

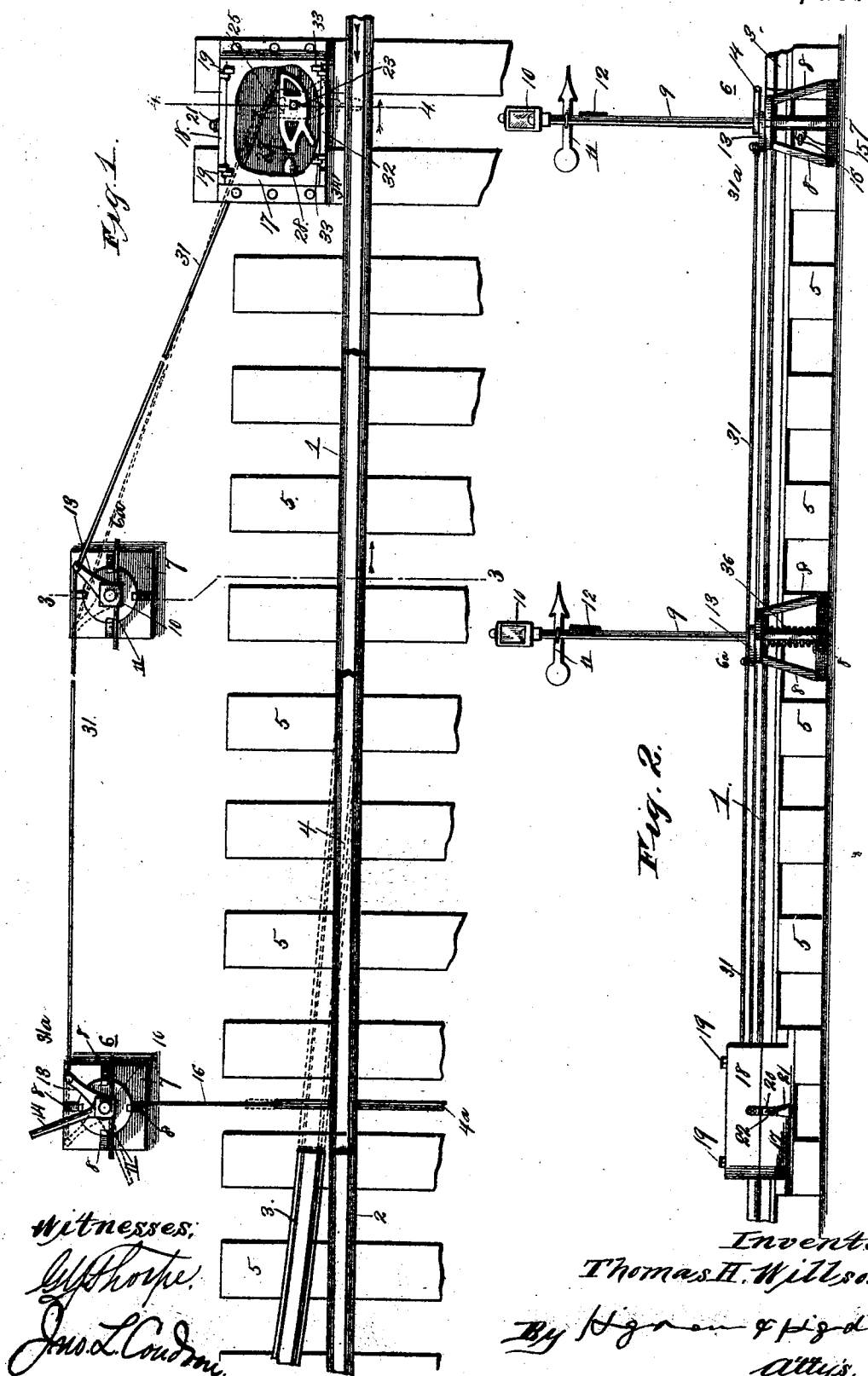
(No Model.)

3 Sheets—Sheet 1.

T. H. WILLSON.
TORPEDO SIGNAL MECHANISM.

No. 516,322.

Patented Mar. 13, 1894.



