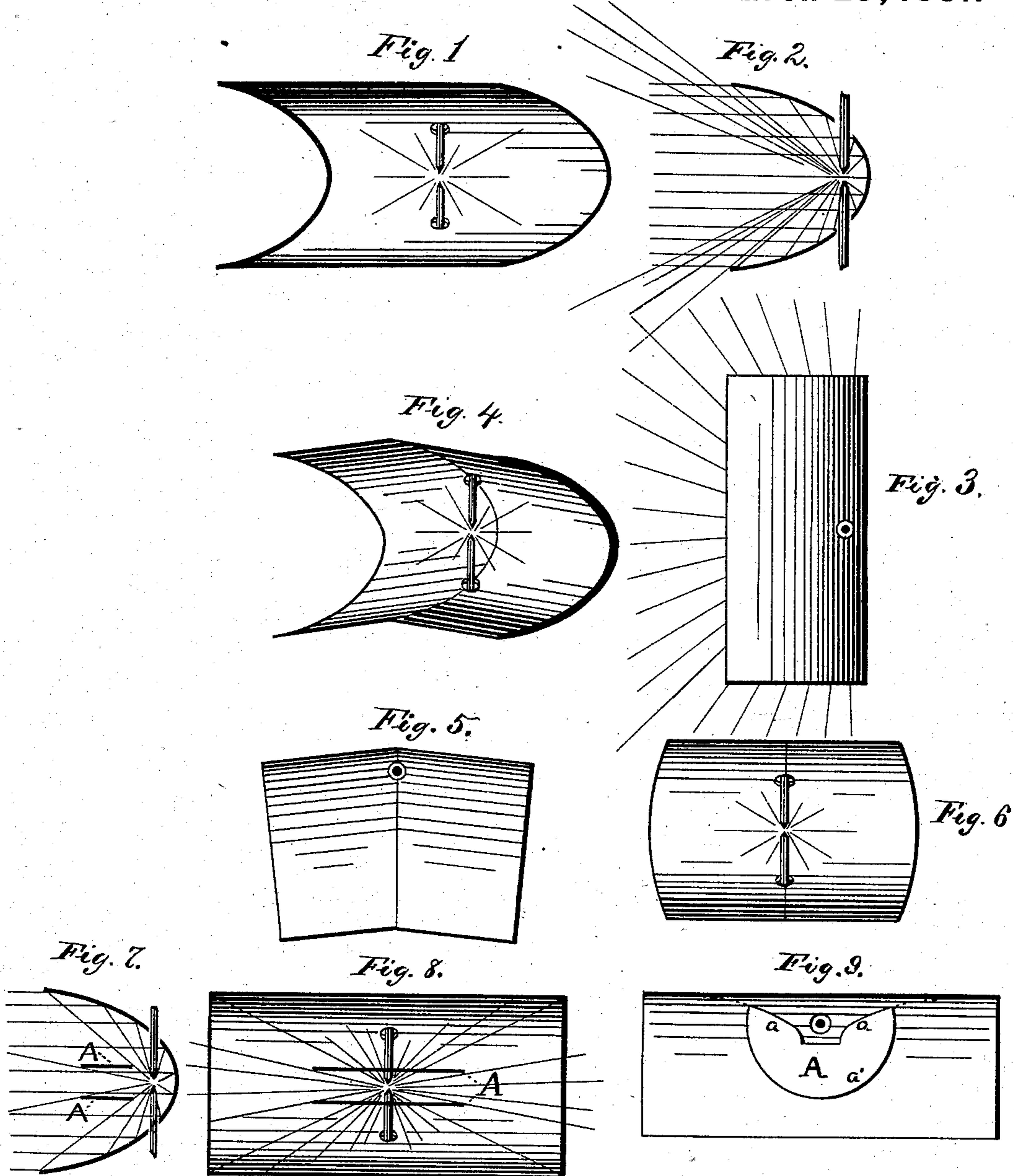


(No Model.)

C. F. BRUSH.  
Reflector.

No. 239,311.

Patented March 29, 1881.



