G. I. SILBERT.

COMBINATION LOCK FOR ELECTRIC LAMPS AND THE LIKE.

APPLICATION FILED JULY 18, 1910.

1,010,814.

Patented Dec. 5, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

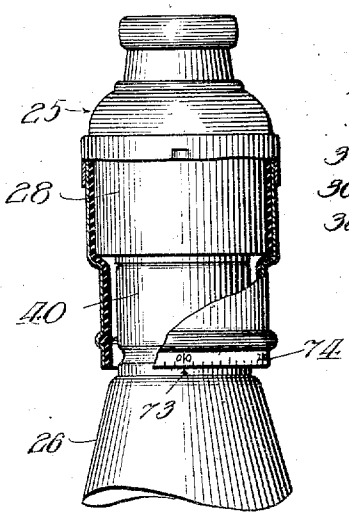


Fig. 2.

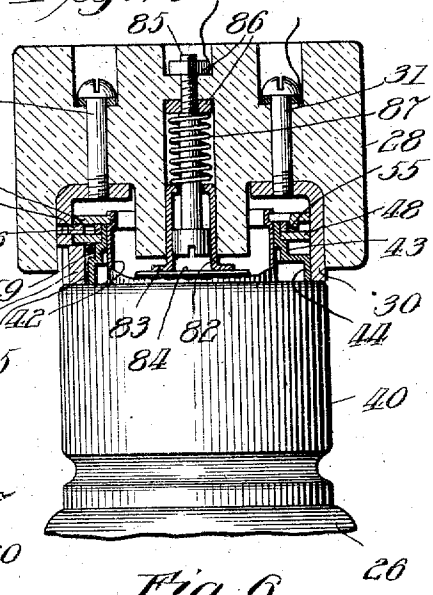


Fig. 3.

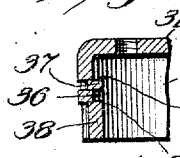


Fig. 4.

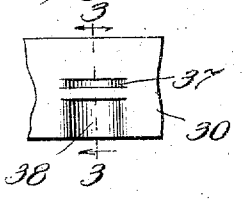


Fig. 5.

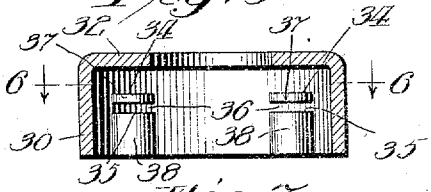


Fig. 6.

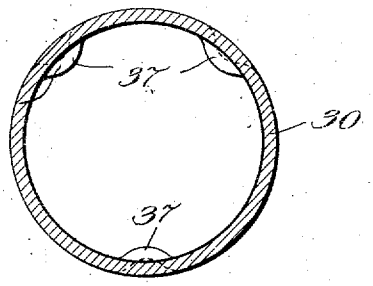


Fig. 7.

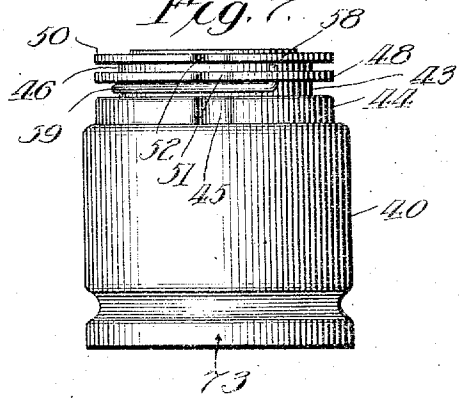
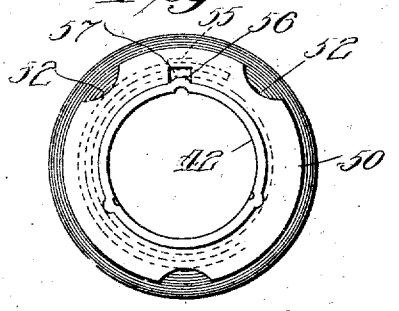


Fig. 8.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 9.

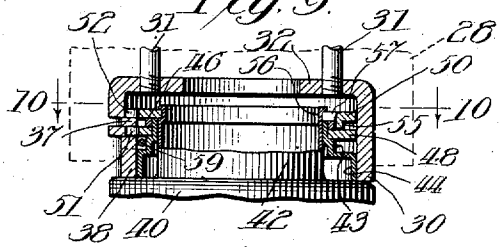


Fig. 10.

