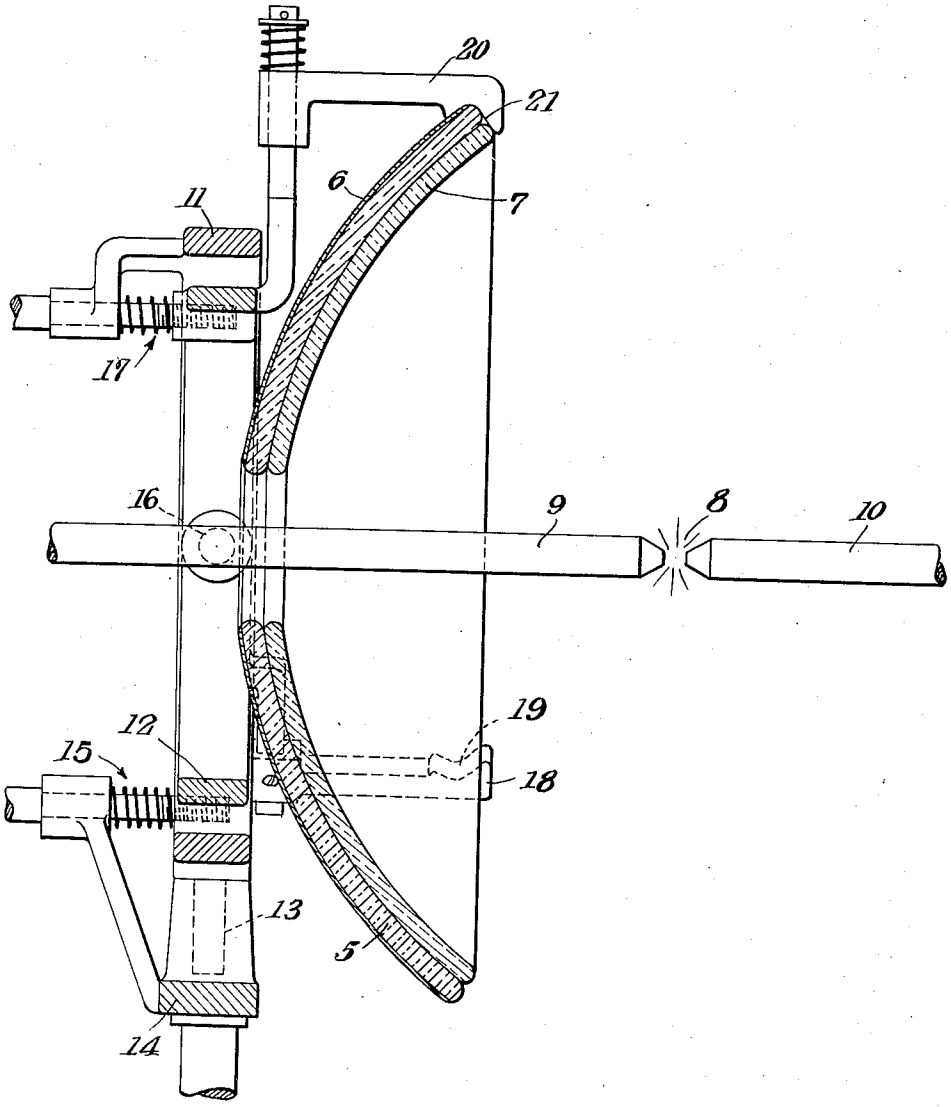
March 30, 1937. S. NICKELSBURG ET AL 2,075,539

SHIELD FOR OPTICAL UNITS

Filed Aug. 13, 1934



SIDNEY NICKELSBURG
ARNOLD TYROLER
INVENTORS

BY Leroy Freeman
ATTORNEY

Patented Mar. 30, 1937 2,075,539

UNITED STATES PATENT OFFICE

2,075,539

SHIELD FOR OPTICAL UNITS

Sidney Nickelsburg and Arnold Tyroler, New York, N. Y., assignors to Morelite Company, Inc., New York, N. Y.

Application August 13, 1934, Serial No. 739,518

6 Claims. (Cl. 176—51)

This invention relates to arc light projectors and particularly to shields for reflectors employed therein.

It is at present the practice to employ mirror reflectors in arc light projectors. These are usually made of glass or the like with a reflecting surface coating, such as silver, on the outer or convex face.

Those skilled in the art have recognized the desirability of protecting the reflecting coating from the heat of the arc to prevent smoking, pitting, etc., thereof; and for that reason have turned to the glass reflector which has the reflecting coating on its outside surface in preference to the metal reflector, the reflecting coating of which is on the inside, i. e. on the face towards the arc.

While the results thus obtained constituted a step forward in the art, the glass surface of the reflector subjected to the deleterious action of the arc in turn became subjected to smoking, pitting, cracking, overheating, etc.

In attempting to overcome this harmful action of the arc on the reflector, it became necessary to remove the arc as far as possible from the reflector. This obviously reduced the efficiency of the projector inasmuch as the intensity of the reflected light was lessened.

Bearing in mind the above defects and also the relatively high cost of replacing marred, scratched, pitted or cracked reflectors, it is a major object of this invention to provide means to prevent the deleterious action of the arc on the reflector.

Another object is to provide transparent means interposed between the arc and the reflector so the harmful properties of the arc may not deleteriously affect the reflector.

