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Hernandez

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[45] **July 10, 1973**

[54] **FLOODLIGHT**

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[73] Assignee: **Esquire, Inc.,** New York, N.Y.

[22] Filed: **June 14, 1972**

[21] Appl. No.: **262,501**

Related U.S. Application Data

[63] Continuation of Ser. No. 26,710, April 8, 1970, abandoned.

[52] **U.S. Cl.** ..... **240/3,** 240/41.35 E

[51] **Int. Cl.** **F21p 5/00**

[58] **Field of Search** ..... 240/3, 41.35 R, 103 R, 240/105, 103 A, 103 B, 41.35 E

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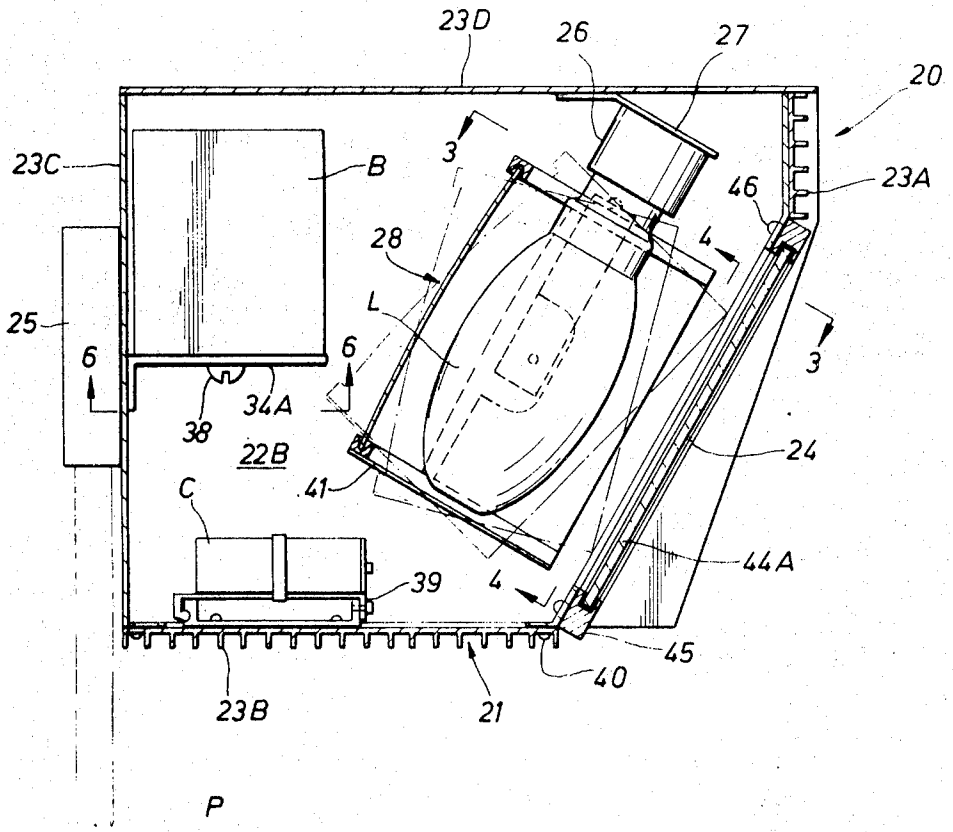
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Primary Examiner—Samuel S. Matthews
Assistant Examiner—Michael L. Gellner
Attorney—W. F. Hyer, Marvin B. Eickenroth et al.

[57] **ABSTRACT**

A floodlight having a reflector mounted in a housing for swinging about an axis perpendicular to the axis of a lamp within the housing and between different positions on the side of the lamp opposite a window in a side wall of the housing.

