No. 863,452. PATENTED AUG. 13, 1907.

M. SALMOND.

SAFETY SIGNAL DEVICE.

APPLICATION FILED MAR. 23, 1907.

2 SHEETS—SHEET 1.

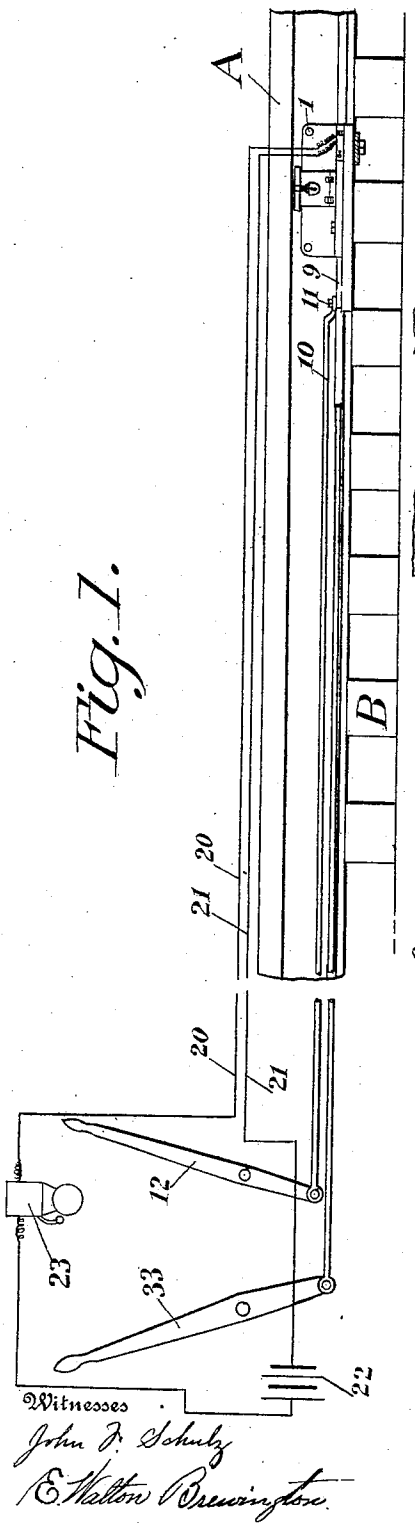


Fig. 1.

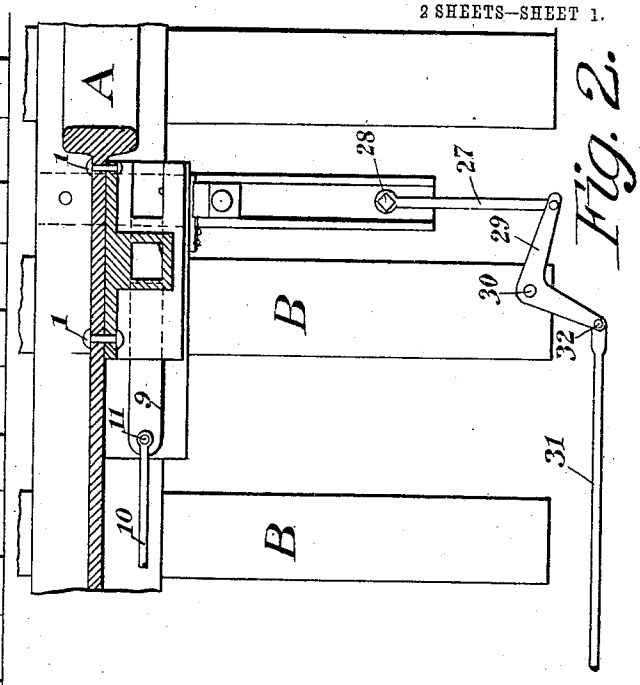


Fig. 2.

