

J. RADLEY.
Locomotive Headlight.

No. 59,650.

Patented Nov. 13, 1866.

Fig. 1.

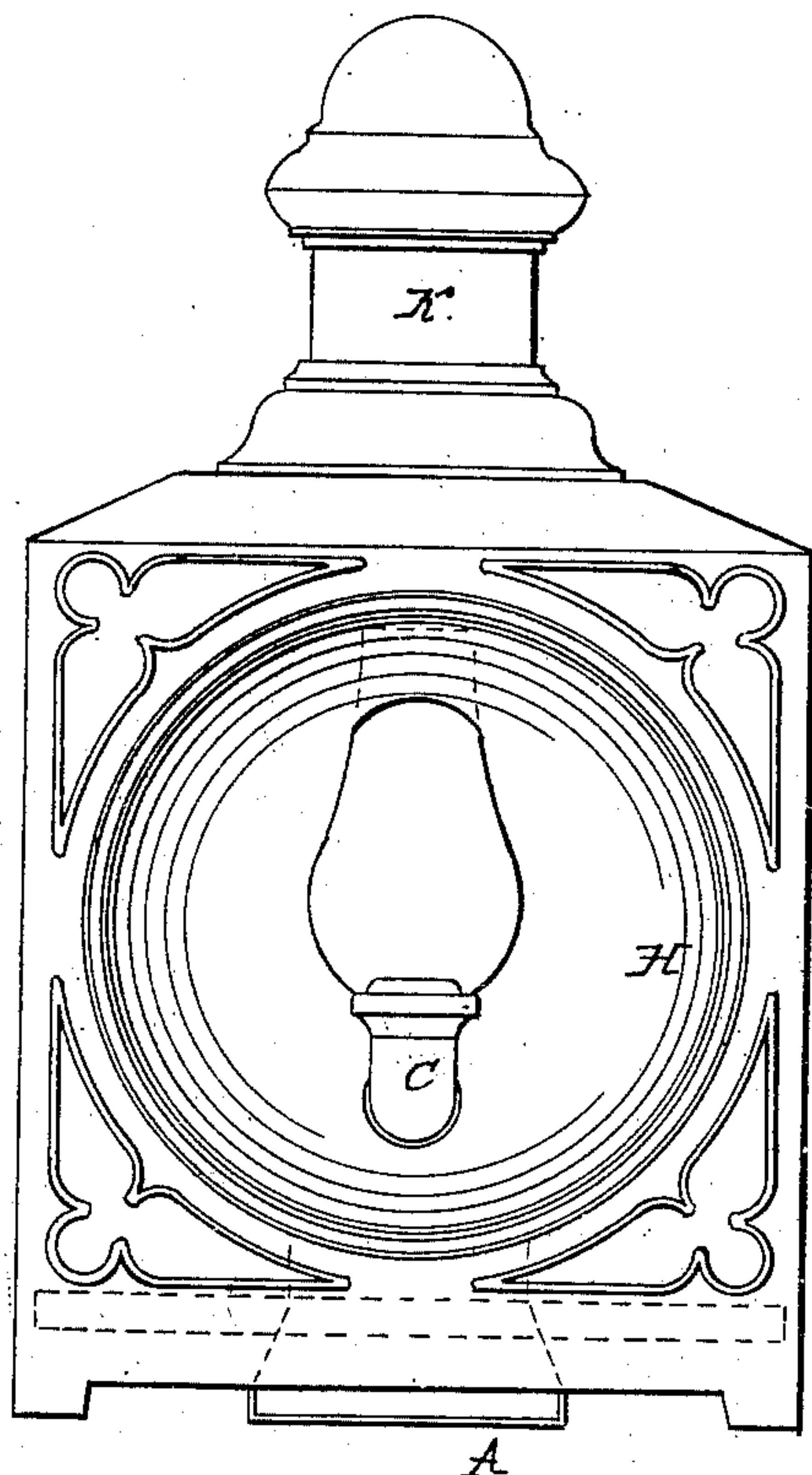


Fig. 2.

