

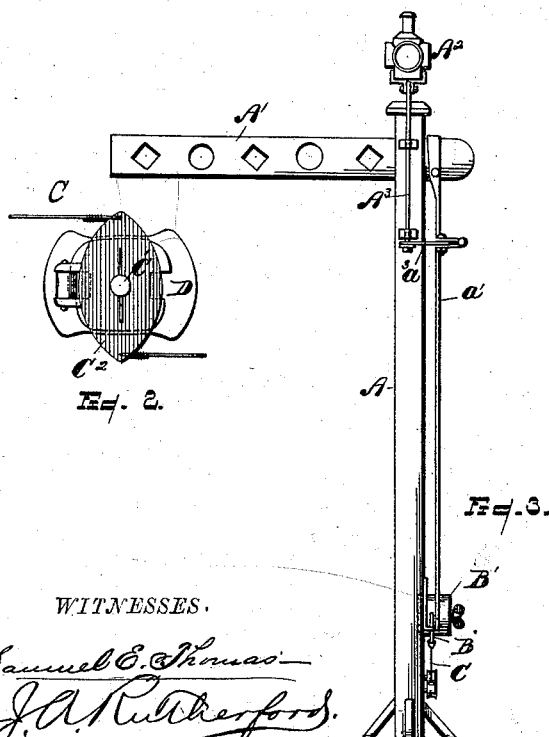
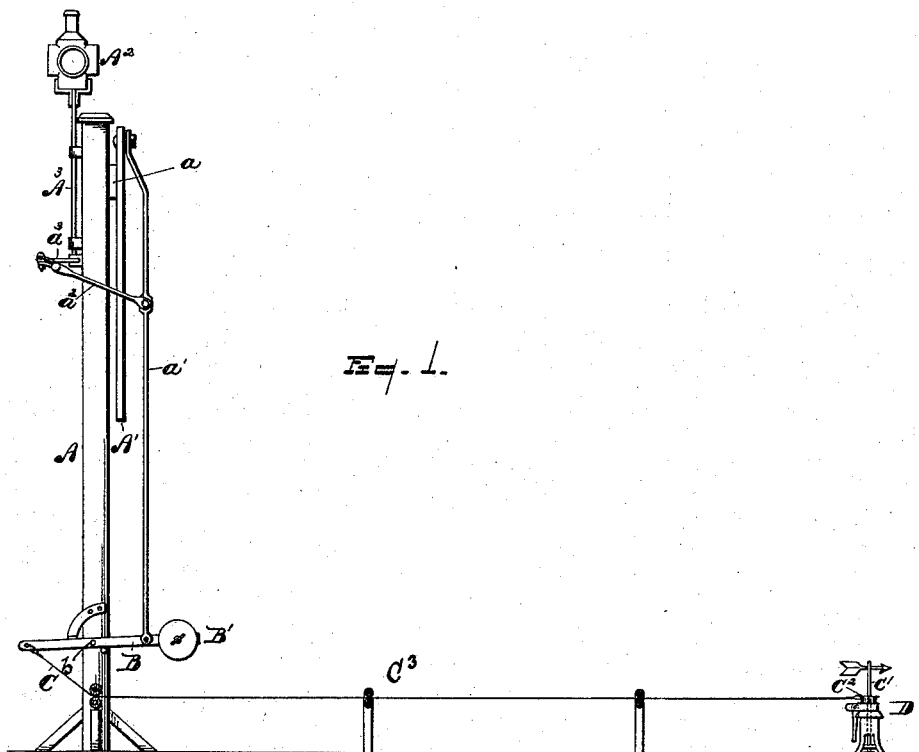
(No Model.)

A. BARNES.

SEMAPHORE SIGNALING APPARATUS.

No. 385,227.

Patented June 26, 1888.



WITNESSES.

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SEMAPHORE SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 385,227, dated June 26, 1888.

Application filed December 7, 1887. Serial No. 257,235. (No model.)

To all whom it may concern:

Be it known that I, AMOS BARNES, a citizen of the United States, residing at Pontiac, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Semaphore Signaling Apparatus; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of the combinations of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a plan view of the switch-standard and its connecting mechanism. Fig. 3 is a front elevation of the semaphore and its mechanism. Fig. 4 illustrates a variation in the mechanism for connecting the semaphore signaling apparatus with the switch-standard.

