Dec. 31, 1963 A. R. DAVIS 3,116,022

SPOTLIGHT

Filed May 26, 1960 5 Sheets-Sheet 1

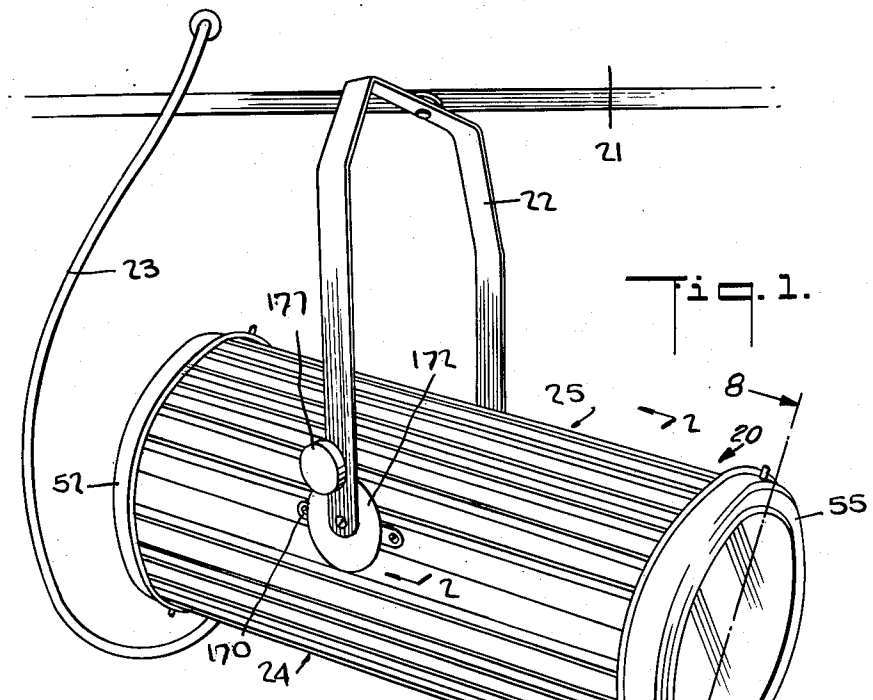


Fig. 1.

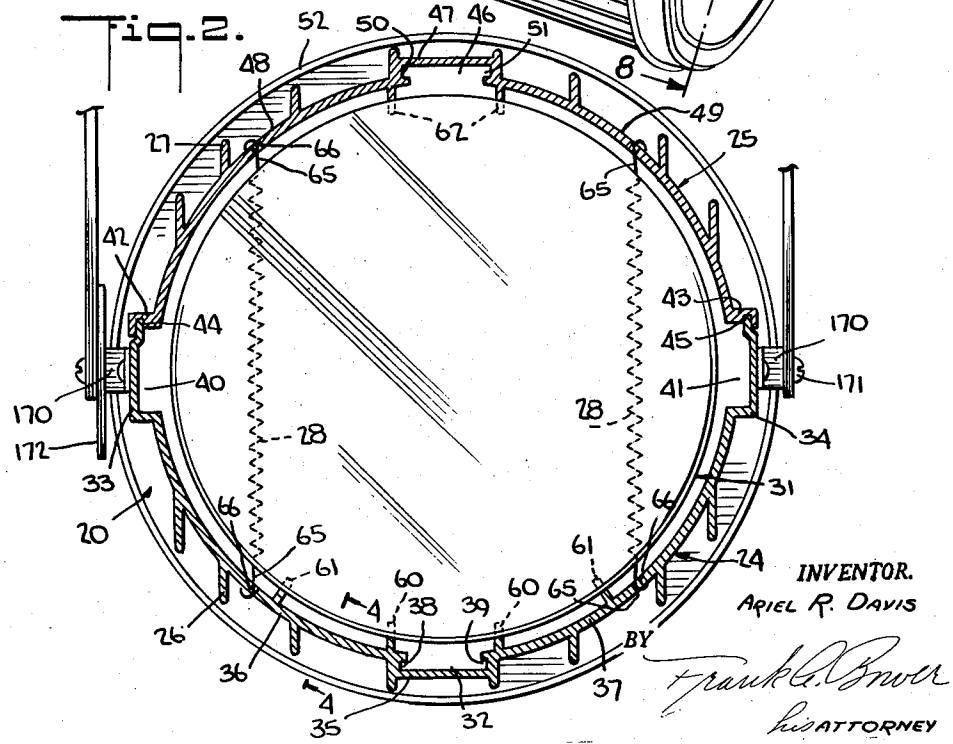


Fig. 2.

INVENTOR.
ARIEL R. DAVIS
BY Frank A. Brower
HIS ATTORNEY

Dec. 31, 1963 A. R. DAVIS 3,116,022

SPOTLIGHT

Filed May 26, 1960 5 Sheets-Sheet 2

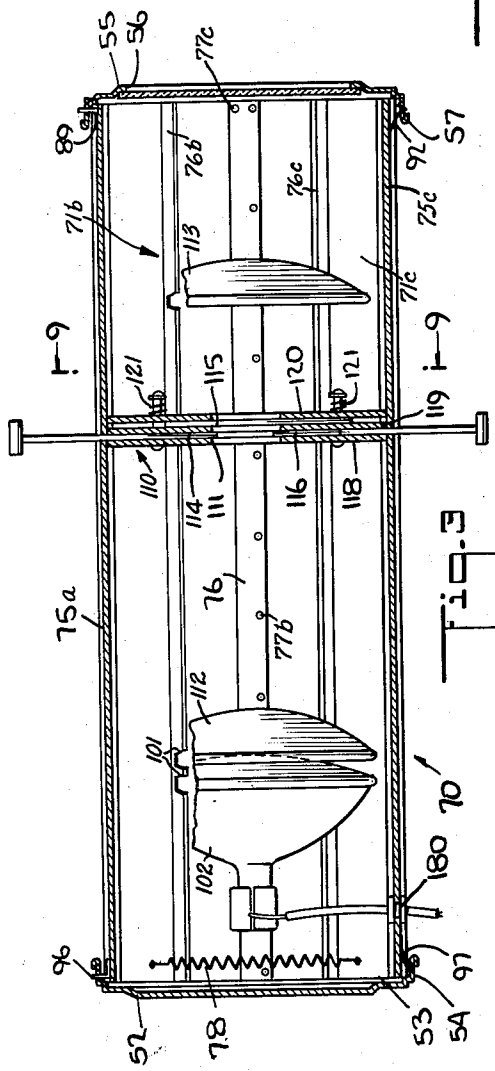


Fig. 3.

