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ADJUSTABLE LAMP SOCKET.

APPLICATION FILED NOV. 19, 1915.

1,201,405. Patented Oct. 17, 1916.

Fig. 1.

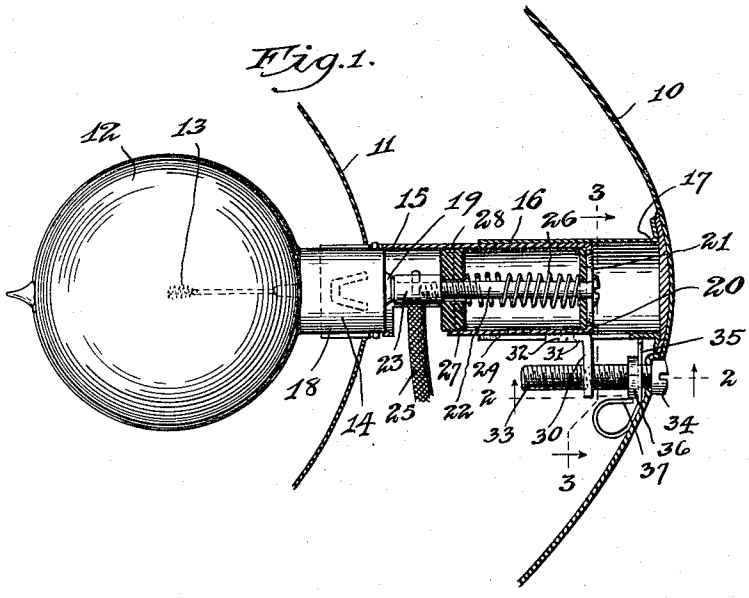


Fig. 2.

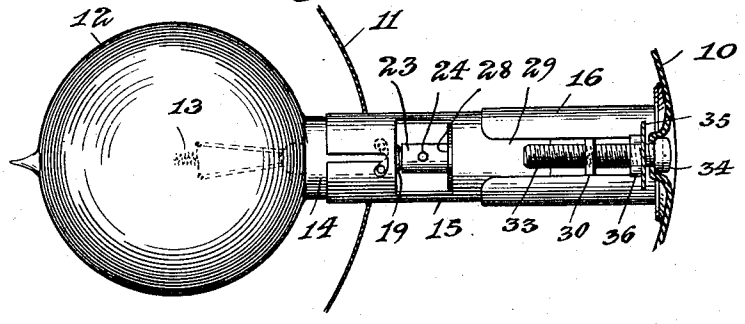
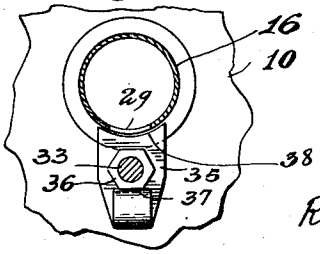


Fig. 3.



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UNITED STATES PATENT OFFICE.

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ADJUSTABLE LAMP-SOCKET.

1,201,405. Specification of Letters Patent. Patented Oct. 17, 1916.

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To all whom it may concern:

Be it known that I, RICHARD H. WELLES, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Adjustable Lamp-Sockets, of which the following is a specification.

This invention relates to adjustable lamp sockets, and refers particularly to lamp sockets adjustable axially for focusing the filament of a lamp bulb, as in the parabolic reflector of an ordinary automobile electric search lamp.

The invention in its preferred form is chiefly applicable to a type of adjustable socket in which the lamp bulb is moved axially by means of an adjusting screw having its axis substantially parallel with the axis of the bulb; that is to say, the direction of movement of the lamp.

Among the salient objects of the invention are, to provide an adjustable lamp socket of the class described so organized that it may be adjusted in any axial position within the limits of the mechanism, and when so adjusted will retain its adjusted position without danger of movement, due to accidental shock or vibration; to provide a construction so organized that it will allow an extremely fine and accurate adjustment of the filament in its proper focal position; to provide a construction of the class described which shall be extremely simple in design, economical of manufacture, efficient in operation, and convenient to manipulate; and, in general, to provide an improved construction of the character referred to.