6 Claims, 13 Drawing Figures



3 Sheets-Sheet 1

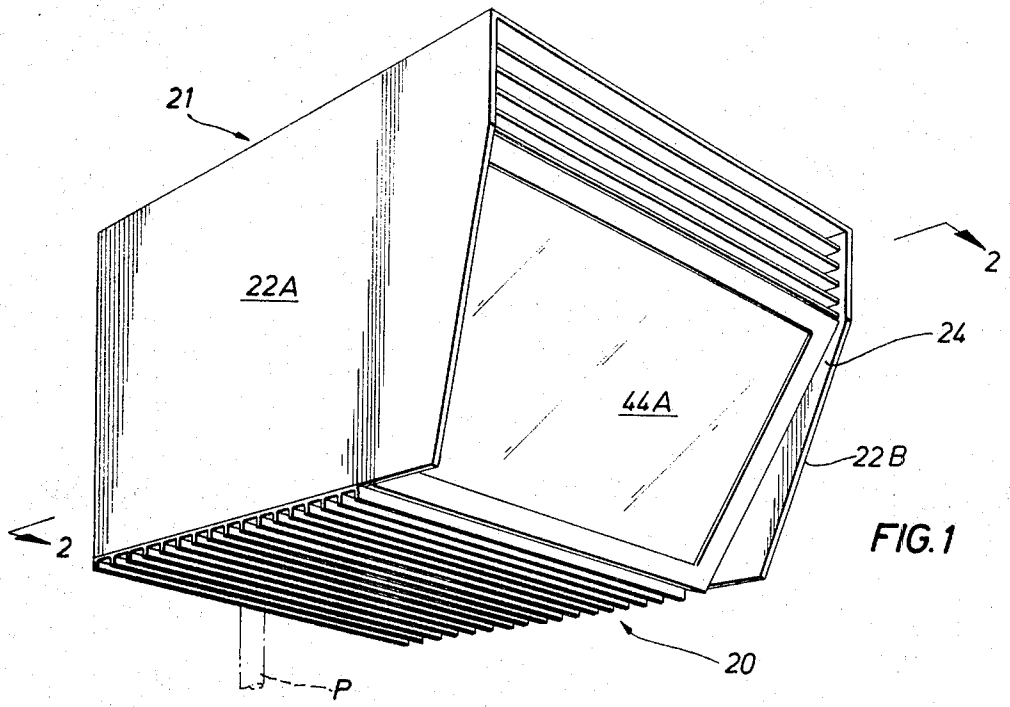


FIG. 1

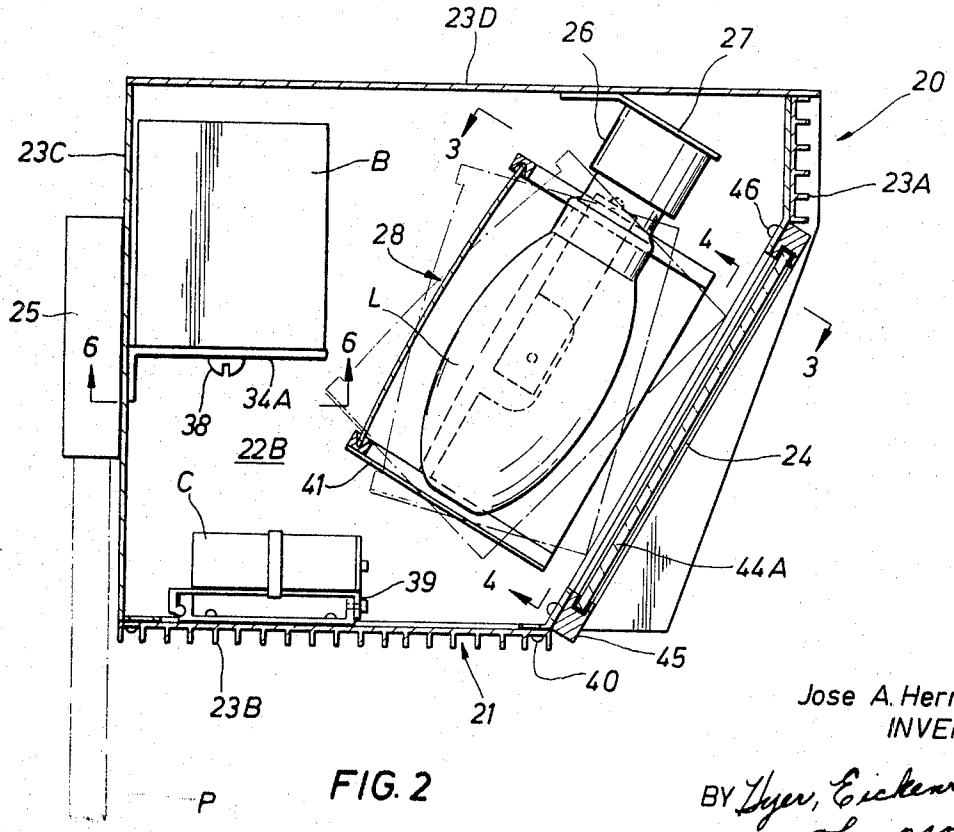


FIG. 2

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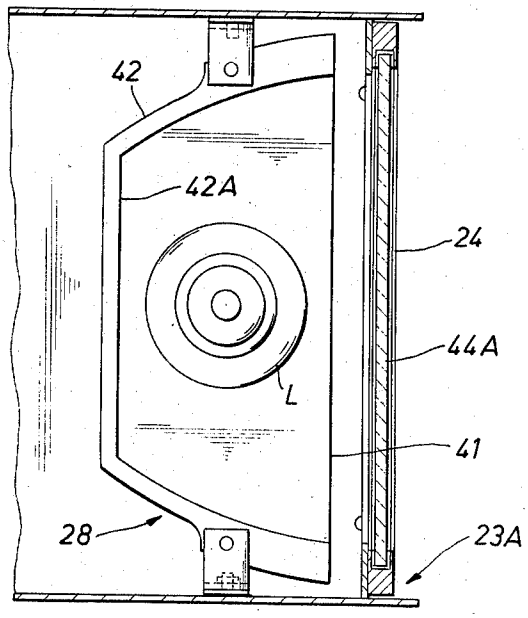


