Aug. 25, 1942. A. KEEFE 2,293,941

HEADLIGHT

Filed Oct. 19, 1938 4 Sheets-Sheet 1

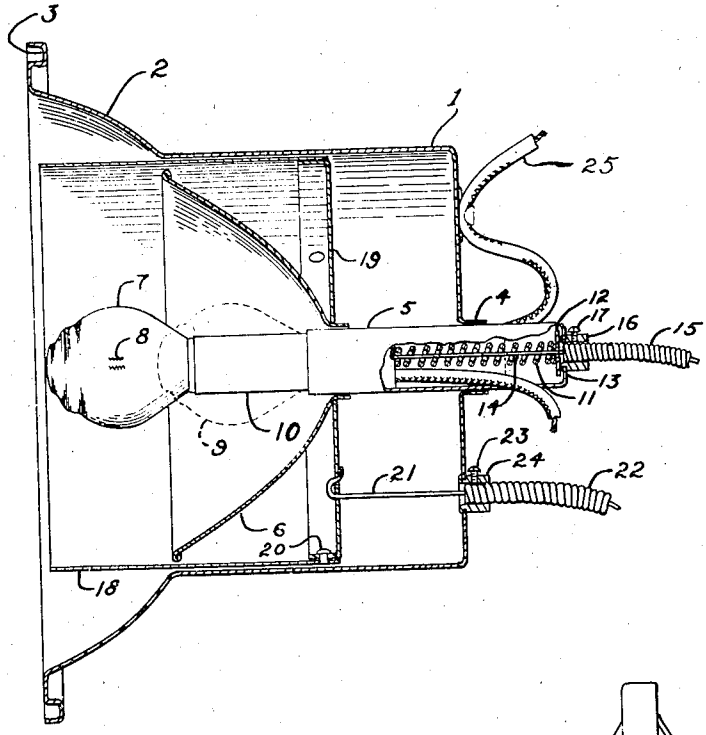


FIG. 1

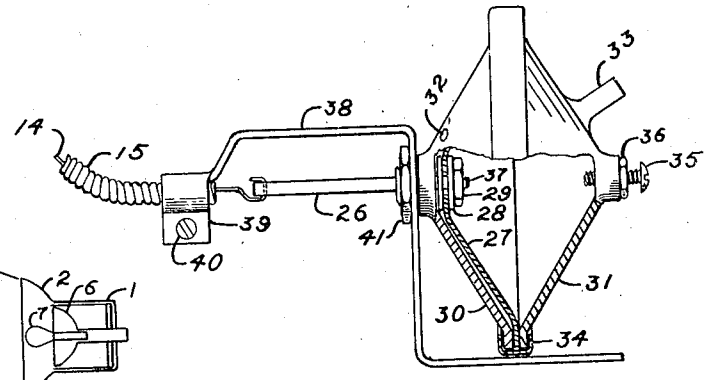


FIG. 2

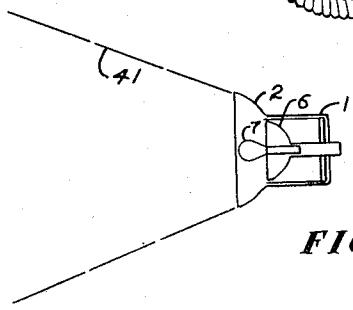


FIG. 3

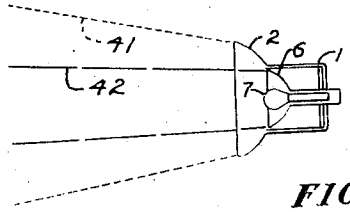


FIG. 4

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Aug. 25, 1942. A. KEEFE 2,293,941

