(No Model.)

E. L. HALL.

LOCOMOTIVE HEADLIGHT.

No. 564,068. Patented July 14, 1896.

Fig. 1.

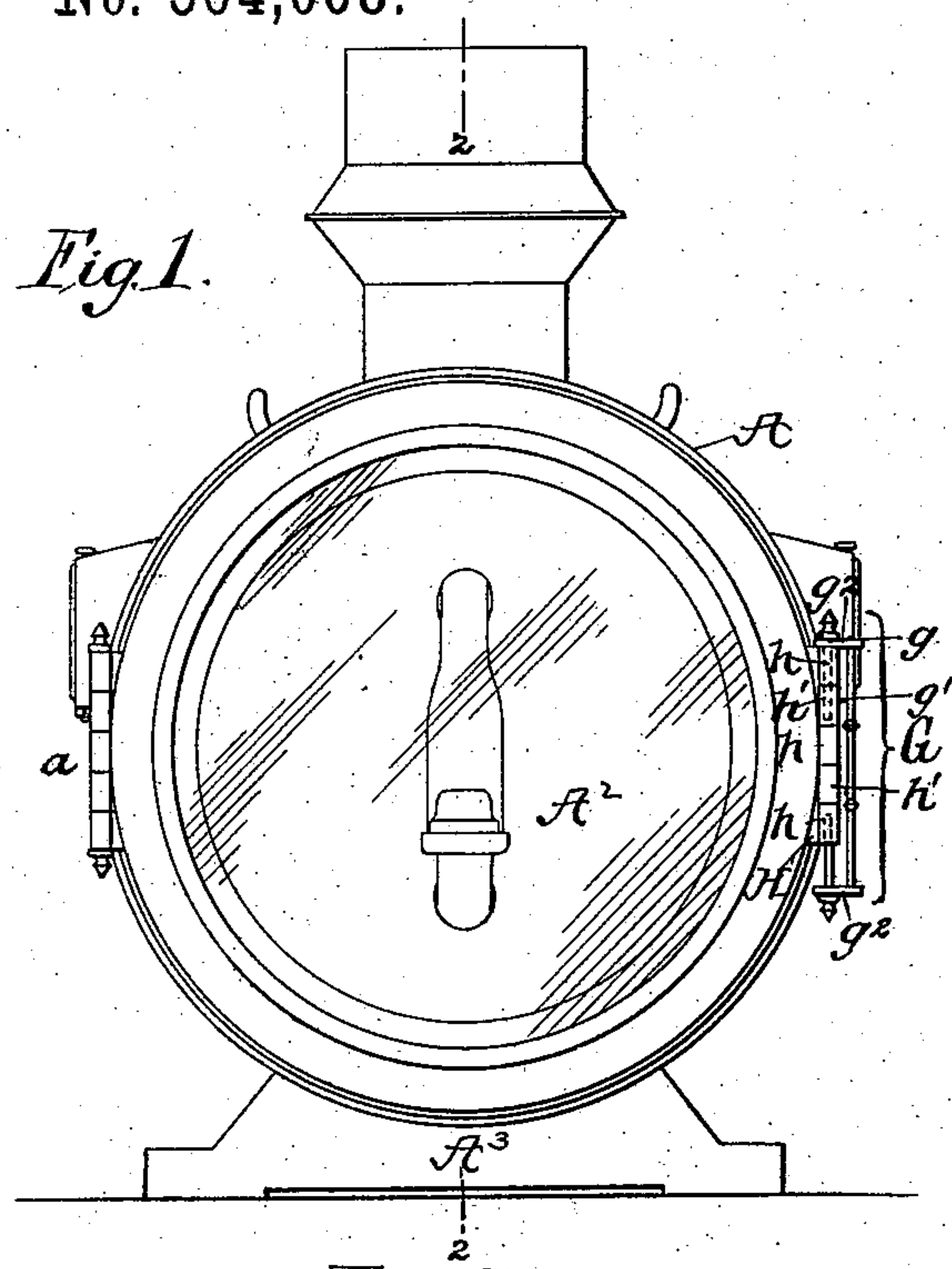


Fig. 2.

