H. O. FLETCHER.

SEARCHLIGHT APPARATUS.

APPLICATION FILED JULY 6, 1918. RENEWED OCT. 6, 1920.

1,364,268. **Patented Jan. 4, 1921.**

3 SHEETS—SHEET 1.

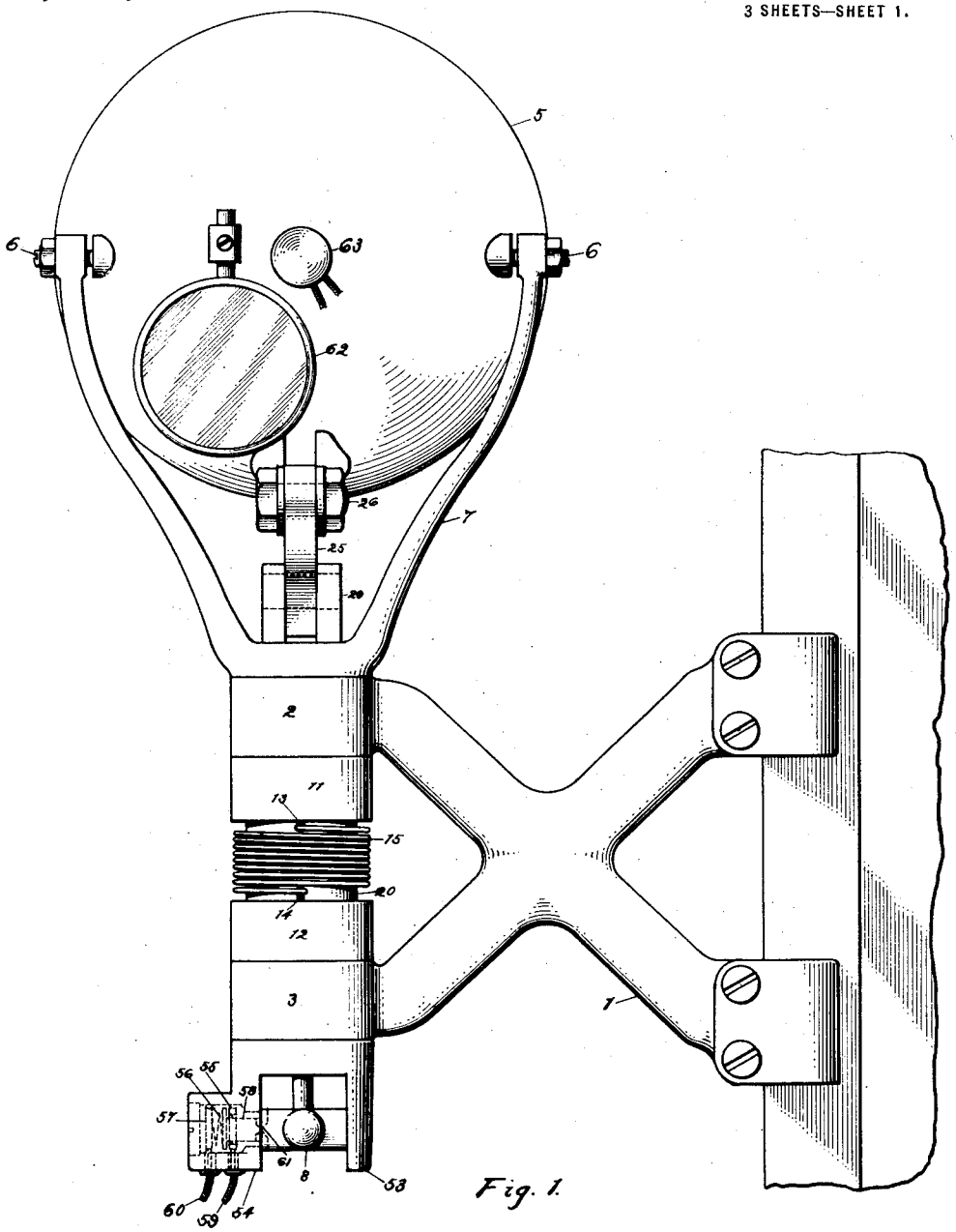


Fig. 1.

