

(No Model.)

J. PASS & A. P. SEYMOUR.
SOCKET FOR INCANDESCENT ELECTRIC LAMPS.

No. 568,919.

Patented Oct. 6, 1896.

FIG. I-

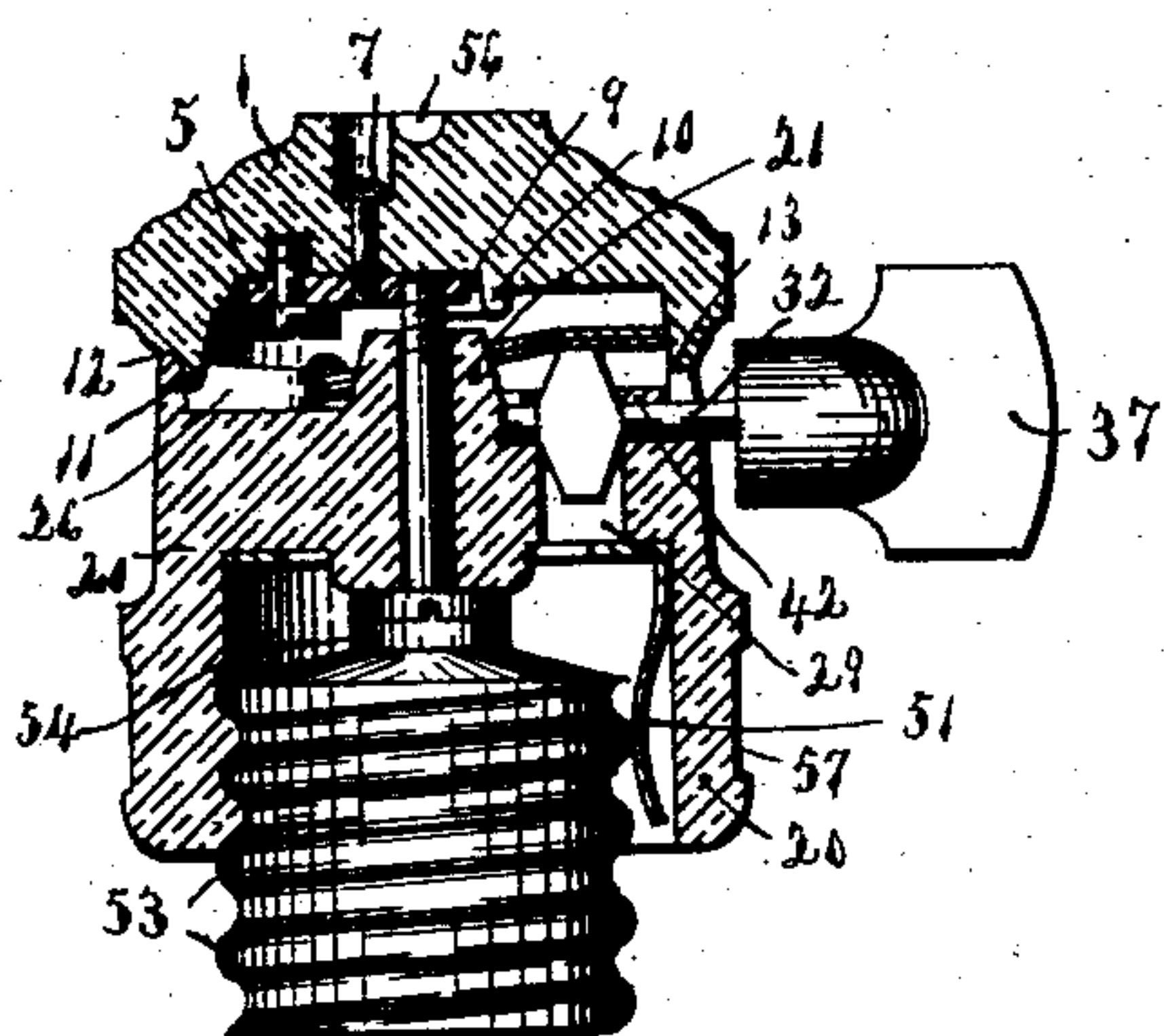


FIG. II-

