

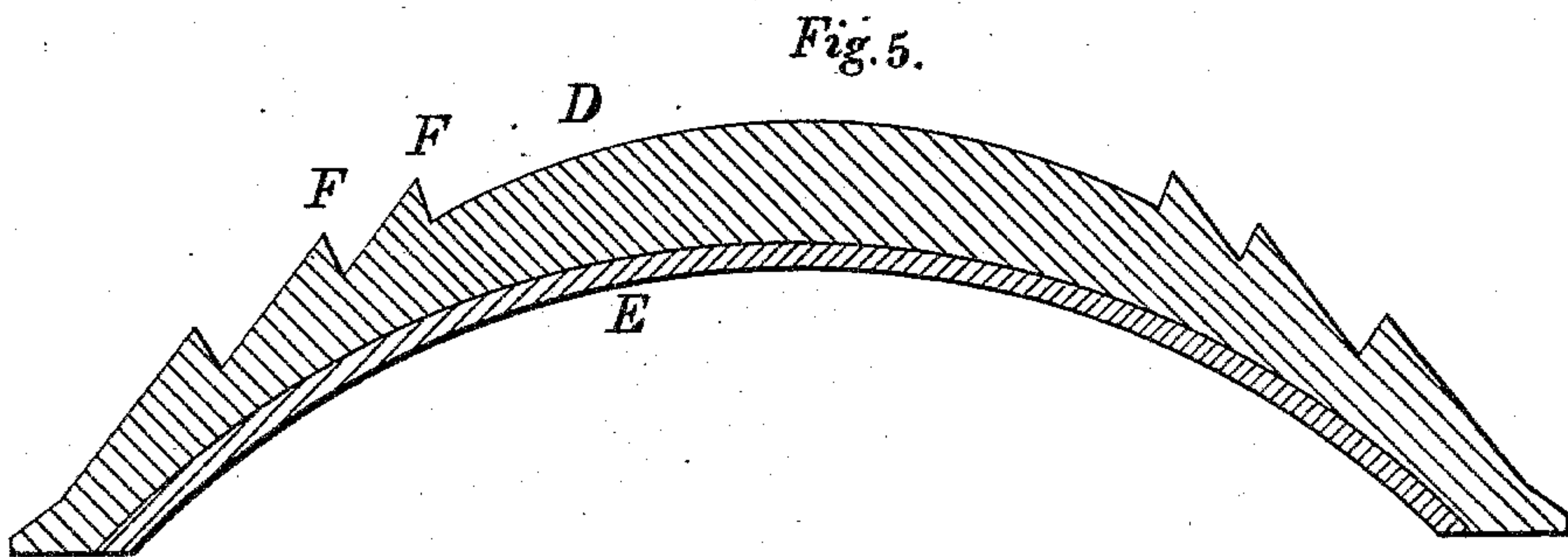
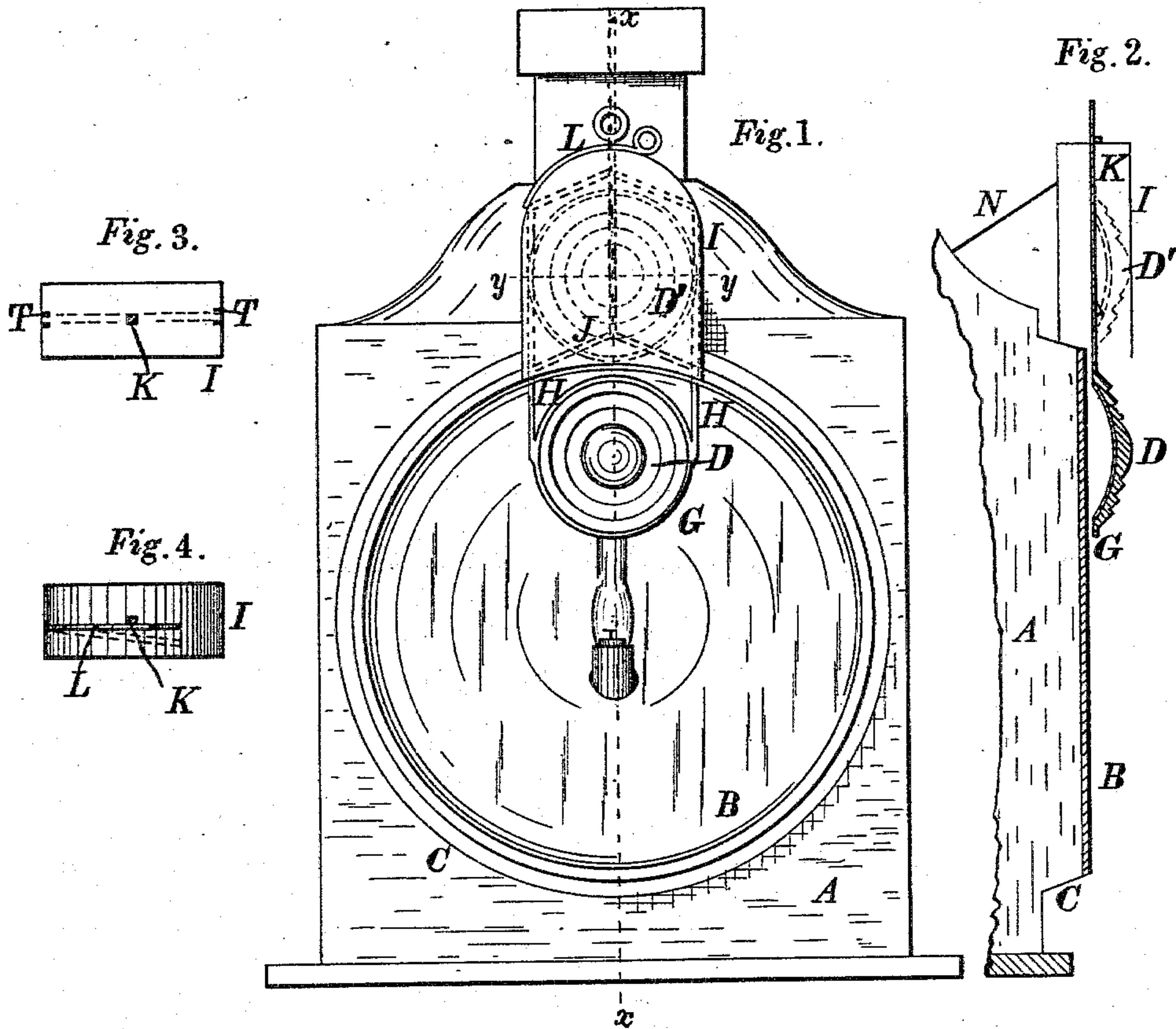
(No Model.)

