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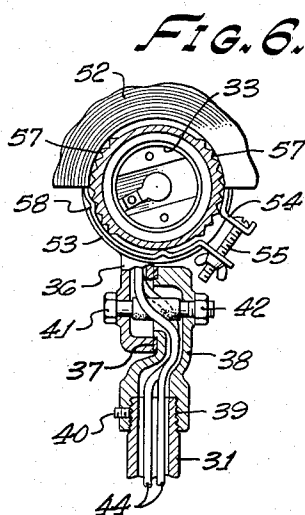
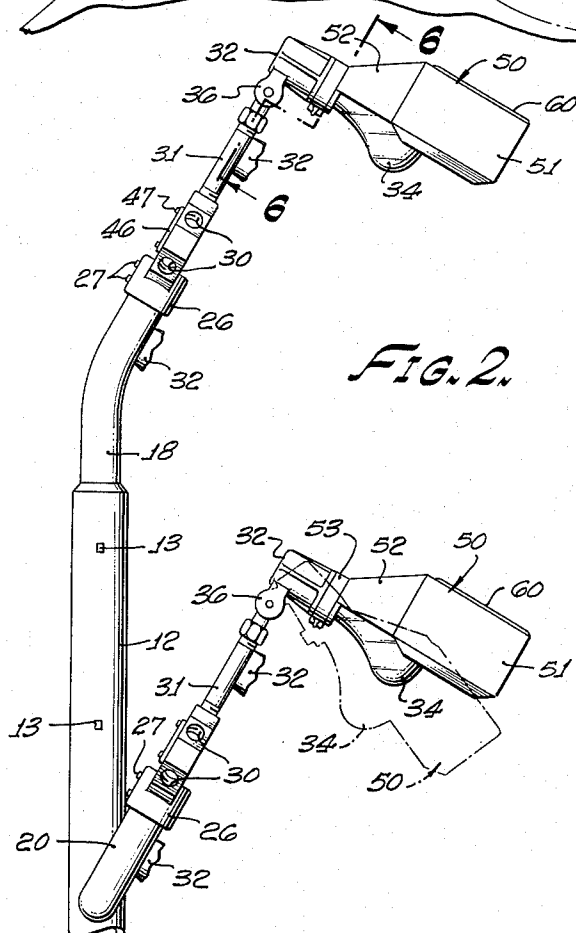
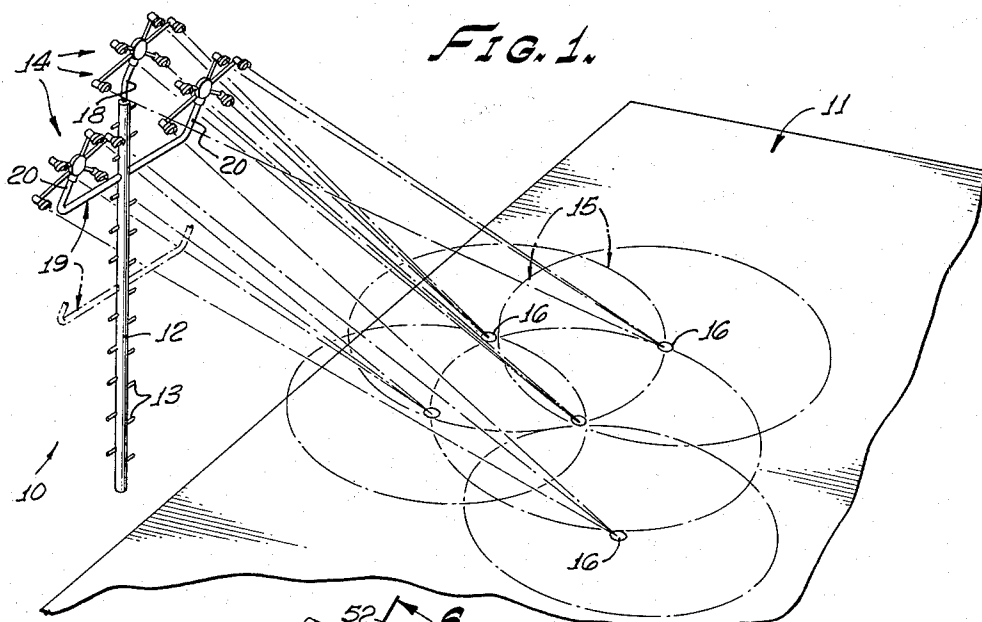
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3,210,531

