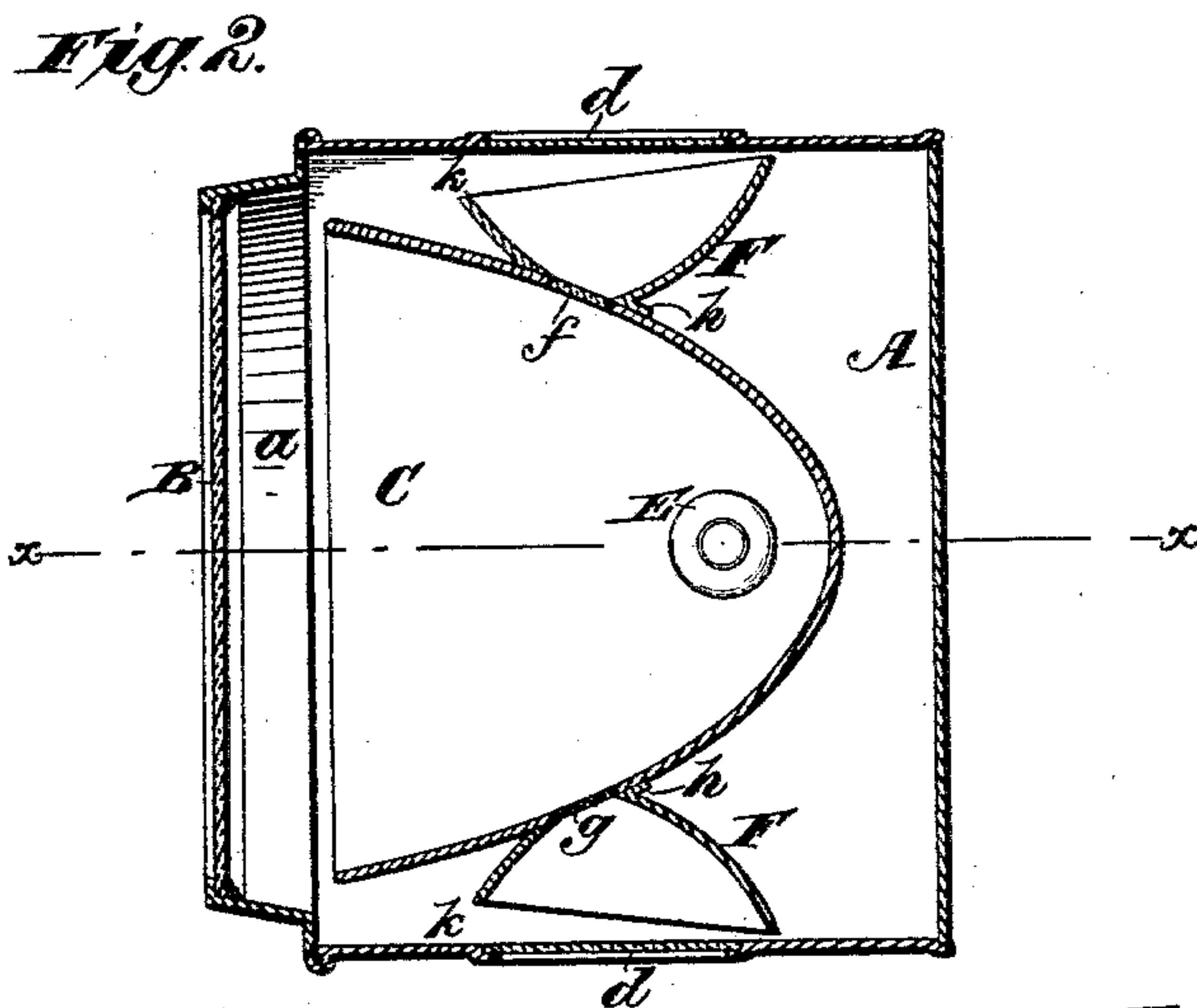
