No. 698,394. Patented Apr. 22, 1902.

L. P. DIXON.

INCANDESCENT LAMP SOCKET.

(Application filed May 9, 1901.)

(No Model.) 2 Sheets—Sheet 1.

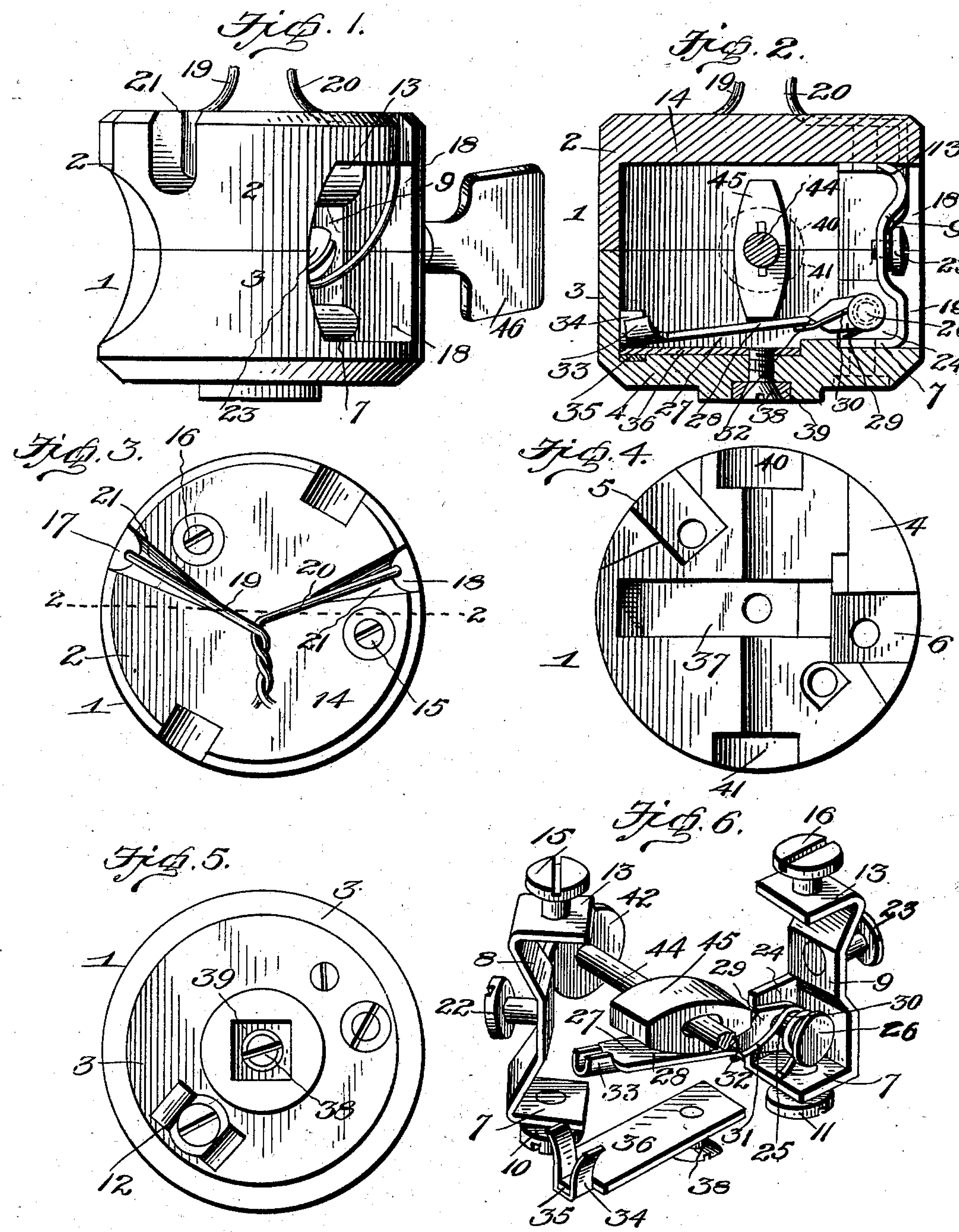

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Fig. 7.

