Dec. 21, 1943. J. M. OLASZY 2,337,165

PROTECTING DEVICE FOR SHIPS AND OTHER STRUCTURES SUBJECT TO ENEMY ATTACK

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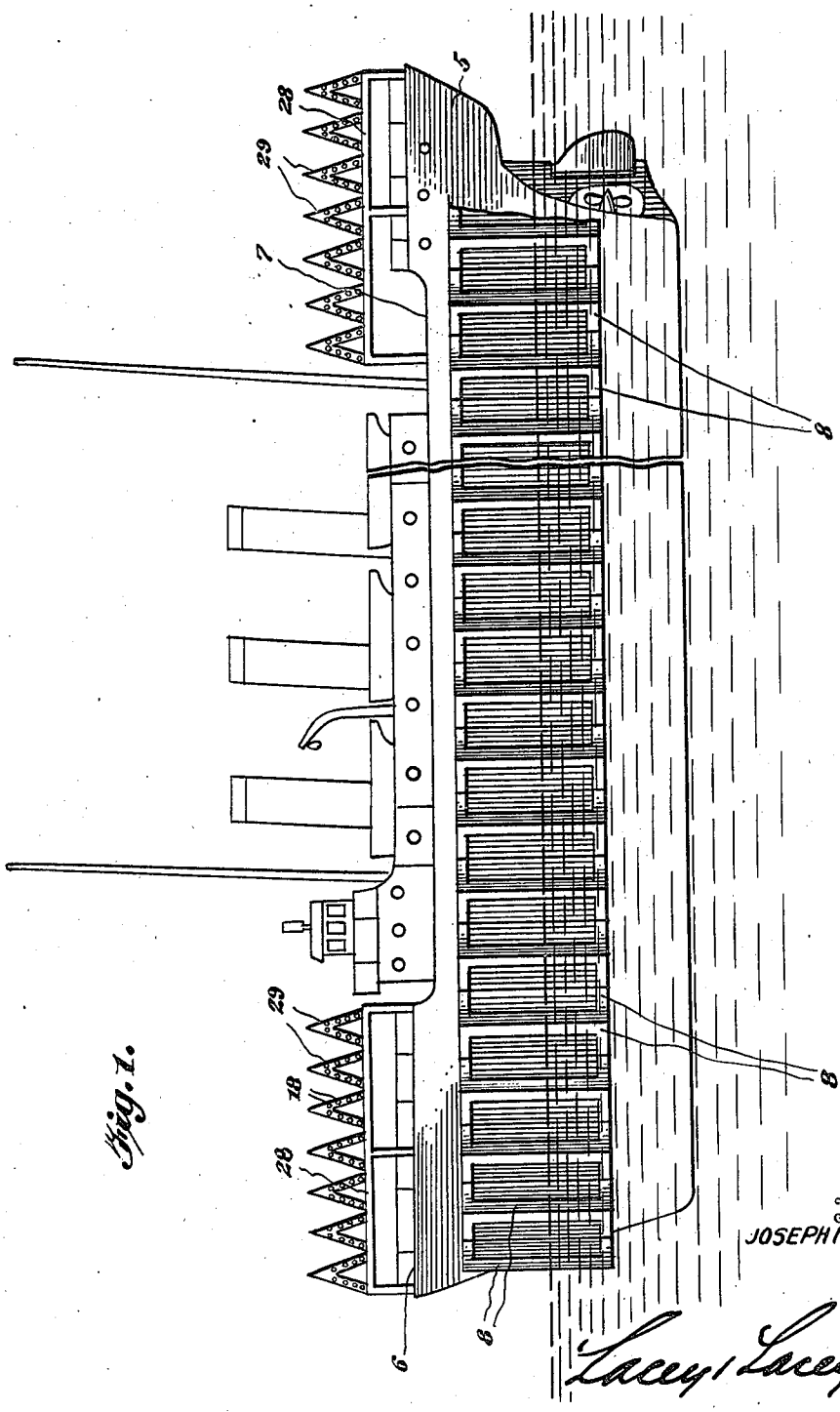


Fig. 1.

