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PATENTED MAY 29, 1906.

W. C. BURTON.
RAILROAD SIGNAL.
APPLICATION FILED SEPT. 30, 1905.

Fig. 1.

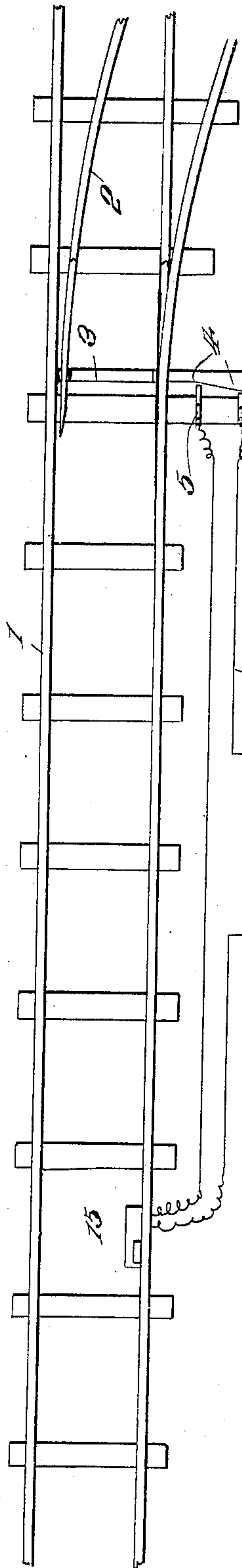


Fig. 3.