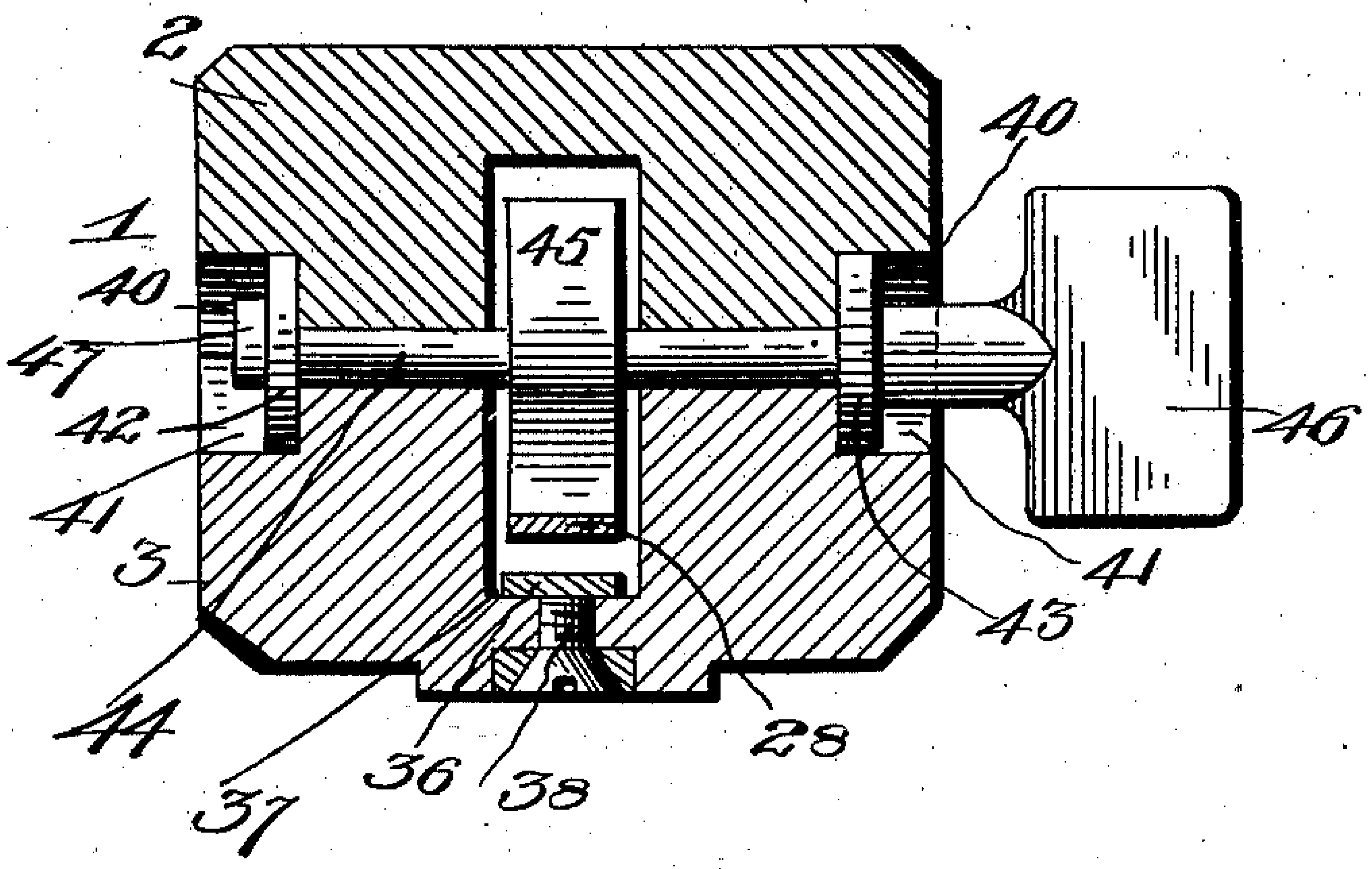


Fig. 8.

