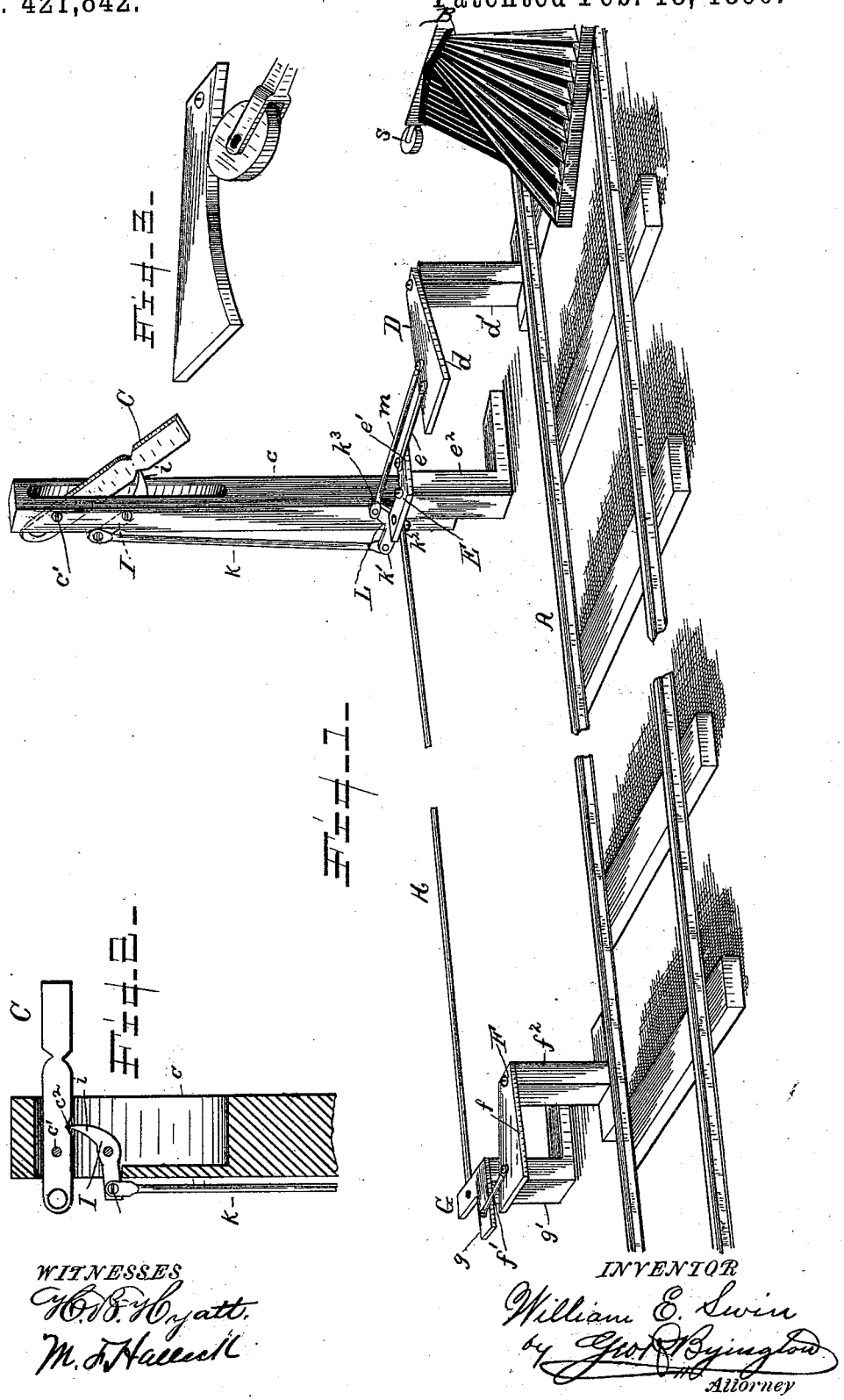
(No Model.)

W. E. SWIN.

AUTOMATIC BLOCK SIGNAL SYSTEM FOR RAILROADS.

No. 421,842. Patented Feb. 18, 1890.



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AUTOMATIC BLOCK-SIGNAL SYSTEM FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 421,842, dated February 18, 1890.

Application filed August 19, 1889. Serial No. 321,275. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SWIN, a citizen of the United States, residing at Ansonia, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Automatic Block-Signal Systems for Railroads; and I do hereby 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.

My invention relates to automatic block-signal systems for railroads.

The object of my invention is to construct a cheap and durable block-signal system wherein the signal or semaphore is raised and locked in "danger" position by the entering of a train upon the block and lowered to "safety" position by the train passing off of said block; and to this end the nature of my invention consists of constructions and combinations, all as will hereinafter be set forth in the specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved block-signal; Fig. 2, a vertical transverse sectional view of the operating mechanism, and Fig. 3 an actuating-shoe.

A represents a line of railway-track; B, the engine; C, the semaphore or signals mounted on posts *c*. As shown, these semaphores are pivoted on post *c*, as indicated at c', and are provided with recesses or notches c^2.