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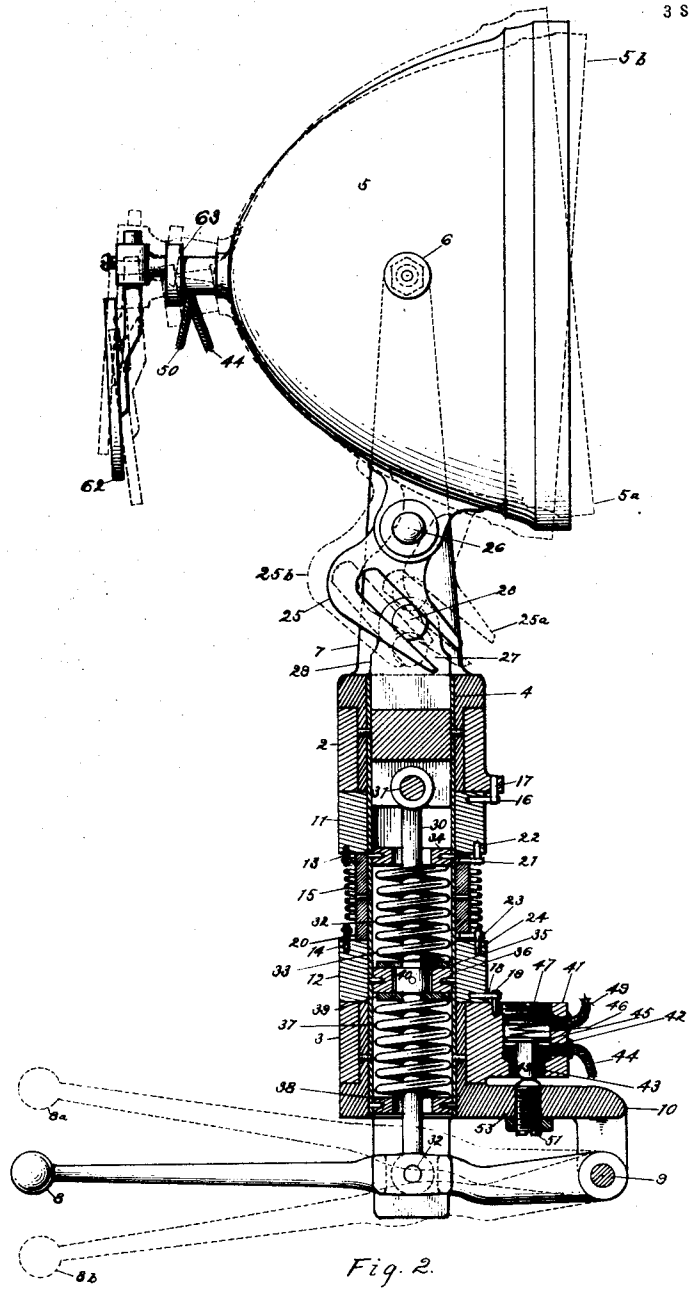


Fig. 2.

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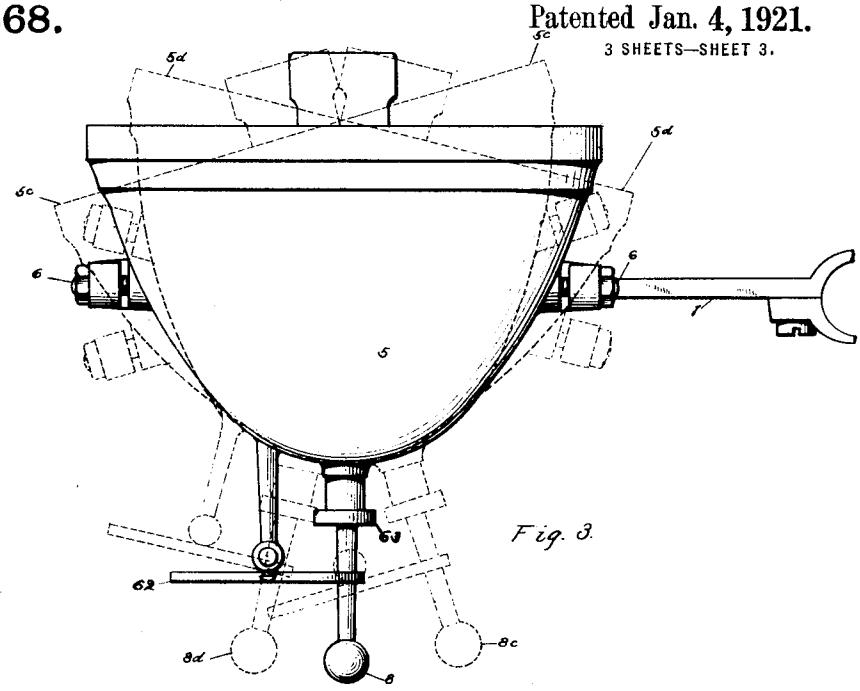


Fig. 3.

