

March 26, 1929.

O. WERNER

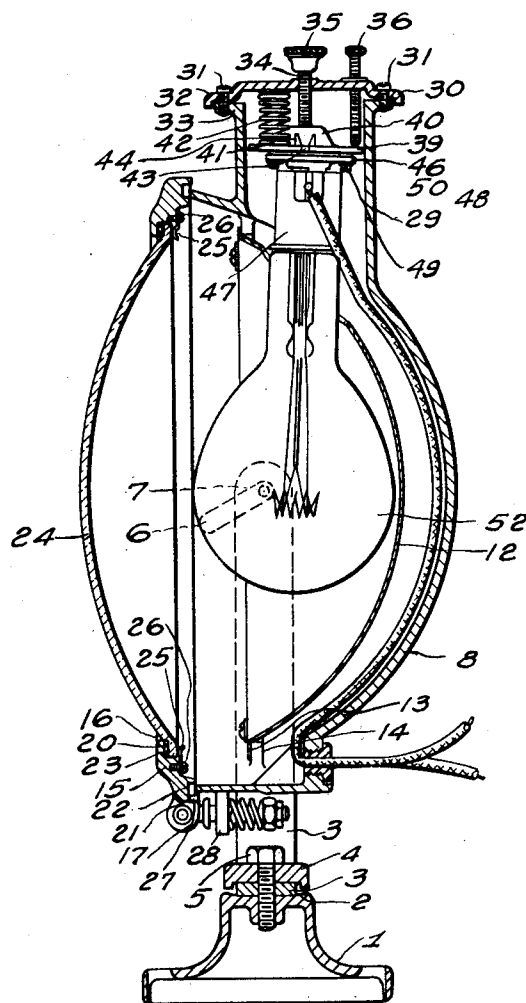
1,706,759

FLOODLIGHT

Filed June 18, 1927

2 Sheets-Sheet 1

Fig. 1



WITNESSES:

E. A. M'Clintock
Flournoy Corey

INVENTOR

Oscar Werner.

BY

BY
Merley G. Barr
 ATTORNEY

March 26, 1929.

O. WERNER

1,706,759

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2 Sheets-Sheet 2

Fig. 2.

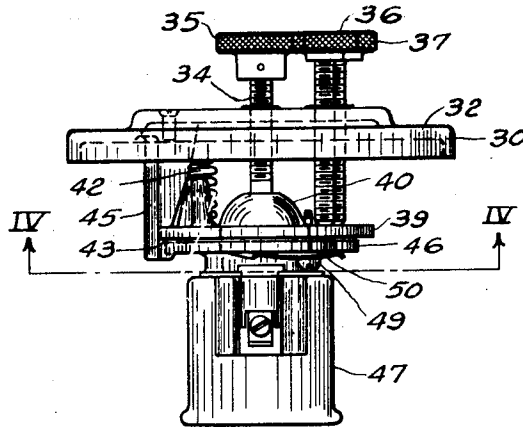


Fig. 3.

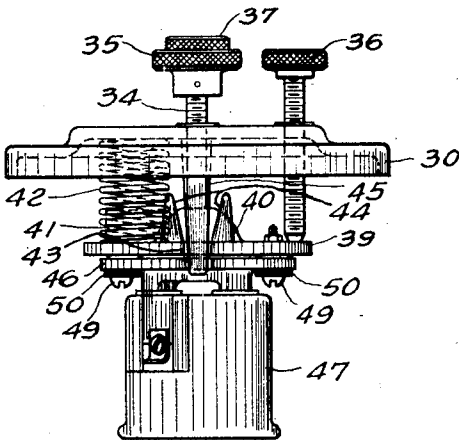
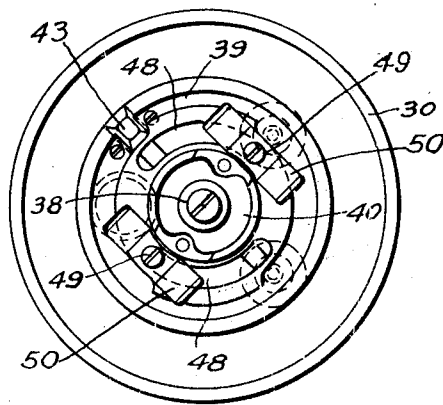


Fig. 4.



WITNESSES:

E. A. McLaskey

Flournoy Corey

INVENTOR

Oscar Werner

BY

Westley & Co.
ATTORNEY

UNITED STATES PATENT OFFICE.

OSCAR WERNER, OF SOUTH BEND, INDIANA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

FLOODLIGHT.

Application filed June 18, 1927. Serial No. 199,651.

My invention relates to illuminating devices and more particularly to focusing means for floodlights and similar apparatus.

Hitherto floodlights have been provided with universally adjusted focusing devices such as that shown in Patent No. 1,612,328 to John R. Townsend and assigned to the Westinghouse Electric & Manufacturing Company. Improvements are desirable since it is difficult to clean reflectors in housings provided with such devices without disturbing the focusing adjustments, since the focusing adjustments may be simplified, and since the lamps may be broken by contact with the reflectors in case of improper adjustment of the focusing screws.