FIG. 3

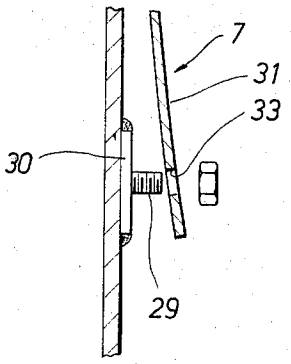


FIG. 5A

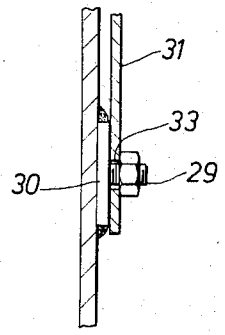


FIG. 5B

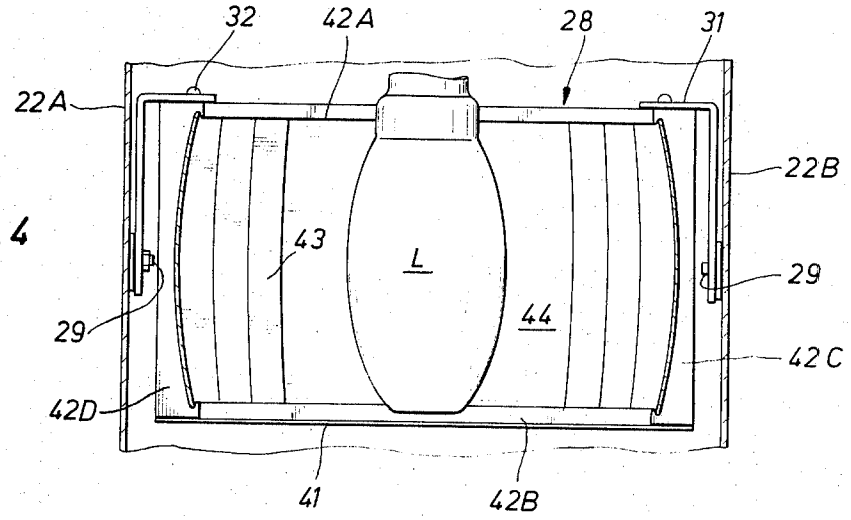


FIG. 4

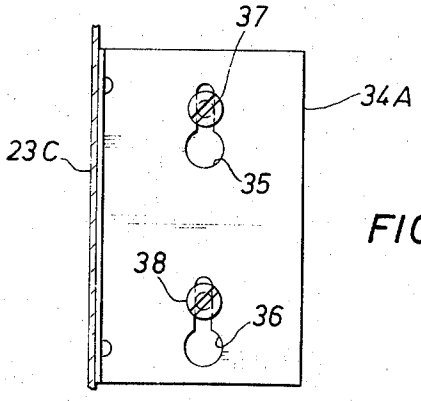


FIG. 6

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FIG. 7

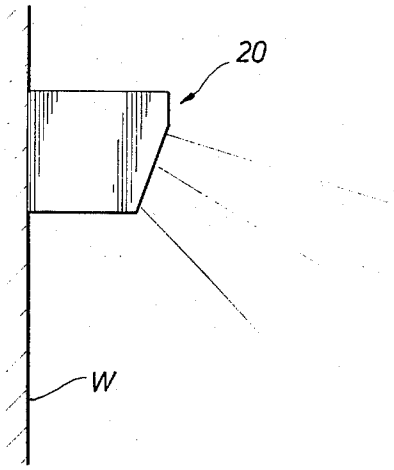


FIG. 8

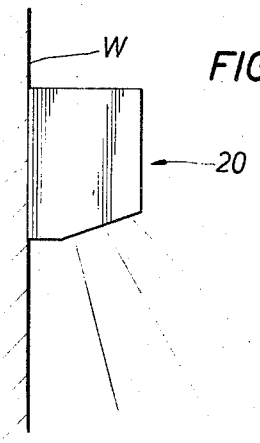
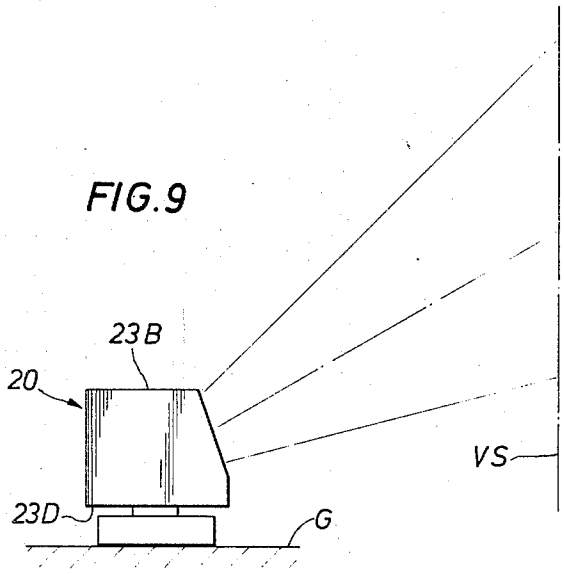