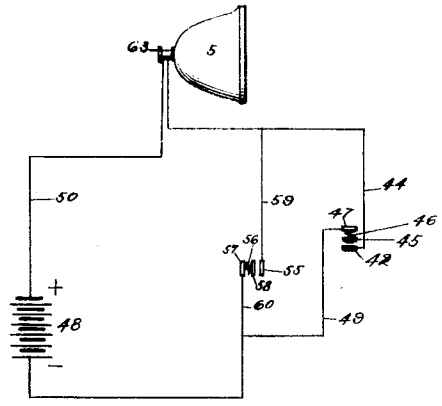


Fig. 4.

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HENRY O. FLETCHER, OF BRIDGEPORT, CONNECTICUT.

SEARCHLIGHT APPARATUS.

1,364,268. Specification of Letters Patent. Patented Jan. 4, 1921.

Application filed July 6, 1918, Serial No. 243,657. Renewed October 6, 1920. Serial No. 415,219.

To all whom it may concern:

Be it known that I, HENRY O. FLETCHER, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Searchlight Apparatus, of which the following is a specification.

My invention relates to the operation of searchlights and more particularly to those used in connection with vehicles, such as automobiles, but may be employed in various other ways.

The operation of searchlights on automobiles usually requires more time than the operator can conveniently spare without neglecting his duties in connection with the operation of the machine and many times it is necessary to slow down, or stop, the vehicle to use the searchlight for reading signs and other similar uses.

One object of my invention is to so simplify the operation of the searchlight that the operator will in no way be required to neglect his duty, or lose time and power, by slowing down or stopping the machine while using the light.

Another object is to save electric power and also to cause as little annoyance to others by keeping the lamp lighted as short a time as possible.

Another object is to provide means to light, and extinguish, the lamp without any effort on the part of the operator other than that required to turn it in the direction of the object to be illuminated.

Still another object is to provide means to turn the light in any desired direction and to light it by the operation of a single lever, and also to extinguish the light and return it to normal position without any effort on the part of the operator.

In the drawings Figure 1 is a rear elevation, showing the apparatus attached to the windshield; Fig. 2 is a sectional view; Fig. 3 is a top plan view; and Fig. 4 is a diagram showing a preferred method of electric connections.

The bracket 1, which may be mounted in any convenient position as on a windshield, carries the bearings 2 and 3 respectively, in which is pivoted the hollow shaft 4. The lamp 5, is pivoted at 6, 6, in the fork 7, which is fast on the hollow shaft 4. The lever or handle, 8, is fulcrumed at 9, on the arm, 10, which is also fast on the hollow shaft 4. It is seen that the lamp is pivoted about two axes normal to each other thereby allowing universal turning movement thereof.

The collars, 11 and 12, respectively are mounted loosely on the shaft 4, and carry the pins, 13 and 14, respectively, which act to support and give tension to the double acting tortional spring 15. The pin 16, in the collar 11, rests against the stop pin, 17, in the bearing 2, and the pin, 18, in the collar 12, rests against the stop pin 19, in the bearing, 3. The collar 20, fast on the shaft 4, carries the pin 21, which bears against the pin 22, in the collar 11, and also carries the pin 23, which bears against the pin 24, in the collar 12, when the shaft 4, is in its normal position thus maintaining the equilibrium of the spring 15.

It will be noticed that the spring 15, tends to rotate the collar 11, in a clock-wise direction, as viewed from the top, but is prevented by the pin 21, and also that it tends to rotate the collar 12, in an anti-clock-wise direction but is prevented by the pin 23, all of which will be explained later. Lugs 53 and 54 are for the purpose of controlling the rocking motion of the arm 10, and shaft 4, when the lever 8, is turned to rotate the lamp 5, on its vertical axis.