HEADLIGHT

Filed Oct. 19, 1938 4 Sheets-Sheet 2

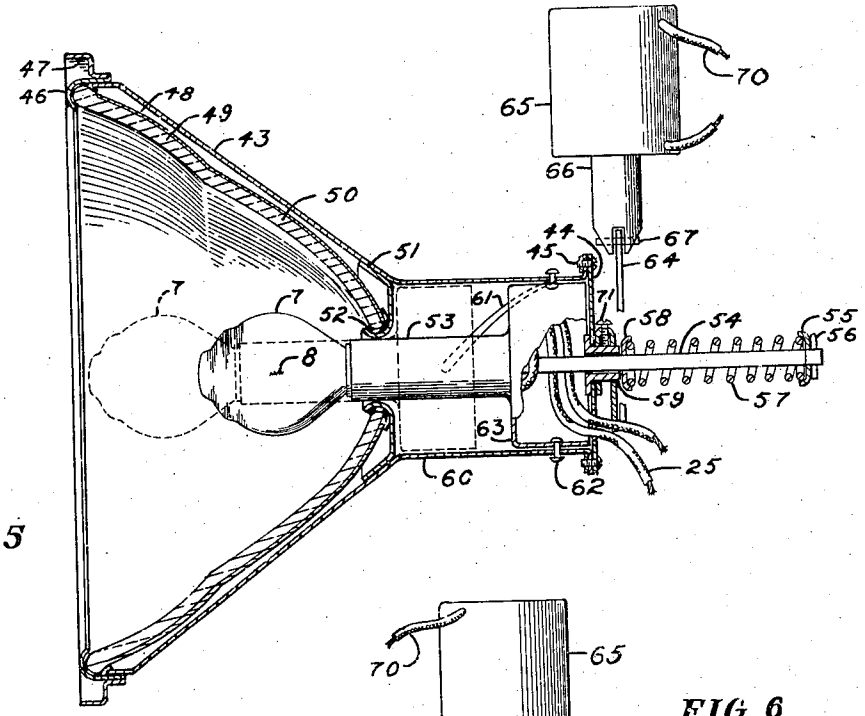


FIG. 5

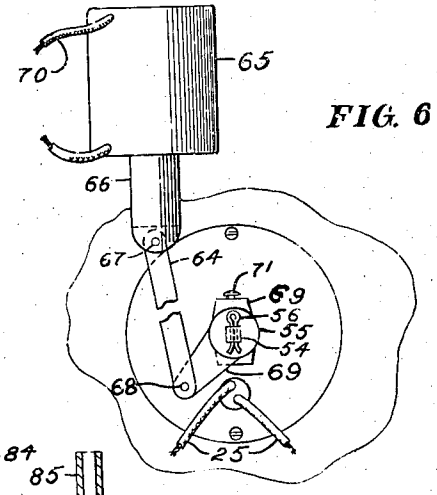


FIG. 6

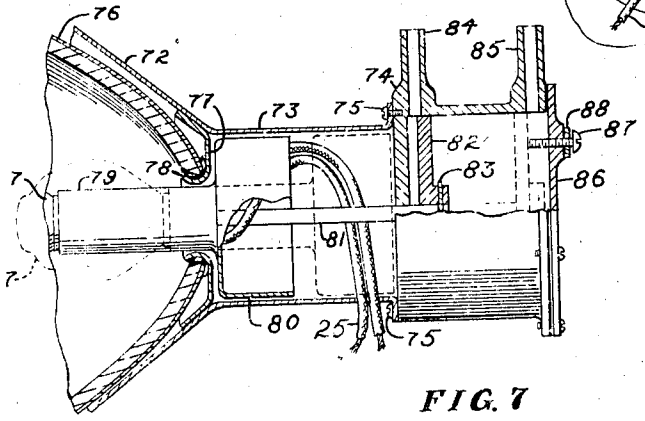


FIG. 7

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Aug. 25, 1942. A. KEEFE 2,293,941

HEADLIGHT

Filed Oct. 19, 1938 4 Sheets-Sheet 3

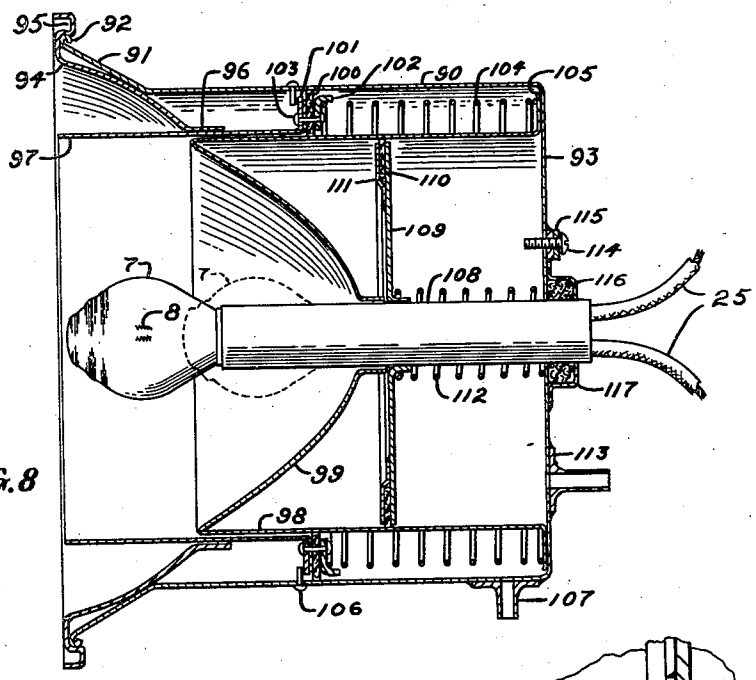


FIG. 8

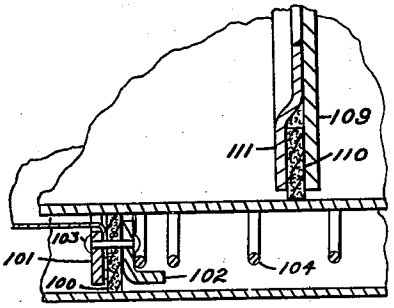


FIG. 9

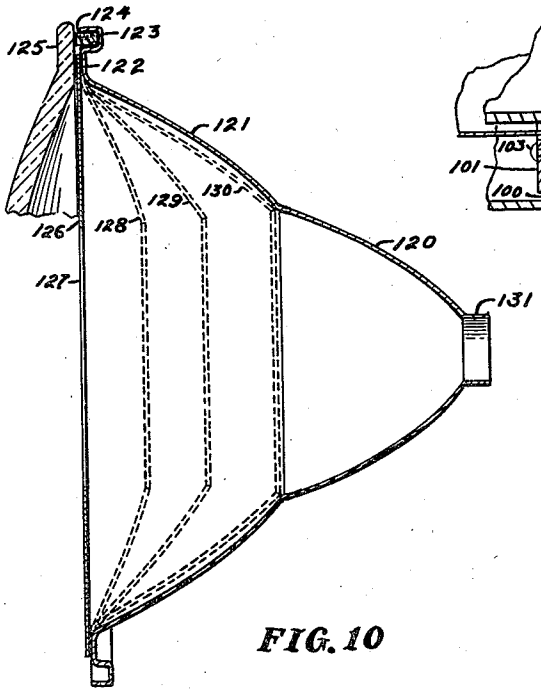


FIG. 10

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Aug. 25, 1942. A. KEEFE 2,293,941

