

C. A. PARSONS, G. G. STONEY & E. BENNETT.
REFLECTOR FOR SEARCH LIGHTS AND THE LIKE.

APPLICATION FILED MAY 16, 1908.

992,043.

Patented May 9, 1911.

2 SHEETS—SHEET 1.

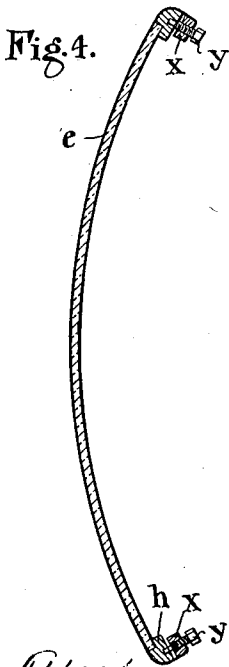
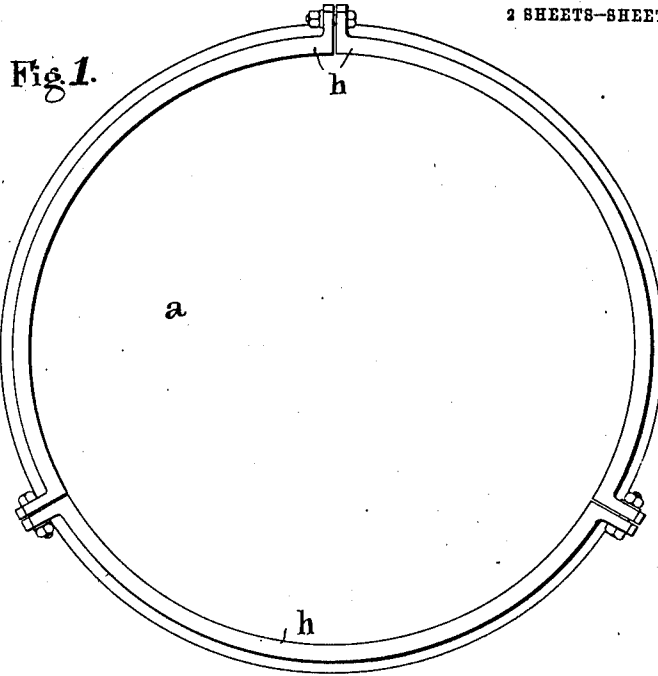
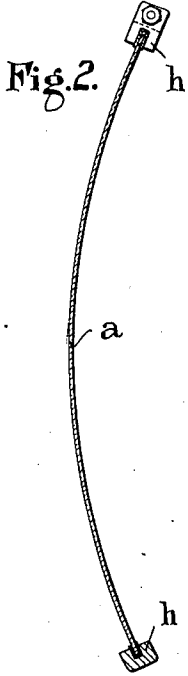
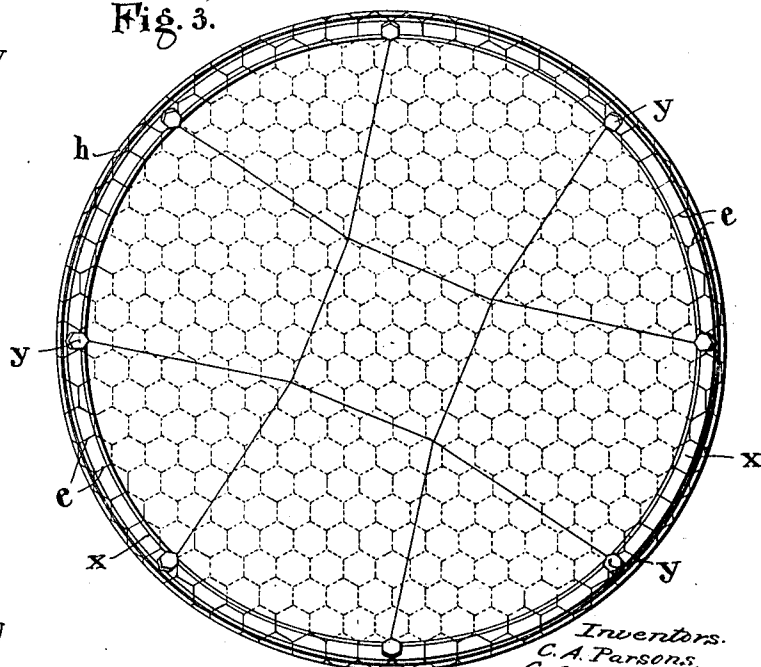


