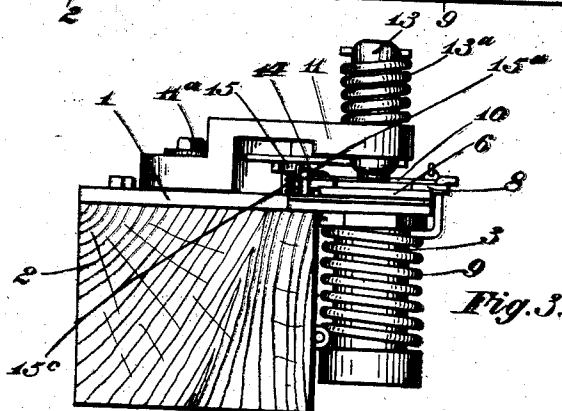
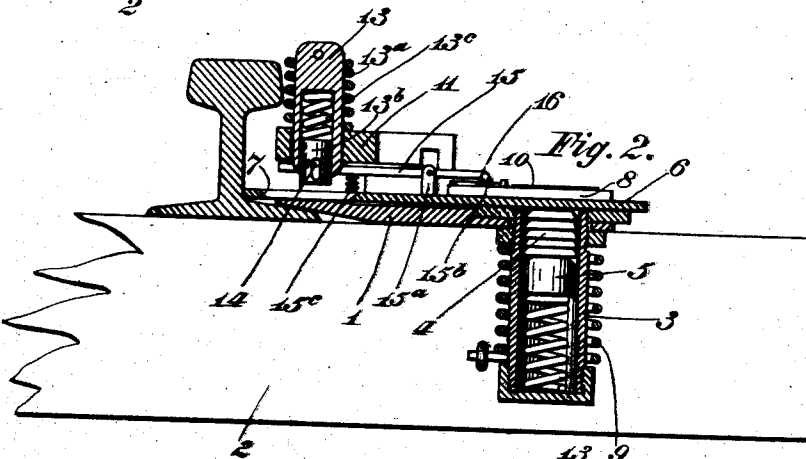
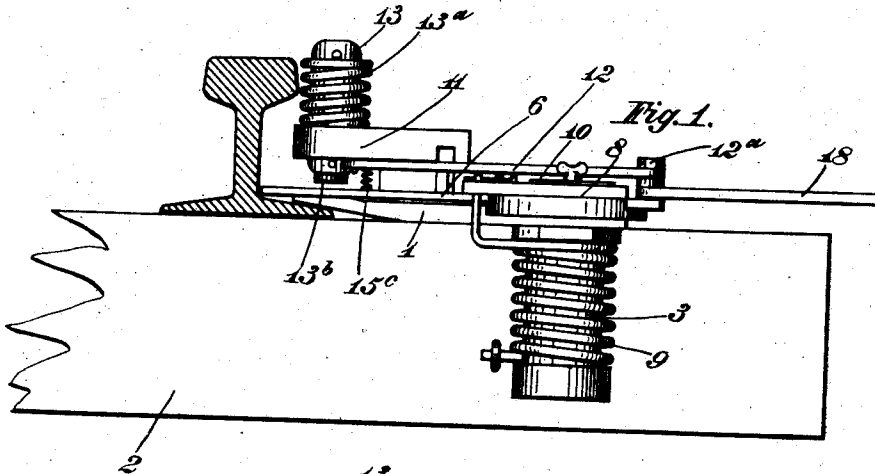


No. 854,194.

PATENTED MAY 21, 1907.

E. E. BLAIN.
TORPEDO SIGNALING DEVICE.
APPLICATION FILED MAR. 27, 1907.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

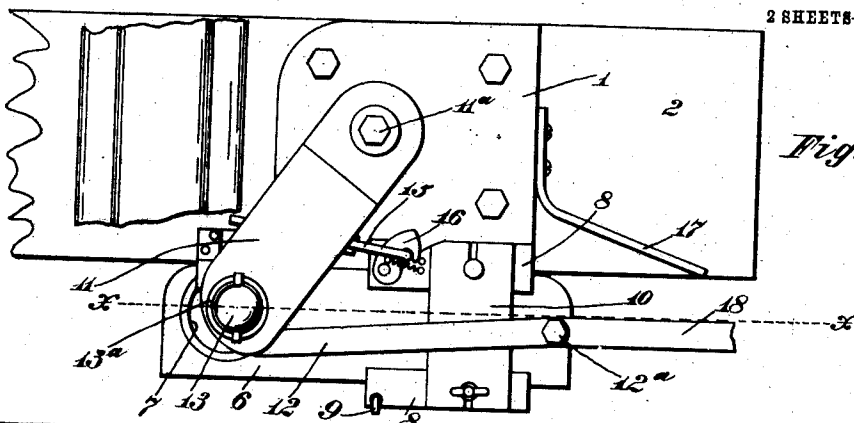


Fig. 4.

