April 7, 1970 T. B. ADRA 3,505,515

FLOODLIGHT AIMING AND RELOCATING MECHANISM

Filed April 27, 1967 2 Sheets-Sheet 1

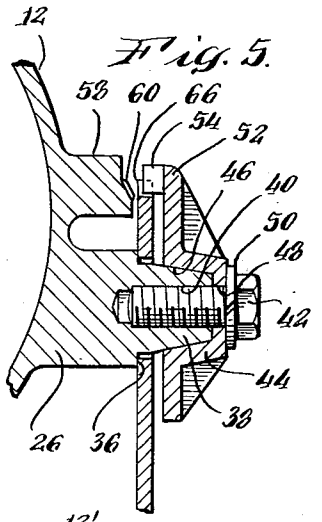


Fig. 5.

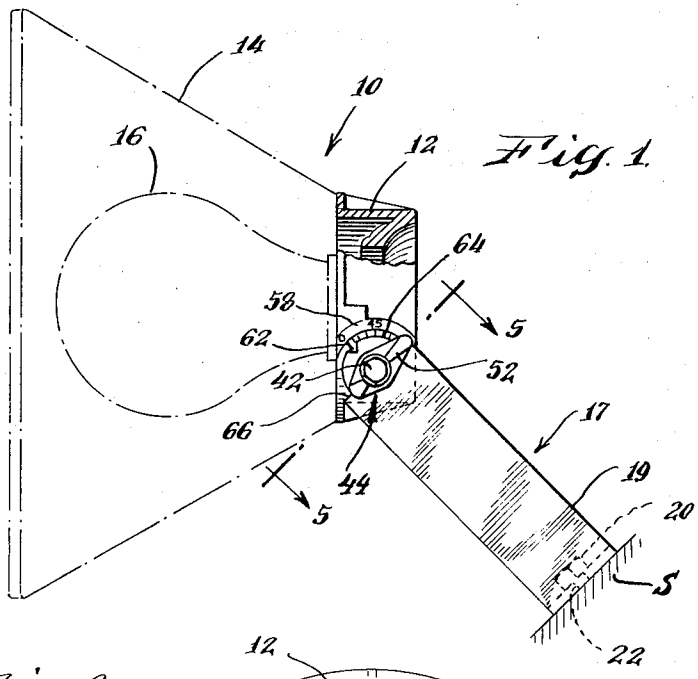


Fig. 1.

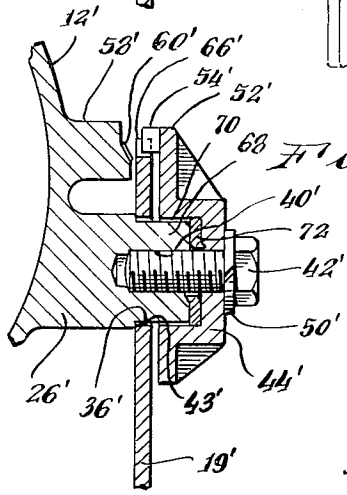


Fig. 6.

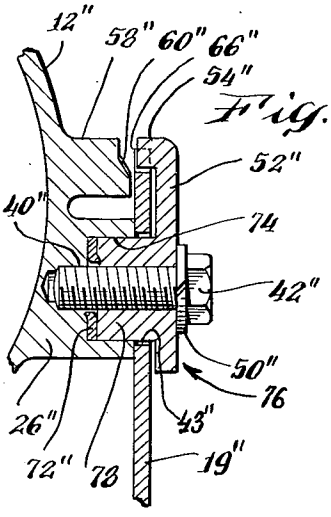


Fig. 7.

