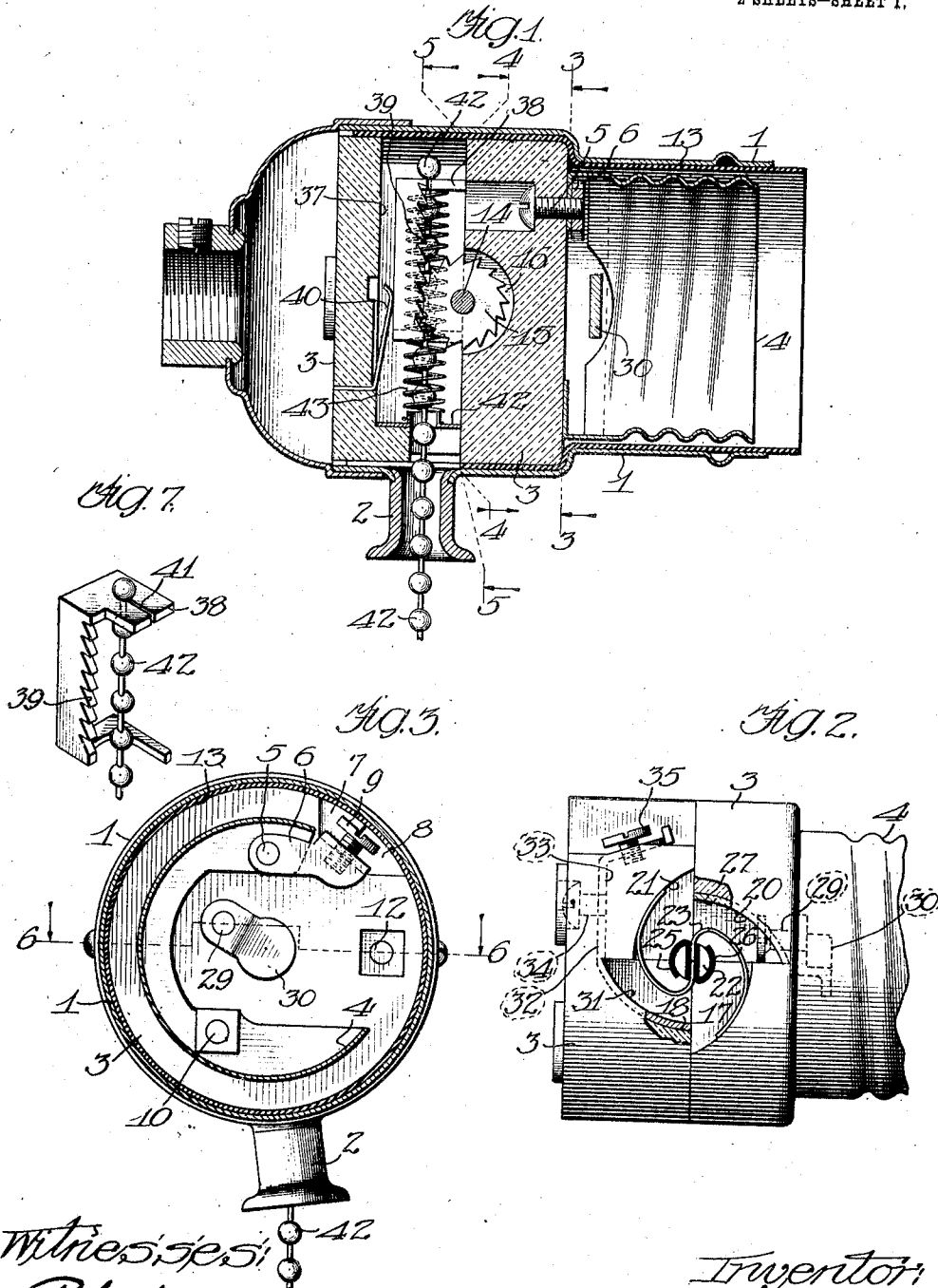


C. J. KLEIN.
LAMP SOCKET.
APPLICATION FILED SEPT. 14, 1908.

1,038,151.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.