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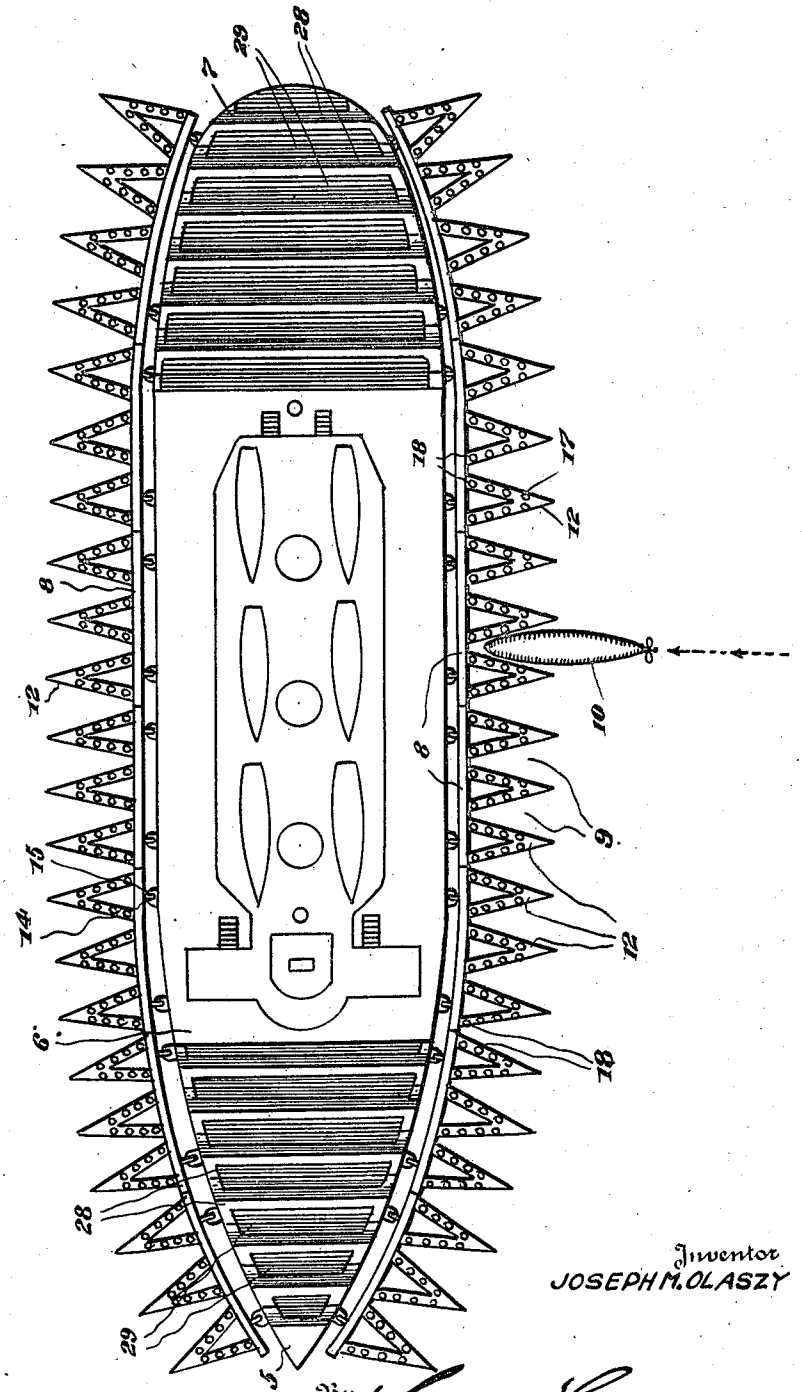
Lacey & Lacey Attorneys

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Fig. 2.



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Fig. 3.