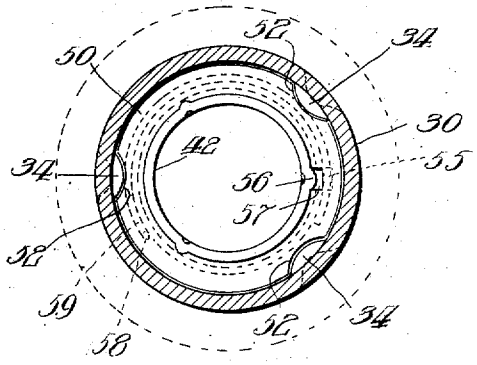


Fig. 13.

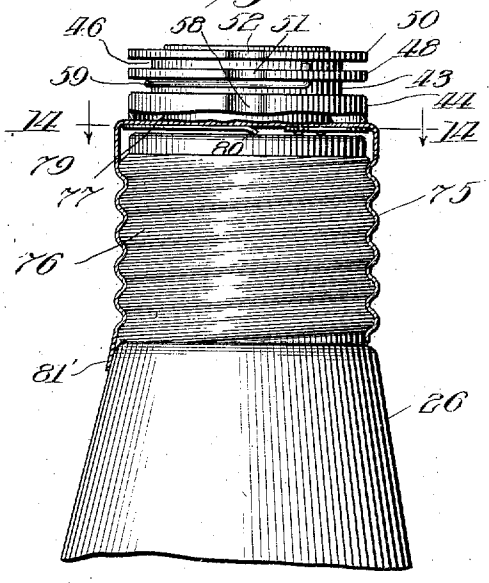


Fig. 11.

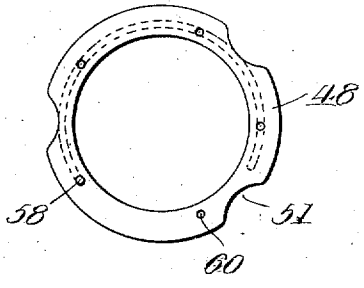


Fig. 14.

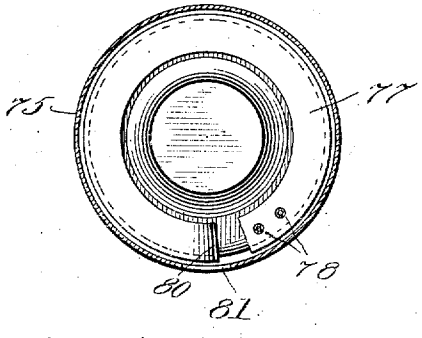


Fig. 12.

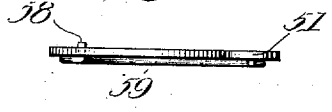
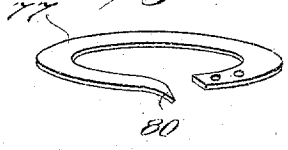


Fig. 15.



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3 SHEETS—SHEET 3.

Fig. 16.

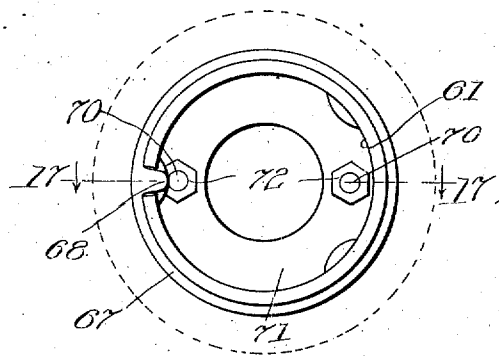


Fig. 18.

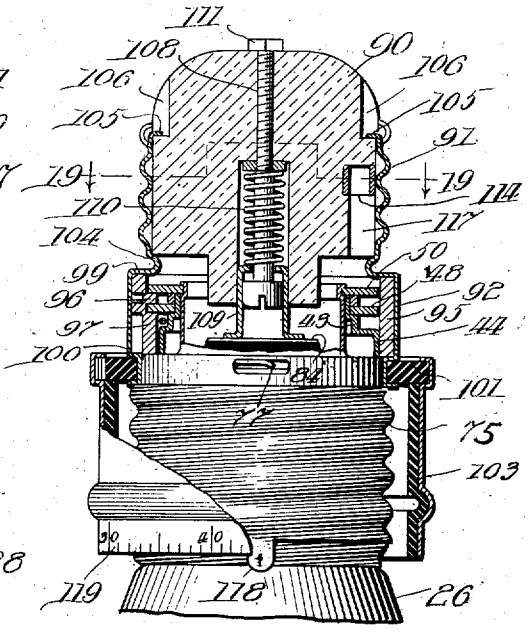


Fig. 17.