A still further object resides in the provision of a removable and replaceable transparent member shaped to fit the surface of the reflector, whether the reflector be of metal or of glass and to act as a shield therefor against the deleterious action of the arc.

These and other objects of the invention and the means for their attainment will be more apparent from the following drawing, illustrating one embodiment by which the invention may be realized, and in which:

The figure is a vertical sectional view through a reflector, its mounting means and its associated arc carbons, showing a preferred application of the invention.

In the present disclosure the reflector 5 is of standard form and while here shown as comprising a transparent member having a reflecting coating 6 on its convex surface, a metal or other member provided with a reflecting coating on its concave surface may be employed.

As here disclosed the reflector is provided with a removable and replaceable member 7 shaped to fit and be contiguous with the concave surface of the reflector and interposed as a shield between it and the arc 8 formed by the carbons 9 and 10.

The specific means for supporting the reflector and the shield may be varied and the present disclosure seeks only to illustrate a preferred manner in which this may be accomplished. As here shown the mounting means comprises a pair of concentric rings 11 and 12. The outer ring 11 being mounted on a vertical pivot 13 in the base 14 and adjustably rotatable around its pivotal axis by means such as shown at 15; and the inner ring 12, horizontally pivoted at 16 to the outer ring and adjustably rotatable around its pivotal axis by means such as shown at 17.

The inner ring 12 may carry one or more fingers 18, adjustably fixed thereto and provided with notch means 19 to receive the periphery of the reflector and the shield.

Similarly, a resiliently mounted finger 20, notched at 21, may be carried by the ring 12 to have engagement with reflector and shield at the uppermost point of their peripheries.

From the foregoing it can be seen that the reflector and its shield may be properly centered and aligned with the carbon arc 8 and simply lifting the finger 20 permits the removal or insertion of the shield or both the reflector and shield.

It is now apparent that the relatively expensive reflector is thoroughly and effectively shielded from the excessive heat of the carbons; the sputtering, which pits the surface of the reflector; and smoking, the removal of which often entail scratching of the reflector surface.

These deleterious actions of the arc now take effect on the inexpensive shield which can be replaced at little cost.

It is now also apparent that, where desired, the more expensive and somewhat less efficient glass reflector may be replaced by a metal reflector since the shield may be designed not only to receive the action of the arc but also to act as a heat refracting medium between the arc and the metal reflector.

Another result of the invention is that the arc may now be placed in closer proximity to the reflector and thereby affording greater light in-

tensity to increase the efficiency of the projector.

While the invention has been shown as applied to a reflector it will of course be obvious that a similar shield or means may be used to protect the surface of lenses or other optical units which may be subjected to the deleterious effects of the arc, with the same advantages as heretofore described. It will also be understood that if the shield 7 is of colored glass, the shielding effects may be taken advantage of while at the same time tints may be imparted to the light beam for various lighting effects and results and for the filtering out of particular rays. The advantages heretofore mentioned may be utilized in search lights as well as in motion picture projectors and in any device where arc lights are used.

Although the foregoing is descriptive of the preferred embodiment of the invention, it will be apparent that minor changes may be made in the construction, without the exercise of invention or conflicting with the scope of the claims hereto appended.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a carbon arc light projector having a reflector, a transparent shield for the reflector and means to support said shield nested in readily detachable substantial contiguity with the reflector, said means comprising a plurality of supporting members supporting both shield and nested reflector, at least one of said members being in spring pressed engagement with the rim of said shield.

2. In a carbon arc light projector having a reflector, a transparent shield for the reflector and means to support said shield nested in readily detachable substantial contiguity with the reflector, said means comprising a plurality of supporting members, at least one of said members being yieldingly retractable to free the reflector and shield so they may be rotated relative to each other and readily removable from the support together or separately.

3. In a carbon arc light projector having a reflector, a transparent shield for the reflector, and means to support said shield nested in readily detachable substantial contiguity with the reflector, said means including a member to maintain yielding engagement between the reflector and shield so they may be rotated relative to each other and removable from and insertable in the support together or separately.

4. In a carbon arc light projector having a reflector, a transparent nested shield for the reflector and means to yieldingly and removably support the reflector and shield, said means comprising a plurality of spaced rim supporting members, at least one of said members being in yielding engagement with the rims of both the reflector and the shield.

5. In a carbon arc light projector having a centrally perforated reflector-mirror which is used in association with an electric arc, a transparent dish-shaped mirror-guard for readily removable nesting engagement with the surface of the reflector-mirror, said guard having a central orifice, concentrically disposed relative to the perforation in the reflector-mirror for the free passage of a carbon and carbon holder jaw through both orifice and perforation, and means engaging the rims of the reflector-mirror and mirror-guard for supporting them so they may be axially rotated relative to each other while in said nested condition.

6. In a carbon arc light projector having a centrally perforated reflector-mirror which is used in association with an electric arc, a transparent dish-shaped mirror-guard for readily removable nesting engagement with the surface of the reflector-mirror, said guard having a central orifice, concentrically disposed relative to the perforation in the reflector-mirror for the free passage of a carbon and carbon holder jaw through both orifice and perforation, and means engaging the rims of the reflector-mirror and mirror-guard for supporting them, said means including a member being yieldingly retractable to free the reflector-mirror and the mirror-guard so they may be rotated relative to each other and readily removable from the support together or separately.

SIDNEY NICKELSBURG.
ARNOLD TYROLER.