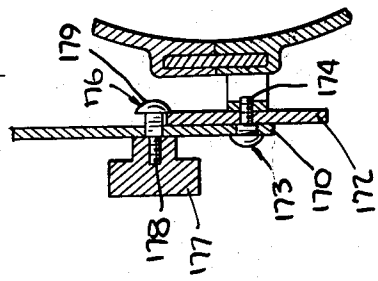


Fig. 6.

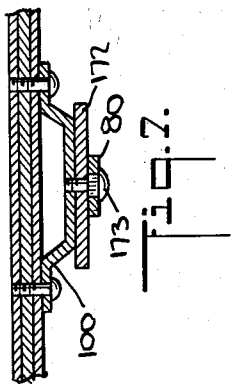


Fig. 7.

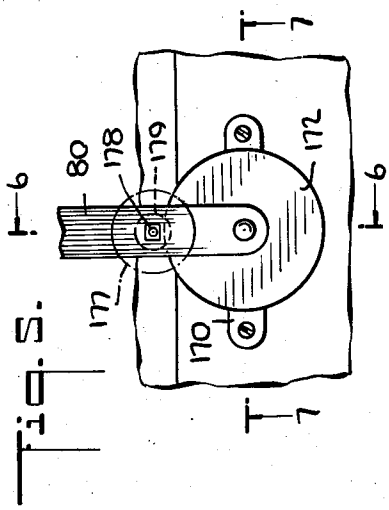


Fig. 5.

INVENTOR.
ARIEL R. DAVIS

BY
Frank C. Brier
his ATTORNEY

Dec. 31, 1963 A. R. DAVIS 3,116,022

SPOTLIGHT

Filed May 26, 1960 5 Sheets-Sheet 3

Fig. 4.

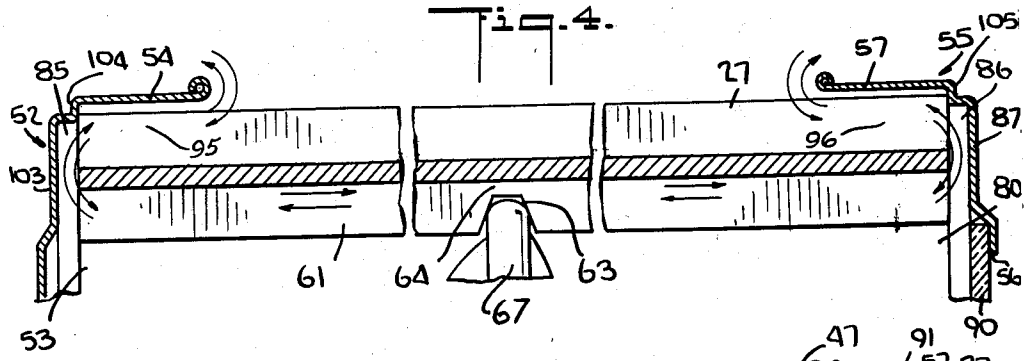


Fig. 10.

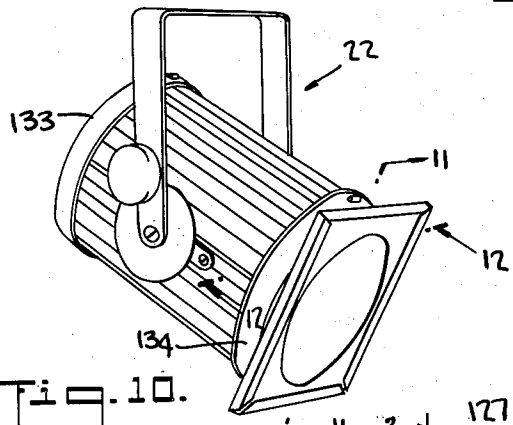


Fig. 8.

