

(No Model.)

2 Sheets—Sheet 1.

G. E. WARREN.
RAILWAY SIGNALING LANTERN.

No. 476,585.

Patented June 7, 1892.

Fig. 2.

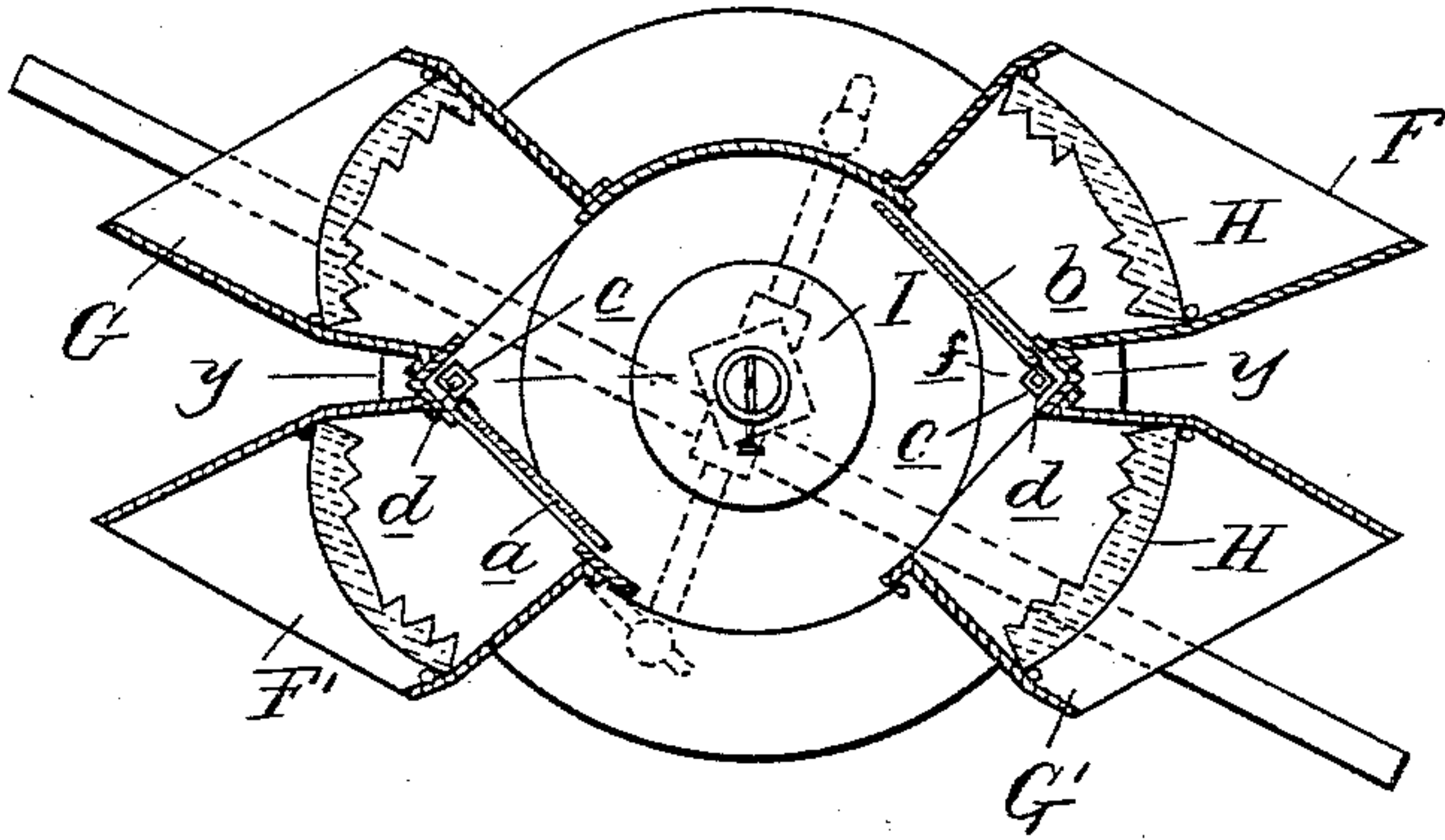
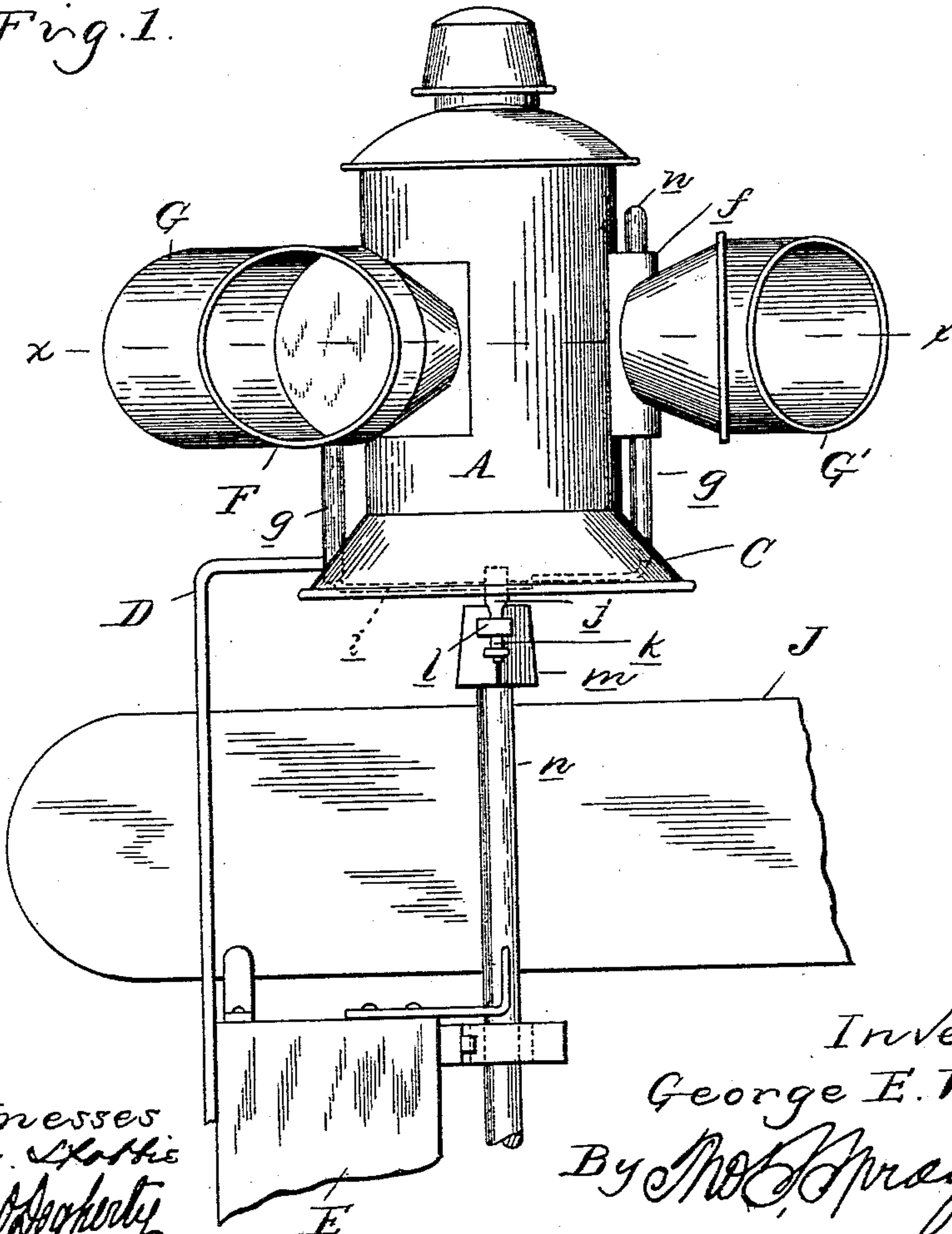