OUTDOOR FLOODLIGHTING ASSEMBLY

Filed March 18, 1963

2 Sheets-Sheet 1



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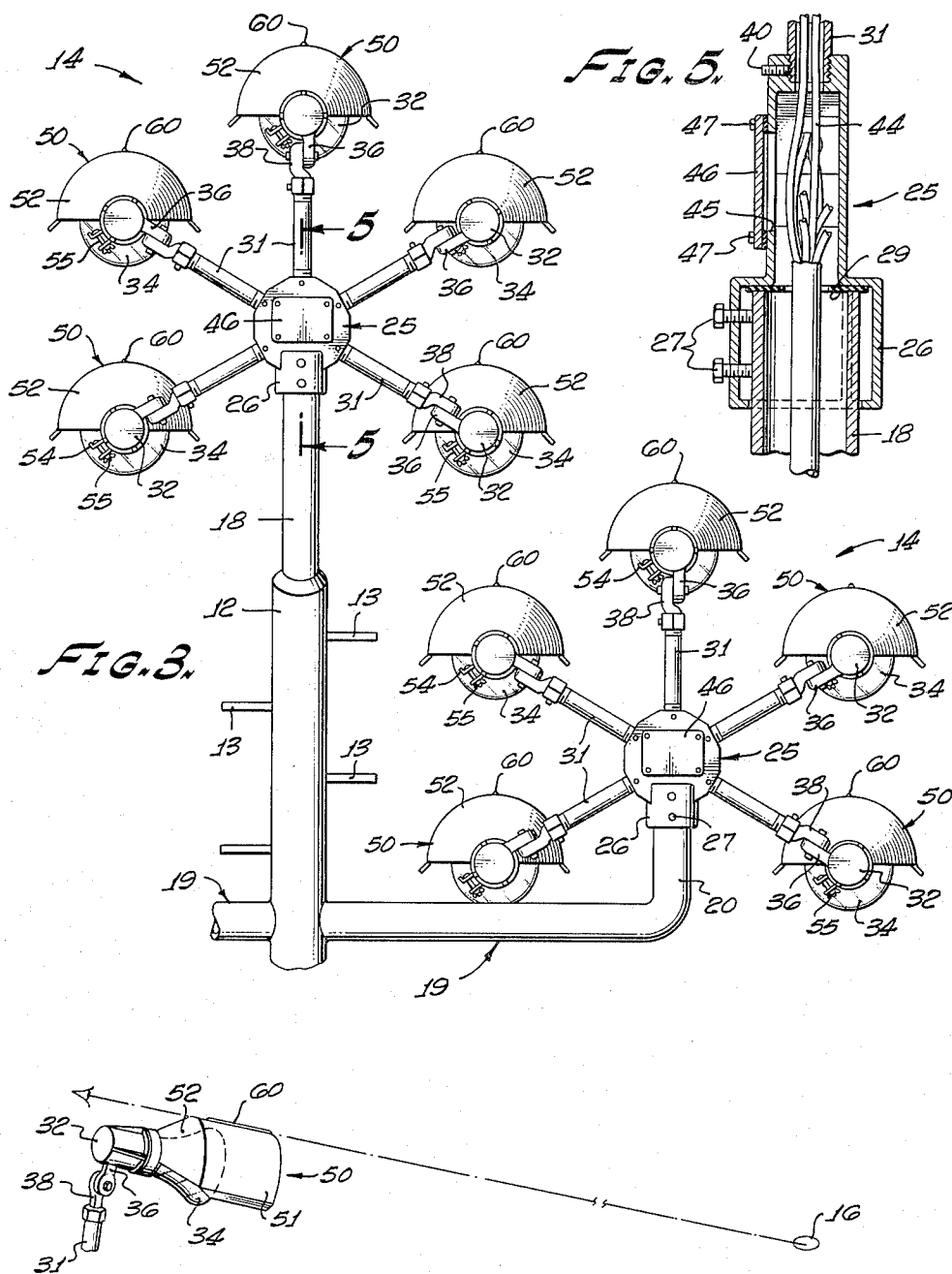


FIG. 4.

