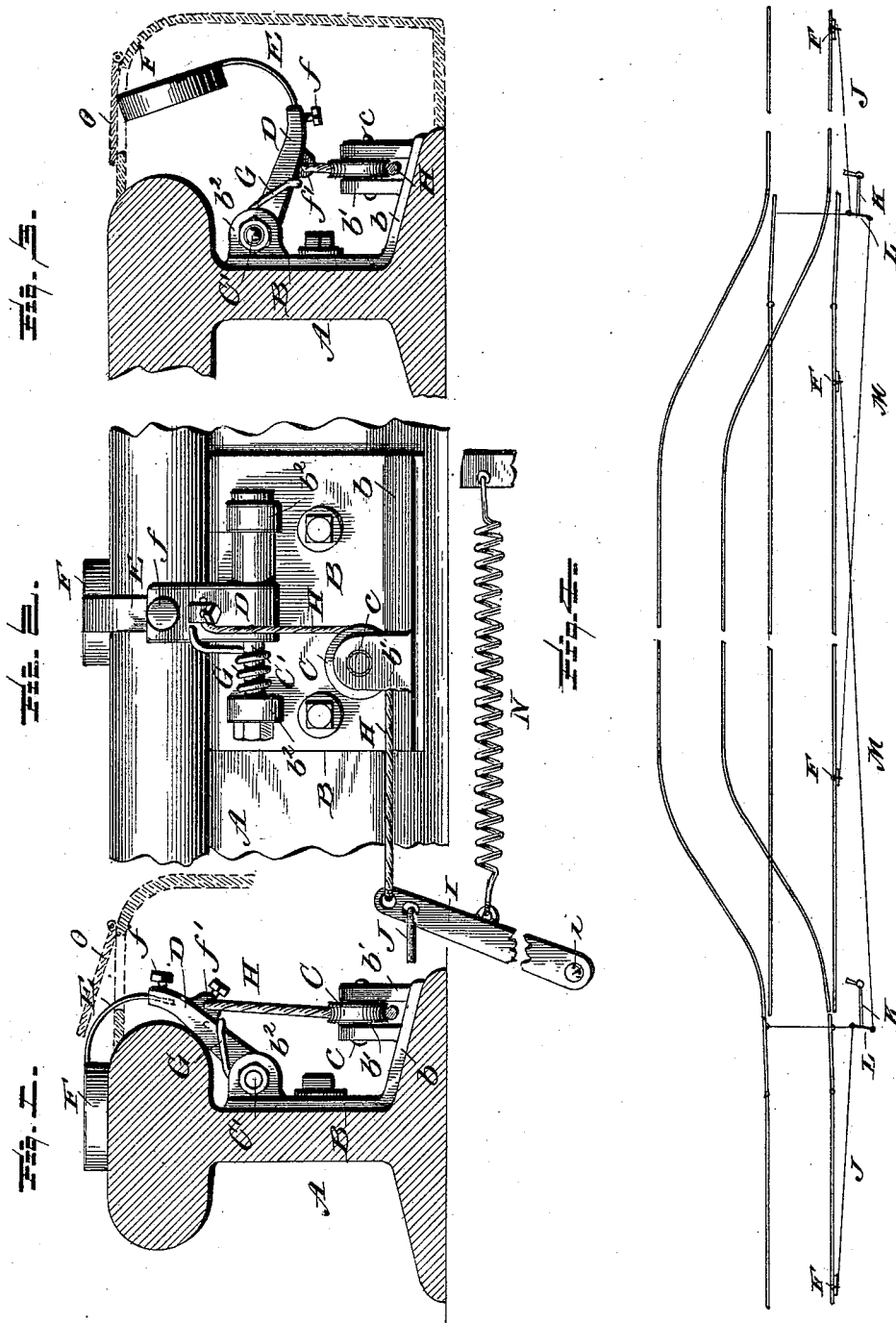


(No Model.)

F. C. LEIMBERT, E. J. STOUT & B. C. SPRINGSTEEN.  
TORPEDO SWITCH SIGNAL.

No. 471,980.

Patented Mar. 29, 1892.



Witnesses

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# UNITED STATES PATENT OFFICE.

FRANK CHAS. LEIMBERT, EDWARD J. STOUT, AND BRAINARD C. SPRINGSTEEN, OF DENVER, COLORADO.