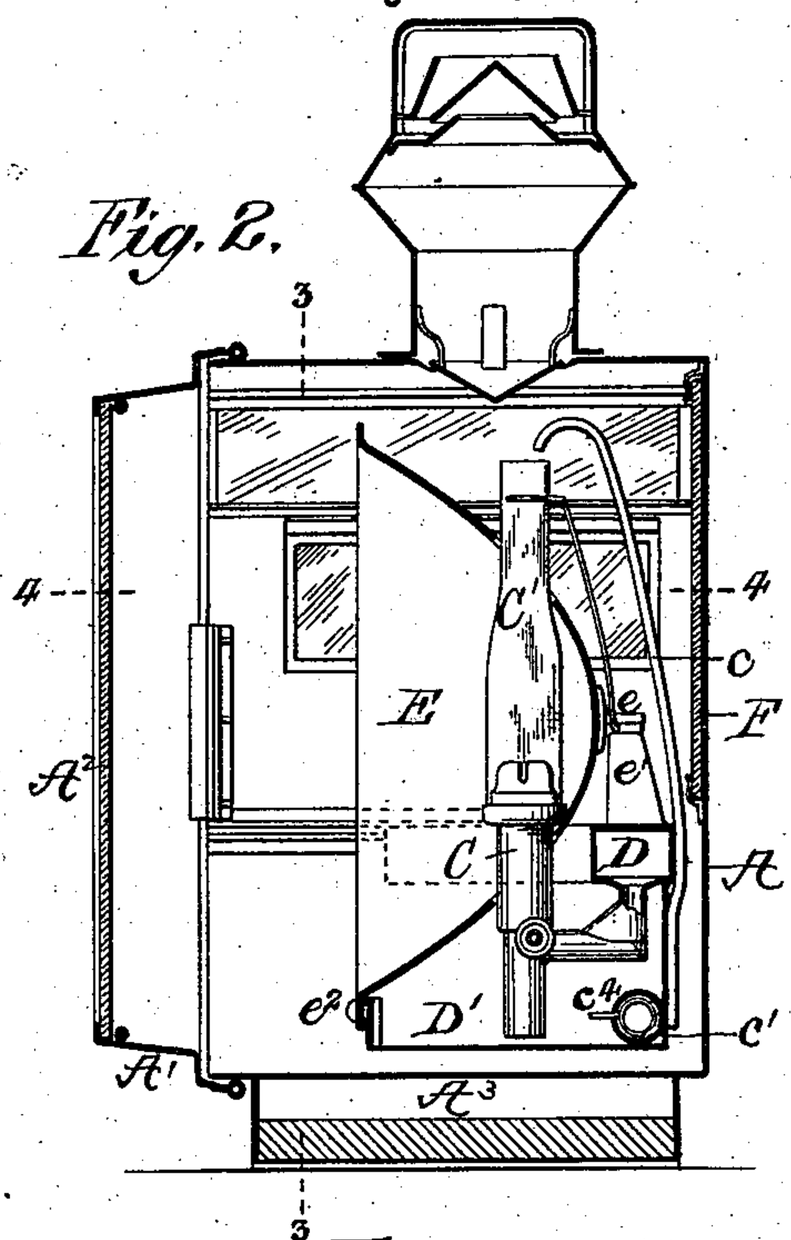


Fig. 3.