Extending from the lamp 5, is the arm 25, adjustable by means of the bolt 26, and having the slot 27, in which the flattened pin 28, slides. The pin 28, is pivoted in the slide 29, which is guided by the inner walls of the hollow shaft 4, and derives its motion from the connecting rod 30, which is pivoted to it at 31. The connecting rod 30, is also pivoted at 32, to the lever 8.

The spring 33, rests against the collar 34, fast in the shaft 4, and acts to press the washer 35, against the stop collar 36, also fast in the shaft 4. The spring 37 rests against the collar 38, fast in the shaft 4, and acts to press the washer 39, against the stop collar 36. The collar 40, fast on the rod 30, is of the same thickness as the collar 36, and is therefore prevented from moving in an upward direction by the washer 35, and spring 33, and from moving in a downward direction by washer 39, and spring 37.

It will be seen that if sufficient pressure is applied to the lever 8 in an upward direction to move it to position shown by

dotted lines 8^a, the spring, 33, would be compressed and that rod 30, slide 29, and pin 28, would move upward; and, owing to the angularity of the slot 27, in the arm 25, the lamp 5, and arm 25, would be tilted upward as shown by the dotted lines 5^a, 25^a, and when the pressure is released the parts immediately return to normal position due to the pressure of spring 33. The collar 20 fast on the shaft 4 carries an abutment pin 21 which bears against the abutment pin 22 in the collar 11. The collar 20 also carries an abutment pin 23 which bears against an abutment pin 24, in collar 12, when the shaft 4 is in its normal position.

If lever 8, is turned in a horizontal plane, see Fig. 3, to the position indicated by the dotted lines 8^c, the lamp is turned to the position shown by the dotted lines 5^c, and the pin 21, presses against pin 22, thus turning the collar 11, and contracting the spring 15. When lever 8, is released the spring 15, rotates collar 11, and pin 22, bearing on pin 21, causes collar 20, and consequently shaft 4, and lamp 5, to return until pin 16, has reached stop pin 17, thus returning lamp 5, to the original position.

If lever 8, is turned to a position shown by dotted lines 8^d, the lamp 5, is turned to position indicated by dotted lines 5^d, and pin 23, bearing against pin 24, rotates collar 12, thus contracting spring 15, and upon releasing lever 8, the spring 15, returns the apparatus in a similar manner as outlined above until pin 18, has reached stop pin 19. It will be seen that these stop pins 17 and 19, act to hold the lamp from turning on the vertical axis in much the same manner as the stop collar 36, holds it from turning on its horizontal axis.

In the arm 41, extending from bearing 3, is mounted contact ring 42, insulated by insulating bushing 43, and in electrical contact with lamp 5, through wire 44. The contact plunger 45, is adapted to slide in the insulating bushing 43, and is normally held in contact with contact ring 42, by spring 46, which is in contact with both plunger 45, and disk 47, the latter being connected to battery 48, or other electrical supply, by wire 49, the circuit being completed by wire 50, as shown in diagram, Fig. 4.

The screw 51, in arm 10, and insulated by bushing 52, is so formed at its upper end that when arm 10, rotates to normal position it raises contact plunger 45, separating it from contact ring 42, thus breaking the circuit and extinguishing the lamp 5. When the lever 8, and consequently the arm 10, is rotated in either direction screw 51, passes out from under plunger 45, which immediately comes in contact with ring 42, due to the spring 46, thus completing the circuit and lighting the lamp 5.

On the side of lug 54, is mounted a similar switching device as has already been explained and illustrated, mounted on arm 41. Contact ring 55, performing the same office as ring 42, and spring 56, disk 57, plunger 58, wires 59 and 60, answering the same purpose as spring 46, disk 47, plunger 45, and wires 44 and 49 respectively. The extension 61, formed on lever 8, separates plunger 58, from contact ring 55, in the same manner as screw 51, separates plunger 45 from ring 42. When lever 8, is raised or lowered plunger 58, makes connection with ring 55, due to the action of spring 56, the circuit being completed by wires 59, 60, and 50, and battery 48. The two switches above described are seen to be in parallel in the lamp circuit so that if either be closed the lamp will be lighted.

It will thus be seen by the foregoing that when the lever 8, is turned to the right or left or raised or lowered the lamp 5, is immediately lighted, without any other effort on the part of the operator than to simply operate the lever 8, to direct the rays of the lamp in any desired direction, and when the lever 8, is released the lamp is returned and extinguished automatically without any effort on the part of the operator.