Fig. 1.



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Fig. 3.

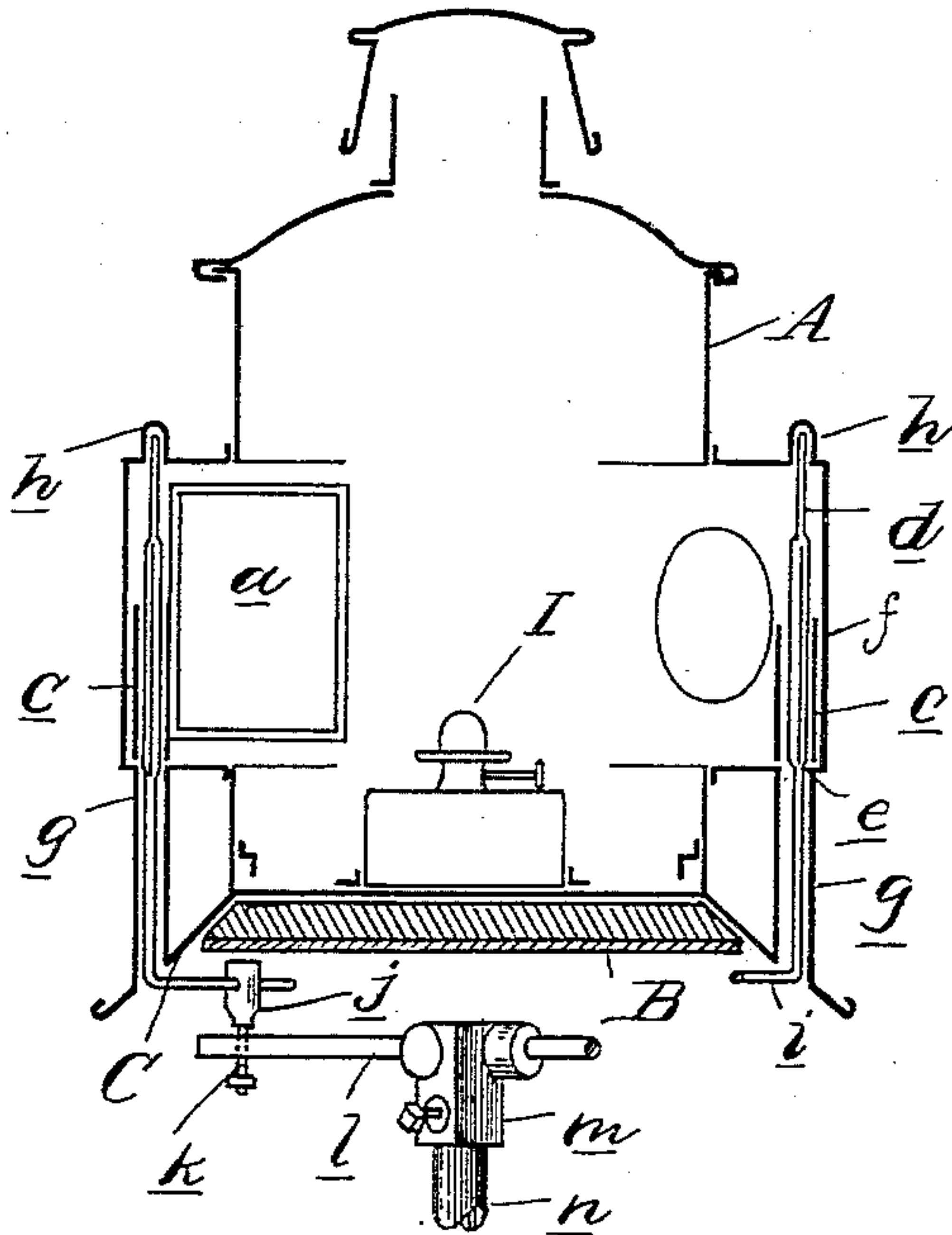
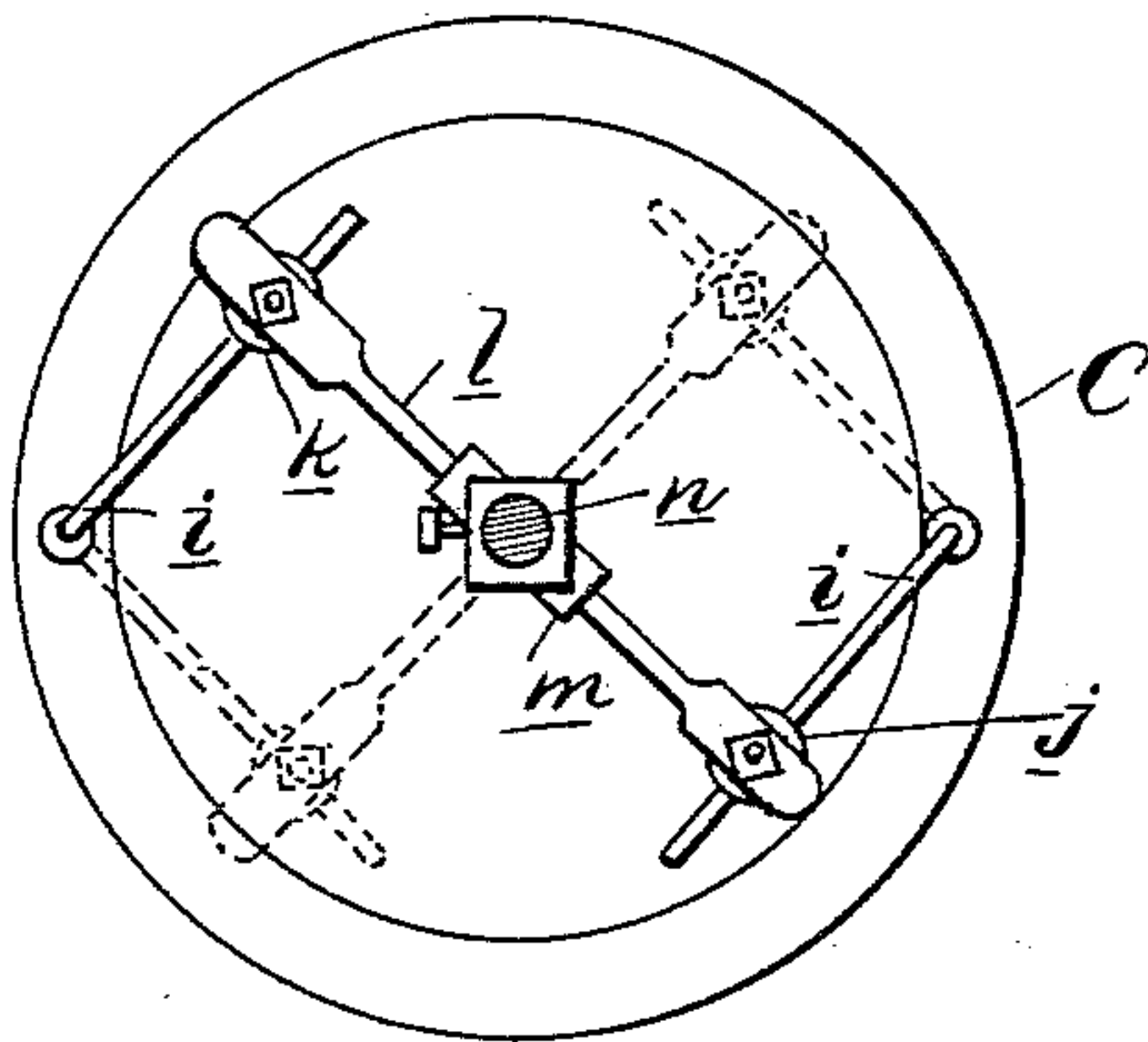