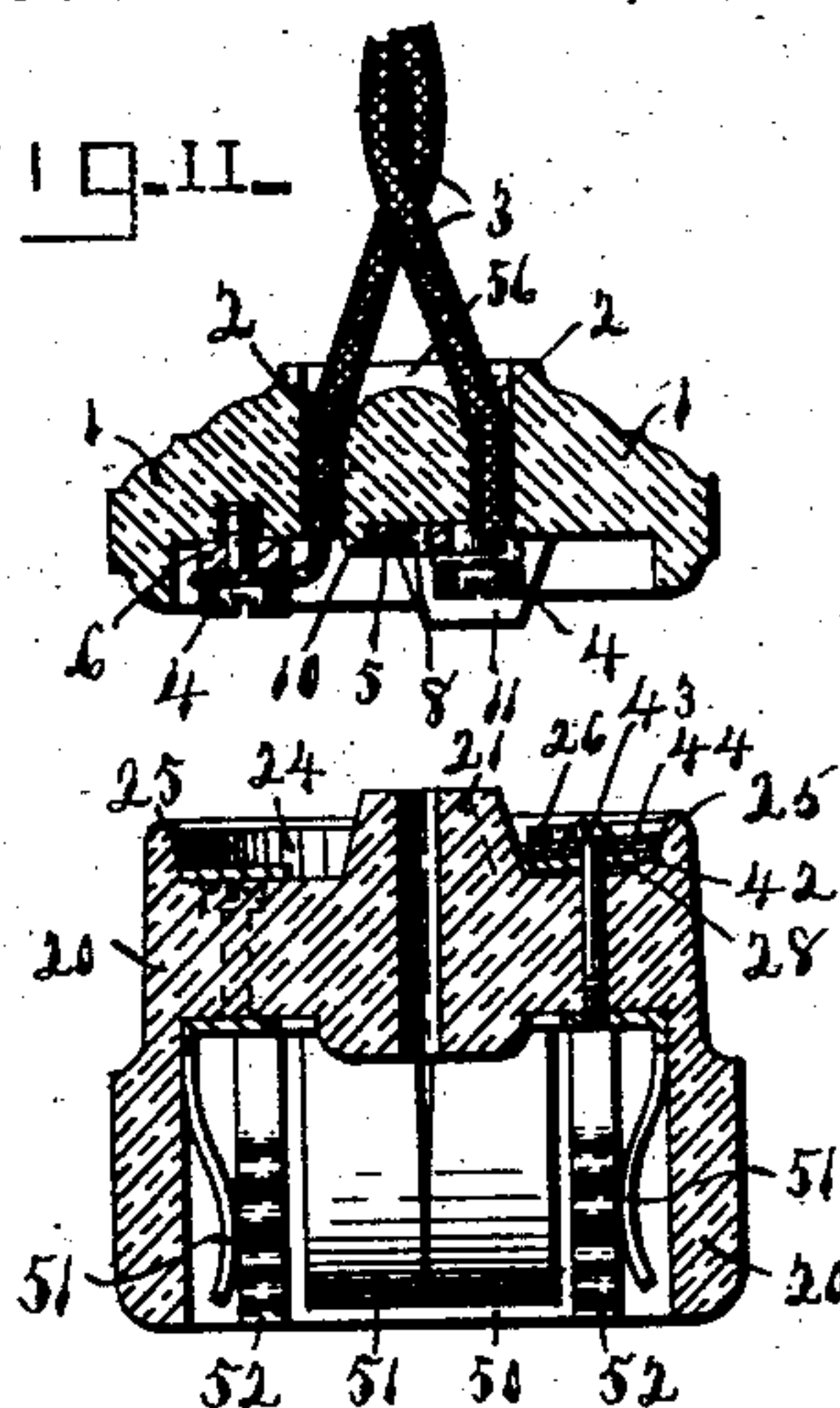


FIG. III-

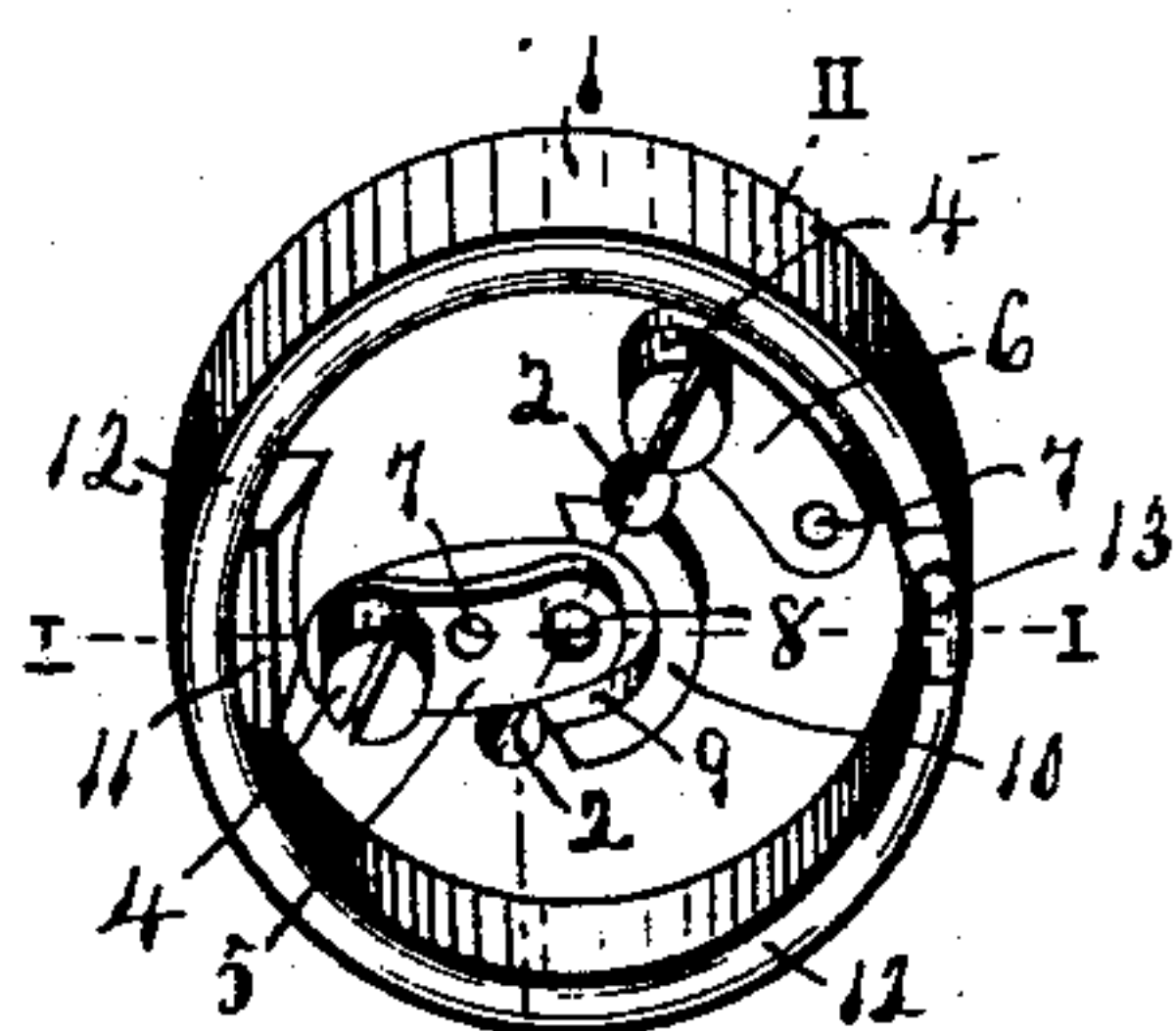


