

(No Model.)

F. BALL, Jr.

ELECTRIC HEAD LIGHT FOR LOCOMOTIVES, &c.

No. 277,536.

Patented May 15, 1883.

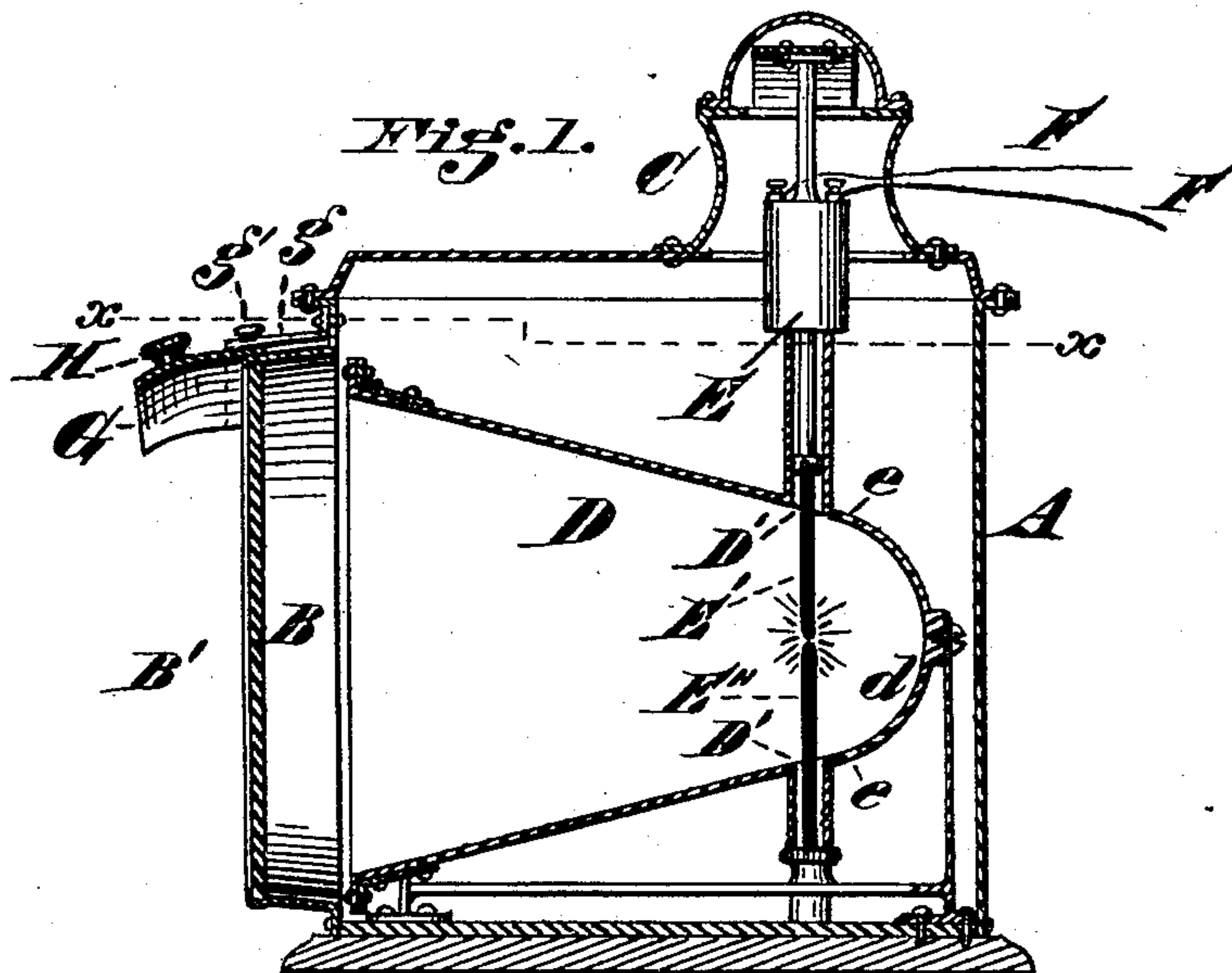
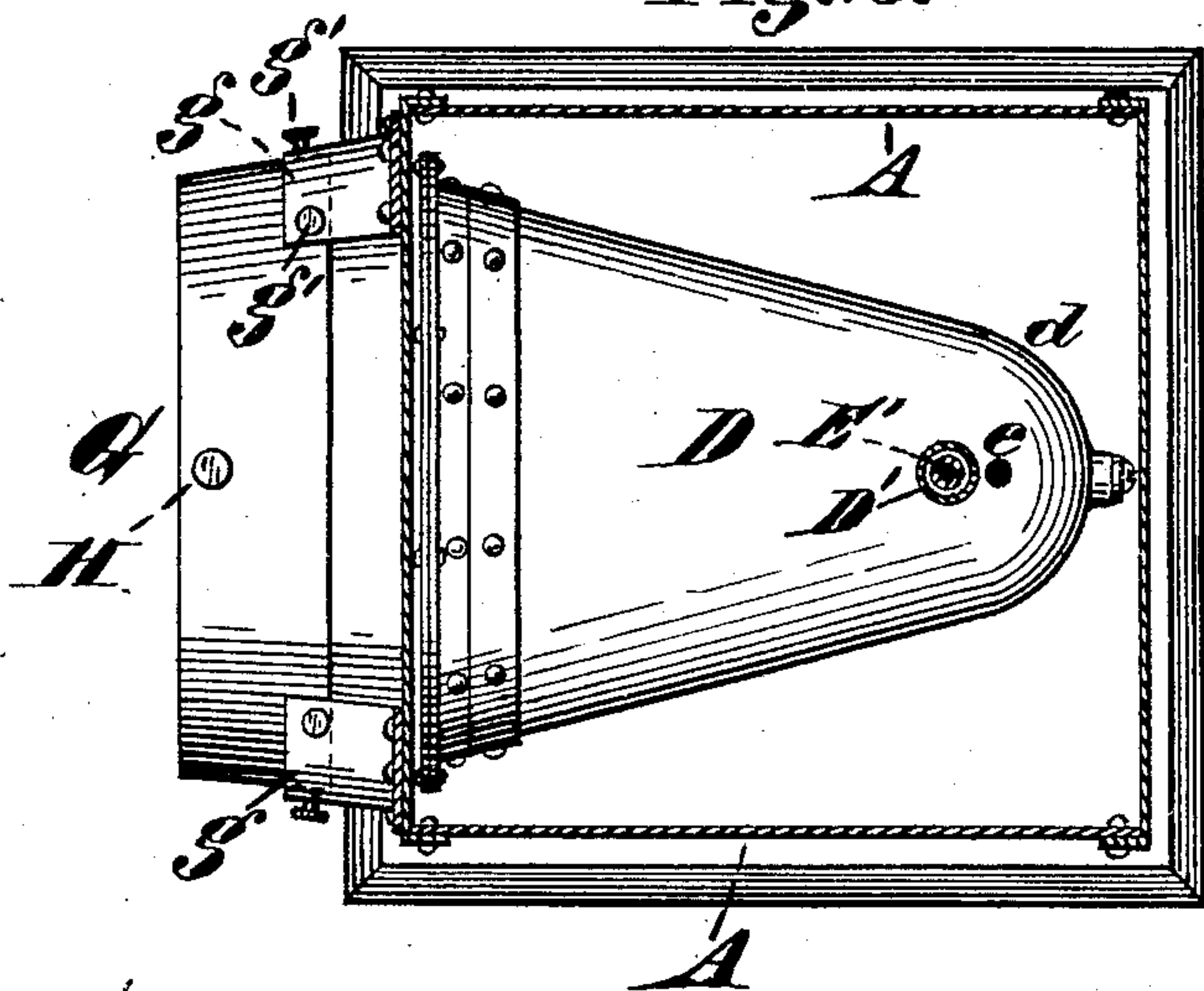