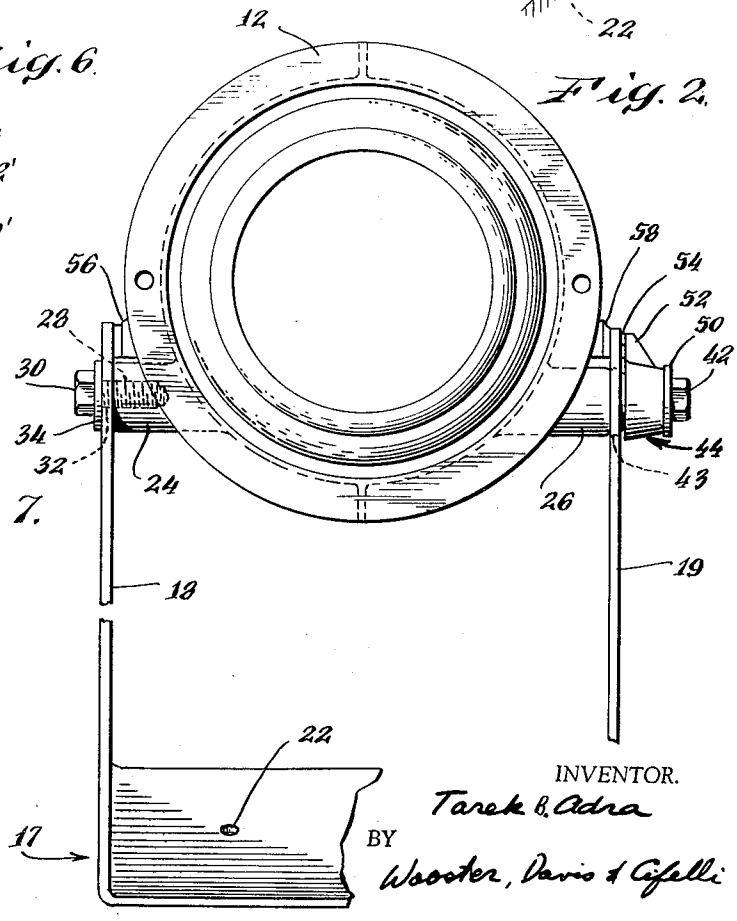


Fig. 2.

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Fig. 3.

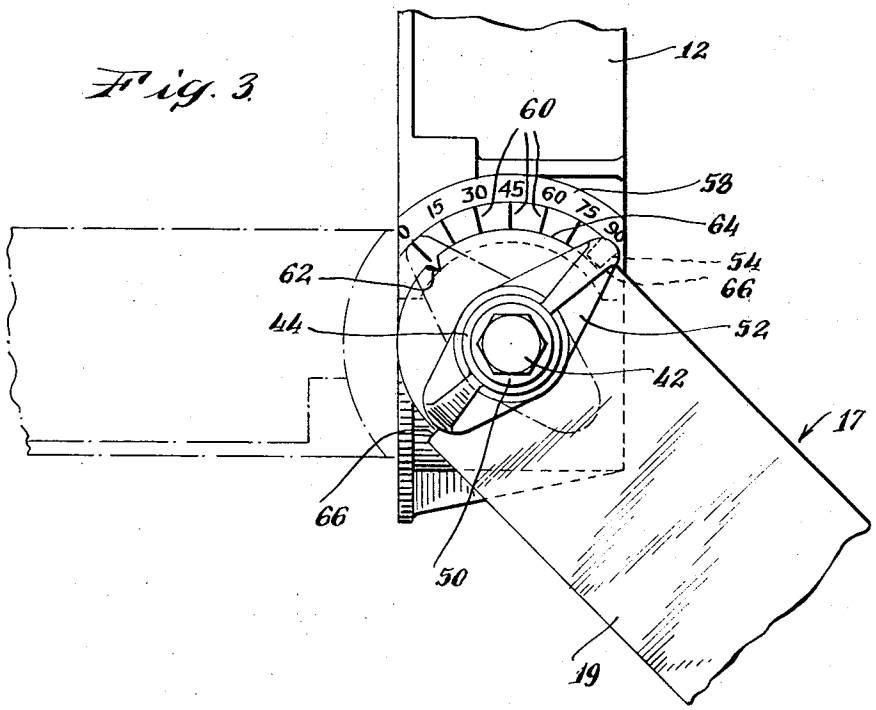
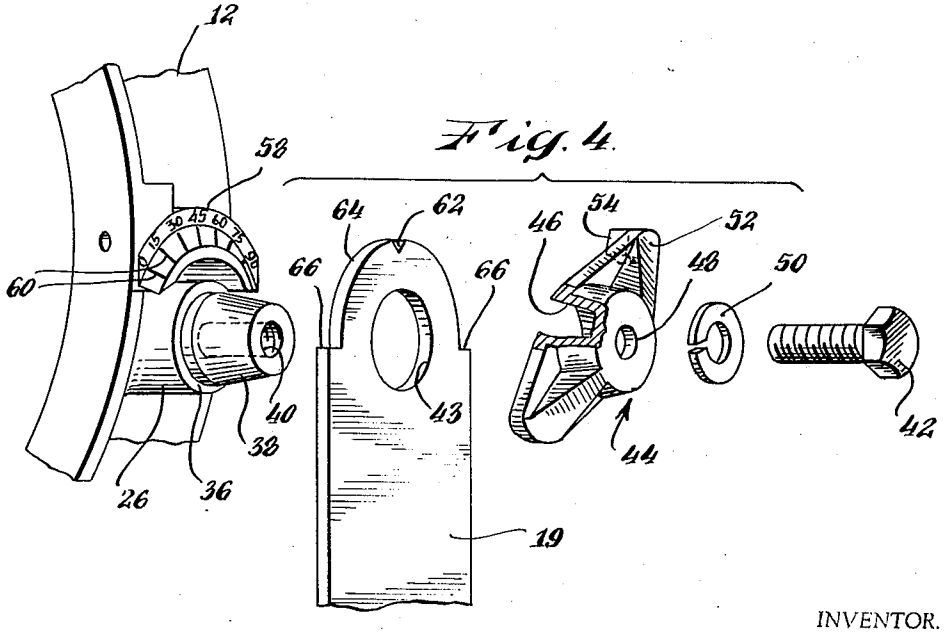


