E. H. HOWARD.

SPOTLIGHT.

APPLICATION FILED AUG. 14, 1919.

1,399,120. Patented Dec. 6, 1921.

Fig. 1.

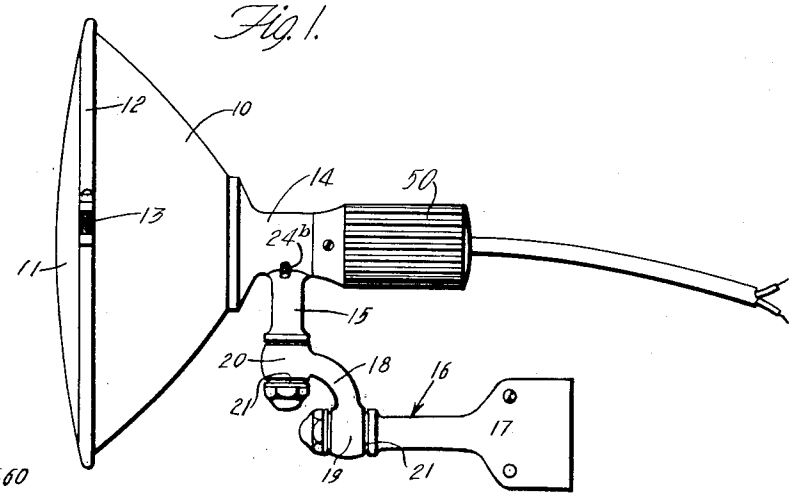


Fig. 4.

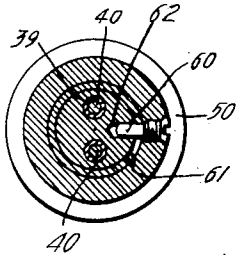


Fig. 2.

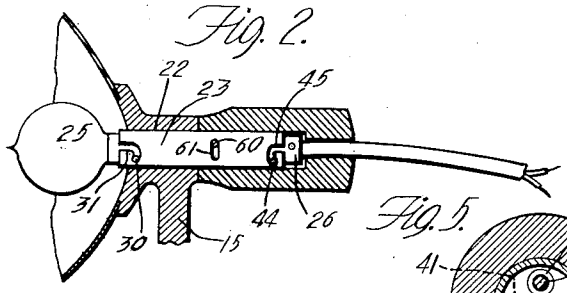


Fig. 5.

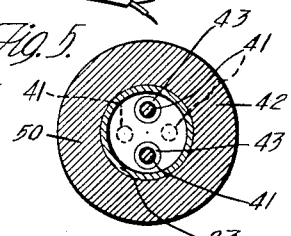
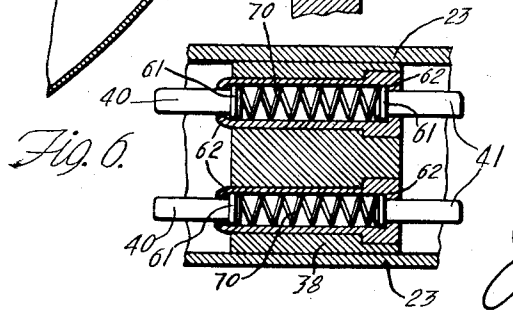


Fig. 3.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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SPOTLIGHT.

1,399,120. Specification of Letters Patent. Patented Dec. 6, 1921.

Application filed August 14, 1919. Serial No. 317,427.

To all whom it may concern:

Be it known that I, EARL H. HOWARD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Spotlights, of which the following is a specification.

This invention relates to improvements in splot-lights and particularly to spot-lights such as are used in connection with automobile lights. An object of the invention is to provide a light of this character which will be simple, effective and easily adjustable and controlled.

A particular feature of the invention is the improved control mechanism by which the light may be turned on or off and directed or shifted to shine or throw light in the desired direction. The control mechanism is operated by a handle which extends from the back of the lamp. Due to the mounting of the lamp, on a suitable bracket which allows adjustment, the handle provides a means by which the lamp may be turned or moved to the desired position.