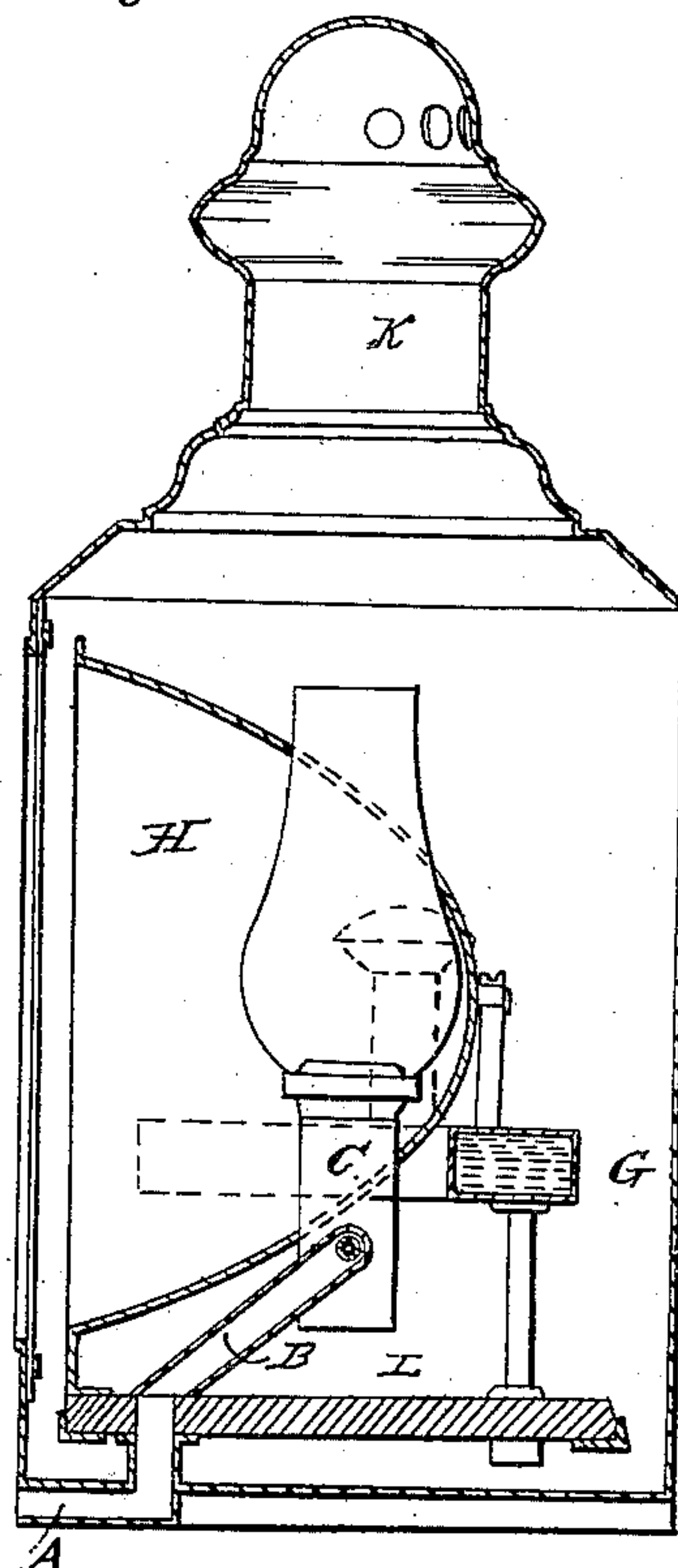


Fig. 3.