In the drawings Figure 1 is a fragmentary axial section taken through an automobile search light to which my invention is applied; Fig. 2 is a fragmentary section taken on the line 2—2 of Fig. 1; and Fig. 3 is a fragmentary section taken on line 3—3 of Fig. 1.

In the drawings 10 represents the outer casing of the search lamp in which is nested the parabolic reflector 11. Coaxial with the focal axis of the parabolic reflector 11 is adjustably located the electric lamp bulb 12 having a filament 13 movable in the axis of the reflector. The lamp bulb 12 is furnished with the usual Ediswan or bayonet base 14 fitted in a tubular socket 15, said socket 15 being axially slidable within a supporting tube 16 secured rigidly at 17 to the rear of the casing 10. In the particular type of socket illustrated the connections are arranged for a single wire or grounded supply circuit, one side of the filament 13 being connected to the metal ferrule 18 of the base and thence to ground through the socket 15, and the other side of the filament is connected to the insulated contact stud or button 19. The open rear end of the tube or socket 15 is flanged over slightly, as shown at 20, to form a stop for the fiber washer 21 which is perforated in order to slidably receive the plunger screw 22. Said screw at its outer end is threaded into the plunger contact 23 which engages and makes an electrical connection with the contact button 19 on the base of the lamp. The plunger contact 23 is transversely perforated, as shown at 24, in order to admit the bare end of the line wire 25 which is clamped in position by the outer end of the plunger screw 22 when the latter is screwed home into the plunger 23. The contact plunger 23 is resiliently forced outwardly against the contact button 19, thereby making an efficient electrical contact and at the same time holding the lamp base in position, by means of a coil compression spring 26, one end of which abuts against the insulated washer 21, the other end of the spring engaging one of the washers 27 and 28 which maintain the outer end of the plunger in its central position.

In the under side of the supporting tube 16 is an open-ended slot 29 in which slides the downwardly projecting limb 30 of the angle piece 31 which is secured to the under side of the socket 15 as by a screw or rivet 32. The limb 30 is drilled and tapped to accommodate the focusing screw 33 which is preferably vertically beneath the socket and has its axis parallel with the axis of the supporting tube 16. The head 34 of the focusing screw is seated in a small recess pressed into the outside of the casing 10, which is perforated to form a bearing for the neck of said screw. The neck of the focusing screw also forms a support for the locking spring 35, which is apertured to freely admit said screw, and the screw is prevented from moving outwardly of the casing by means of the hexagonal collar 36, which is soldered or otherwise secured to the neck of the screw, in such position that the spring 35 is main-

tained in position and axial movement of the screw is substantially prevented. The lower end of the spring 35 is formed into a loop and turned upwardly in such position that the end 37 of the loop presses strongly against one of the facets of the hexagonal collar 36, thereby preventing the latter from turning, except when a substantial amount of torsion is applied to the screw. In order to prevent the spring 35 from spinning or turning upon the focusing screw 33 when the latter is rotated, I shape the upper end of said spring into a concave form, as shown at 38, so as to rather closely engage and partially embrace the outer periphery of the supporting tube 16.

The device is extremely simple in its operation. When it is desired to change the axial position of the filament 13, the screw 33, by means of the head 34, is rotated from the exterior of the casing in the proper direction to move the filament 13 as desired. The screw 33 operating in the nut 30 causes the socket 15 to slide axially in the supporting tube 16 as the screw is turned, axial movement of the screw being prevented either by the screw head 34 or the collar 36, depending upon the direction in which the screw is turned. Except when the focusing screw is being rotated to adjust the bulb (this requiring a considerable amount of torsional force), the end 37 of the spring engages one of the facets on the hexagonal collar 36 and absolutely locks the screw against rotary movement and renders the device secure against shocks or vibration. In addition, the upward pressure of the end 37 of the spring against the collar 36 eliminates the possibility of any of the various parts rattling around, due to any slight looseness in the mechanical fit. It is self-evident that an extremely close and fine adjustment of the filament is possible by means of this device, since a complete turn of the screw includes six possible different positions of the filament, one for each face of the hexagonal collar 36. In practice, I make the spring 35 of substantial strength so that it is not possible to turn the screw 33 without the aid of a screw driver, thereby largely eliminating the danger of mischievous persons tampering with the bulb adjustment.