WITNESSES:

*F. M. Fabel,*  
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# UNITED STATES PATENT OFFICE.

CHARLES F. BRUSH, OF CLEVELAND, OHIO.

## REFLECTOR.

SPECIFICATION forming part of Letters Patent No. 239,311, dated March 29, 1881.

Application filed August 9, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. BRUSH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Reflectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to light-reflectors; and it consists in the form of same, substantially as hereinafter specified.

In the drawings, Figure 1 represents a front quarter-view of a reflector constructed according to my invention. Fig. 2, a side elevation of same; Fig. 3, a plan view of same; Fig. 4, a view similar to that shown in Fig. 1, illustrating a modified form of my invention. Fig. 5 is a plan view of the device shown in Fig. 4; Fig. 6, a front view of the said modified device; Fig. 7, a view of my device in side elevation, showing the position and relation of the cut-off plates; Fig. 8, a front view of the device shown in Fig. 7, and Fig. 9 a combined section and plan view of the same, showing the shape of the cut-off plates.

As sufficiently indicated in the drawings, my reflector combines the characteristics of a cylinder and parabola, such as could be produced by curving a flat sheet of metal to the form of a parabola, as shown in Figs. 1 and 2. When a light is placed in the focus of this parabola the reflection will be in the form, substantially, of a horizontal sheet extending through an arc of one hundred and eighty degrees, more or less, according to the adjustment or peculiar construction of the reflector. This is indicated in Figs. 2 and 3 of the drawings, which show the direction of the light-rays.

I have designed this reflector for use more particularly with the electric light, although I do not limit its use thus narrowly. I have, therefore, shown in the drawings, the usual carbons and their voltaic arc as the luminous agent.

In the form of reflector shown in Figs. 1,

2, and 3, the illuminating carbons will cast their shadow and where this would be undesirable the modified form illustrated in Figs. 4, 5, and 6 may be adopted. This modification consists merely in constructing the back of the reflector in an angular fashion, as shown in Figs. 4, 5, and 6, instead of straight, as shown in Figs. 1 and 3.

In many places where this type of reflector is designed for use, it is important to cut off as far as possible all the rays of light excepting such as are reflected, and the direct rays that proceed in substantially the same direction as those reflected. For this purpose the cut-off plates A are provided. They are held, by any suitable attachments or supports, in substantially the position and relation indicated in the drawings. In Fig. 2, which shows these cut-off plates omitted, it will be seen how the direct rays of light diverge in front of the reflectors, and Fig. 7 illustrates how these rays are cut off by the provision of the cut-off plates A. These plates, in order to intercept no more rays than desirable, should have a form substantially as shown in plan view in Fig. 9; but this form will vary with different curves given the reflector, to accord with reflectors of varying depths.

The shape of the edges *a* should conform suitably with the definite parabolic curve imparted to the reflecting surface, as these edges of the plates A intercept the direct lateral rays.

The front edge *a'* may be made circular in form, and this will intercept the direct rays that would escape beyond the upper and lower front edges of the reflector, which are straight.

If it is desired to intercept the light-rays in one direction only, then a single cut-off plate—say the upper one—will be sufficient to arrest the rays in that direction.

I am aware that reflectors have been constructed with faces such as would be formed by bending a flat sheet in one direction into a circular or analogously-curved shape; but I lay no claim to such an invention, as a reflector thus shaped would totally defeat the only object of my invention, which is to reflect light into the form of a flat sheet, and

this can only be effected by the employment of a reflector such as illustrated and described herein.

What I claim is—

5 1. A reflector having a concave face such as would be formed by bending a flat sheet, substantially as shown, so that it would have in cross-section the form of a parabola.

10 2. The combination, with a reflector having a concave face such as would be formed by curving a flat sheet in one direction only, of

one or more cut-off plates, A, suitably shaped to accord with the curve of said reflector, substantially as and for the purpose shown.

In testimony whereof I have signed my name 15 to this specification, in the presence of two subscribing witnesses.

CHARLES F. BRUSH.

Witnesses:

LEVERETT L. LEGGETT,  
JNO. CROWELL, Jr.