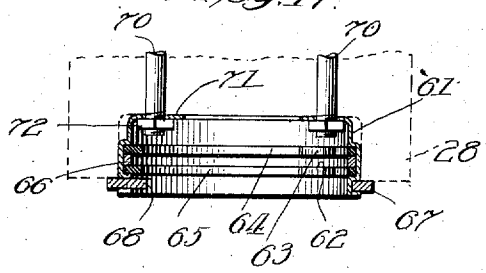


Fig. 19.

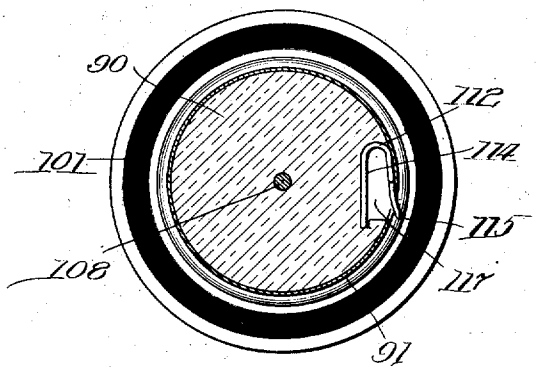
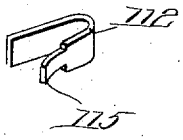


Fig. 20.



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UNITED STATES PATENT OFFICE.

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COMBINATION-LOCK FOR ELECTRIC LAMPS AND THE LIKE.

1,010,814. Specification of Letters Patent. Patented Dec. 5, 1911.

Application filed July 18, 1910. Serial No. 572,482.

To all whom it may concern:

Be it known that I, GUSTAF I. SILBERT, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combination-Locks for Electric Lamps and the Like; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a novel combination or permutation lock for incandescent electric lamps, and for other like separable electric connections, so arranged as to lock the lamp or other connection in place in such manner that it can be removed from its socket or support only by a person who has knowledge of the prearranged combination by which the locking elements are transposed to release the lock.

The object of the invention is to provide a simple, inexpensive and compact locking device of this character for electric lamps and other like uses, and also to provide a combination lock which may be readily applied to standard lamp and socket construction, and which also may be adapted to lamps and sockets already in use.

Considerable annoyance has been experienced and considerable loss sustained by reason of the pilfering of incandescent electric lamps, and this practice has greatly increased and become more profitable to persons following the same upon the advent of the more expensive tungsten lamps. In order to avoid this annoyance key-operated locks have been proposed, but such key locks are objectionable because of the necessity of having a key at hand to remove the lamp, and also because such keys may be duplicated by maliciously inclined persons wishing to appropriate the lamps, thus largely nullifying the safety feature of the lock.

I propose to provide a combination or permutation lock which can be released to remove the lamp only by a person who knows the particular combination of the lock, and the lock is so arranged that the combination may be varied at will, thereby rendering it impossible for an unauthorized person to remove the lamp from its socket or support.

The lock which I have devised may be applied as a permanent part of the lamp base and socket construction, or the parts of the lock may be adapted either to a lamp base, or to a socket already in use, or to both the lamp base and socket in use.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings,—Figure 1 is a view partially in elevation and partially in section of a lamp mounting, showing a socket and base to which my lock may be applied. Fig. 2 is an enlarged view showing the interlocked socket and the lamp base partially in section and partially in elevation. Fig. 3 is a fragmentary section of the metal socket cup on line 3—3 of Fig. 4. Fig. 4 is a fragmentary side elevation of said cup. Fig. 5 is an axial section of the cup. Fig. 6 is a section on the line 6—6 of Fig. 5. Fig. 7 is a side elevation of the lamp base and the lock tumblers carried thereby. Fig. 8 is a plan view thereof. Fig. 9 is an axial section of an interlocked base and socket, showing the permutation elements in position for release. Fig. 10 is a horizontal section on line 10—10 of Fig. 9. Fig. 11 is a plan view of one of the tumblers. Fig. 12 is an edge view of said tumbler. Fig. 13 is a view partially in elevation and partially in section, illustrating the manner of applying the locking device to a standard screw-threaded lamp base. Fig. 14 is a section on line 14—14 of Fig. 13. Fig. 15 is a perspective view of the locking ring for locking the adapter sleeve shown in Fig. 13 to the screw-threaded lamp base. Fig. 16 is a bottom plan view of another form of socket. Fig. 17 is a section on line 17—17 of Fig. 16. Fig. 18 is a partial section and partial elevation of an adapter for adapting the locking device to a standard socket and standard lamp base. Fig. 19 is a section on line 19—19 of Fig. 18. Fig. 20 is a perspective view of the spring for locking the adapter in a standard socket.