Fig. 4.



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FLOODLIGHT AIMING AND RELOCATING MECHANISM

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U.S. Cl. 240—3 6 Claims

ABSTRACT OF THE DISCLOSURE

A floodlight aiming and relocating mechanism with a U-shaped support bracket holding the body housing of the floodlight. The body housing has oppositely disposed bosses mounted in pivot openings in the bracket legs. A bolt on one boss locks the housing in its aimed position. The opposite leg of the bracket has an indicator which cooperates with indicia on the housing for aiming the floodlight. The same leg has a relieved arcuate portion. A stop member is secured to the body housing and extends into the relieved portion of the leg for returning the floodlight to its aimed position after it has been released.

BACKGROUND OF THE INVENTION

This invention relates to a floodlight aiming and relocating mechanism and more particularly to such a mechanism which allows a properly aimed floodlight to be moved out of its aimed position for servicing and then to be relocated quickly and accurately to its aimed position.

In high intensity lighting applications, such as stadiums, parking lots, railroad yards and industrial areas, it is necessary to direct a floodlight beam accurately in order to obtain maximum efficiency of light distribution with a minimum number of floodlights. It frequently becomes necessary to service the floodlight, such as by replacing burned out lamps or other parts, making repairs or cleaning the light, thus requiring the floodlight to be tilted to a position in which it will be convenient for a workman to perform the necessary servicing operations. As tilting of the floodlight destroys its accurate angular setting or aim, means are provided whereby the floodlight may be automatically reset or relocated to its former aimed position by a simple manual operation.

Various types of apparatus known to the prior art have been developed for permitting aiming, tilting for servicing and relocating of floodlights. The known apparatus generally includes an adjusting plate having angular scale marking imprinted thereon which may be selectively mounted upon the usual reflector body housing and may be angularly adjusted relative thereto for controlling the desired angular orientation of the housing. The housing in turn is mounted upon a usual standard or support member which carries stop means thereon for cooperating with the adjusting plate so that the reflector body housing may be located relative to the support by means of the intermediate adjusting plate.

These prior art mechanisms have the distinct disadvantage of requiring the accurate aiming of the reflector body housing relative to its fixed support to be controlled by the intermediate adjusting plate when in fact the important relative relationship desired to be maintained is between the mounting means and the body housing.

SUMMARY OF THE INVENTION

Accordingly, it is the primary object of my invention to provide a novel aiming mechanism wherein the angular orientation of the reflector body housing may be set directly relative to the fixed support member.

Another object is to provide a novel aiming mechanism with a stop member provided solely for quickly relocating the body housing and floodlight to its aimed position after it has been tilted for servicing and which may be quickly and easily selectively mounted upon the body housing for locating or setting the stop position.

The objects of this invention are achieved, in one form, by providing a floodlight aiming and locking mechanism including a support bracket, a floodlight housing having two mounting bosses for being pivotally mounted upon the bracket, aiming means located adjacent one of the mounting bosses including an indicator formed on the bracket and indicia formed on the body housing, stop means frictionally secured to the one mounting boss and locking means located on the other boss for firmly securing the body housing to the bracket.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and further details of that which I believe to be novel and my invention will be clear from the following description and claims taken with the accompanying drawings wherein:

FIG. 1 is a side elevational view of the floodlight aiming and locking mechanism constructed in accordance with my invention;

FIG. 2 is a front elevational view showing the locking and the aiming mechanism;

FIG. 3 is an enlarged side elevational view showing the stop means for locating the body housing in its aimed position and further showing in dot-dash lines the body housing being tilted to a servicing position;

FIG. 4 is an enlarged exploded perspective view of the aiming mechanism of the preferred embodiment;