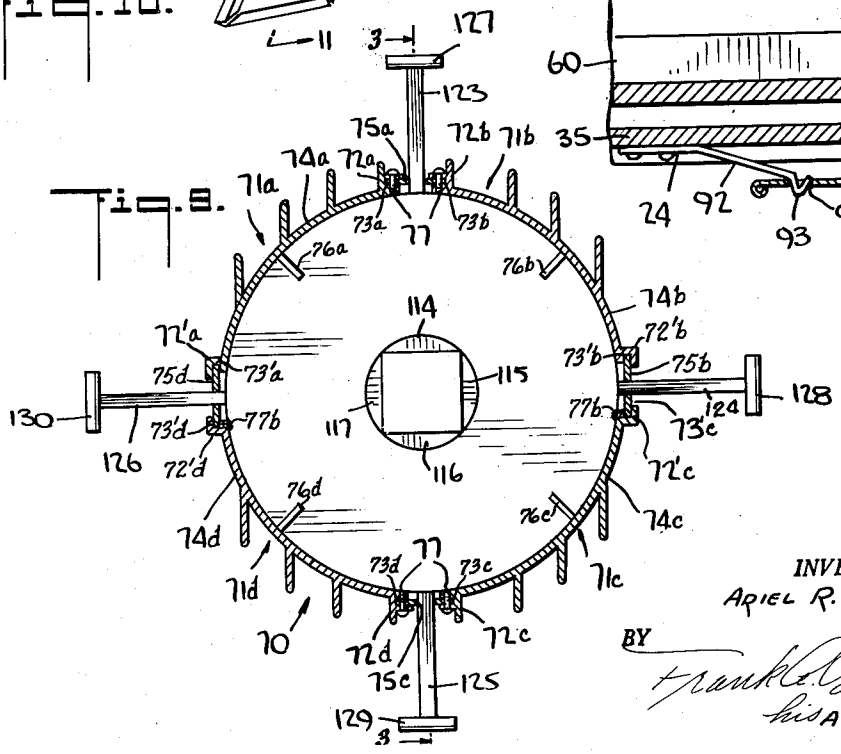
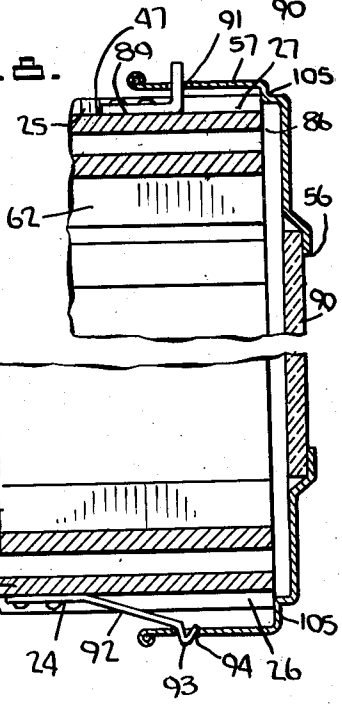


Fig. 5.



INVENTOR.
ARIEL R. DAVIS

BY
Frank C. Bruce
his ATTORNEY

Dec. 31, 1963 A. R. DAVIS 3,116,022

SPOTLIGHT

Filed May 26, 1960 5 Sheets-Sheet 4

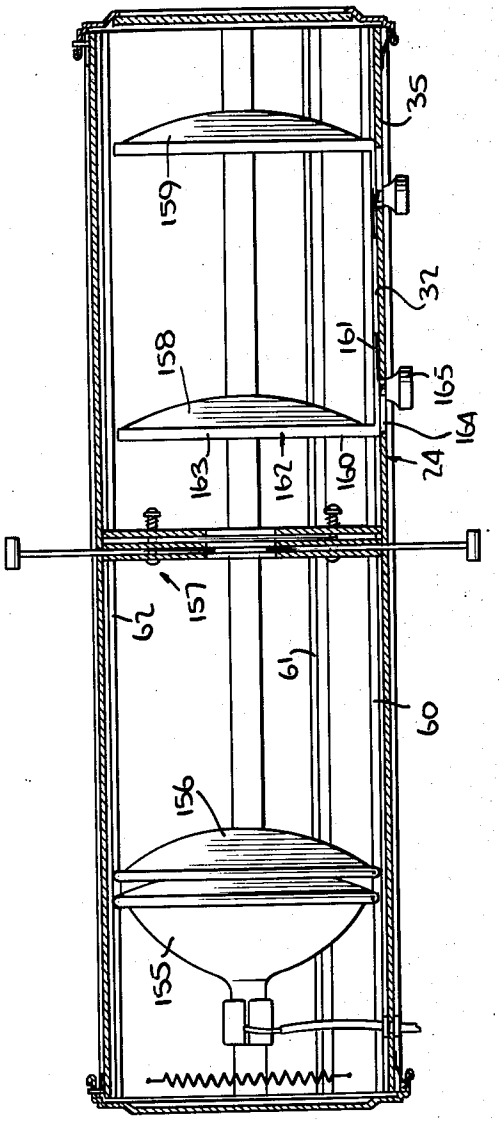


Fig. 12.

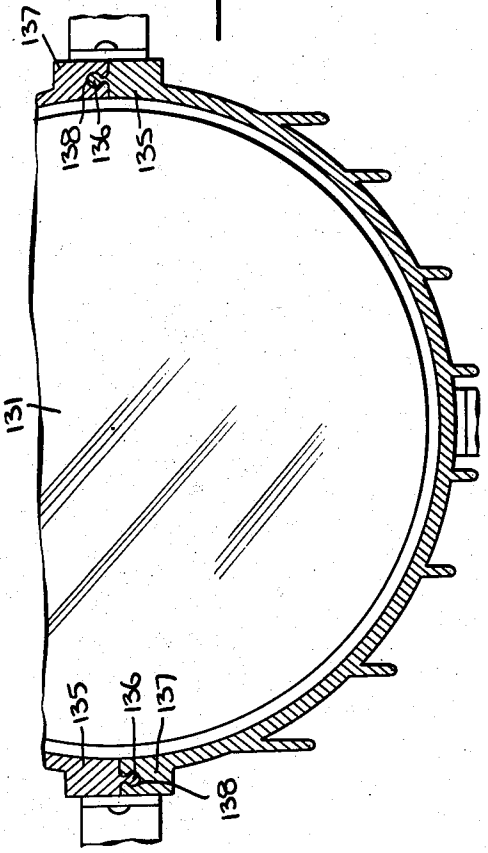


Fig. 13.

INVENTOR.
ARIEL R. DAVIS
BY
Frank A. Bruder
his ATTORNEY

Dec. 31, 1963 A. R. DAVIS 3,116,022

SPOTLIGHT

Filed May 26, 1960 5 Sheets-Sheet 5

Fig. 13.

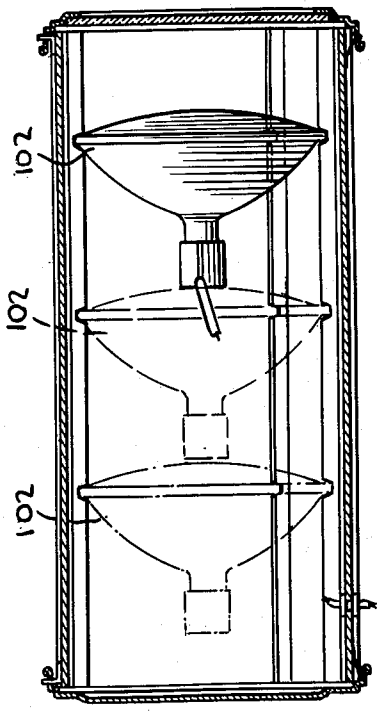


Fig. 14.

