R. T. KING & L. L. NUNN.

Railroad-Crossing Signal.

No. 163,875. Patented June 1, 1875.

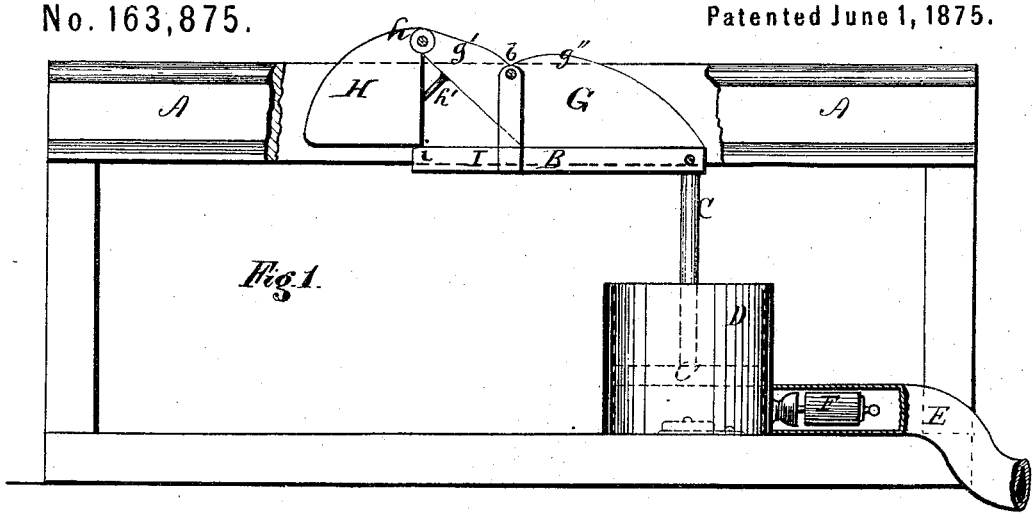


Fig. 1.

Fig. 2.

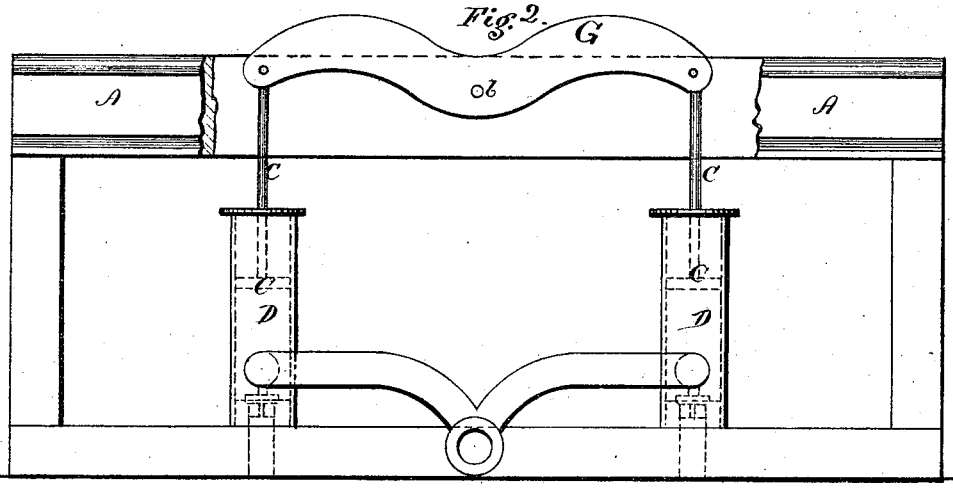
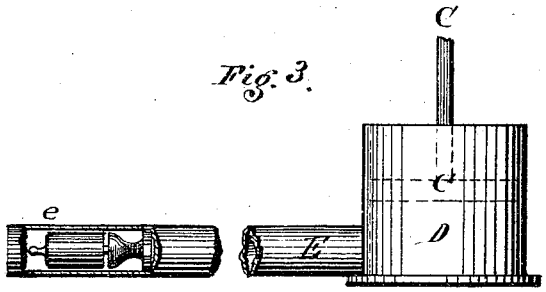


Fig. 3.



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UNITED STATES PATENT OFFICE.

RALPH T. KING, OF CLEVELAND, AND LUCIEN L. NUNN, OF OBERLIN, OHIO.

IMPROVEMENT IN RAILROAD-CROSSING SIGNALS.

Specification forming part of Letters Patent No. **163,875**, dated June 1, 1875; application filed February 15, 1875.

To all whom it may concern:

Be it known that we, RALPH T. KING, of Cleveland, in the county of Cuyahoga, and LUCIEN L. NUNN, of Oberlin, in the county of Lorain, and State of Ohio, have invented certain new and useful Improvements in Signals for Railroad-Crossings; and we 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improved signal for railroad-crossings, and is designed to warn persons traveling upon the road of the approach of a train.

