

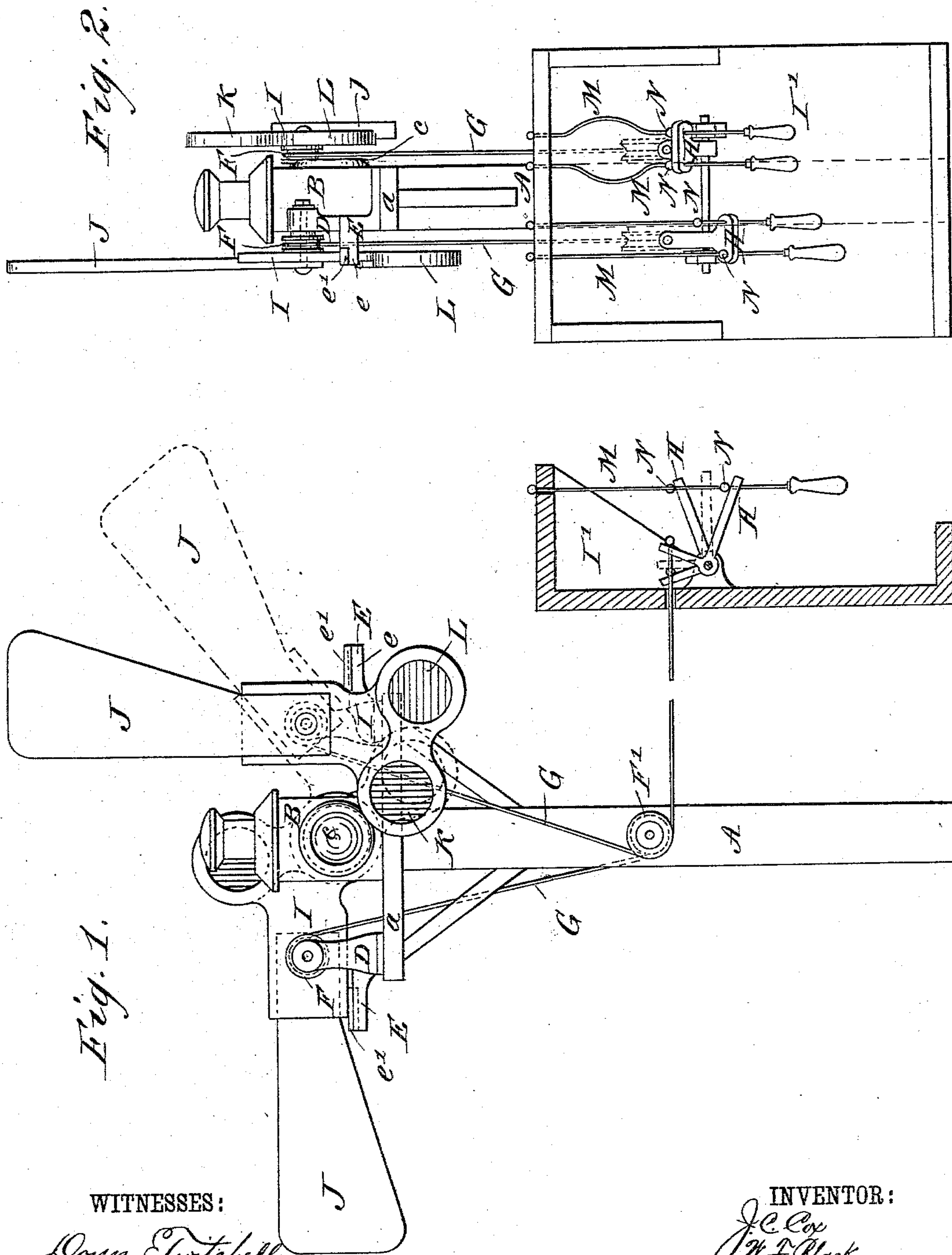
(No Model.)

J. C. COX & W. F. BLACK.

SEMAPHORE.

No. 356,573.

Patented Jan. 25, 1887.



WITNESSES:

*Donn Twitchell.*  
*Co. Bedgwick*

INVENTOR:

*J. C. Cox*  
*W. F. Black*  
BY *Munn & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JOHN C. COX AND WILLIAM F. BLACK, OF LOUISVILLE, KENTUCKY.

## SEMAPHORE.

SPECIFICATION forming part of Letters Patent No. 356,573, dated January 25, 1887.

Application filed September 15, 1886. Serial No. 213,602. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN C. COX and WILLIAM F. BLACK, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and Improved Semaphore, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in semaphores adapted for use with a single or double main track system, and has for its object to enable the operator to communicate accurately with trains at a distance the condition of the block or track while the trains are under full speed or otherwise.