FIG. IV-

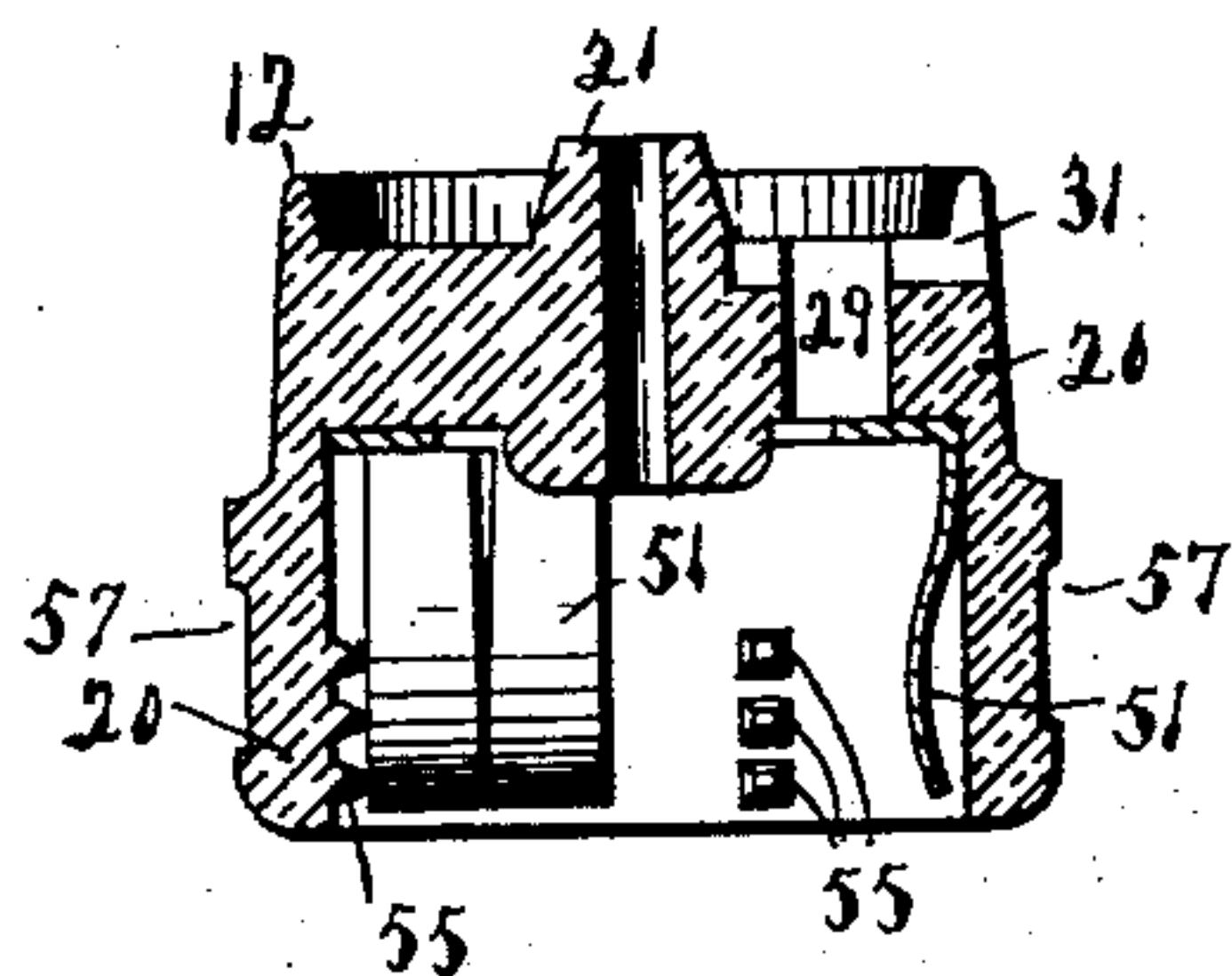
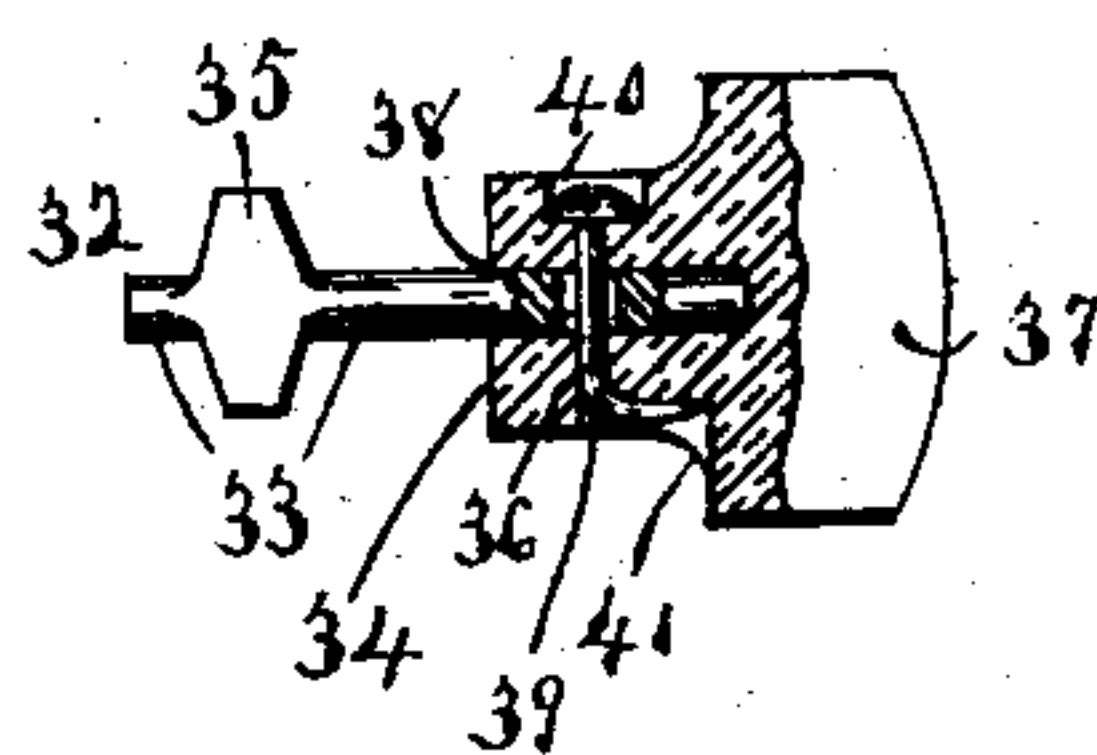