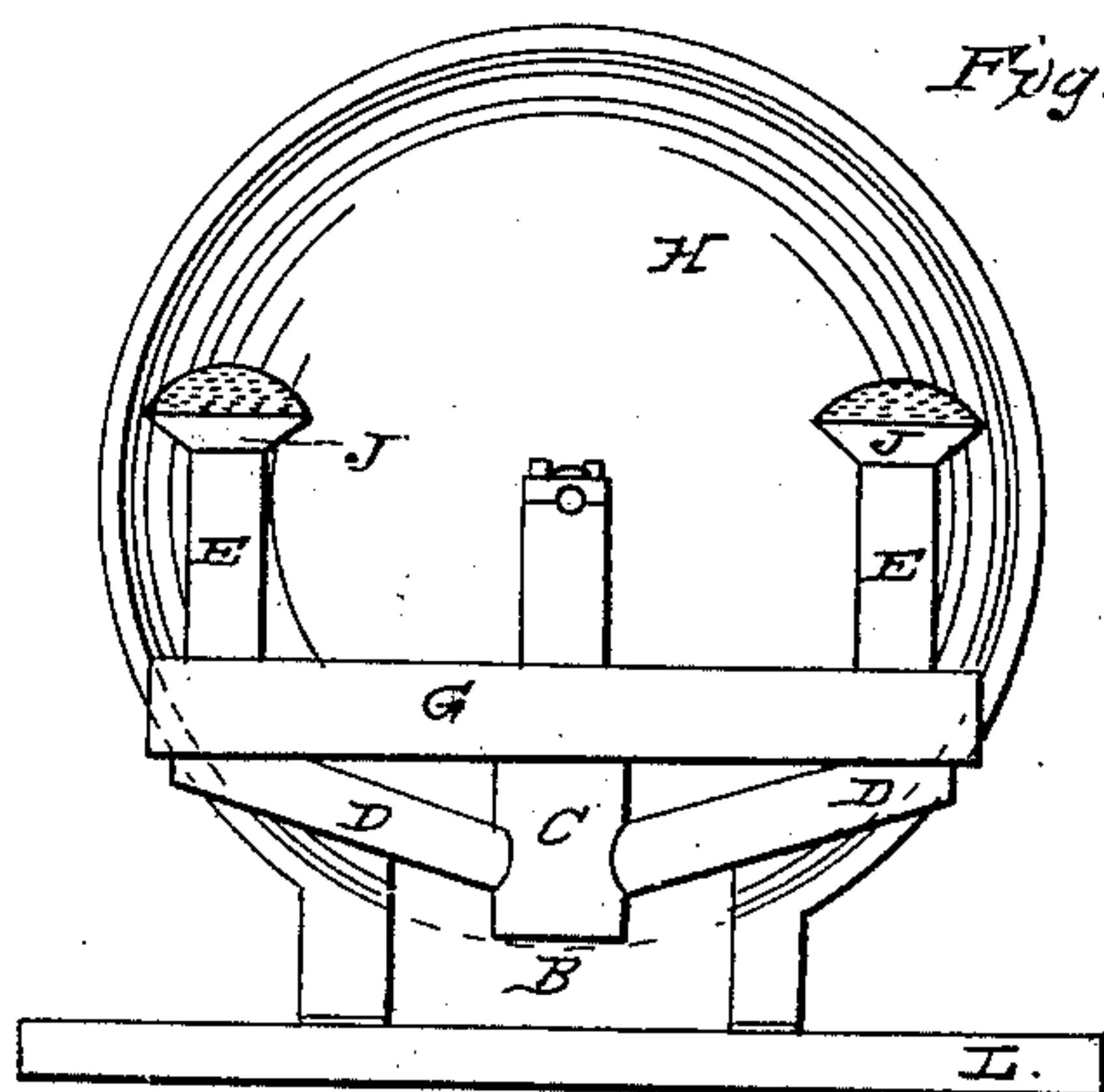