Fig. 3.



Attest.
Bentley & Hahl.
Edward A. Seaton

Inventors.
C. A. Parsons.
G. G. Stoney.
E. Bennett.
by Spear, Muddiman, Donaldson & Spear
Attys.

C. A. PARSONS, G. G. STONEY & E. BENNETT.

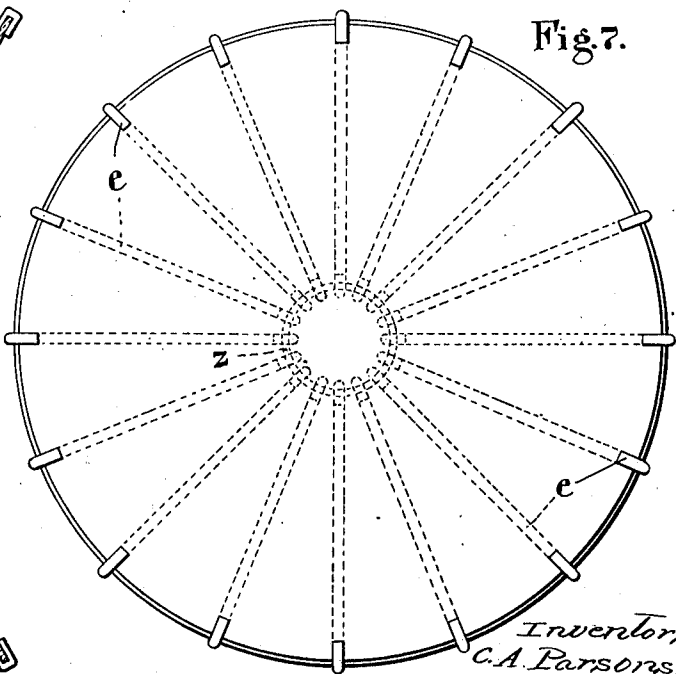
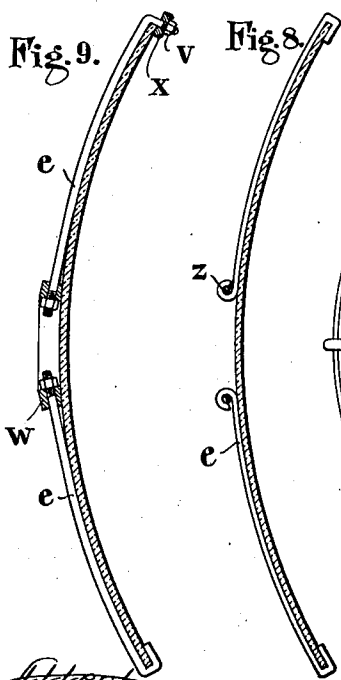
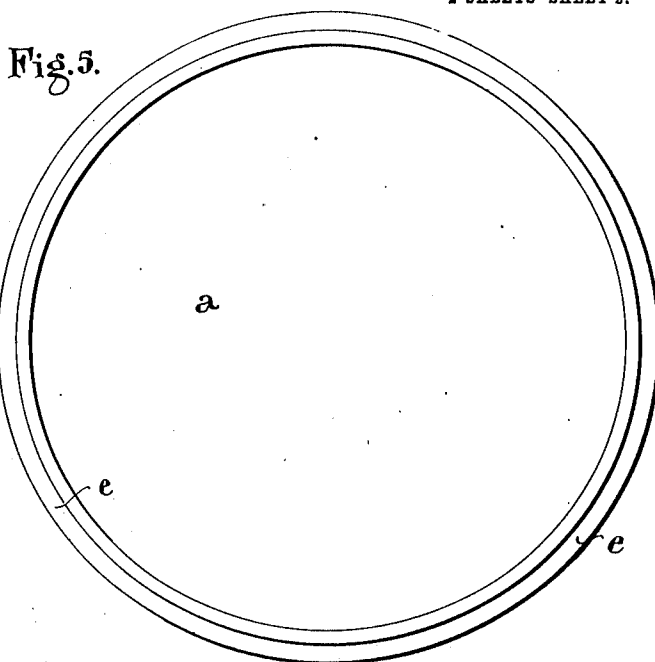
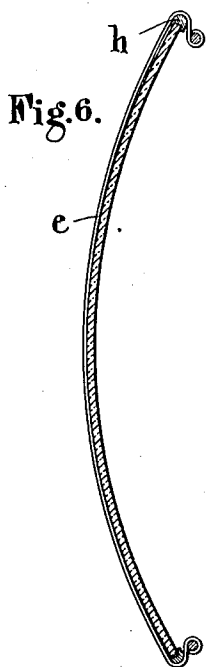
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2 SHEETS-SHEET 2.