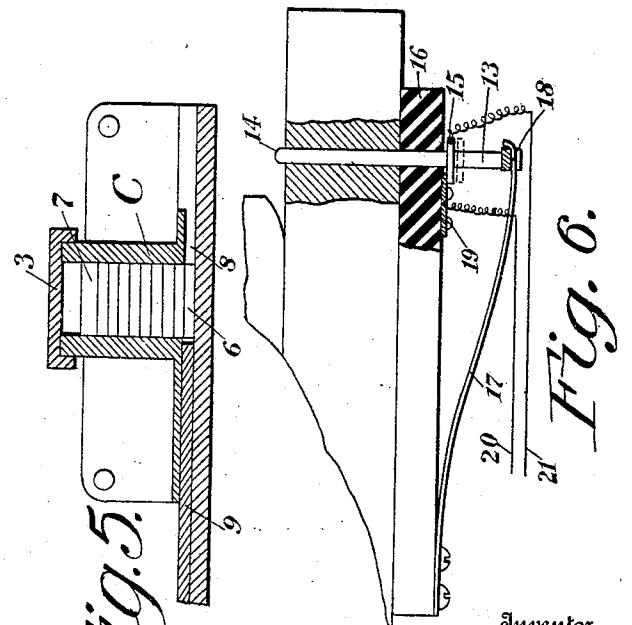


Fig. 5.

Fig. 6.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

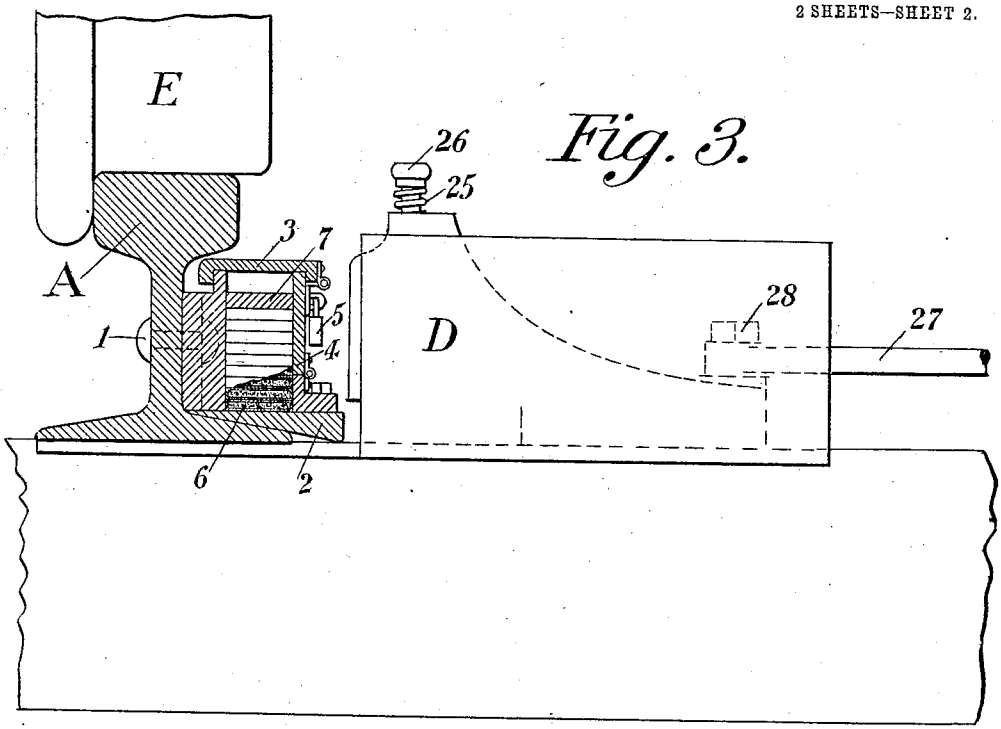
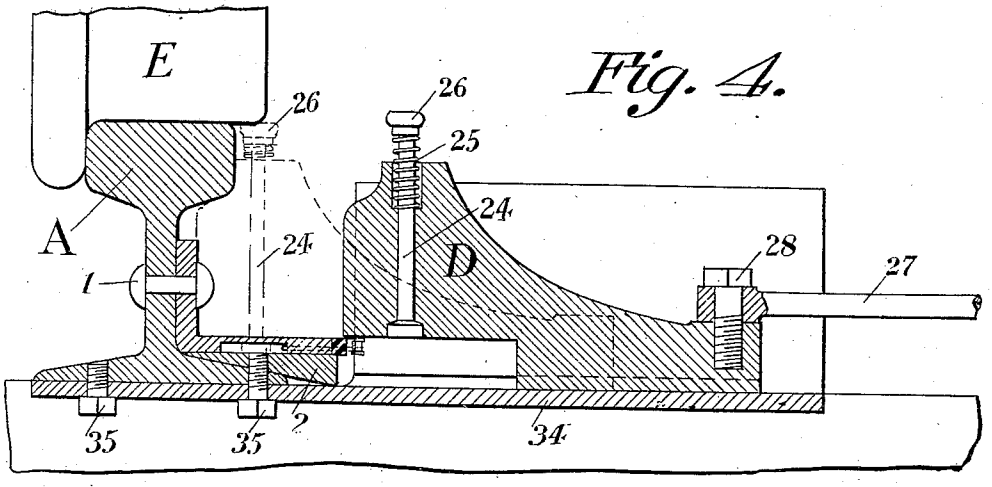