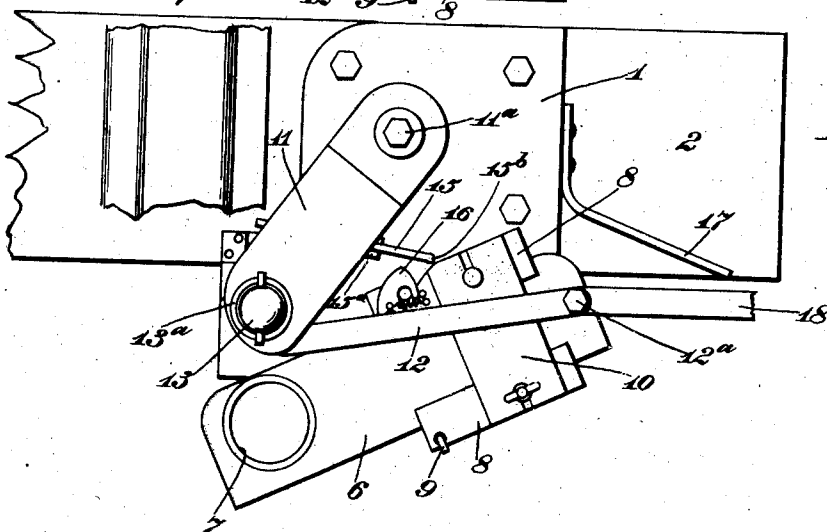


Fig. 5.

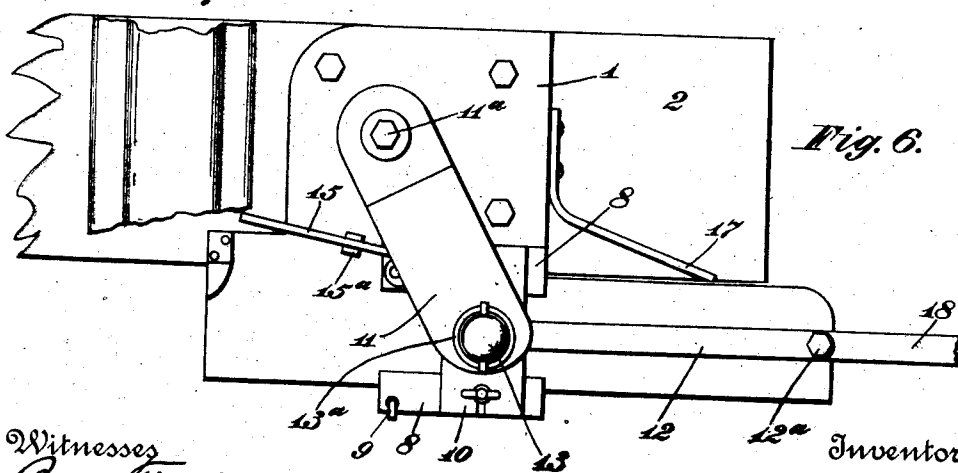


Fig. 6.

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UNITED STATES PATENT OFFICE.

EDWIN E. BLAIN, OF COLUMBUS, OHIO.

TORPEDO SIGNALING DEVICE.

No. 854,194.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed March 27, 1907. Serial No. 364,810.

To all whom it may concern:

Be it known that I, EDWIN E. BLAIN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Torpedo Signaling Devices, of which the following is a specification.

The principal object of this invention is to provide a magazine torpedo device for use in conjunction with the usual visual signal for railroads.

Briefly the invention is embodied in a combination comprising a torpedo magazine, a hammer to be operated by the train wheel for exploding the torpedo, mechanism for feeding the torpedoes into position to be exploded by said hammer, means for ejecting the debris of the exploded torpedo, and means for restoring the torpedo-feeding device to position for reloading the same, but my invention is not limited to such combination nor to its use in conjunction with other signaling devices, for manifestly it may be used as an independent means of signaling.