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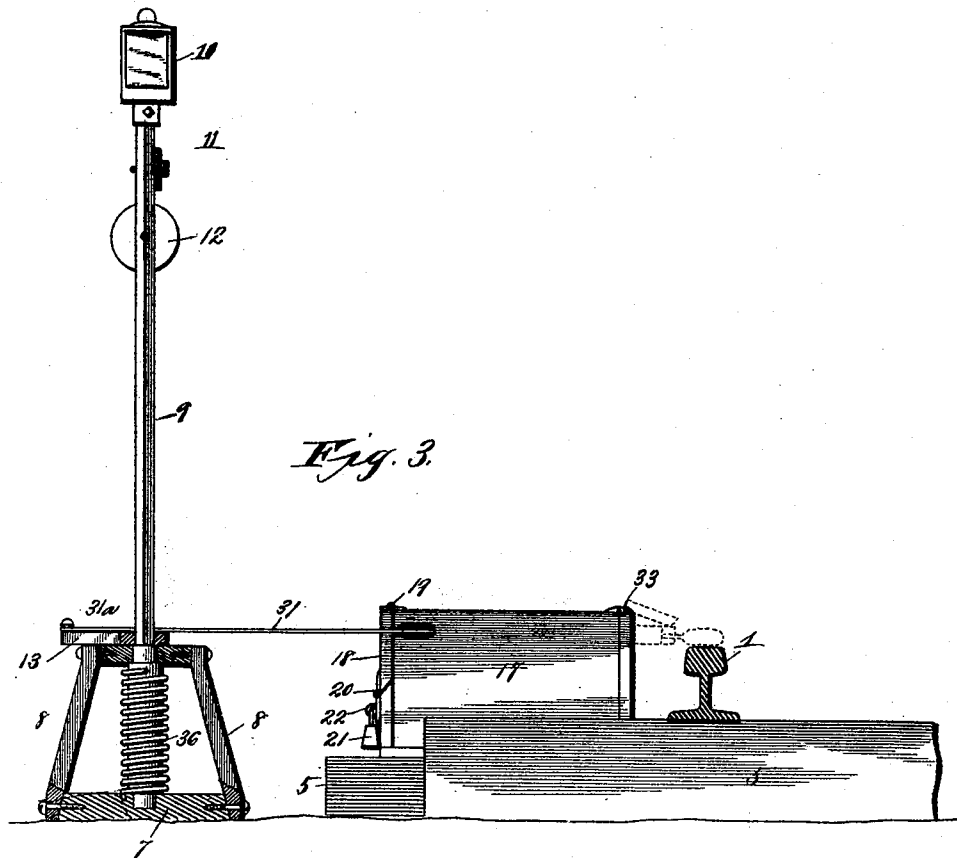


Fig. 3.

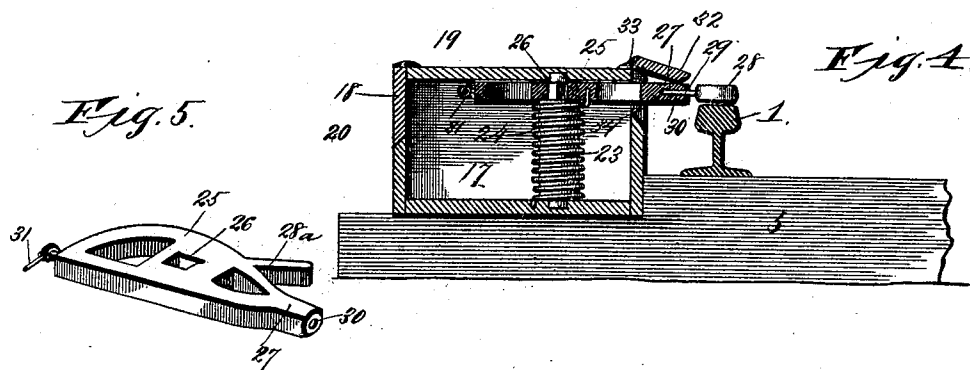


Fig. 5.

Fig. 4.

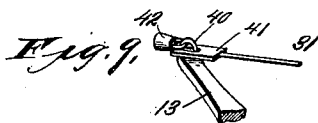


Fig. 9.

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(No Model.)

3 Sheets—Sheet 3.

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Fig. 6.