HEADLIGHT

Filed Oct. 19, 1938 4 Sheets-Sheet 4

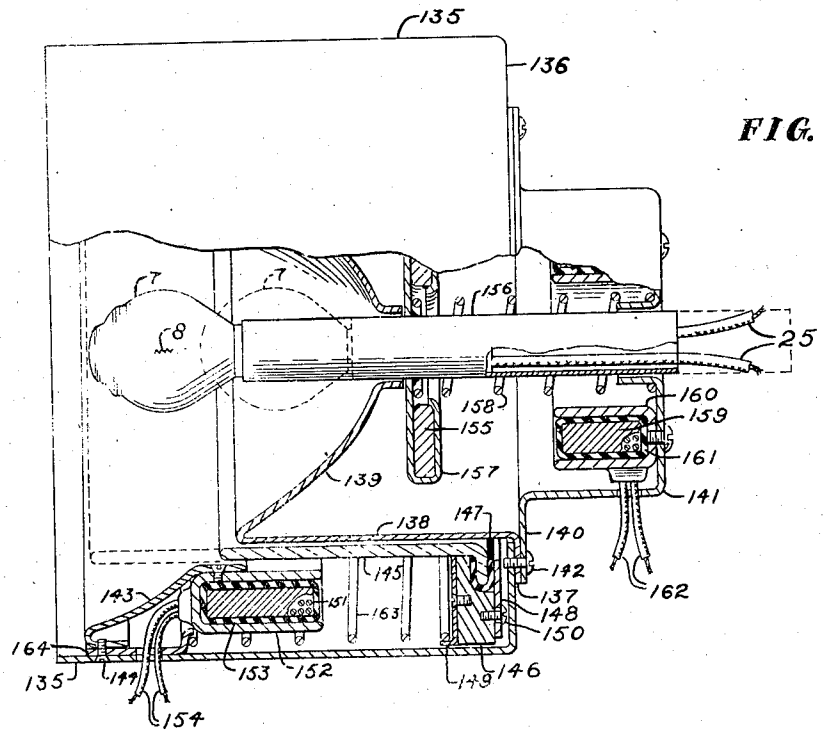


FIG. 11

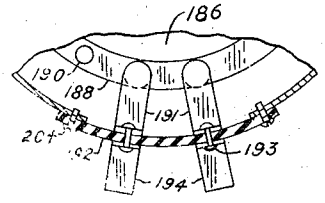


FIG. 13

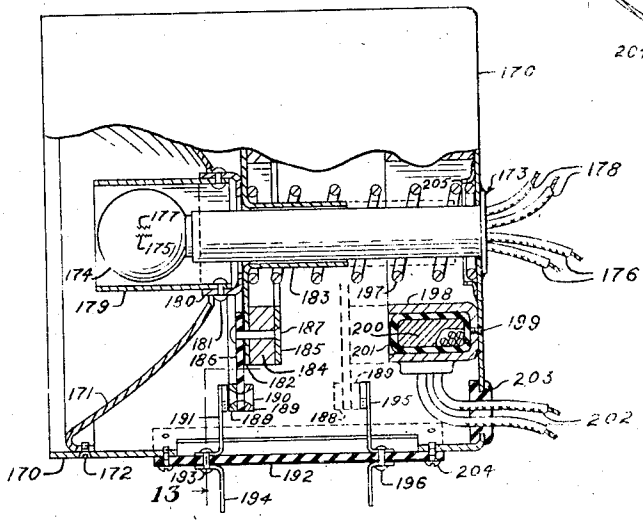


FIG. 12

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2,293,941

UNITED STATES PATENT OFFICE

2,293,941

HEADLIGHT

Arthur Keefe, Akron, Ohio

Application October 19, 1938, Serial No. 235,729

13 Claims. (Cl. 240—7.1)

This invention relates to headlights and more particularly to a unitary structure that embodies a wide angle light, a narrow light band or spot light, and a fog light of amber or other desired hue in a single device that may or may not, as desired, be provided with diffusion and color equipment.

In the past, it has been customary to equip vehicles of the land, water and air with a white light for driving in pleasant weather and at night, and a separate amber colored light for penetrating fogs.

An object of the present invention is to provide a single headlight device that embodies, as adapted for automobile headlights, a wide angle illumination for town driving, a long distance substantially spot light for fast rate inter-city driving, and a retractable amber light that is adapted for driving thru fogs.

Another object is to provide a device that comprises a plurality of reflectors with means for positioning the lamp or bulb filament at the focal center of the particular reflector that provides the type of light that is desired.

Another object is to provide a headlight that quickly supplies the quality of illumination that is desired for a particular purpose.

A further object is to provide improved illumination for particular installations in the heavy industries and the like that heretofore have been handicapped by inadequate illumination.

Another object is to provide a light capable of providing a variety of types of illumination by preferably remote dash control.

Another object is to provide a light having a plurality of improved reflectors.

A further object is to provide a light capable of supplying a highly diffused light beam that does not interfere with a narrow band high intensity light from the same device.

Another object is to provide a lamp for advertising purposes and the like wherein a plurality of color effects may be secured from the light consecutively or simultaneously, as desired.

A further object is to provide a lamp equipped with a double filament bulb and means whereby on the interruption of the current flow thru one filament, means are provided whereby current from another source is caused to flow thru the other filament which then provides a source of illumination with or without the accompaniment of a danger signal, or the like.

With the above and additional objects in view as will be apparent from the following disclosure, illustrative embodiments of the invention are disclosed in the accompanying drawings wherein:

Fig. 1 is an axial section of one form of the device that is contemplated in the present invention with the bulb filament in its advanced position as for town driving, the preferably amber colored, transparent fog filter in its forwardly projected position and the bulb shown in dotted outline in its retracted position for rapid country driving;

Fig. 2 is a side elevation partly broken away of an enclosed diaphragm mechanism for operating the position of the bulb or of the amber filter of the lamp that is shown in Fig. 1;

Fig. 3 is a diagrammatic showing of the device with the bulb in its forwardly advanced position which provides a wide angle light beam that is reflected from the outer reflector;

Fig. 4 is a diagrammatic showing of the device with its bulb in the retracted position wherein the light rays are projected forward in a narrow substantially cylindrical beam from the inner reflector, and a wide angle light cone of decreased intensity is shown in dotted outline;

Fig. 5 is an axial section of the light showing the bulb in its retracted position with its filament at the focal center of the inner reflector and in dotted outline in its forwardly projected position at substantially the focal center of its outer reflector and a solenoid operating mechanism;

Fig. 6 is a rear elevation of the bulb retracting solenoid mechanism that is shown at Fig. 5;

Fig. 7 is a fragmentary axial section of a structure similar to that shown in Fig. 5 but wherein the bulb is advanced or retracted by a piston and cylinder arrangement;

