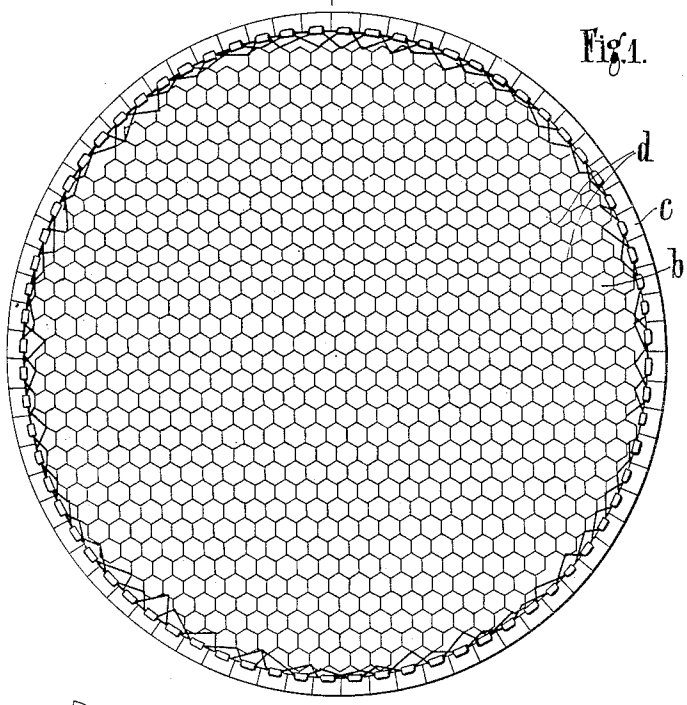
C. A. PARSONS & E. BENNETT.

REFLECTOR FOR SEARCH LIGHTS.

APPLICATION FILED NOV. 2, 1914.

1,210,977. Patented Jan. 2, 1917.

Fig. 1.



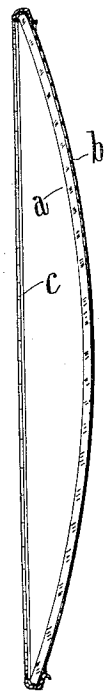


Fig. 2.



Fig. 3.



Fig. 4.

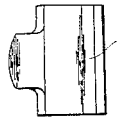


Fig. 5.

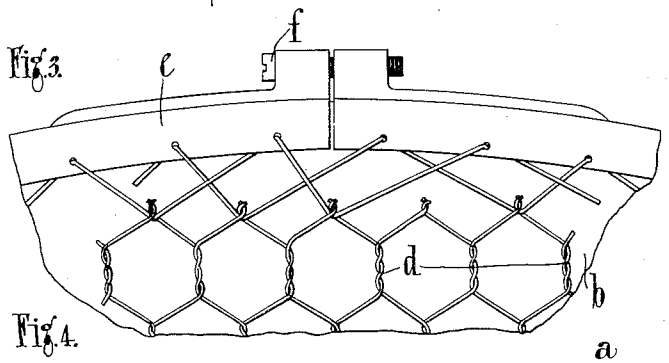


Fig. 6.

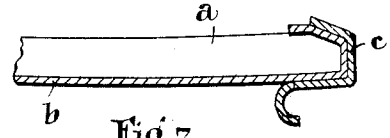


Fig. 7.

WITNESSES

Emyfamilton,

Bissell Bishop

INVENTORS

Charles Algernon Parsons. and

Ebenezer Bennett.

by Spear, Middleton, Donaldson & Spear

ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES ALGERNON PARSONS AND EBENEZER BENNETT, OF NEWCASTLE-UPON-TYNE, ENGLAND; SAID BENNETT ASSIGNOR TO SAID PARSONS.

REFLECTOR FOR SEARCH-LIGHTS.

1,210,977. Specification of Letters Patent. Patented Jan. 2, 1917.

Application filed November 2, 1914. Serial No. 869,957.

To all whom it may concern:

Be it known that we, CHARLES ALGERNON PARSONS and EBENEZER BENNETT, both subjects of the King of Great Britain and Ireland, and residents of Heaton Works, Newcastle-upon-Tyne, in the county of Northumberland, England, have invented certain new and useful Improvements in Reflectors for Search-Lights, of which the following is a specification.

The present invention relates to reflectors for search lights and like apparatus, and relates more particularly to reflectors of the type in which straining means are employed for placing the glass of the reflector under an initial compression in order to preserve its form when subjected to shocks or when pierced by bullets of small caliber. Such constructions are described, for example, in Patent No. 964050.

The object of the present invention is to provide improved means for protecting and preserving the reflecting surface from mechanical, chemical and other injury when open-work straining devices such as netting, rods or the like are used.

The present invention consists in the use in reflectors of the type indicated of a continuous sheet or layer of metal situated between the back of the reflecting surface and an open-work straining device, the sheet or layer of metal making a fluid-tight joint with the glass at the periphery of the reflector.

The present invention also consists in so beveling or otherwise forming the periphery of the reflector that when substantially radial contraction of a suitably shaped encircling ring or series of segments is caused to take place, under the action of the open work straining means there is produced a powerful clamping effect of the metal sheet or layer on to the glass.

The present invention further consists in the improvements in reflectors hereinafter described.