Our invention consists, first, in a novel mechanism attached to a railroad-rail, whereby the car-wheels, as they pass over it, are made the motive power for operating the signal; second, in the combination, with the said mechanism attached to a rail, of a whistle, or other suitable mechanism, for giving a signal at a railroad-crossing.

In the drawings, Figure 1 is a view, in elevation, of my improvement attached to a railroad-rail, showing a portion of the rail removed, so as to expose the mechanism. Fig. 2 represents a variation of my invention, wherein the mechanism is employed for pumping water into a railroad-tank. Fig. 3 is another elevation of my invention, showing a different location for the whistle.

A is a railroad-rail, cut away so as to accommodate the mechanism for operating the signal. B is a lever, pivoted to the said rail at *b*. At the end of its long arm is a piston, C, operating closely within the cylinder D. From the cylinder D leads a pipe, E, to the crossing. In the pipe E is a whistle, F, located in any suitable position, either adjacent to the cylinder D, or at that end, *e*, of the pipe at the crossing. G is a tilting lever, also pivoted to the point *b*. H is a block, hinged at *h* to the lever G; and a stop, *h'*, is formed upon the lever G, in order to limit the motion of the block H. The upper portions of the lever G and the block H project just above the tread of the rail. The block H rests at its lower end, at *i*, upon the end I of the short arm of the lever B; but the two are so united at this point that the bearing of the block upon the lever is unstable, so that, should any considerable pressure be brought upon the top of the block, near the point *h*, the block would be drawn off from the lever B, the result of which would be that the signal would not be operated.

The operation of the device is very simple, and is as follows: Suppose a train to be approaching the crossing from the left, its first wheel will strike the block H, depressing it. This will raise the piston to the top of the cylinder, and permit the cylinder to fill with air through suitable valves. It will at the same time elevate the portion *g''* of the lever G. The wheel, in passing forward, will then ride upon this elevated portion *g''*, and will force the piston down into the cylinder. This will cause the whistle F to blow; and if the whistle is located adjacent to the cylinder, the sound will be conveyed through the pipe E to the crossing. If, however, the whistle is located at the end of the pipe E—that is, right at the crossing—then the tube E will act merely to convey the blast of air from the cylinder D to the whistle F. The next wheel, as it strikes the block H again, raises the piston C, and the operation is repeated.

This device should be located several hundred feet from the crossing, so as to signal the train while still at some distance away; and it should be located on both sides of the said crossing, so as to signal a train when coming from either direction.

It will be observed, however, that after the train has passed the crossing it will pass over one of the devices. The mechanism is, therefore, so constructed as to permit such a train to pass without operating that mechanism located beyond. This is effected by means of the block H. The train, as it approaches this second mechanism, will ride upon the projections *g''* of the lever and depress it. It will then strike the portion *g'*; this will cause the block H to spring from the lever B at the bottom, and will fail to raise the piston. The next wheel will operate in the same or similar manner, and thus a train will pass without operating the said mechanism in such a manner as to give a signal.

Instead of blowing a whistle located in juxtaposition to the cylinder, the strokes of the piston will ring a bell, or may wave a flag, or make any other suitable signal. If, however, a sound is made of any description adjacent to the mechanism, then the tube should be employed for conveying the sound to the point at which the signal is to be given.

Our invention is not limited to making a signal at a railroad-crossing; but it may be employed in the vicinity of railroad-stations, for the purpose of pumping water into tanks to supply locomotives.

Instead of being located within a rail, in the manner set forth in the drawings, the said device may be recessed into one side of the rail, so as either to be operated by the flange or the tread of the wheels.

I in the drawings indicates a valve, which may be located either in the piston-head or at any suitable position, for admitting air to the cylinder during the forward stroke of the piston. So, also, the device may be provided with a safety-valve, so that should the whistle become clogged, or the pressure become too great, it could be relieved through the safety-valve. Any style of safety-valve might be employed for this purpose.

In the drawing the piston is represented as being connected directly with the lever B, and located directly under the track. This construction is not essential, as the motion may be communicated and held to one side by an intermediate lever or other suitable mechanism.

What we claim as our invention is—

1. The railroad-crossing signal, consisting of the whistle, operated through the medium of a tilting lever, adapted to be operated by the wheels of a train passing in one direction only.

2. The combination, with the levers B and G, of the block H, substantially as and for the purpose described.

3. In combination with the leverage mechanism B G H, the rod C, cylinder D, sounder F, and pipe E, all arranged substantially as and for the purpose described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

RALPH T. KING.
LUCIEN L. NUNN.

Witnesses:
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