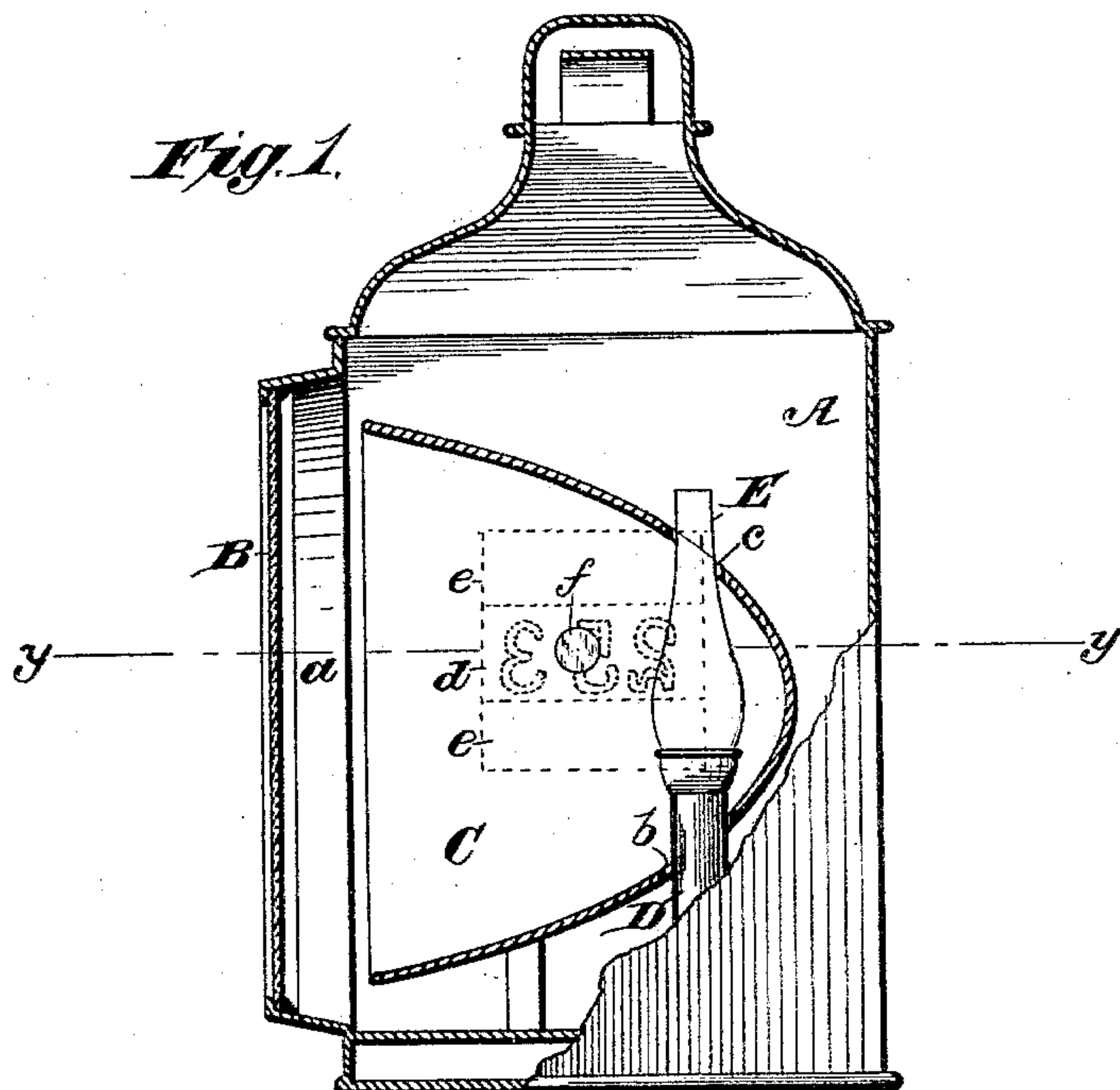