Fig. 8 is an axial section of a light that embodies the present invention wherein one piston arrangement determines the position of the bulb with respect to its two reflectors, and another piston arrangement operates the filter;

Fig. 9 is a fragmentary enlarged section of the piston and cylinder arrangement that forms a part of the structure that is shown in Fig. 8;

Fig. 10 is an axial section of a single piece inner and outer reflector with a broken away portion of the lamp lens and a plurality of positions in full and dotted lines for one or more diffusion or color diaphragms, each of which has an open center thru which the narrow, high intensity light beam from the inner reflector passes unimpeded;

Fig. 11 is an axial section, having portions broken away, of the present invention wherein the lamp and the light filter are separately op-

erated by suitable electrical means such as the magnets and armatures shown;

Fig. 12 is an axial section of the invention that may or may not, as desired, have a second reflector and wherein, on the interruption of the line current to one lamp filament, suitable means, such as the magnet and armature shown, is provided whereby an independent current source is caused to flow thru the second lamp filament with or without, as desired, the insertion of a red danger filter or the like in the light beam, and

Fig. 13 is a section taken along the line 13—13 in Fig. 12.

The headlight that is shown in Fig. 1 comprises the outer shell 1 that is preferably continuous with the outer reflector 2 and that terminates radially outwardly in the conventional cork receiving channel 3. The back portion of the outer shell 1 extends radially inwardly and terminates in a suitable stabilizing means 4 for the tube 5 that is rigidly mounted therein, as by being soldered thereto, or the like.

The inner reflector 6 is rigidly mounted at its radially inner extremity on the tube 5 as by being soldered or welded thereto. Both the inner and the outer reflectors have suitable reflecting surfaces from which light from the filament 8 of the lamp 7 is reflected.

The lamp filament 8 may be adjustably positioned at the focal centers of either the inner or the outer reflector. The inner tube 10 is slidably mounted in the outer tube 5 and contains any conventional mounting for the base of the lamp 7.

The inner tube 10 is held in its forwardly projected position, with its filament at substantially the focal center of the outer reflector 2, by the spring 11. One end of the spring 11 applies pressure to the base of the inner tube 10. The other end of the spring 11 is suitably supported in any desired manner as by resting against the washer 12 that is supported by the radially inturned end 13 of the outer tube 5.

Suitable means is provided for placing the lamp in its dotted line position 9 by retracting the inner tube 10 against the pressure of the spring 11, such as the wire 14 that has one end anchored in the base of the inner tube 10 as by being soldered thereto. The wire 14 may be protected by suitable means, such as the spiral housing 15 or the like. The wire 14 may extend directly to the instrument board, not shown, or to any suitable operating means. The spiral housing 15 is anchored to the base of the outer tube 5 in any suitable manner, as by being positioned within the bushing 16 and secured in place by the retaining screw 17.

The filter 18 is preferably interposed between the inner and the outer reflectors and is adapted for being moved axially of both reflectors. The reflectors are rigidly positioned with respect to each other. The filter 18 is carried by any suitable means, such as by having an edge mounted on the filter base 19 by suitable means, such as by the rivets 20. Suitable means for advancing or retracting the filter 18 is provided, such as the wire 21 that has one end passing through a pair of holes in the filter base 19, or the like. The wire 21 is protected in any desired manner, as by being disposed in the spiral housing 22 that is secured to the outer shell 1 by a set screw 23 that threads into the bushing 24. The wire 21 may also go direct to the instrument panel, not shown, or to other suitable operating means, as desired. Current is supplied to the lamp 7 in any desired manner, as by the wires 25.

One form of suitable lamp operating means is shown in Fig. 2 wherein the wire 14 has one end terminating in a hook secured in the bar 26 that is operated by the diaphragm 27. The other end of the bar 26 is mounted in substantially the center of the diaphragm 27 by any suitable means, such as by the washers 28 and the nut 29. The peripheral edge of the flexible diaphragm 27 is secured in place by being clamped between the portions 30 and 31 of a suitable pressure housing.

One of the housing parts is apertured as at 32 to permit the admission or egress of air from one side of the diaphragm. The other part of the housing is provided with the hollow tube 33 that may be attached to the intake manifold of a motor or the like. The portions of the housing are secured together in a suitable manner, as by the strip metal clamp 34 that extends along the outturned peripheral edges of the diaphragm housing parts and that preferably extends continuously therearound.

The housing parts may be seamed together by other means, if desired, as by bolts, clamps or the like.

Suitable means for adjusting the lamp filament at substantially the focal center of a reflector is provided, such as the set screw 35 with its lock nut 36. The end of the set screw 35 engages the tip 37 of the bar 26 and the lock nut 36 holds the set screw 35 accurately in place so that the positioning of the lamp filament 8 at substantially the focal center of one or the other of the two reflectors may be accurately established and maintained. Suitable means for maintaining the association of the wire 14 with the diaphragm housing is provided, such as the support 38 that carries the strap 39 that is secured about the spiral housing 15 by the screw 40, or the like. The support 38 is secured to the diaphragm housing by any suitable means, such as by the nut 41.

In the diagrammatic showing in Figs. 3 and 4, the wide solid angle that is delivered by the light when the bulb or lamp is in its advanced position is shown in Fig. 3 wherein the widely divergent light rays cast a beam that is indicated by the dash lines 41. When the lamp is in its retracted position its filament is at substantially the focal center of the inner reflector, and a narrow light beam of bright intensity results, as illustrated by the dash lines 42. The spot light beam in the solid angle between the dash lines 42 is of materially greater intensity than the enclosing beam from the outer reflector that is illustrated by the dotted lines 41, since the lamp is set back of the focal center of the outer reflector.

The structure that is shown in Fig. 5 comprises a substantially funnel shaped outside shell 43, that is closed at its substantially cylindrical rear end by suitable means such as by the plate 44 that is secured to the shell by the screws 45. On the forward end of the shell 43 are mounted the reflector supporting outer rim 46 and the cork channel rim 47, as by spot welding, solder or the like. The rims 46 and 47 are preferably spaced sufficiently from each other so that the conventional lens sealing cork strip, not shown, may be interposed therebetween.