First referring to the construction shown in Figs. 1 to 12, inclusive, 25 designates a lamp socket and 26 an incandescent lamp,

the base of which enters the socket. The porcelain or other insulating body 28 of the socket is confined between the usual two-part, interlocked casing or shell in the manner shown in Fig. 1. The said body 28 is recessed at its lower side to receive a metal socket cup or ring 30 which carries certain of the elements of the combination lock. Said cup is fixed to the body 28 by screws 31, 31 which extend downwardly through openings in the body and engage screw-threaded openings in the flange 32 of the cup 30. The cylindric wall of said cup is provided on its inner surface, at three angularly separated points, with spaced shoulders 34, 35 forming between the same spaces 36. The said shoulders are shown as formed by pressing or shearing the cylindric wall of the cup inwardly to provide transversely convex, angularly spaced lugs 37, 38 on the inner face of the said wall.

The metal sleeve 40, which surrounds and constitutes part of the base of the lamp, is formed at its inner end with a concentric tubular extension or neck 42 which is loosely surrounded by a metal tumbler bearing sleeve 43. The lower end 44 of said ring is enlarged to fit closely in the outer end of the socket cup 30 and said enlarged end is formed with angularly spaced notches 45, equal in number to the lugs 37, 38, and said notches are adapted, when the base is inserted into the socket, to engage the lugs 38 to prevent said tumbler sleeve from turning in the socket cup. Between an annular shoulder, intermediate the ends of said sleeve 43, and a spacing ring 46 surrounding the tumbler sleeve is located a tumbler 48 which is free to turn about the sleeve. 50 designates a second tumbler that is fixed to the end of the tubular extension or neck 42 of the base shell in any suitable manner, as, for instance by spinning or forming the end of said extension over the tumbler, as shown in Figs. 2 and 9, and interlocking it with the tumbler, so that said inner tumbler turns with the base extension or neck. Said tumbler 50 bears against the spacing sleeve 46. The said tumbler 48 is provided with a plurality of angularly spaced notches 51 adapted to pass over the convex lugs 38, and the innermost tumbler 50 is likewise provided with angularly spaced notches 52 adapted to pass over the lugs 37, 38. When the tumblers 50 and 48 are in place in the socket cup and are rotated to bring their notches out of line with the lugs 37, 38, the unnotched portions of the tumblers lie behind the locking shoulders 34, 35, respectively, of the socket cup, said tumbler 48 occupying the spaces 36. The said tumblers 50 and 48 are provided with interacting lugs or projections adapted, when the lamp and its fixed tumbler 50 are rotated, to control the rotation of the tumbler 48 in a manner familiar in combination or permutation locks, whereby the notches of the tumblers are, by a predetermined manipulation of the lamp, brought into and out of line with the locking shoulders on the socket cup. As herein shown, the outermost tumbler 50 is provided with an integral lug 55 bent down from the body of the tumbler, as shown in Figs. 2 and 9. When so made the tumbler 50 may be locked to the neck or extension by pressing the extension at one point 56 (Figs. 8 and 10) outwardly into the notch 57 formed by punching the metal away to produce the lug 55. The coöperating lug 58 of the next adjacent tumbler 48 is formed by one end of a curved spring wire 59 which lies beneath the tumbler 48 and surrounds the tumbler sleeve, said end 58 of the wire extending through an opening 60 in the tumbler, as shown best in Fig. 11. There are provided a plurality of angularly spaced openings 60 in order that the projection 58 may be angularly adjusted with respect to the tumbler 48; such adjustment being effected by removing the projection from an opening 60, partially rotating the wire about the axis of the tumbler and inserting the projection into another opening 60.