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SAFETY SIGNAL DEVICE.

No. 863,452. Specification of Letters Patent. Patented Aug. 13, 1907.

Application filed March 23, 1907. Serial No. 364,047.

To all whom it may concern:

Be it known that I, MALCOLM SALMOND, a citizen of the United States, residing at Baltimore city and State of Maryland, have invented certain new and useful Improvements in Safety Signal Devices, of which the following is a specification.

My invention relates to an improvement in a safety signal device as applicable to rail roads and the like, the distinguishing characteristic of the invention being to place a torpedo on the rail of the track independent of the setting of any other signal, as well as in conjunction therewith, the distinguishing features of this device being the magazine from which torpedoes are fed to the exploding device, the automatic alarm notifying the operator that the device is not in firing condition and the automatic locking mechanism notifying him that the magazine has become empty.

The object of the invention is to inform the engineer or other person in charge of a train, that a danger point or signal has been passed.

The invention is particularly valuable when used in conjunction with the class of signals known as the block system, when such signals by reason of the condition of the weather are rendered possible not to be seen.

The invention, however, is more or less effective when used alone and separate from any and all other classes of signals.

With these objetcs in view, I do hereby declare the following to be a full and exact description of my device, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in certain other new and novel features of construction and combinations of parts, which will be hereinafter described and pointed out in the claims.

Referring to the drawings in which like numbers and letters are used to designate similar parts, Figure 1, is a side elevation with the plunger carrying device removed. Fig. 2, is an enlarged plan view partly in section: Fig. 3 is a transverse section through the magazine: Fig. 4 is a similar view through the plunger: Fig. 5, is a longitudinal section through the magazine: Fig. 6 is a fragmentary plan section showing the electrical contacts.

A represents the rail, B the ties, C the magazine, which is bolted to the side of the rail at 1, 2 is a tapered casting located between the bottom of the magazine and the top base of the rail for the purpose of forming a level foundation on which the magazine rests, 3 is a cover, 4 is a hinged door and 5 is a lock for securing the door shut, 6 are torpedoes, and 7 is a weight placed on top of them for the purpose of forcing them downward and for an additional purpose to be hereinafter explained, 8 is a channel, 9 is a slide, slidably secured within the channel, 10 is a rod secured to the slide by means of the bolt 11, the free end of the rod being connected with the lever 12 by which means the slide is operated.

In Fig. 6, 13 is a pin horizontally extended through the bottom portion of the magazine with the point 14 of the pin extended into the channel 8, 15 is a contact shoe secured on the said pin, 16 is insulation, 17 is a tempered flat metal spring connected with the pin at 18 for the purpose of forcing the shoe 15 on the pin 13 against the contact plate 19. 20 and 21 are insulated wires connected with the contact plate and shoe respectively, 22 is a battery, and 23 is an electric bell.

Referring to Fig. 4, D, is a firing head, provided with a plunger 24, supported within the head by a spiral spring 25, the plunger being provided with a cap 26; 27 is a rod one end of which is secured to the firing head D by means of the bolt 28, the free end being connected with the bell crank 29, said bell crank 29 being pivotally secured to one of the ties B, at 30, the free end of the bell crank being connected with a rod 31, at 32, and the free end of the rod 31 being connected with the operating lever 33, which is similar to the lever 12, both of which are of the ordinary kind and so well known to those skilled in the art as to command no further description here. 33. The firing head D is slidably secured within a holding device 34 which is secured in proper position and by any suitable means as by the bolts 35 as shown in Fig. 4.