An improved reflector is shown in this structure. The reflector is preferably of glass that may be clear or colored, as desired, and that has a reflecting coat of silver 48 on its rear surface. The reflector shown comprises a plurality of light reflecting means, such as the radially outer reflector portion 49, that is of suitable curvature to deliver a wide angle beam of light when the lamp

is in its forwardly projected position, as is shown in dotted outline, and the radially inner portion 50, that is of proper curvature so that when the lamp is in its retracted position, as shown in full lines, a narrow angle light beam of high intensity is delivered by the lamp, to provide substantially a spot light.

The reflector is supported at its rear end by the inner flange 51 that is soldered, spot welded or otherwise secured to the shell 43. Suitable packing 52 is interposed between the edges of the glass reflector and the flanges 46 and 52 to cushion the reflector from stresses and vibrations. The flange 51 also provides a bearing in which the lamp socket tube 53 is journaled for axial movement.

The lamp base is removably mounted in any conventional manner within the lamp socket tube 53. One end of the rod 54 is rigidly secured to the base of the lamp socket tube 53 in any suitable manner. The opposite end of the rod 54, carries the washer 55 that is keyed to the rod 54 by the pin 56 or the like. Suitable means is provided for maintaining the rod 54 in tension, as by compressing the spring 57 between the washer 55 and the washer 58. The washer 58 is supported by the bushing 59 that is rotatably mounted in the base plate 44. The rod 54 is in axially freely sliding and circumferentially non-rotative engagement with the bushing 59, as by being of square cross section as shown in Fig. 6, keyed thereto, or the like.

Suitable means is provided for controlling the positioning of the lamp filament at the focal centers of the reflectors, such as the slot 61 in the cylindrical part 60 of the shell 43 in which slot the pin 62 is free to slide.

The pin 62 is rigidly mounted in the radially flared cylindrical base 63 of the lamp socket tube 53. The base 63 forms a rear supporting bearing for the bulb socket tube 53 and is rotated in any desired manner, as by the rotation of the bushing 59. The bushing 59 is suitably rotated, as by the bent arm 69 that is apertured to slide snugly over the bushing 59 and is threaded thru its bent edge for the reception of the set screw 71 that unites it rigidly with the bushing 59.

The link 64 from the solenoid 65 operates the arm 69. The link 64 is shown rotatably mounted on the solenoid plunger 66, as by the pin 67. The pin 68 rotatably secures the lower end of the link 64 to the arm 69. The solenoid permits the prompt positioning of the lamp 7 as determined by the ends of the slot 61 that may be spiral, as shown, straight, or of other direction suitable for the operation of the device. The wires 25 supply current to the lamp 7 and the wires 70 supply current to the solenoid 65.

The lamp assembly that is shown in Fig. 7 comprises the shell 72 that continues axially to provide the cylindrical portion 73. The rear extremity of the cylindrical part 73 is secured by the screw 75 to any suitable lamp operating means, such as the means in the housing 74.

In the forward end of the shell 72 the silver backed glass reflector 76 is firmly supported by the inner flange 77, with suitable cushioning material 78 interposed therebetween. The lamp 7 is removably mounted in the lamp socket tube 79, that is adapted for axial reciprocating action thru the central aperture in the flange 77. The cylindrical base 80 of the tube 79, is flared sufficiently to serve as a guide in the axial adjustment of the lamp from the focal center of one reflector portion to that of the other reflector part, as in Fig. 5.

The lamp operating rod 81 has one end secured to the base of the lamp socket tube 79, and its opposite end journaled thru a portion of the housing 74, and terminating in the plunger 82, to which it is secured, as by being keyed thereto by the pin 83, or the like.

The plunger 82 is adapted for reciprocating action in the cylindrical part of the housing 74. The nipple 84 provides entrance into the closed system on the left side of the plunger 82. At the opposite end of the cylinder in the housing 74, the nipple 85 provides access to the closed system that is interposed between the plunger 82 and the cylinder head 86.

Suitable means is provided for adjusting the throw of the lamp so that its filament may be positioned at the focal center of the inner or spot light reflector, such as the adjusting screw 87 that threads thru the cylinder head 86, and that is locked in a desired position by the lock nut 88. The mechanism may be operated by vacuum, by fluid pressure, or by other suitable means.

The form of the assembly that is shown in Fig. 8 comprises an outer shell 90, that is substantially cylindrical in form, and that terminates forwardly in a substantially frustro-conical portion 91 and rearwardly in the radially extending portion 93. The portion 91 preferably has a curved or beaded peripheral edge 92.

The outer reflector 94 is of proper curvature to deliver a wide, solid angle light beam when a lamp filament 8 is substantially at its focal center. The outer reflector 94 is secured to the shell 90 in any desired manner, as by having the curved shell edge 92 engage the radially inwardly cupped edge of the peripherally extending cork or rubber strip receiving groove 95 in releasable spring engagement. The rear edge 96 of the outer reflector 94 provides a guide for the cylindrical light filter 97 that is interposed between the outer reflector edge 96 and the cylindrical part 98 of the inner reflector 99.

The filter 97 is carried by suitable means, such as the ring packing plunger 100 that is secured to the base of a filter in any desired manner, as by being interposed between the radially extending washers 101 and 102 that are secured together by the rivets 103. The spring 104 is positioned under compression between suitable means, such as the washer 102 and the radially outturned flange 105 of the cylinder 98 that is continuous with the inner reflector. The flange 105 is sealed with respect to, and is preferably secured to, the rear portion 93 of the shell 90.

A suitable stop means, such as the pin 106, is provided in the cylindrical shell 96, preferably at diametrical extremities, to arrest the forward motion of the filter 97 against the pressure of the spring 104.

The nipple 107 opens into the compartment that is disposed between the cylindrical part 90 of the shell 96, and the cylinder 98 that is continuous with the inner reflector.