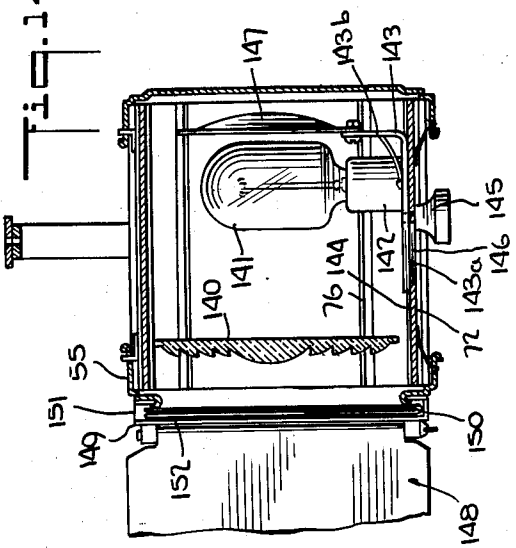


Fig. 11.

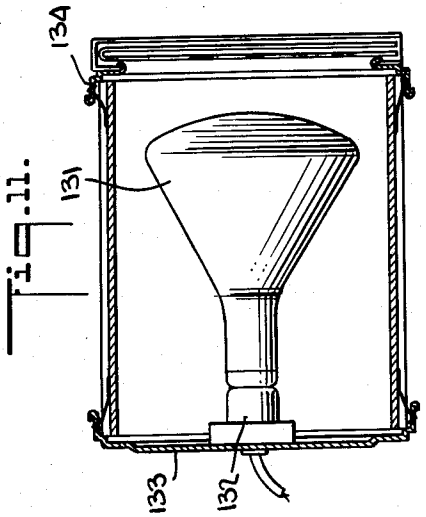
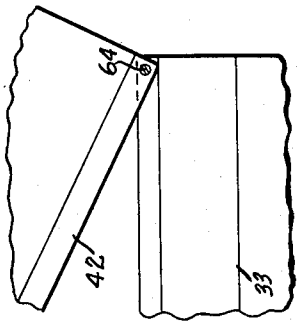


Fig. 16.



INVENTOR.
ARIEL R. DAVIS
BY
Frank A. Bauer
his ATTORNEY

United States Patent Office 3,116,022 Patented Dec. 31, 1963

3,116,022

SPOTLIGHT

Ariel R. Davis, 3687 S. State, Salt Lake City 15, Utah

Filed May 26, 1960, Ser. No. 31,984
9 Claims. (Cl. 240—3)

This invention relates to spotlights and particularly to spotlights for stages, auditoriums, theatres and the like.

An object of this invention is to provide a sturdy and rugged spotlight housing that has a minimum number of parts.

Another object of the invention is to provide a spotlight casing for supporting a sealed beam lamp and maintaining the lamp at a proper operating temperature by circulation of air therethrough to thereby provide long lamp life with the casing having no light leaks.

Another object of the invention is to provide an inexpensive focusing spotlight.

Another object of the invention is to provide a spotlight that is easily disassembled and reassembled to replace lamps and is simple in structure to permit the easy replacement of parts.

Another object of the invention is to provide a framing type spotlight.

Another object of the invention is to provide a spotlight that has two movable lenses in a fixed relationship to a gate so that the effective focal length of the lenses can be adjusted as well as the side and shape of the gate.

Other and further objects and advantages of the invention will be apparent from the following description taken in connection with the drawings in which:

FIG. 1 is a perspective view of the spotlight;

FIG. 2 is a sectional view of the spotlight taken along lines 2—2 of FIG. 1;

FIG. 3 is a sectional view of another embodiment of the spotlight formed by four casing sections and is of the framing type;

FIG. 4 is a fragmentary sectional view of the end pieces and the tubular casing taken along lines 4—4 of FIG. 2;

FIG. 5 is a side view of the connecting means between the spotlight and the supporting bracket;

FIG. 6 is a sectional view taken along lines 6—6 of FIG. 5;

FIG. 7 is a sectional view taken along lines 7—7 of FIG. 5;

FIG. 8 is an enlarged fragmentary sectional view taken along lines 8—8, 3—3 of FIG. 1 illustrating the means for retaining and positioning the end pieces;

FIG. 9 is a sectional view of the spotlight taken along lines 9—9 of FIG. 3 to illustrate the shutters;

FIG. 10 is a perspective view of a short spotlight without focusing lenses;

FIG. 11 is a sectional view taken along lines 11—11 of FIG. 10;

FIG. 12 is a fragmentary sectional view of the spotlight taken along lines 12—12 of FIG. 10 without the end covers;

FIG. 13 is a sectional view of a spotlight with a long casing providing multiple positions for the lamp;

FIG. 14 is a sectional view of a focusing type spotlight;

FIG. 15 is a sectional view of a variable focus framing type spotlight; and

FIG. 16 illustrates a fragmentary side view of the end of the casing with the sections pivoted open.

Referring to FIG. 1, a perspective view of a spotlight is shown mounted on a batten 21 by a bracket 22. The batten 21 may be hollow and contain electrical cables for supplying electricity to the spotlights mounted on the batten. The batten 21 may be mounted in any conventional manner to the building or to the supporting rigging. The spotlight is provided with electricity from the batten

by means of the cable 23. The spotlight has a tubular casing 20 preferably formed in two sections 24 and 25.