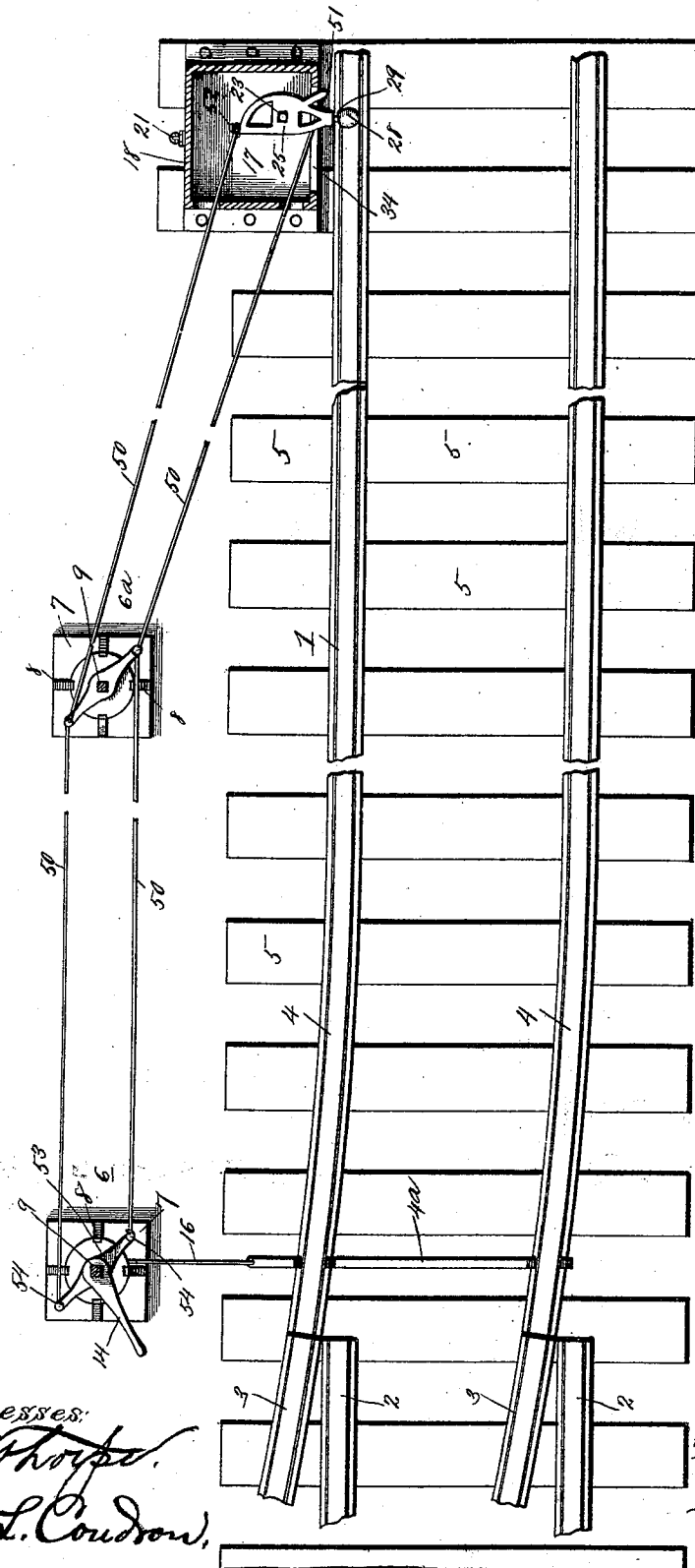


Fig. 8.

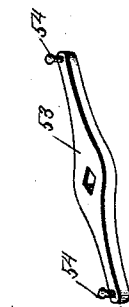
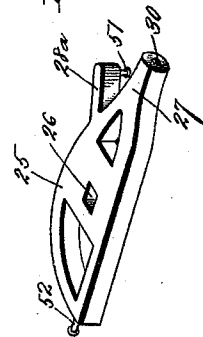


Fig. 7.

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UNITED STATES PATENT OFFICE.

THOMAS H. WILLSON, OF ODESSA, MISSOURI.

TORPEDO SIGNAL MECHANISM.

SPECIFICATION forming part of Letters Patent No. 516,322, dated March 13, 1894.

