

J. C. WEST.  
Railroad-Signal.

No. 221,486.

Patented Nov. 11, 1879.

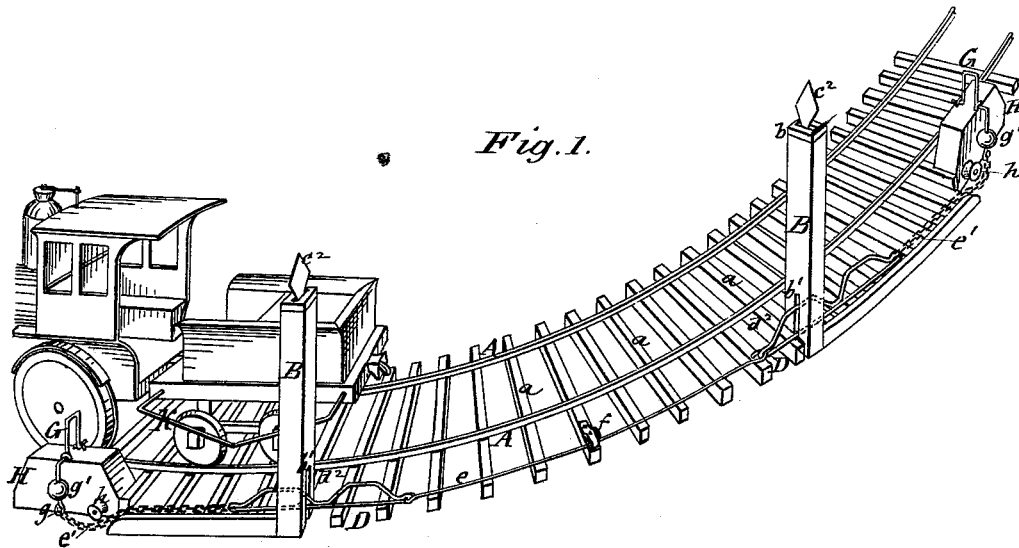


Fig. 1.

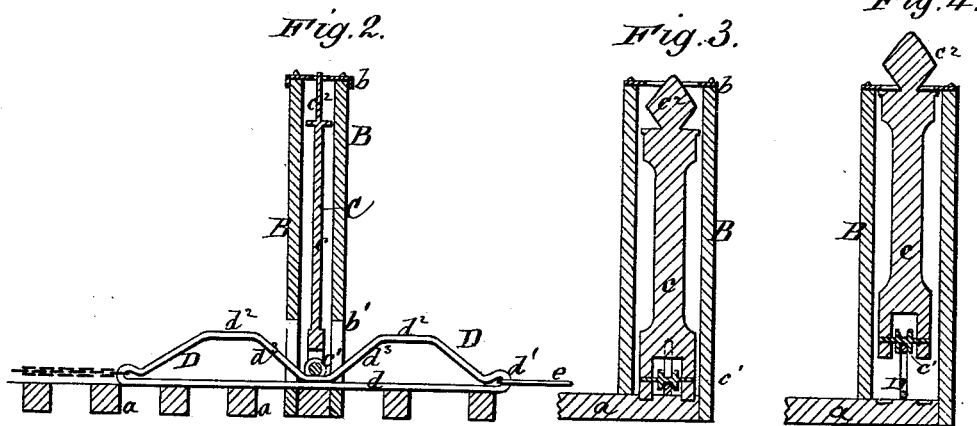


Fig. 2.

Fig. 3.

Fig. 4.

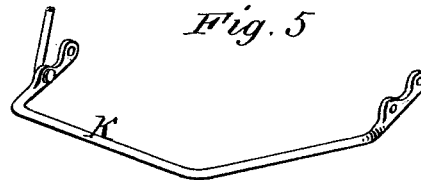


Fig. 5.

Witnesses.  
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John Calvin West  
by E. E. Masson/  
att'y

# UNITED STATES PATENT OFFICE.

JOHN CALVIN WEST, OF CLARKSVILLE, MISSOURI, ASSIGNOR OF ONE-HALF  
OF HIS RIGHT TO CALVIN GRUELL, OF SAME PLACE.

## IMPROVEMENT IN RAILROAD-SIGNALS.

Specification forming part of Letters Patent No. **221,486**, dated November 11, 1879; application filed  
September 22, 1879.

*To all whom it may concern:*

Be it known that I, JOHN C. WEST, of Clarksville, in the county of Pike and State of Missouri, have invented certain new and useful Improvements in Railroad-Signals; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of my invention applied to the side of a curved railroad-track, with the operating device attached to the side of a locomotive-tender. Fig. 2 represents a longitudinal vertical section of one of the signal-staffs and its operating inclined ways, in connection with one of the signal-inclosing posts. Figs. 3 and 4 represent the same in transverse vertical section, respectively, with the signal-staff lowered within the post in Fig. 3 and elevated above in Fig. 4. Fig. 5 represents a bent rod of spring metal to be secured to the side of a locomotive or its tender to actuate the signaling devices.

My invention relates to signals adapted to be located on the side of railroad-tracks, particularly at or adjoining curves, and to be operated automatically by simple means attached to a locomotive or its tender for the purpose of indicating its approach from one end of the curve to the other.

Heretofore various contrivances have been used for the purpose of signaling ahead of a train its advance upon the track. The majority of them are operated directly by the tread or flange of the passing wheels of a train pressing upon a lever projecting above, but on the side of, one of the rails, the action of which is generally too sudden for the device to stand repeatedly without soon giving way. It is also quite liable to become clogged by snow or ice in winter.