In carrying the present invention into effect according to one form, the mirror, after silvering, is varnished with any suitable varnish capable of standing the highest permissible temperatures to which the mirror is likely to be subjected. A sheet of lead, copper, or other suitable metal is pressed to shape and laid on the back of the varnished silver. The sheet is then beaded over at the periphery of the glass, so that it covers the edge of the mirror and extends for some distance on to the face of the mirror. An encircling ring is now placed on the edge of the mirror and contracted by any suitable means, for instance, screwed lugs may be provided upon the ring which are coupled by a right and left hand screw. In order to insure a fluid-tight joint between the metal sheet and the glass of the reflector, it is preferred to bevel the face side of the mirror so that when the encircling channel section ring is contracted in an approximately radial direction, a powerful clamping effect of the metal sheet upon the glass is produced. When the clamping ring has been secured in position, wire-netting or any of the suitable open-work straining devices described in the above mentioned patents may be applied over the metal sheet and strained in such a manner as to put an initial compression on the substance of the mirror.

In carrying the invention into effect according to a modified construction, instead of employing a contracting channel section ring at the periphery of the mirror, a series of channel section segments or hooks may be employed which are drawn on to the edge of the mirror in an approximately radial direction either by the lacing which stretches the wire netting or by any of the forms of open-work straining devices already known.

In a further modification of the present invention, instead of pressing a sheet of metal to shape and applying it to the reflector, finely divided metal may be deposited upon the back of the reflecting surface and over the edge on to the face of the mirror by spraying, electro-deposition or any other suitable means.

It is sometimes preferred as shown in Figure 7 to provide suitable packing between the edge or face of the mirror and the metal sheet, so as to insure a perfect and permanent fluid-tight joint.

It will be understood that any suitable form of clamping device may be employed at the periphery of the reflector, so long as a powerful clamping of the metal layer upon the glass of the reflector is provided.

It is to be observed that the protecting layer of metal above described takes no part in the initial compression of the material of which the reflector is composed. It is in-

tended merely to provide effective protection to the silvering of the mirror from mechanical injury and the action of deleterious fluids.

Although described as applied to the protection of a silvered reflecting surface on a glass mirror, it is to be understood that the present invention is applicable to reflectors formed by other means, for instance, platinized quartz mirrors.

Referring to the accompanying drawings: Fig. 1 is a back view of a mirror constructed according to the invention; Fig. 2 being a transverse section of the same. Fig. 3 is an enlarged section, showing the section of the mirror at the circumference. Fig. 4 shows the form of the channel section rim surrounding the mirror; Fig. 5 being another view of the same. Fig. 6 is a back view of another method of fixing the rim. Fig. 7 is a detail view illustrating the use of packing between the mirror and the protective metal layer.

In the form of the invention shown in Figs. 1 to 5, the curved mirror *a* silvered on its rear surface, is provided with a back covering *b* of lead, which is lapped over the beveled edges of the front of the mirror. The edges are beveled as shown in the enlarged view, Fig. 3, the tangle being such that the channel section pieces of metal, *c*, Figs. 4 and 5, when strained across the back of the mirror will cause a water-tight joint to be formed between the metal lapped over the edge of the mirror and the glass. The sections of metal forming the rim are strained together and held in place by lacing to the wire backing *d*.

A further modification of the invention is shown in Fig. 6, in which, instead of separate sections of metal *c*, a continuous rim *e* is employed, held in position by a screw *f*. The ring is strained in position by lacing to the wire network of the backing, as illustrated, so that a water-tight joint is formed between the metal backing of the mirror and the glass.

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

1. A reflector comprising in combination, a transparent member, a reflecting surface upon one side of said member, a continuous layer of unstrained metal, extending over the entire back of said reflecting surface, and open work means tensioned over said metal layer, and acting to compress said transparent member.

2. A reflector comprising in combination, a transparent member, a reflecting surface upon one side of said member, a continuous layer of unstrained metal, extending over the entire back of said reflecting surface and over the entire periphery of said transparent member, channel section means adapted to engage said periphery and clamp said layer on to said first member, and reticulated means engaging said channel means, and acting to radially compress said first member.

3. A reflector, comprising in combination a member of transparent medium silvered on its back, a continuous layer of metal situated immediately behind and completely covering said silvering, circumferentially contractible channel section means adapted to clamp said layer over and upon the entire periphery of said first member, and open work straining means extending over said metal layer, and engaging said channel means, and acting to radially compress the substance of said first member.

4. A reflector comprising in combination, a transparent member, a reflecting surface upon one side of said member, a continuous layer of unstrained metal, extending over the entire back of said reflecting surface and over the entire periphery of said transparent member, channel section means adapted to engage said periphery, reticulated means engaging said channel means, and acting to radially compress said first member, and to cause said channel member to clamp said layer on to said first member.

5. A reflector comprising in combination, a transparent member, a reflecting surface upon one side of said member, a layer of varnish on the back of said reflecting surface, a continuous layer of unstrained metal on said varnish, and a layer of strained metal open work tensioned over said metal layer, and acting to compress said transparent member.

In testimony whereof, we affix our signatures in presence of two witnesses.

CHARLES ALGERNON PARSONS.
EBENEZER BENNETT.

Witnesses:
FREDERICK GORDON HAY BEDFORD,
ALBERT WILLIAM PARR.