A. SCHAEFFER & A. PFRUNDER.

LAMP-REFRACTOR.

No. 191,888. Patented June 12, 1877.

Fig: 1

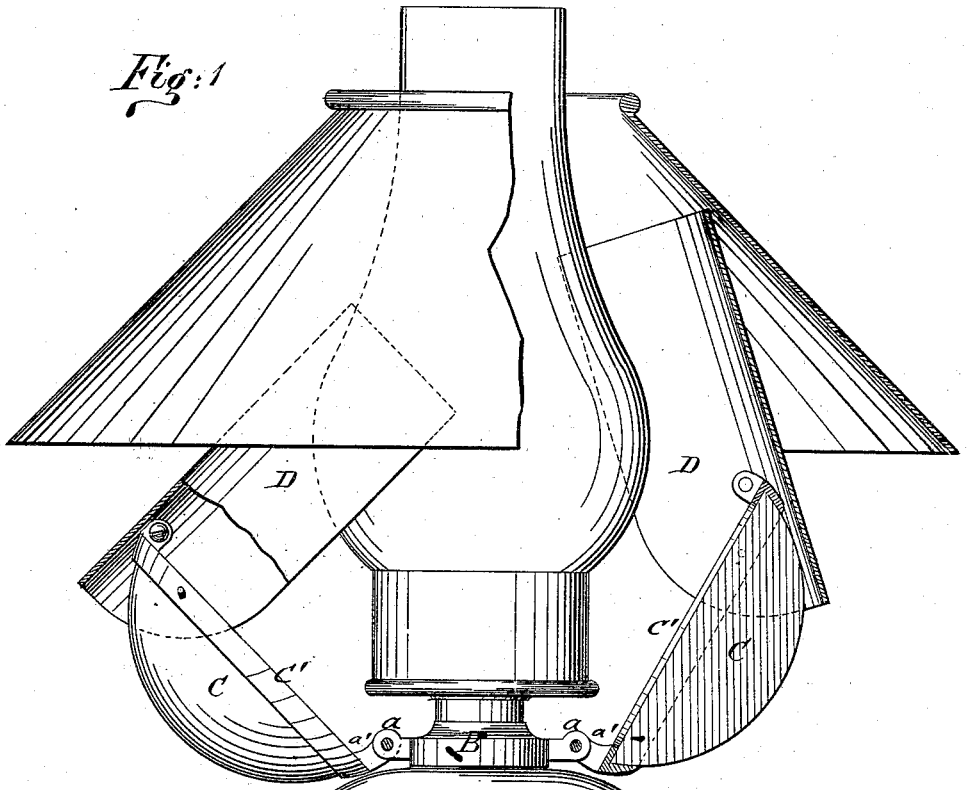


Fig: 2.

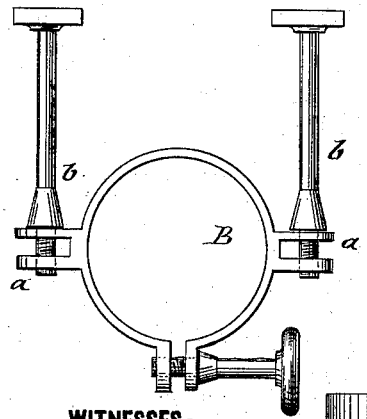
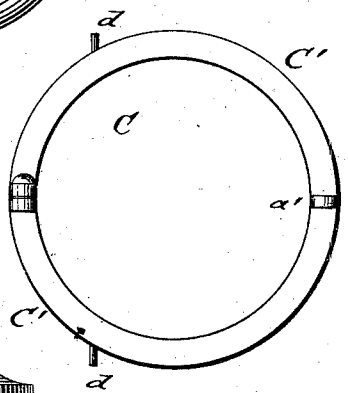


Fig: 3.



WITNESSES:

Chas. Nida

J. H. Scarborough.

INVENTORS

A. Schaeffer.

A. Pfrunder.

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE

AUGUST SCHAEFFER AND ANTON PFRUNDER, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN LAMP-REFRACTORS.

Specification forming part of Letters Patent No. **191,888**, dated June 12, 1877; application filed April 30, 1877.

To all whom it may concern:

Be it known that we, AUGUST SCHAEFFER and ANTON PFRUNDER, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and Improved Lamp-Refractor, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of a lamp with our improved refractors or magnifiers. Fig. 2 is a top view of the collar attachment of the refractors, and Fig. 3 an inside view of one of the refractors.

Similar letters of reference indicate corresponding parts.

Our invention is intended to provide for coal-oil or gas lamps an improved attachment by which the light for night work is magnified and thrown with suitable power to a certain point.

The invention consists of the combination, with a gas or other lamp, of one or more hinged and adjustable refractors, having pivoted and self-adjusting shades.

The refractors are hinged and clamped to a detachable collar, attached to the neck of the lamp or base of the burner.

In the drawing, A represents a coal-oil, gas, or other lamp, of any suitable style and finish, and B a metallic collar that is attached by a suitable clamp-screw to the neck of the lamp or base of the burner of the same. The collar B is provided with lugs or ears *a*, to which the refractor C is pivoted. One or more refractors may be pivoted to the same collar, the required number of lugs being provided thereon.

The refractors are preferably made of pure flint glass, as this is best adapted to throw the light in bright manner. The refractors are of convex shape, and attached to a circumferential metallic frame, C′, which frame is hinged by an ear, *a′*, to the lugs of the collar, and clamped thereto into any suitable position by thumb-screws *b*. The refractors may thereby be adjusted, at any inclination, on a lamp, so as to throw the light to the work at greater or less distance from the lamp. The refractors are made of any size, and may also be made of other material and construction, as we do not confine ourselves to the use of flint glass.

The refractor frames C′ are provided with side-projecting pivot-pins *d*, to which are sprung shades D, having small holes for the pivot-pins *d*. The upper ends of the shades D rest against the lamp-chimney, and the shades assume a position of different inclination according to the position of the refractors, as shown in Fig. 1 of the drawing.

The shades follow the motion of the refractors, so as to be self-adjusting in connection with the same. The more the position of the refractors approaches a vertical position the greater will be the distance to which the light is thrown by the same, while the closer they are set to a horizontal position the nearer must be the work-stand to the light. Thus a convenient and readily-attached device to lamps of all kinds is furnished for use in the trades, and for all cases in which a cheap yet economical powerful and brilliant light is desired.

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

1. The combination, with a lamp, of one or more adjustable refractors, having pivoted and self-adjusting shades, substantially as shown and described.

2. The combination, with a detachable collar fitted to the neck of a lamp, of hinged and adjustable refractors and shades, pivoted to the latter, substantially as described.

AUGUST SCHAEFFER.
ANTON PFRUNDER.

Witnesses:
JACOB LIPS,
JOHN G. HOLL.