At each semaphore-station and adjacent to the track-rails are located pivoted shoes D, having inclined sides *d*, connected by link *e* to one arm e' of bell-crank levers E, which shoes and levers are suitably pivoted to brackets or other supports d' and e^2, respectively, and suitably disposed, as hereinafter set forth.

F are other pivoted shoes at the opposite end of the block or section, having inclined sides *f*, link-connection f', with one arm *g* of bell-crank levers G. Said shoes F and bell-crank lever G are suitably pivoted to brackets or other supports f^2 and g', respectively, and are suitably disposed, as hereinafter set forth. The bell-crank levers E and G of each section or block are connected by a line of rod H, which may be constructed and suitably supported, as desired, so that a movement of either one of the shoes D or F is through the medium of the links *e* and f', bell-cranks E and G, and line-rod H, communicated to the others, for purposes hereinafter set forth.

On the semaphore-posts *c*, below the semaphore, are pivoted levers I, having turned ends or toes *i*, which engage with the semaphores to raise them into signaling position, and when raised engage with the semaphore-recesses c^2 to lock them securely in position until released or dropped. These levers are disconnected from the semaphore C, and have link-connections *k*, with one arm k' of bell-crank levers L, pivoted at k^2 to posts or other supports, as desired. The other arm k^3 of these bell-crank levers L have a link-connection *m* with the shoes D, so that a movement of the shoes D away from the track through the medium of links *e*, bell-crank levers E, links *k* and *m*, and levers L raise the semaphores to "danger" position, and at the same time through the medium of links f', bell-crank levers G, and rod H move the shoes F toward the tracks or set them in position to be operated by a passing train to release or drop the raised or set semaphores, the shoes D therefore being the actuating-shoes for displaying or setting the semaphores to "signaling" or "danger" position, and the shoes F actuating-shoes for releasing or dropping said semaphores to "safety" position.

The shoes D and F may be located contiguous to the tracks, so as to be moved by the flanges of the wheels or other suitable part of or fixture on a passing train; but I prefer to elevate said shoes above the tracks and provide the train with horizontally or other suitably located wheel or roller *s*, as indicated in Fig. 1.

The inclined edges of the shoes D and F may be straight, as indicated in Fig. 1, or they may be curved, as indicated in Fig. 3, and these shoes are of some length, so that when the wheel or roller on the engine impinges against their inclined, curved, or straight sides a continuous rolling pushing movement for moving said shoes is provided, instead of an abrupt blow. The said actuat-

ing devices, as described, may be suitably boxed or covered, as desired, to prevent access of dust, moisture, or snow thereto.

The operation is as follows: The normal position of the semaphores being down the shoes D extend over the track or in the path of the roller on the train or engine, and the normal position of the shoes F being away from the track or out of the path of said roller. A train approaching the shoe D its roller impinges against the shoe D to move it laterally away from the tracks. The movement of the shoe D, as before described, raises the semaphore to "danger" position, which is held locked in such position, and also sets the shoe F at the opposite end of the block or section in the path of the train-roller, so that when the train reaches the end of such section and its roller moves the shoe F the semaphore at the other end of the section previously raised is released or dropped to safety, and the shoe D thereat is set in the path of the train-roller for the next or succeeding train. It will be noted, therefore, that whenever a train passes by a shoe D it sets the semaphore to "danger," to indicate to a following train arriving at said semaphore-station that the section or block controlled by said semaphore is not clear, and that the train passing off of said block releases said semaphore or drops it to "safety" position to indicate that said block or section is clear. The up and down tracks are similarly equipped.

What I claim is—

1. In a railroad-signal, the combination of a pivoted signal arm or semaphore having a recess, a pivoted lever for raising and locking said signal arm or semaphore in "danger" position, and suitable actuating mechanism, substantially as set forth.

2. In a railroad-signal, the combination of a pivoted signal arm or semaphore having a recess, a pivoted lever and suitable actuating mechanism for operating said lever to set and lock said signal arm or semaphore in "danger" position and to release said lever from said signal arm or semaphore to admit of its dropping to "safety" position, substantially as set forth.

3. In a railroad-signal, the combination of a separate pivoted signal arm or semaphore, a separate lever, and actuating mechanism for moving said lever into engagement with the signal arm or semaphore to raise and lock it in "danger" position and for releasing the said lever from the semaphore, substantially as set forth.

4. In a railroad-signal, the combination of a pivoted signal arm or semaphore, a separate pivoted lever directly contacting therewith, pivoted shoes having inclined edges, connection between said shoes and lever, and actuating mechanism, substantially as set forth.

5. In a railroad-signal, the combination of a pivoted signal arm or semaphore, a separate pivoted lever for engagement by direct contact with said semaphore, setting and releasing shoes having inclined sides, connection between the setting-shoe and said lever and between the setting and releasing shoes, substantially as set forth.

6. In a railroad-signal, the combination of a pivoted signal arm or semaphore, a separate pivoted lever for engagement by direct contact with said semaphore, setting and releasing shoes having inclined sides, connection between the setting-shoe and said lever and between the setting and releasing shoes, and a roller or wheel on a train for impingement with said shoes, substantially as set forth.

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

W. E. SWIN.

Witnesses:
W. A. WHITE,
E. C. DREW.