My device is operated as follows: The magazine C is first filled with the torpedoes 6, and the weight 7 placed on top of them, this will leave the magazine filled as shown in Fig. 5, with one torpedo in the channel 8 to the right of the slide 9; when in this position the pin 13 will be in position as shown in Fig. 6 and a circuit will be formed between the contact plate 19 and the shoe 15, and cause the bell 23 to ring; by pulling the lever 12, the slide 9 will force the lower torpedo from its position as shown in Fig. 5 from the magazine to a point in channel under the plunger 24 of the firing head D, which firing head D is secured in proper alinement and position to the magazine feeding device. By reason of the torpedo being forced from the magazine in the channel 8 to a point under the plunger and by reason of the pin 13 being located in line with the plunger the torpedoes by coming in contact with the point 14 of the pin 13 will cause the pin to be forced backward, thereby breaking the point of contact between the shoe 15 and the plate 19, consequently as soon as the circuit is broken the bell 23 will cease to ring, by reason of this the operator is informed that the device is properly loaded. If for any reason it is desired to prevent a train from passing beyond a given point, either on account of impending danger or otherwise, or if a signal has been ignored, or to avoid any

possibility of one being ignored on account of weather conditions prevailing rendering it possible not to see a signal which has been set, the operator by pulling the lever 33, the firing head D is forced toward the rail A and in position as indicated by the dotted lines in Fig. 4, when in this position the plunger 24 in the firing head is above and in line with the torpedo which has been forced from the magazine and the wheel E of the train will force the plunger 24 down upon the torpedo and explode it, thereby sounding a warning of approaching danger, when the torpedo explodes the pressure on the point 14 of the pin 13 is released and the spring 17 will force the pin inward and cause a circuit to be again formed between the shoe 15 and the conact plate 19 thereby causing the bell 23 to ring continuously until the lever 12 is again pulled and the device again loaded as has been described. When all the torpedoes have been fed from the magazine the weight 7 (which is of greater thickness than the depth of the channel 8) will cause the device to become locked and by reason of the lever becoming inoperative and the continuous ringing of the bell 23, the operator is apprised of the fact that the magazine is empty and is in need of being re-filled.

It is obvious from the foregoing description that when no signal is desired to be given the lever 33 is reversed thereby withdrawing the firing head away from the rail and preventing the exploding of the torpedo.

Slight changes might be resorted to in the form and arrangement of the several parts herein described, without departing from the spirit and scope of my invention, hence I do not desire to limit myself to the exact construction as herein set forth; but,

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

1. In a device of the character described, the combination of a magazine secured to a rail of track and provided with a cover and a door hinged thereto, of a plurality of torpedoes secured within the magazine, a weight of similar size but of greater thickness than each of the torpedoes placed on top thereof, a channel extending through the bottom of the magazine, a slide, slidably secured therein, an operating lever, a rod connecting the lever with the slide, a firing head movably secured adjacent to the magazine, a spring actuated plunger secured therein for the purpose of exploding the torpedo after being fed to the firing head from the magazine, substantially as described.

2. In a device of the character described, the combination of a magazine secured to the rail of a track, of a plurality of torpedoes secured therein, a weight placed on the top thereof, a channel extended through the bottom of the said magazine, a slide, slidably secured therein, an operating lever, a rod connecting the lever with the slide, a pin horizontally extended through the magazine casting and projecting into the said channel therein, a contact shoe exteriorly provided on the said pin, a contact plate, insulation provided between the contact plate and the magazine, a spring actuating the pin, a battery, an alarm bell, a wire leading from the battery through the said bell to the said contact plate, a similar wire leading from the said battery to the shoe on the said pin, a firing head, a plunger secured within the head, means for moving the firing head adjacent to the magazine to, and from the said rail, the feeding and exploding of the torpedo into the said channel breaking and forming an electrical contact between the shoe on the pin and contact plate respectively, substantially as described.

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

MALCOLM SALMOND.

Witnesses:
E. WALTON BREWINGTON,
MARY M. MAGRAW.