T. A. C. BOTH.

MECHANICAL MOVEMENT.

APPLICATION FILED OCT. 11, 1910.

994,114.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

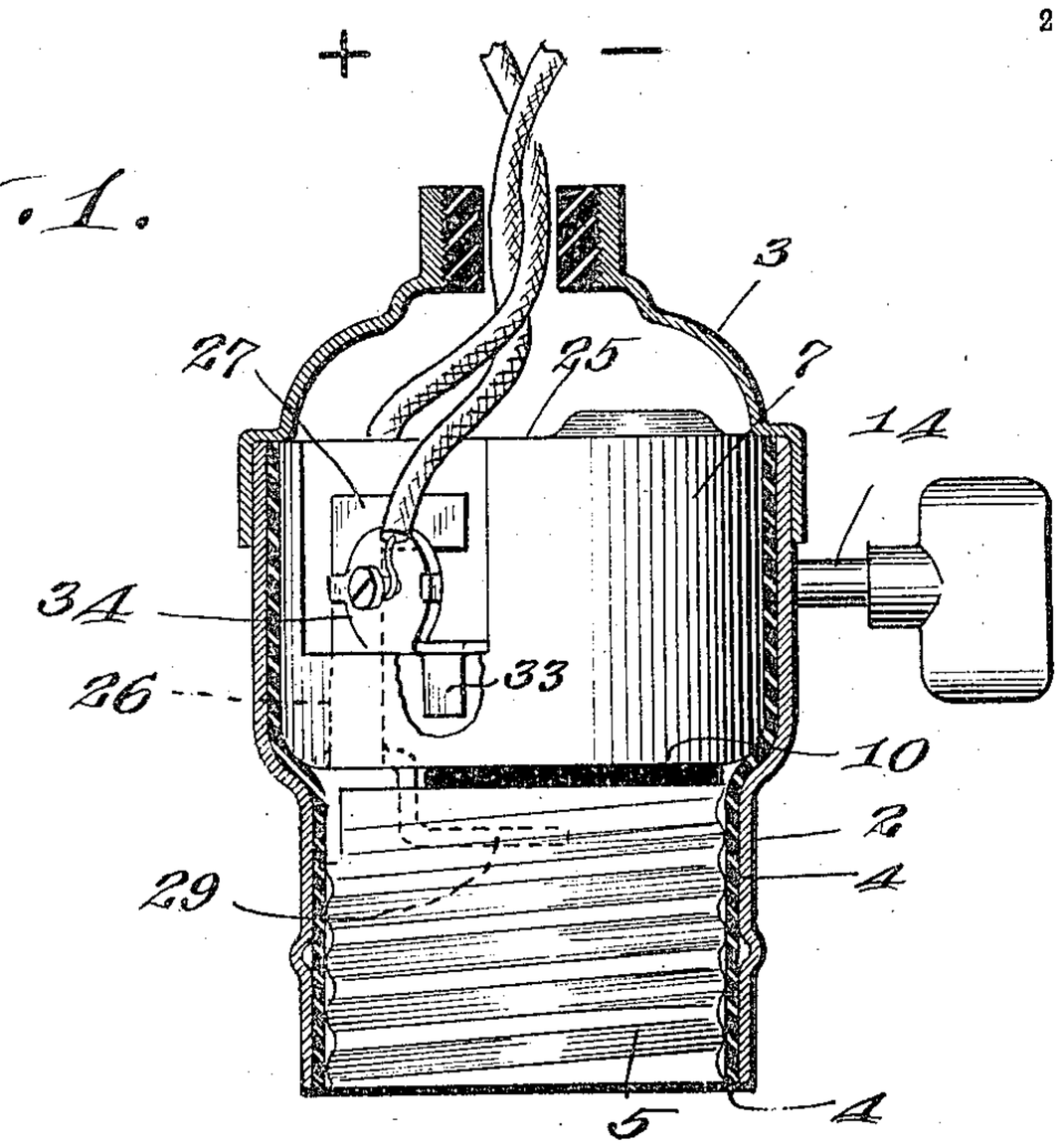


Fig. 2.