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OUTDOOR FLOODLIGHTING ASSEMBLY

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6 Claims. (Cl. 240—3)

The present invention relates to outdoor floodlighting installations and more particularly to an improved supporting tower of simplified rugged construction and to unique means for supporting clusters of floodlights from its upper end and including means for individually spotting and adjusting each lamp to illuminate a selected area in the daytime and without need for energizing the flood lamps.

Floodlighting facilities for parking areas, athletic fields and public places are being used with ever increasing frequency. The lighting intensity desired for illuminating areas such as athletic fields is sufficiently high as to require a large number of lights and extensive adjusting facilities necessitating improved and more reliable means for supporting the individual floodlights including better provision facilitating the focusing of individual lamps accurately and precisely on selected areas of the field. High labor costs and the additional hazards of working on the supporting towers at night also make it most desirable to provide some means permitting lamp focusing without reliance on the lights themselves and under full daylight conditions. Prior constructions necessitate fine and accurate adjustment of the individual lamps by skilled crews located partially on the ground and partially on the tower and working at night. Even so, difficulties are encountered because of the problem of adjusting individual lamps while the field as a whole remains brilliantly illuminated by all lamps. This is because it is costly to go to the trouble and expense of providing individual circuit breakers for the lamps solely to facilitate initial installation and focusing.

Other problems not satisfactorily solved are the need for elaborate supporting standards for the lights. To meet this requirement, it has been commonplace to erect a supporting standard having a network of access platform and supporting metal work at the top of the standard. Such standards and towers are costly to design, erect, and maintain and present excessive areas to the wind requiring additional metal to withstand wind, snow, and ice loads.

It is an object of the present invention to greatly simplify the design of floodlighting facilities of the type just referred to as well as greatly reducing the amount of metalwork required, particularly at the top of the standard. Additionally, the floodlighting facility of this invention is so arranged that a single workman supported centrally and directly on the top of a single main pole has ready access to all lamps of the facility and is enabled to adjust, service, and maintain these without need for the working platforms heretofore thought necessary.

To this end, the individual lamps are arranged in clusters radiating from a central supporting hub which in turn is supported on the upwardly and forwardly inclined end of a tubular bracket. Each lamp includes universal coupling means permitting it to be rotated and directed in any desired direction and clamped firmly in place when properly focused on a designated area to be illuminated thereby.

Focusing of the lamps readily and without need for energizing the lamps is an important feature of the invention. To this end, each flood lamp includes sighting means positioned for convenient use by the workman while standing on the pole and enabling him to

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focus the lamp accurately on a designated spot of the area being illuminated and marked in advance by an appropriately colored target. Each lamp cluster has its own unitary supporting hub mountable as a unit on its own supporting bracket and installable and removable therefrom as a unit.

Another feature is the enclosure of all wiring for the installation entirely within the standard, the tubular brackets and the hub assembly supporting the individual light clusters. The lighting capacity of a given pole can be increased or decreased simply by adding or subtracting cluster-supporting brackets having their base ends anchored to openings in the sides of the supporting pole.

Accordingly, it is a primary object of the present invention to provide an improved floodlighting facility for outdoor use featuring a skeletonized supporting pole and including tubular brackets at its upper end each supporting an undivided cluster of floodlights.

Another object of the invention is the provision of an outdoor floodlighting facility having a main supporting standard and tubular floodlight brackets and characterized by the fact that the outer upturned ends of each is inclined forwardly from a vertical plane passing through the pole.