Witnesses:
Robert H. Klein
J. W. Fitzhugh

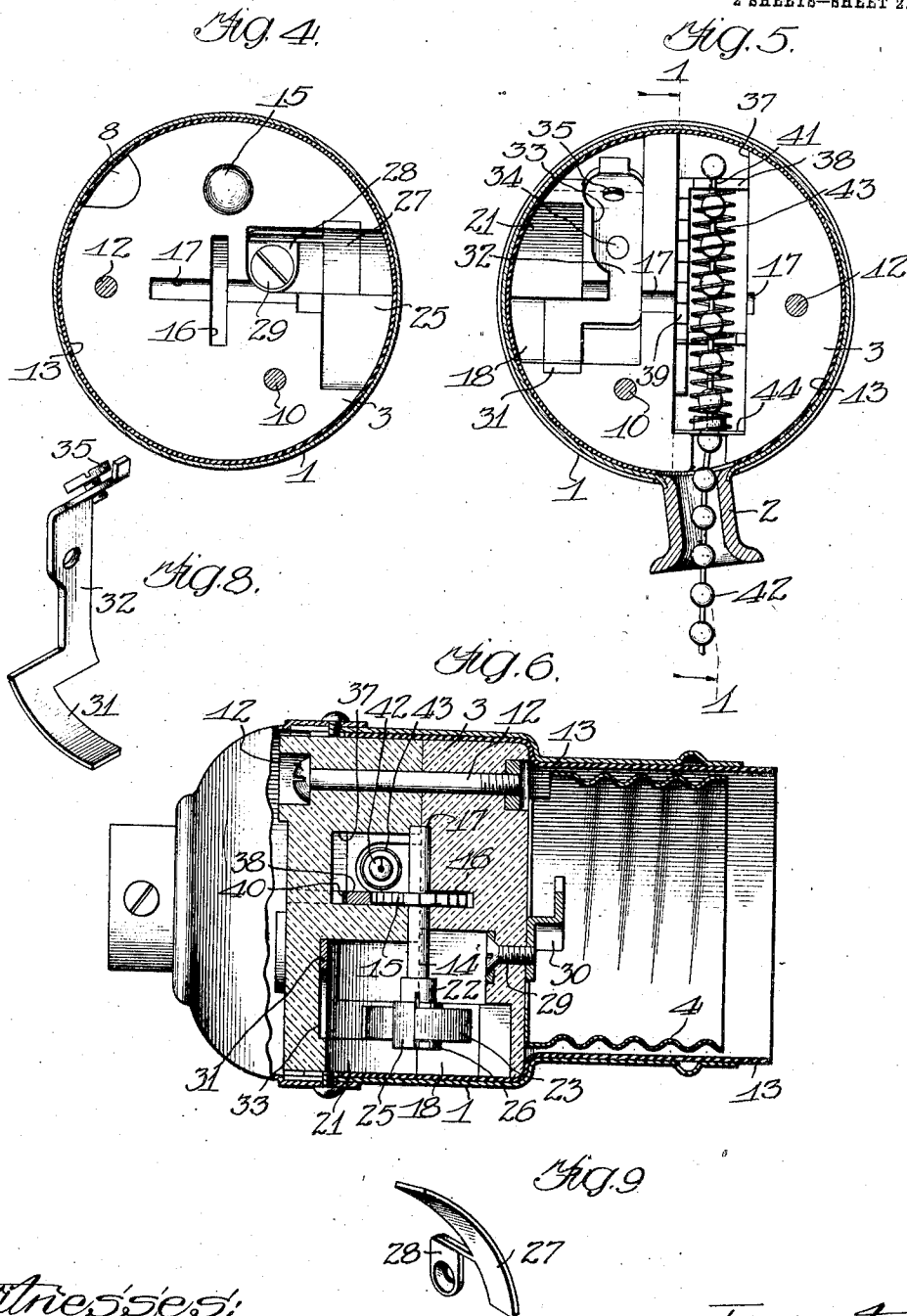
Inventor:
Charles Klein
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2 SHEETS—SHEET 2.



Witnesses:
Robert A. Weir
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Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES J. KLEIN, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE CUTLER-HAMMER MFG. CO., OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

LAMP-SOCKET.