When the lamp base is to be inserted into the socket and is to be locked therein, the tumbler sleeve 43 and tumbler 48 are rotated to bring their proper notches into register with the notches 52 of the fixed tumbler 50, so that the notched portions of the tumblers and sleeve will pass over the lugs 37, 38 of the socket cup. The engagement of the lugs 38 with the notches 45 of the tumbler sleeve 43 holds said tumbler sleeve from rotation. The tumbler 50 is rotated, by rotating the lamp, to bring the unnotched portion of said tumbler 50 behind the shoulders 34 of the socket cup. After said tumbler 50 has been rotated a given angular distance, the engagement of the lug 55 thereof with the lug 58 of the tumbler acts to rotate the unnotched portion of the latter tumbler behind the shoulders 35 of the socket cup. The lamp is now locked in the socket and can only be released by an angular transposition of the tumblers in the concerted order for which the tumblers have been previously arranged. In rotating the lamp to transpose the tumblers to releasing position, (shown in Figs. 9 and 10) the tumbler 50 is rotated directly by the lamp, and the tumbler 48 is rotated indirectly thereby through the interaction of the lugs 55 and 58 until the notches of the tumblers are brought into line with the lugs of the socket cup.

It will of course be understood that any number of intermediate tumblers may be provided, and that they may be arranged differently from herein shown.

The manner of forming the locking shoulders in the socket cup recommends itself by

reason of the simplicity of the operations required to produce the same. The said cup may however be made like that shown in Figs. 16 and 17, wherein the cup 61 is made of thinner metal than the cup 30, and the locking shoulders 62, 63 thereof are formed on rings 64, 65 that are set into the cup and are held in place therein between shouldered portions of the cylindric wall of the cup and a spacing ring 66. In this construction there is provided at the outer open side of the cup a ring 67, which may be fixed to the cup by spinning or forming the edge thereof over the ring, and said ring is provided with an inwardly directed lug 68 which is adapted for engagement with one of the notches 45 of the tumbler sleeve 43 to hold the said tumbler sleeve from rotation when the base is inserted into the socket. Said socket cup is fixed to the insulating body 28 by means of the bolts 70 which extend through the flanged end 71 of the cup and may be provided inside said flanged end with the screw-threaded nuts 72.

The lamp or its base is provided with an indicator point 73, and the shell of the socket is provided adjacent thereto with an annular series of numerals 74 with which said indicator point coöperates to guide the person in transposing the tumblers to unlock the device.

In Figs. 13, 14 and 15, I have shown an arrangement whereby the elements of the lock carried by the lamp base may be applied to a standard screw-threaded lamp base. As shown in said figures the parts of the lock carried by the lamp base are the same as those before described, and like parts bear the same reference numerals. In this construction the extension 42 on which the tumbler sleeve is mounted is formed on a screw-threaded adapter sleeve or shell 75 that is screw-threaded to the ordinary screw-threaded base 76 of the lamp 26. With this arrangement it becomes necessary to provide means to lock the lamp base to the adapter sleeve or shell 75. This may be effected by the spring locking device 77, shown best in Figs. 14 and 15, which is arranged to lie between the end of the lamp base and the end wall of the adapter sleeve 75. The said locking ring is fixed to the adapter sleeve in any suitable manner, as by means of hollow lugs or eyelets 78 formed on the end wall of the adapter sleeve adapted to extend through openings in the spring lock and to be riveted thereon. One end of the split locking ring 77 is turned downwardly to constitute a biting edge or projection which engages the end of the standard base. The said end 80 is so disposed relatively to the direction of rotation of the base, when the latter is turned into the socket, as to ride freely over the end surface of the base when the lamp is turned into the adapter shell, but bites into the end wall of the base when the lamp is turned in the reverse or unscrewing direction. Thereby the lamp is securely locked from being turned out of the adapter shell. The biting end 80 of said spring locking device may be released by a suitable instrument inserted through an opening 81 in the shell beneath said end so as to pry the biting end from the end face of the base. This can only be effected when the lamp is removed from the socket. In this construction an indicator point may be impressed on a lug 81′ which extends downwardly from the adapter sleeve in position for said point to coöperate with numerals on a shell into which the adapter is inserted in a manner generally similar to the coöperation of the indicator point 73 and the numerals 74, shown in Fig. 1.

