In the construction illustrated in Figs. 12 to 16, the leaf-spring 88, located in a recess 89 in the block-section 25, is secured therein by a screw 90 and is split longitudinally as represented at 91 to afford spring-arms 92 and 93. The spring-arm 93 carries a depending tooth 94 adapted to engage with the teeth 80 on the ratchet 79, as described of the dog 82, and the spring-arm 92 carries a depending tooth 95 coöperating with the recesses 63 and 64 as described of the construction illustrated in Figs. 1 to 10 inclusive. The pin for projection into the groove 28 on the block 25 for engaging with the shoulders 77 and 78 on the shell 33 to releasably lock the latter against rotation, is represented at 96, this pin which is secured to the spring-arm 92 being slidable in an opening 97 in the block-section 26 and operating as described of the previous constructions to be projected into the groove 28 to engage with the shoulders 77 and 78 of the shell 33, when the tooth 95, under the action of the spring-arm 92 on which it is carried, is projected downwardly into the recesses 63 and 64 on the disks 59 and 60.

The construction illustrated in Figs. 17, 18 and 19 is the same as the construction illustrated in Figs. 12 to 16 inclusive, except that the pawl for engaging with the ratchet 79 instead of being a spring-arm is a dog, such as that represented at 98 slidable in an opening 99 in the block-section 26 and backed up by a spring 100, and instead of securing the spring-arm, which carries the tooth for engaging with the recessed disks 59 and 60, to the block-section 25, the spring-arm of this construction represented at 101 and carrying a depending tooth 102 for engagement with the recesses in said disks, is reversely bent to afford a section 103 at which the spring 101 is secured to the block-section 26 by means of a bolt 104 passing through said block-section, the section 103 of said spring and a spacer-block 105 confined between the latter and said block-section.

While I have illustrated and described certain forms of construction in which my invention may be embodied, I do not wish to be understood as intending to limit it to such forms as the same may be variously

modified and altered without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is

1. In an electric-lamp socket, the combination of its casing, a threaded lamp-engaging member rotatably mounted in said casing, a spring-pressed reciprocable-pin cooperating with said threaded member for locking it against rotation, and rotatable tumbler permutation locking means for moving said pin out of engagement with said threaded member, for the purpose set forth.

2. In an electric-lamp socket, the combination of its casing, a threaded lamp-engaging member rotatably mounted in said casing, a movable member movable into and out of locking engagement with said lamp-engaging member for releasably locking the latter against rotation, a reciprocable member operating to control the position of said movable member, and means for controlling the position of said movable and reciprocable members comprising a plurality of relatively rotatable members provided with means coöperating with said reciprocable member for controlling the position of the latter.

3. In an electric-lamp socket, the combination of its casing, a threaded lamp-engaging member rotatably mounted in said casing, a dog, a pin operatively engaging with said dog and movable into and out of locking engagement with said threaded member, spring-means tending to move said pin to locking position, means for controlling the position of said dog and pin comprising a pair of relatively rotatable members coöperating with said dog for controlling the position of the latter, and means for rotating one of said last-named members from the other thereof.

4. In an electric-lamp socket, the combination of its casing, a lamp-engaging member rotatably mounted in said casing, a rotatable switch-device in said casing, and permutation locking means on said switch-device for releasably locking said member against rotation.

5. In an electric-lamp socket, the combination of its casing, a lamp-engaging member rotatably mounted in said casing, a rotatable switch-device in said casing, and permutation locking means journaled on said switch device and provided thereon with an actuating member, for releasably locking said lamp-engaging member against rotation.

6. In an electric-lamp socket, the combination of its casing containing an insulating base equipped with electric contacts, a shaft journaled in said base and carrying a switch-device for engagement with said contacts, a lamp-engaging member rotatably mounted on said base, and permutation locking means on said shaft for releasably locking said member against rotation.

7. In an electric lamp-socket, the combination of its casing, a threaded lamp-engaging member rotatably mounted in said casing, a yoke-shaped member reciprocably confined in said casing, said member being movable at one end into and out of locking engagement with said threaded member, a leaf-spring on the socket operating against said last-named member, and means coöperating with the other end of said yoke member for controlling the position of the latter relative to said lamp-engaging member.

MORRIS SCHWARTZ.

In presence of—
L. HEISLAR,
R. SCHAEFER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."