Application filed May 17, 1892. Renewed January 27, 1894. Serial No. 498,259. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. WILLSON, of Odessa, Lafayette county, Missouri, have invented certain new and useful Improvements in Torpedo Signaling Mechanism for Railway-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to that class of railway appliances which serve to indicate the positions of railway switches, or in other words, to indicate whether such switches are opened or closed, and the objects of my invention are to produce a signaling-mechanism which shall be simple, strong, durable, and inexpensive in construction, and automatic and reliable in operation, and which shall cause the train or other railway vehicle when moving toward the switch, to cause an audible explosion or signal, in the event of the switch being open; thus warning the engineer and enabling him to stop his train if the switch has been opened through mistake or carelessness or with mischievous intent.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a plan view of a railway switch and its operating-stand with my signaling-mechanism applied thereto; the mechanism being shown in solid lines as out of operation, and in dotted lines as in operative position. Fig. 2 is a side elevation of the same, viewed toward the rear of the torpedo-box. Fig. 3 is a transverse vertical section of the same, on the line 3—3 of Fig. 1; the torpedo-mechanism being shown in operative position, in dotted lines. Fig. 4 is a transverse vertical section of the same, on the line 4—4 of Fig. 1; the torpedo being shown as projected from its box. Fig. 5 is a detached perspective view of the torpedo-carrying-arm. Fig. 6 is a view principally in plan, but partially in horizontal section, of a signaling-mechanism embodying certain modifications of construction. Fig. 7 is a detached perspective

view of one of the double arms for actuating the torpedo-carrying arm. Fig. 8 is a detached perspective view of the torpedo-carrying arm used in connection with the structure shown in Fig. 6. Fig. 9 is a detached perspective view of a modified form of the attaching devices for the connecting rope of the mechanism.

In the said drawings, 1 designates one of the main-line rails, 2 one of the continuation-rails of the main-line, 3 a branch-rail, 4 one of the switch-rails, and 4^a one of the sliding tie-bars for connecting the free ends of the two movable switch-rails. These rails may be of the usual or any preferred type of construction, and are mounted in any suitable or preferred manner upon the ties 5; said ties being also of the usual or any preferred type. It will be understood from the ensuing description, that the rail 3 may be the rail of a spur, siding, or branch track, as circumstances may require, and also that the switch may be either a single, double, or multiple switch, as circumstances may require. At one side of the switch, is located a switch-stand 6, which may also be of the usual or any preferred type of construction. As shown, however, the base 7 of the switch-stand supports a suitable standard-frame 8, and also the lower end of the signal-lantern post 9; a signal-lantern 10, of the usual or any preferred type being mounted upon the upper end of the post 9, and an arrow 11 and target 12 being also carried by the upper portion of the post 9 in the customary manner. Just above the top of the standard-frame 8 of the switch-stand 6, is mounted a crank-arm 13 and an operating-handle 14; said parts being arranged to turn with the post 9, and extending horizontally outward from said post. Near its lower end the post 9 carries a horizontal outwardly extending stud or projection 15, to which is connected one end of the rod or wire 16, the opposite end of which is connected to the sliding tie-bar 4^a of the switch-rails, in any suitable or preferred manner. The arrangement is such that when the switch-stand is operated, the turning of the post 9 in one direction causes the switch to be opened, and the turning of the post in the opposite direction causes the switch to be closed; so that the train or other railway vehicle shall be directed

from the main line upon the branch, siding, or spur, as the case may be.

At one side of the mainline, and at a point a considerable distance away from the switch proper, is located a box or casing 17, which may be either of wood or of metal, as preferred and which may be either of the precise form shown, or of any other suitable or preferred form for the purposes to be described. As shown, the box or casing 17 is of rectangular form, closed at its top and sides and having its outer or rear portion provided with a suitable door 18 which is hinged, as at 19, to the top of the box or casing. This door 18 is retained normally in closed position by a hasp 20, a padlock passing through a staple 22 in the body of the box or casing 18, being shown as the means for securing the door in closed position. This door serves to permit access to the interior of the box or casings, when desired. Within this box or casing 17 is placed a vertical standard 23 which is arranged to oscillate axially, and which is surrounded by a stout spiral spring 23. The lower end of this spring is inserted rigidly into or rigidly secured to the bottom of the box or casing 17, and the upper end of said spring is rigidly inserted into or secured to the torpedo-carrying arm 25. As shown, this arm 25 is in the form of a skeleton metal casting having midway of its length an opening 26 to receive the upper end of the standard 23, and having at one end an extension or arm 27 to carry the torpedo 28. This torpedo may be of the usual or any preferred type of construction, and may be attached to the end of the extension arm 27 in any suitable or preferred manner. As shown, however, the torpedo 28 is provided with a stem 29 which enters a socket 30 in the outer end of the arm 27. To the opposite end of the arm 25, which lies horizontally upon the standard 23, is secured one end of a wire rope 31, or any other similar appliance; said rope being connected at its opposite end with the outer end of the arm 13 of the switch-stand post 9, as hereinafter more fully explained. A door 32 is hinged, as at 33 to the upper part of the front of the box, and normally closes an opening 34 in said front, and this door is engaged and opened, at times, by the outer end of an arm 28 which extends obliquely from the carrying-arm 25, at the front portion thereof.