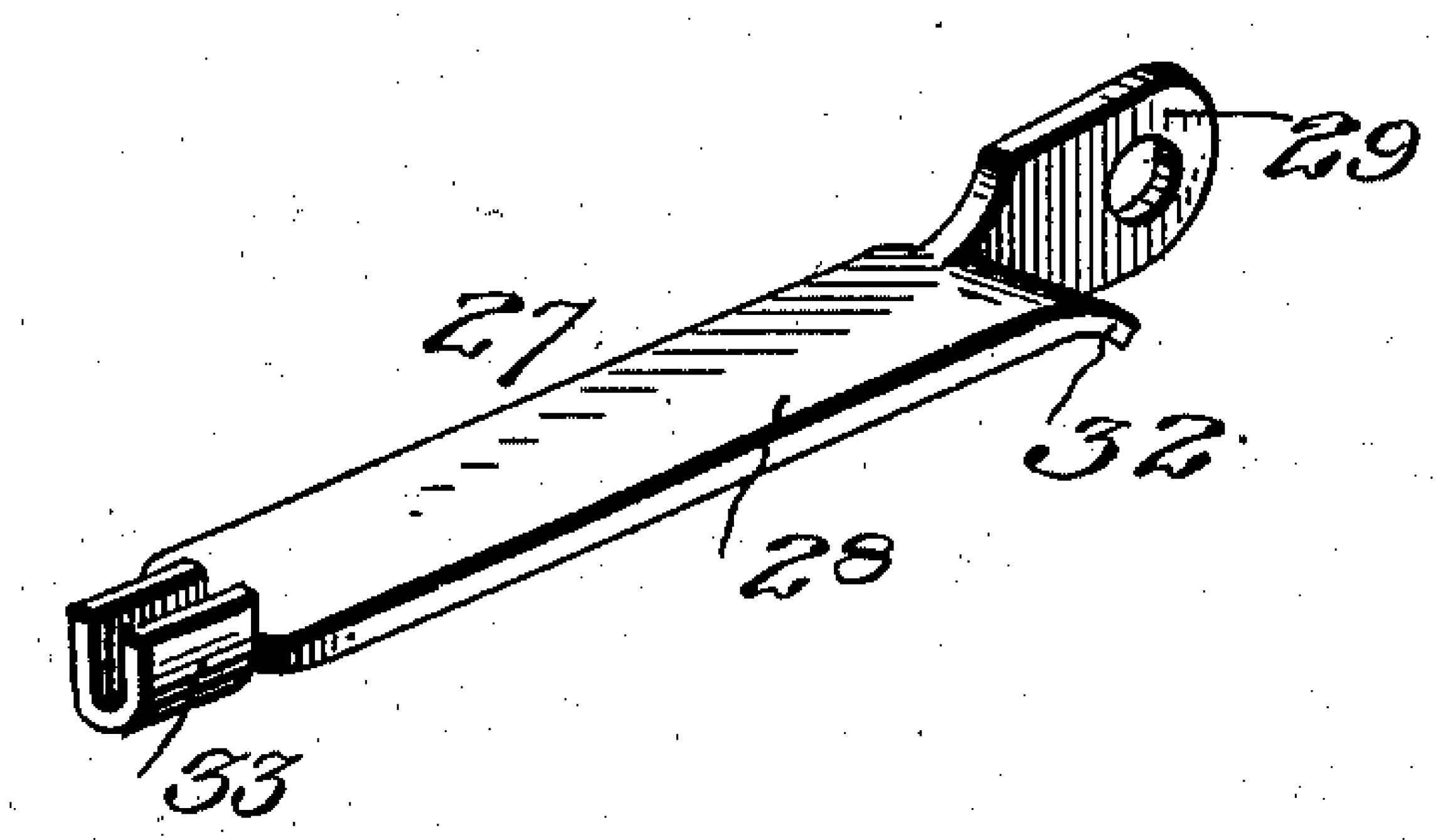
