

(No Model.)

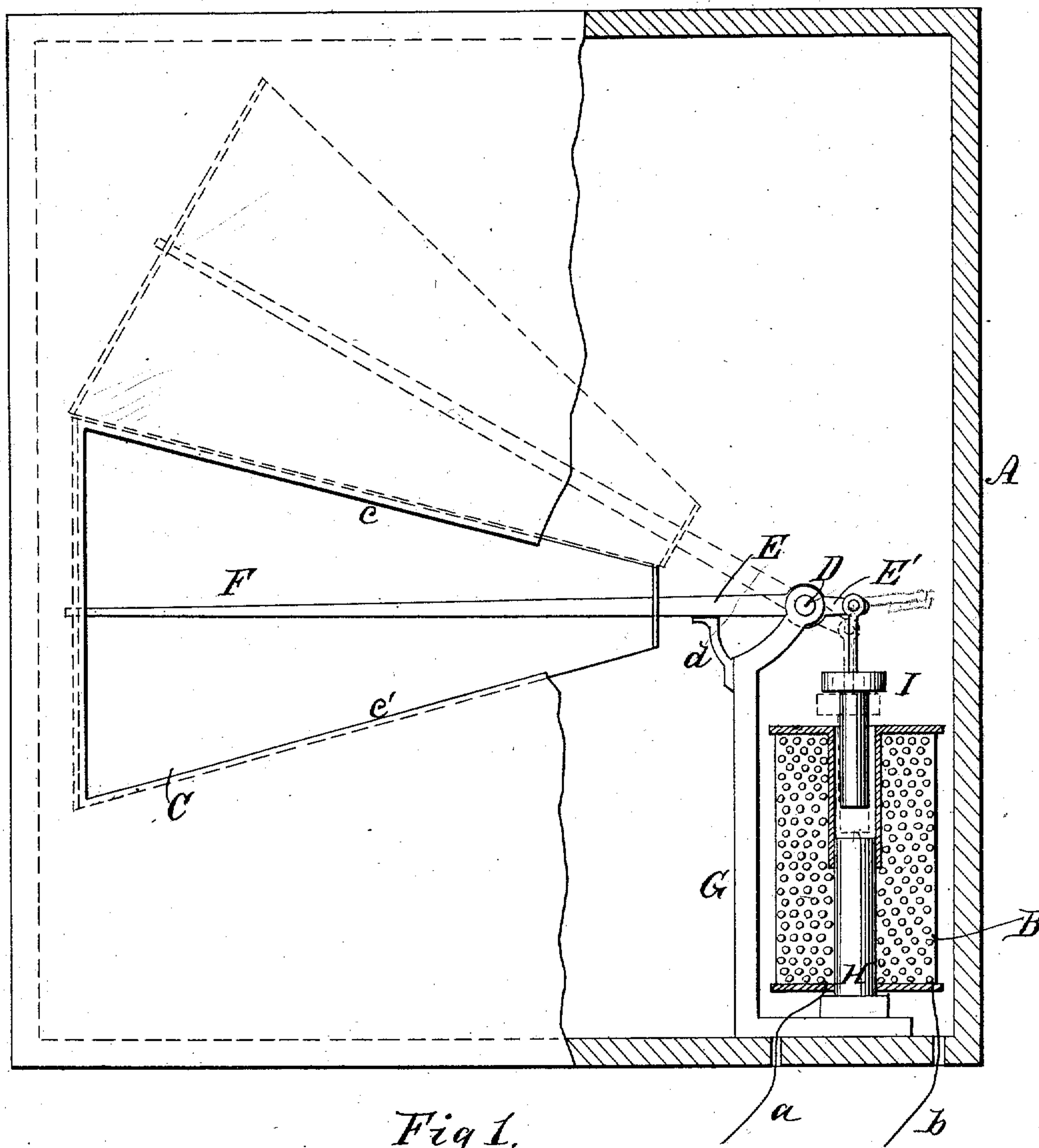
2 Sheets—Sheet 1.

W. HADDEN.

RAILWAY SIGNALING APPARATUS.