Another object of the invention is the provision of an outdoor floodlight facility utilizing clusters of lights each having its own unitary supporting hub integral with tubular brackets.

Another object of the invention is the provision of floodlighting facilities for playing fields and the like utilizing clusters of lights supported at the upper end of standard means, each lamp having universal connections permitting it to be aimed at a selected area to be illuminated and including provision for focusing the individual lamps on selected spots in daylight and without need for energizing the flood lamp itself.

Another object of the invention is the provision of a floodlight assembly having a lamp socket universally supported on a tubular bracket and including a combined protective hood, light reflector, and sighting device by which the lamp can be focused on an area to be illuminated in daylight.

These and other mode specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawings to which they relate.

Referring now to the drawings in which a preferred embodiment of the invention is illustrated:

FIGURE 1 is a fragmentary perspective view showing a typical embodiment of the invention floodlighting facility in use and indicating the manner in which the lamps are aimed to distribute the lighting effect of the facility;

FIGURE 2 is a fragmentary side view on an enlarged scale of the lighting facility shown in FIGURE 1 with certain of the individual lamps omitted for clarity;

FIGURE 3 is a fragmentary rear view on an enlarged scale of two clusters of the lamps indicating details of the construction;

FIGURE 4 is a fragmentary schematic view indicating the mode of utilizing the aiming system used in the daylight adjustment of the lamps on the area being illuminated;

FIGURE 5 is a fragmentary vertical sectional view taken through the hub of the light cluster and along line 5—5 on FIGURE 3; and

FIGURE 6 is a cross-sectional view taken along broken line 6—6 on FIGURE 2 showing constructional details of the universal joint structure and the means for locking the lamp hoods in adjusted position.

Referring first to FIGURE 1, there is shown an illustrative installation of the invention floodlighting facility

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designated generally 10 as installed beside a playing field 11. The lighting facility there depicted by way of example includes but a single tubular supporting standard 12 provided with laterally extending steps 13 for use by a workman while installing or servicing the floodlights. Rigidly secured to the upper end of pole 12 are clusters 14 of floodlights, the separate lamps of which can be individually focused to illuminate a circular area of the field such as that indicated by the dot-and-dash circles at 15, 15 and each having temporarily associated therewith a small area focusing target 16, 16.

The structural details at the upper ends of pole 12 will now be described with particular reference to FIGURES 2 through 6. Each cluster of lights is supported by a tubular bracket, uppermost bracket 18 being socketed in the upper end of pole 12 and projecting upwardly and forwardly therefrom, as is best indicated in FIGURES 1 and 2. The remaining tubular brackets 19 are generally L-shaped with their longer legs extending horizontally from the opposite sides of pole 12 and their upright legs 20 inclined forwardly from a vertical plane at an acute angle of about 30 degrees. The upper end of the top bracket 18 is similarly inclined to the vertical to facilitate installation, aiming and servicing of the individual lamps of each cluster, as well as in the interests of greater efficiency and effectiveness in illuminating the ground area forwardly of the standard.

Referring more particularly to FIGURES 2 and 3, it is pointed out that each lamp cluster 14 includes a one-piece hollow hub-like housing 25 having an integral neck 26 projecting from the rim thereof sized to have a loose telescopic fit about the upper end of bracket arm 20. Desirably, this neck has internal reinforcing ribs to strengthen the structure and is provided with one or more cap screws 27 by which hub 25 can be anchored in any desired adjusted position on bracket 19. If desired, a sealing gasket 29 may be inserted between this neck and the upper end of the bracket in the manner best shown in FIGURE 5.

