A. W. LIVINGSTON.

RAILWAY SIGNAL.

No. 51,952. Patented Jan. 9, 1866.

Fig: 1.

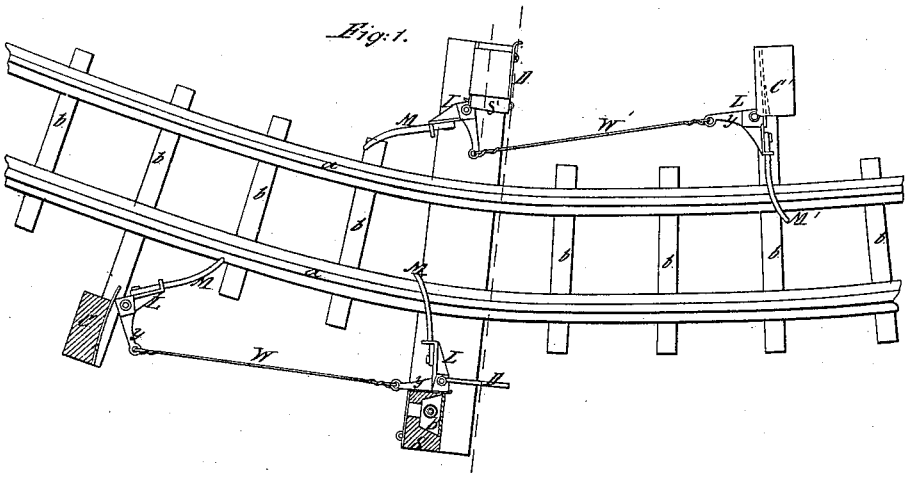


Fig: 2.

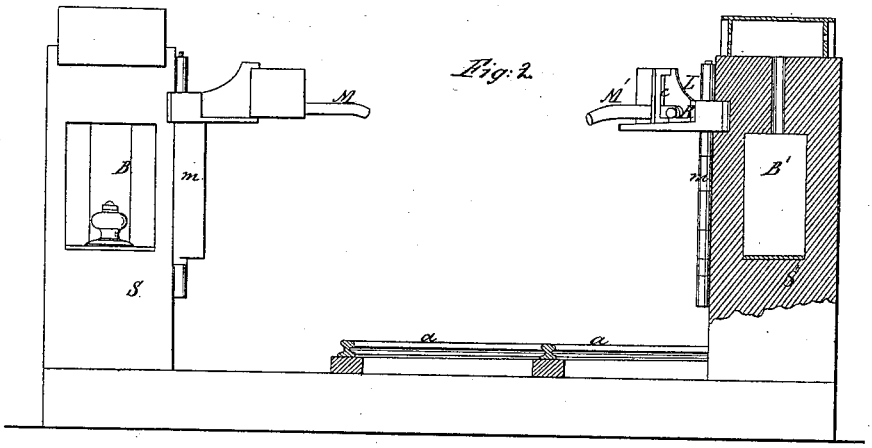
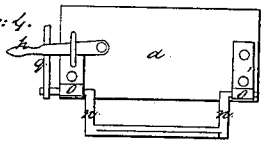


Fig: 4.



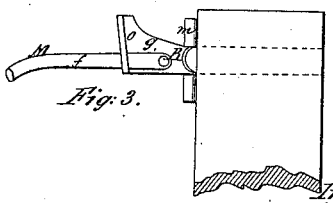


Fig: 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

ALBERT W. LIVINGSTON, OF SIDNEY, OHIO.

IMPROVED RAILWAY-SIGNALS.

Specification forming part of Letters Patent No. **51,952**, dated January 9, 1866.

To all whom it may concern:

Be it known that I, ALBERT W. LIVINGSTON, of Sidney, Shelby county, Ohio, have invented a new and useful Improvement in the Arrangement and Operation of Railroad-Signals; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

To prevent the occurrence of collisions of railroad-trains moving in opposite directions upon one and the same track is the principal object of the present invention, and which is accomplished by so arranging, at suitable and any desired points upon either or both sides of the track, one or more signals, either in the form of lights, lanterns, flags, or painted signals, &c., which signals, by means of a peculiar arrangement of devices operated by the movement of the train over the rails, are caused to be displayed sufficiently in advance of the train to warn and thus stop all approaching trains in an opposite direction. The advantages resulting from the use of such a system of signals, self-operating, as it were, are many, and the application of the same to curves, bridges, or tunnels, or any other portions of railroads where approaching trains can be seen for only a short distance, is of great importance.

