No. 610,672. Patented Sept. 13, 1898.

F. DUTCHER.

SIGNAL.

(Application filed Mar. 11, 1898.)

(No Model.)

Fig. 1.

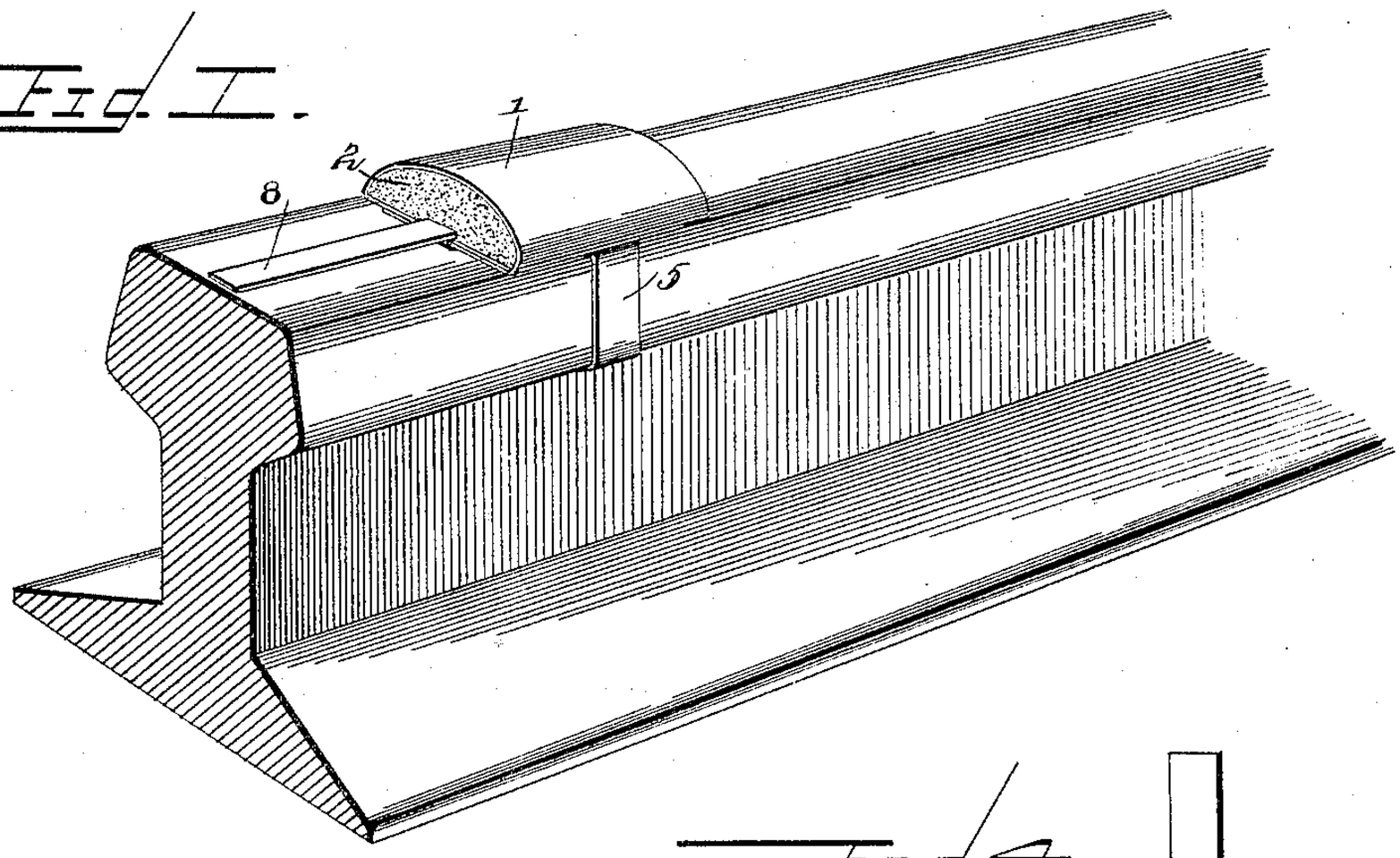


Fig. 2.

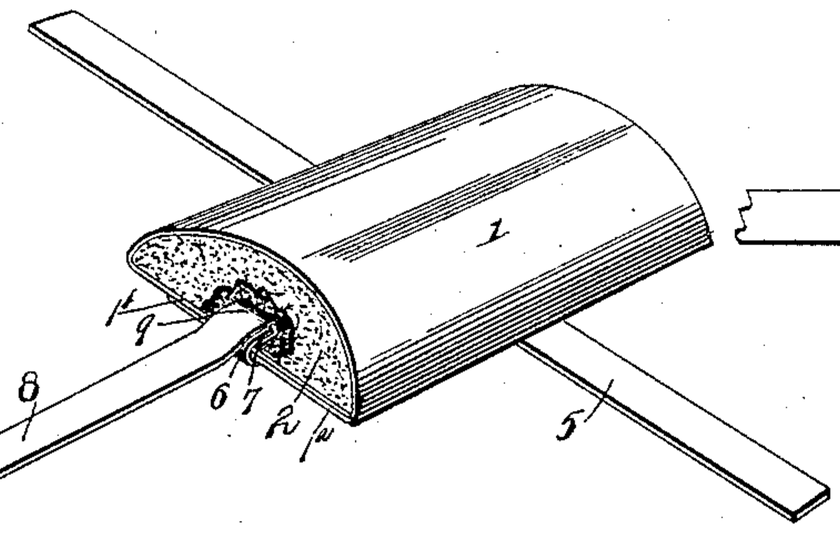


Fig. 4.