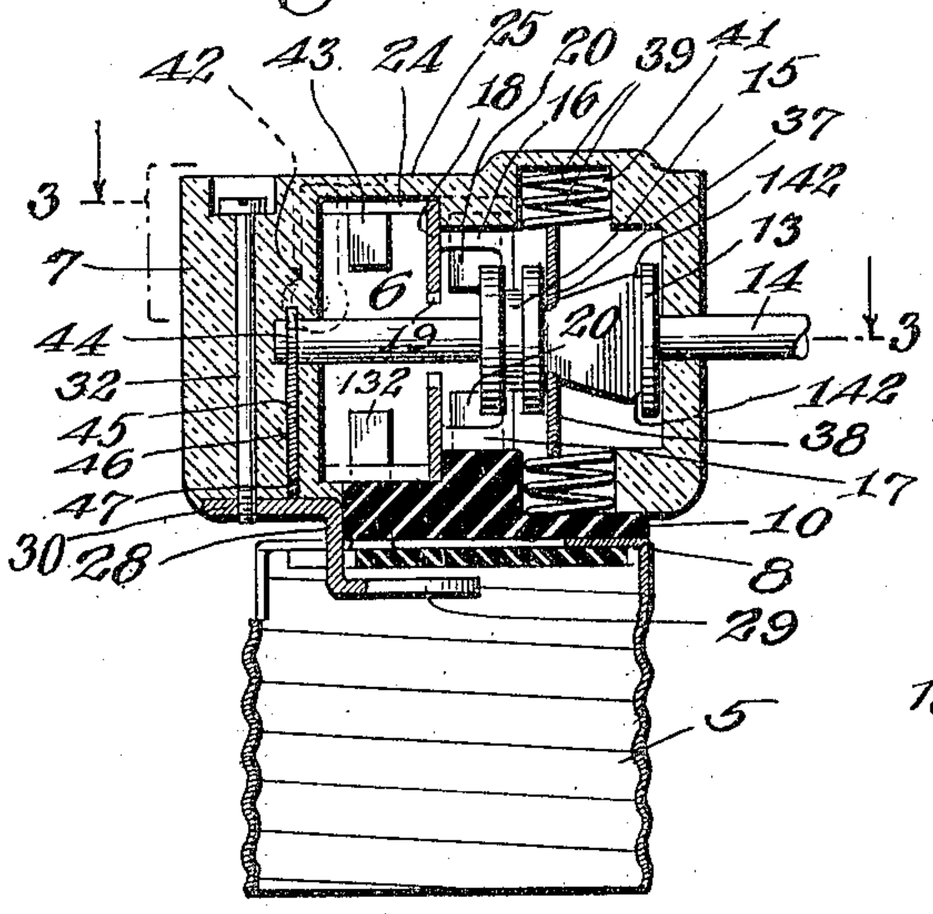
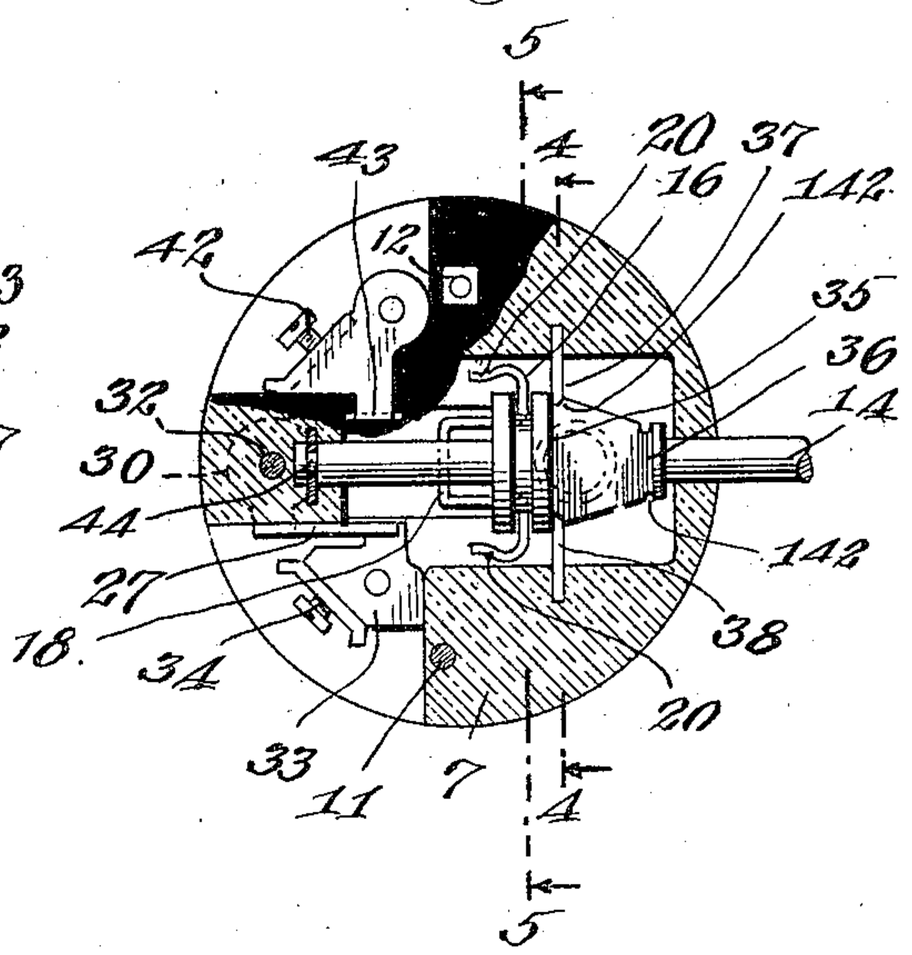