The device is actuated by vacuum, air pressure or the like, as by connecting the nipple 107 thru a dash valve, not shown, with the motor intake manifold, a pressure source, or the like. During the time that the valve is open the vacuum holds the filter 97 in its retracted and inoperative position against the pressure of the spring 104.

The base of the lamp 7 is mounted in any conventional manner in the lamp socket tube 108, that is secured to the radially extended plunger 109. The plunger 109 carries at its periphery suitable packing material 110 and is shown in-

terposed between the plunger 109 and suitable packing material securing means, such as the ring strip 111 that is secured to the plunger 109 in a desired manner as by being soldered or welded thereto. The packing 110 provides a seal against the inner surface of the cylinder 98.

The spring 112 holds the plunger 109, the lamp socket tube 108 and the lamp 7, in their advanced position where the lamp is at substantially the focal center of the outer reflector. The spring 112 is compressed on the retraction of the plunger 109 by suction applied from the intake manifold thru the hollow nipple 113, or the like. Suitable adjusting means such as the screw 114, with its lock nut 115, is provided for properly positioning the filament 8 of the lamp 7, at substantially the focal center of the spot light reflector 99. The filament 8, when the lamp is in its advanced position, is adjusted at approximately the focal center of the outer reflector 94.

The lamp socket tube 108 is slidably mounted in the shell rear portion 93, as by being in engagement with suitable packing material 116, that is housed in a cup 117, that is secured to the rear portion 93 by solder or the like. The device may be used with compressed air by placing the springs 104 and 112 on the opposite sides of their respective plungers, as will be apparent to those who are familiar with the art to which the present invention belongs.

The assembly that is shown in Fig. 10 illustrates the spot light reflector 120 that is continuous with the wide angle reflector 121, and that continues forwardly in the radially outturned flange 122, that continues to provide the channel 123 in which the rubber or cork strip 124 is disposed.

The lens 125 is adapted for being clamped against the cork strip 124 and secures suitable light diffusion or coloring means, such as the centrally apertured sheet of casein, polymerized resin, 126, or the like, between the lens and the flange 122.

The central aperture 127 in the sheet 126 is preferably of such diameter as to permit the uninterrupted passage of a high intensity light beam from the spot light reflector 120. If so desired, the sheet 126 may be semi-circular to cover the bottom half only of the light beam for non-glare purposes. It may also be of any desired color and is adapted for providing a fog light, or the like, for the single piece reflectors, such as are shown in Figs. 5 and 10.

The dotted lines 128, 129 and 130 illustrate the positioning of one or more sheets of transparent material that may be colored or the like, and that may have apertures of a variety of diameters therein as may be desired for particular advertising purposes or color and lighting effects.

A suitable lamp base supporting tube receiving aperture 131 forms the radially inner end of the spot light reflector 120, and provides means for the positioning and the axial operation of a lamp supporting tube therein. The bulb may be advanced substantially to the lens 125, if desired, for particular lighting effects.

The assembly that is shown in Fig. 11 comprises the outer shell 135 that has a radially extending rear portion 136. The radially outwardly extending portion 137 of the cylindrical part 138 of the spot light reflector 139, and the radially outwardly extending portion 140 of the magnet housing cup 141, are secured to the shell portion 136 by suitable means, such as the screws 142.

The outer reflector 143 is secured to the forward end of the outer shell 135 by suitable means, such as by the screws 144. The screws 144 also secure the ring 164 that supports the front end of the spring 163.

The filter 145 may be of glass where desired, as shown here, and is suitably mounted in the filter armature 146, with the cushioning material 147 interposed therebetween.

The filter armature assembly may be accomplished in any suitable manner, as by the brass plates 148 and 149 that are secured to the filter armature 146, by the screws 150 or the like. The plates 148 and 149 are preferably of nonferrous metal, such as brass, or of rubber and the like, so as to facilitate the break of the residual magnetism in the armature when current to the field is cut off.

The armature 146 is drawn toward the magnet 151 that is housed in the shell 152, on the energization of the magnet. The shell 152 is formed of magnetic material such as iron or the like. Suitable insulating material 153 is interposed between the magnet 151 and the shell 152. The wires 154 serve to energize the magnet 151. The compression spring 163 yieldingly opposes the motion of the filter armature 146.

The lamp armature 155 is firmly mounted on the axially adjustable tube 156 that carries the lamp 7 removably mounted in its forward end. The brass ring 157 may be soldered to the tube 156, and encloses the armature 155 within a radial fold of the ring. The spring 158 urges the lamp to its forward position and opposes the attraction between the magnet 159 and the lamp armature 155. The magnetic coil 159 is secured in the shell 160, that is of iron or the like, with the insulating material 161 interposed therebetween. The magnetic coil 159 is energized by the wires 162.

In Fig. 12 the shell 170 substantially completely houses the operative parts of the light that, on the interruption of its feed line, cuts in an auxiliary circuit to provide both illumination and a danger signal where desired. In the structure shown, the reflector 171 is secured in the shell 170 by means of the screws 172. The lamp socket tube 173 is secured as by soldering, welding, or the like, to the radially inwardly extending back part of the shell 170.

The lamp 174 contains the high voltage filament 175, that is supplied with current from the wires 176, and the emergency filament 177, that is supplied with emergency current from the wires 178.

The filter 179 is carried by the filter base 180 that are secured to each other by suitable means, as by the rivets 181. The filter base 180 is attached, by soldering or the like, to the radially extending flange 182 that continues in the cylindrical portion 183, that slides axially on the rigidly mounted lamp socket tube 173.

The filter armature 184 consists of magnetic material and is interposed between the non-magnetic ring 185 and the radially extending flange 182. The flange 182 also carries the insulating ring 186 that may be of Bakelite, rubber, fiber or the like. Suitable means, such as the rivet 187 secures together on the flange 182, the members 184, 185 and 186.