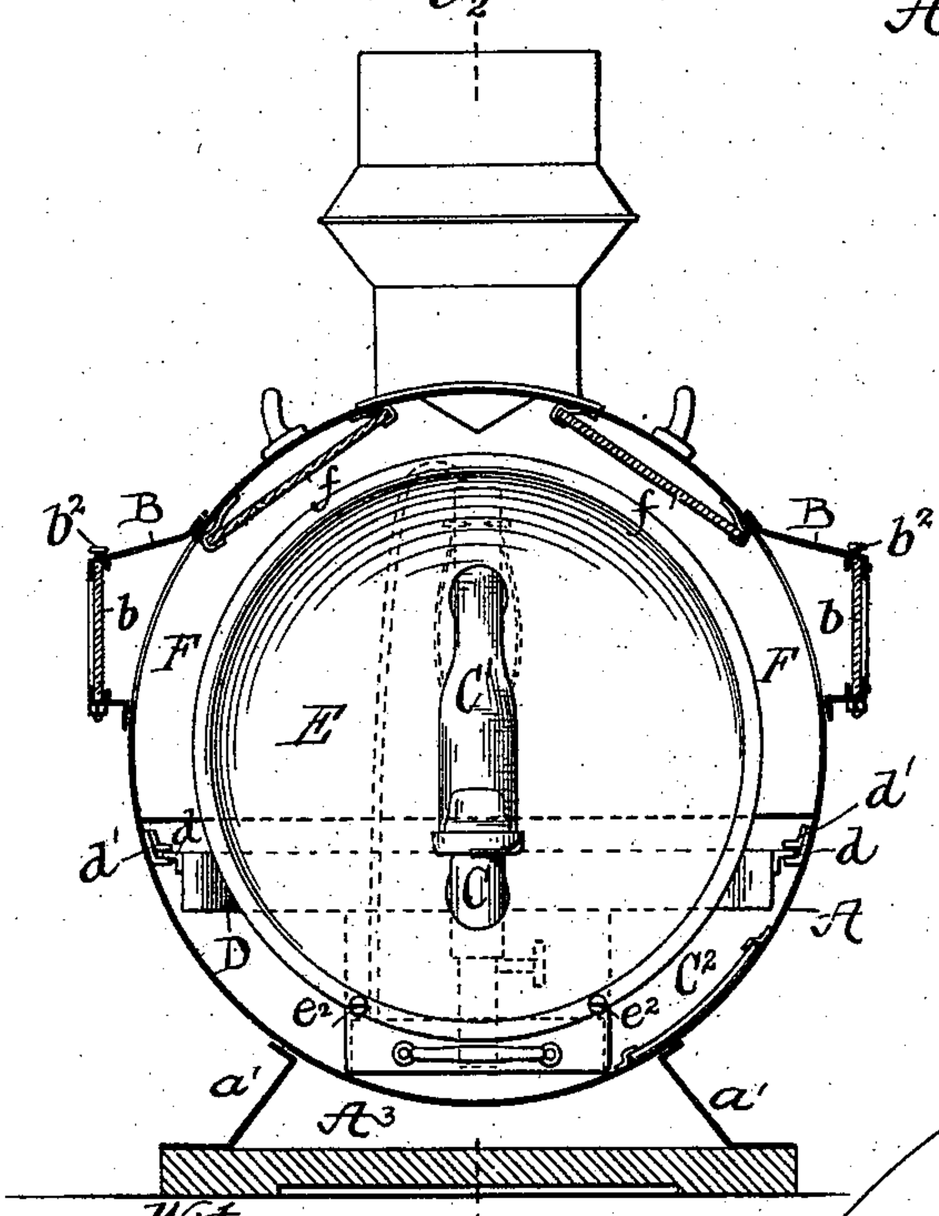


Fig. 4.