1,038,151.

Specification of Letters Patent.

Patented Sept. 10, 1912.

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To all whom it may concern:

Be it known that I, CHARLES J. KLEIN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Lamp-Sockets, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in lamp sockets and more particularly to a switch operating mechanism therefor.

My invention has for its object to provide a sliding operating member which may be moved in the same direction to both open and close the switch.

A further object of my invention is to provide a simple and durable switch operating mechanism which may be actuated by a pull chain to both open and close the switch.

In order that my invention may be thoroughly understood I have illustrated, in the accompanying drawings, a lamp socket embodying one form thereof. Of course, my invention is susceptible of various modifications.

In the accompanying drawings—Figure 1 is a longitudinal sectional view through the lamp socket. Fig. 2 is an elevation of a portion of the socket. Fig. 3 is a sectional view taken on line 3—3, Fig. 1. Fig. 4 is a sectional view taken on line 4—4, Fig. 1. Fig. 5 is a sectional view taken on line 5—5, Fig. 1. Fig. 6 is a sectional view taken on line 6—6, Fig. 3, and Figs. 7, 8 and 9 are detail views of parts of the socket.

The several parts of the mechanism shown are inclosed in a casing 1 of conventional type, which is provided with a tubular chain guide 2. Mounted within the casing 1 is an insulating base 3, preferably formed in two parts, which are secured together in the manner hereinafter described. Secured to and depending from the insulating base 3 is a threaded shell 4. The shell 4 is secured at one point to the base 3 by a screw 5 which passes through a flange on said shell and fits into a screw-threaded orifice in a terminal piece 6. The screw 5 is turned to draw the terminal piece 6 firmly into engagement

with the shell 4 to electrically connect the same. The terminal member 6 is provided with an upturned portion which projects into a recess 7 formed in the insulating base 3. A groove 8 extending the entire length of the insulating base 3 and terminating in the recess 7 provides a pocket for one conductor of the electric circuit. This conductor is adapted to be secured and electrically connected to the terminal 6 by a binding-screw 9. Interposed between the base 3 and the casing 1 is an insulating shell 13 which effectually insulates the conductor and terminal 6 from the casing. The shell 4 is connected at another point to the insulating base 3 by a bolt 10 which extends through both parts of the insulating base 3, thus securing the parts of the insulating base together, as well as securing the shell thereto. The two parts of the insulating base 3 are secured together at another point by a bolt 12. (See Fig. 6). The head of the bolt 12 and also the nut at the opposite end of the bolt are preferably counter-sunk in the insulating base. Revolvably mounted in the insulating base 3 is a spindle 14 which has bearings in the two parts of said base. Rigidly mounted on the spindle 14 at substantially the center of the socket is a ratchet wheel 15 which fits in a recess 16 provided in the lower portion of the base 3. The recess 16 is of sufficient width to permit the ratchet wheel to revolve freely therein, but prevents lateral movement thereof, and, consequently, prevents longitudinal movement of the spindle 14. One end of the spindle 14 projects into a recess 17 formed in the base 3. The sides of the recess 17 are so formed as to produce a series of curved surfaces 18, 19, 20 and 21, eccentric to the spindle 14. Each of these curved surfaces is terminated abruptly for the purpose hereinafter described. At its end the spindle 14 is preferably provided with an enlarged bifurcated portion 22 into which is fitted a spring contact 23. The contact 23 is preferably formed of a spring metal bent into a substantially S-shape. Interposed between the spring contact 23 and the spindle 14 are strips of insulation 25 and 26. The ends of the spring contact 23 are adapted to simul-

taneously engage two of the curved surfaces 18, 19, 20 and 21.