The object of my invention is to operate a series of danger-signal staffs located in hollow posts placed along the side and at the ends of a curve or of a dangerous portion of a railroad-track, to prevent a collision of trains going in opposite directions or following one another too closely upon said track, by simple means

not liable to become clogged by snow or ice, and actuated by an elastic and bent rod attached to the side of a locomotive or its tender.

My invention consists in combining, with a series of hollow posts placed on the side of a track, signal-staffs placed therein, each provided with a pulley or roller at its lower end, and double-inclined ways or signal-setters passing through said posts.

It consists also in a bent arm pivoted to a frame or foundation located on the side of the track at each end of a railroad curve, in combination with a weight suspended from each hinged arm, and chains and rods connecting said arm with double-inclined ways or signal-setters passing through the signal-posts.

It consists also in combining with the above elements a double beveled or bent spring-rod projecting from the side of a locomotive, its tender or train, for the purpose hereinafter described.

In the drawings, A A represents the rails of a single but curved railroad-track. They are supported and secured as usual to the cross-ties *a*. Upon one side of this track, possibly half a mile or a mile apart, but preferably adjoining the end of a curve, are secured vertically two posts, B. These posts are made hollow by constructing each one of four boards, united as shown, or otherwise, to receive the signal-staffs C. The latter may be of various forms. In the present instance they consist of a board, *c*, provided at the bottom with a grooved pulley or roll, *c'*, and at the top with a diamond-shaped danger-signal, *c''*, that may be painted with red color, and may be replaced by a lantern at night. Each post B is nearly closed with a cover, *b*, of wood or metal, to arrest the upward motion of the staff; but this cover is slotted horizontally for the passage of the danger-signal *c''*.

The post is slotted vertically at *b'*, near its bottom, to admit of the passage of the double-beveled ways or signal-setters D. As shown in the drawings, these signal-setters are made simply of a straight rod, *d*, for the bottom, which rod is bent upon itself to form a loop, *d'*, at each end, a horizontal rest, *d''* on each side of the depressed center, and inclined ways

$d^3$  between said rests, the general appearance of the ways D approaching the form of letter M. They may be made of other suitable material, and are for the purpose of elevating the signal while its roll travels from the depressed central portion up along the inclined ways  $a^3$  to the top of the horizontal rests  $d^2$ .

The signal-setters D are connected together by a series of connecting-rods,  $e$ , guided alongside of the track upon pulleys  $f$ , secured to the cross-ties or to other portions of the track. The opposite end of each signal-setter is connected by means of a chain,  $e'$ , with an arm,  $g$ , pendent from an arm, G, the latter being bent in the form of a clevis and hinged to a block or foundation, H, established upon the side of the track.

The extension  $g$  of the arm G is suspended under its hinge, and this extension carries a weight,  $g'$ , to maintain the looped portion G vertically, but is free to swing under a given impulse.

The chain  $e'$  is attached to the lower end of the arm  $g$ , and passes loosely under a pulley,  $h$ , secured on the side or adjoining the block H.

The arm G is to be inclined and the whole device operated by a spring-rod, K, bent in the middle, and approaching in form the letter V flattened, secured to the side of a locomotive or its tender and projecting from it, being either immovable or adapted to be folded close to the side before entering the round-house, being provided with hinges, as in Fig. 5.

The railroad-signal is operated as follows: A locomotive and its tender provided with the side rod K (generally with a train in the rear) advancing to the beginning of a curve, the engineer finds the danger-signal hidden within the signal-posts and the arm G standing up, and, continuing to advance, the inclined spring-rod K will bear down upon the upper end of the arm G and elevate its opposite end  $g$ , pulling upon and first lifting the chain  $e'$  against the under side of the pulley  $h$ , and, continuing to pull upon said chain, advances the signal-setters D toward the coming train, so that the roller  $e'$  of the signal-staff will ride up the incline  $d^3$  from its lower central portion to the horizontal rest  $d^2$ , and support the signal-staff in an elevated position, with the red signal projecting above every post constructed and connected as above described, and so remain

until the last one has been passed by the locomotive and the looped or upper portion of the bent lever upon the foundation H at the farthest end of the curve has been depressed by the spring-rod K. The chain  $e'$ , taking a short bend around the pulley  $h$ , is strongly pulled by the then elevated end  $g$  of the arm G, and, following said chain, the signal-setters D are advanced until their depressed central portion is under the signal-staffs, thus returning the danger-signals within the posts.

To protect the rods connecting the signal-setters from snow or the effect of the weather, they may be covered, as under a pointed roof resembling letter A, by placing over them a series of sections of boards nailed together at one edge. The signal-setters D can also be easily inclosed.

The length of the rods connecting the signals can be regulated occasionally by the section-men for summer and winter temperature by connecting the rods  $e$  with a few adjustable chain-links or other suitable means.

Having now fully described my invention, I claim—

1. The combination, with a series of hollow posts, signal-staffs placed therein, each provided with a pulley or roller at its lower end, and double-inclined ways or signal-setters D passing through said posts, substantially as and for the purpose described.

2. As a signal-operating device, two bent arms, G, each pivoted to a frame or foundation at the end of a railroad curve, and a weight suspended from said bent arms, in combination with chains and rods connecting said arms, and double-inclined ways or signal-setters D, adapted to operate signal-staffs set in posts, substantially as and for the purpose described.

3. In combination with signal-staffs placed vertically in posts, double-inclined ways or signal-setters D, located under said staffs, bent arms pivoted upon elevated foundations and connected to signal-setters D by chains passing under pulleys  $h$ , or their equivalent, the spring-rod K, bent in the middle and secured to the side of a locomotive or tender, substantially as and for the purpose set forth.

JOHN CALVIN WEST.

Witnesses:

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