H. C. CROSBY.

RAILROAD-SIGNALS.

No. 194,992. Patented Sept. 11, 1877.

Fig. 1

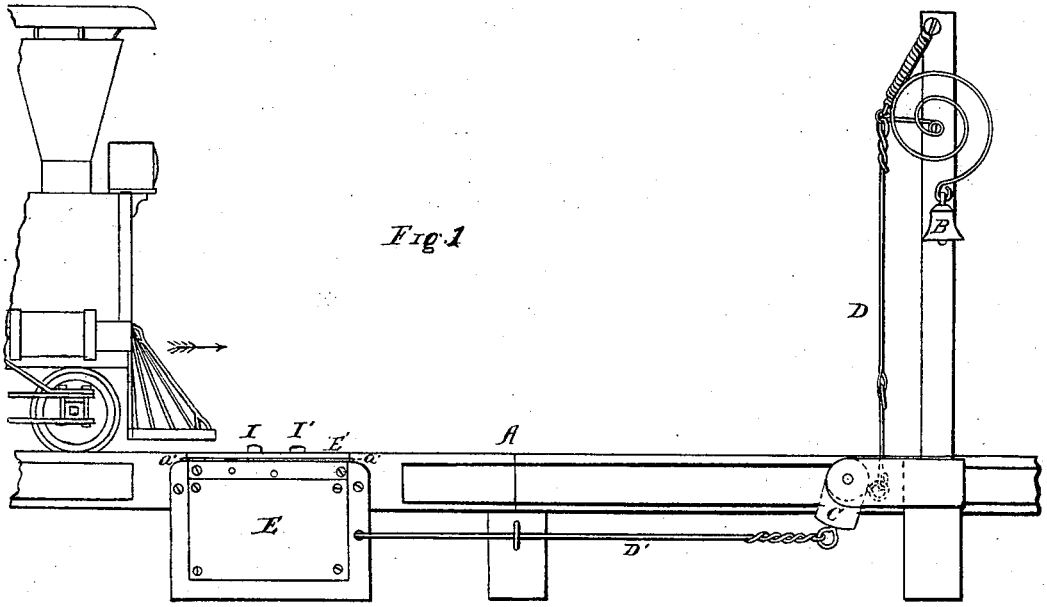
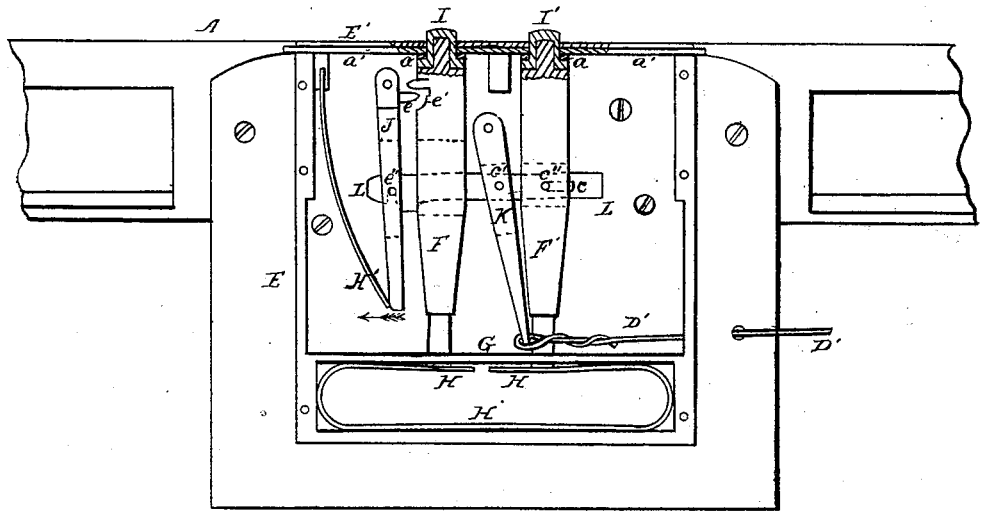


Fig. 2



WITNESSES

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HENRY C. CROSBY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN RAILROAD-SIGNALS.

Specification forming part of Letters Patent No. **194,992**, dated September 11, 1877; application filed December 4, 1874.

To all whom it may concern:

Be it known that I, HENRY C. CROSBY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Signals, of which improvements the following is a full, clear, and exact description, which will enable others skilled in the art to which my invention appertains to make and use the said improvements, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a side elevation of a railway-track provided with a signal apparatus embodying my invention, and Fig. 2 a like elevation of a part of the apparatus detached.

Like letters of reference indicate like parts.

In the drawings, A represents a railway-track; and B, an alarm-signal, suspended near it. C is a bell-crank, pivoted near the track. D is a wire or cable, connected to the signal and to the bell-crank. E is a water-tight case, attached to one of the rails of the track.