FIG. V-



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SOCKET FOR INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 568,919, dated October 6, 1896.

Application filed February 14, 1896. Serial No. 579,258. (No model.)

To all whom it may concern:

Be it known that we, JAMES PASS and ALBERT P. SEYMOUR, citizens of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Socket for Incandescent Electric Lamps; and we do hereby declare that the following, in connection with the accompanying drawings, is a full, clear, and exact description of the invention.

What we have invented is a new and improved socket for incandescent lamps, by the peculiar construction of which we have overcome the disadvantages and dangers existing in the sockets now in use, and have introduced certain improvements, making the socket not only safer than any that have heretofore been made, but also practical, easy to install, simple, positive in its action and mode of making contact, whether key or keyless, and adapted to grip the lamp firmly and hold it securely.

The original sockets of about fifteen years ago were made of large clumsy masses of some insulating material, with or without a metal inclosing case, but were not practical in any sense, and the aim of inventors and manufacturers down to the present time has been to reduce the insulation, so that the sockets of late years and of to-day have come to consist of a metal shell or casing, suspended on the conductors or screwed in place, containing a metal skeleton, screws, contact-plates, &c., all or part of the skeleton being in circuit and carrying the smallest possible amount of insulating material to separate the terminals. Of late years porcelain has been the insulating material almost universally. Disadvantages and dangers have developed in the use of such sockets, the most serious being the danger from fire. The metallic parts being inclosed in a small case of metal, short circuits and arcs are common. The conductors are composed of strands of fine wire covered with insulation of cotton, silk, or rubber, and in the installing a single strand often escapes from position and makes a short circuit. Also, when the ends of the conducting-wires are stripped of their insulation and drawn or pushed through the small hole on the base