In the accompanying drawings my improvements are represented, Figure 1 being a repspective view, showing a railroad-track, locomotive-engine, and my system of operating signals, &c.; Figs. 2 and 3, detail views of a portion of the mechanism employed, which will be hereinafter particularly referred to.

a a a represent a railroad-track fastened to a series of sleepers, *b b b*, and having the direction of a curve. C and C′ and S and S′, vertical posts placed on each side of the track, the two on the same side communicating with each other through devices to be presently described.

Near the top of the posts C C′ S S′ are hung, to spring-fulcrums *m m m m*, right-angular levers L L and L L, one arm, M or M′, of each of which projects outward from said posts in a horizontal plane, or nearly so, and over the line of direction of the track. The outer ends of the levers *y y* are connected together by rods W and W′. Inserted in the posts S S′, in proper position to be readily discernible, are lanterns B B′, having doors D D hinged on the fulcrums of said lever-arms L L.

Suitable hooks are attached to top of locomotive-cab, and on each side of the same, one of which, as the locomotive moves in the direction represented by the arrow in Fig. 1, engages with the lever-arm on post C, and turning the same, through its connecting-rod W, causes the other lever, M, on the farther post, S, to be turned in proper direction to throw open the door of lantern B. This door remains open until the locomotive has reached the lever-arm of its post S, when the same hook catches against that arm and turns it back to its original position, closing the door, and, through its connecting-rod W also the lever-arm M attached to post C. The locomotive when moving in the opposite direction to that described then operates, by its other hook, upon the levers M M′ connected with the posts C′ and S′, as has been described for the posts C and S, opening and closing the door of its signal-lantern B′.

The cab-hooks of the locomotive are set in opposite directions, so that one hook only can engage at the same time with the projecting levers, according as the locomotive is moving in either the one or the other direction, the other hook passing freely under the other levers, said levers (see Fig. 3) for this purpose being made in two parts, *f* and *g*, hinged at R, the outer one of which is swung up as the hook passes under the same, guided by a groove or slot, O, in the other, but drops, by its own weight, to its original position when the hook leaves it.

There may be any number of the posts C C′ S S′ stationed at any desired points along the line of the railroad, and at any distance apart, and on either one or both sides of the track, the mechanical devices herein described being connected with each post.

In lieu of the lanterns B B′, flags, painted signals, or any other suitable signaling devices may be employed.

Thus it is evident that by the use of the above-described devices, operating as specified, the approach of trains can be caused to be indicated at any desired point along the

track sufficiently in advance of their arrival as to duly warn any train moving in the opposite direction upon the same track, and thereby prevent a collision of the two.

My improvements are applicable to bridges, tunnels, curves, or any other part of a railroad where it may be desirable.

In Fig. 4 is represented a mode of attaching the hooks to the locomotive-cab, so that when not desired to be used they can be thrown back on the top of the cab, out of the way, the same consisting in attaching to each end of hook short right-angular arms *n n*, turning in bearings *o o* of cab *d*, said hook, when set in proper position to interlock with the projecting lever-arms of signal and communicating posts, as herein described, being prevented from moving by bringing the swinging lever *p* of cab *d* under the handle *q* attached to one of the right-angular arms *n n*, before referred to.

I claim as new and desire to secure by Letters Patent—

1. The arrangement of devices herein described for signaling the approach of trains, the same consisting of the right-angular lever-arms L L, respectively, attached to communicating and signaling posts C and S, to the latter, S′, of which are connected, in a proper manner, any desired signal, either flag, lamp, &c., in combination with the hook of locomotive-cab, or other suitable device, the whole operating together substantially in the manner specified.

2. Hanging the cab-hooks upon the cab so that they can be thrown out or in of the plane of operation at pleasure, substantially as specified.

The above specification of my improvement signed by me this 18th day of February, A. D. 1865.

ALBERT W. LIVINGSTON.

Witnesses:

Rev. JOHN L. BATES,
JACOB FRICKER.