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE E. WARREN, OF DETROIT, MICHIGAN.

RAILWAY SIGNALING-LANTERN.

SPECIFICATION forming part of Letters Patent No. 476,585, dated June 7, 1892.

Application filed January 21, 1892. Serial No. 418,759. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. WARREN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Railway Signaling-Lanterns, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in railway signaling-lanterns; and the invention consists in the peculiar construction of the lantern casing and lenses, together with vibratory colored shutters, with actuating mechanism for moving said shutters between the lamp in the casing and opposite pairs of the lenses; and the invention further consists in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a side elevation of my improved signaling-lantern supported upon a standard as in use for railway-signaling, and showing a lantern designed for what is known as a "diamond" crossing. Fig. 2 is a horizontal section on line $x x$ in Fig. 1. Fig. 3 is a vertical central section. Fig. 4 is a bottom plan view showing the different positions of the operating-levers.

A is a cylindrical casing secured to a base B, having the usual inclined trap or water-strip C. This casing is supported upon a standard D, secured to a post E, beside a railway-crossing, the construction herein shown being designed for the so-called diamond crossing—i. e., one in which the tracks cross each other at an acute angle.

The casing A is provided with the circular hoods F F', arranged in line with one track on opposite sides, and with hoods G G', arranged in line with the other track upon opposite sides of the casing. These hoods connect with the interior of the casing and are provided with suitable lenses H, of plain or colorless glass.

