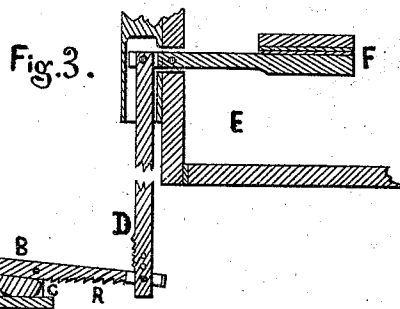
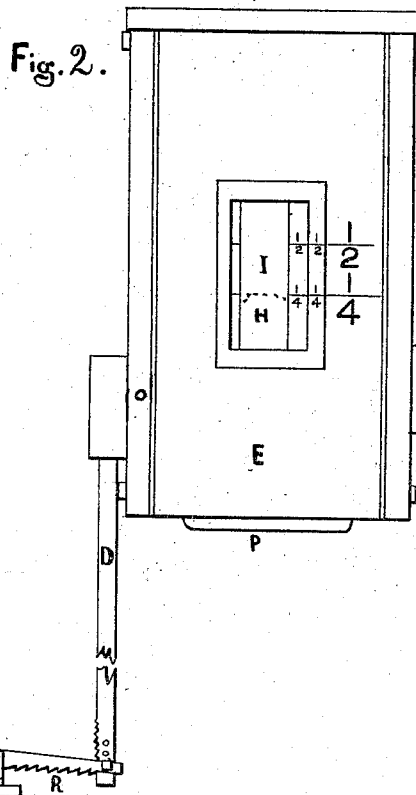
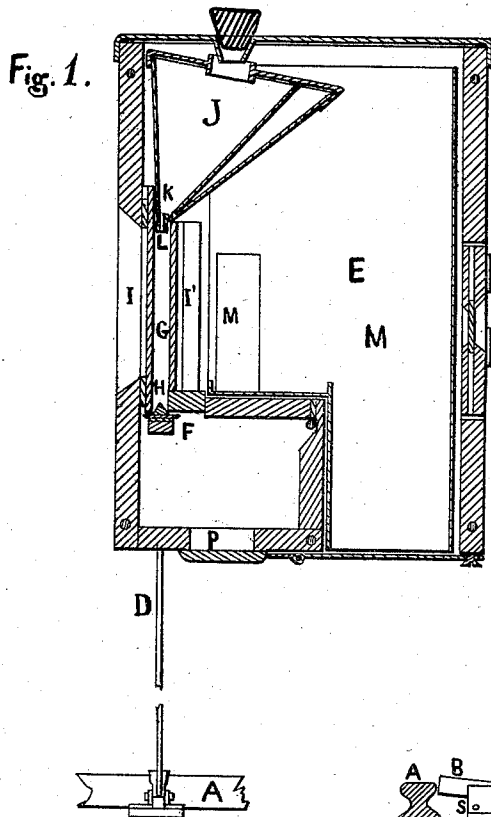


H. H. FORD.
Railroad Time-Signals.

No. 143,135.

Patented September 23, 1873.



WITNESSES.

Warren T. Tucker.
H. S. Talbot

INVENTOR.

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Atty

UNITED STATES PATENT OFFICE.

HIRAM H. FORD, OF SANFORD, MAINE, ASSIGNOR OF ONE-HALF HIS RIGHT TO HORACE M. FORD, OF BOSTON, MASSACHUSETTS, AND IVORY H. FORD, OF GREAT FALLS, NEW HAMPSHIRE.

IMPROVEMENT IN RAILROAD TIME-SIGNALS.

Specification forming part of Letters Patent No. **143,135**, dated September 23, 1873; application filed June 25, 1873.

To all whom it may concern:

Be it known that I, HIRAM H. FORD, of Sanford, in the county of York and State of Maine, have invented certain new and useful Improvements in Automatic Railway-Signals, of which the following is a specification:

The object of my invention is to provide a cheap, simple, and certain means of automatically signaling to the next train the length of time or number of minutes intervening between the passing of a train, and the next succeeding one to pass any point where such signal is located until sufficient time has elapsed to prevent collision between such trains; and it consists in providing a reservoir to be filled with dry sand or similar material, which is permitted to run out at the bottom of such reservoir, through a small hole, into a receptacle below, two opposite sides of which are provided with glass, which, with its frame upon the outside, are marked in graduations of time it takes the sand to fill it up to a given point. A lamp or light is provided within an inclosing case to show its action by night. The bottom of the receptacle for containing the sand is provided with a large valve, which is opened by means of a hinged lever that has one end placed near the side of the rail, and projecting a slight distance above the top of the same, so that when the wheels of a train pass over and depress the same its opposite end is raised, which connects, by an upright rod, with the valve, and causes it to open instantly and let the sand run out. A rubber spring is provided beneath the short end of the lever, which returns it into its former position and closes the valve. When the train has passed the sand runs in and commences to fill the same. The time required for filling may be regulated as desired; and it can be seen how far it has advanced by the sand being opaque, thus shutting off the view of the light through the glass sides of the receptacle until it is filled, when the light is nearly obscured.

Any colored glass or sand may be used, black or white, as desired.

The lever is constructed of such form as to free itself from ice in case it becomes frozen into the same, also as to cut into the same if frozen beneath it, so as to permit the wheels of a train to pass over the same freely at all times.

Figure 1 is a vertical central section through a signal embodying my invention. Fig. 2 is a front plan view of the same. Fig. 3 is a section view of the valve and lever at right angles from Fig. 1.

A is the rail of the usual construction. B is a hinged lever pivoted in the box C by a bolt passing through the same. Within this box is a rubber or other suitable spring, S. D is a connecting-rod hinged to the longer end of the lever B and extending upward to the case E, through the bottom or side of which it is permitted to slide up or down freely. Its upper end is connected to the valve F, it being of such construction and size as to free the whole bottom of the receptacle G and permit the instant escape of the sand H, the opposite sides of which are provided with glass slides I I', the outer one being marked with graduations $\frac{1}{2}$, $\frac{1}{4}$, &c., which may be repeated in larger characters upon the outside of the case E. J is a reservoir, which may be filled with dry fine sand well sifted. This reservoir has a small narrow bottom, constructed of hard steel, K, and is provided with a small hole, L, which may be gaged, according to the size of receptacle G, as to have it fill in a certain given time. Within the case E is placed a light, M, which shines through the glass sides of the receptacle G, and shows what distance the sand has filled the bottom of the same, or if sufficient time has elapsed since the previous train passed over and emptied the same it would be nearly full, the light showing only at the top corners of the glass, suitable doors being provided to introduce the light and draft-holes to admit air to the same; also, an opening, P, to allow the sand to fall from the outer or main case. R represents teeth or points upon the under side of the lever to facilitate in freeing its path from ice, its

sides being beveled upward to its top to insure a like removal of ice when it happens to become frozen thereon.

Having thus described my invention, what I claim is—

In combination with a rail, A, of a railway, the hinged lever B, box C, spring S, connecting-rod D, valve F, receptacle G provided with glass sides I I', case E, and reservoir J, having a hardened steel bottom, K, provided with

a small hole, L, or their equivalents, when constructed to operate in conjunction with dry sand or similar material, substantially in the manner described, as and for the purposes set forth.

HIRAM H. FORD.

Witnesses:

SYLVENUS WALKER,
HORACE M. FORD.