of the socket, the insulated covering is often accidentally pushed back and a short circuit made between the two main conductors within or just outside the socket. The socket of to-day being made mostly of metal, the danger of an arc is not only increased, but when such an arc is formed the injury is not confined to the interior of the socket, but the socket itself is destroyed in whole or in part, or a portion of the metal is fused and falls on inflammable materials below, or in some cases the fusing of metal or contact of wires makes a permanent short circuit, which heats the circuit either near the socket or at a distance, with danger to woodwork, &c. Sometimes the arc escaping flashes back along the cord or causes an explosion, as in mills, where the air is filled with dust, &c. This danger is so great that underwriters have forbidden the use of key-sockets in mills, because they were not dust-tight—a great inconvenience. It is, therefore, a great desideratum to produce a socket which shall reduce the danger of short-circuiting and of sparking to a minimum, and in case of such an accident shall confine its effects absolutely to the interior of the socket. The socket at the same time must be simple, small, neat in appearance, and adapted by its size and construction to all common uses, that is, be adapted to be attached to fixtures, cornices, or arranged pendent.

Our socket, whether key or keyless, overcomes these difficulties. It is divided into main parts, the base and the body, both of porcelain. The metallic parts are reduced to the smallest size possible consistent with good contact and secure attachment of the conducting-wires. The wires are arranged as far apart as possible and are introduced through separate holes in the base adjacent to the respective binding-screws. The wires and other metallic parts are all positively separated from each other, so that accidental contact of the wires or of detached strands is prevented by walls or projections formed in the porcelain. The binding-screws are arranged so as to be easily reached and the wires easily introduced and attached. By our construction the metallic parts, particularly the springs, are held firmly and permanently in their proper positions and a good strong con-

tact is insured and the body of the socket attached to the base by a strong and simple means.

Our invention will be better understood by reference to the accompanying drawings, in which the same reference-numerals refer to the same parts in all the figures.

Figure I is a vertical section of our socket on lines I I of Fig. III, showing the lamp-base in position and the key turned to close the circuit. Fig. II is a vertical section of the socket on lines II II of Fig. III, the body and base being separated. Fig. III an isometric view of the socket, showing lower face of the base and upper face of the body. Fig. IV is a section of the body, showing a variation in the form of the mouth and projections for engaging with the lamp-base. Fig. V is an elevation of the key, partly broken away.

1 indicates the base or cap of our socket, perforated with two holes 2 2 to admit the respective conducting-wires 3 3, which are attached to their respective binding-screws 4 4 adjacent to said holes 2 2.

5 and 6 indicate the respective contact-pieces or "kidneys" arranged adjacent to said holes and held in position by their screws 7 7. Contact-piece 5 is provided with screw-hole 8, in which engages the main contact-screw connecting the body to the base, and said contact-piece 5 is arranged in a depression 9 in the base and is guarded by the semi-circular wall 10.

11 is a guide or guiding-spur integral with the circumferential marginal wall 12 of the base, and 13 is a similar opposite guide. The other main portion or body of the socket is indicated by 20, having on its upper face, which fits the lower face of the base and is adapted to engage therewith, the central tubular projection or hollow column 21, through which passes the main contact-screw 22, which, engaging with the screw-hole 8 in the contact-piece 5, attaches the body to the base and at the same time acts as a portion of one leg of the circuit, its head 23 forming one lamp-contact. The body 20 is formed on its upper face in the position here shown, that is, on the face fitted to the base, with a portion 24 of its comparatively thin marginal wall 25 thickened, between which and the elongated spur 26 is formed the space 27, fitted to receive the guide 11. In the corner on the other side of the spur 26 is the slight elevation or "pillow" 28, on which rests one end of the contact-spring.