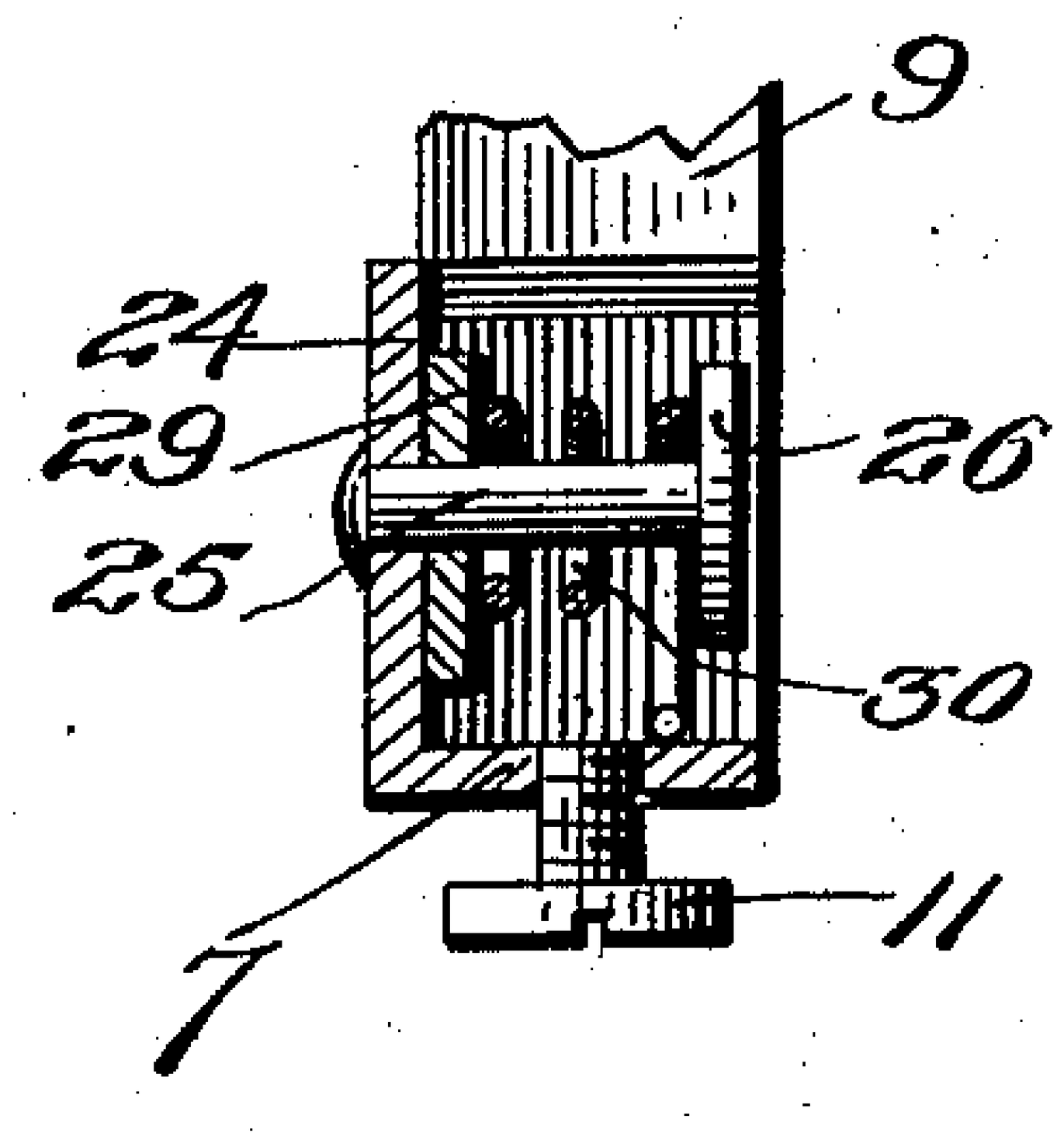