I is a lamp centrally arranged in the casing, so as to be in line with the various exit-openings connecting into the hoods.

With the construction thus far described for the lamp, trains approaching in any direction on any track would have a white signal exposed, indicating that the track was clear.

Now in order to stop a train on one track while the trains were approaching or crossing on the other, I desire to have colored shutters interposed between the lamp and that pair of lenses designed to signal the trains upon the track upon which the trains are to stop, leaving the colorless lenses exposed on the track upon which the trains are to continue in motion. To effect this with a simple construction, and yet one which will be efficient under all circumstances under which such lanterns are placed, I have devised the following mechanism:

$a b$ are shutters of colored glass, (ordinarily red glass is employed,) provided at one edge with hubs c , adapted to engage upon the shafts d , arranged on opposite sides of the casing between the hoods or between the apertures which lead to the hoods, as plainly shown in Fig. 2. These shafts are arranged in the angular extension f and are journaled in tubes g , connecting said extension with the inclined flanges C, and at their upper ends engaged into nipples h , formed on the top of the angular extensions, as plainly shown in Fig. 3. These shafts d are provided with a crank-arm i , each slidingly engaged in apertures in the blocks j , having the bolts k journaled in apertures in the cross-bars l , secured to the head m of the actuating-shaft n , so arranged that by a rotation of the shaft n the arms l will be turned, rocking the shaft d and swinging the shutters b across one or the other pair of lenses.

In Fig. 2 I have shown the shutters arranged across the lenses in the hoods F F', so that the tracks toward which those lenses are turned leave the red light exposed, while the white light will be shown through the lenses in the hoods G G'. A similar rotation of the shaft will rock the lenses to show a red light through the lenses G G' and white light through the lenses in the hoods F F'.

J is an ordinary signal-board secured to the shaft, designed to give the signal in the day-time.

It is evident that as the hubs c slidingly engage on the squared portion e of the shaft, any ordinary displacement caused by the vertical movement of the shaft n or rise or fall of the lamp in relation to that shaft will not affect the actuation of the mechanism.

It will also be observed that all the operating mechanism is securely housed beneath the lamp or within the lamp-casing, so that it cannot be affected by storms or ice. The whole construction gives me a simple and efficient signaling-lamp, which can be applied to crossing at any angle greater or less than a right angle, or for right-angled crossings, and also it can be applied to any other kind of signaling lamp in which it is desired to change the color to be exhibited.

I overcome a serious objection which has heretofore existed in revolving the lamp-case itself by having the lamp stationary and moving the shutters. It has been found frequently that operators in throwing the entire lamp would by the centrifugal force, the lamp being heavy, throw it from its support with consequent danger to trains and the necessity of replacing the lamp. The peculiar actuating mechanism which I employ is such as to prevent the shutters from striking the casing, as the blocks *j* limit the movement of the crank-arms, and the shutters are so arranged that at the extremity of their stroke they do not rest against the sides of the lantern.

What I claim as my invention is—

1. In a railway signaling-lantern, the combination, with a stationary casing having a series of apertures and a lamp within, of a shutter of colored glass pivoted between two of the apertures and adapted to be rocked to cover either one or two of the apertures, substantially as described.

2. In a railway signaling-lantern, the com-

bination, with a stationary casing having two sets of apertures adapted to be arranged in line with crossing railways and a lamp within, of two shutters of colored glass oppositely arranged within the casing, and operating mechanism adapted to move said shutters across either of the two sets, substantially as described.

3. In a railway signaling-lantern, the combination of the stationary casing having two sets of apertures adapted to be arranged in line with crossing railways and a lamp within, of the shutters *b*, of colored glass, oppositely arranged within the casing, the shafts *d*, on which said shutters are secured, the cranks on said shafts, the actuating-shaft, and connection between said actuating-shaft and crank-arms, substantially as described.

4. In a railway signaling-lantern, the combination, with the stationary casing having apertures and a lamp within, of the shutter *a*, the squared hub *c*, the shafts *d*, having a squared portion engaging in said hub, a bearing in which said shafts are journaled, cranks at the end of said shafts, blocks in which said cranks slidably engage, arms in which said blocks are pivoted, and a shaft for rocking said arms, substantially as described.

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

GEORGE E. WARREN.

Witnesses:

M. B. O'DOHERTY,

N. L. LINDOP.