Nov. 4, 1969 T. ADRA 3,476,925

FLOODLIGHT REFLECTOR ASSEMBLY

Filed July 27, 1967

Fig. 1.

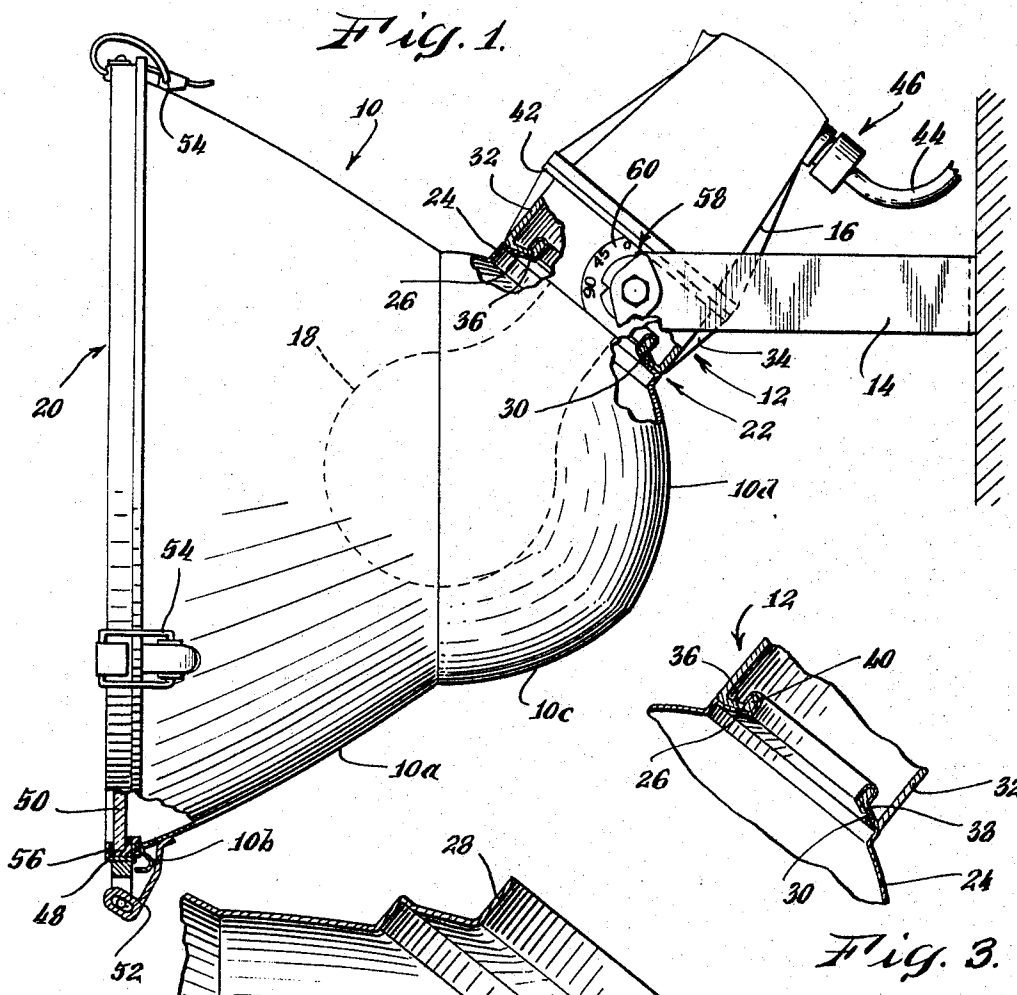
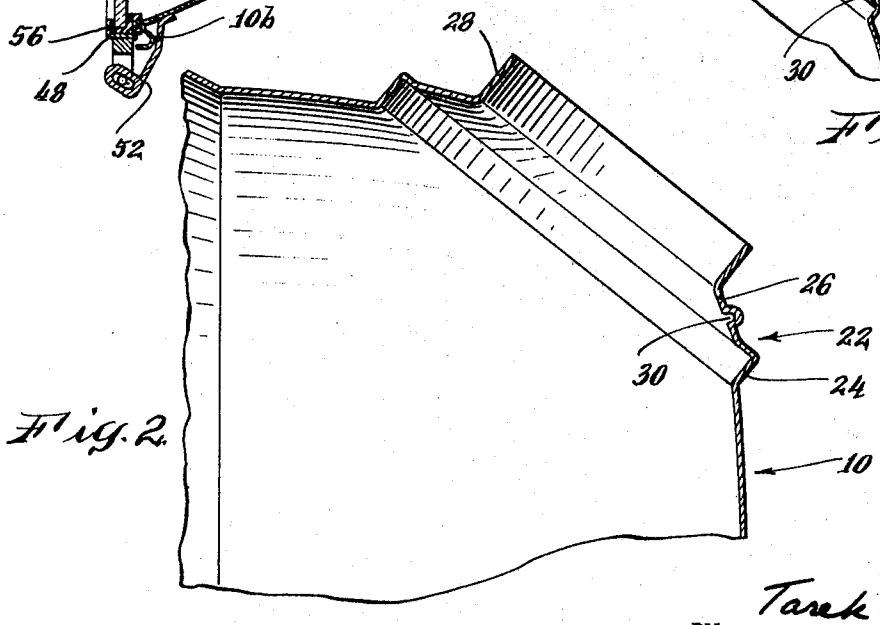


Fig. 3.

