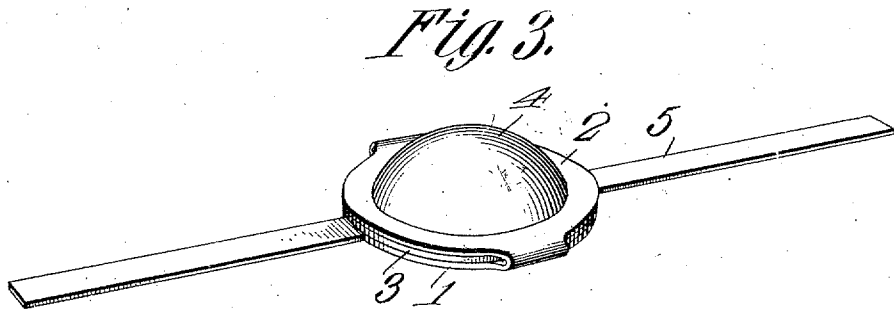
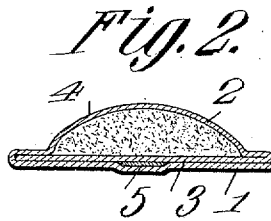
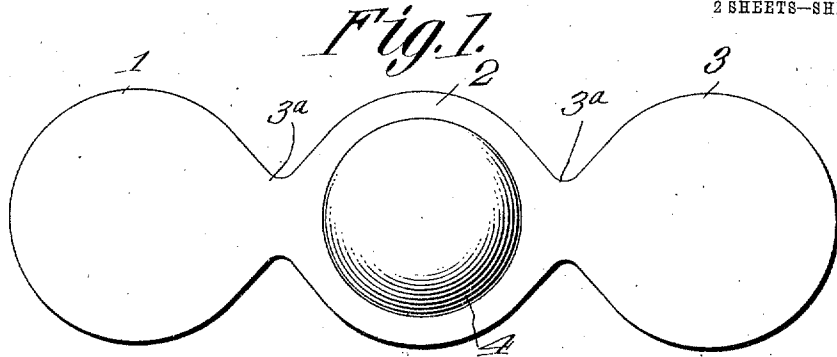


E. S. LAFFERTY.
TORPEDO SHELL.
APPLICATION FILED SEPT. 21, 1908.

961,143.

Patented June 14, 1910.

2 SHEETS—SHEET 1.



Witnesses:

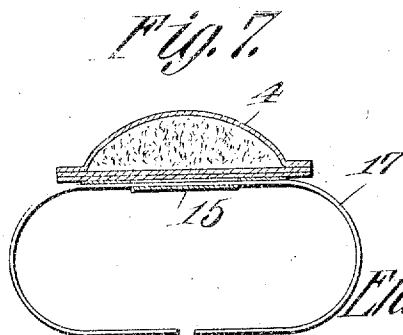
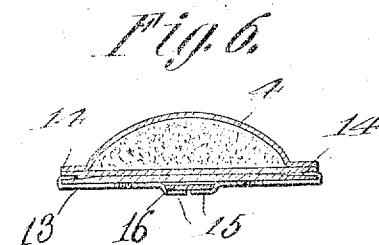
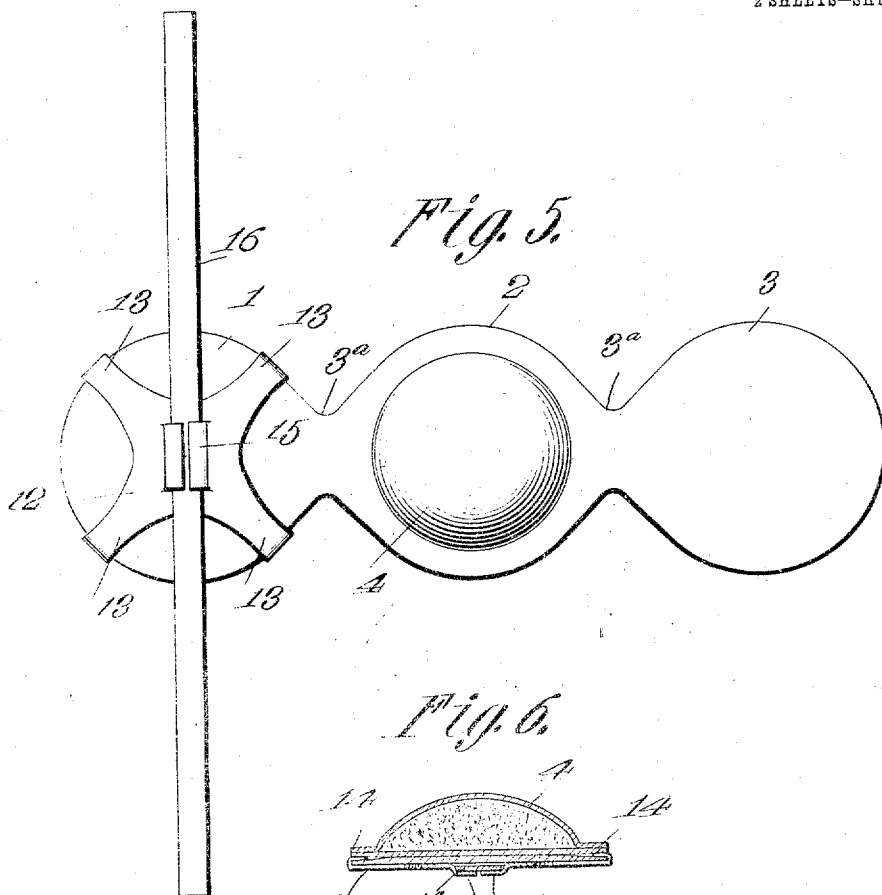
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Patented June 14, 1910.
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UNITED STATES PATENT OFFICE.