One side of the lamp circuit is closed through the lamp base extension, the locking tumblers and the socket cup, and the circuit wire may be connected in any suitable manner to one of the bolts 31, or otherwise connected to the socket cup. The other side of the lamp circuit is closed through a yielding center terminal, shown in Fig. 2, and made as follows: 82 designates a metal sleeve which slidingly engages a central opening in the insulating body 28 and is formed at its outer end with a flange 83 to engage the central terminal 84 of the lamp base. Said sleeve is mounted on the lower end of a metal pin 85 which extends upwardly through an axial opening in said insulating body and is fixed thereto by the terminals or nuts 86. Said pin is headed at its lower end, the head having close guiding engagement with the sleeve for electrical contact therewith. The sleeve is normally projected downwardly against the central terminal of the lamp base by means of a spring 87 interposed between the upper flanged end of said sleeve and the lower nut or terminal 86 of the pin 85. The upper or outer end of the pin may be connected in any suitable manner to a conducting wire.

In Figs. 18, 19 and 20 is shown an adapter for adapting my improved lock to a standard socket and a standard lamp base. The adapter sleeve 75 of the lamp base is like the sleeve or shell shown in Fig. 13 and is shown as locked to the lamp base by the same locking spring 77 shown in Figs. 14 and 15. The elements of the combination or permutation lock carried by the lamp base may be like that shown in connection with Figs. 7, 9 and 13, and like parts bear the same reference characters. The socket which receives the locking devices of the lamp base is formed with an extension plug or adapter that is designed to be screwed into an ordinary or standard socket. These parts are made as follows:—90 designates

an elongated insulating body, such as porcelain, which is partially surrounded by a screw-threaded metal shell 91 that is adapted to engage the screw-threads of a standard socket. Said shell 91 is formed with a cylindric extension 92 adapted to inclose the parts which constitute the socket portion of the adapter plug and in which are mounted the locking shoulders for engagement with the tumblers on the lamp base. Contained within said extension of said shell is a metal socket ring 95, corresponding generally to the socket cup 30 of the other figures, with the exception that its end flange is omitted. The said ring 95 is formed with the angularly spaced, transversely convex lugs 96, 97, corresponding to the lugs 37, 38 of the socket cup 30, to form the locking shoulders with which the tumblers 48 and 50 are engaged. Said socket ring 95 is confined between an offset or shoulder 99 at the base of the screw thread of the shell 91 and another shoulder 100 near the outer end of the socket portion 92 of the shell. The extreme outer edge of the socket portion of the shell is folded or spun about an insulating ring 101 which constitutes an insulated connection between said socket portion 92 and a socket extension 103 which surrounds or incloses the base of the lamp. The insulating body 90 is confined in the shell 91 between a shoulder 104 at the base of the screw thread of the shell 91, and spurs 105 bent inwardly from the inner end of the screw-threaded shell which engage with shoulders on the insulating body at the bottoms of the notches 106. The said screw-threaded shell 91 is electrically connected to the locking device and constitutes part of one side of the lamp circuit. The other side of the lamp circuit is closed through a central yielding terminal, made like that shown in Fig. 2. Said yielding terminal comprises the metal pin 108 arranged in an axial opening of the insulating body, a metal sleeve 109 slidable on the head of said pin and adapted to engage the central terminal 84 of the lamp base, and a spring 110 which acts on said sleeve to normally hold it projected and to yieldingly hold it against the central lamp base terminal. The inner end of said pin 108, or a nut 111 thereon, extends beyond the inner end of the insulating body of the adapter plug for engagement with the central terminal of a standard socket.

Means are provided for positively locking the adapter plug described to a standard socket to prevent said plug from being removed as long as the lamp is in place in its socket. The means herein shown comprises a U-shaped spring 112 arranged transversely of the axis of the adapter plug in a socket or recess 114 at one side of the insulating body and inside the screw-threaded shell 91. One end of said U-shaped spring 112 is reduced and curved outwardly to constitute a biting extension 115 which is adapted to extend outwardly through an opening in the screw-threaded shell 91 to engage the screw-threaded sleeve of a standard socket. The said curved biting end of the spring is so disposed, with respect to the direction of rotation of the adapter, when the same is being turned into the socket, as to pass freely over the screw-threaded socket sleeve when the adapter is being turned into place; but when the adapter is turned in the other direction to remove the adapter from the socket, said outwardly curved end 115 bites into the screw-threaded socket sleeve and locks the adapter from backward rotation. The said outwardly turned end 115 of the locking spring may be sprung backwardly to permit the adapter plug to be rotated in a direction to unscrew it from the socket by means of an implement which may be inserted through the open end of the socket, when the lamp is removed, and through a recess 117 at the side of the adapter plug for engagement with the free end of the said locking spring in a manner to spring said free end of the spring inwardly away from the standard socket screw-threaded sleeve. The locking spring 77 and locking spring 112 constitute, therefore, means to prevent detachment of the lamp base from the screw-threaded adapter sleeve or shell 72, and also detachment of the adapter plug of the socket from a standard socket.