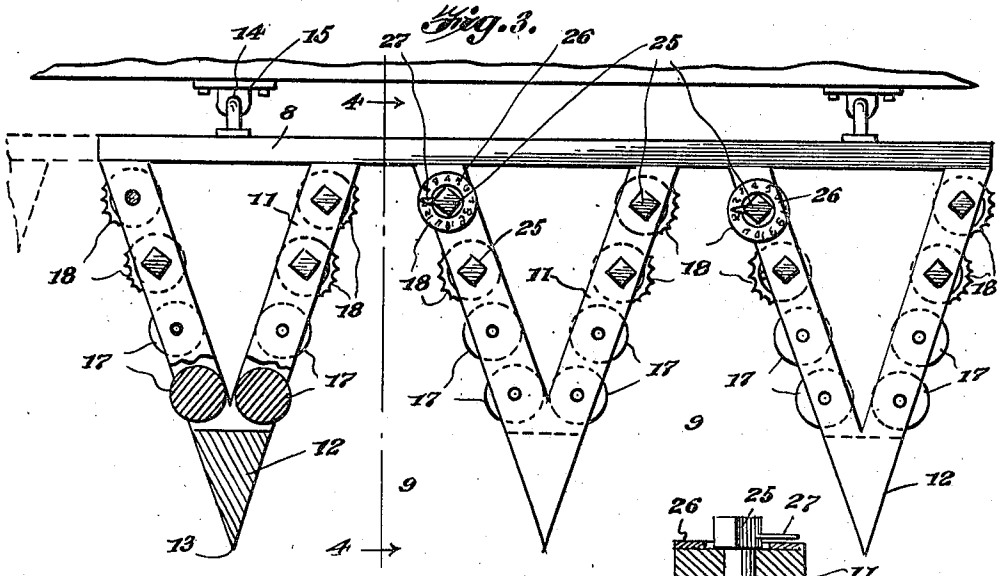


Fig. 4.

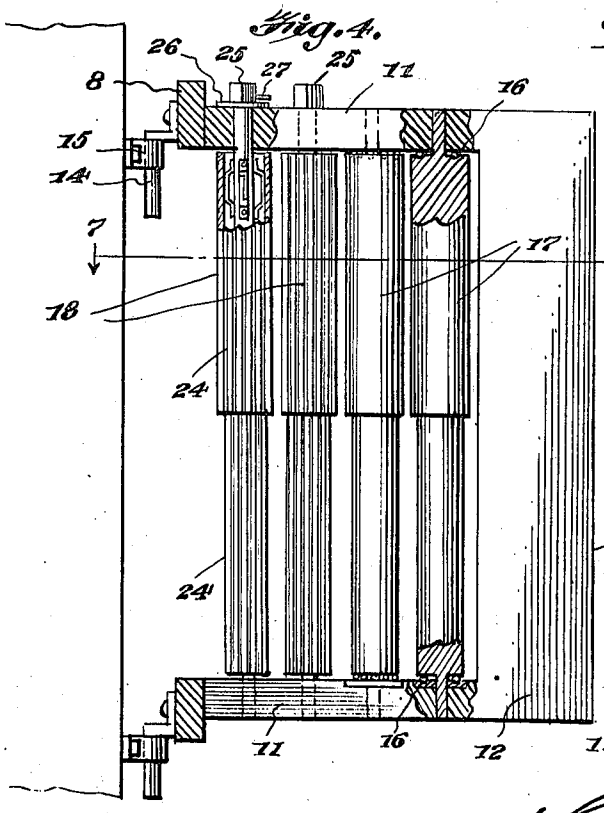


Fig. 5.

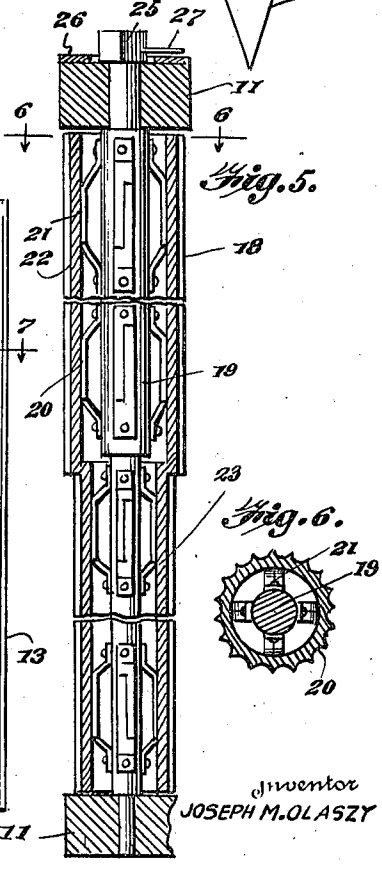


Fig. 6.