No. 317,994.

Patented May 19, 1885.



WITNESSES

*Amos L. Colver*  
*H. B. Hagen*

INVENTOR:

*William Hadden,*  
BY *Geo M. Hopkins.*  
ATTORNEY.

(No Model.)

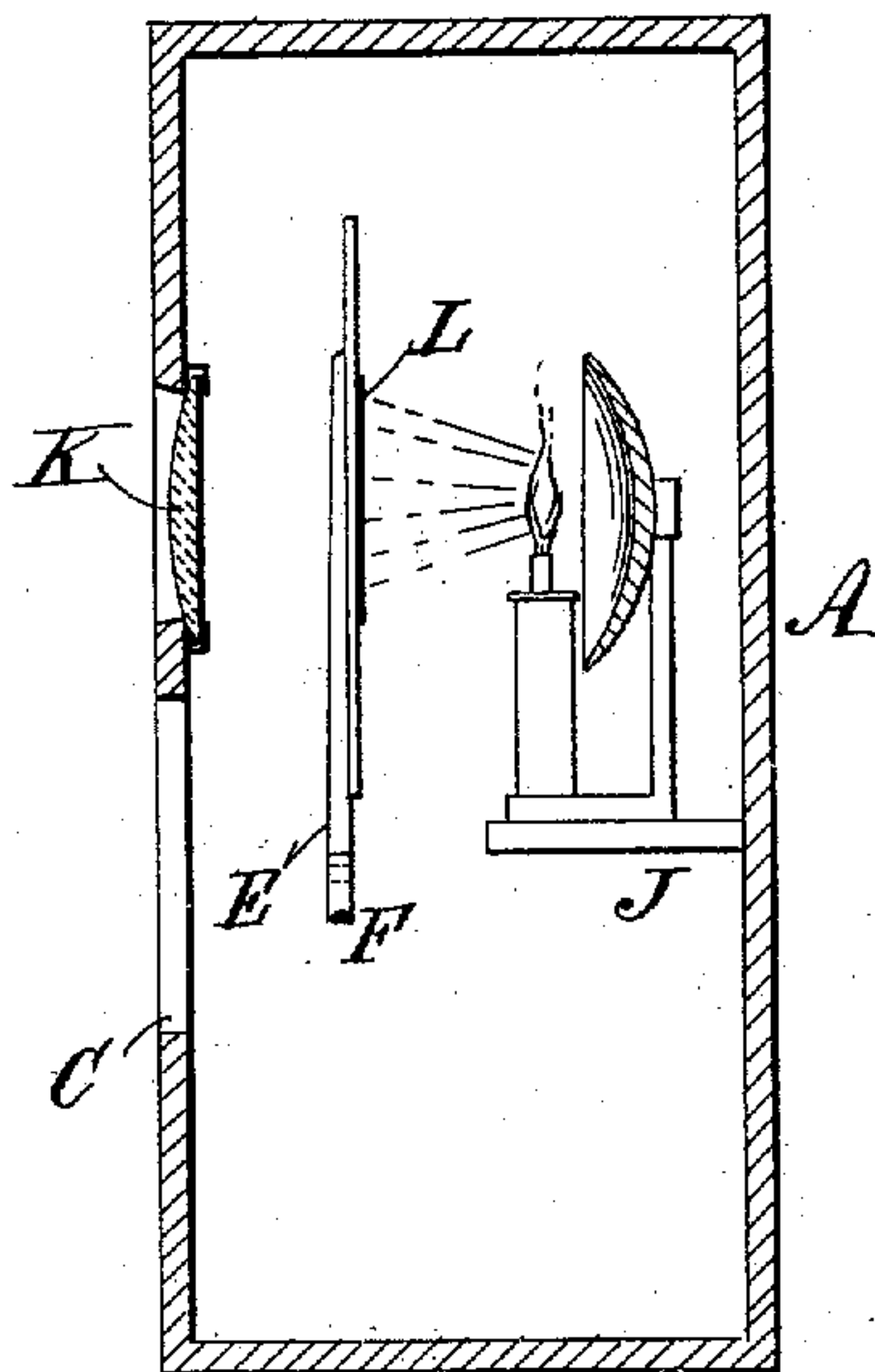
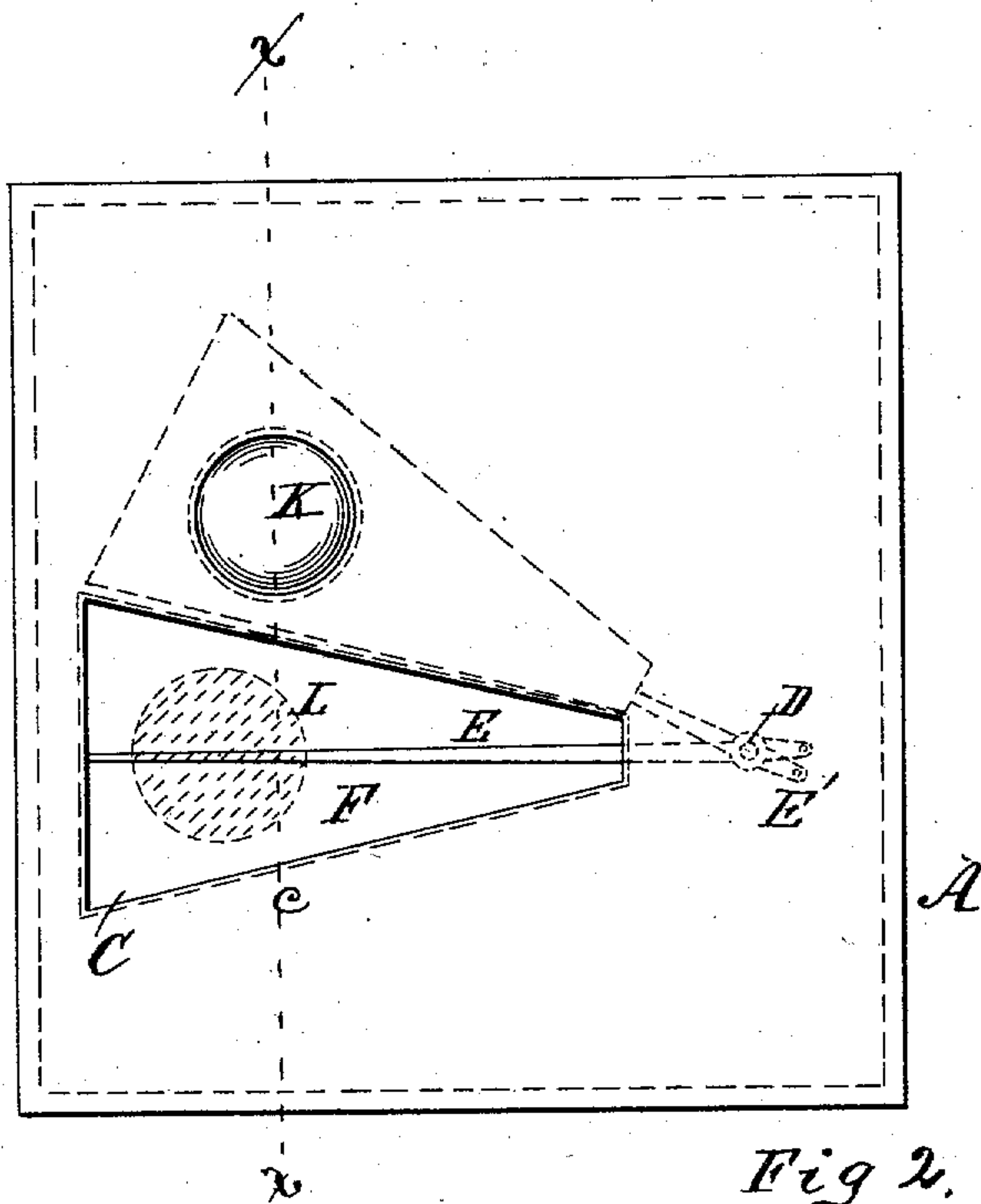
2 Sheets—Sheet 2.