The casing sections 24 and 25 are formed with a circular cross section so that when the two parts are assembled the casing has a cylindrical shape. On the outer side of the casing sections are longitudinally extending fins 26 and 27 which in this embodiment extend in a vertical direction. The casing section 24 forms the lower portion or half of the casing 20. The upper casing section 25 is pivotally attached to the casing section 24 at the front end. At the rear end helical springs 28 are connected to the upper and lower casing sections to close the upper or top section on the lower or bottom section to form the tubular shaped housing or casing 20 with a longitudinally extending chamber 31. By lifting the rear end of the casing section 25 the spotlight is opened and the illuminating components in the chamber 31 are accessible.

The casing section 24 has an intermediate channel 32 extending longitudinally along the spotlight. As illustrated in FIG. 2 the channel is midway between the side flanges 33, 34. The intermediate channel is formed by the strip 35 positioned radially outwardly from the curved portions 36, 37. The edges of the curved portions extend into the channel to form grooves 38, 39 on opposite sides. The channel and grooves are used in the embodiments shown in FIGS. 14 and 15.

On the sides the casing has L-shaped flanges forming side channels 40, 41 with the top casing section 25. The top casing section 25 has flanges 42, 43 with longitudinal grooves 44, 45 therein into which the edges of the flanges 33, 34 fit in a light sealing relationship.

The casing section 25 has an intermediate channel 46 preferably midway between the flanges 42, 43. The channel is formed by the strip 47 positioned radially outwardly from the curved portions 48, 49. Similar to channel 32, the edges of the curved portions 48, 49 extend into the channel to form the grooves 50, 51.

The curved portions, flanges and strips have no apertures so that the curved sections completely enclose the chamber forming a light blocking means preventing the radiation of light through the casing or housing 20.

The rear end of the casing 20 has an end piece 52 forming a cover closing the rear opening 53 of the chamber 31. The end piece has a flange 54 concentric with and extending around the housing to serve as a light block and to securely hold the free rear ends of the casing sections 24, 25 together. The front of the housing has a similarly shaped end piece 55 with an opening 56 for passing the beam of light. The end piece 55 has a flange 57 outside of and around the casing to form a light block.

On the inside of the curved sections 24, 25 are longitudinally extending mounting strips projecting into the chamber 31. The casing section 24 has four mounting strips. The strips 60 are positioned on opposite sides of the channel 32 and adjacent thereto to position the strips 60 along the bottom of the spotlight. The strips project preferably parallel to the plane through the central axis of the spotlight and bisecting the spotlight. The strips 61 are preferably projected radially into the chamber 31 and are spaced upwardly on the casing section from the channel 32. As shown in the drawing the strips 61 are preferably positioned approximately one third the width of the casing section from the channel 32. The casing section 25 has two strips 62 positioned on opposite sides of the channel 46 and adjacent thereto. These strips project into the chamber 31 parallel to the plane through the central axis and bisecting the casing section 25. As illustrated in FIGS. 2, 3, 4 and 15 the strips 60, 61, 62 are notched at appropriate locations to firmly hold lamps, lenses and the like in proper position in the casing 20.

The notches 63 are formed to space the peripheral edge of the lamp and lenses from the wall of the casing to form passages 64 for the flow of air therethrough.

On assembly of the spotlight, casing sections 25 are pivotally fastened to the front end of the casing sections 24 by means of screws or rivets 64 in the flanges 33, 42 and 34, 43. The springs 28 have hooks 65 which pass through holes 66 in the casing. These holes are at the rear edge of the casing and the flange of the end piece extends over the opening to block the emission of light. The casing sections 24 and 25 are pivotally separated and the lamps and lenses are set in the notches in the ribs of the casing 24 and held in position by these notches. The upper casing section 25 is closed on the lower casing section 24 and the upper notches engage the lamp and lenses to firmly hold the lamp and lenses in place. The resiliency of the springs firmly holds the casing sections 24, 25 together. The end pieces mounted on each end provide a positive lock preventing separation of the casing sections.

In FIGS. 3 and 9 a sectional view of another embodiment is shown in which the casing 70 is formed in four casing sections 71*a, b, c, d*.

The casing sections 71 have solid walls 74*a, b, c, d* with a circular cross section so that when the four sections are assembled the casing has a cylindrical shape. Along the longitudinal edges of the walls 74*a, b, c, d* are channel members 72*a, b, c, d* and 72'*a, b, c, d* which form grooves 73*a, b, c, d* and 73'*a, b, c, d* with the curved walls 74*a, b, c, d* respectively. The strips 75*a* and 75*c* extend longitudinally along the casing in light sealing relation with the sections 71*a, b* and 71*c, d* by fitting in the grooves 73*a*, 73*b* and 73*c*, 73*d* respectively. Screws 77 extend through the channel members 72*a, b, c, d* and walls 74*a, b, c, d* to fasten sections 71*a, b* together and sections 71*c, d* together to form a top and bottom to the casing 70. The strips 75*b* and 75*d* fit in grooves 73'*a*, 73'*d* and 73'*b*, 75'*c* in light sealing relation with the respective sections. The strips 75*b* and 75*d* are fastened to the sections 71*d* and 71*c* respectively by screws 77*b* extending through channel member 72'*d* and wall 74*d* and through channel member 72'*c* and wall 74*c*. The strips 75*b* and 75*d* are pivotally connected at the front end by screws 77*c* extending through channel member 72'*a* and wall 74*a* and through channel member 72'*b* and wall 74*b*.

On the inside of the curved walls, 74 are longitudinally extending mounting strips 76*a, b, c, d* extending radially in relation to the casing 70. In this embodiment the mounting strips 76*a, b, c, d* are positioned midway between the edges of the sections 71*a, b, c, d* and in the assembled casing form four mounting strips spaced 90 degrees apart. The top and bottom strips 75*a, c* are fastened by screws 77 to the channel members 72*a, b, c, d* and curved walls 74*a, b, c, d* on each side thereof to form two integral casing sections. These sections, as in the previously described embodiments, are pivotally fastened at the front end and held together at the rear end by helical springs 78. The end pieces fit over the ends to lock the sections together.