In the form of device shown in Fig. 18 the adapter sleeve is provided with an indicator point 118 which is adapted to coöperate with a series 119 of numerals on the outer side of the extension shell 103 of the socket.

It will be understood that the combination or permutation lock may be applied to any form of socket, whether for indoor or outdoor use and with or without a key or other switch for making and breaking the circuit.

It will be further understood that the details of the locking device and the manner of its adaptation to the socket and lamp base may be varied within the spirit and scope of the invention.

Furthermore a combination lock such as herein shown may be employed to releasably lock other forms of electrical connections, such as a switch, having the same general arrangement of separable terminals such as is herein shown.

It will be observed that in all of the forms illustrated the locking tumblers carried by the lamp base, and the locking extensions of the socket constitute one side of the lamp circuit, and that their arrangement is such that their adaptation to a lamp and socket does not materially increase the dimensions

of the lamp mounting. This latter feature of the lock, while desirable, is not essential, since the lock elements may be independent of the current carrying elements of the lamp and socket.

I claim as my invention:—

1. An electric lamp provided with a combination lock embracing tumblers movable in and permanently carried by the lamp base to releasably lock the lamp to a support.

2. An electric lamp and combination lock elements carried permanently thereby for releasably locking the lamp to a support.

3. An electric lamp provided with circuit terminals and a combination lock for releasably locking the lamp to a support, the locking elements constituting, when the lamp is connected in circuit, part of the lamp circuit.

4. An electric lamp provided with a base having circuit terminals and a combination lock for locking the lamp to a support, embracing tumblers on said base adapted to engage a locking projection on the support.

5. An electric lamp and its socket and a combination lock embodied in the lamp and socket for releasably locking the lamp in its socket.

6. An electric lamp and its socket and a combination lock therefor comprising locking projections on one of said parts and a rotative tumbler on the other part adapted for releasable locking engagement with said projections.

7. An electric lamp and its socket and a combination lock therefor made of conducting material to constitute part of the lamp circuit.

8. An electric lamp and its socket, the socket being provided with a plurality of angularly spaced projections, the lamp base extending into the socket, and notched tumblers mounted on the base for engagement with said projections to constitute a combination lock by which to releasably lock the lamp to the socket.

9. An electric lamp and its socket, the socket being provided with a plurality of angularly spaced projections, the lamp base extending into the socket, and notched tumblers mounted on the base for engagement with said projections to constitute a combination lock by which to releasably lock the lamp to the socket, one of said tumblers being fixed to the lamp base to rotate therewith and another tumbler being loosely mounted on the base and having means whereby its rotation is controlled by the tumbler fixed to the lamp base.

10. An electric lamp and its socket, the socket being provided with a plurality of angularly spaced projections, the lamp base extending into the socket, notched tumblers mounted on the base for engagement with said projections to constitute a combination lock by which to releasably lock the lamp to the socket, the said socket and its projections and the tumblers being made of conducting material to constitute part of one side of the lamp circuit, and a centrally arranged terminal carried by the socket for engagement with the central terminal of the lamp.

11. An electric lamp provided with a base having a reduced extension and with a tumbler carrying sleeve loosely mounted on said extension, and tumblers carried by said sleeve and the reduced extension of the base to constitute part of a combination lock to releasably lock the lamp to a support.

12. The combination with a fixed socket member and a member adapted to enter the socket, said members having circuit closing terminals adapted for contact to close a circuit and to be separated to open the circuit, of a combination lock embracing releasable locking elements embodied as permanent parts of said members, one of which elements is movably carried by one of said members, for releasably locking said members together.

13. The combination with a fixed socket member and a member adapted to enter the socket, said members having circuit closing terminals adapted for contact to close a circuit and to be separated to open the circuit, of a combination lock embracing rotative tumbler elements and projections for releasably locking said parts together.