FIG. 9



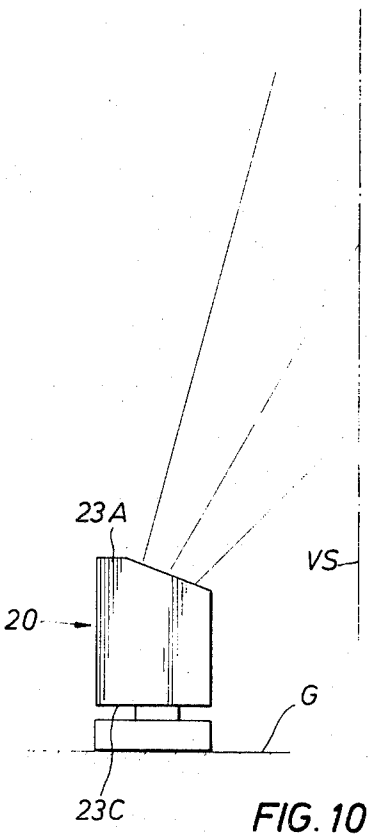


FIG. 10

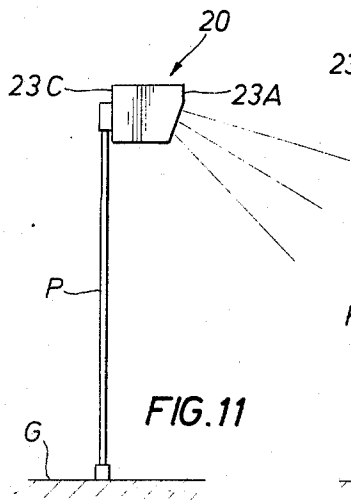


FIG. 11

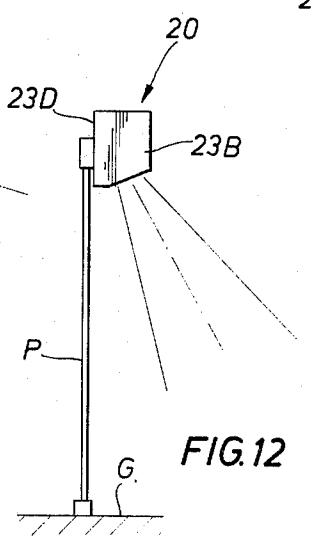


FIG. 12

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FLOODLIGHT

This is a continuation of U.S. Pat. application Ser. No. 26,710, filed Apr. 8, 1970, and entitled "FLOODLIGHT," and now abandoned.

This invention relates generally to adjustable flood lights; and, more particularly, to improvements in adjustable floodlights of the type disclosed in U.S. Pat. No. 3,610,915, filed by Buell Moore, on Apr. 10, 1969, entitled "Light Fixture," and assigned to the assignee of the present application.

The direction of light from the floodlight of the prior application is adjusted by means of a reflector which may be swung between different positions on the side of a lamp between it and a window in a side wall of the floodlight housing. Alternate floodlight constructions are shown for providing either a wide or tall beam of light. In addition, the housing may be mounted in different positions for selectively directing light upwardly or downwardly to different extents, without materially affecting the appearance of the floodlight relative to its surroundings.

An object of this invention is to provide a floodlight of this general type which provides a wide beam, and has other desirable characteristics of one of the alternate constructions of the prior application, but which is of simpler, less expensive and more compact construction.

This and other objects are accomplished, in accordance with the illustrated embodiment of the invention, by a floodlight in which the reflector is mounted in the housing for swinging about an axis generally perpendicular to that of the lamp and between different positions on the side of the lamp opposite a window in a side wall of the housing. The reflector is concave about an axis generally parallel to the lamp, and, in the preferred embodiment of the invention, the axis of the lamp coincides with the axis about which the reflector swings. More particularly, the lamp is of a type which has a line source of light, and the axis about which the reflector swings intersects the mean point of the line.

The housing has end walls and side walls extending between the end walls, with the window being formed in one of the side walls. The means for swingably mounting the reflector comprises axially aligned pins on the end walls of the housing and arms pivotally connecting opposite ends of the reflector to the pins and extending between the ends of the reflector and housing for swinging about the axis of the pins. More particularly, one end of each arm is fixed to the reflector, and the other end thereof is inwardly flexible for removably fitting over the end of its pin. The end of one pin is threaded to receive a nut for tightly engaging one arm against the side wall of the housing and thus locking the reflector in a fixed position.

In the preferred embodiment of the invention, the window is flat and slants inwardly from the side wall in which it is formed to an adjacent side wall. As in the floodlight of the prior application, the housing may be mounted in a variety of positions relative to the different level for directing light through the slanted window in different directions from the housing.