The peripheral rim of hub 25 is provided with threaded openings 30 (FIGURE 2) in which are seated tubular arms 31 extending radially from the supporting hub. Mounted adjustably on the outer end of each arm 31 is an incandescent lamp socket 32 provided with a screw-type receptacle 33 for a standard type incandescent lamp 34. Integral with socket housing 32 is a hollow arm 36, the open base of which is provided with serrations 37 (FIGURE 6) selectively mateable with similar serrations on a fitting 38 rotatably supported on the threads 39 at the outer ends of arms 31. Fitting 38 is held locked in any adjusted position on arms 31 by set screw 40. A through bolt 41 passing through aligned openings in fittings 36, 38 is provided with a clamping nut or thumb screw 42 for convenience in adjusting the angular position of the lamp socket with respect to arms 31. It is to be understood that the lamp socket is rotatable about the axis of bolt 41 which extends transversely of arms 31 whereas fitting 38 is rotatable about the longitudinal axis of these arms. Two adjustable connections acting in concert with one another provide a universal joint interconnecting the individual lamp with its supporting arm. These parts are hollow and provide enclosing and protective passageways for the electrical conductors 44 which extend for their full length within the pole 12, brackets 19, branch out hubs 25 and the floodlight fittings just described. To provide access to these conductors, one face of the unitary one-piece hub casting 25 is provided with an opening 45 normally closed by a gasketed cover plate 46 held in place by cap screws 47 (FIGURE 5).

Adjustably clamped about the rim of the lamp sockets 32 is a combination protective hood, light reflector and sighting device 50 having a generally semicylindrical main body 51 connected through a frusto-conical neck portion 52 with a split clamping band 53, the outturned tabs 54 of which support a clamping thumb nut assembly 55. A portion of the lamp sockets underlying the clamping

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band has serrations or notches 57, 57 arranged in two groups on diametrically disposed sides of the socket. Cooperating with these notches are one or more complementally shaped detents 58 extending transversely of the clamping band and selectively seatable in desired ones of the notches when the thumb nut is loosened. When the latter is tightened the reflector hood is positively locked in a desired adjusted position.

An important feature of reflector hood 50 is a sighting aid permitting daylight aiming and adjustment of the individual flood lamps. This aiming device comprises sharp-crested bead means 60 extending lengthwise of the exterior of the reflector as is best shown in FIGURES 2 and 4. The crest of this bead lies parallel to the axis of the light socket in the clamped position of the reflector and normally lies vertically above this axis.

The use of the sighting aid will be best understood by a consideration of FIGURES 1 and 4. When the flood-lighting facilities for a particular playing field or area to be illuminated are in the design stage, the designer reaches decisions as to amount, distribution and concentration of light desired on each area being illuminated. It is then decided which ones of the flood lamps will be employed for each area. Normally, the light beams overlap one another several times to achieve the desired light intensity and the centers of each beam, as well as the location of each with respect to the perimeters of the playing field, are accurately determined. A suitable aiming disc provided for each of these centers is temporarily secured to its designated spot as indicated at 16 in FIGURE 1.

After the lighting facility has been assembled along the field, the workman accurately locates the spotting discs 16 on the field and then climbs the pole with simple tools for adjusting the universal joints connecting each lamp to a supporting one of tubes 31. The workman then follows a chart correlating the individual lamp with a particular focusing disc 16 on the field. Having located the particular disc for a given lamp, the workman aligns his line of vision along the crest of the sighting bead and adjusts the flood lamp assembly until this line of sight falls in the center of the target disc. The flood lamp is then held in this position while set screw 40 and thumb screw 42 of through bolt 41 are tightened locking the lamp in its adjusted position. It will be apparent that during this process it may be necessary to make one or more readjustments of the reflector hood 50 should radical readjustment of the flood lamp from its preliminary position be necessary. Desirably, the hood should be so positioned during the sighting operation that sighting bead 60 lies along its uppermost side. However, this is not strictly necessary, as will be appreciated, since in any event accurate positioning of the lamp is made possible if the installer's line of view along the crest of the sighting aid falls along the center of the target disc assigned to that lamp.

It is pointed out and emphasized that this operation, as well as the assembly and servicing of the light clusters, is easily accomplished by a workman while standing on rungs 13 by reason of the disposition of the lamp clusters made possible by the forward inclination of vertical portions 20 of the tubular brackets. This arrangement not only provides room for access to the rear of the lamps but also avoids any possibility of interference of the lamps with the pole structure proper. Additionally, it is pointed out that even the outermost ones of the lamps in each cluster are sufficiently close to the pole itself as to permit servicing without need for working platforms or rigging.