14. The combination with a fixed socket member and a member adapted to enter the socket and to rotate therein, said members having circuit closing terminals adapted for contact to close a circuit and to be separated to open the circuit, the socket member being provided with locking projections, of tumblers concentrically mounted on the rotative member adapted for locking engagement with the socket projections.

15. The combination with a fixed socket member and a member adapted to enter the socket member and to rotate therein, said members having circuit closing terminals adapted for contact to close a circuit and to be separated to open the circuit, the socket member being provided with locking projections, of tumblers concentrically mounted on the rotative member adapted for locking engagement with the socket projections, said socket projections and tumblers being made of conducting material to constitute the terminals of one side of the circuit, and a centrally arranged contact in the socket adapted to engage a central contact on the rotative member to constitute the terminals of the other side of the circuit.

16. An electric lamp provided with a base, a screw-threaded adapter sleeve fitted to the base and provided with means for locking

it to the base and a combination lock for locking said sleeve to a support.

17. An electric lamp provided with a screw-threaded base, a screw-threaded adapter sleeve on the base and tumblers carried by said sleeve to constitute part of a combination lock for locking the sleeve to the coöperating projection of a support.

18. An electric lamp provided with a screw-threaded base, a screw-threaded adapter sleeve fitted to the base, locking means for locking said sleeve to the base comprising a resilient member carried by one of the parts and having a biting edge adapted to bite into the other part when the base is turned in a direction to screw it out of the sleeve but which rides freely over said part when the base is turned in a direction to screw it into said sleeve, and a combination lock for locking said sleeve to a socket.

19. An electric lamp provided with a screw-threaded base, a screw-threaded adapter sleeve fitted to the base, a locking spring fixed within said sleeve and provided at its end with a locking spur or projection adapted to engage and bite into the base when the base is turned in a direction to screw it out of the sleeve and thereby prevent the normal withdrawal of the base from the sleeve, means whereby said spur may be released from its base, and a combination lock for locking the adapter sleeve to a socket.

20. The combination with an adapter embracing an adapter plug having a screw-threaded sleeve for engagement with a standard screw-threaded socket and having means for locking it to the socket, said adapter being provided with a socket and a lamp base adapted to enter the latter socket, of a combination lock embracing locking elements permanently carried by the base and socket for locking the lamp base in said latter socket.

21. The combination with an adapter embracing an adapter plug having a screw-threaded sleeve for engagement with a standard screw-threaded socket and having means for locking it to the socket, said adapter being provided with a socket and a lamp base adapted to enter the latter socket, of a combination lock for locking the lamp base in said latter socket, the locking means for the adapter plug being inaccessible when the lamp base is locked in the adapter socket, and means whereby the locking means may be released to permit the adapter plug to be removed from the standard socket when the lamp base is removed from the adapter socket.

22. The combination with an adapter comprising an insulating body, a metal screw-threaded ring fitted thereover, and a locking device seated in said body and extending through the sleeve for engagement with the screw-threaded sleeve of a standard socket to lock the adapter plug in said socket, said sleeve being provided with an extension to form a socket, of a combination lock to lock a lamp base in said socket, there being an opening in the plug accessible from the open side of the socket, when the lamp base is removed, through which an implement may be inserted to release the plug locking device.

23. The combination with an adapter embracing an adapter plug having a screw-threaded sleeve adapted for engagement with a standard screw-threaded socket and having means for locking it to the socket, said adapter being provided with a socket, a screw-threaded lamp base, and a screw-threaded adapter sleeve fitted on the base and having means for locking it thereon, of a combination lock for locking the lamp base adapter sleeve in the adapter socket.

24. An electric lamp and its socket, the socket comprising a metal ring which is sheared or punched inwardly to form on the inner side of the ring a plurality of angularly spaced locking projections and tumblers mounted on the lamp base for engagement with said locking projections.

25. The combination with a metal ring which is sheared or punched inwardly to form on the inner side of the ring a plurality of angularly spaced sets of locking projections, of a member adapted to enter said socket to rotate therein and notched tumblers on said member for engagement with said locking projections.

26. An electric fixture socket and a plug adapted to enter the same, combined with a combination lock comprising coöperating tumblers and projections mounted on said socket and plug and contained within and surrounded by the socket when the parts are interlocked.

In testimony that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 16th day of July A. D. 1910.

GUSTAF I. SILBERT.

Witnesses:
W. L. HALL,
WILLIAM GOLDBERGER.

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