An embodiment of the invention is shown in the accompanying drawings but the invention is not confined to the precise details of construction shown.

In said drawings—Figure 1 is a side elevation of my device showing it installed in position next a railroad rail; Fig. 2 is a vertical section on the line $x-x$ Fig. 4; Fig. 3 is a view looking at the left-hand end of Fig. 1 with the track removed. Fig. 4 is a top plan view showing the position of the parts when ready to explode a torpedo; Fig. 5 is a similar view showing the position which the parts automatically assume after the torpedo is fired, and Fig. 6 is a similar view except that parts are broken out, illustrating the position of the parts when moved to recharge the torpedo carrier.

In the views 1 designates a base plate or anvil adapted to be secured to a railroad tie 2 next the outer side of a rail. Pivotaly secured to the plate 1 and extending beneath the same is a torpedo magazine 3 for containing a plurality of torpedoes 4 and a spring-actuated follower 5 to feed the torpedoes to a torpedo-carrier 6, which comprises a flat bar provided with an opening 7 to receive a torpedo. The torpedo-carrier 6 is slidably mounted in a slideway 8 which latter is fixed to the magazine cylinder and movable therewith. The slideway 8 is actuated to move

the torpedo-carrier 6 out of firing position by means of a spring 9 connected to the slideway and to the tie or other fixed part. This movement of the torpedo-carrier is for the purpose of ejecting the torpedo debris after the torpedo has been fired.

10 designates a plate removably secured to the slideway 8 over the mouth of the magazine and permits the discharge of but one torpedo at a time from the magazine into the opening in the torpedo-carrier 6. By removing the plate 10 the magazine may readily be recharged.

11 designates a hammer-carrier or support comprising an arm pivoted at 11^a to the base plate 1 and having its free end connected by a link 12 and a pivot pin 12^a with the torpedo-carrier 6. Thus the hammer-carrier is movable with said torpedo-carrier toward and from the edge of the rail.

13 designates a torpedo-hammer supported in the free end of the hammer-carrier 11 and held in elevated position by a spring 13^a. The hammer 13 is provided with a firing pin 13^b, and between said pin and hammer is a cushion spring 13^c to take up any excessive pressure or jar to which the hammer might be subjected by reason of the contact therewith of the overlapping edges of grooved or worn wheels.

14 designates an arm secured to the hammer 13 beneath the hammer-carrier and passing through a slot in the firing pin 13^b. The arm 14 engages one end of a lever or latching arm 15 pivoted to a standard 15^a on the base plate 1. The other end of the latching arm 15 is provided with a hook 15^b to engage a spring-actuated latch 16 on the slideway 8 to hold said slideway and torpedo-carrier 6 in position for loading and firing and against the action of the spring 9, tending to move the same outwardly from under the hammer 13 to eject the torpedo debris. A small spring 15^c tends to hold the inner end of the lever 15 in engagement with the arm 14 and the outer or hook end in engagement with the spring latch 16.

A deflector arm 17 is provided on the base plate 1 to guide the torpedo-carrier in its backward movement to recharging position. 18 designates a part of an operating rod or lever for moving the torpedo-carrier and hammer-arm to and from the rail or firing position of the parts. This arm can be connected either with a visual signal-operating mechanism or may be operated by means in-

dependent of such visual signal. A hood (not shown) may be provided for the mechanism to protect the device from rain and dirt.

Assuming that the device is in loading position, as shown in Fig. 6, and it is desired to set the apparatus for firing the torpedo, the rod 18 is actuated to force the torpedo-carrier, charged with the torpedo, toward the track. By the same operation the hammer-arm and hammer are moved in proximity to the track with the hammer directly over the torpedo, as seen in Figs. 1, 2, 3 and 4. Upon being struck by the wheel of a locomotive or car the hammer is operated to discharge the torpedo, whereupon the rod 14 is forced downward and carries with it the inner end of the lever 15, thus raising the outer or hook end of said lever and releasing the same from the latch 16. The spring 9 then acts upon the slideway 8 and forces the same, together with the torpedo-carrier, outwardly or away from the base plate 1, as seen in Fig. 5, to automatically eject the debris of the discharged torpedo. To reload the device and restore it to inoperative position the lever 18 is moved outwardly or away from the track and carries with it the torpedo-carrier and the hammer support. In this movement a rounded edge of the torpedo-carrier engages the deflector 17 on the base plate, thus causing the slideway 8 to move on its pivot against the action of the spring 9 and swings the torpedo-carrier 6 around into position to be further moved to the loading position of the parts. During the movement just described the latch 16 slips around the hook end of the lever 15, which has been restored to depressed position by the rising of the hammer, and the slideway and torpedo-carrier are then held against the action of the spring 9 so that the torpedo-carrier and hammer may be again moved to the firing position adjacent the track.