The invention consists in suitable standards placed upon opposite sides of a stationary lamp, to which are journaled light metal frames adapted to carry on their outer ends wooden arms, serving as day or semaphore signals, the inner ends of said metallic frame serving as a receptacle for red and green transparent disks, which disks are so placed as to operate on opposite sides of the said stationary lamp to serve as night-signals, all of which is so arranged in combination with suitable mechanical appliances that they may be readily and accurately managed by the operator in the station, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a front elevation of our applied semaphore, and Fig. 2 is an end view thereof.

A represents a vertical post, provided with a properly-braced horizontal top bar, *a*, and B a stationary lamp, secured centrally upon said horizontal top bar, *a*, immediately over the vertical post A, and fitted with a white lens, C, preferably made about eight inches in diameter. Upon each outer end of the said horizontal top bar, *a*, short metallic vertical standards D D are secured, provided with integral horizontal outwardly-extending arms E, which arms are formed with side lugs, *e*, having convexed inner end surfaces, as shown in Fig. 1, and a hard-rubber block, *e'*, embedded therein, adapted to cover the upper surface of said arm E and extend over the integral side lugs, *e*, the purpose of which will be hereinafter set forth. Light metal frames I, made

rectangular at one end and provided at the other with two distinct circular formations, in each of which a corresponding aperture is formed, are pivoted to the metallic standards D, one upon each side of the lamp B, the pivot passing through the rectangular portions thereof, and to the side of the said rectangular portions of said frames, facing the said standards D at the point of their pivotal connection, a sheave, F, is rigidly attached.

Wooden arms J J are secured in the rectangular portion of the frames I, to extend outward therefrom, purposed to constitute, by their position in relation to said standards, signals by day, while in one of the apertures of the reverse end a green transparent disk, K, is secured, and in the other a red disk, L, of the same nature.

Cables G are attached to the fixed sheave F, and pass downward over sheaves F', journaled in opposite sides of the post A to the bell-crank levers H H in the station I', where they are operated by means of the cords M. The said cords M are attached to the ceiling at one end, the other being adapted to enter apertures in said bell-crank levers, as shown in Fig. 2, and terminate in suitable handles. The different positions of the signal-arms are controlled by the position of the stops N upon said cords, which come in contact with the upper side of the crank-lever H when the handle is drawn back.

When the signal-arm is thrown in a vertical position, as shown on the right-hand side of the post, Fig. 1, the position indicates a safety-signal by day and the unobstructed white light a safety-signal by night. The said arm is then supported against the outer curved end of the horizontal integral arm *e* of the standard D. When the signal arms are set in a horizontal (or its normal) position, as shown on the left side of the post, Fig. 1, it indicates by its position a danger-signal by day, and as the red disk L is then in registry with the lens of the lamp, a red light or danger-signal at night; and when the arms are set at an angle, as shown on the right of the post by dotted lines in Fig. 1, it indicates by its position a cautionary signal by day, and, through the green disk now registering with the lens, a green light or cautionary signal by night. When the signal-arms are in a horizontal po-



sition, they rest upon the rubber blocks *e'* of the supporting horizontal arms of the standards D.

The signal is so constructed that it will return to the red or "danger" position automatically under any and all conditions the instant it is released by the operator, or in case of breakage. The signal gives three distinct positions, and, as it is operated in the presence of the approaching train, a failure to so operate it, either on the part of the proper attendant or owing to accidental breakage, is at once a notice to the approaching train that something is wrong, which in itself is a signal to stop and inquire the cause.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the post A, having a horizontal top bar, *a*, carrying a white-lens lamp, B, and vertical standards D, having integral outwardly-extending horizontal arms E, provided with lugs *e* and embedded rubber blocks *e'*, of the metal frames I, provided with semaphore-arms J at one end and incased

translucent disks K L, of green and red, at the other, together with means for operating said arms, whereby three distinct positions of the semaphore-arms are assumed, to designate "safety," "danger," and "caution" by day, the same position of the arms conveying the same signal at night through the said translucent disks, as set forth.

2. The combination, with the post A, having pivoted sheaves F', and a horizontal top bar, *a*, carrying a white-lens lamp, B, and vertical standards D, having integral outwardly-extending horizontal arms E, provided with lugs *e* and incased rubber blocks *e'*, of the metal frames I, provided with a fixed sheave, F, upon one side, semaphore-arms J at one end and incased translucent disks K and L at the other, cables G, secured to and passing over the said fixed sheaves F, and an operating mechanism, substantially as and for the purpose set forth.

JOHN C. COX.

WILLIAM F. BLACK.

Witnesses:

PHIL. J. MALLOY,  
THOS. C. ENOS.