29 is a cut-out or opening of any desired form provided with the groove 30 on its inner side, and, formed to be filled by guide 13, the notch 31 on its outer side, through the marginal wall 25, in which rests the metallic key 32, composed of shaft 33, perforated at 34, and provided with integral cam 35. The thumb-piece 37, of porcelain or other insulating material, is formed in its smaller end with a cavity 38 penetrating into its interior and adapted to

receive freely the shaft 33 of metallic key 32. Transverse hole 39 is formed through smaller end of thumb-piece passing through said cavity, for receiving connecting-pin 36, by which thumb-piece is attached to key. At one end of hole 39 is formed in the porcelain the depression 40 to receive head of pin 36, and at the other end the depression 41 for receiving its bent-down point.

The key is held in position in its bearings 30 and 31 by plate 42, whose opposite end rests on corner pillow 28, and, being secured in place by a single screw 43, it holds the key in position with a slightly-resilient pressure. The spring 44, preferably double, is set in place on plate 42 and attached also by the single screw 43. In this arrangement one end of plate and of superposed spring rest on pillow 28 and are bent slightly upward thereby when screw 43 is screwed home, and the opposite end 45 of spring and corresponding end of plate will be held with some firmness against adjacent face of porcelain body. This was found to be essential to hold parts firmly in place and obviated the necessity of slightly bending spring and plate, by which same result was accomplished. It will be noticed that distance from said screw to point where key bears on spring being long, compared to distance from said point to end of spring, said end will be forced into a firm contact by the key.

The lower end of the body as here shown is formed with a mouth 50 for receiving the lamp-base, and is provided with a peculiar means for holding the lamp, having a base of the so-called "Edison" type firmly in position and making good contact therewith. The inner surface of the mouth is provided with one or more integral sections 52 52, formed with parallel grooves and ridges, preferably slightly inclined to the horizontal. These grooves and ridges engage with the brass screw-thread 53 on the lamp-base, and being formed in the porcelain make an unusually secure engagement, the porcelain and metal not being self-lubricating, as one metal surface is with another. In connection with these sections 52 52 are arranged one or more metallic contact-plates 51 51, preferably somewhat springy, which thereby make a good contact with the terminal on the lamp and also grip the lamp-base. These spring contact-plates 51 51 are secured in position by screws, one of which is the screw 43, thus also acting as a conductor between said plates and contact-spring 44. These grooved porcelain sections 52 52 and contact-plates 51 51 may be variously arranged.

In Fig. IV the integral sections 52 52 are shown provided with studs or blunt points 55 55 for engaging with the lamp-base, instead of with ridges and grooves.

It will be noticed that the wire-holes 2 2 are connected exteriorly by a depression 56, by which sharp edges on which the cords may be

cut are avoided. As shown in Figs. I and II, the body is preferably provided with the exterior circumferential groove 57 near its mouth.

We have shown our invention applied to a socket to be suspended on cords, but it is evident that this form may be used without substantial change in a socket supported on a fixture or screwed to a wall or cornice.

Our socket possesses the following advantages: It is made of porcelain, one of the driest substances known and which neither rusts nor fuses. The porcelain parts should always be glazed. The metallic parts are reduced to a minimum. It is small and neat. The arcing-chamber between the body and base is of the smallest possible size. The contacts and terminals therein contained are positively separated from each other by walls and projections of porcelain, so that the danger of arcing is reduced to a minimum, and if any metallic part is displaced it cannot make a short circuit. The conductors are introduced through separate holes, which they fill dust-tight, adjacent to their respective binding-screws, and are bent around no sharp corners. The arcing-chamber is practically dust-tight, so that this socket, either key or keyless, can be used in mills.

Mechanically considered all parts are fitted and held securely in place by simple means. The socket is easy to install. There is sufficient "finger room" for easily attaching wires to thumb-screws. There is little danger of pushing the insulation far back, and, if done, it is seen and remedied. The body is easily and securely attached to base by main screw.