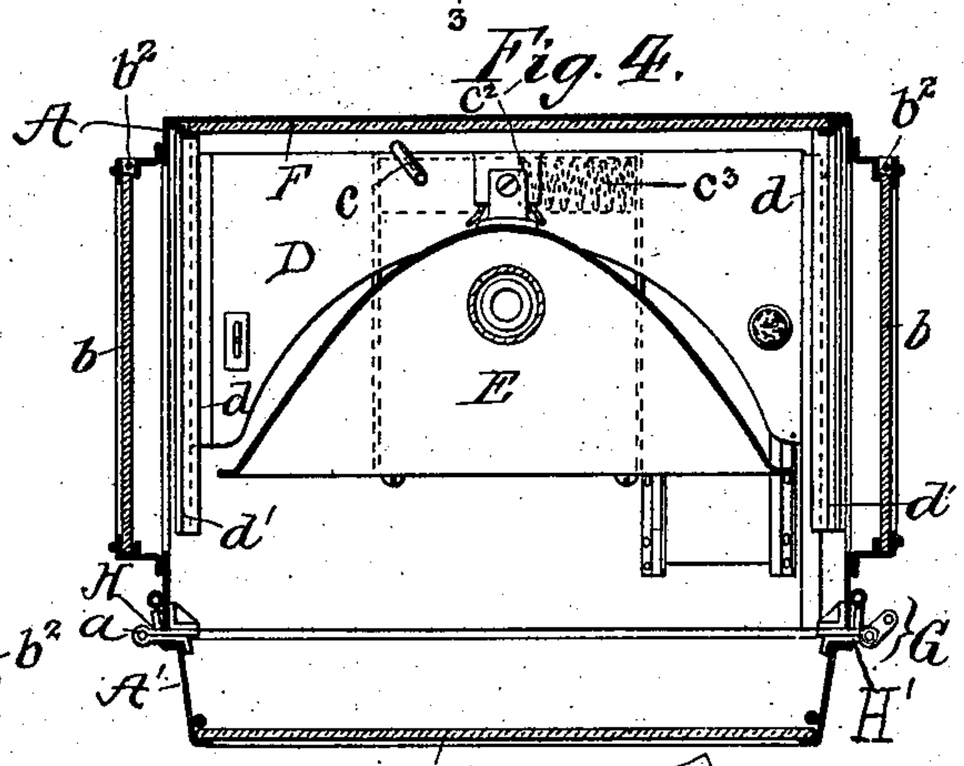


Fig. 7.

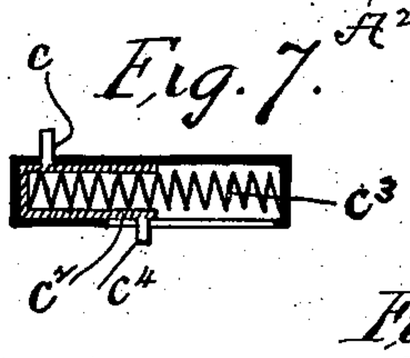
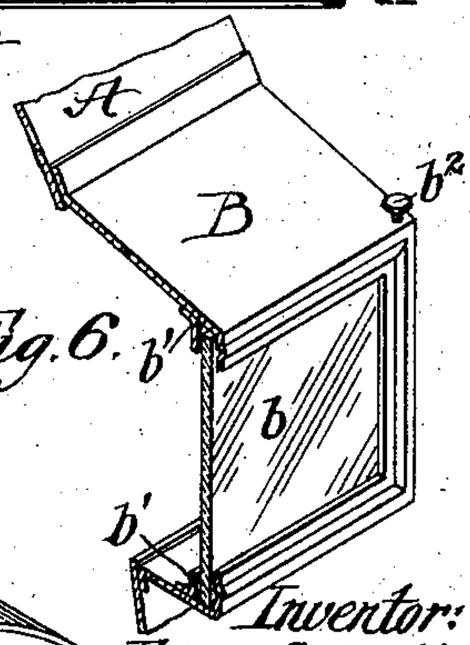
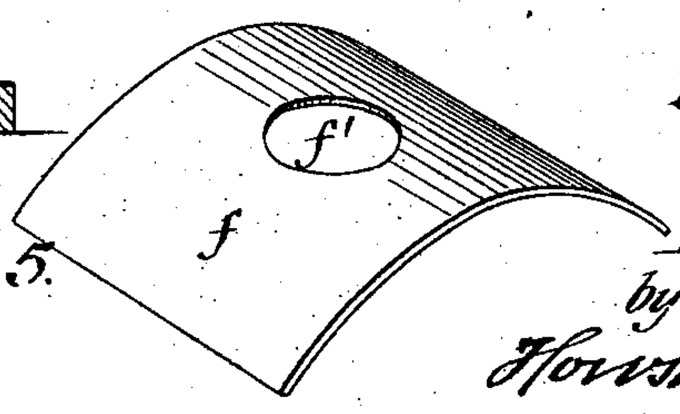


Fig. 6.





Witnesses:

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Fig. 5.

Inventor:

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by his Attorneys,

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UNITED STATES PATENT OFFICE.

EDWIN L. HALL, OF PHILADELPHIA, PENNSYLVANIA.

LOCOMOTIVE-HEADLIGHT.

SPECIFICATION forming part of Letters Patent No. 564,068, dated July 14, 1896.