Semaphore signaling apparatus of railroads has been connected by cables or otherwise to a ratchet-lever or similar mechanism by which the semaphores may be extended or dropped by the will of the switch-operator. Thus, when the engineer of a train arriving on the main track sees the semaphore arm hanging down, or if it be at night a white light upon the semaphore signaling apparatus, he is thus advised that the main track is clear and the switch in proper shape to that end. On the other hand, if he sees the semaphore-arm extended, or if at night a red light upon the semaphore signaling apparatus, he is thus advised that the switches are set to run him onto the side track. The system so in use necessarily implies that the switch-tender whose duty it is to adjust the semaphore signaling apparatus has properly attended to his duties—i. e., he is presumed to have adjusted the switch to send the train to the main track before he has adjusted the semaphore, and, on the other hand, when the semaphore is extended it is presumed that the switch-tender has performed his proper duty of adjusting the switch to throw the train to the side track. Every-

thing has depended upon the proper performance of his duty by the switchman.

In the construction herein described I connect the semaphore signaling apparatus directly with the switch mechanism, so that the operation of throwing the switch simultaneously adjusts the semaphore-signal—that is to say, if the switchman adjusts the switch so as to throw the approaching train to the side track, the very operation of thus adjusting the switch has simultaneously adjusted the semaphore, and vice versa.

In carrying out my invention, A represents the post or upright of a semaphore signaling apparatus.

A' is the semaphore-arm. A² is its signal-light.

The semaphore-arm is pivoted at *a*, and a pitman or connecting-rod, *a'*, leads down to and is engaged with a lever, B, which is pivoted at *b* to the post, and this lever B has a weight, B', permanent or adjustable. I prefer that it be adjustable, so as to graduate its action to correspond with the weight of the semaphore-arm or the resistance of the cable. *a*² is a connecting-arm, which leads from the rod *a'* to a bell-crank, *a*², at the base of the lamp standard A³, so that as the rod *a'* is thrust upward it will drop the semaphore, and the arm *a*² will rotate the lamp-standard so as to present its white light to an approaching train, and when the rod *a'* is drawn downward it will throw the semaphore-arm into horizontal position, and at the same time, through the connection *a*², rotate the lamp standard so as to present its colored light to an approaching train.

At the lower end of the lever B is connected a cable, C, in the usual way, passing along supports C³ to the switch-standard D, the condition of which switch mechanism is designed to be indicated by the semaphore signaling apparatus. This switch mechanism may be of any ordinary type—as, for instance, with a central standard, C', which rotates as the switch-rails are shifted. Upon this standard is fixed a disk or lever, C², to one end of which the cable C, which leads from one of the semaphores, is attached, and if there be a semaphore-signal upon the opposite side of

the switch its cable may be attached, as shown in Fig. 1, to the other end of the same disk or lever. It is apparent that by the use of this mechanism the switch, being directly connected with the semaphore signaling apparatus, cannot be operated without simultaneously throwing the semaphore signaling apparatus into its relative position.

By the use of my device, when the engineer of an approaching train sees the extended arm or the red light on the semaphore, he knows absolutely that the switch is set to throw him upon the side track, and after the train has passed from the side track the fact that the semaphore-arm is still extended indicates conclusively that the switch-tender has not yet closed the switch. The semaphore is therefore not only a positive guide to the engineer, but a positive check upon any carelessness or oversight upon the part of the switch-tender. The semaphore-arm and light-standard being connected by metallic rods a' a^2 with the lever B, their movements are rendered certain and positive, and there is no liability of their operation being impaired or choked by snow or sleet.

The cables C may of course be provided in the usual manner with turn-buckles or other appliances for adjusting the length of the cable through limited distances to compensate for expansion or contraction, and so enable the

operator to adjust its length to produce a normal action of the semaphore-signals by the throwing of his switch mechanism.

What I claim is—

1. The combination, with post A, having arm A' pivoted thereto to swing up and down, and the upright shaft A³, carrying light A² and pivoted thereto to turn, of the rod a' , connected with arm A', crank a^3 , connected to lower end of shaft A³, rod a^2 , joining rod a' and crank a^3 , and the pivoted lever B, provided with the adjustable weight B', and having rod a' connected to it, substantially as and for the purpose described.

2. The combination, with the post A and rod a' , adapted to rise and fall, of the upright shaft A³, connected with the post to revolve, and the arm A', connected therewith to rise and fall, and both of said parts connected with rod a' to be operated thereby, the lever B, having rod a' connected thereto, the switch-standard D, and a cable connecting said standard and lever B, the several parts operating as described, for the purposes set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

AMOS BARNES.

Witnesses:

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SAMUEL E. THOMAS.