FIG. 5 is an enlarged sectional view taken substantially along line 5–5 of FIG. 1 showing the preferred embodiment of the stop mechanism;

FIG. 6 is a sectional view similar to that of FIG. 5 showing an alternative embodiment of the stop mechanism; and

FIG. 7 is a sectional view similar to that of FIG. 5 showing still another embodiment of the stop mechanism.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to FIGS. 1 through 5 there is illustrated the preferred embodiment of my improved floodlight assembly referred to generally by the numeral **10** which includes a cast metal body housing **12**, a reflector **14** and a usual flood lamp **16**. The floodlight assembly **10** is shown mounted for rotation upon a generally U-shaped bracket **17** preferably made of steel and having legs **18** and **19** for supporting the body housing **12**. The bracket **17** may be mounted upon a suitable support S by means of a plurality of screws **20** which are passed through openings **22** formed in the base of the bracket and threadedly anchored in the support S.

The cast body housing **12** may be formed with aligned trunnion bosses including a locking boss **24** and a stop seating boss **26** for mounting the body housing **12** for rotation upon the bracket **17**. The locking boss **24** is provided with an axial tapped opening **28** for receiving a locking trunnion bolt **30** which may be passed through an opening **32** in leg **18** for supporting the housing upon the bracket. By tightening the locking bolt **30** the body housing is immovably locked to the support bracket **17** and may be so locked in any selected position relative to the support bracket. A lock washer **34** is located between the head of the bolt and the leg for preventing inadvertent loosening of the locking bolt **30** once it has been tightened.

The stop seating boss 26 is formed with a shoulder 36 and a truncated conical trunnion 38 having an axial tapped bore 40 for receiving a stop securing bolt 42. The conical trunnion 38 may be passed through an opening 43 in lag 19 of the bracket which opening is larger than the maximum diameter of a conical trunnion 38 for allowing the trunnion to be rotated freely within the opening. A stop member 44 having a conical seat 46 communicating with an axial opening 48 may be mounted upon the trunnion 38 and selectively locked thereto in frictional engagement in any desired angular position simply by tightening the stop securing bolt 42 which is prevented from loosening by a lock washer 50. The stop member 44 further includes a radially extending arm 52 having an axially extending lug 54 formed at its end whose function will become apparent.

The aiming mechanism includes arcuate formations 56 and 58 having angular scale markings or indicia 60 formed thereon, located above the trunnion bosses 24 and 26 (as seen in FIGS. 1 and 2), and a cooperating V-shaped sighting notch 62 forming at the end of leg 19 in which the angular scale markings can be read. Leg 19 is further provided with a semi-circular relieved portion 64 at its end, which portion terminates in shoulders 66.

To aim the floodlight assembly 10 it is necessary to loosen the locking bolt 30 for releasing the body housing 12 and allowing it to be rotated freely relative to the fixed bracket 17 and to loosen the stop securing bolt 42 for allowing the stop member 44 to be freely rotated within the limits of the relieved portion 64 relative to the trunnion 38. The body housing may then be tilted to the desired angular position as indicated by the angular scale markings relative to the sighting notch 62 and then locked in position by merely tightening the locking bolt 30. For example, as seen in solid lines in FIG. 3 the floodlight is set at 0°, being directed in a horizontal direction. Once the body housing has been properly positioned the stop member 44 may be located against either one of the shoulders 66 and the stop securing bolt 42 tightened for fixedly frictionally engaging the stop member to the trunnion 38.

In order to permit repairs or servicing it is merely necessary to loosen the locking bolt 30 allowing the body housing to be tilted to any convenient servicing position and then to tighten the bolt 30 for performing the required servicing operations. Tilting the body housing causes the lug 54 of the frictionally engaged stop member 44 to be removed from the locating shoulder 66 (see dot-dash position of FIG. 3). Upon completion of the servicing operations the bolt 30 may again be loosened, the floodlight assembly 10 may be quickly and easily returned to its aimed position by rotating the assembly 10 until the lug 54 reengages the locating shoulder 66 and the locking bolt 30 may once again be tightened.

In FIGS. 6 and 7 there are disclosed two alternate embodiments of the stop mechanism, the basic elements of these mechanisms being similar to the preferred form described above with reference to FIGS. 1–5 and therefore similar elements will be identified by similar numerals with a prime (') added in the FIG. 6 embodiment and a double prime (") added in the FIG. 7 embodiment.

