

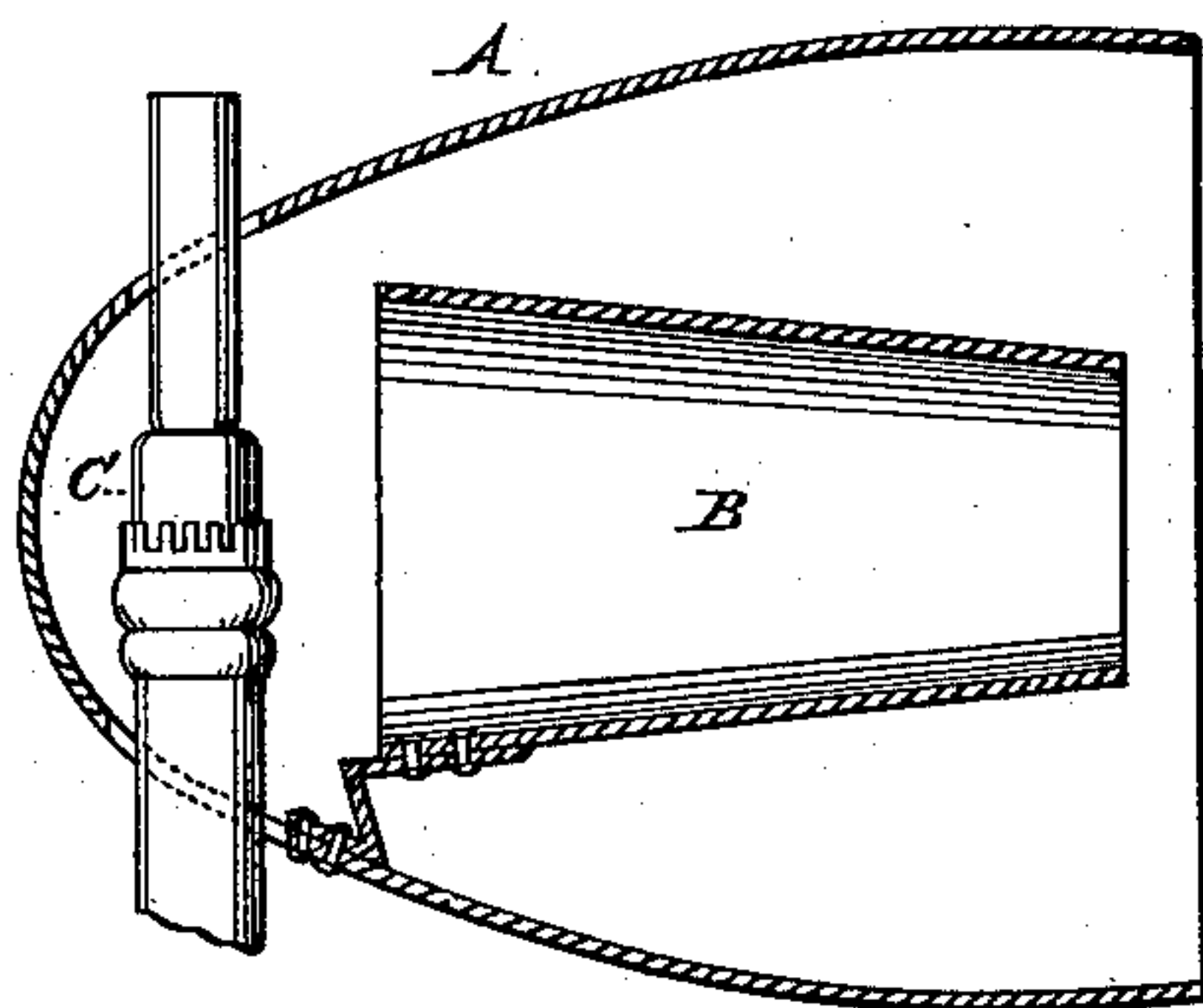
(No Model.)

T. C. COOPER.

REFLECTOR FOR HEAD LIGHTS, &c.

No. 370,687.

Patented Sept. 27, 1887.



WITNESSES

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# UNITED STATES PATENT OFFICE.

THOMAS CHARLES COOPER, OF WINONA, MINNESOTA.

## REFLECTOR FOR HEAD-LIGHTS, &c.

SPECIFICATION forming part of Letters Patent No. 370,687, dated September 27, 1887.

Application filed November 16, 1886. Serial No. 219,041. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS CHARLES COOPER, a citizen of the United States, and a resident of Winona, in the county of Winona and State of Minnesota, have invented certain new and useful Improvements in Reflectors for Head-Lights, &c.; and I do 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 appertains to make and use the same, reference being had to the accompanying drawing, and to letters or figures of reference marked thereon, which form a part of this specification.

The invention relates to improvements in reflectors for locomotive head-lights; and it consists in the construction and novel combination of parts, hereinafter described, and pointed out in the claims.

The figure in the drawing represents a central vertical section of the invention.

Referring to the drawing by letter, C represents the lamp of the head-light, and A represents a parabolic reflector attached to the lamp-standard in such position that the light of the lamp C will be in its focus, so that the reflector will send out a beam of parallel rays therefrom to light up the road.

B is a reflector made in the shape of a frustum of a cone and adapted to be detachably secured within the reflector A, with its axis coincident with the axis of said reflector and its larger end adjacent to the light.

When the reflector B is detached, the reflector A will, as described, send out a beam of parallel rays; but should the engineer de-

sire to concentrate or focus his light at a certain distance ahead of the engine he attaches the reflector B, which cuts off most of the light from the reflector A, but by its inner reflecting-surface focuses or concentrates the light at the desired point. The outer surface of the conical frustum B is also a reflecting-surface, so that the light that reaches the reflector A in front of the base of the reflector B will, by means of multiplied reflections, be concentrated or focused in front of the locomotive.

Having described my invention, I claim—

1. The combination of the parabolic reflector, the lamp with its light in the focus thereof, and the detachable reflector having an inner reflecting-surface of the shape of the frustum of a cone, and situated with its axis coincident with that of the parabolic mirror and its base adjacent to the light, substantially as specified.

2. The combination of the parabolic reflector, the lamp with its light in the focus thereof, and the detachable reflector having the shape of a conical frustum, provided with inner and outer reflecting-surfaces, and situated with its axis coincident with that of the parabolic reflector and its base adjacent to the lamp, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS CHARLES COOPER.

Witnesses:

J. N. MAYBURY,  
D. E. VANCE.