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MEANS FOR PREVENTING ATTACKS OF TORPEDOES AND THE LIKE.

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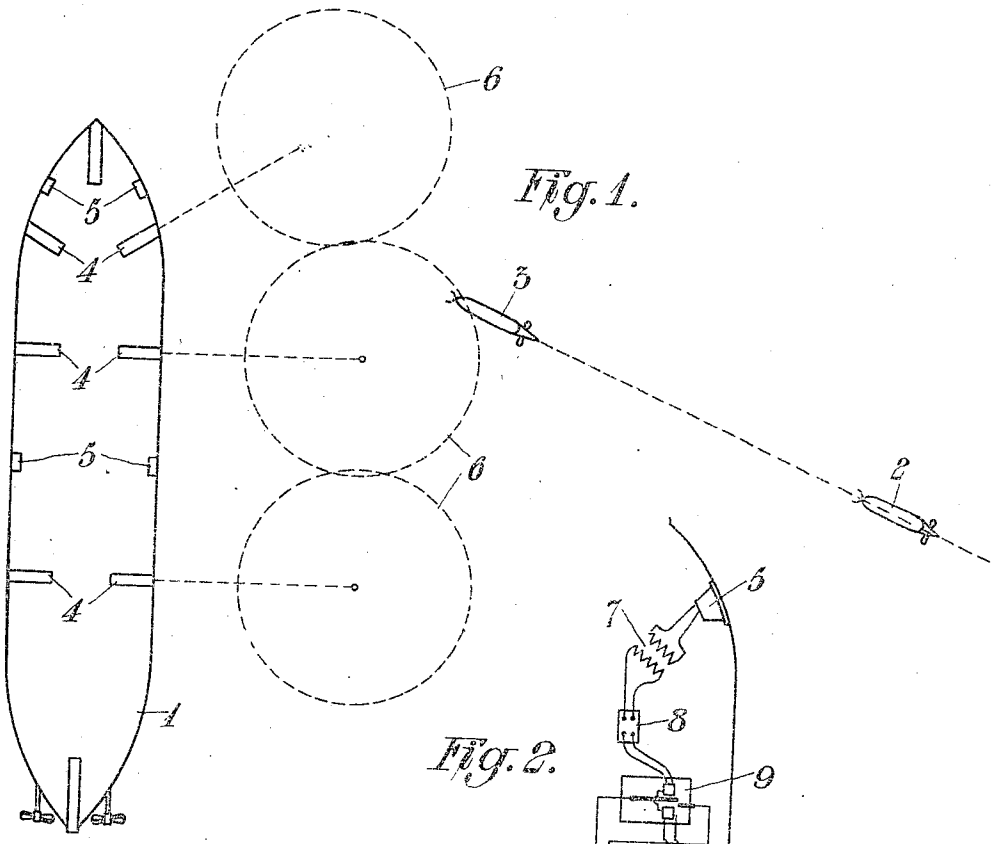


Fig. 1.

Fig. 2.

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MEANS FOR PREVENTING ATTACKS OF TORPEDOES AND THE LIKE.

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To all whom it may concern:

Be it known that I, KARL OSKAR LEON, a subject of the King of Sweden, residing at Stockholm, in the Kingdom of Sweden, have invented a new and useful Improvement in Means for Preventing Attacks of Torpedoes and the like, of which the following is a specification, reference being had to the drawing accompanying and forming part of the same.

This invention relates to a method of preventing attacks of torpedoes, mines, and the like, as for instance on battle ships, and means for carrying the said method into practice.

As is well known, the submarine arms, such as torpedoes and torpedo mines, are becoming an increasing danger to the battle ships in proportion to the perfection of the submarine craft. This danger is already so great, as to induce certain, quite qualified people to speak of the disappearing of the battle ships. Although this opinion might be exaggerated, it is, however, a fact, that the danger of submarine attacks is very great, especially as the battle ships at present are in possession of no means for preventing effectively such attacks.

To protect the battle ships against submarine attacks various means have been proposed and in part tried, such as armoring the bottoms, different kinds of cell systems, etc., and besides, so called torpedo nettings, which have long time been in use. All the said means are, however, as inefficient as unreliable. The torpedo nettings may be cut by means of torpedo scissors, and no cell system might be able to protect a vessel against a well conducted torpedo attack. Said means have been failures, because they tend in a wrong direction, since they are merely defensive and serve only to limit the damage caused by the explosions.

The object of the present invention is, on the contrary, to destroy the attacking torpedoes, ere they have come in a dangerous proximity to the mark, or to cause them so to alter the course, that they miss the mark. To attain this object the present method consists, chiefly, in causing explosions to take place in the water at a suitable distance from the attacked object. The explosive agents necessary for this purpose are, preferably, brought to the proper place by being ejected from the object attacked, as for instance a battle ship, above the surface of water by means of tubes or guns placed above or below the surface of water and either of known construction or especially constructed for the purpose in question. The right moment of ejecting the explosive agent is, preferably, determined automatically, for instance by means of the device described below. Direct watching of the path of the attacking torpedo may, however, under certain circumstances be used.