J. M. KELLY.

SIGNAL FOR LOCOMOTIVE HEAD LIGHTS.

No. 288,242.

Patented Nov. 13, 1883.



WITNESSES-

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# UNITED STATES PATENT OFFICE.

J. MILLER KELLY, OF ROCHESTER, NEW YORK.

## SIGNAL FOR LOCOMOTIVE HEAD-LIGHTS.

SPECIFICATION forming part of Letters Patent No. 238,242, dated November 13, 1882.

Application filed April 23, 1873. (No model.)

*To all whom it may concern:*

Be it known that I, J. MILLER KELLY, of Rochester, New York, have invented certain Improvements in Signals for Locomotive Head-Lights, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to certain improvements in signals for locomotive head-lights; and it consists in the combination, with a head-light, of a colored semaphore-lens, by which the light emitted from the burner is diffused or scattered, so that the signal is equally visible from a point directly in front of the engine or at any angle at which the observer may be placed.

My invention also relates to improved means of attaching the semaphore to the head-light case, all as hereinafter more fully described and specified.

My improved signal for locomotive head-lights is represented in the accompanying drawings, in which—

Figure 1 is a front elevation of a head-light displaying my improved signal. Fig. 2 is a partial vertical section of the same on the line  $x x$ , Fig. 1. Fig. 4 is a top view of the shield which conceals the signal from view when not in use. Fig. 3 is a horizontal section of the same on the line  $y y$ , Fig. 1. Fig. 5 is a section through the semaphore-lens constituting the signal.