Fig. 9.



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UNITED STATES PATENT OFFICE.

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INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 698,394, dated April 22, 1902.

Application filed May 9, 1901. Serial No. 59,461. (No model.)

To all whom it may concern:

Be it known that I, LAURENS P. DIXON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Incandescent-Lamp Sockets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in incandescent-lamp sockets of that character wherein the parts of the switch mechanism are inclosed within a barrel or casing suitably insulated from the surrounding metallic shell.

The object of the invention is the production of a key-socket of this type which shall be simple of construction, easy to assemble, comparatively inexpensive of manufacture, and safe, durable, and efficient in use.

A further object of the invention is to provide a novel manner of mounting the key-spindle, whereby said spindle will be securely held in position and may be readily assembled and disassembled to permit of repairs being made and new parts being substituted in case of injury to or breakage of the spindle, its bearings, or the tumbler.

A still further object of the invention is the provision of a quick-breaking knife-switch of novel construction combined with means for maintaining positive contact between said switch and the part to which it is attached and for retracting said switch, also to generally simplify and improve the construction and increase the practical efficiency of lamp-sockets of the aforesaid type.

With these and other detailed objects in view, which will appear as the nature of the invention is better understood, the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims.

Figure 1 is a side elevation of an incandescent-lamp socket embodying my invention, the metallic shell of the socket being omitted. Fig. 2 is a vertical section of the same on the line 2 2 of Fig. 3. Fig. 3 is a top plan view of the socket. Fig. 4 is a view looking at the top of the base of the lower portion of the barrel of the socket. Fig. 5 is a bottom plan view of the socket. Fig. 6 is an isometric perspective view of the parts of the switch mechanism disassembled and arranged in their normal relative positions, the switch being shown in open position. Fig. 7 is a vertical section through the barrel, taken at right angles to that shown in Fig. 2. Fig. 8 is a detail perspective view of the knife-switch; and Fig. 9 is a cross-sectional view through one of the conducting-plates, showing the manner of mounting the knife-switch.

Referring now more particularly to the drawings, the numeral 1 represents the barrel or casing of the switch mechanism, which may be made of porcelain or other suitable insulating material and is adapted to fit within the usual form of metallic shell. (Not shown.) This barrel or casing is composed of two circular blocks or substantially cup-shaped sections 2 and 3, fitted together and recessed, so as to form a partitioned chamber in which the contact devices and operative parts of the switch are inclosed.

The upper surface of the base 4 of the lower section 3 of the barrel or casing is formed with recesses 5 and 6, which open through the edges thereof and are disposed mainly upon opposite sides of the center of said base on a line at right angles to the stem of the switch-key, hereinafter described, and diagonally with relation to each other. In these recesses fit the lower right-angularly-bent ends 7 of two conducting-plates 8 and 9, which are secured to the base 4 by means of screws 10 and 11, the screw 10 serving, in addition, to confine a lamp contact-piece 12. The upper right-angularly-bent ends 13 of these conducting-plates contact with the under side of the top 14 of the upper section 2 of the barrel or casing and are secured thereto by screws 15 and 16, by which the two parts or sections of the said barrel or casing are held connected. Communicating with the said recesses 5 and 6 are vertical openings 17 and 18, formed in the sides of the sections of the barrel, forming when said sections are connected passages for the reception of the line-wires 19 and 20. These wires extend from above through

grooves 21, provided in the upper surface of the top 14 of the section 2, and thence down into the passages formed by the slots or openings 17 and 18 and are secured to binding screws or posts 22 and 23, mounted upon the said conducting-plates 8 and 9.

The conducting-plate 9 has formed upon one side thereof a bearing-plate 24, which extends at right angles to the rectangular lower end 7 of said conducting-plate and has secured thereto one end of a pivot-pin 25, which extends in a horizontal plane and parallel with the said rectangular lower end 7 and carries at its free end a head or stop 26. To this pin is pivotally connected a knife-switch 27, which consists of a strip of metal having its end portions vertically disposed and its body portion 28 bent at right angles thereto to lie in a horizontal plane and form a bearing-surface upon which the oblong switch block or tumbler is adapted to operate, as hereinafter described. The vertical end portion 29 of the switch is pivotally mounted upon the pivot-pin 25 and lies in contact with the inner side of the bearing-plate 24 of the said conducting-plate 9. A coil-spring 30 surrounds the pivot-pin 25 and has one end secured thereto or to the head 26, and said spring extends between the said head and the end 29 of the switch and holds the latter pressed into contact with the bearing-plate 24, so as to insure a positive contact between said parts for the proper passage of the electric current from one to the other and avoid all liability at all times of imperfect contact between the same. The opposite end 31 of the spring 30 is free or unconfined and projects inwardly and beneath a shoulder 32, formed at the rear end of the body portion 28 of the switch, so as to exert an upward pressure thereon. By this construction the spring 30 not only holds the pivoted end 29 of the switch in positive electrical contact with the bearing-plate 24, but also acts to throw the switch 27 upward, and thus to normally maintain it out of electrical engagement with the other parts of the circuit. The free end of the switch 27 is formed into a U-shaped contact-piece 33, which is adapted to make and break circuit with a substantially V-shaped contact-piece 34. The jaws of the contact-piece 34 flare outwardly at their free ends to allow the contact-piece 33 of the switch to freely move into and out of contact therewith. The base portion of the contact-piece 34 is secured to or is in electrical contact with a projection 35, formed upon the outer end of a contact-plate 36, which fits within a central recess 37, formed within the upper surface of the base portion 4 of the section 3 of the barrel. This plate 36 is secured to said base portion 4 by a screw 38, passing through the same, which screw also serves to confine the other lamp contact-piece 39, which fits within a recess formed in the under side of the said base portion 3. This lamp contact-piece 39 may be of any approved form and construction to suit the character of lamp in connection with which the socket is designed to be used.