When the spindle 14 is revolved the spring contact 23 is caused to fly out of engagement with one pair of the curved surfaces and into engagement with the other pair. The curved surface 20 is covered with a conducting strip 27 which is provided with a lateral extension 28. The extension 28 is secured and electrically connected by a screw 29 to the terminal 30 which is arranged within the threaded-shell 4. The curved surface 18 is covered with a conducting strip 31 which is preferably of the form illustrated in Fig. 8. The strip 31 is provided with an extension 32 which is secured to the insulating base 3 by screw 34. (See Fig. 2.) The end of the extension 32 is preferably bent into a recess 33 in the base 3 and is provided with a binding-post 35 adapted to electrically connect the same to the other conductor of the supply circuit. The upper portion of the insulating base 3 is provided with a slot 37 extending the entire width thereof and disposed at right-angles to the spindle 14. The slot 37 is arranged substantially in alinement with the chain guide 2. Mounted within the slot 37 and arranged to move longitudinally therein, is a sliding rack member 38 preferably of the shape shown in Fig. 7. The rack member 38 is provided with a series of teeth 39 adapted to engage the teeth on the ratchet wheel 15. Interposed between the rear wall of the slot 37 and the rack member 38 is a spring 40 which tends to cause the teeth 39 on said member to engage the teeth on said ratchet wheel. One end of the member 38 is provided with a slot 41 adapted to receive one of the connecting links of a ball chain 42 in the manner shown in Fig. 7. With this arrangement the chain may be readily attached to and detached from the rack member. Furthermore, the chain may be connected to the rack member at any point to give the required length. Surrounding the chain 42 is a coil spring 43, one end of which is arranged to bear against the end of the member 38, while its opposite end is arranged to bear against a plate 44 secured in the base 3. The chain 42 passes through the plate 44 and the tubular guide 2. Of course the chain may be any preferred type. The spring 43 tends to move the rack member 38 to the position illustrated in Fig. 1. With this arrangement when a pull is exerted upon the chain 42 the rack member 38 is drawn forward against the action of the spring 43. During its forward movement, the teeth 39 on the rack member 38 engage the teeth on the ratchet wheel 15 and cause the same to rotate, thereby rotating the spindle 14. Rotation of the spindle 14 causes the spring

contact 23 to alternately make and break contact between the contacts 27 and 31. Assuming that the spring contact 23 is in the position illustrated in Fig. 2, if the rack member is pulled forward it will cause the spring contact 23 to fly out of engagement with the surfaces 21 and 19 and into engagement with the contacts 27 and 31. This results in closing the circuit of the lamp. If now the chain 42 is released the spring 43 will force the rack member back to its former position. In moving back to its former position the spring 40 permits the rack member to slide over the teeth of the ratchet wheel without imparting any movement thereto. If a pull is again exerted on the chain 42, the rack member will again be moved forward and actuate the ratchet wheel 15 and spindle 14 to cause the spring contact 23 to fly out of engagement with the contacts 27 and 31 and into engagement with the surfaces 19 and 21, thereby opening the circuit.

Of course other forms of switches than that illustrated may be used with my pull chain mechanism without departing from the spirit of my invention. Furthermore, it should be understood that while I have shown a pull chain for operating the sliding rack member, the same might be operated by pressure.

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

1. The combination with a switch, of a toothed wheel movable therewith, a rigid toothed rack adapted, when moved in one direction, to engage and operate said toothed wheel, and, when moved in the opposite direction, to ride over said toothed wheel without operating the same, and means biasing said rack in the latter direction.

2. In combination, a rotary switch rotatable in the same direction to both open and close and being selflocking in both positions against movement in the opposite direction and operating means therefor comprising a toothed wheel and a cooperating rigid rack member reciprocal successively in the same direction to both open and close said switch.

3. In a lamp socket, in combination, an insulating base, a spindle revolvably mounted therein and carrying a switch member, a toothed wheel fixed to said spindle, a toothed rack member slidable longitudinally in a recess in said base, the walls of said recess forming a guideway for said member, means for yieldingly holding the toothed portion of said member in engagement with the teeth on said wheel, the teeth on said wheel and said member being so constructed that when said member is moved in one direction, its teeth will engage the teeth on

said wheel to turn the same, and when said member is moved in the opposite direction, its teeth will ride over the teeth on said wheel, and a coil spring within said member and bearing against said base to bias said rack member in the latter direction.

