A. S. Miller.

Railroad Signal.

No. 71896 Patented Dec. 10, 1867.

Fig. 2.

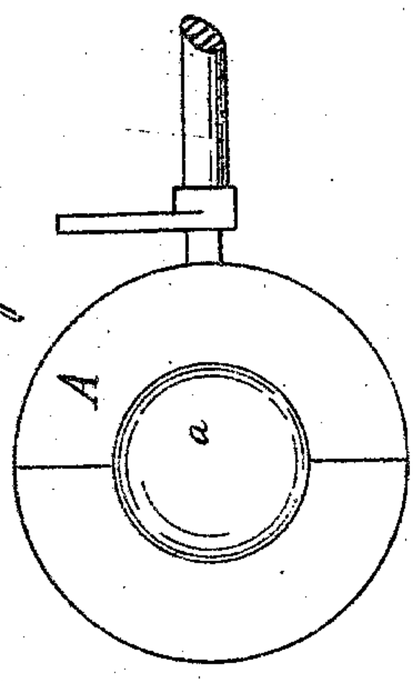

Fig. 1.

Witnesses.

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ABRAHAM S. MILLER, OF ZANESFIELD, OHIO, ASSIGNOR TO HIMSELF, J. P. JAMES, AND CHARLES FOLSOM, OF SAME PLACE.

Letters Patent No. 71,896, *dated December* 10, 1867.

IMPROVEMENT IN RAILROAD-SIGNALS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ABRAHAM S. MILLER, of Zanesfield, in the county of Logan, and State of Ohio, have invented certain new and useful Improvements in Railroad-Signals; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made part of this specification.

Figure 1 is a perspective view of a railroad-track and signal, illustrating my invention.

Figure 2 is a detached view of the signal.

Similar letters of reference indicate corresponding parts in the two figures.

This signal is chiefly designed to prevent the collision of trains upon curves, and consists in a peculiar combination of triggers, to be operated by the contact of the passing train, and connections, which communicate motion to the signal proper, so as to first turn the same to its warning position in approaching the curve, and then reset the signal when the point of danger is passed.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it in connection with the accompanying drawings.

A represents a disk or plate, constituting the signal proper, which is mounted upon the weighted rock-shaft B, and supported, at a prominent point, by the post C. When the disk is in its vertical position, as indicated by the red lines, fig. 1, it gives warning to a train which may be approaching the curve of track D, in the direction of the arrow 1, that another train is approaching in the opposite direction, and the point at which the last-mentioned train acts upon the trigger E, to turn the disk A into its warning position, is sufficiently distant from the signal to afford adequate time for the first-mentioned train to avoid collision. The trigger E is situated between the rails D D, and is hung loosely upon the end of a rock-shaft, F; the lower end of the trigger being weighty, so as to cause it to assume a vertical position after being turned or vibrated in either direction by the cars which pass over it. The end of the shaft F is bent upward, and then projects inward; the projection *f* being struck by the trigger when the latter is vibrated by the cow-catcher of the cars moving in direction of arrow 2. This action of the trigger E upon the projection *f* rocks the shaft F and vibrates the lever G through the medium of the arm H and lever I. As implied by the foregoing, the lever G may be some distance, say a mile, more or less, from the signal A. Hence to connect the lever G with the signal, I employ a wire or analogous connection J, which may be supported upon posts K, planted at suitable intervals along the track, and provided with pulleys K′. The wire J is attached to the lower end of the eccentric-lever L, which is pivoted to the signal-post C, and which, being actuated by the lever G, through the wire J, serves to raise the notched bar or catch M, thus releasing the fin or projection *b* and shaft B, and permitting the latter to be partially rotated by the weight B′, so as to turn the signal A into its vertical or warning position. The signal remains in this position until the train reaches the second trigger E′, which operates in conjunction with a rock-shaft, F′, having a projection, *f*′, and an arm, H′, the latter being connected to the signal through the medium of wire N and arm O. When the cow-catcher of the train (moving in direction of arrow 2) acts upon the trigger E′, the wire N draws upon the arm O, and throws the signal A into its horizontal position, in which it is held by the catch M, which is held in engagement with the fin *b* on shaft B by the spiral spring M′. The catch M may be held in engagement with the shaft B by its own gravity, or a weight may be used in place of the spring M′.

From the above it will be seen that the function of the trigger E is to throw the signal into its conspicuous position, while that of the trigger E′ is to reset the signal when the cars have passed the place where collisions would be likely to occur.

P P^1 are arms, which may be employed in connection with or in lieu of the weight B′. These arms are joined to the horizontal shaft P^2, which is journalled in the signal-post C. When the eccentric-lever L is drawn away from the post C, it acts upon the lower bent end of the arm P^1, and raises said arm; the consequent vibration of the arm P serving to vibrate the arm H′, to which it is connected by the rod or wire Q. It is manifest that the arm H′, thus operated, will turn the signal A by drawing upon the wire or rod N, and, as the latter can be made to move the signal both ways, it follows that the weight B′ is not a necessary appliance, although it may be preferable.

The disk or signal A has a reflecting-plate, *a*, secured to that side of it which is presented toward the

approaching train, and which, by reflecting the light thrown upon it by the locomotive head-light, renders the signal conspicuous at night. When the signal A is in its horizontal position, the reflector will be on the under side, which, in a great measure, obviates the damage resulting from exposure to the weather.

Two signals, constructed as above, and located at the two extremes of a curve, will effectually prevent accidents; but it is manifest that the signal may be usefully employed in the vicinity of switches, crossings, &c.

Having thus described my invention, what I claim as new herein, and desire to secure by Letters Patent, is—

1. The combination of the trigger E and rock-shaft F *f* with a railroad-signal and suitable intermediate connections, so arranged that the contact of the train with said trigger shall throw the signal into its conspicuous position, substantially as described.

2. The arrangement of the trigger E, rock-shaft F *f*, arm H, link I, lever G, wire J, eccentric-lever L, catch M, and shaft B, signal A, and weight B′ or its equivalent, (P P^1 P^2 Q,) substantially as and for the purpose specified.

3. The arrangement of the trigger E′, rock-shaft F′ *f*′, arm H′, and rod or other suitable connection N, all arranged and operating substantially as and for the purpose set forth.

4. I claim the combination, with the disk or signal A, of the reflecting-plate *a*, substantially as and for the object stated.

ABRAHAM S. MILLER.

Witnesses:

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