The mounting strips 76*a, b, c, d* extend the full length of the casing. Notches 101 are provided towards the rear. The lamp 102 and lens 112 fit into the notches and are held in place thereby under the pressure of the helical springs 78 and the clamping action of the end pieces 52 and 55.

Referring to the embodiment of FIGS. 1 and 2 the casing 20, once assembled, has openings at opposite ends of the casing. A front end piece 55 is mounted on the front end of the casing 20 and a rear end piece 52 is mounted on the opposite end of the casing 20. The end pieces are spaced from the end edges of the casing to provide channels 85 and 86. The channels 85 and 86 circumferentially extend around the end of the casing. The mounting means at the ends may be the same.

Referring to the front end, the end piece 55 comprises

a rim 87 and a cylindrical flange 57. The flange fits over the fins 26 and 27 at the end of the casing. The end piece 55 has an opening 56 with a circular glass 90 for passing light from the spotlight. An L-shaped hinge 89 is securely fastened to the strip 47 extending along the top of the casing. An opening 91 is provided in the flange 57 through which the hinge projects. The end piece is then held firmly in place by means of a resilient latch 92 riveted to the bottom strip 35 and having a catch 93 fitting in an opening 94. The catch 93 is shaped to permit the snapping of the flange 57 over the latch to catch and hold the end piece on the end of the casing. The rear end piece 52 is similarly mounted by means of the flange 54, L-shaped piece 96 and latch 97.

The end pieces 52 and 55 are mounted on the casing 20 to provide a means for air to flow in and out of the chamber 31. The rims 103 and 87 of the end pieces have inwardly formed edge beads 104 and 105. The beads have a diameter greater than the outer diameter of the walls of the curved portion and less than the distance of the outer edge of the fins 26, 27 from the center of the casing. As best illustrated in FIGS. 4 and 8 the beads 104 and 105 engage the ends of the fins 26, 27 to space the rims 103 and 87 to form passages 95, 96 between the respective end pieces and the ends of the casing. The flanges 54 and 57 have a greater inside diameter than the distance of the edge of the fins from the center. The flanges are thus spaced from the curved portions and the space between the fins forms passages 95, 96. Air flows in the annularly arranged passages between the flanges 54, 57 and the curved portions and between the ends of the casing and the rims 103 and 87 into the chamber and in the reverse direction out of the chamber.

The mounting strips 60, 61, 62 space the lamps and lenses from the inner wall of the casing 20 to permit the easy flow of the air there along. The cool air then flows past the lamp 67 to provide a supply of cool air to the lamp. The heated air easily passes out through the openings 30 and 53 and thence between the end piece and the casing into the atmosphere. Thus, the lamp 67 may be of a very high wattage and yet be maintained at a normal operating temperature. The casing 20 is opaque and without ventilating holes through the casing and the circulation of air as previously described cools the lamp. With the casing opaque light issues through the opening 56 and not through holes in the casing. The opening 56 may be blocked from passing air by means of filters as shown in FIGS. 11 and 14 or by a glass 90. If the opening 56 is unobstructed air flows through the opening 80 and through the opening 56 and the passages 85, 86.

The air may also circulate between the bottom portion of an end piece and the bottom portion of the casing into the portion of the chamber immediately adjacent thereto and out between the top portions of the same end piece and casing end. Thus air may be circulated in back of the lamp or in front of the lamp. In order to prevent the leakage of light the shutter or framing means 110 extends to the inner surface of the wall of the casing. The air flowing longitudinally through the casing passes through the opening 111 in the center. Thus the air is not blocked and the light is confined within the casing to issue along the proper path.

The previously described casings may be used to form several different types of spotlights as illustrated in FIGS. 3, 9, 11, 12, 13 and 14. In FIGS. 3 and 9 a fixed focus framing type of spotlight is illustrated. As illustrated a four section casing is shown. However, a two section casing may and is preferably used. The mounting strips 76*a, b, c, d* support a lamp 102 at the rear end of the spotlight, lens 112 adjacent to the lamp and lens 113 towards the front end. The lenses focus the light into a parallel beam. Between the lenses shutter means are provided for setting the size and shape of the emitted beam. The shutter means is of a conventional type and may comprise either a drop-in mask with a fixed open-

ing, an adjustable type of shutter, or an iris type of shutter to provide a circular opening. In FIGS. 3 and 9 an adjustable type of shutter means 110 is provided with four shutters 114, 115, 116, 117. The shutters 114, 116 moves vertically and the shutters 115, 117 move horizontally. The shutters 114, 116 are between plates 118, 119 and shutters 115, 117 between plates 119, 120. The plates have center openings aligned with the lamp and lenses to pass the light. The shutters reduce the size of the opening and change the shape in accordance with the adjustment of the shutters. The plates are held together by spring means 121 extending through the peripheral portion of the plates. The plates are substantially of the same diameter as the inner wall of the casing to prevent light leakage around the edges. The mounting strips 76*a*, *b*, *c*, *d* have deep notches to hold the shutter means in position. Circulating air passes through the center openings. The shutters 114, 115, 116, 117 are provided with handles 123, 124, 125 and 126 which extend through slots in the casing so that the shutters may be positioned exteriorly. The knobs 127, 128, 129 and 130 are removable so that the handles may be inserted from the inside through the slots. The casing sections are pivotally separable as previously described and the handle 125 inserted in the bottom slot and in the notches in the mounting strips. The upper casing section is moved downward and the handle 123 inserted in the upper slot. The side slots are split so that the side slots are formed around the handles 124, 126. The knobs may then be fastened to the handles. The shutters are moved in and out to adjust the size and shape of the opening.