4. In a lamp socket, in combination, an insulating base, a spindle revolubly mounted therein and carrying a switch member, a toothed wheel fixed to said spindle, a toothed rack member slidable longitudinally in a recess in said base, the walls of said recess forming a guideway for said member, means for yieldingly holding the toothed portion of said member in engagement with the teeth on said wheel, the teeth on said wheel and said member being so constructed that when said member is moved in one direction, its teeth will engage the teeth on said wheel to turn the same, and, when said member is moved in the opposite direction, its teeth will ride over the teeth on said wheel, a coil spring within said member and bearing against said base to bias said rack member in the last mentioned direction, and a flexible chain connected to one end of said rack member and passing through said coil spring for operating said rack member against the action of said spring.

5. In a lamp socket, in combination, a casing, a substantially cylindrical insulating base therein, said base being formed in two sections secured closely together, a spindle revolubly mounted between the sections of said base, a contact member carried thereby, a toothed wheel fixed to said spindle, one section of said base having an elongated recess therein, extending transversely to said spindle, said wheel projecting into said recess, a rack member slidable in said recess, the walls of said recess forming a guideway for said rack member, said rack member being adapted to engage and revolve said wheel.

6. In a lamp socket, in combination, a casing, a substantially cylindrical insulating base therein, said base being formed in two sections secured closely together, a spindle revolubly mounted between the sections of said base, a contact member carried thereby, a toothed wheel fixed to said spindle, one section of said base having an elongated recess therein, extending transversely to said spindle, said wheel projecting into said recess, a rack member slidable in said recess, the walls of said recess forming a guideway for said rack member, said rack member, when moved in one direction, being adapted to engage and revolve said wheel and, when moved in the opposite direction, to ride over the teeth of said wheel, and a coil spring within said rack member for biasing the same in the latter direction.

7. In a lamp socket, in combination, a casing, a substantially cylindrical insulating base therein, said base being formed in two sections secured closely together, a spindle revolubly mounted between the sections of said base, a contact member carried thereby, a toothed wheel fixed to said spindle, one section of said base having an elongated recess therein, extending transversely to said spindle, said wheel projecting into said recess, a rack member slidable in said recess, the walls of said recess forming a guideway for said rack member, said rack member, when moved in one direction, being adapted to engage and revolve said wheel, and, when moved in the opposite direction, to ride over the teeth of said wheel, a coil spring within said rack member for biasing the same in the latter direction, and a flexible chain secured to said rack member and passing through said coil spring for actuating said rack member to revolve said wheel.

8. In a lamp socket, in combination, an insulating base, a switch revolubly mounted therein, a toothed wheel connected to said switch, an elongated recess in said base, said toothed wheel projecting into said recess, a rack member slidable in said recess, the walls of said recess forming a guideway for said rack member, a spring tending to hold said rack member in engagement with the teeth of said wheel, a flexible operating chain for said rack member, a notch in said rack member for receiving one of the connecting links of said chain whereby said chain may be detachably secured to said rack member, a coil spring surrounding said chain for biasing said rack member in one direction, said rack member, when moved by said spring, being adapted to ride over the teeth of said wheel.

9. In a lamp socket, in combination, an insulating base, a spindle revolubly mounted in said base, a switch member mounted upon said spindle, operative means for said switch member comprising a toothed wheel fixed to said spindle and a longitudinally movable rack member coöperating therewith, said switch member and said operating means being disposed upon opposite sides of an insulating partition wall formed in said base.

10. In combination, a supporting base, a resilient S-shaped contact member revolubly mounted in said base, said base having a recess therein for receiving said contact member, the walls of said recess comprising a series of curved surfaces over which said switch member is movable, each of said curved surfaces being eccentric to the axis of said switch member and abruptly terminated to cause each end of said contact member to quickly move from one surface to the

next adjacent surface, contact plates secured to certain of said curved surfaces, a toothed wheel connected to said contact member, a toothed rack member, said rack member being moved in one direction to engage the teeth of said wheel to revolve the same, and being movable in the opposite direction without revolving said wheel, a coil spring biasing said rack member in the latter direc-

tion, and a flexible chain for moving said rack member in the former direction.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

CHARLES J. KLEIN.

Witnesses:

A. C. MAAGE,
H. LEWIS.