In the drawings, wherein like reference characters are used throughout to designate like parts:

FIG. 1 is a perspective view of the housing of a floodlight constructed in accordance with the present invention;

FIG. 2 is a vertical cross-sectional view of the floodlight of FIG. 1, as seen along broken line 2—2 thereof;

FIG. 3 is a cross-sectional view of a portion of the floodlight, as seen along broken line 3—3 of FIG. 2;

FIG. 4 is a cross-sectional view of another portion of the floodlight, as seen along broken line 4—4 of FIG. 2;

FIGS. 5A and 5B are detailed views illustrating the manner in which the reflector is removably mounted in the housing;

FIG. 6 is a sectional view of still another portion of the housing, as seen along broken line 6—6 of FIG. 2;

FIGS. 7 and 8 illustrate different positions in which the floodlight may be mounted on a vertical wall;

FIGS. 9 and 10 illustrate different positions in which the floodlight may be mounted on the ground level; and

FIGS. 11 and 12 show the floodlight mounted in different positions on an upright pole.

With reference now to the details of the above-described drawings, the over-all floodlight, which is indicated in its entirety by reference character 20, includes a box-like housing 21 having end walls 22A and 22B and side walls 23A, 23B, 23C and 23D extending between the end walls to form a dust-proof enclosure. There is a window 24 arranged in the side wall 23A so that, as best shown in FIGS. 7 to 12, and as will be described in more detal to follow, the housing 21 may be mounted in a variety of positions for directing light from the window 24 thereof in a desired direction. In all such positions, however, the end walls 22A and 22B remain vertically disposed, so that the floodlight retains at least somewhat the same appearance with reference to its environment.

As shown, the end walls 22A and 22B are parallel to one another, and each of the side walls 23A, 23B, 23C and 23D extends perpendicualarly to the end walls to form the box-like structure of the housing. More particularly, side walls 23B and 23D are parallel to one another, while side wall 23C and the portion of side wall 23A to one side of the window 24 are also parallel to one another. The window portion of the wall 23A is flat and slants inwardly from the other portion thereof to intersect with the side wall 23B.

As shown in FIGS. 1 and 2, as well as in FIG. 11, the housing may be mounted on the upper end of an upright pole P (shown in broken lines in FIGs. 1 and 2) by means of a bracket 25 secured in any suitable manner to the outer side of wall 23C. In this position, the walls 23D and 23B are top and bottom, respectively, and the walls 23A and 23C are front and back, respectively, of the housing. Thus, with the window 24 on the front and slanting toward the bottom of the floodlight, light from the floodlight is directed downwardly and outwardly at a relatively small angle with respect to the ground level G.

Alternatively, as shown in FIG. 12, the side wall 23D may be secured to the bracket 25, in which position the walls 23C and 23B are disposed bottom and top, respectively, and the walls 23B and 23D are disposed front and back, respectively. In this position of the floodlight, the window 24 is disposed on the bottom and slants toward the front so as to direct light downwardly and outwardly at a relatively large angle with respect to the ground level G. The positions of the floodlight shown in FIGS. 7 and 8 correspond to those shown in FIGS. 11 and 12, respectively, except for the fact that the housing is mounted on the side of a verti-

cal wall W, rather than upon the upper end of an upright pole P.

As shown in FIGS. **9** and **10,** the floodlight may instead be mounted on the ground G for directing light upwardly and outwardly therefrom against a vertical surface VS, which may be a wall of any type. In this case, the walls **23B** and **23D** may be disposed top and bottom, respectively, with the bottom wall **23D** mounted on a pedestal which rests on the ground level G for directing light upwardly at a relatively small angle with respect to the horizontal, as shown in FIG. **9.** Alternatively, the side walls **23A** and **23C** may be disposed, top and bottom, with the bottom wall **23C** secured to the pedestal, as shown in FIG. **10.** In this way, light is directed upwardly at a relatively large angle with respect to the horizontal, which is particularly useful in directing light to a higher area of the vertical surface VS, or to a vertical surface which is closer to the floodlight than the vertical surface indicated in FIG. **9.**

As shown in FIG. **2,** a lamp L is mounted in front of the window **24** by means of an electrical socket **26,** which is supported on the inside of the housing in any suitable manner. Thus, as illustrated, a mounting plate **27** on the end of the socket has a flange welded at one end to the inside of the side wall **23D** at an angle to dispose the socket axis, and thus the axis of the lamp L, parallel to the plane of the flat window **24.** The lamp L is preferably of a Mercury vapor type which has a line source of light extending along its axis, and when received in the socket **26,** is substantially centered with respect to the window **24,** as shown in FIGS. **2, 3** and **4.**