## TORPEDO SWITCH-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 471,980, dated March 29, 1892.

Application filed December 11, 1891. Serial No. 414,729. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK CHAS. LEIMBERT, EDWARD J. STOUT, and BRAINARD C. SPRINGSTEEN, citizens of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Switch Danger-Alarms; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

This invention relates to certain new and useful improvements in switch danger-signals. In railroading there is probably nothing in the nature of accidents which causes the company such heavy damages and destruction of property and so much loss of life as that of trains running off an open switch and being derailed or ditched by the switch being accidentally left open, or the train running from the opposite direction when the switch is turned runs into the side track and crushes into the cars standing thereon. Automatic switches have been devised, but they are not reliable, and hence the necessity of some means which shall be positive and reliable for giving a signal when the switch is left open.

The object of the present invention, therefore, is to provide simple, efficient, and reliable mechanism for automatically placing a torpedo upon the track when the switch is turned. The parts are so arranged and connected that when the switch is turned the danger-signal is set, the torpedo being placed upon the track by the movement of the switch. Suitable connections are made, so that the torpedo may be placed upon the track at a distance from the switch, and suitable provision is made for taking up of the slack in such connection.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a vertical cross-section through the rail at the alarm-box. Fig. 2 is a side ele-

vation. Fig. 3 is a vertical cross-section similar to Fig. 1 with the parts in their other position. Fig. 4 is a diagrammatic view.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the rail of known construction, and B a plate secured thereto, having an inclined flange *b* to bear upon the inclined flange of the rail and adapted to support the operating parts at this point.

The plate B is provided with the ears *b'*, between which is arranged the roller C, journaled on the pintle *c*, held in the said ears. The plate B is provided near its upper edge with ears *b<sup>2</sup>*, in which is held the rod C', and D is an arm pivotally supported at one end upon said rod and at its other end provided with some suitable means for carrying a torpedo. It is shown as being provided with a recess or groove (see Fig. 1) into which the end of the spring-arm E, carrying the torpedo F, is designed to be slipped, the said arm being held in place by a set-screw *f*, as shown. The torpedo may be of any of the well-known or approved forms of construction, being designed to be exploded by the passing wheel of a train.

G is a spring coiled about the rod C', as seen best in Fig. 2, with one end bearing upon the under face of the arm D to assist the latter in its movement upward.

H is a cord, wire, or chain attached at one end to a lug *f'* on the arm D, and after passing under the guide-roller C is connected with one end of the lever I, which is pivoted at *i* to some fixed part, and to this lever is connected the cord, chain, or wire J, the connection being near the free end, as shown in Fig. 2, and this cord or wire J is designed to be extended to and connected with the switch-lever K, which is connected with the two-armed lever L, as seen in Fig. 4, the other arm of the lever being connected by the cord or wire M with a like signal-placing mechanism arranged upon the other side of the switch, as seen in Fig. 4, so as to set a signal upon each side of the switch, as will be understood from Fig. 4.

In order to automatically take up any slack that may occur in the connection between the

lever I and the switch-lever, a spring N is provided, which is attached at one end to the said lever and at the other end to some fixed part, as seen in Fig. 2.

5 The operation will be readily understood. When the switch-lever is turned in either direction, the arm D, which is normally in the position in which it is shown in Fig. 3, is actuated through the medium of the connections  
10 above described, and the spring aids it in assuming the position shown in Fig. 1, where it remains so long as the switch is turned. If, while in this position with the torpedo upon the track, a train comes along, the passing  
15 wheel will explode the torpedo and notify the engineer that there is danger in time to stop the train before coming to the switch. If the switch is turned back before the train comes  
20 along, the torpedo is moved with it into the position shown in Fig. 3 and the train passes along without giving any signal. The switch cannot operate without actuating the torpedo-placer.

25 The signals may be arranged at any desired distance from the switch and should be housed or boxed in in any suitable manner to protect the operating parts.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

30 The box or casing inclosing the operating parts may be provided with a hinged door O, as shown by dotted lines in Figs. 1 and 3, so arranged as to be opened and closed by the

passage of the torpedo, as illustrated in said 35 views.

What is claimed as new is—

1. The combination, with the switch-lever, of the plate attached to the rail, the spring-actuated pivoted arm pivoted on a horizontal 40 pivot on said plate, and the connection between said arm and lever, including a pulley on said plate, as set forth.

2. The combination, with the switch-lever, of a pivoted arm constructed to move in a 45 vertical arc, means for detachably holding a torpedo thereto, a spring acting upon said arm, and connections, including a pivoted lever, between the said arm and switch-lever, as set forth.

3. The combination, with the switch-lever, of a pivoted spring-actuated arm arranged at a distance therefrom, means for detachably 50 holding a torpedo on said arm, a spring acting upon said arm, a pivoted lever connected 55 with the said arm and with the switch-lever, and a spring acting upon said intermediate lever, as and for the purpose specified.

In testimony that we claim the above we have hereunto subscribed our names in the 60 presence of two witnesses.

FRANK CHAS. LEIMBERT.  
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Witnesses:

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