The axially forward ring 188 and the axially rear ring 189 are mounted on substantially the periphery of the insulating ring 186 by suitable means, such as by the rivets 190. The forward ring 188 is of suitable metal for electrical con-

tact, such as copper, brass or the like. The rings 188 and 189 and the rivets 190, are electrically insulated from the flange 182, the armature 184, the ring 185, and the rivets 187, by the insulating ring 186.

In the position shown, the ring 189 is in electrical contact with the stationary contacts 191 that are secured to the insulating plate 192 by the rivets 193. The plate 192 closes an aperture in the shell 170, and is secured to the shell by means of the screws 204. Electrical contact is made between the contacts 191, by the ring 189, as shown in Fig. 13. The rivet 193 also secures the lug 194 to the insulating plate 192.

The rear ring 189 is shown in dotted position in engagement with a plurality of fixed contacts 195, which are secured to the insulating plate 192 by the rivets 196. The rings 188 and 189 may be continuous or may be segmented, as desired.

The spring 197 yieldingly urges the filter 179 toward its operative forward position. The spring 197 is interposed between the flange 182 and the rear of the shell 170. The spring 197 is preferably held substantially concentric to the tube 173 by suitable means, such as the ring 205, that is rigidly secured to the housing 170. The filter 179 is returned to its inoperative position by the movement of the armature on the energization of the electro-magnet 198. The magnet 198 is mounted on the radial flange of the outer shell 170 by the screws 199.

The insulating material 201 insulates the coil 200, from the magnet 198. The coil 200 is energized by the wires 202. The rubber bushing 203 provides a dust and water tight mounting for the wires 202 thru the shell 170.

In operation the armature 184 is normally held in engagement with the magnet 198 by maintaining the coil 200 energized. In this position the filter 179 is held in its retracted and inoperative position and the filament 175 provides the source of light for normal use. In that position the auxiliary contacts 195 are held closed with the ring 189 for connection with other circuits, not shown.

On the failure of the normal power supply, the filament 175 and the coil 200 cease to be energized and permit the spring 197 to advance the filter 179 to its operative position, as shown, and thereby closes the contacts 191 by means of the ring 188. The closure of the circuit thru the contacts 191, connects the emergency source of the power wires 178, which energize the emergency filament 177, and thereby provide an emergency light of a desired color that depends on the color of the light filter 179.

In the normal operation, the filament 175 is energized thru the wires 176 from the normal power source thru a switch, fuse, or the like. On the failure of any of these devices, the fuse for example, the light shown in Fig. 12 operates as described.

It will be understood that the invention that is set forth herein with its embodiments, structures, mode of operation, and results, are presented for the purposes of illustration and explanation, and that various modifications in the parts of the light assembly, and in the mechanisms for operating the light, and in the particular association and configuration of the parts, may be made without departing from the invention as defined in the appended claims.

What I claim is:

1. A headlight, comprising in combination, an adjustable light source, an inner reflector disposed substantially adjacent to said light source and to and away from the focal center of which said light source may be substantially abruptly moved to provide a spot light of variable intensity, a substantially cylindrical light filter retractably disposed outwardly of said inner reflector and in movable relation therewith so that it may be positioned in an advanced light rays intercepting position and retracted out of the path of light rays from said light source, and an outer reflector disposed substantially radially beyond said light filter for reflecting light rays transmitted by said filter when said filter is in its advanced position and for reflecting unimpeded light rays from the same light source when said light filter is in its retracted position and having a focal center that is spaced from said inner reflector focal center and substantially at which said light source may be movably positioned.

2. A headlight, comprising in combination, a spot light reflector disposed substantially centrally of said headlight and terminating outwardly in an edge portion and having a focal center, a wide angle beam light reflector having its inner edge spaced from said spot light reflector outer edge and having a focal center spaced from said spot light reflector focal center along an axis that is common to both reflectors, a light source that is movably mounted to be positioned selectively at said spot light focal center and at said wide angle beam light reflector focal center, a retractable light filter positioned between the spot light reflector outer edge and the wide angle beam light reflector inner edge and adapted for being projected from its retracted position so that it intercepts the rays of light from said light source before the rays of light contact said wide angle beam light reflector without materially modifying the rays of light from said light source that are reflected from said spot light reflector, and light source control means for positioning said light source substantially at a desired focal center.

3. A headlight, comprising in combination, a spot light reflector disposed substantially centrally of said headlight and terminating outwardly in an edge portion and having a focal center, a wide angle beam light reflector having its inner edge spaced from said spot light reflector outer edge and having a focal center spaced from said spot light reflector focal center along an axis that is common to both reflectors, a light source that is firmly mounted on a movable inner tube by which said light source may be positioned selectively at said spot light focal center and at said wide angle beam light reflector focal center, an outer tube rigidly mounted in said headlight and within which said inner tube is adapted to be reciprocated for adjusting the positioning of said light source, a retractable light filter positioned between the spot light reflector outer edge and the wide angle beam light reflector inner edge and adapted for being projected from its retracted position so that it intercepts the rays of light from said light source before the rays of light contact said wide angle beam light reflector without materially modifying the rays of light from said light source that are reflected from said spot light reflector, means for retracting said light filter, and means for positioning said light source at a desired focal center.

4. A headlight, comprising in combination, a spot light reflector disposed substantially centrally of said headlight and terminating outwardly in an edge portion and having a focal center, a wide angle beam light reflector having its inner edge

spaced from said spot light reflector outer edge and having a focal center spaced from said spot light reflector focal center along an axis that is common to both reflectors, a light source that is adapted for being selectively positioned at the focal center of said spot light reflector and at the focal center of said wide angle beam light reflector, a retractable light filter positioned between the spot light reflector outer edge and the wide angle beam light reflector inner edge and adapted for being projected from its retracted position by its mounting so that the light ray filter intercepts the rays of light from said light source before said rays of light contact said wide angle beam light reflector without materially modifying the rays of light from said light source that are reflected from said spot light reflector, means for selectively positioning said light source at a desired focal center, a plunger forming a part of said light filter mounting, a cylinder part of said spot light reflector in which said plunger is adapted for reciprocating motion for causing the advance of said filter intermediate the spot light reflector and the wide angle beam reflector and the retraction of said light filter from said advanced position, and means whereby said plunger may be reciprocated in said cylinder.