In FIG. 13 the casing is extended and provided with three sets of notches in the mounting strip for providing three positions for the lamp 102. With the lamp in the most rearward position, a narrow beam is produced and with the lamp in the most forward position, a wide beam is produced. At the intermediate positions medium width beams will be produced. The lamp 102 may be adjusted by separating the cases and reassembling the lamp in the new position.

In FIGS. 10, 11 and 12 a short type of spotlight is illustrated which would produce a wide beam. In this embodiment instead of supporting the lamp 131 by notches in the mounting strips, the lamp 131 is supported by a socket 132 on the end piece 133 so that the lamp is removed from the casing by detaching the end piece, thus providing an easy means for replacing a burned-out lamp. The rear and front end pieces 133 and 134 are similar to end pieces 52, 55. The end pieces are retained by resilient latches on top and bottom similar to latch 92.

In addition to being shorter the casing has a smaller diameter than the previously discussed casings. The casing is formed in two sections which are identical. The longitudinally extending connective means are different from the previous embodiments. On one side the edge 135 has a generally cylindrical rib 136 and on the other side the edge 137 has a complementary slot 138. The two sections are fitted together by relative longitudinal movement. The supporting brackets are fastened to the edges 135, 137.

In FIG. 14 a focusing type of spotlight is illustrated using a four section casing as illustrated in FIG. 9. The focusing lens 140 is supported in the mounting strips 76. The lamp 141 is set in a socket 142 which is mounted on a slidable base 143. The slidable base 143 is preferably a metal L-shaped member with a portion 143*a* having parallel sides fitting between the longitudinal edges of the curved portions 74. The edges form a channel 144 with the strips 72. The portion 143*a* slides on the strip 72 in the channel 144 and is held in position by the threaded knob 145 passing, through the longitudinal slot 146 in the strip 72. The portion 143*a* has sufficient length to cover the slot when the lamp is in the most rearward position. On the portion 143*b* a reflector 147 is provided. On the front end piece 55 barn doors 148 may be provided. The barn doors are mounted on a frame 149 which is rotatably supported by the bead 150 on the end piece 55. The frame 149 has a slot 151 for holding filters 152.

In FIG. 15, a variable focus framing type of spotlight is shown. In this embodiment the type of casing illustrated in FIG. 2 is shown. The lamp 155 is mounted in the strips 60, 61, 62 and has a lens 156 immediately in front thereof as illustrated in FIG. 3. The framing shutter 157 similar to the framing shutter of FIG. 3 is mounted in the casing sections 24 and 25. In front of the framing shutters are lenses 158 and 159 which are mounted on adjustable means to vary the relationship of the lens. In order to vary the focusing of the beam passing through the shutter 157 the mounting means comprises an L-shaped member 160 with a thin flat piece 161 having parallel sides fitting in the channel 32 of the casing section 24. An upright member 162 is mounted on the thin flat piece 161 and has a yoke 163 into which the lenses 158 and 159 fit. The strip 35 is provided with slots 164 through which the threaded knobs 165 extend to thread into the L-shaped member to clamp the member to the casing. By loosening the knob the member 161 may be shifted to adjust the position of the lens. When the knob is tight it securely holds the lens in the desired location.

Various supporting means may be used to suspend the spotlight from a batten or on a stand. In FIGS. 1, 5, 6, 7, and 10 the preferred means for mounting the lamp is illustrated. A U-shaped bracket 22 is attached to the batten 21 and at the other end pivotally connected to the spotlight to permit the tilting of the spotlight to 360°. The attached means comprises a U-shaped bracket 170 bolted or riveted to the flange 33 on one side and flange 34 on the opposite side. The bracket 22 is pivotally fastened to the U-shaped bracket 170 by means of the bolt 173. On the other side of the spotlight the bracket has a thin disc 172 having a circular edge and is rigidly mounted to the bracket 170 by means of rivets or other suitable fastening means. A bolt 173 having a cylindrical portion 174 is threaded into the disc 172 and the bracket 170. The bracket 22 is pivoted about the cylindrical portion 174. The spotlight is held in any given position by the carriage bolt 176 and the plastic knob 177. The bolt has a cylindrical portion 178 and a head 179. The head 179 overlaps and engages the disc 172. The arm of the bracket 170 is held tightly against the disc 172 by tightening the knob 177 on the bolt 176. The spotlight is thus fixedly held in place against dislodgment by any source. The spotlight may be easily repositioned by loasening the knob 177, tightening the spotlight and reclamping the spotlight in the new position. No tools are required. The electric cable 23 preferably passes through the casing and the opening sealed against light leaks by a rubber gasket 180.

It is thus seen that the foregoing spotlight meets the needs for theatrical and other display purposes. The overall weight of the spotlight is low since the casing and associated supporting parts may be made of aluminum. There is a minimum of parts required to support the optical and illuminating elements. The casing is formed into two readily separable upper and lower parts. The lower part is connected to the means for supporting the spotlight. The upper part is hingedly connected at one end, preferably the front end, permitting the upper and lower part to be separated for insertion of the optical and illuminating units without completely disconnecting the units. These units are tentatively supported in position by the lower part and the upper part then closed to firmly hold the units in position. One particular manipulative advantage of the spotlight is that it can be cleaned and parts altered in position or changed without the use or need of any tools. These alterations and adjustments may be made by hand. In order to have a manual manipulation no intricate interlocking members are required.

The end covers are pivotally hooked and snapped into place. The end covers provide a firm lock to prevent the separation of the upper and lower parts. Thus the upper and lower parts and the two end covers form the housing or casing of the spotlight and the supporting means for the units.

The manufacturing steps are simple and adaptable. The upper and lower parts may be extruded in a long piece which may be cut into any desired length. Thus from a single die a plurality of different lengths of spotlights may be made. In the four part casing of FIGURES 3 and 9 the quarter casing section may be used to fabricate casings having different diameters and different lengths. The larger diameters are formed by using strips with greater widths. Thus a single die may be used for all types of spotlight. The end covers may be formed by a single stamping operation. The opening in the front end piece may be formed in the stamping operation and a portion partly turned for subsequently forming a clamping bead holding barn doors, filter frames and the like.