Fig. 3.



WITNESSES

H. Lovekamp

R. Menke

INVENTOR

Tonjes A. C. Both

BY

Alan M. Johnson

ATTORNEY

T. A. C. BOTH.

MECHANICAL MOVEMENT.

APPLICATION FILED OCT. 11, 1910.

994,114.

Patented June 6, 1911.

2 SHEETS—SHEET 2.

Fig. 4.

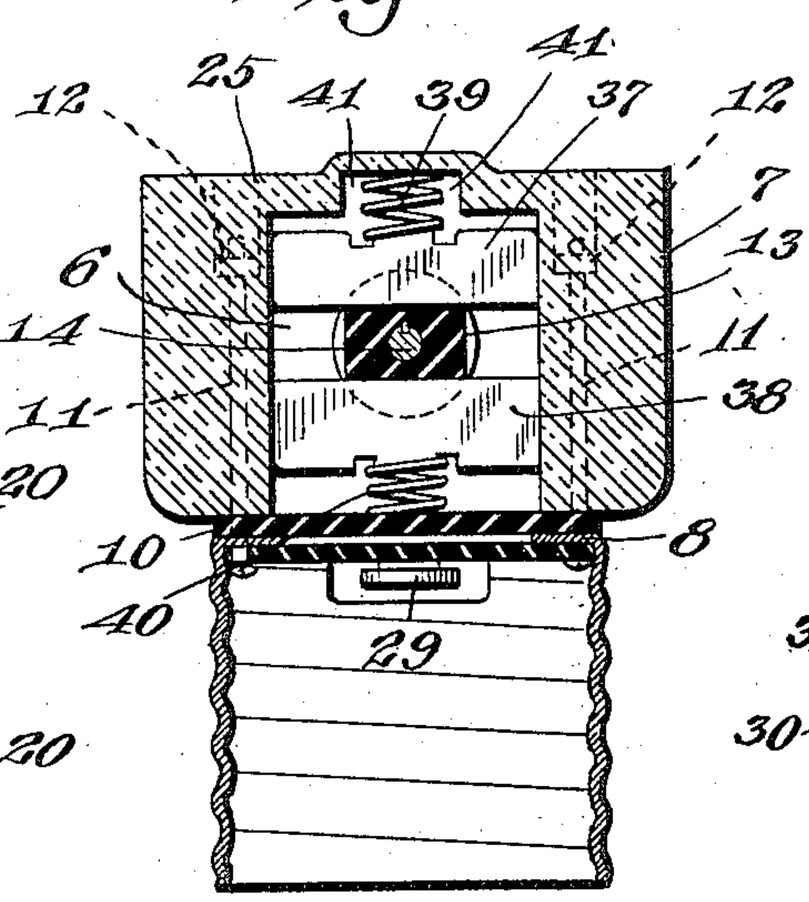


Fig. 6.