Attest.
Bert. W. Stahl.
Edward N. Sartor

Inventors
C. A. Parsons.
G. G. Stoney.
E. Bennett.
by Spear, Middleton, Donaldson & Spear
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES ALGERNON PARSONS, GEORGE GERALD STONEY, AND EBENEZER BENNETT,
OF NEWCASTLE-UPON-TYNE, ENGLAND; SAID STONEY AND BENNETT ASSIGNORS
TO SAID PARSONS.

REFLECTOR FOR SEARCH-LIGHTS AND THE LIKE.

992,043.

Specification of Letters Patent.

Patented May 9, 1911.

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To all whom it may concern:

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

This invention relates to glass reflectors of the type frequently used for search lights and the like devices in which the reflectors are subjected to percussions and vibrations or to an expansion of the glasses owing to the heat.

The object of this invention is to subject the reflector glass to considerable compression in order to prevent on the occurrence of fractures caused by vibrations or the like a displacement or dispersal of the glass.

The invention consists for this purpose in the arrangement of an element or elements provided with tensioning means engaging with the periphery of the reflectors especially of curved reflectors. By this arrangement compression forces acting toward the center of the reflector are exerted on the reflector in order to put the glass under a considerable initial compression. The consequence of this is that the glass is not only made more capable of resisting fractures but the same is prevented from being completely destroyed on the occurrence of fractures and the broken parts of the reflector are held in their proper reflecting positions.

Several forms of carrying the invention into effect are shown in the accompanying drawings.

Figure 1 shows in elevation a reinforcing compressing ring surrounding the reflector. Fig. 2 is a section on a vertical diameter through Fig. 1. Fig. 3 shows in elevation an arrangement in which wire netting is stretched over the back of the reflector. Fig. 4 represents a section on a diameter through Fig. 2. Fig. 5 shows in elevation an arrangement in which a thin metal backing is stretched over the back of the reflector, and Fig. 6 represents a section along the diameter of Fig. 5. Fig. 7 shows in elevation an arrangement in which the reflector is compressed by cranked rods. Fig. 8 represents

a section along the diameter of Fig. 7. Fig. 9 is a section showing another way of tensioning the crank bars.