In the accompanying drawings, A represents the casing of a locomotive head-light, which is of any ordinary construction, provided with a suitable reflector and burner, and having its front protected by a glass plate, B, supported by a circular flange or goggle, C.

D is the semaphore-lens constituting the signal, and which may be made either wholly of colored glass, or, as represented at E in Fig. 5, with a portion only of the glass colored. The light from the reflector is refracted by the semaphore-lens, so that the signal is equally visible from any position in front of the head-light in which the observer may be placed. It has been a serious objection to the signals which have heretofore been applied to locomotive head-lights that they were only visible at certain angles, and this objection I find by practical trials to be entirely removed by the

use of the semaphore-lens D, which, in connection with the burner and reflector, operates to diffuse the light in front of the engine at all angles, so as to render the signal distinctly visible to an observer anywhere within view. The corrugations or circular flanges F on the semaphore-lens assist in producing this result. Any desired number of these flanges may be employed. The semaphore is supported in place by a ring, G, around its edge, and suitable bars or guides, H H, attached to the ring, which extend upward inside the shield I, and either pass directly through the top of the shield or are connected by a cross-bar, J, attached to a rod, K, by which the semaphore is raised or lowered. The position of the signal when concealed within the shield is indicated by the dotted lines in Figs. 1 and 2. In order to hold the signal in its elevated position, I employ a spring-catch, L, engaging with a notch in the rod K, or a pin passing through a hole in the same. A suitable ring, handle, or knob on the end of the rod K serves to sustain the weight of the signal when lowered or displayed. The shield I is attached to the upper part of the goggle or of the head-light case, being provided with suitable braces, N, if desired. As the shield is only open at its lower part, to permit the passage of the signal into it, the danger of its becoming filled with snow or ice during winter weather, so as to impede or prevent the shifting of the signal, is obviated, and as the semaphore is placed near the front of the glass plate B, which is warmed by the heat of the burner, neither snow nor ice can lodge on it.

Suitable guides or ways, T T, Fig. 3, may be placed within the shield I, to hold the signal in place.

Any desired color may be given to the semaphore-lens.

I am aware that lenses having annular corrugations, commonly known as "Fresnel" lenses, have been secured rigidly in position in the cases of lamps and lanterns. I am also aware that a colored signal-glass has been combined with a head-light in such manner that it may be swung downward within the body of the light behind or within the glass front, and that a box containing a number of lenses has been arranged for adjustment in front of a



head-light, and to such structures I lay no claim. My invention is restricted to the employment, in combination with a head-light, of a Fresnel lens and means for adjusting said lens vertically in front of the glass. This construction is peculiarly advantageous, in that I am enabled, without obstructing the light in such manner as to impair the illumination of the track, to employ a colored lens of such size and of such intensity of illumination that it may be seen from a great distance. The arrangement of the Fresnel lens upon the outside of a head-light, as contradistinguished from the inside, is of the highest importance for my purposes, in that it permits the same to be distinctly seen from points at a considerable angle on either side of the road—a result which is necessary in order to admit of the signal being seen while the approaching engine is still beyond a distant curve. Were the Fresnel lens placed within the lantern behind or within the glass front B, this result could not be secured, owing to the interference which would arise on account of the reflection and refraction due to the existence of the plain glass in front of the lens, and owing, also, to the fact that the lens would in a measure be

obscured or concealed by the projecting rim of the lamp.

I claim—

1. The combination, in a head-light signal, of the following elements: the case or body A, having a lamp and reflector therein, the external housing, I, and the transparent glass front B, the vertically-sliding frame H, adapted to descend in front of the transparent glass, the corrugated lens secured in said frame, and means, substantially as described, for holding the frame and lens in an elevated position above the front B, as described.

2. In combination with a locomotive head-light, an external frame or housing applied thereto and open at the lower end only, the vertically-sliding frame H, mounted in and adapted to be projected below said housing, the annularly-grooved colored lens mounted in said frame, and means, substantially as described, for elevating the frame and suspending the same in its elevated position.

J. MILLER KELLY.

Witnesses:

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