Fig. 2.



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United States Patent Office 3,476,925
Patented Nov. 4, 1969

3,476,925

FLOODLIGHT REFLECTOR ASSEMBLY

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Filed July 27, 1967, Ser. No. 656,417
Int. Cl. F21p 5/00; F21s 1/10, 3/10
U.S. Cl. 240—3 4 Claims

ABSTRACT OF THE DISCLOSURE

A floodlight reflector assembly having a support means and a trunnion ring carried by the support means. The trunnion ring has an inwardly extending circumferential flange terminating in an annular lip. A reflector, having complementary circumferential flanges, is mated with the trunnion ring and an axially extending collar is formed over the trunnion ring lip. The trunnion ring has an aperture formed in it and a cooperating formation is carried by the reflector to position the reflector with respect to the trunnion ring.

BACKGROUND OF THE INVENTION

This invention relates to a floodlight reflector assembly and, more particularly, to the manner in which the reflector may be fastened to the usual trunnion ring.

The usual floodlight construction includes a socket housing which receives a flood lamp and to which is secured a reflector. The reflector is formed with a suitable curvature for accurately focusing the rays of light emanating from the light source and for accurately aiming them at an object while confining the light within a usable beam. Thus, the reflectors are usually constructed in a generally conoidal shape having various portions of different curvature for intercepting and directing the rays. When coupling the usual reflector with the usual socket housing it is necessary that the reflector be rigidly secured thereto and accurately positioned so that the entire floodlight assembly may be properly aimed.

Heretofore, several different methods have been utilized in the prior art to couple the reflector to the socket housing. Each, however, requires auxiliary hardware which increases both manufacturing and assembly costs. One such known construction utilizes a plurality of circumferentially spaced screws for securing a reflector flange to a socket housing or to a trunnion ring and positioning it relative thereto. Another known coupling arrangement comprises a plurality of circumferentially spaced latches which allow the reflector to be hung upon the socket housing. Another common arrangement includes a clamping ring which is threadedly engageable with a socket housing or trunnion ring for urging a usual radial flange of the reflector against the housing or ring and thereby clamping the reflector in place.

Each of these above described prior art coupling arrangements removably secures the reflector and includes a plurality of auxiliary parts, thus increasing the costs of manufacture and assembly of the floodlight reflector and housing. Furthermore, each time the reflector is coupled, there is the possibility that it will be mounted improperly relative to the socket housing thereby disturbing the required accurate aim of the floodlight.

SUMMARY OF THE INVENTION

Accordingly, it is the primary object of my invention to provide an improved floodlight reflector assembly in which the reflector and the trunnion ring are permanently coupled and are accurately positioned relative to one another.

A further object is to provide an economical floodlight

reflector assembly which does not require auxiliary securing means for coupling the reflector with the trunnion ring and which may be easily assembled.

To accomplish these objects, in one form, a floodlight reflector assembly is provided which comprises: a support bracket; a trunnion ring rotatably mounted on the bracket; aiming means on the ring and bracket for selectively angularly positioning the ring relative to the bracket; a socket housing removably coupled to the ring for supporting a floodlight; and a reflector having a complex reflective surface including plural sections having different curvatures, the reflector being permanently secured to the mounting ring for being accurately aimed in response to the selective positioning of the mounting ring.

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 drawing, wherein:

FIG. 1 is a side elevational view of the floodlight reflector assembly partially broken away to show the manner in which the reflector is secured to the trunnion ring and to show the lens door construction;

FIG. 2 is an enlarged cross sectional elevational view taken through the center of the reflector showing the reflector construction prior to being coupled with the trunnion ring; and

FIG. 3 is an enlarged cross-sectional elevational view taken through the center of the coupled reflector and trunnion ring.

DESCRIPTION OF THE PREFERRED EMBODIMENT

There is illustrated in FIG. 1 a floodlight assembly which includes a reflector **10** constructed of spun aluminum or other suitable material, a cylindrical trunnion ring **12** supported for rotation on a U-shaped bracket **14**, the ring being permanently coupled at one end to the reflector **10** and removably secured at its other end to a socket housing **16** which carries a floodlamp **18**. A lens door **20** is hingedly secured to the flared end of the reflector for preventing entry of dirt, water or other foreign objects which may impair the reflective surface.

More particularly, the reflector **10** comprises a conoid including several sections, each having a specific curvature for intercepting light rays from a source and for directing the rays into a coherent beam for being aimed at a target. The sections of various curvature are accurately spun in a known manner. The largest section **10***a* is substantially paraboloidal and is formed at its outer or flared end with an S-shaped lip **10***b* and at its other end merges into a spherical section **10***c* which in turn merges into a smaller curved section **10***d* which closes the end of the reflector. A coupling section **22** defining an opening is provided through the sections **10***c* and **10***d*, the axis of which forms an angle of approximately 50° to the longitudinal axis of sections **10***a*, **10***c* and **10***d*.