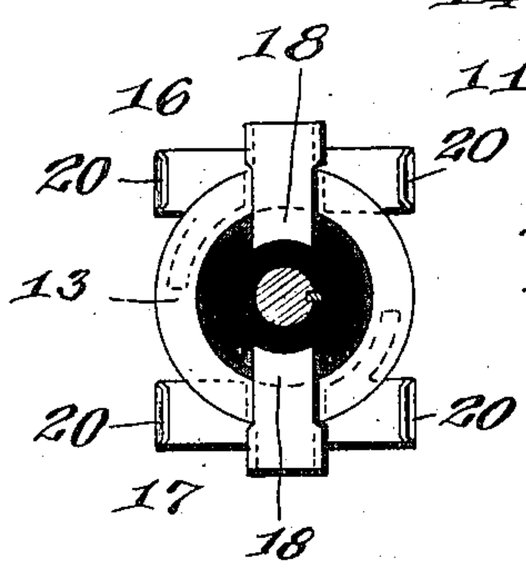


Fig. 8.

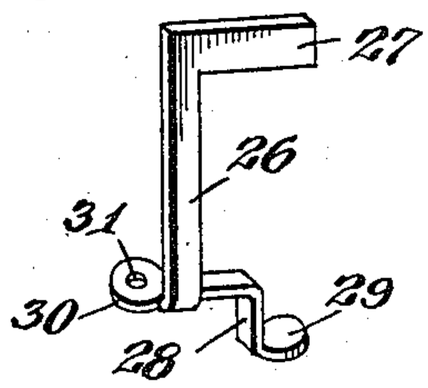


Fig. 5.

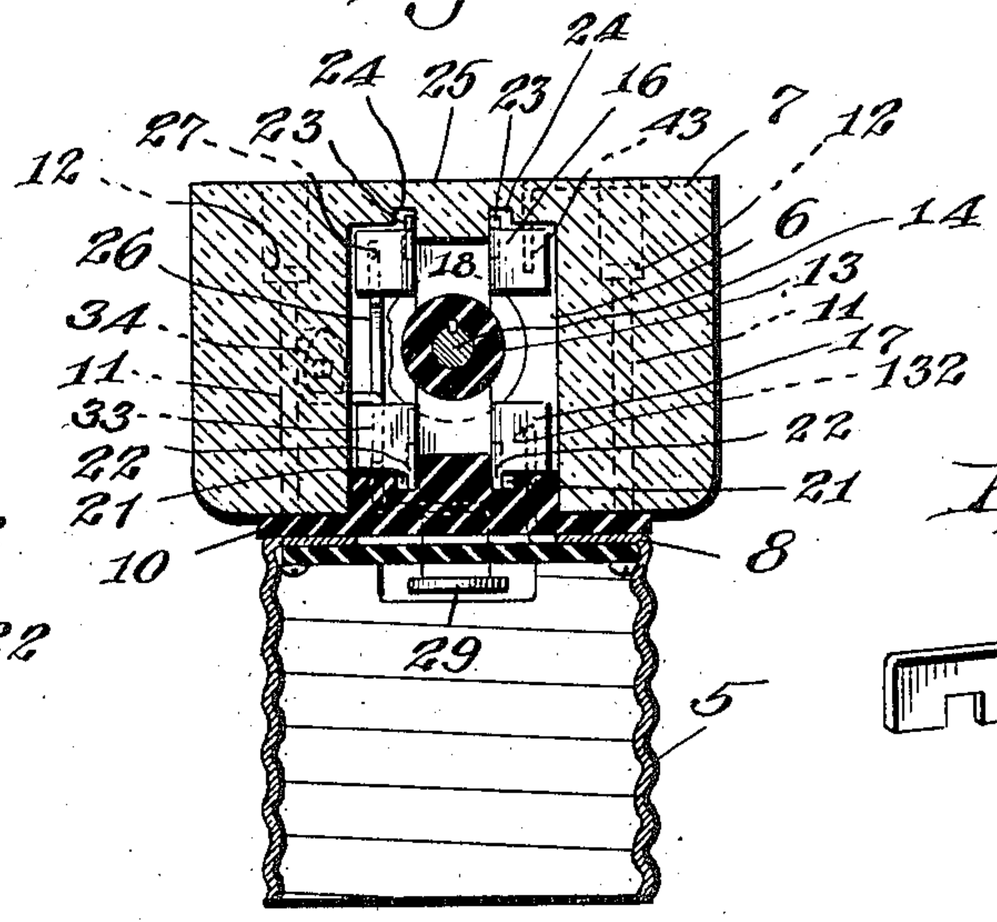


Fig. 7.