In carrying the invention into effect according to one form as shown in Figs. 1 and 2, a reflector, *a*, is surrounded by a ring, *b*, arranged as shown so as to put a considerable initial compressive stress on the glass. In a further development of this idea shown in Figs. 3 to 4, the reinforcing and backing means may consist of wire netting, *c*, drawn tightly over the back of the reflector, *a*, by means of the straining ring, *x* and set screws, *y*. These screws bear at their points on the ring, *b*, abutting on the edge of the reflector to which it may if desired, be cemented. In Figs. 5 and 6, a sheet, *e*, of thin flexible metal is shown stretched tightly in contact with the back of the reflector and retained in position by the ring, *x*, over which the edge of the thin metal is turned. A ring, *h*, of metal or other suitable material surrounds and abuts on the edge of the reflector and the thin metal sheet is strained over this. In both these modifications, diamond cuts may be provided on the face of the reflector and in the case of Figs. 5 and 6 suitable means may be provided for contracting the ring, *x*, in order to adjust the tension in the thin metal backing sheet, *e*.

In a further modification (see Figs. 7 to 9) the reflector is held together by means of a system of cranked rods, *e*, disposed radially over the back of the reflector and held together near the center of the same by means of a ring or binding of wire, *z*, engaging in hooks, formed on those ends of the cranked rods which project toward the center of the reflector, the other ends of the rods which lie near the periphery of the reflector being hooked or suitably cranked to engage with the edge. In the form of fixing shown in Fig. 9, the ends of the cranked rods which project toward the center of the reflector, are screw threaded and passed through the ring, *w*, and are provided with nuts at their ends and in some cases springs also in order to enable the compressive stress placed upon the glass to be adjusted with facility. Further the ends of the cranked rods adjacent to the periphery of the reflector may be formed as shown in the upper part of Fig. 9, that is, they may be cranked substantially at right angles and screw

threaded, passed through a ring, *x*, and provided with nuts, *v*, and in some cases springs also, by which means the ring, *x*, may be drawn down on to the surface of the reflector near the periphery. It will be understood in these last described modifications diamond cuts may if desired be provided.

It will be understood that other modifications may be made to this invention without departing from the general idea of the same as set forth at the beginning of this specification. In all cases silicon or other suitable material may be substituted for glass.

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

1. In combination with a glass reflecting disk compressing means operable to compress the reflector disk toward its central axis.

2. In combination in a glass reflector, a backing, means adapted to tension said backing after the backing is placed on the reflector whereby the reflector is compressed in a direction toward its central axis.

3. In combination in a glass reflector, a backing, means adapted to tension said backing, protecting means placed between said tensioning means and the reflector whereby the reflector is compressed in a direction toward its central axis.

4. In combination in a glass reflector, ring shaped means, tensioning means attached to said ring shaped means whereby said reflector is put in compression in a direction toward its central axis.

5. In combination in a glass reflector, a ring or like shaped means, tensioning means attached to said ring so as to clamp said re-

flector in position whereby the reflector is compressed in a direction toward its central axis.

6. In combination with a glass reflector displacement preventing means engaging with the periphery of said reflector and acting to put an initial compression on the glass, said displacement preventing means comprising a peripheral ring abutting on the edge of the reflector; wire netting attached to a separate ring and engaging the back of the reflector and passing over said peripheral ring and means for tensioning said wire netting whereby the reflector is expanded against said peripheral ring and put in compression.

7. In combination with a glass reflector displacement preventing means engaging with the periphery of said reflector and acting to put an initial compression on the glass, said displacement preventing means comprising a peripheral ring abutting on the edge of the reflector, wire netting attached to a separate ring and engaging the back of the reflector and passing over said peripheral ring and screws passing through said separate ring and bearing against the peripheral ring whereby a tension is put on the wire netting thus expanding the reflector against said peripheral ring and putting an initial compression thereon.

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

CHARLES ALGERNON PARSONS.
GEORGE GERALD STONEY.
EBENEZER BENNETT.

Witnesses:

HENRY GRAHAM DAKYM, Jr.,
FREDERICK JORDON HAY BEDFORD.