The modified form of FIG. 6 shows a cast body housing 12' formed with a stop seating boss 26' and having an arcuate formation 58' with indicia 60' formed thereon. The stop seating boss includes a shoulder 36' and a smaller diameter cylindrical trunnion portion 68 having an axial tapped bore 40'. The cylindrical trunnion 68 passes through an opening 43' in the leg 19' of the bracket and extends into a cylindrical seat 70 formed in the stop member 44'. Secure frictional engagement of the stop member with the cylindrical trunnion is accomplished by means of a toothed lock-washer 72 interposed between the face of the cylindrical trunnion 68 and the base of the cylindrical seat 70 which lock-washer 72 "bites" into both members upon the tightening of the stop securing bolt 42'.

The modified form of FIG. 7 includes a stop seating boss 26" with a cylindrical seat 74 and an axial tapped bore 40" formed therein. A stop member 76 which may be frictionally engaged with the body housing 12" includes a cylindrical boss portion 78, a radially extending arm 52" and an axially extending lug 54". Thus, it is apparent that in this form of the stop mechanism the stop member 76 forms the trunnion for supporting the housing, the cylindrical boss portion 78 passing through an opening 43" in the leg 19". In this form, frictional engagement of the stop member 76 with the seating boss 26" is also accomplished by means of a toothed lock washer 72" which "bites" into both members when the securing bolt 42" is tightened. The operation of the above described modified forms is identical to the operation of the preferred form.

It should also be noted that since the relieved portion 64 defines an arc of 180°, rotation or tilting of the floodlight assembly is limited to this amount. However, the lug 54 of the stop member may be located against either of the two locating shoulders 66 thus effectively allowing the floodlight to be tilted for servicing either clockwise or counterclockwise depending of course on the initial location of the stop member. Therefore, it should be apparent that when aiming the floodlight and setting the relocating stop position, consideration must be given to the servicing of the floodlight and the stop member must be set accordingly.

It is understood that the present disclosure has been made only by way of example and that numerous changes in details of construction and the combination and arrangement of parts may be resorted to without departing from the true spirit and scope of the invention as hereinafter claimed.

What I claim as new and desired to secure by Letters Patent of the United States is:

1. A floodlight aiming and relocating mechanism including: a U-shaped support bracket including two supporting legs defining aligned pivot openings therein, one of said legs having a relieved arcuate portion at its end surrounding its pivot opening and terminating in shoulders; a floodlight body housing having two oppositely disposed mounting bosses pivotally mounted in said pivot openings; aiming means formed upon said body housing and said support bracket for indicating the angular orientation of said body housing relative to said bracket; stop means frictionally secured to, and angularly adjustably mounted on, one of said mounting bosses including an axially extending lug positioned for movement within said relieved arcuate portion and cooperable with said bracket for relocating the body housing in its aimed position after it has been moved therefrom and for limiting the rotation of said body housing upon said bracket within the arc defined by said shoulders; and means cooperable with the other of said mounting bosses for locking said body housing to said bracket for immovably securing said body housing in the proper angular orientation relative to said bracket.

2. The floodlight aiming and relocating mechanism defined in claim 1 wherein a portion of said one mounting boss extends through said pivot opening defined in said one leg and forms one of the bearing surfaces upon which said housing rotates.

3. The floodlight aiming and locking mechanism defined in claim 2 wherein: said portion of said one boss is conical; said stop means is provided with a tapered seat for receiving said conical portion; and further including securing means for urging said stop means onto said conical portion for firmly frictionally engaging said stop means with said body housing.

4. The floodlight aiming and relocating mechanism defined in claim 2 wherein: said portion of said one boss is cylindrical; said stop means is provided with a cylindrical seat for receiving said cylindrical portion; further including frictional locking means for placement be-

tween the end of said cylindrical portion and the base of said cylindrical seat; and further including securing means for urging said stop means, said frictional locking means and said cylindrical portion together for firm frictional engagement of said stop means with said body housing.

5. The floodlight aiming and relocating mechanism defined in claim 1 wherein: said one mounting boss defines a cylindrical seat; said stop means comprises a body portion, an axially extending lug and a bearing portion including a cylindrical boss for insertion through said pivot opening defined through said one leg and into said cylindrical seat, said boss forming one of the bearing surfaces upon which said housing rotates; further including frictional locking means for placement between the end of said boss and the base of said cylindrical seat; and further including securing means for urging said stop means, said frictional locking means and said one mounting boss together for firm frictional engagement of said stop means with said body housing.

6. The floodlight aiming and relocating mechanism defined in claim 1 wherein: said aiming means includes an indicator formed on said bracket and indicia formed on said body housing and cooperable with said indicator.

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U.S. Cl. X.R.

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