In Fig. 2 the case is represented as it appears when its outer side piece is removed, showing the mechanism arranged within. F and F′ are posts, passing freely through corresponding openings in the lid E′ of the case and in a cross-bar, G. The lower ends of these posts rest on a spring, H, the ends of which have an independent vertically-yielding movement. The upper ends of the posts are arranged to be struck either by the wheels of passing trains or by a push-bar or striker on one or more of the cars or on the engine. I deem it preferable to arrange removable caps, made of steel or other hard metal, on the upper ends of the posts, as shown at I I′, to prevent the posts from being battered and worn too rapidly, and to facilitate repairs. These caps are shouldered, as shown, for contact with the lower face of the lid E′, and on these shoulders I arrange washers *a a*. I also line the lower face of the lid with a lining, *a′*, made preferably of rubber. The washers *a a* may be made of leather, rubber, or other suitable packing material.

It will be perceived from the foregoing description, and by reference to the drawing, that the posts F and F′ are a considerable distance from each other, and pass through separate openings. The posts are thus prevented from becoming attached to each other in case either or both are filled with frost, and in no case can the friction of one upon the other cause both to be moved at the same time when only one is depressed by the train. It will also be perceived that, by employing packing in the manner described, water and other foreign matter will be prevented from entering the openings in which the posts play.

J is a lever pivoted at or near its upper end to the case. This lever has a short lateral arm, *e*, extending from its upper part and entering a notch, *e′*, in the post F. H′ is a spring, resting against the lower end of the lever J. This lever and the posts F F′ are centrally slotted, as represented by the dotted lines; and *e″* is a pin, extending across the slot in the lever. K is an arm or pendant, the upper part of which is pivoted to the case, and this arm is also centrally slotted, as represented. L is a hook, passing freely through the slots in the posts, in the lever, and in the arm K. One end of this hook is constructed to engage the pin *e″*, and the other is slotted longitudinally, as shown at *c*. *c′* is a pin passing through the arm K and through the hook L, and *c″* is a pin passing through the post F′ and the slot *c*. D′ is a wire or cable attached to the lower end of the arm K and to the bell-crank.

The posts F and F′, though preferably arranged in the rail, instead of being struck directly by the wheels or by a pusher on the train, may be struck by intermediate parts actuated by the train. The case E may be arranged below frost, and all of its joints should be packed or otherwise made water-tight. The parts *a* and *a′*, by being in contact with each other, will prevent the frost from making the posts F and F′ stick to the lid E′, when these parts are made of metal.

When the train approaches the cap I in the direction indicated by the arrow, the post F will be pushed downward and act on the arm *e*, thus swinging the lower end of the lever J in the direction indicated by the arrow there shown. The lever carries with it the hook L, which, in turn, swings the arm K in the same direction. When the arm K is thus swung, the bell-crank is actuated through the instru-

mentality of the wire or cable D′, which, in turn, draws down the wire D and strikes the alarm. When the cap I′ is first struck the post F′ is pushed downward, and by this means the hook L is raised from the pin *e″*. The arm K is, therefore, not now actuated, and hence the signal is not struck. When the cap I is first struck the signal will be struck before the pin *e″* is thus released. When the cap I′ is first struck this pin will remain released until after the cap I is struck. The spring H′ returns the lever J to its original position. The posts F and F′ are returned to their original position by the spring H, and all the parts are so connected that they return to their proper places as soon as the train has passed.

A visual signal may be operated in like manner. The wire cable or connecting-rods employed to connect the arm K to the signal may be arranged below the surface of the ground, or upon exposed supports, as may be deemed best.

The post F and lever J, only, may be employed, the cable being attached directly to the lever in case it may be deemed desirable to have the signal struck by trains passing in both directions, or on a double track, where the trains move in only one direction on each part.

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

1. In a railway-signal, the combination, with the water-tight case E, of the movable shouldered posts F F′, caps I I′, and the packing-rings *a a′* interposed between the shoulder on the caps and lower surface of the cover E′ of the case, substantially as and for the purpose specified.

2. In combination, the vertically yielding posts F and F′, the pivoted and yielding lever J, the pivoted arm K, and the hook or connecting-rod L, all arranged and operating together, substantially as and for the purpose specified.

3. The removable flanged caps I and I′, mounted on the yielding posts F and F′ and passing freely through the lid E′, substantially as and for the purpose specified.

4. In a railway-signal, the combination, with the yielding post F provided with the notch *e′*, of the yielding lever J provided with the arm *e*, adjusted to enter the notch in the post, substantially as and for the purpose specified.

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Witnesses:
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