W. HADDEN.

RAILWAY SIGNALING APPARATUS.

No. 317,994.

Patented May 19, 1885.



WITNESSES

*Chas. L. Cohn*  
*H. B. Hagen*

INVENTOR:

*William Hadden*  
BY *Geo M. Hopkins*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

WILLIAM HADDEN, OF BROOKLYN, NEW YORK.

## RAILWAY SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 317,994, dated May 19, 1885.

Application filed June 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HADDEN, of Brooklyn, in the county of Kings, State of New York, have invented a new and useful Improvement in Railway Signaling Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, forming a part of this specification.

Figure 1 is a side elevation, partly in section, of a signal-box constructed according to my improvement. Fig. 2 is a modified form of the same. Fig. 3 is a vertical transverse section taken on line *x x* in Fig. 1.

Similar letters of reference indicate the same parts in the different figures of the drawings.

My invention relates to the class of electric railway-signals in which a banner is displayed or withdrawn from view, or both, by means of an electro-magnet under the control of suitable track-instruments, or of an operator who may be charged with the duty of operating such signals.

The object of my invention is to construct a signal-box which will display a large banner-surface with a comparatively small movement of the actuating electro-magnet.

My invention consists in a banner and an opening for the same of trapezoidal form, two sides of the trapezoid being radial to the point of motion of the banner.

It also further consists in applying to the banner a disk of opaque material for screening a light when the signal is used for night service, as hereinafter more particularly described.

The signal-box A is to be supported in the usual way where the signal is to be displayed, and its magnet B is connected by wires *a b* with the key or track instrument by which the signal is operated. In front of the box A is formed a trapezoidal opening, C, whose upper and lower edges, *c c'*, are radial to the center of the pivot D of the lever E of the signal-banner F. The pivot D of the lever E is supported by a standard, G, secured to the bottom of the signal-box A, and the bracket *d*, attached to the said standard, stops the arm E in a horizontal position. To the horizontal foot of the standard G is secured the core H

of the electro-magnet B. The electro-magnet B is of axial type, the core H extending slightly beyond the center thereof, and the upper end being provided with a movable core, I, which is connected with a short arm, *E'*, of a lever, E. When a current passes through the magnet B, the movable core I is drawn into the magnet toward the fixed core H, drawing down the short arm *E'* of the lever E, raising the said lever E, also the banner F, so that the lower edge of the said banner is opposite the upper edge of the opening C, and the banner is therefore hidden within the box A.

When my improved signaling apparatus is to be used for both night and day service, a lamp, J, is placed within the box, so that its light may shine through the colored lens K, and the banner F is provided with an opaque disk, L, attached to or formed upon the said banner and capable of covering the lens K when the banner is raised, as shown in Fig. 3, thus preventing the light of the lamp from shining through the colored lens. When the current passes through the magnet B, the banner F will be raised in the manner before described, obscuring the light of the lamp J; but when the current ceases in the magnet B the arm I is released, the banner F falls, exposing the light J through the colored lens K.

Having thus described my invention, what I claim is—

1. In signaling apparatus, the combination, with a signal-box having a trapezoidal opening, of a swinging banner of trapezoidal form, the upper and lower edges of the said trapezoidal opening and banner being radial to the center of motion of the banner, as specified.

2. The combination, in signaling apparatus, of a trapezoidal banner, an axial magnet for operating the same, and a box adapted to contain the banner and axial magnet and provided with a trapezoidal opening for displaying the banner, as herein specified.

3. The combination, with a signal-box provided with a signaling-aperture and lamp for emitting light through the same, of a translucent swinging banner inclosed in the sig-

nalizing-box and provided with an opaque portion capable of intercepting the light passing from the lamp toward the signaling-aperture, as specified.

- 5 4. The combination, in signaling apparatus, of a trapezoidal banner, F, provided with the opaque portion L, axial magnet B, box A,

provided with opening C, and lens K, and lamp J, as specified.

WILLIAM HADDEN.

Witnesses:

CHAS. L. COHN,  
GEO. M. HOPKINS.