The lamps used in floodlight projectors are usually provided with concentrated filaments zigzagged vertically around suitable supports in arcs of about 240° . Although the filament is concentrated, it occupies a relatively large space rather than a point. Because the filament is arranged in less than a full circle its projected area on the reflector will be small when the lamp is in one position and a narrow beam will be produced. When the lamp is rotated through 90° , a larger area of filament will be presented to the reflector and a comparatively broad beam will be projected. In order to select the type of beam desired, it is necessary to turn the lamp. Other well-known types of concentrated filament lamps may be used but the same effect is produced.

Therefore, one of the objects of my invention is to provide a focusing device which will permit such rotative movement of the lamp that any desired position of the filament with relation to the reflector may be secured without disturbing the focal adjustment.

Another object of my invention is to provide a focusing device which shall permit full vertical, horizontal and lateral adjustment of the lamp.

Another object of my invention is to provide a focusing device such that the lamp may be moved away from the reflector to permit the reflector and the lamp to be cleaned and then returned into place without disturbing the focal adjustment.

Another object of my invention is to provide a focusing device so constructed that

the lamp will not be crushed by being driven against the reflector.

Another object of my invention is to provide a focusing device which shall be capable of positive, convenient and exact adjustment.

A still further object of my invention is to provide a focusing device adjustable from outside the projector housing so that the housing may be made moisture proof.

My invention may be better understood by reference to the accompanying drawings in which like numerals indicate like parts.

Figure 1 is a sectional view of a projector that is provided with my focusing device;

Fig. 2 is an enlarged side elevational view of my focusing device,

Fig. 3 is a side elevational view of my focusing device taken at 90° to that in Fig. 2, and

Fig. 4 is a bottom plan view of my focusing device taken along the lines IV—IV of Fig. 2.

Referring more particularly to the drawings, the housing (Fig. 1) is mounted on the base 1 that is provided with a slightly concave upper surface 2 and a yoke member 3 that is mounted to rotate on the base on a washer 4. The yoke may be rotated through 360° and any desired friction between yoke and base may be secured by adjusting the bolt 5.

Arms on the yoke 3 are secured by means of wing nuts 6 to the diametrically opposed pivots 7 on the projector housing 8. This arrangement of the yoke 3, the projector housing 8 and the base 1 provides for directing the light beam in any direction and at any angle when the supporting members are suitably adjusted.

The projector housing 8 is a substantially hemispherical or dish-shaped member which may be of any suitable cast or otherwise fabricated metal or material. On the rear portion of the housing, a parabolic reflector 12 is mounted. The reflector may be coated with a reflective surface of silver or other suitable metal and it is secured to the housing by means of a flange 13 which engages projections 14 on the inner surface of the housing 8.

The face of the housing is provided with an apertured door 15 that is provided with a

channel portion 17 near its peripheral edge in which the peripheral edge 21 of the housing fits. A gasket 22 of rubber, felt or other suitably compressible material is mounted in the channel 17 so that a substantial moisture and dust-proof joint will be formed when the door is closed and no dust or moisture can enter the housing.

In the inner peripheral surface of the door frame is provided another channel 23 in which is seated another resilient gasket 20. The gasket 20 serves as a bed or cushion for the light-transmitting lens or plate 24 and completely closes the aperture in the door frame. The lens or plate 24 is tightly held in position against the gasket by clips 25 which are attached to the frame by means of screws 26 or other suitable fasteners.

The door frame is provided with a plurality of lugs 27 that are resiliently secured to co-acting lugs 28 on the housing for resiliently engaging the frame and housing and thereby effecting a convenient, positive, secure, dust and moisture proof closure between the door and the housing.

Extending from the upper portion of the housing is a tubular portion 29 that is closed by a cap or cover 30. The cap 30 is fastened to the tubular portion by suitable fastening means, such as bolts 31, that are passed through its peripheral flange 32 and engaged with the flange 33 of the enlarged tubular portion of the housing. The cap 30 is provided with a threaded opening 34 in the center thereof in which a vertical adjustment screw 35 is mounted. Two adjusting screws 36 and 37 are screwed into the cap near the periphery thereof. The focal adjustment screw 36 is in the rear of the central adjusting screw 35 and the other, the lateral adjustment screw 37, is situated at an angle of 90° to the position of screw 36.

On the inner end of the central adjusting screw is a hemispherically-shaped washer 38 which constitutes a ball-and-socket joint with a depression 40 in the wobble plate 39. The wobble plate 39 is provided with an upstruck portion 41 for mounting a spring 42 between the wobble plate 39 and the cap 30.

The spring 42 is under compression at all times and holds the wobble plate 39 against the ends of the lateral and focal adjustment screws. If one of the adjustment screws is moved inwardly or outwardly, the wobble plate responds immediately to the change in the adjusting screws.