In the meeting edges of the parts 2 and 3 of the barrel 1 are formed semicircular recesses 40 and 41, which coact to provide sockets for the reception of bearing-disks 42 and 43, which are removably fitted therein. In these bearing-disks is mounted the spindle 44, which extends across the barrel or casing at right angles to the switch 27 and carries an oblong switch block or tumbler 45, which is adapted to contact with the body or bearing portion 28 of said switch. The ends of the spindle 44 are loosely mounted in the bearing-disks 42 and 43 and are adapted to turn therein. Upon one end of the said spindle is mounted the key-handle 46, and at the opposite end said spindle is bent at right angles or offset to form a stop 47, which bears against the outer surface of the coacting disk 43 and holds the spindle against endwise movement. In assembling these parts it will be understood that the spindle 44 is passed through the openings of the disks and the free end of said spindle then bent to form the stop 47, and in mounting the spindle in place the bearing-disks are fitted within the recesses 40 and 41 while the two parts 2 and 3 of the barrel 1 are being connected. By this construction it will be seen that a simple and effective form of bearing for the key-spindle is provided and that in case of breakage or injury to any of the parts thereof the key-spindle and its bearings may be readily removed upon the separation of the parts 2 and 3 of the barrel to permit of repairs being made or new parts substituted for those injured or broken. Should it become necessary to remove the bearing-disks 42 and 43 from the spindle, by bending the right-angular end of the spindle forming the stop 47 back to its original position the bearing-disks may be readily and conveniently slid off the spindle in a manner readily understood. When the spindle 44 is turned so as to bring the major axis of the tumbler 45 at right angles to the body or bearing portion 28 of the switch 27, it will be seen that said switch will be forced down against the tension of the spring 30, thereby bringing the U-shaped contact-piece 33 thereof into contact with the V-shaped contact-piece 34, thus establishing a connection between the two parts of the circuit for the passage of an electric current through the socket. When, however, the spindle 44 is turned to bring the minor axis of the tumbler 45 at right angles to the bearing portion 28 of the switch 27, the said switch will be free to move out of engagement with the contact-piece 34, and under the action of the spring 30 will be forced up and out of contact therewith, thus insuring a quick break and certain and close contact between the parts.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation of my improved lamp-socket will be readily under-

stood, and it will be seen that the invention provides a key-socket of the insulated-barrel type which is simple of construction, easy to assemble, comparatively inexpensive of production, and safe, durable, and efficient in use; also, that the novel construction of parts permits of the ready disconnection of the key mechanism and its bearings in case of injury and the making of ready repairs or the substitution of new parts and that by means of the described construction of the switch a certain and positive contact and quick break of the circuit is afforded and sparking reduced to a minimum at the time of separation. It will of course be understood that the ordinary form of metallic shell is designed to be employed and that in practice the parts of the switch mechanism will be insulated from the shell, so that no moisture can accumulate to short-circuit the current. The lamp-contacts may be varied in form and construction to adapt the socket for the reception of different types of lamps.

While the preferred embodiment of the invention is as herein disclosed, changes in the form, proportion, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

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

1. In an incandescent-lamp socket, the combination of an insulating-casing composed of two connecting parts or sections provided in their meeting edges with recesses forming sockets, switch mechanism, bearing-pieces removably mounted in said sockets in the casing and formed with apertures, and confined by the connecting of the parts of the casing together, and a key-spindle projecting through the apertures in the bearing-pieces and adapted to turn therein, said spindle being provided at one end with a stop holding it against endwise movement in one direction and at the other end with a key-handle holding it against endwise movement in the reverse direction, substantially as described.