As for the details we have pointed out the simple effective way in which the key is held in position and the spring secured on the retaining-plate, and both secured on upper face of body and their free ends pressed against the face. The detail construction of the key may at first sight seem trifling, but by our construction we have produced a strong and cheap key in which the thumb-piece is connected to metallic key by a simple, strong, durable means. By the form of thumb-piece with transverse hole, depressions, and cavity all of thumb-piece except small inner end may be glazed, and in operation the fingers cannot possibly come into contact with metallic parts.

Having thus fully described our invention, what we claim, and desire to protect by Letters Patent, is—

1. In a porcelain socket, the combination of the body and the base, the adjacent faces of both being provided with depressions and integral projections, and fitted to each other so as to form an arcing-chamber, substantially circular in cross-section and comparatively narrow in the direction of the axis of the socket, contact-plates attached to said faces, positively separated from each other by said projections and depressions, when the

parts are assembled, and means for connecting the body to the base, substantially as described and shown.

2. A socket for an incandescent electric lamp composed of a porcelain base and body formed with corresponding notches and projections on their adjacent faces, and having the contact-plates, spring and key arranged between said adjacent faces in a thin arcing-chamber, and corresponding integral projections and depressions for positively separating the metallic parts in one leg from those in the other, substantially as described and shown.

3. In a socket composed of porcelain, the body adapted to be attached by a single screw in circuit to the base, and said base provided with two holes for the leading-in wires, contact-pieces with binding-screws arranged on the lower face adjacent to said holes respectively, a depression in said face to receive one contact-piece, and a wall projecting from said face positively to separate said contact-piece from the opposite contact-piece, substantially as described and shown.

4. In a socket of porcelain adapted to be suspended by the conducting-wires, two holes formed in the base for admitting the respective wires, contact-pieces with binding-screws, a single screw in circuit for connecting the body to said base, said body and base being provided with a tubular projection and semicircular wall, whereby said connecting-screw and metallic parts engaging therewith are positively insulated from the metallic parts in opposite leg of circuit, substantially as described and shown.

5. In an incandescent-electric-lamp socket formed of porcelain, the combination of the base and body attached by a single contact-screw positively insulated, said base and body having their adjacent faces fitted with corresponding projections and notches; the contact-pieces on the lower face of the base being positively separated from each other by insulating-walls, the upper adjacent face of the body being provided with a central perforated column and with spurs and projections for fixing the positions of the contact springs and pieces and holding them securely in their proper positions, substantially as described and shown.

6. In a socket for an incandescent electric lamp, the base formed with two holes for the respective leading-in wires, contact-plates attached on its lower face, and said face formed with a depression for receiving one contact-plate, an elevated wall for positively separating the same from the other contact-plate, a thin circumferential marginal wall and two guides of different widths integral with said marginal wall, substantially as described and shown.

7. A two-part socket comprising a body and a base portion, contacts in the base, co-

operating contacts in the body and a single screw connecting the body and the base and serving as a lamp terminal.

8. A porcelain socket having its mouth provided with screw-threaded sections and intermediate smooth sections, said smooth sections being greater in width than the screw-threaded sections.

9. In a porcelain socket, the base provided on its lower face, with a circumferential marginal wall 12, integral therewith, the guides 11 and 13 of different size, a depression 9, elevated wall 10 at one end thereof, and holes 2 2 for the leading-in wires, and external channel 56 connecting said holes, substantially as described and shown.

10. In a porcelain socket, the body portion 20, having the circumferential margin 25, tubular projection 21, thickened portion 24, spur 26, pillow 28, opening 29, having on one side bearing 30 and on the marginal

side notch 31, substantially as described and shown.

11. In a porcelain socket, the combination of the body and base, means for connecting them together, a contracted arcing-chamber formed between them; wire-holes 2 2, cut-out 29, and notch 31, all opening into said chamber; and cords 3 3, contact-plate 51, and guide 13 and key 32, closing said wire-holes, cut-out and notch respectively, substantially as described and shown.

In witness whereof we have hereunto set our hands, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 1st day of February, 1896.

JAMES PASS.

ALBERT P. SEYMOUR.

Witnesses:

ALFRED WILKINSON,
CONRAD SCHOENECK.