At a point between the switch-stand 6 and the box or casing 17, is located a signal-stand 6^a, the construction of which is precisely similar to that of the switch-stand 6 and which carries a signal lantern, arrow and target, it being observed however, that in the signal-stand, the operating arm or lever 14 is omitted. The post 9 of the switch-stand 6^a is surrounded at its lower portion by a stout spiral spring 36, the lower end of which is rigidly secured to the base 7 of the stand and the upper end of which is rigidly secured to the

lower part of the post 9. The tendency of this spring 36 is to so turn the post 9 as to cause its signal to show that the switch is closed, and the tendency of the spring 24 being to so turn the standard 23 as to withdraw the arm 25 within the box or casing 17. The rope 31 extends and is connected to the outer end of the arm 13 of the signal-stand 6^a and thence to the arm 13 of the switch-stand 6. The attachment of the rope 31 to the arm 13 of the switch-stand 6 is preferably accomplished by means of a hook 31^a, so that the rope may be disconnected from the arm when the switch is intended to be opened, but no alarm-signal is to be sounded, as for example, when a train is being side-tracked. If desired, a suitable locking attachment may be employed for connecting the end of the rope 31 to the arm 13 as shown in Fig. 9 so that said rope cannot be disconnected by unauthorized persons. In this arrangement a staple 40 is mounted upon the outer end of the arm 13, and hasp-plate 41 is securely connected to the wire 31. A suitable padlock 42 is passed through the staple, so as to retain the hasp-plate in connection with the arm. It is to be understood that if preferred the connection of the rope to the arm 13 may be a permanent one, so that the torpedo arm shall always be thrown.

In Figs. 6, 7, and 8, I have shown a modified arrangement in which the torpedo-carrying arm 25 is moved to carry the torpedo upon the rail and also to withdraw the arm within the box or casing, by the movements of the switch and signal stand posts. In this arrangement two wire-ropes, or equivalent flexible connections 50 are used. One rope 50 is attached to the arm 28^a, as at 51, and the other rope is attached as at 52, to the opposite end of the arm 25 from that which carries the torpedo. The post 9 of the switch-stand 6 and also the post 9 of the signal-stand 6^a, carry each a double arm 53 to the opposite ends of which are connected the two ropes, as at 54. Thus it will be seen that the torpedo-carrying arm 25 is moved in both directions by the movements of the posts of the switch and signal stands, and that the spring 23 of the torpedo-arm standard and the spring 36 of the signal-stand post may be dispensed with.

From the above description, it will be seen that when the switch-stand is so operated as to open the switch, the torpedo 28 will be carried across the top of the adjacent rail, and the wheels of a passing train, or other railway vehicle, will strike and explode the torpedo, also turning the arrow in the day time and showing the danger light at night of the signal stand 6^a; thus enabling the engineer to stop the train before it has reached the switch.

It will be seen that the appliances are very simple, strong, durable, and inexpensive in construction and entirely automatic and reliable in their operation.

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

5 A torpedo signaling mechanism for railway switches, comprising a switch stand composed of a vertical and axially moving standard, having a stud or projection connected by a wire or rod to the sliding tie-bar of the switch rails, a horizontal arm for operating the vertical standard, and a horizontal arm, connected by a rope or cable to an arm extending parallel therewith of a vertically and axially movable standard of a signal stand, placed a suitable distance from the switch-stand, and
10 a lantern and arrow, which are also carried by the upper end of the signal standard, and a casing having a door at the side adjacent

to the rail and a door in the opposite side thereof, and a vertical standard stepped to axially revolve in said casing, having a horizontal arm secured to its upper end, connected at one end to the signal standard arm by means of a rope, and having at its opposite end a torpedo carrying extension, and a branch extension or arm therefrom, to open
20 the door adjacent to the track when the switch is opened, substantially as described. 25

In testimony whereof I affix my signature in the presence of two witnesses.

THOMAS H. WILLSON.

Witnesses:

HARRIET E. PRICE,
JNO. L. CONDRON.