Fig. 2.



Attest
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ELECTRIC HEAD-LIGHT FOR LOCOMOTIVES, &c.

SPECIFICATION forming part of Letters Patent No. 277,536, dated May 15, 1883.

Application filed August 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, FLAMEN BALL, Jr., a citizen of the United States, and residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Electric Head-Lights for Locomotives or other Similar Uses, of which the following specification is a full, clear, and exact description.

This invention has for its objects to provide an improved electric head-light for locomotives and to provide a novel hood for reflecting the rays of light upon the pilot of the engine or upon the track in front thereof. These objects I accomplish by the novel construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of a locomotive electric head-light embodying my invention. Fig. 2 is a plan view of the same on line *x x*, Fig. 1, showing the construction and arrangement of the adjustable refracting reflector, peak, or hood.

A represents the case in which the reflector and electric lamp are mounted.

B is the front opening or sight of the same, in which the magnifying-lens B' is secured.

C is a ventilator at the top of case A, preferably immediately above the point where the lamp is to be suspended.

D is the reflector, mounted in any desirable manner, of the usual parabolic or conical form, and having a full, rounded end at its focus, as shown, which forms a highly-reflecting hemispherical shape, as at *d*, to the focus end of the reflector, and being similarly polished within, and by its hemispherical form provides an efficient rear reflecting surface.

D' D' are openings or orifices made in the body of the reflector D, near its rear end, vertically opposite each other, in and through which the carbons of the electric lamp pass, their ends, between which the arc is formed, arriving at a point preferably midway between the openings D' D'.

E represents an ordinary electric lamp, suspended from the ventilator C within the case A, so that its carbons E' E'' shall pass through the openings D' D' made in the reflector D, as hereinbefore set forth. Openings *e e* may be provided in the reflector adjoining the lamp E,

to furnish means for ventilating the same in case the various parts near the lamp should become too highly heated. It will be seen that rays of light will be reflected as usual by the main part of the reflector forward of the lamp, and in addition to this the bulb *d* in the rear of said lamp will form a solid mass of light that will in turn be reflected by the forward main body of the reflector. The efficiency of my improved head-light will readily be seen, very little power being necessary to supply it with electricity to form the light.

F F are wires connecting the lamp E with any desired electric generator or dynamo-machine located on the locomotive and driven by the same power that drives said locomotive.

G represents a longitudinally-arched plate curved downward at its outer edge, (see Fig. 1,) which plate forms a hood which is adjustably mounted in guides *g g* on the upper face of the sight B, as shown, or in the same manner upon the reflector D, so as to be brought forward over the said sight or the mouth of the reflector, being secured in position preferably by thumb-screws *g'*. It is highly polished on its under side similar to the reflector D, and when brought forward to any desired position over the sight or mouth of the reflector it causes the rays of light from the same to refract and fall upon a point just ahead of the engine or vertically upon its pilot to a degree of efficiency never heretofore attained in the use of any other head-light; and is an important feature of my invention.

H is a small knob or button, forming a handle on the hood G, by which to conveniently adjust it.

It is obvious that the hood G can be used in connection with any other construction of head-light than the one herein shown and described; but I prefer its use with my electric head-light in order to augment its utility, and thereby make it as near as possible a perfect head-light.

I am aware that the carbons of an electric lamp have heretofore been extended into a parabolic reflector through side openings therein, the reflector having a short tube of small diameter placed near the light with its axis coincident with the reflected beam; but such I do not claim.

I am also aware that a locomotive head-light has been composed of an exterior casing having a ventilator in its top and containing a reflector through the focus end of which projects an ordinary oil-burning lamp; but such is not my invention.

I claim—

1. An electric head-light for locomotives combining in its structure the exterior casing, 10 A, provided at its top with the ventilator C, and adapted to be attached to a locomotive, the parabolic reflector D, inclosed by the casing and rigidly connected therewith, and having the lens B' and the electric lamp E hung within 15 the casing from a support in the ventilator, and having its carbons extended into the focus end of the reflector through side openings, D', there-

in, said lamp having means for connecting with an electric generator or supply, substantially as described. 20

2. The combination, with the reflector of a head-light, of the herein-described hood G, adjustably supported in the guides *g g*, said hood being capable of horizontal adjustment, whereby it can be brought forward to any de- 25 sired position over the sight of the reflector, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FLAMEN BALL, JR.

Witnesses:

WM. F. NUTT, Jr.,
JOHN J. FINCH.