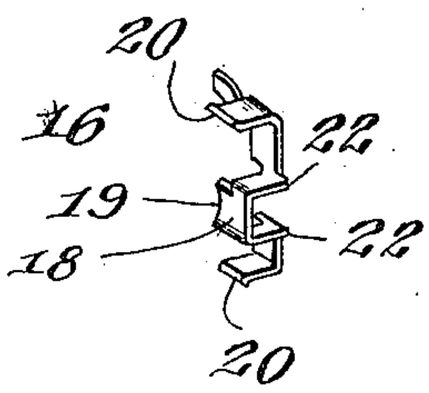
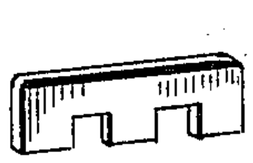


Fig. 9.



WITNESSES

H. Cockerman

R. Meinke

INVENTOR

Tonjes A. C. Both

BY

Alan M. Johnson

ATTORNEY

UNITED STATES PATENT OFFICE.

TONJES AUGUST CARL BOTH, OF NEW YORK, N. Y., ASSIGNOR TO IDA S. ROSENHEIM, OF NEW YORK, N. Y.

MECHANICAL MOVEMENT.

994,114. Specification of Letters Patent. Patented June 6, 1911.

Original application filed July 2, 1910, Serial No. 570,138. Divided and this application filed October 11, 1910. Serial No. 586,537.

To all whom it may concern:

Be it known that I, TONJES AUGUST CARL BOTH, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to mechanical movements adapted for universal application and is an improvement upon U. S. Patent #943,274, patented December 14, 1909, and is a division of my copending application Ser. No. 570,138.

I have shown my mechanical movement located in an electric light socket and adapted to make and break the current therein, though it is to be distinctly understood that my invention is not to be limited to this or any other particular use.

My invention further relates to an electric light socket in which my improved mechanical movement is used, all of which will be hereinafter described in the specification and pointed out in the claims.

In the accompanying drawings showing an illustrative embodiment of my invention and in which the same reference numerals refer to similar parts in the several figures,—Figure 1 is a vertical section through an electric light socket equipped with my invention, a part of the figure being shown in side elevation for the purpose of better illustration; Fig. 2 is a vertical section through my mechanical movement and the electric light socket on which it is mounted; Fig. 3 is a longitudinal section substantially on the line 3—3 of Fig. 2; Fig. 4 is a vertical section substantially on the line 4—4 of Fig. 3; Fig. 5 is a vertical section substantially on the line 5—5 of Fig. 3; Fig. 6 is a detail end view showing the arrangement of the driven member and the laterally movable contact plates; Fig. 7 is a detail perspective view of one form of laterally movable conducting or bridge plate; Fig. 8 is a detail side elevation of a center contact; and Fig. 9 is a detail perspective view of one form of spring actuated plate.

In the illustrative embodiments of the invention shown in the drawings, 1 is an electric light socket having the usual or any approved outer shell 2, a cap 3 and with any form of insulation 4 between the shell and the screw shell contact 5, Fig. 1. The insulation which is usually used to line the cap 3 may be employed, if desired, but preferably is omitted. The shell, cap and insulation form no part of my invention and therefore will be disregarded in the further description of the invention.

To house and thoroughly protect my mechanical movement, when it is used as the operating switch mechanism in an electric light socket, I mount it in the interior 6 of a hollow insulating receptacle 7 usually formed of porcelain or some other suitable material. The insulating receptacle 7, of porcelain, or other suitable material, is entirely closed except the bottom which is closed by the top 8 of the screw shell contact 5, an interposed insulating disk 10 being preferably employed. This screw shell contact 5 and the interposed insulating disk 10 are held to the insulating receptacle 7 by any suitable means such as by the screws 11, 11 and nuts 12, 12, Fig. 4. In this form of my invention, the driven member 13 is splined or otherwise properly secured upon the driving member 14 as in my said copending application, and is formed of porcelain or other suitable insulating material and is provided at one end with a circumferential groove 15, Fig. 3. Loosely mounted within the circumferential groove 15 and separated from each other are two conducting bridge plates 16 and 17, respectively, which are alike but coöperate with different contacts. These bridge pieces are of peculiar construction, one of them being shown in Fig. 7 in perspective. They each consist essentially of two connected U-shaped members having a connecting portion 18, which is preferably formed concave on its edge 19, its surface forming a segment of a circle whose diameter is greater than that of the driving member 14. On each end of the bridge plates 16 and 17 are spring jaws 20, 20 which yieldingly engage the fixed contacts to be hereinafter described.