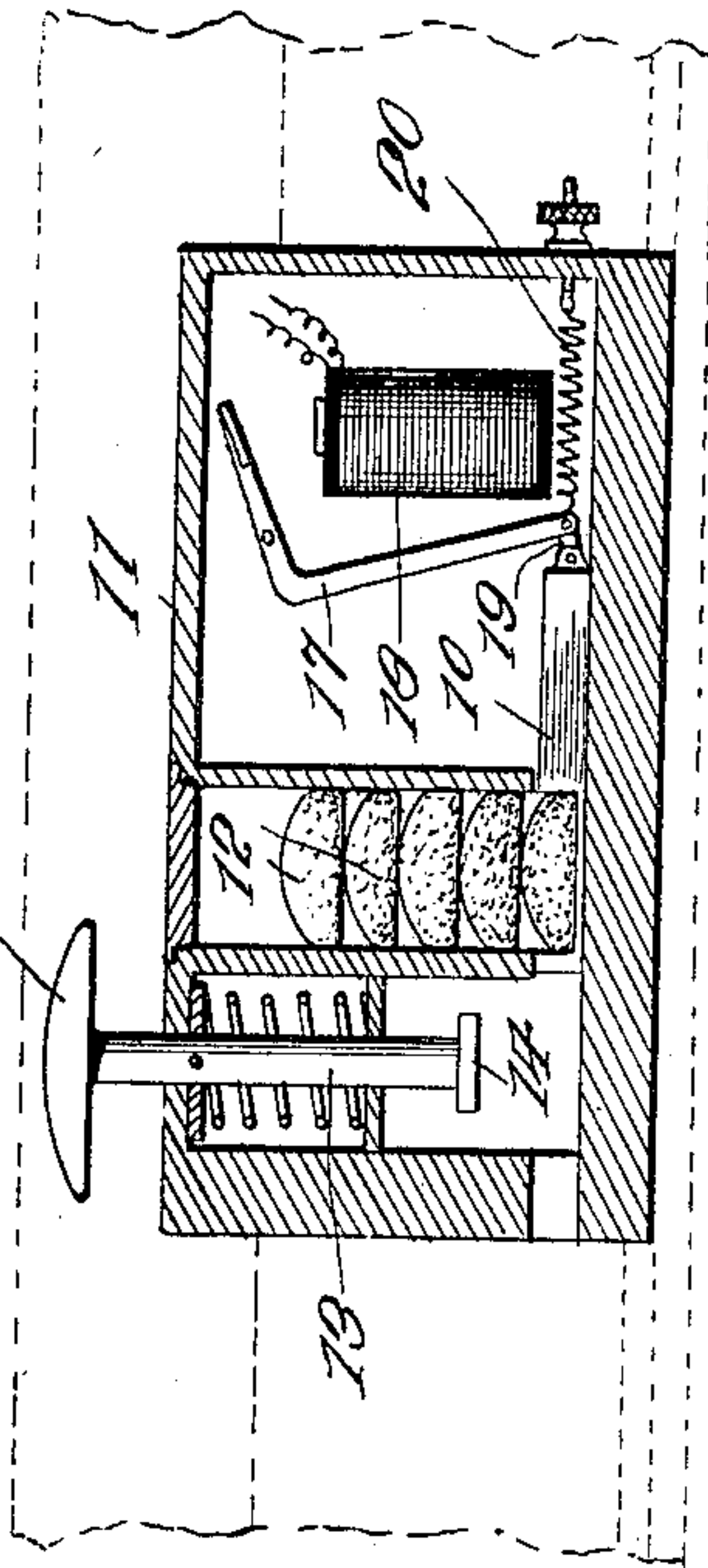
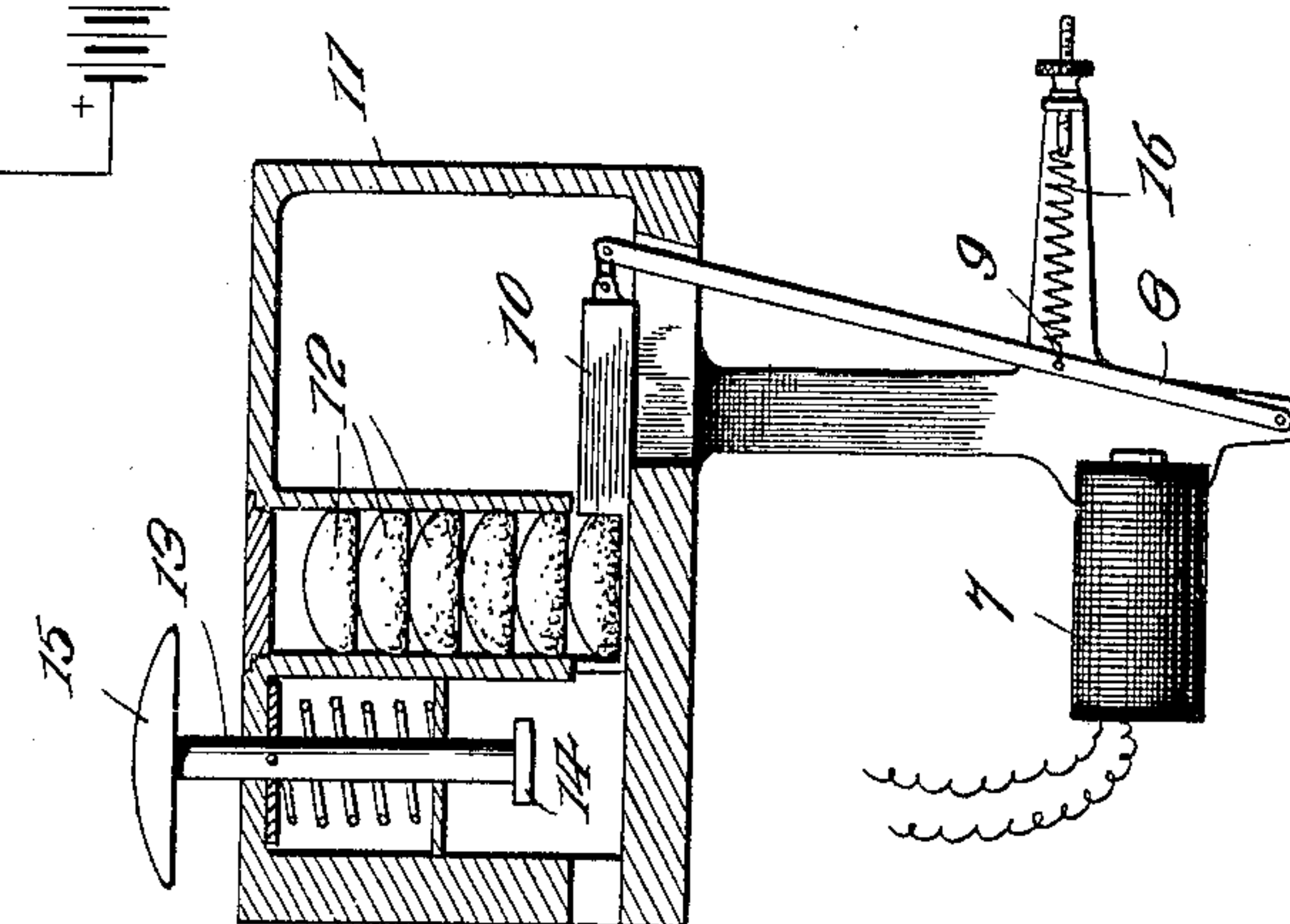


Fig. 2.



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RAILROAD-SIGNAL.

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To all whom it may concern:

Be it known that I, WALTER C. BURTON, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Railroad-Signals, of which the following is a specification.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a top plan view showing a signaling apparatus embodying the invention. Fig. 2 is a detail view of the detonating mechanism shown in Fig. 1. Fig. 3 is a view similar to Fig. 2, embodying a modified form of detonating mechanism.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

This invention comprises a novel signaling mechanism for railroads, and relates particularly to that type of mechanism embodying detonating means connected for operation with a switch and designed to prevent rear-end collisions.