In the accompanying drawing is shown a device for carrying the aforesaid method into practice.

Figure 1 shows a battle ship provided with ejecting tubes, and the arrangement of said tubes relatively to each other. Fig 2 shows a device for discharging automati cally the tubes.

Referring to Fig. 1 of the drawing, 1 designates a vessel, for instance a battle ship exposed to a torpedo-attack, say of a submarine vessel, and 2, 3 designate the torpedo at different points of its path of movement. The battle ship is provided with a number of torpedo-tubes 4 and sound-receptors or telephonic receivers 5, for instance of the type used in submarine signaling apparatus. According to the invention said torpedo-tubes 4 are so located and directed that the explosive agents ejected explode at such a distance, that the arising spheres of explosion 6, within which the explosions are operative, touch or intersect one another. If charges of about 100 kilograms be used, 3 or 4 tubes are to be placed at each side of a battle ship of ordinary size. If guns be used to eject the charges, which may suitably be called defence torpedoes, the number of the guns to be chosen is somewhat greater, since smaller charges must be used.

The telephonic receivers may, preferably, be electrically connected with the discharging mechanisms of the torpedo-tubes 4, for instance in the manner illustrated in Fig. 2. 7, 7 designate induction coils (transformers), 8, 8 are converters converting the alternating current created in the receivers into continuous current, and 9 is a sensitive relay, which, when brought into activity by a current passing from the receivers 5, closes a circuit for sending a relatively strong current from the battery 10, said current acting to blow the electrical fuses of the discharging mechanisms, opening a valve,

which admits compressed air, if discharging mechanisms of that kind be used, or something equivalent.

When passing through the water, a torpedo, as is well known, gives off a peculiar metallic sound, which acts on the receivers 5, thereby creating electric currents, the strength of which increases, according as the torpedo approaches. The relay 9 is so adjusted, that the current from the battery 10 is closed, when the torpedo is at a distance from the battle ship of say 150 to 200 meters. All of the charges or defending torpedoes of the ship-side attacked can thus be ejected automatically at the same moment. The charges ejected are provided with time-fuses or other time- or distance-ignition devices in order to be exploded simultaneously and at suitable distances (75 to 100 meters) from the ship (see Fig. 1). Consequently, the attacking torpedo enters the spheres of explosion of the defence torpedoes and is thereby exploded and destroyed. If it should happen that the distance of the torpedo attacking is very erroneously estimated the strong pressure caused by the explosions and the powerful currents of water created thereby, will nevertheless alter the course of the torpedo attacking, which, consequently, will miss the mark. The pressure of explosion will also act upon the depth regulating mechanism of the torpedo, so that it rises to the surface of the water.

The charges of the defending torpedoes should, preferably, be provided with horizontal helms or gyroscopical devices adapted to keep them at a suitable depth below the surface of the water, in order that the explosions may act as powerfully as possible. If devices of the latter kind are used, the defence torpedo should, preferably, be provided with steering planes, so that it passes down into water to a suitable depth, before the explosion takes place.

In case the relay is not quite reliable, one may use common ear-trumpets and personally determine the moment of explosion of the defending torpedos. By some practice one will be able to determine easily the distance to the attacking torpedo.

The above-mentioned facts are also applicable to guns used for ejecting the charges or defence-torpedoes. Such guns should be placed as high as possible. If guns especially constructed for the purpose are used, the caliber is to be chosen as great as possible, the length, on the contrary, should, preferably, be small. The type to be preferred is that of a short mortar.

Obviously, the method described may be used for effecting counter-mining or for destroying a mine-field. In this case a sufficient number of charges is ejected from the stem of the ship to effect a series of explosions, which destroy all the mines situated in the course of the ship.

I claim:

1. Means for preventing attacks of torpedoes or the like, consisting in devices arranged on the object attacked to eject explosive charges into the water and so placed and directed, that the ranges of explosion effected by the different devices touch or intersect one another, substantially as and for the purpose set forth.

2. In means for preventing attacks of torpedoes or the like, the combination of devices arranged on the object attacked to eject explosive charges into the water, means for discharging said devices, and sound-receivers placed on the object attacked and arranged to actuate, on account of the sound of the approaching torpedo, the said discharging means, substantially as and for the purpose set forth.

3. In means for preventing attacks of torpedoes or the like, the combination of devices arranged on the object attacked to eject explosive charges into the water, means for discharging said devices, sound receivers placed on the object attacked and arranged to actuate, on account of the sound of the approaching torpedo the said discharging means, and relays connecting electrically said sound receivers and said discharging means, substantially as and for the purpose set forth.

4. In means for preventing attacks of torpedoes or the like, the combination of devices arranged on the object attacked to eject explosive charges into the water, and distance-igniting devices placed in said charges and arranged to cause the charges to explode at suitable distances, substantially as and for the purpose set forth.

5. In means for preventing attacks of torpedoes or the like, the combination of devices arranged on the object to be defended and adapted to eject explosive charges into the water, and time-igniting devices placed in said charges and several so timed so as to ignite simultaneously, substantially as and for the purpose set forth.

KARL OSKAR LEON.