Application filed February 12, 1896. Serial No. 579,043. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. HALL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Locomotive-Headlights, of which the following is a specification.

My invention relates to certain improvements in the locomotive-headlight for which Letters Patent No. 309,044 were granted to me on the 9th day of December, 1884, the object of my present invention being to improve the illumination of the side number-plates and to simplify the construction of the lamp, and a further object is to improve the method of fastening the side number-plates in place, so that they may be easily removed when damaged or when they are to be cleaned.

Referring to the accompanying drawings, Figure is a front elevation of my improved headlight. Fig. 2 is a vertical section on the line 2 2, Fig. 1. Fig. 3 is a vertical section on the line 3 3, Fig. 2. Fig. 4 is a sectional plan on the line 4 4, Fig. 2. Figs. 5 and 6 are perspective views of details of my invention; and Fig. 7 is a section of the extinguisher.

In the present instance I have shown my invention as applied to a locomotive-headlight having a circular casing; but it will be obvious that my invention can be applied to a locomotive-headlight having a square or other shaped casing, by making unimportant modifications in the same, which need not be mentioned.

A is the casing of the headlight, to which is hinged at *a* the frame A′, carrying the front glass A^2. The casing of the headlight is preferably secured to a base, as A^3, by means of the section *a*′. On the sides of the casing, above the middle of the same, I mount the boxes B to receive the side number-plates *b*. These boxes are preferably formed separately and may be secured to the casing A in any suitable manner.

C is the lamp for the headlight, and D is the oil-reservoir for the same.

With my improved headlight I preferably employ an extinguisher for the light. This extinguisher consists of a tube *c*, leading to the top of the chimney C′ from an air-cylinder *c*′. Within this cylinder is a piston c^2, normally resting at its full extent of movement, and held in this position by means of a spring c^3, Fig. 7. The piston is provided with a projection or handle c^4, by means of which it can be drawn back against the pressure of the spring. When the handle is released, the piston will fly forward in the cylinder and exert sufficient pressure of air to extinguish the light. The cylinder is extended a slight distance beyond the connection of the tube *c*, so as to form a cushion for the piston when it nears the limit of its movement.

The casing of the headlight is provided with a suitable opening, so that the extinguishing device may be manipulated, and this opening is closed by a door C^2, sliding in suitable ways formed in the casing.

The oil-reservoir D is provided at its sides with suitable lugs or projections *d*, adapted to ways or shelves *d*′, and spring-plates mounted on the inner walls of the casing. This reservoir also carries a tray or shelf D′, which serves as a support for the cylinder *c*′ of the extinguishing device.

E is the main reflector of the headlight, which is connected to and carried by the oil-reservoir D and the tray D′, depending from the same, being secured at *e* to a breaker *e*′ mounted on the oil-reservoir and at e^2 to the tray D′. By thus securing the lamp, oil-reservoir, and reflector together they may all be inserted in the headlight-casing or removed therefrom with little difficulty.

Secured to the rear wall of the casing A on the inside and covering the upper half of the same is a plate F of porcelain, opalescent glass, or enameled iron, or any other material having a high reflecting surface, and secured to the upper portion of the casing A are plates *f* of the same material, located on either side of the outlet or opening for the passage of the smoke and products of combustion from the lamp. These upper plates *f* may be flat, as shown in Fig. 3, or they may conform to the rounded inner surface of the casing and be made in a single piece with an opening or aperture *f*′ for the lamp-chimney, as shown in Fig. 5. These plates serve to collect the diverging rays of light reflected

by the front plate A^2 from the main reflector E and throw them onto the number-plates at the sides of the casing, the plate *f*, at the left-hand side of the casing, reflecting the rays of light onto the number-plate on the right-hand side of the casing, and vice versa, while the plate F, which covers the upper half of the rear portion of the casing, tends to reflect toward the front of the headlight those rays which are reflected directly rearward from the smooth surface of the glass plate A^2.

According to my invention, the polished plates that I insert in the headlight serve as additional reflectors and gather the rays from the lamp that would otherwise be lost, so that the headlight not only gives a better light at the front, but the number-plates are illuminated in a manner hitherto unapproached in any other headlight.