The simplicity and compactness of the switch and the handle construction is a feature of the invention. The switching mechanism is embodied in the handle in such a manner as to allow the handle to be of handy size, that is, a size which may be easily gripped by the hand and not of such a size as to be ungainly or bulky. It is due to the simplicity of the switching mechanism that it is possible to make the handle of a suitable size and it is largely due to the size of the handle that the entire lamp is neat and sightly. Further objects of the invention and the construction as a preferred form of the invention will be best understood from the following detailed description throughout which reference is had to the accompanying drawings, in which—

Figure 1 is a side elevation of the lamp, showing it in connection with a typical mounting bracket; Fig. 2 is a view of a portion of the lamp with parts broken away to show in section; Fig. 3 is an enlarged detail section of the parts shown in Fig. 2; Fig. 4 is a detail section taken as indicated by line 4—4 of Fig. 3; Fig. 5 is a detail section taken as indicated by line 5—5 on Fig. 3; and Fig. 6 is an enlarged detail section of a portion of the lamp shown in Fig. 3.

In the drawings numeral 10 designates the reflector of the lamp on the front of which is mounted or secured a glass lens 11. The lens 11 may be mounted on the reflector 10 in any suitable manner, and it is preferred that the lens be mounted so that the joint between the lens and the reflector be dust proof and water proof. A ring or band 12 provided with a clamping screw 13 may be used for this purpose. The reflector 10 is permanently mounted on a frame member 14 which has a donwardly extending projection 15. The projection 15 provides a means by which the lamp may be mounted on a suitable mounting bracket 16. Any form of mounting bracket 16 may be used in connection with the lamp but it is preferred that a bracket be used which is adjustable about a vertical and also a horizontal axis. In Fig. 1 is shown a simple and effective form of mounting bracket which comprises a clamping member 17 adapted to be clamped on the frame of the windshield of a machine and an arm 18 which is pivotally mounted at 19 on the clamping member 17. The arm 18 is preferably curved as shown in the drawings and the projection 15 is pivotally connected to the arm 18 at 20. Suitable friction means such as washers 21 may be provided at the pivotal connections 19 and 20 to prevent movement of the various parts due to vibration or jarring of the machine.

Extending longitudinally through the frame 14 there is a bore 22 in which is carried a sleeve 23. The forward end of the sleeve 23 extends a short distance into the reflector 10 and carries a lamp 25. The sleeve 23 is slidably carried in the frame 14 so that it may be adjusted to such a position in the frame as to cause the lamp 25 to be properly located relative to the reflector 10. A set screw 24^b is carried in the frame 14 so that it will engage sleeve 23 and lock it relative to the frame when properly adjusted. The rear end of the sleeve 23 extends a considerable distance beyond the frame 14 and is adapted to carry a

plug 26 to which lead wires 27 are connected. Projecting from the base 24 of lamp 25 there are pins 30 which are adapted to engage slots 31. The slots 31 are so shaped as to cause the base 24 of the lamp to be in the proper position in the sleeve 23 when the pins 30 have completely engaged them. The plug 26 has pins 44 projecting from it which engage slots 45, (similar to slots 31) which hold the plug 26 in the proper position in the sleeve 23. The lead wires 27 are connected to rods 43 which extend longitudinally through the plug 26 and at the forward end of said plug, have enlarged portions 42 which form contacts. In the tube 23 between the base 24 of lamp 25 and the plug 26 there is a stationary block 35 and a rotatable block 38. The stationary block 35 is adjacent to the base 24 of the lamp 25 while the rotatable block 38 is adjacent to the plug 26. Extending longitudinally through the stationary block 35 are two connector tubes 36 which have enlarged heads 37 at the rear end of said block. The enlarged heads 37 form contacts and are arranged so as to be in line with the contacts 42 at the forward end of plug 26. Carried in the tubes 36 and extending from the forward end of block 35 are contact pins 34 which are pushed outwardly (in a manner which will be hereinafter described) so as to engage the end of base 24 of lamp 25. The various parts are so arranged that when the base 24 of lamp 25 is in place in the sleeve 23 the contact pins 34 will engage contacts 24^a of the lamp.