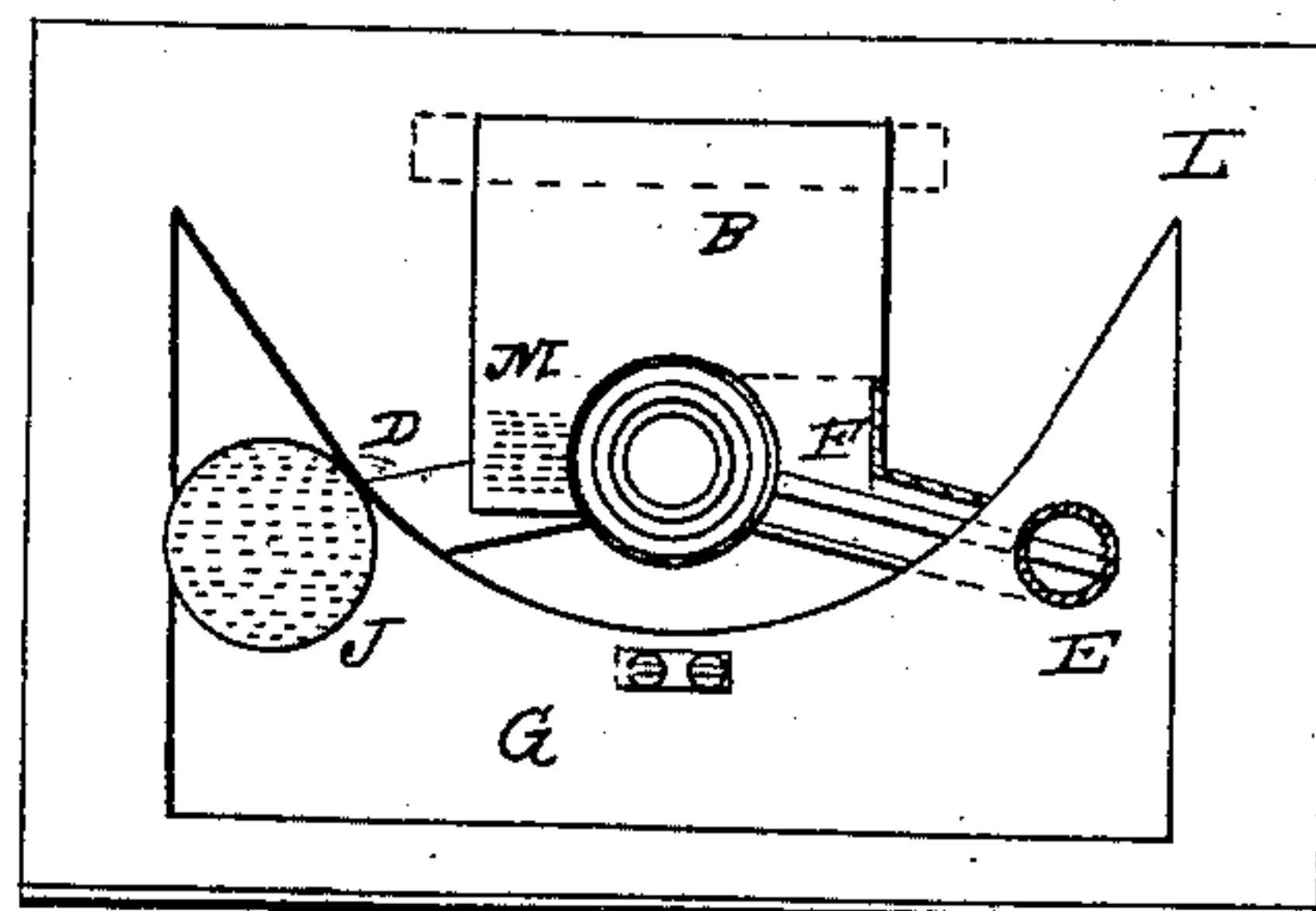