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TORPEDO-SHELL.

961,143.

Specification of Letters Patent. Patented June 14, 1910.

Application filed September 21, 1908. Serial No. 453,914.

To all whom it may concern:

Be it known that I, ERASTUS S. LAFFERTY, a citizen of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented new and useful Torpedo-Shells, of which the following is a specification.

This invention relates to an improved shell for housing the detonating powder used in railway signaling torpedoes.

The object of the invention is to provide an article of this character which shall be simple in construction, easily manufactured, and which will not inflict injury, should it fly or scatter when exploded, and which further shall, while non-metallic in character, be thoroughly moisture and water-proof, whereby effectually to shield the contained explosive against deterioration.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists, generally stated, in a torpedo shell constructed from paper or fiber thoroughly impregnated or saturated with a water-proof material. The shell may be constructed from a single piece of prepared material or a plurality of pieces, and the parts of which are held assembled with a water-proof cement. The binding or clamping member which holds the torpedo assembled with the railway rail is so connected with the shell, that when the latter explodes, the clamp will not be hurled through the air, so that accidents frequently happening from this cause, will be prevented.

The invention consists further in the various novel details of construction of a torpedo shell, as will be hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts:—Figure 1 is a view in plan of one form of torpedo blank constructed in accordance with the present invention. Fig. 2 is a transverse sectional view through a torpedo constructed from the blank shown in Fig. 1. Fig. 3 is a perspective detail view of a complete torpedo constructed from the blank shown in Fig. 1. Fig. 4 is a vertical longitudinal sectional view through a torpedo, showing a slightly modified form of blank. Fig. 5 is a view in plan of a slightly modified form of torpedo. Fig. 6 is a vertical sectional view through a torpedo constructed from the blank shown in Fig. 5.

Fig. 7 is a vertical sectional view through a further modified form of torpedo.

The blank, shown in Fig. 1, is constructed from pasteboard, fiber, or other suitable material that is non-metallic and which is capable of absorbing or becoming thoroughly impregnated with any suitable water-proofing material. The blank is constructed from a single piece of such material, and consists of three approximately circular members 1, 2, and 3 that are connected by constricted necks 3^a. The members 1 and 3, as shown in Fig. 2, are flat, while the member 2 is stamped up to form an approximately semi-spherical chamber 4 in which the explosive is placed. In constructing a torpedo with this form of blank, after the explosive has been placed in the chamber 4, one of the members, say the member 1, is folded over against the member 2 and is secured to the periphery thereof by a suitable water-proof cement. The attaching member or binding strap 5, which is made of a length of easily bendable metal, preferably of thin sheet lead, is then disposed against the member 3, and the member 1 is then folded over against the member 3 and is secured thereto by a water-proof cement. As the binding strap is below the explosive, it follows that when the torpedo is exploded, the strap will remain in position upon the rail and as the shell is of light and soft material, it will either be wholly consumed by the heat of the explosion of the powder or will simply scatter without doing any harm.

In the form of the invention shown in Fig. 4, the shell is composed of four parts, namely, a powder chamber or receptacle 6, an annulus 7 cemented thereto, a closure or backing 8, and a binding strap retainer 9, all of these parts being constructed of a fibrous water-proof material. The chamber is provided with a peripheral flange 10 to which the annulus 7 is cemented, and to this flange the backing 8 will also be cemented. The binding strap 11 is placed against the backing 8 and the retainer 9 is then cemented to position.

In the form of the invention shown in Fig. 5, a novel means is provided for attaching the binding strap to the member 1 of the torpedo blank. This device consists of a metallic clip 12 constructed from sheet metal, such as tin, and having four arms 13, the terminals of which are bent around the member 1 to secure it in position, as shown

at 14 in Fig. 6. At the center portion of the clip, the metal is incised to provide two lips or clamps 15 that operate to hold the binding strap 16 in position.

5 In the form of the invention shown in Fig. 7, the ordinary form of spring clip 17 is employed, and this is held in place by the clamps 15 in the same manner as the holding strap 16. Inasmuch as the clip will lie
10 upon the rail and beneath the torpedo when the latter explodes, there will be no danger of its flying laterally and inflicting injury.

Torpedoes constructed from the shells herein shown, will be found in every particular as efficient as those employing metallic shells, but will have the added advantages of being cheaper to manufacture and
15 of being harmless when exploded.

I claim:—

20 1. A torpedo shell constructed from a single piece of fibrous material thoroughly saturated with a water-proofing material and embodying three approximately circular
25 members connected by constricted necks, two of which circular members are flat, and one

of which is approximately semi-spherical, to constitute an explosive receiving chamber, one of the flat members constituting a closure for the said chamber, and the other a means of connection with the attaching device. 30

2. A torpedo shell constructed from a single piece of fibrous material thoroughly saturated with water-proofing material and embodying three approximately circular
35 members connected by constricted necks, the two terminal members of which shell are flat, and the intermediate one approximately semi-spherical, to constitute an explosive receiving chamber, one of the flat members being arranged to be cemented to the said
40 chamber, and the third to inclose the intermediate portion of an attaching device.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses. 45

ERASTUS S. LAFFERTY.

Witnesses:

JAMES K. ARNOLD,
JAMES BARR.