Extending longitudinally through rotatable block 38 in the same manner as tubes 36 do in stationary block 35, there are tubes 39. Carried in the tubes 39 and extending from the forward end of said tubes there are contact pins 40 and carried in tubes 39 and extending from the rear end of said tubes there are contact pins 41. The contact pins 40 and 41 are pushed outwardly in the same manner as contacts 34 are pushed outwardly, that is, springs 70 are carried in the tubes 39 and 36 so as to engage the inner ends of the contact pins and thereby tend to push them outwardly. It is preferred that the inner ends of the contact pins be provided with enlarged portions 61 and that the ends of the tubes 36 and 39 have slightly contracted ends 62 in order to prevent the pins from being pushed out of the tubes. It will be understood that the invention is not limited to this particular construction as various contact arrangements can be used successfully. When the rotatable block 38 is in the position shown in Fig. 3 the contact pins 40 engage contacts 37 and the contact pins 41 engage the contacts 42 thereby causing a complete electrical connection to be made between the contacts 42 which are connected directly to lead wires 27 and the contacts 24^a of the lamp 25. In order to break the connection between the plug 26 and the lamp 25, or in other words, in order to turn the lamp off it is merely necessary to rotate block 38 until the contacts 40 and 41 have moved off of contacts 37 and 42 respectively. In Fig. 5 is clearly shown in dotted lines the position of the contact pins 41 relative to the contacts 42 when the rotatable block 38 has been rotated through an angle of 90° from the position shown in Fig. 3. It will be readily seen from this figure that the contact pins 41 are completely out of engagement with the contacts 42 and therefore do not make an electrical connection.

The handle 50 of the lamp is provided with a bore 59 into which the sleeve 23 slidably fits so that the handle may be slid over the portion of the sleeve 23 which projects rearwardly from the frame 14 and thereby completely covers it, as clearly shown in the drawing. The bore 59 is long enough so that the end 51 of the bore does not engage the rear end 52 of the plug 26 and thereby cause movement or displacement of the plug 26 when handle 50 is moved relative to the sleeve 23. Although the sleeve 23 fits into the bore 59 there is sufficient friction between the sleeve and the walls of the bore to prevent relative movement of the sleeve and handle due to ordinary vibration or jarring. Through the end 58 of the handle 50 there is a small bore 53 through which the lead wires 27 extend. Screw threadedly engaged in the handle 50, near the forward end of said handle, there is a pin 60 which extends through a slot 61 in the sleeve 23 and engages a hole 62 in the rotatable block 38. The slot 61 extends about a quarter of the way around the sleeve 23 and is sufficiently wide to allow the pin 60 to be easily moved through it. It will be readily understood how rotation of handle 50 due to the engagement of pin 60 in hole 62 will cause rotation of rotatable block 38. The connection between the handle 50 and the rotatable block 38 is such that when the pin 60 is at one end of the slot 61 the block 38 is in a position to cause contacts 40 and 41 to be in engagement with the contacts 37 and 42 respectively and when the pin 60 is at the other end of the slot 61 the block 38 has moved so that contact pins 41 and 40 are out of engagement with the contacts 37 and 42 respectively. The pin 60 being arranged in connection with the handle 50, the sleeve 23, and the rotatable block 38, as has been described, not only connects the handle and the block so that rotation of the handle will cause rotation of the block but also keeps the handle on the sleeve 23 and keeps the block 38 in the proper position between the block 35 and the plug 26.

From the foregoing description it will be clearly understood how the handle 50 pro-

vides a handle for moving or turning the lamp and at the same time provides a handle for turning on or turning off the lamp 25. It will also be noted that the two operations, that is, turning or adjusting the lamp and turning the lamp on or off may be done independently or simultaneously as desired.