In the insulating disk 10 I preferably provide recesses or guideways 21, 21 within which slide the parallel projections 22, 22 of the bridge plate 17. The similar projections 23, 23 on the bridge plate 16 are guided

in grooves 24, 24 formed in the head 25 of the one piece insulating receptacle 7. From this manner of loosely mounting the bridge pieces 16 and 17 in the circumferential groove 15 it will readily be seen that they move with the driven member 15, but they are not rotated as the driving and driven members are given a partial revolution in either direction to actuate the driven member laterally. This insures the bridge pieces 16 and 17 always coacting with their respective contacts.

The center contact may be of any approved construction; for purposes of illustration I have shown it comprising a substantially inverted L-shaped member 26 having a forwardly extending contact 27 and a foot 28, one end 29 of which contacts with the center contact of the lamp or other consuming device (not shown), the other end of the foot being enlarged at 30 and apertured at 31 for the reception of some proper securing mechanism such as a screw 32 which takes into the threaded aperture 31, Figs. 2 and 8. I also connect a contact 132 to the screw shell 5 having it extend up into the opening in the receptacle 7 and locate it opposite a terminal contact 33, Fig. 5, which is connected with a binding post 34, Fig. 5.

On the driven member 13 I form opposed incline surfaces forming hills 36 and valleys 35, as in my said copending application. To coöperate with the hills 36 and valleys 35 on the driven member 13 I arrange one or two spring pressed plates 37 and 38, each being operated by springs 39 and 40, respectively, the former, preferably though not necessarily, resting in a recess 41 in the head 25 of the insulating receptacle 7 and the other spring 40 resting upon the insulating disk 10. From the mechanism previously described it is clear that upon the partial revolution of the driving member 14 90 degrees in either direction the driven member 13 will be also caused to rotate with the driving member. This will cause the spring pressed plates 37, 38 to be forced apart and thereby store up energy in the springs 39 and 40 until, what is termed in this specification a "hill" is brought into contact with the plates 37 and 38 when the energy in the springs 39 and 40 will then exert itself to cause the plates 37 and 38 to move down the incline surfaces into the opposed valleys. This, as previously described, will cause a quick snap of the driven member in the opposite direction, either to make or break the current as the case may be.

To prevent the plates 37 and 38 moving down their respective coöperating incline surfaces, I provide any suitable means to lock them from such movement until the springs 39 and 40 have been compressed to their maximum degree upon the complete partial revolution of the driven member 13. A cheap and economical locking means are the locking notches 142 142 which hold the plates, in whichever way the driven member is rotated, until the maximum energy is stored up in the springs 39 and 40. The plates being then released cause the driven member 13 to move laterally with a quick and positive snap either to make or break the electrical connections.

In the present construction the partial rotation of the driving member 14 and the driven member 13 will not affect the conducting bridge plates 16, 17 which are loosely mounted in the circumferential groove 15. The longitudinal movement of the driven member, however, controls and actuates both bridge or contact pieces 16, 17 to move them to or from their coöperating contacts to make a double pole quick make and quick break electric light socket. If the positive wire is connected to the binding post 42, by way of example, the current will pass into the contact 43 connected to that post, then through the bridge piece 16 over to the contact 27 carried by the center contact 26, thence through the foot of that contact 29, through the lamp or other consuming device, thence to the screw shell contact 5, contact 132, Fig. 5, bridge piece 17, contact 33 to the corresponding negative binding post 34. To break the contacts the driving and driven members are given a partial rotation of 90 degrees in either direction, as previously described, which, however, will not rotate the bridge pieces 16 or 17, when the spring plates 37 and 38 will cause the driven member 13 to give a quick snap longitudinally of the driving member 14 and carry with it both plates 16 and 17, thereby making a quick break between each plate 16 and 17 and their respective coöperating contacts. A further rotation of 90 degrees in either direction will reverse the movement of the bridge pieces 16, 17 in a manner previously described, and cause them to snap back and make a quick make with their respective cooperating contacts. I, therefore, in this construction have also both a double pole quick make and quick break electric light socket and one which is entirely inclosed and protected in the one piece insulating receptacle, though of course it is to be understood that as a mechanical movement my invention is not to be confined to this or any other particular form of housing.