(No Model.)

G. S. RILEY.
LOCOMOTIVE HEAD LIGHT.

No. 321,316.

Patented June 30, 1885.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE S. RILEY, OF ROCHESTER, NEW YORK.

LOCOMOTIVE HEAD-LIGHT.

SPECIFICATION forming part of Letters Patent No. 321,316, dated June 30, 1885.

Application filed May 13, 1885. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. RILEY, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Locomotive Head-Lights, of which the following is a specification.

My invention relates to improvements in that class of locomotive head-lights which are provided with illuminated numbers and with signal plates or lenses in the sides of the head-light case, the object being to display the number of the locomotive or train, or both, and any desired signal in such a manner that they can be readily distinguished at night and at greater distances than heretofore.

To this end my invention consists in the combination, with a locomotive head-light case having suitable side openings, of three reflectors, constructed and arranged as hereinafter set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a sectional side elevation of a locomotive head-light provided with my improved means for displaying numbers and signals, the plane of section being indicated by the line *x x* of Fig. 2. Fig. 2 is a sectional plan of the same on the line *y y* of Fig. 1.

The head-light case A may be of any ordinary or suitable form, and is provided with the usual front rim, *a*, and a face-glass, B, arranged therein.

Within the case A is supported the main parabolic reflector C, the rear portion of which is perforated below and above at *b* and *c* for the passage of the lamp D and its chimney E, as shown in Fig. 1.

In each side of the head-light case A, preferably at or near the center, are glass plates *d e*, of any convenient or desirable form, for the purpose of exhibiting the number of the locomotive or train, or both, together with a cautionary signal or signals of any color, as required.

For the purpose of affording a simple, economical, and efficient means of illuminating the number and cautionary signal or signals, so that they can be readily observed at night even when the train is in rapid motion, and at greater distances than heretofore, I provide a circular opening, *f*, in each side of the main

reflector C, and arrange in juxtaposition thereto on the outer side of said reflector, but within the head-light case, an auxiliary or side reflector, F. These side reflectors, F F, have the same general form as the main reflector C, except that they are smaller and are shaped somewhat like what may be called a "truncated parabola." In one side of each of these small reflectors F F, at or near its smaller diameter or focal point, is a circular opening that registers with the corresponding opening in the side of the main reflector. This circular opening, by which the main reflector communicates with the smaller reflector on each side, I prefer to close with a disk or lens, *g*, of highly-polished glass, that will transmit to the side reflector a sufficient quantity of light to brilliantly illuminate the cautionary signal and number, and at the same time compensate for the slight loss of reflecting-surface within the main reflector caused by cutting the openings that communicate with the side reflectors. By means of this lens or highly-polished glass disk *g*, I am therefore enabled to maintain the volume and intensity of light thrown from the mouth of the main reflector while affording a perfect illumination for the numbers and signals on the sides of the head-light case. The side reflectors, F F, may be supported within the head-light case by a flanged attachment to the outer side of the main reflector, as shown at *h*, or in any suitable manner, and the front edge or rim of each side reflector can be made to approach more or less nearly to the side of the head-light case, as desired. I prefer, however, to arrange the side reflectors, F F, as shown in Fig. 2—that is to say, with the forward portion of the reflector-rim not quite in contact with the head-light case—thereby leaving an opening at *k* between the case A and reflector F for the access of diffused light to the illuminated numbers and signal-glasses.

It will be observed that by reason of the arrangement of reflectors above described I am enabled to employ on each side of the head-light case a number composed of figures having a larger area than usually employed, all of which will be so illuminated as to render the number legible at greater distances than heretofore.

It is obvious that the caution-signal glasses can be arranged either above or below the number-glass, or both above and below, or in any other convenient manner.

5 What I claim as my invention is—

1. The combination, with a head-light case having an illuminated number and signal-glasses displayed on each side, of a main reflector provided with side openings, and a
10 side reflector arranged at each side of said main reflector within the head-light case and having an opening that registers with the corresponding opening in the side of the main reflector, substantially as described.

15 2. The combination of a head-light case having side numbers and signal-glasses, a main reflector placed within said case and provided with side openings, side reflectors placed on each side of the main reflector but
20 within the head-light case, and provided with openings that register with the corresponding openings in the main reflector, and lenses or glass disks placed in said openings, substantially as described.

3. The combination of a head-light case, 25 having side numbers and signal-glasses, a main reflector provided with side openings, and side reflectors placed in contact with the main reflector and having openings that register with the side openings in the main 30 reflector, the front edges or rims of said side reflectors being out of contact with the sides of the head-light case, to create a space at *k* for the access of diffused light, substantially as described.

35 4. The combination, with the head-light case A, having number and signal glasses *d e*, of the main reflector C, provided with side openings, *ff*, the side reflectors, F F, having openings registering with the said openings, *f* 40 *f*, and the lenses *g g*, placed in said openings, substantially as described.

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

GEO. S. RILEY.

Witnesses:

JAMES L. NORRIS,
JOS. L. COOMBS.