A reflector **28** is mounted in the housing on the side of the lamp opposite the window **24** so as to reflect a wide beam of light from the lamp out through the window. Thus, as best shown in FIG. **3,** the reflector is concave and arranged substantially concentrically with respect to the lamp and the window, and its upper and lower edges are generally coextensive with the ends of the lamp. More particularly, and as will be apparent from FIGS. **3** and **4,** in at least one of its positions (solid line in FIG. **2**), the axis of the concavity of the reflector coincides with the axis of the lamp.

As previously described, the reflector **28** is mounted in the housing for swinging about an axis perpendicular to the axis of the lamp, so that the wide beam may be adjusted upwardly or downwardly without moving the housing. Thus, the reflector may be tilted between the extreme positions illustrated by the broken lines in FIG. **2,** in which positions further tilting is limited by engagement of either the upper or lower edge of the reflector with the frame of the portion of the wall **23A** surrounding the window **24,** as will be apparent from FIG. **3.**

More particularly, the reflector **28** is mounted for swinging about an axis which coincides with the mean point of the line source of light from the lamp L. Thus, in all positions of the reflector relative to the lamp, the mean point of the line source coincides with the mean point of the axis of concavity of the reflector. For this purpose, axially aligned pins **29** are mounted on and extend from plates **30** welded to the inner sides of the opposite end walls **22A** and **22B** for pivotal connection with the ends of arms on the reflector.

As best shown in FIG. **4,** the arms **31** are bent for fastening at one end by screws **32** or the like to each end of the reflector and for removably fitting at the other end over the pins on adjacent ends of the housing. Thus, the arms extend downwardly in a narrow space between the reflector ends and the adjacent end walls **22A** and **22B.** More particularly, the long ends of the arms are flexible inwardly from the right angle position shown in FIG. **4** so as to permit holes **33** therein to be passed over the ends of the pins **29,** as illustrated in FIGS. **5A** and **5B.** In this manner, reflector may be easily and quickly mounted and removed from within the housing, while at the same time requiring only a minimum of space, whereby the housing need not be substantially greater in width than the reflector.

At least one of the pins **29** is threaded, as shown in FIGS. **5A** and **5B,** so that when the pole **33** in the arm **31** has been moved over the pin, a nut **34** may be threaded over the outer end of the pin and against the arm **31** to fix the arm and thus the reflector in a desired position.

As shown in FIG. **2,** a ballast B is mounted within the housing behind the reflector **28** and near the side wall **23D,** and a capacitor C is mounted within the housing on the inside of the side wall **23B** beneath and behind the reflector. As will be apparent from FIG. **2,** this positioning of the ballast and the capacitor permits free adjustment movement of the reflector, without undue waste of space from front to back within the housing.

The reflector **28** is of a construction which is not only simple and inexpensive, but which also serves to conserve space within the housing. Thus, as shown in FIGS. **2** to **4,** it includes a cast frame **42** having upper frame members **42A** and **42B** connected by side frames **42C** and **42D.** As shown in FIG. **4,** the frame members **42A** and **42B** include curved side portions connected by a flat central portion opposite the ballast B. The upper ends of the arms **31** are screwed to the curved side portions of the top frame members, as shown in FIG. **4.**

The frame is generally open intermediate the upper and lower and side frame members to receive bent strips **43** of suitable reflective material along the curved side portions of the frame. More particularly, and as indicated in FIG. **4,** the upper and lower ends of the bent strips are held in slots on the inner sides of the upper and lower frame members. A reflective sheet **44** is mounted in grooves (not shown) in the upper and lower central frame portions to extend between the innermost curved strips **43** on the two side portions of the reflector.