Fig. 4.



WITNESSES

John Cochran
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INVENTOR

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UNITED STATES PATENT OFFICE.

JAMES RADLEY, OF NEW YORK, N. Y.

IMPROVEMENT IN LOCOMOTIVE HEAD-LIGHTS.

Specification forming part of Letters Patent No. 59,650, dated November 13, 1866.

To all whom it may concern:

Be it known that I, JAMES RADLEY, of the city, county, and State of New York, have invented a new and Improved Mode of Cooling the Lamps of Locomotive Head-Lights; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the figures and letters marked thereon, and in which—

Figure 1 is a front elevation of the head-light and inclosing-case; Fig. 2, a vertical section of the same through the axis of the reflector; Fig. 3, a rear view of the apparatus within the inclosing-case; Fig. 4, a top view of the same, in all of which figures the same parts are indicated by the same letters.

The nature of my invention consists in providing one or more passages so constructed as to receive and conduct a current of air, as caused by the passing of the locomotive over the road, to surround the pipes which convey the burning-fluid from the tank to the lamp, thereby effectively cooling the oil-tubes and the burning-fluid in its passage through them before entering the lamp, and thus preventing an accumulation of heat in such fluid or lamp.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct my lamp in any suitable manner, and apply thereto the usual appendages of the head-light as far as they are considered important; but in order to obviate the danger arising from the heat of the lamp in using certain kinds of burning-fluid, such as kerosene-oil, which not unfrequently becomes so greatly heated in the lamp as to melt the soldering of the joints, when the escaping oil suddenly bursts into flame and destroys the whole apparatus.

Many expedients in construction and arrangement have been resorted to with more or less success to prevent the transmission of heat from the kerosene within the lamp to that within the reservoir; but the present invention relates to a means whereby the burning-fluid or kerosene is refrigerated in its passage from the reservoir to the lamp, which I thus accomplish.

In the lower part of the front of the head-light case I make a rectangular opening, A, Fig. 1, six inches long and three-quarters of an inch wide, (more or less,) connecting by means of a flat duct or passage, B, Figs. 2, 3, 4, with the lower part of the lamp C, and then, by lateral branches D and D, with the escape-vents E and E, rising above the tank or reservoir G. The branches D and D surround or inclose the oil-tubes, as shown in section at F in Fig. 4, which convey the burning-fluid or kerosene from the tank to the lamp.

A current of cool air passing through the duct or passage B and its lateral branches D and D carries off with it the free caloric which is radiated from the base of the lamp or its oil-tubes, thus keeping all the parts exposed to the current of air at about the same temperature as the air which passes through the said passages. I also make an opening on each side of the lamp, as shown at M in Fig. 4, and cover them with pieces of finely-perforated sheet metal, so as to vent a small portion of the air from the duct or passage B at the sides of the lamp, where it passes through into the interior of the reflector H H, thereby causing some of the cool air to pass up through the space in the reflector around the shank of the lamp C, and thus exercise a cooling influence upon the body of the lamp within the reflector. Upon the top of the escape-vents E E, I place the scatterers J J, made of finely-perforated sheet metal. The air passing outward through these scatterers acts upon the exterior portion of the reflector, and upon the whole apparatus within the head-light case, keeping it cool, and then passing off through the ventilator K in the upper part of the case.

Currents of air may be created in various ways; but that which I prefer is the mode herein described—viz., by the long rectangular aperture in the front of the lower part of the head-light case—having experimentally ascertained that in this position of the induction-aperture a sufficient quantity of air is made to pass through the apparatus by the motion of the locomotive as it travels along the road.

I have not found any inconvenience in actual use from variation in the speed of the locomotive with an aperture of the dimensions

specified; but where a very high speed of the locomotive is usually required the size of the opening might be reduced, or the aperture might be furnished with a slider, so as to vary the size of the aperture, if required.

I do not limit myself to the exact details of arrangement or construction herein shown and described, as various modifications might be made therein without thereby changing the character of the invention or the principle upon which it acts.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The method of cooling the burning-fluid as it passes from the tank to the lamp by inclosing the connecting oil tube or tubes in a pipe or pipes through which a current of air is made to pass around such oil pipe or pipes, substantially in the manner herein described.

2. The method of cooling the body of the

lamp within the reflector by means of vents adjacent thereto in the air-passages, substantially as herein described.

3. The receiving-aperture in front of the head-light case and the air-passages inclosing the oil-tubes, in combination with a locomotive-engine, when so arranged and constructed as to cause the air entering said aperture to pass through said passages when the locomotive is in forward movement, substantially as herein described.

4. The scattering-vents through which the air escapes, in combination with the air-passages and receiving-aperture, substantially as herein described.

JAS. RADLEY.

Witnesses:

JOHN COCHRANE,

JOHN MCINTYRE.