Although the invention is particularly adapted for use in connection with automobile spot-lights it will be understood that it is not limited to such lights but may be advantageously used in connection with various kinds or types of electric lights. Having hereinabove set forth a preferred form of the invention I do not wish to limit myself to the details described but wish to reserve to myself any changes or modifications that may appear to those skilled in the art or fall within the scope of the following claims.

Having described a preferred form of my invention, I claim:

1. In a connector and switch device of the character described, a tube, relatively stationary blocks in the tube and spaced apart, connector members extending through the blocks and providing contacts on their adjacent faces, a rotatable contact block between the two stationary blocks, a connector member extending through the rotatable block and providing contacts adapted to engage the stationary block contacts, a hollow handle fitting over one end of the tube and rotatable thereon and forming a cover for the tube, and means rotatively connecting the handle with the rotatable block.

2. In a connector and switch device of the character described, a tube, relatively stationary blocks in the tube and spaced apart, connector members extending through the blocks and providing contacts on their adjacent faces, a rotatable contact block between the two stationary blocks, a connector member extending through the rotatable block and providing contacts adapted to engage the stationary block contacts, a hollow handle fitting over one end of the tube and rotatable thereon and forming a cover for the tube, the handle extending over the tube from one end to a point opposite the rotatable block, and means rotatively connecting the handle with the rotatable block.

3. In a connector and switch device of the character described, a tube having a slot, relatively stationary blocks in the tube and spaced apart, connector members extending through the blocks and providing contacts on their adjacent faces, a rotatable contact block between the two stationary blocks, connector members extending through the rotatable block and providing contacts adapted to engage the stationary block contacts, a hollow handle fitting over one end of the tube, covering the slot in the tube and rotatable on said tube and forming a cover for the tube, and means rotatively connecting the handle with the rotatable block, said means embodying a pin extending through said slot and engaging the handle and the rotatable block.

4. In a connector and switch device of the character described, a tube having a slot, a stationary block in said tube, a stationary removable block in said tube spaced apart from said stationary block, connector members in and extending through each of said blocks and providing contacts on their adjacent faces, a rotatable contact block between the two stationary blocks, a connector member extending through the rotatable block and providing contacts adapted to engage the contacts on the adjacent faces of the stationary and stationary removable blocks, a hollow handle fitting over one end of the tube and rotatable thereon and forming a cover for the tube covering the slot in the tube and the stationary removable block, and means rotatively connecting the handle with the rotatable block, said means comprising a pin extending through said slot and engaging the handle and the rotatable block.

5. In a connector and switch device of the character described, a tube having a slot, a stationary block in the tube, a stationary removable block in the tube and spaced apart from the stationary block and held in place in the tube by pin and slot means, connector members extending through each of said blocks and providing contacts on their adjacent faces, a rotatable contact block between the stationary block and the stationary removable block, connector members extending through the rotatable block and providing contacts adapted to engage the contacts on the adjacent faces of the stationary and stationary removable blocks, a hollow handle fitting over one end of the tube and rotatable thereon and forming a cover for the tube covering the slot in said tube and covering but not engaging the stationary removable block, and means rotatively connecting the handle with the rotatable block, said means embodying a pin extending between the handle and the rotatable block and through said slot.

6. In a connector and switch device of the character described, a tube having a slot, a stationary block in the tube, a stationary removable block in the tube and spaced apart from the stationary block and held in place in the tube by pin and slot means, connector members extending through each of said blocks and providing contacts on their adjacent faces, a rotatable contact block between the stationary block and the stationary removable block, connector members extending through the rotatable block, having outwardly pressed contact members at their ends adapted to engage the contacts on the

faces of the stationary block and the stationary removable block, a hollow handle fitting over one end of the tube and rotatable thereon and forming a cover for the tube covering the slot in said tube and covering but not engaging the stationary removable block, and means rotatively connecting the handle with the rotatable block, said means embodying a pin extending between the handle and the rotatable block and through said slot.

In witness that I claim the foregoing I have hereunto subscribed my name this 2d day of August, 1919.

EARL H. HOWARD.

Witness:
VIRGINIA I. BERINGER.