Should it be desirable for any reason to lower a light cluster to the ground for repairs and servicing, this is easily accomplished simply by removing access plate 46 and disconnecting the main power supply to the branchout wiring for the cluster lamps, loosening the cap screws 27, and then removing the cluster as a unit from the top of bracket arm 20. The unit is easily lowered to the ground through the use of tackle blocks and the like and is reinstalled by the reverse procedure.

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While the particular Outdoor Floodlighting Assembly herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiment of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

We claim:

1. A combined protective hood and sighting aid adapted to be mounted about the lamp of flood lamp means of the type having an adjustable support and means for locking the same in a selected adjusted position, said hood including means for securing the same rigidly on flood lamp means in different positions circumferentially of the axis of the beam of said floodlamp means, said hood having sighting means extending lengthwise thereof along a line of sight parallel to the axis of the light beam of said flood lamp means thereby enabling an installer working in the daylight to accurately position and clamp flood lamp means to cast its light beam directly on an area to be lighted as the installer aims said hood until the line of sight through said sighting means falls on a spot at the center of the area to be floodlighted.

2. In an outdoor area floodlighting system for play fields and auto parking areas and the like which system is of the type having a plurality of beam-type floodlamps supported for independent aiming and adjustment atop upright overhead light supporting means; that improvement which comprises sighting means on individual ones of said floodlamps having the axis thereof arranged generally parallel to the axis of the light beam of the associated lamp for use by a workman in aiming the floodlamp at a designated target area of the ground surface to be illuminated while said lamp remains de-energized, and means for clamping the individual floodlamps rigidly in their respective adjusted positions while held aimed on a designated ground target area.

3. That improvement in outdoor overhead floodlighting systems for play fields, parking areas and the like and of the type having a plurality of beam-type floodlights supported atop pole means for independent aiming at different ground areas; said improvement including sighting means for each lamp adjustable circumferentially of the axis of each floodlamp with the axis of said sighting means held parallel to the axis of the light beam in all adjusted positions thereof, said sighting means being effective to enable a workman to sight the individual lamps on different designated areas of the ground area being illuminated in the daytime while the lamps remain de-energized, and means for clamping said floodlamps in their respective adjusted positions.

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4. That improvement in outdoor floodlighting systems defined in claim 3 characterized in that said floodlamps include L-shaped mounting brackets therefor, said mounting brackets having one pair of legs projecting laterally from the opposite sides of said pole means, the other pair of legs of said mounting brackets being remote from one another and lying in a common plane inclined acutely to a vertical plane passing through said one pair of legs, and means on the free ends of said acutely inclined bracket legs supporting a cluster of said floodlamps.

5. That improvement in outdoor floodlighting systems defined in claim 3 characterized in that said sighting means includes semi-circular protective hood means embracing the upper half of the floodlamp means to shield the same from snow, sleet, rain and the like, and said hood means having sighting bead means extending lengthwise thereof along a line of sight parallel to the axis of the light beam of said floodlamp means.

6. That improvement in the outdoor overhead floodlighting of play fields, auto parking areas and the like which improvement comprises, adjustably mounting a plurality of independent beam type floodlamps atop elevated support means adjacent a ground area to be floodlighted and each having sighting means thereon having a sighting axis parallel to the light beam of the associated floodlamp, distinctively identifying the point on the ground to be pierced by the light beam axis of the individual floodlamps when properly adjusted, visually aligning each floodlamp in succession during the daytime without power to the lamps by adjusting said lamps until their respective sighting axes are aligned so that the axes of the respective light beams pierce the preselected ground-piercing points thereof, and locking each floodlamp in its desired adjusted position whereby said floodlamps upon being energized after dark illuminate said field area with a desired preselected distribution and degree of illumination.

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