In the drawings the invention is illustrated as applied to a railroad, the main track being indicated at 1 and the switch at 2. The switch 2 is of any suitable type, and the switch-points are operated by a switch-bar 3. The switch-bar 3 is adapted for actuation by any suitable mechanism, such as ordinarily employed, and said bar carries a circuit-closing contact 4, adapted to connect terminal contacts 5 of a battery-circuit 6. The battery-circuit 6 includes an electromagnet 7, adapted to attract an armature 8, pivoted to a bracket and connected to a spring, as shown at 9. The armature 8 is connected so as to actuate a feed-plate 10, which moves across the lower end of the magazine 11, containing explosive charges, such as torpedoes 12. The feeding-plate 10 is adapted to carry one of the torpedoes 12 from the magazine 11 and dispose it in a position beneath an exploder 13, said exploder comprising a vertically-movable plunger, at the lower end of which is an exploding-head 14 and at the upper end of which is a depressible head 15. The head 15 is attached to the plunger or exploder 13,

and said head 15 is normally in a position at one side of a rail of the main track 1, arranged so as to be depressed by the flange of the wheels of the rolling-stock passing over the track 1. The several parts 7, 8, 11, and 13 are arranged adjacent one another and may be inclosed in a suitable casing provided therefor. Under actual conditions the armature 8 is held a short distance away from the electromagnet 7 by means of a spring 16, which is connected with said armature. When, however, the switch-bar 3 has been actuated so as to open the switch and the main track 1, the movement of the switch-bar causes the contact 4 to connect the terminals 5, closing the circuit 6 and energizing the magnet 7. The magnet 7 being energized, the armature 8 is attracted thereto, and such movement of the armature actuates the movable feed-plate 10 and causes one of the torpedoes 12 to be moved from the magazine 11 and placed in a position just beneath the exploder 13. It will be obvious that as a train travels toward the switch 2 from the side at which the detonating mechanism is located one of the wheels of the rolling-stock striking the head 15 will depress the exploder 13 and explode the torpedo 12, which is disposed therebeneath. The engineer will of course be warned as to the position of the switch, and danger of accident is thereby avoided. When the switch-bar 3 is disposed so that the switch is closed, the contact 4 is arranged so that the circuit 6 is broken, and the train approaching the switch will actuate the exploder 13 without giving the signal, for the reason that the feed-plate 10 has not been actuated to place a torpedo beneath the exploder, this not being necessary, as there is not danger of the train taking a switch.

In Fig. 3 a slightly-modified form of detonating mechanism is shown, the operative principle of the invention being the same, however. In this instance the detonating mechanism is inclosed by a suitable casing, and the form of the exploder 13, magazine 11, and feeding-plate 10 will be the same as hereinbefore described. The armature in Fig. 3, however, consists of a bell-crank lever 17, one arm of which is adapted to be attracted by the electromagnet 18, and the other arm is connected with the feeding-plate 10 by a link 19. A spring 20 connects with the last-mentioned arm and normally holds the armature away from the magnet 18. The op-

eration of the mechanism shown in Fig. 3 is substantially as hereinbefore described with reference to the first construction set forth.

Having thus described the invention, what is claimed as new is—

1. In a signaling apparatus for railroads, the combination of a switch, detonating mechanism including a magazine for explosive charges, an exploder operable by the rolling-stock, a feeding-plate adapted to remove a charge from the magazine and place it in a position wherein it will be exploded by the exploder aforesaid, and means electrically connecting the feeding-plate with the switch for effecting actuation of the feeding-plate.

2. In a signaling apparatus for railroads, the combination of the main track, a switch, detonating mechanism in the length of the main track including an exploder, and means electrically connected for operation by the switch and adapted to place an explosive charge in a position wherein it will be operated upon by the exploder, the exploder being operable by the rolling-stock.

3. In a signaling apparatus for railroads, the combination of the main track, a switch, a switch-bar, an electric circuit including terminal contacts adjacent the switch-bar, a circuit-closing contact carried by the switch-bar to close the circuit aforesaid, an exploder in the length of the main track operable by the rolling-stock, a magazine for explosive

charges, a feeding-plate for feeding an explosive charge from the magazine to the exploder, an electromagnet in the length of the circuit aforesaid, and an armature operable by said electromagnet and connected with the feeding-plate.

4. In a signaling apparatus for railroads, the combination of the main track, a switch, a switch-bar, an electric circuit including terminal contacts adjacent the switch-bar, a circuit-closing contact carried by the switch-bar to close the circuit aforesaid, an exploder in the length of the main track operable by the rolling-stock, a magazine for explosive charges, a feeding-plate for feeding an explosive charge from the magazine to the exploder, an electromagnet in the length of the circuit aforesaid, an armature operable by the said electromagnet and connected with the feeding-plate, a spring coacting with the armature to normally hold the feeding-plate in a position to receive a charge from the magazine, and spring means coacting with the exploder to normally hold the same in a position wherein it will be operable by the rolling-stock.

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

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