5. A headlight, comprising in combination, a light source, a plurality of reflectors having different focal centers, means for substantially abruptly positioning said light source at a desired focal center, a filter movably disposed between said light source and a part of one of said reflectors, and magnetic means for causing the substantially abrupt movement of said filter.

6. A headlight, comprising in combination, a light source, a plurality of reflectors having substantially a common axis and having substantially individual focal centers spaced from each other and substantially incident with said common axis whereby an inner reflector provides a narrow solid angle light beam of concentrated intensity and an outer reflector provides a wide solid angle light beam, means that is operable remote from said headlight proper for independently and adjustably placing said light source in a plurality of positions in said headlight by moving said light source substantially axially of the substantially common axis of said headlight reflectors, a movable light filter in association with said light source, and means operable remote from said headlight proper for removably interposing said filter between said light source and the outer of said reflectors without materially modifying the light reflected from the inner of said reflectors.

7. A headlight, comprising in combination, a light source movably mounted in said headlight, means for adjustably moving said light source substantially axially of said headlight, a plurality of reflectors in said headlight having individual focal centers spaced from each other substantially axially of said headlight and said reflectors being adapted for collectively reflecting substantially the full intensity of said light source for all adjusted positions thereof and one reflector providing a narrow solid angle light beam when the light source is at its focal center and the other reflector providing a wide solid angle light beam when the light source is at its focal center, a light source position control means operable remote from said headlight for selectively positioning said light source at a desired focal center, a light filter adapted for being retractably interposed between said light source and one of said reflectors substantially without being interposed between said light source and the other of said reflectors, and means for operating said light filter to both its retracted position and to its interposed position from a location remote from said headlight.

8. An article of manufacture substantially as described, comprising in combination, a spot light reflector having a focal center, a wide angle reflector having a focal center spaced from said spot light reflector focal center, a light source movably positionable selectively at either of said focal centers, a housing having a portion provided with a hollow tube for permitting a fluid to pass thru said housing, a diaphragm having its periphery secured with respect to said housing for providing a closed system therewith, a light source operating means extending from substantially the center of said diaphragm to said light source and operating to position said light source selectively at a desired focal center.

9. An article of manufacture substantially as described, comprising in combination, a spot light reflector having a focal center, a wide angle reflector having a focal center spaced from said spot light reflector focal center and continuing substantially axially of said article for providing a substantially cylindrical outer shell for said article, a light source adapted for being positioned selectively at either of said focal centers, means for positioning said light source at a desired focal center, a substantially cylindrical light filter substantially frictionally wiping against the inner face of said wide angle reflector outer shell and guided thereby for axial movement therein, a filter base on which said light filter is substantially permanently mounted, and filter projecting and retracting means engaging said filter base for advancing said filter between said spot light reflector and said wide angle reflector and for retracting said filter from said advanced position.

10. An article of manufacture substantially as described, comprising in combination, a spot light reflector having a focal center and continuing substantially axially of said article for providing a cylindrical portion thereof, a wide angle reflector having a focal center spaced from said spot light focal center, an outer shell disposed substantially radially outwardly of said wide angle reflector and having a substantially cylindrical portion extending axially of said device and spaced substantially uniformly radially outwardly of said cylindrical portion of said spot light reflector, a substantially cylindrical light filter interposed radially between said spot light reflector cylindrical portion and said wide angle reflector radially inner extremity, a ring packing plunger mounted on the edge of said light filter that is remote from said reflectors and substantially fluid sealingly engaging the inner face of said cylindrical portion of said outer shell and the outer face of said cylindrical portion of said spot light reflector, a spring pressing said light filter axially of said article, and a substantially closed system fluid compartment having an outlet for the passing of a fluid into said compartment for operating said ring packing plunger against the resilience of said spring and thereby operating said light filter axially of said article.

11. An article of manufacture substantially as described, comprising in combination, a spot light reflector having a focal center and continuing substantially axially of said article for

providing a substantially cylindrical portion thereof, a wide angle reflector having a focal center spaced from said spot light focal center, a light source movable substantially axially of said article to be positioned selectively at said spot light reflector focal center and at said wide angle reflector focal center, a lamp socket tube at substantially an end of which said light source is carried and adapted for reciprocating motion substantially axially of said article, a plunger firmly mounted on said lamp socket tube, packing at substantially the radial periphery of said plunger for making fluid sealing wiping engagement with the inner surface of said spot light reflector cylindrical portion to provide a substantially closed system fluid confining compartment in said article of which said plunger comprises a movable head, a spring yieldingly maintaining said light source at a focal center of one of said reflectors, and means for admitting a fluid into said closed compartment for causing said plunger to move against the resilience of said spring and move said light source from its spring pressed position.

12. An article of manufacture substantially as described, comprising in combination, a spot light reflector having a focal center and continuing substantially axially of said article to provide a substantially cylindrical portion, a wide angle reflector having a focal center spaced from said spot light reflector focal center, a substantially cylindrical light filter interposed between said spot light reflector and said wide angle reflector and adapted for reciprocating motion substantially axially of said article substantially guided by frictional engagement against said spot light reflector cylindrical portion, a filter armature mounted on an edge of said filter, a spring yieldingly pressing said filter axially of said article, and a magnet adapted for moving said filter axially of said article by attracting said armature against the resilience of said spring.

13. An article of manufacture substantially as described, comprising in combination, a spot light reflector having a focal center, a wide angle reflector having a focal center, a movable light source adapted for being selectively positioned at said spot light reflector focal center and at said wide angle reflector focal center, a tube carrying said light source at substantially an end thereof and adapted for reciprocating motion substantially axially of said article, an armature mounted on said tube, a spring yieldingly maintaining said light source at the focal center of one of said reflectors, and a magnet adapted for moving said light source to the other focal center of the other of said reflectors by attracting said armature against the resilience of said spring.

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