As an additional reflector, the convex surface of the main reflector E may be highly polished, so that the rays from the rear reflecting-plate F, which would otherwise be lost, may be reflected onto the side number-plates.

I preferably construct the side boxes for holding the number-plates in such a manner that the said plates can be slipped into their proper place from the outside of the casing, preferably at the rear of the box. To this end I form guideways in the boxes B for the plates *b* by means of angle-pieces *b'* of some spring metal, so that the number-plates will be held against rattling. To prevent the accidental withdrawal of these plates, as well as to hold them more securely, I perforate the top and bottom of the rear end of the boxes, as shown, and insert a headed pin or wire b^2 therein, which rests directly behind and against the number-plate. If a pin is used, it is preferably provided with a nut. If a wire is used, it can be bent over at the bottom to accomplish the same purpose as the nut.

The front frame A' of the headlight, which carries the glass plate A^2, is hinged at *a*, and, in order to secure the frame to the casing when closed, I provide the fastening G, as shown in Fig. 1. On the casing A are the eyes *h* of the hinge-plate H, and resting in these eyes is a pin *g*, which, with the pin *g'*, connected at the top and bottom by the plates g^2, forms the fastening G. The pin *g* is broken away at the center, as shown by dotted lines in Fig. 1. On the front frame A' is the hinge-plate H', carrying the eyes *h'*, which are adapted to fit the spaces between the eyes *h* when the front frame is closed. In order that the frame may be closed, the pin *g* of the fastening G is lifted so that the portion of the same within the space between the central and upper eyes *h* is moved out of said space, when the eyes *h'* may be brought into their proper place, the lower eye *h'* being cut away at the rear of the same, so that it will not interfere with the portion of the pin *g* that projects into the space between the two lower eyes *h* when the fastening is raised. The lower part of the pin *g* is adapted to engage the lower eye *h*, so that it cannot be removed, when raised, to permit of the closing of the front frame of the casing.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination in a headlight, of the casing, the front glass plate mounted in the same, number-plates at the sides of the casing, a main reflector, a source of light for the same, and a series of secondary reflectors mounted in the upper part of the casing, two of said reflectors disposed in the upper part of the casing, and the other reflector secured to the upper half of the back of the casing, said reflectors adapted to receive the light reflected by the front glass plate of the headlight and reflect it onto the side number-plates, substantially as described.

2. The combination in a headlight, of the casing, the front glass plate A^2 mounted in the same, number-plates at the sides of the casing, a main reflector as E, a source of light for the same, and a series of secondary reflectors F, *f*, consisting of highly-polished plates the reflectors *f* being arranged at an angle in the upper part of the casing at each side of the lamp-chimney so as to reflect rays of light onto the side number-plates opposite, and the reflector F being secured to the upper half of the back of the casing and adapted to receive the rays of light from the front glass plate of the headlight which pass the sides of the main reflector and project them onto the side number-plates, substantially as described.

3. The combination in a headlight, of the casing, boxes at the sides of the same for the number-plates, angle-pieces of spring metal located within said boxes at the top and bottom of the same forming guideways for the number-plates and at the same time serving to hold the plates against rattling, and pins for securing the number-plates in place, said pins passing through holes in the top and bottom of the boxes, substantially as shown and described.

4. The combination in a headlight, of the casing, the reflector, the lamp for illuminating the same, and a pneumatic extinguishing device for said lamp comprising a cylinder, a spring-controlled piston within said cylinder and an air-conduit leading from said cylinder to the lamp-chimney, said air-conduit attached to the cylinder a slight distance from the end thereof, so that the air driven by the piston will cushion the blow of the same in the space thus formed beyond the air-conduit, substantially as described.

5. The combination in a locomotive-headlight, of the casing, the lamp, the oil-reservoir, and the main reflector secured together, ways on the inner walls of the casing, lugs

carried by the oil-reservoir adapted to the ways on the casing, so that the lamp, oil-reservoir and reflector may be bodily removed, and spring-plates attached to the casing above the ways on the same so as to clamp the lamp-body firmly thereto, substantially as described.

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

EDWIN L. HALL.

Witnesses:
MURRAY C. BOYER,
JOS. H. KLEIN.