What I claim is:

1. In a torpedo signaling device, the combination of a hammer to be operated by a train-wheel, mechanism for feeding a torpedo into position to be exploded by said hammer, means for moving the torpedo-feeding mechanism to eject the debris of the exploded torpedo, and means for restoring the torpedo-feeding mechanism to position for reloading the same.

2. In a torpedo signaling device, the combination comprising a torpedo magazine, a hammer to be operated by a train-wheel for exploding a torpedo, a torpedo-carrier, mechanism for loading the torpedo-carrier from said magazine, means for moving the torpedo-carrier into position to explode the torpedo, means for moving the torpedo-carrier to eject the debris of the exploded torpedo, and means for restoring the torpedo-carrier to position for reloading the same from said magazine.

3. In a torpedo signaling device, the combination comprising a hammer to be operated by a train-wheel, a torpedo-carrier for feeding the torpedoes to said hammer, a pivoted slideway for said carrier, means for holding the slideway in position to guide the carrier to the firing position of the hammer, means actuated by the hammer for automatically releasing the slideway, and means for turning the slideway on its pivot to move the torpedo-carrier away from the hammer and eject the torpedo-debris after firing.

4. In a torpedo signaling device, the combination comprising a hammer to be operated by a train-wheel, a torpedo-carrier for feeding torpedoes to said hammer, a pivoted slideway for said carrier, a spring for turning the slideway in one direction on its pivot and moving the torpedo-carrier away from said hammer to eject the torpedo debris, means for locking the slideway under tension of said spring and in position for feeding a torpedo to the hammer, and means actuated by the hammer to automatically release said slideway and carrier to eject the torpedo debris.

5. In a torpedo signaling device, the combination comprising a hammer to be operated by a train-wheel, a torpedo-carrier for feeding torpedoes to said hammer, a torpedo magazine and means in connection therewith for automatically supplying torpedoes to the torpedo-carrier, a pivoted slideway for said carrier, a spring for turning the slideway in one direction on its pivot and moving the torpedo-carrier away from said hammer to eject the torpedo debris, means for locking the slideway under tension of said spring and in position for feeding a torpedo to the hammer, and means actuated by the hammer to automatically release said slideway and carrier to eject the torpedo debris.

6. In a torpedo signaling device, the combination comprising a hammer to be operated by a train-wheel, a pivoted hammer-carrier, a torpedo-carrier for feeding torpedoes to said hammer, a link connecting said hammer-carrier and torpedo-carrier, a pivoted slideway for the torpedo-carrier, a spring to actuate said slideway, means for locking the slideway against the action of said spring, means for moving the torpedo and hammer carriers to positions adjacent and removed from a track, and means actuated by the hammer for automatically releasing the slideway whereby said torpedo-carrier is moved by said spring to torpedo-debris-ejecting position.

7. In a torpedo signaling device, the combination comprising a hammer to be operated by a train-wheel, a torpedo-carrier for feeding torpedoes to said hammer, a pivoted slideway for the torpedo-carrier, a spring for actuating said slideway to move the torpedo-carrier to eject the torpedo debris, a deflector to guide the torpedo-carrier into

reloading position, means for locking said
slideway in position for guiding the torpedo-
carrier to firing position, and means for au-
tomatically releasing said slideway, whereby
5 said torpedo-carrier is moved by said spring
to its torpedo-debris-ejecting position.

8. In a torpedo signaling device, the com-
bination comprising a hammer to be operated
by a train-wheel, a torpedo-carrier for feed-
10 ing torpedoes to said hammer, a pivoted
slideway for the torpedo-carrier, a spring for
actuating said slideway to move the torpedo-
carrier in one direction to eject the torpedo-

debris, a spring-actuated latch on said slide-
way, a lever to engage said latch to hold the 15
slideway and torpedo-carrier in position for
moving a torpedo to firing position, means
connected with said hammer to operate said
lever to release said latch, and means for re-
storing the torpedo carrier to the loading po- 20
sition.

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Witnesses:

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