It will be noticed that the mirror 62, may be operated in a similar way as the lamp 5, to observe other vehicles, or objects, in different directions in which case the switch 63, may be turned in off position to prevent the lamp from lighting.

I am aware that many changes in construction, and that other combinations or mechanisms may be resorted to without departing from the spirit and scope of my invention, and I do not wish to be confined to anv particular form of construction or arrangement of parts.

Having thus described my invention what I claim as new, is set forth in the following claims.

Claims:—

1. An apparatus of the class described comprising, in combination, a lamp, means to support said lamp to allow of universal movement thereof, returning means tending to hold said lamp in a determined position, manual means for moving said lamp out of such position, and means whereby said lamp is automatically lighted when removed in any direction from said position.

2. In combination, a lamp, means normally holding said lamp in a definite position, means for moving said lamp in any direction out of such position, and means whereby said lamp is extinguished when in such position and lighted when removed in any direction from such position.

3. In combination, a lamp, means for mounting said lamp to turn about a plurality of non-parallel axes, means normally tending to hold said lamp at a definite an-

gular position about each axis, a lighting circuit for said lamp, and a switch for each axis, all of said switches being arranged in parallel in said circuit, each switch being arranged to open its respective portion of said lamp circuit when said lamp is in its normal angular position about its respective axis and to close its respective portion of the circuit when the lamp is in any other angular position about said axis.

4. In combination, a lamp, means to support said lamp to turn about a vertical and a horizontal axis, an actuating member for turning said lamp about each of said axes, one of said members rotating about the vertical axis to swing said lamp horizontally, and the other of said members moving vertically to swing said lamp about said horizontal axis, means tending to hold said first member in a definite angular position, means tending to hold said second member in a definite vertical position, a lamp circuit, and two switches arranged in parallel in said circuit, one of said switches being open when said first member is in said definite angular position and closed when said member is out of such angular position, and the other switch being open when said second member is in said definite vertical position and closed when said second member is out of said vertical position.

5. In combination, a lamp, means to support said lamp to turn about two relatively angularly arranged axes, a rotary member for turning said lamp about one of said axes, a member sliding longitudinally of the axis of rotation of said rotary member for turning said lamp about the other of said axes, and a lever fulcrumed on said rotary member and connected to said sliding member for actuating both of said members.

6. In combination, a lamp, means to pivotally support said lamp, a reciprocatory member, connections between said member and said lamp whereby reciprocation of said member serves to rock said lamp on its pivotal support, a pair of spaced-apart opposed springs, and an abutment on said member arranged to lie normally in the space between said springs and to act against the pressure of one or the other of said springs on reciprocation of said member in either direction whereby said member is resiliently urged into one position on being reciprocated in either direction therefrom.

7. An apparatus of the class described comprising a rotary shaft, a lamp carried thereby, a pair of spaced bearings for supporting said shaft and having abutments thereon, a pair of collars loosely carried by said shaft adjacent said bearings and having abutments for engagement with the abutments on said bearings, a torsion spring surrounding said shaft and engaging said collars urging them to rotate in opposite directions till the abutments on the collars contact with the abutments on their respectively adjacent bearings, and means on said shaft constructed and arranged to engage and turn one or the other of said collars when said shaft is turned in a direction to separate the abutment on that collar from its respective bearing abutment against the force of said spring whereby said shaft is urged to a definite angular position by said spring when rotated in either direction therefrom.

8. In combination, a lamp mounted to turn about two non-parallel axes, means to turn said lamp at will about either or both of said axes, a lighting circuit for said lamp, a switch for each axis, said switches being arranged in parallel in said circuit, and means controlled by the angular position of said lamp about each axis for determining the opening and closing of its respective switch.

9. In combination, a lamp mounted to turn about two non-parallel axes, means to turn said lamp at will about either or both of said axes, returning means tending to hold said lamp in a definite position, a lighting circuit for said lamp, a switch for each axis, said switches being arranged in parallel in said circuit, and means controlled by the position of said lamp about said axes for actuating said switches to open said circuit when said lamp is in said definite position and to close said circuit when said lamp is out of said position.

In witness whereof I hereunto set my hand in the presence of two witnesses.

HENRY O. FLETCHER.

Witnesses:
WALTER L. THOMAS,
WILLARD C. BALDWIN.