The coupling section **22** is shown clearly in FIG. 2 as it is formed prior to being permanently coupled with the trunnion ring **12**. It comprises an annular axially extending collar **24** which terminates in an annular angularly inwardly directed flange **26**, which in turn terminates in an annular, reduced diameter axially extending collar **28**. A spherical protrusion **30** drawn from the flange wall is formed as a positioning device for insuring that the reflector **10** is properly located relative to the trunnion ring **12**.

The trunnion ring **12** may be formed of cast aluminum and includes a generally cylindrical outer wall **32** which may be provided with suitable reinforcing ribs **34**. At one

end of the wall **32**, there is located an annular angularly inwardly directed flange **36** having the same angle as the reflector flange **26**. Flange **36** includes an aperture **38** therethrough and terminates in an annular axially extending lip **40** having a smoothly curved surface.

When assembling the floodlight the reflector **10** is first mated with the trunnion ring **12** with the collar **28** extending into the central opening of the trunnion ring and is rotated until the protrusion **30** is introduced into the aperture **38** thus indicating that the members **10** and **12** are properly positioned relative to one another. The collar **28** may then be rolled over the lip **40** in a known manner, as clearly illustrated in FIG. 3.

The trunnion ring further includes a radially outwardly extending flange **42** located at the end of the wall **32** remote from the flange **36** to which the socket housing **14** may be secured in any suitable manner. The standard floodlamp **18** is received in a usual lamp receiving socket mounted in the socket housing **16**, and is connected to a power source by power cord **44**. The cord **44** passes into the housing **16** through a sealing bushing assembly **46** of usual construction which prevents entry of foreign matter into the housing.

Lens door **20** located at the enlarged flared end of the reflector **10** which is hingedly secured to the reflector comprises an annular frame **48** of U-shaped cross section which supports a transparent lens **50** made of glass or other suitable material. A hinge **52** retains the lens door **20** captive on the reflector and a plurality of circumferentially disposed over-center toggle clamps **54** are used to urge a door gasket **56** against the S-shaped lip **10***b*.

The floodlight assembly is rotatably mounted upon the U-shaped bracket **14** and a suitable aiming and locking mechanism **58** is provided for allowing the reflector to be moved out of its aimed position for servicing and to be relocated quickly and accurately in its aimed position. This mechanism is the subject of my copending application Ser. No. 634,192, filed Apr. 27, 1967, entitled Floodlight Aiming and Locking Mechanism, and assigned to the same assignee as the present application. In order to insure that the reflector **10** is properly aimed as indicated by the indicia **60** formed on the trunnion **12** it is of the utmost importance that the reflector **10** be correctly positioned relative to the ring **12**. To this end, I have provided a novel arrangement for permanently securing the complex reflective surface relative to the light source in a manner which is both inexpensive and accurate.

It should be 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 the scope of the invention as hereinafter claimed.

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

1. An improved floodlight reflector assembly comprising: support means; a trunnion ring carried by said support means; aiming means for selectively angularly positioning said trunnion ring relative to said support means; means carried by said trunnion ring for supporting a light source; a reflector permanently secured to said trunnion ring for being accurately aimed in response to the selective positioning of said trunnion ring; and means for interlocking said reflector and trunnion ring to prevent relative rotation thereof.

2. An improved floodlight reflector assembly comprising: support means; a trunnion ring carried by said support means and including an inwardly extending circumferential flange terminating in an annular lip extending axially away from said flange; aiming means for selectively angularly positioning said trunnion ring relative to said support means; means carried by said trunnion ring for supporting a light source; and a reflector including a coupling section mating with said trunnion ring, said coupling section having a complementary inwardly extending circumferential flange terminating in an axially extending collar which is formed over said lip, permanently coupling said reflector and said trunnion ring.

3. An improved floodlight reflector assembly comprising: support means; a trunnion ring carried by said support means and including an inwardly extending circumferential flange having an aperture formed therein; aiming means for selectively angularly positioning said trunnion ring relative to said support means; means carried by said trunnion ring for supporting a light source; and a reflector permanently secured to said trunnion ring including a coupling section having a complementary inwardly extending circumferential flange having a formation thereon for entering said aperture for positioning said reflector and said trunnion ring when mated, said reflector being accurately aimed in response to the selective positioning of said trunnion ring.

4. An improved floodlight reflector assembly comprising: support means; a trunnion ring carried by said support means and including an inwardly extending circumferential flange having an aperture formed therein and terminating in an annular lip; aiming means for selectively angularly positioning said trunnion ring relative to said support means; means carried by said trunnion ring for supporting a light source; and a reflector including a coupling section mating with said trunnion ring, said coupling section having a complementary inwardly extending circumferential flange having a formation thereon for entering said aperture and terminating in an axially extending collar which is formed over said lip, for positioning and permanently coupling said reflector relative to said trunnion ring, said reflector being accurately aimed in response to the selective positioning of said trunnion ring.

References Cited

UNITED STATES PATENTS

2,618,738	11/1952	Foulds	240—3
2,795,690	6/1957	Cooper	240—3

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U.S. Cl. X.R.

240—25