A radial slot 43 is provided in the edge of the wobble plate 39 and upstruck members 44 are provided on each side of the slot. A projection or guiding member 45 on the cap 30 extends downward from the cap through the slot 43 in the wobble plate and prevents the wobble plate from turning.

A secondary plate 46 upon which the lamp socket 47 is mounted has two arcuate open-

ings 48 near its periphery through which the bolts 49 are passed for holding the secondary plate 46 on the wobble plate 39. The bolts 49 are provided with spring clip washers 50 so that the pressure of the secondary plate 70 on the wobble plate may be regulated, and the resulting friction between the two plates may be utilized to maintain the secondary plate 46 in any desired position against the wobble plate 39 when the bolts 49 are adjusted. The 75 arcuate openings permit the secondary plate 46 to be rotated through an angle so that the desired filament position and beam spread may be obtained.

The bolts 49 are so adjusted that the friction between the wobble plate and the secondary plate is less than the friction between the socket 47 and the base of the lamp 52. When the lamp is screwed into the lamp base, the secondary plate 46 rotates until it strikes 85 the bolts 49, and the bolts 49 prevent further rotation of the plate. When the lamp has been screwed into place in the socket, the lamp and the secondary plate 46 may be rotated in the opposite direction to adjust the filament. In unscrewing the lamp, the secondary plate will rotate until the opposite ends of the arcuate slots strike the bolts 49 and further rotation of the plate will be prevented. 95

In focusing the lamp, the desired elevation of the filament is secured by regulating the three adjusting screws 35, 36 and 37. When the desired elevation has been secured, the desired lateral adjustment of the filament 100 is secured by turning the lateral-adjustment screw 37 inwardly or outwardly. The correct focal distance is secured by turning the focal-adjustment screw 36 inwardly or outwardly. Thus, the lateral and focal adjustments may be made independently of each other. 105

The spring 42 normally holds the wobble plate 39 in co-operative engagement with the lateral and focal adjustment screws 36 and 37, but, when desired, the lamp 52 may be moved forwardly against the spring 42 for cleaning the reflector and returned without disturbing the focal adjustment. 110

It is to be noted that the comparatively weak spring 42 is the only means for impelling the lamp toward the reflector so that, when the spring is suitably proportioned, the danger of crushing the lamp by driving it against the reflector is avoided. 120

Although I have described a device embodying a specific form of my invention, I do not wish to be limited thereto since modifications will suggest themselves to those skilled in the art. For example, the spring 42 and the guiding member 45 may be combined in one member as, for instance, by eliminating projection 41 and placing spring 42 around member 45. The shape of the tubular portion 29 and the cap may be changed 125 130

or the position of the adjusting screws may be changed. Still other modifications may be made without departing from the spirit and scope of my invention as defined in the appended claims.

I claim as my invention:

1. A focusing device comprising a cap, a plurality of adjusting screws threaded through said cap, a wobble plate adjustably supported on one of said adjusting screws, a secondary plate rotatably mounted on said wobble plate, a lamp socket mounted on said secondary plate and resilient means disposed between said cap and said wobble plate.

2. A focusing device comprising a cap, a vertical adjusting screw threaded through said cap, a wobble plate movably supported on said vertical adjusting screw, a focal adjustment screw and a lateral adjustment screw threaded through the rim of said cap, a spring engaging said cap and wobble plate, to cause the wobble plate to engage one of the adjusting screws, a secondary plate rotatably mounted on said wobble plate and a lamp socket mounted on said secondary plate.

3. A focusing device comprising a cap, a vertical-adjustment screw threaded through said cap, a wobble plate movably supported on said vertical-adjusting screw, a focal-adjustment screw and a lateral-adjustment screw threaded through the rim of said cap, a compression spring oppositely disposed on said cap from said focal-adjustment screw and said lateral-adjustment screw, a secondary plate rotatably mounted on said wobble

plate and a lamp socket mounted on said secondary plate.

4. A focusing device comprising a cap, a vertical-adjustment screw threaded through the center of said cap, a lateral-adjustment screw and a focal-adjustment screw threaded through the rim of said cap and placed at right angles with respect to each other and the vertical-adjustment screw, a guiding member fastened to said cap, a wobble plate mounted on the end of the vertical-adjustment screw by a ball-and-socket joint and projections mounted on said wobble plate for engaging said guiding member.

5. A focusing device comprising a cap, a vertical-adjustment screw threaded through the center of said cap, a lateral-adjustment screw and vertical-adjustment screw threaded through the rim of said cap and placed at right angles with respect to each other and the vertical-adjustment screw, a guiding member fastened to said cap, a wobble plate mounted on the end of the vertical-adjustment screw by a ball-and-socket joint, projections mounted on said wobble plate for engaging said guiding member, a secondary plate provided with arcuate slots, bolts adapted to pass through said arcuate slots to engage said wobble plate and a socket mounted on said secondary plate.

In testimony whereof, I have hereunto subscribed my name this seventh day of June, 1927.

OSCAR WERNER.