2. In an incandescent-lamp socket, the combination of an insulating barrel or casing comprising sections formed in their meeting edges with recesses forming sockets, switch mechanism, bearing-pieces removably mounted in said sockets and confined by the sections of the casing and provided with openings, and a key-spindle coöperating with said switch mechanism and extending through the openings in the bearing-pieces, said spindle being provided with end stops to retain the bearing-pieces thereon and to hold the spindle against independent endwise movement, one of said stops being formed by bending or upsetting one of the ends of the spindle, whereby, when said bent end is bent back to its normal position, the bearing-pieces may be slid endwise off the spindle, substantially as described.

3. In an incandescent-lamp socket, the combination with an insulating barrel or casing composed of sections, conducting-plates connecting said sections, lamp-contacts, a bearing-plate formed upon one of the said conducting-plates, a pivot-pin connected to said bearing-plate and provided at its free end with a head, a knife-switch pivotally mounted upon said pin and provided at its free end with a contact-piece adapted to engage the contact-piece on the other part of the circuit, a spring surrounding said pivot-pin between the head thereon and the switch and acting to hold the switch pressed into contact with the bearing-plate, said spring also being connected with the switch to throw it open, and means for operating the switch, substantially as described.

4. The combination, in a switch or circuit-breaker, of a conductor, a contact-piece, a pivot-pin, a knife-switch slidably and pivotally mounted upon said pin and in normal engagement with the conductor and adapted to be swung into and out of engagement with the contact-piece to make and break the circuit, said switch comprising a plate having a body portion and end portions extending at right angles thereto, one forming a pivot-piece and the other a contact-piece, a shoulder being formed by the end of the body adjacent to said pivot-piece, a spring surrounding the pivot-pin and secured at one end and acting upon the pivoted end of the switch to press it into engagement with the conductor, the opposite end of the spring being arranged to bear against said shoulder to throw the switch open, and means for operating the switch, substantially as described.

5. In an incandescent-lamp socket, the combination of an insulating barrel or casing composed of sections, the base of the lower section being formed in its upper surface with recesses opening through the edges thereof and disposed upon opposite sides of the center of said base diagonally with relation to each other, and also with a central recess, conducting-plates having right-angularly-bent ends, the lower right-angularly-bent ends being fitted in said side recesses or sockets, fastenings connecting the said right-angularly-bent ends of the conducting-plates to the top and bottom sections of the casing, binding-posts carried by said conducting-plates for attachment of line-wires, a lamp-contact secured by the fastening means of the lower right-angularly-bent end of one of the aforesaid conducting-plates, a contact-plate fitted in the central recess of the bottom section of the casing and carrying a contact-piece, a fastening device securing said plate to the base-casing section, a second lamp-contact secured to the casing by said latter-named fastening device, a bearing-plate carried by one of said conducting-plates, a pivot-pin connected thereto and provided with a head, a knife-switch pivotally mounted upon said pin and adapted to bear against said bearing-plate and to be thrown into and out of engagement

with the contact-piece carried by the said central contact-plate, a spring encircling said pivot-pin and fixed at one end and arranged to press the switch against the bearing-plate, and having its opposite end connected with the switch to throw the same open, and means for operating said switch, substantially as described.

6. The sections 2 and 3, formed with central chambers for the reception of the switch mechanism, and adapted to be connected together to form a continuous insulating-casing, and also provided with diametrically-disposed recesses or pockets having intersecting spindle-channels, and adapted to receive spindle-supporting disks or plates, substantially as and for the purpose set forth.

7. In an incandescent-lamp socket, the combination of an insulating-casing adapted to receive the switch mechanism and conducting-plates and their connections, the switch pivotally connected at one end with one of the conducting-plates and having its free end of U shape, a contact-plate having one end V-shaped to receive the U-shaped end of the vibrating switch, a switch-operating spindle and tumbler, and spring mechanism for restoring the switch to its normal position, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LAURENS P. DIXON.

Witnesses:
J. A. WILLSON,
JAMES STRAYER.