As shown in FIG. **2,** the ballast is mounted on a plate **34A** having a flange on one side secured to the wall **23C.** As shown in FIG. **6,** this plate has keyholes **35** and **36** therein which receive screws **37** and **38,** respectively, on the bottom side of the ballast B. The enlarged ends of the keyholes are of suffccient size to pass the heads of the screws, while the elongate ends thereof are smaller than the screw heads are within the elongate ends. This particular mounting for the ballast enables the plate **34A** to be used to mount different sizes of ballasts, which ordinarily would have screws **37** and **38** different distances apart. That is, the two keyholes **35** and **36** permit first one screw head to be moved through the enlarged end of its keyhole and then upwardly into the smaller portion thereof a distance sufficient to align the other screw head with the enlarged end of its keyhole.

As previously described, the capacitor C is preferably secured to the side wall **23B,** as by means of a bracket **39.** As also shown in FIG. **2,** wall **23B** is removably secured by screws **40** to flanges extending inwardly from the end walls **22A** and **22B** and the side walls **23A** and

23C of the housing. Thus, upon removal of the screws, the wall 23B may be removed to provide access to the capacitor C and to the interior of the housing, and thus to the ballast B, the reflector 28, and the lamp L.

The capacitor is shielded from the heat of the lamp L by means of a reflective plate 41 removably secured to the lower end of the reflector frame intermediate the lower end of the lamp and the capacitor. Some of the heat of the capacitor is also dissipated by ribbing on the wall 23B to which the capacitor is secured. Additional ribbing may be provided on the portion of the wall 23A above the window 24 for dissipating some of the heat of the lamp, as well as for decorative purposes.

The window 24 includes a pane of glass 44A, preferably of translucent material, received within a rectangular frame 45 removably secured across an opening through the lower portion of housing side wall 23A. Thus, as best shown in FIG. 2, the opening in the side wall 23A forms flanges to which the inner side of the window frame 45 is secured by screws 46 or the like. As will be appreciated from FIG. 2, access to these screws is had from inside of the fixture when the side wall 23B is removed.

The various parts of the floodlight within the housing may be wired to one another, as well as to an external source of power, in a manner well known in the art.

From the foregoing it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth, together with other advantages which are obvious and which are inherent to the apparatus.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

The invention having been described, what is claimed is:

1. A floodlight, comprising a housing having a window therein, an electrical socket mounted in the housing to receive a lamp, a lamp having a line source of light received within the socket, a concave reflector having an open end, and means mounting the reflector in the housing for swinging about an axis generally perpendicular to the line source of light of the lamp and between different positions on the side of the lamp opposite the window, said reflector curving about the opposite sides of the lamp so as to dispose the opposite side edges of said reflector between the window and a plane which is parallel to the window and passes through the line source of light of the lamp, and the lamp extending freely through the open end of the reflector in all positions of said reflector.

2. A floodlight of the character defined in claim 1, wherein the line source of light of the lamp coincides with the axis about which the reflector swings.

3. A floodlight of the character defined in claim 2, wherein the axis about which the reflector swings intersects the mean point of the line source of light of the lamp.

4. A floodlight, comprising a housing having end walls, side walls extending between the end walls, and a window in one of said side walls, an electrical socket mounted in the housing to receive a lamp, a lamp having a line source of light received within the socket, a concave reflector having an open end, pins on the end walls of the housing extending along an axis generally perpendicular to the line source of light of the lamp, and an arm pivotally connecting an upper edge of each opposite open end of the reflector to the pin on the adjacent end wall of the housing, said arms extending between the reflector and housing to mount the reflector for swinging about the axes of said pins between different positions on the side of the lamp opposite the window, said reflector curving about the opposite sides of the lamp so as to dispose the opposite side edges of said reflector between the window and a plane which is parallel to the window and passes through the line source of light of the lamp, and the lamp extending freely through the open end of the reflector in all positions of said reflector.

5. A floodlight of the character defined in claim 4, wherein one end of each arm is fixed to the reflector, and the other end thereof is inwardly flexible for removably fitting over the end of its pin.

6. A floodlight of the character defined in claim 5, wherein the end of one pin is threaded, and a nut is received over the end, when the flexible end of one arm is fitted thereover, so as to tightly engage said flexible end against the adjacent end of the housing and thereby lock said reflector in a fixed position.

* * * * *