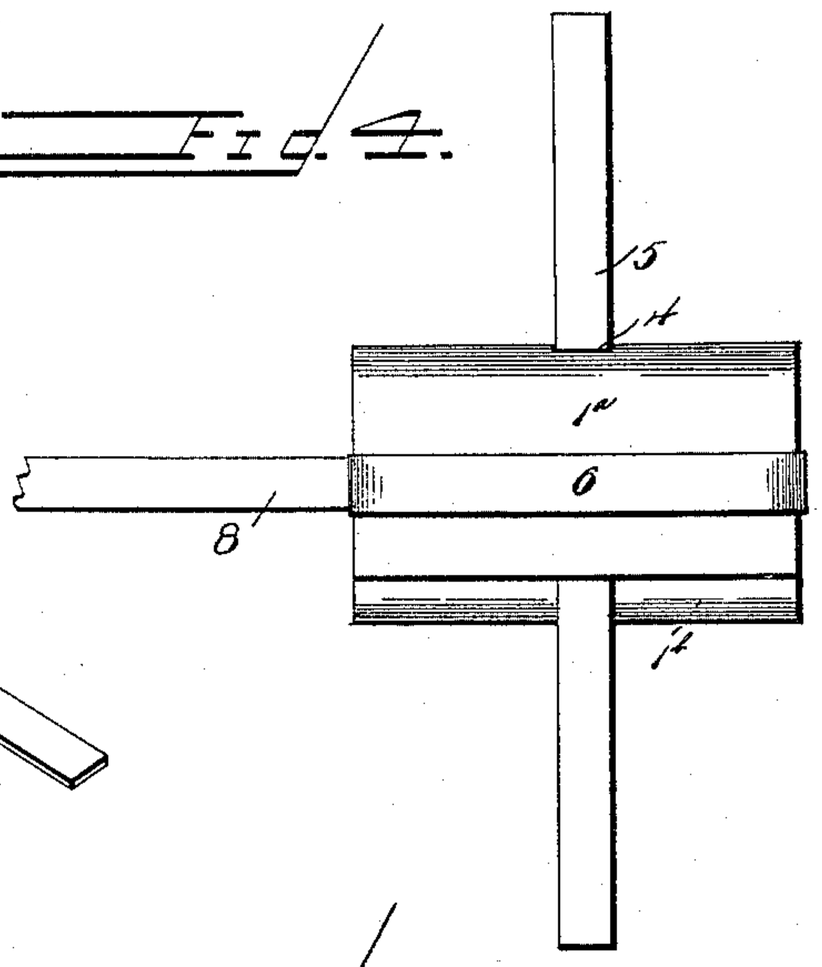


Fig. 3.

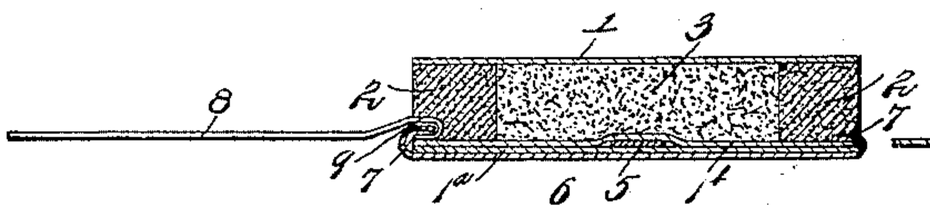
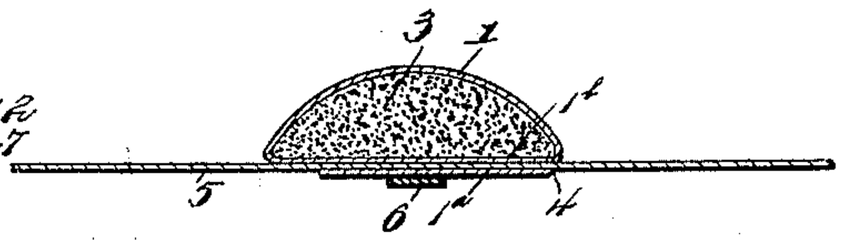


Fig. 5.



Witnesses
P. A. Shepard.
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By his Attorneys.
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UNITED STATES PATENT OFFICE.

FRANK DUTCHER, OF FOSTORIA, OHIO.

SIGNAL.

SPECIFICATION forming part of Letters Patent No. 610,672, dated September 13, 1898.

Application filed March 11, 1898. Serial No. 673,530. (No model.)

To all whom it may concern:

Be it known that I, FRANK DUTCHER, a citizen of the United States, residing at Fostoria, in the county of Seneca and State of Ohio, have invented a new and useful Signal, of which the following is a specification.