The main feature of the lamp is that combined with the simplicity of manipulation and manufacture the end covers and casing seal the light within the casing and direct it as a beam in the desired direction through the end of the lamp, and also the casing provides a free connection path for the flow of air into and out of the spotlight for cooling the lamp.

The lamp is maintained at an operating temperature that insures the maximum lamp life. The supporting means is also a spacing means to provide air flow channels around the lamp and lenses extending across the casing. As previously described the air in addition to flowing longitudinally from one end of the casing to the other may also circulate by entering around the end of lower casing section moving upwardly, such as along the back of the lamp, and exhaust around the end of the upper casing.

Various modifications and changes may be made to the foregoing embodiments without departing from the invention as set forth in the appended claims.

I claim:

1. A spotlight comprising an illuminating element with a peripheral edge, a tubular shaped casing having a thin generally cylindrical shaped opaque wall, longitudinally extending fins extending outwardly on said wall and longitudinally extending mounting strips extending inwardly, said wall forming a longitudinally extended chamber for said illuminating element, said mounting strips having recess means supporting said illuminating element in said chamber by fitting said edge in said means, said recess means positioning said edge in spaced relation to said wall to provide a convection passage between said wall and edge for passing air between said illuminating element and said wall, closure means mounted at opposite ends of said tubular casing, said closure means each having an annular rim radially spaced from said wall and a center member longitudinally spaced from the ends of said casing to provide a convection air flow passage between said chamber and said tubular casing to permit the flow of cooling air past the illuminating element and between the closure means and the casing.

2. A spotlight casing for supporting an illuminating element having a peripheral edge and comprising a tubular shaped casing having a thin generally cylindrical shaped opaque wall, longitudinally extending mounting strips extending inwardly, said wall forming a longitudinally extended chamber for an illuminating element, said mounting strips having notches for receiving a peripheral edge to support an illuminating element in said chamber with the edge in spaced relation to said wall to provide a convection passage for air therebetween, said tubular casing having openings at opposite ends of the chamber, removable light blocking closure means mounted at one end opening of said tubular casing for blocking the passage of light from said chamber, said closure means having an annular rim radially spaced from said wall and a solid center portion, means adjacent the periphery of said closure means having a surface longitudinally offset from the center portion for engaging the end of said casing to longitudinally space the center portion from the ends of said casing to provide a convection air flow between said chamber and the exterior of said tubular casing to permit the flow of air between said closure means and said tubular casing for providing a cooling air flow past a supported illuminating element for maintaining a proper operating temperature.

3. A spotlight as set forth in claim 2 wherein said casing has external longitudinally extended fins for cooling said casing.

4. A spotlight casing as set forth in claim 2 wherein said tubular casing comprises two half sections with one section having longitudinally extending edges with grooves and the other section having longitudinally extending flanges fitting in said grooves and at one end laterally extending pinlike means mounted in said section with the grooves and passing through said flanges to pivotally connect said sections.

5. A spotlight casing as set forth in claim 2 wherein said tubular casing comprises four quarter sections with two of said sections fastened to a longitudinally extending strip to form a section half and the other two sections fastened to a second longitudinally extending strip to form a second section half, and third and fourth longitudinally extending strips secured to one of said section halves and the other section half having longitudinally extending grooves mating with said third and fourth strips respectively, and lateral pin means fastened in said section half having the grooves and passing through said third and fourth strips respectively to hingedly connect said section halves so that the tubular casing may be longitudinally opened while pivotally connected at one end.

6. A spotlight comprising upper and lower casing sections, each section comprising a single piece extruded aluminum member formed of only longitudinally extending means and having a parti-cylindrical opaque wall and longitudinally and inwardly extending mounting strips and longitudinally and outwardly extending cooling fins, pivotal means extending laterally through said sections to hingedly join said sections into a separable tubular casing, said sections having separate mating means preventing the emission of light, said casing defining a longitudinally extending chamber having openings at each end, said mounting strips having notches to support an illuminating element with a peripheral edge in spaced relation to said walls to permit flow of air around a peripheral edge of an illuminating element, and closure means having an opaque center portion extending across one end to cover the opening and an annular flange overlapping said sections, said closure means having an annular bead engaging said cooling fins at the periphery of the center portion and having its inner diameter greater than the diameter of the wall to space said opaque center portion from said sections to form a passage around the end of the sections to permit the flow of air around the end of said sections and between said flange and walls.

7. A spotlight as set forth in claim 6 in which spring means are provided for resiliently holding the free ends of said casing sections together.

8. A spotlight as set forth in claim 6 wherein each of said casing sections has an intermediate connecting strip spaced radially outwardly a greater distance than the wall and has wall sections on each side of said strip to form a longitudinally extended groove for providing flexibility to the casing sections.

9. A spotlight as set forth in claim 8 wherein mounting means for supporting optical elements are slideably

mounted in said groove on said strip of said casing for varying the focus of the emitted light.

References Cited in the file of this patent

UNITED STATES PATENTS

1,231,897	Jenkins	July 3, 1917
1,241,098	Doyle et al.	Sept. 25, 1917
1,242,808	Hutton	Oct. 9, 1917
1,271,980	Wright	July 9, 1918
1,435,002	Goodwin et al.	Nov. 7, 1922
1,845,214	Amousez	Feb. 16, 1932
1,915,967	Bailey	June 27, 1933
1,993,122	Szymczals	Mar. 5, 1935
2,076,240	Levy	Apr. 6, 1937
2,114,963	Levy	Apr. 19, 1938
2,294,580	Skinner et al.	Sept. 1, 1942
2,307,301	Richardson	Jan. 5, 1943
2,368,781	Rose	Feb. 6, 1945
2,884,513	Giller	Apr. 28, 1959