Inasmuch as the described details of construction are capable of modification without sacrifice of efficiency, the scope of the invention must be determined by reference to the appended claims.

I claim:

1. In a focusing device, a supporting casing, a sliding socket adjustable in said supporting casing, a lamp for said sliding socket, a plunger screw within said socket, insulating washers at each end of said socket for supporting said screw, a plunger contact located between the plunger and the base of the lamp and into which said plunger screw projects and having a transverse opening for the admittance of the line wire, said line wire held in position in said opening by said plunger screw, and a spring for maintaining connection between said plunger contact and said lamp.

2. In a focusing device, an outer casing, an inwardly projecting slotted tube secured in said casing, a socket slidable in said tube provided with an aperture, a spring pressed plunger slidable in said socket, a lamp in the socket having a contact for engagement with the plunger, said wire connected to the plunger and projecting through the socket aperture, a nut secured to the socket and projecting through the slot in the tube, and a screw engaging said nut positioned against endwise movement for sliding said socket, said screw having its axis parallel with the axis of the tube.

3. In a focusing device, the combination of a supporting casing, a lamp socket slidable in said casing, a nut rigidly secured to and projecting radially outwardly from said socket, an adjusting screw having its axis substantially parallel to the axis of said socket, engaging said nut, rotatable in but axially fixed in said casing, said screw being operable from the exterior of said casing, a member keyed to the exterior of said screw within said casing and having a circumferential engaging face, a flat plate spring perforated to rotatably admit said screw, and having means engaging the casing to prevent rotation of said spring, said spring being provided with a part cooperating with and resiliently engaging said circumferential engaging portion on said keyed member with sufficient force to prevent accidental rotation of said screw.

4. In a focusing device, the combination of an outer casing provided with an inwardly extending, longitudinally slotted supporting tube, a tubular lamp socket slidable in said tube, said socket having secured thereto a nut projecting radially through said slot, an adjusting screw having its axis substantially parallel to the axis of said tube and engaging said nut, said screw being rotatably supported in said casing and having an outer head, a collar on said screw within said casing and cooperating with said head and preventing outward movement of said screw, and a non-rotatable flat plate spring resiliently engaging said collar, said collar and spring being suitably arranged to lock said screw against accidental movement.

5. In a focusing device, the combination of an outer casing provided with an inwardly extending, longitudinally slotted supporting tube, a tubular lamp socket slidable in said tube, said socket having secured thereto a nut projecting radially

through said slot, an adjusting screw having its axis substantially parallel to the axis of said tube and engaging said nut, said screw being rotatably supported in said casing and having an outer head, a collar on said screw within said casing and cooperating with said head and preventing outward movement of said screw, and a flat plate spring perforated to rotatably admit said screw located between said collar and said casing, having means engaging said casing to prevent rotary movement of said spring on said screw, and having a part resiliently engaging said collar, said collar being provided with a locking face cooperating with said spring to prevent accidental rotary movement of said screw.

6. In a focusing device, the combination of an outer casing provided with an inwardly extending, longitudinally slotted supporting tube, a tubular lamp socket slidable in said tube, said socket having secured thereto a nut projecting through said slot, an adjusting screw having its axis substantially parallel to the axis of said tube and engaging said nut, said screw being rotatably supported in said casing and having an outer head, a collar on said screw intermediate the casing and the nut coöperating with said head and preventing outward movement of said screw, and a flat plate spring perforated to rotatably admit said screw located between said collar and said casing, shaped to engage said supporting tube to prevent rotary movement of said spring on said screw, and having a part resiliently engaging said collar, said collar being provided with a locking face coperating with said spring to prevent accidental rotary movement of said screw.

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