The driving member 14 is at one end provided with a circumferential groove 44 which is similar in all respects to the grooves previously described and coöperates with a locking plate 45 which is dropped into a slot 46 in the receptacle 7, a piece of insulation 47 being preferably interposed between it and the center contact 26 as clearly shown in Fig. 2.

Having thus described this invention in

connection with an illustrative embodiment thereof, to the details of which I do not desire to be limited, what is claimed as new and what it is desired to secure by Letters Patent, is set forth in the appended claims:

1. In a mechanical movement the combination of a driving member to rotate a driven member, a driven member, means to move the driven member laterally, and one or more members carried by the driven member and moving laterally with it, and means to permit the driven member to rotate without rotating the member or members carried by it.

2. In a mechanical movement, the combination of a rotating driving member, a driven member mounted on the driving member and provided with a groove, means to move the driven member laterally on the driving member, and one or more non-rotating members coöperating with the groove in the driven member.

3. In a mechanical movement the combination of a support provided with guides, a rotating driving member, a driven member mounted on the driving member and provided with surfaces to coöperate with one or more laterally movable members, means to move the driven member laterally, and one or more laterally movable non-rotating members coöperating with the guides in the support and with the surfaces on the driven member.

4. In a mechanical movement the combination of a support provided with guides, a rotating driving member, a driven member provided with a groove, means to move the driven member laterally, and one or more non-rotating members coöperating with the groove in the driven member and with the guides in the support.

5. In a mechanical movement the combination of a support provided with guides, a rotating driving member, a driven member provided with a groove, means to move the driven member laterally, and one or more plates having a concave portion to coöperate with the groove in the driven member and provided with a surface to coöperate with the guides in the support.

6. In a mechanical movement the combination of a support provided with lateral and vertical guides, a rotating driving member, a driven member provided with a groove and with oppositely inclined surfaces, one or more plates adapted to contact with the oppositely inclined surfaces and mounted in the vertical guides of the support, one or more yielding members operating the plate or plates in one direction, and one or more non-rotating members loosely mounted in the groove of the driven member and cooperating with the lateral guides of the support.

7. In a mechanical movement the combination of a driving member, a driven member mounted on the driving member and adapted to have a limited longitudinal movement in relation thereto and provided with oppositely disposed inclined surfaces forming hills and valleys, one or more laterally movable plates adapted to contact with the hills and valleys, and one or more fixed yielding members operating the plates.

8. An article of manufacture for an electric light socket comprising an insulating driven member provided with oppositely inclined surfaces forming hills and valleys and with a circumferential groove and one or more metallic contact members loosely held in said groove.

9. An article of manufacture for an electric light socket comprising an insulating driven member provided with oppositely inclined surfaces forming hills and valleys, and one or more metallic contact members loosely carried by said driven member to permit the driven member to have a relative rotary movement with relation to the loosely mounted contact members.

10. In a double pole electric light socket the combination of four contacts, two for each terminal, an insulating movable member provided with two loosely mounted contact plates adapted to directly contact with the four contacts, and means to actuate the insulating movable member.

11. In a double pole electric light socket the combination of four contacts, two for each terminal, and an insulating driven member provided with a circumferential groove, two metallic contacts loosely mounted in said groove and adapted to engage with said four contacts, and means to drive the driven member.

12. In a double pole electric light socket the combination of four contacts, two for each terminal, and an insulating driven member provided with a circumferential groove, two metallic contacts loosely mounted in said groove and adapted to engage with said four contacts, and oppositely inclined surfaces carried by the driven member forming opposed hills and valleys, and yielding means operating on said hills and valleys.

13. In a double pole electric light socket the combination of an insulating closed receptacle having an open mouth, a screw shell contact closing the mouth of the receptacle, four contacts, two for each terminal and an insulating driven member provided with a circumferential groove, two metallic contacts loosely mounted in said groove and adapted to engage with said four contacts, and means to drive the driven member.

14. In a double pole electric light socket the combination of an insulating closed receptacle having an open mouth, a screw

shell contact closing the mouth of the receptacle, four contacts, two for each terminal, and an insulating driven member provided with a circumferential groove, two metallic contacts loosely mounted in said groove and adapted to engage with said four contacts, and oppositely inclined surfaces carried by the driven member forming opposed hills and valleys, and yielding means operating on said hills and valleys.

TONJES AUGUST CARL BOTH.

Witnesses:

BENJ. STRAUSS,

LEON STRAUSS.