My invention relates to signals of the detonating class, and particularly to torpedoes adapted for use in connection with railway train-service; and the object in view is to provide a simple and efficient construction and combination of parts whereby the use of a metallic or other hard shell may be avoided in order that the dangers incident to flying particles of the shell at the time of explosion may be correspondingly avoided.

A further object of the invention is to provide improved and efficient means for securing the torpedo to a railway-track and also to provide means whereby the displacement of the torpedo by the wheels of rolling-stock may be avoided, the connection of the track-engaging and other arms to the body of the torpedo being accomplished by simple means and being utilized in connection with maintaining the shell of the torpedo in its proper position with relation to the charge.

Further objects and advantages of this invention will appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a torpedo constructed in accordance with my invention applied in the operative position to a track-rail. Fig. 2 is a detail view of the torpedo as seen before application to a rail. Fig. 3 is a longitudinal section. Fig. 4 is an inverted plan view. Fig. 5 is a transverse section in the plane of the attaching-strap.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The body portion of the torpedo embodying my invention consists of a semicylindrical shell 1, of paper or other soft fibrous material, which should be suitably treated, chemically or otherwise, to render it waterproof, and plugs or stoppers 2, of cement or equivalent friable material, fitted in the ends of the shell, with an intervening space adapted to be occupied by a suitable detonating explosive 3. The shell consists of a blank, of paper or its equivalent, folded to the cross-sectional form described, with its edges overlapping to form approximately coextensive outer and inner layers 1^a and 1^b, the outer layer or flap 1^a being longitudinally slitted, as shown at 4, for the reception of a securing-strap 5, of pliable material, preferably metal, which is introduced between the outer and inner layers 1^a and 1^b and extends transversely across the flat side of the body portion of the torpedo. This arrangement of the securing-strap insures the efficient connection thereof to the torpedo-body, while maintaining it wholly out of contact with the explosive charge thereof, said strap being interposed between the inner and outer layers or flaps formed by the ends of the torpedo-shell blank.

The means whereby the overlapping portions of the shell are maintained in their proper relative positions consists of a clip 6, disposed longitudinally of the shell and having inturned extremities 7, which engage the terminal edges of the shell approximately at the center of the overlapped portions thereof, as clearly shown in Fig. 3. This clip is disposed exteriorly of the outer flap 1^a, while its extremities extend slightly within the ends of the shell and are secured by the cement plugs 2. With one extremity of this clip is engaged one end of a leader or tread strap 8, having a hooked extremity 9, which is located within the contiguous end of the shell and is disposed to engage the contiguous extremity of the clip. Obviously the cement plug serves to prevent the accidental disengagement of the extremity of the leader or tread strap from the end of the clip.

In practice the torpedo is disposed longitudinally of a track-rail, and the extremities of the securing-strap are folded downwardly to engage the rail-tread, the leader or tread strap being disposed longitudinally of the rail and in the direction from which an approaching train is expected. Thus the foremost wheel of a train first mounts the leader or tread strap and firmly locks the body portion of the torpedo upon the rail before it strikes the torpedo proper. The attachment of the extremity of the leader-strap to the clip is preferred as a means of securing the

same to the torpedo, from the fact that it relieves the shell of the torpedo of strain, said shell in the preferred construction, as above described, being of fibrous or other soft material adapted to be blown into atoms without the danger of forming hard flying objects, such as those thrown off from a torpedo having a metallic shell. Also the plugs, constructed of cement or equivalent material, are effectually granulated by the explosion, and thus do not form projectiles, as do those of single-piece construction.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A torpedo of the class described, having a shell of fibrous material fitted with terminal friable plugs, adapted to be disintegrated by the explosion of the contents of the shell, substantially as specified.

2. A torpedo of the class described, having a folded shell terminally fitted with plugs of cement, and exterior means for connecting the folded edges of the shell, substantially as specified.

3. A torpedo of the class described, having a folded shell constructed of a single blank with its edges overlapped at the under side of the torpedo, and a clip engaging said overlapped edges and arranged exteriorly thereof, substantially as specified.

4. A torpedo of the class described, having its shell constructed of a blank folded upon itself to form a semicylindrical tube fitted with terminal plugs of cement, and a clip arranged exteriorly of the folded extremities of the blank, and terminally engaged with the overlapped portions thereof, substantially as specified.

5. A torpedo of the class described, having its shell constructed of a blank of pliable material folded upon itself to form a semicylindrical tube, and overlapped at the flat side of the tube to form approximately coextensive flaps, and a securing-strap arranged at an intermediate point between, and held in place by, said flaps, and extending outwardly through a slit formed in the outer flap, substantially as specified.

6. A torpedo of the class described, having its shell constructed of a blank folded upon itself to form a semicylindrical tube with its contiguous edges overlapping to form approximately coextensive flaps, a clip disposed longitudinally of the flat side of the shell with its extremities upturned to engage the edges of said flaps, and a leader or tread strap having a terminal hook engaged with one upturned extremity of said clip, and projecting longitudinally from the flat side of the shell, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK DUTCHER.

Witnesses:

A. J. STACKHOUSE,

M. W. ABBOTT.