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Fig. 7.

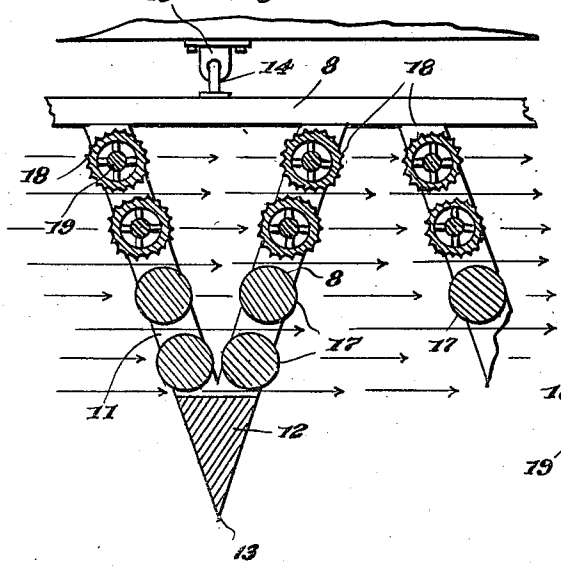


Fig. 8.

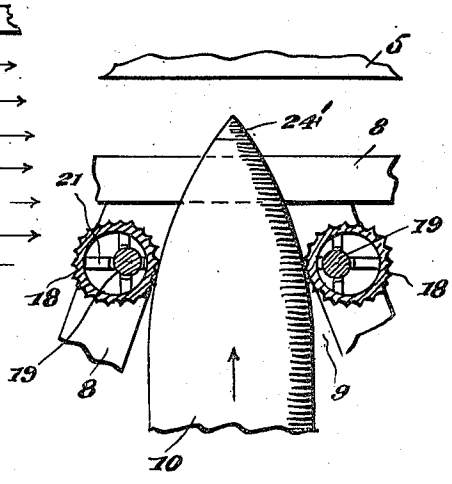
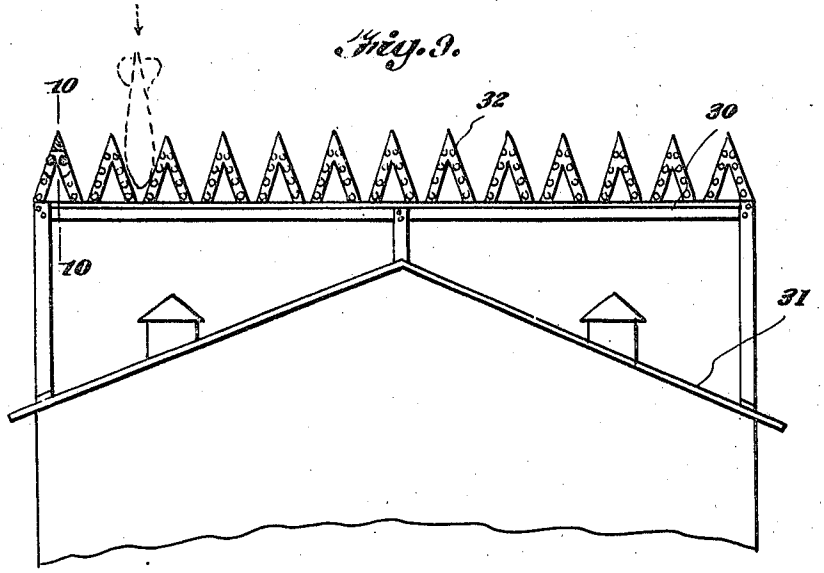


Fig. 9.



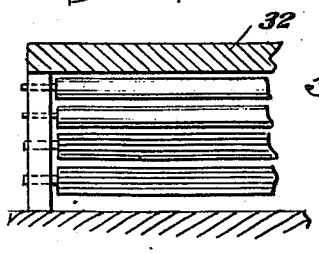


Fig. 10.

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Fig. 11.

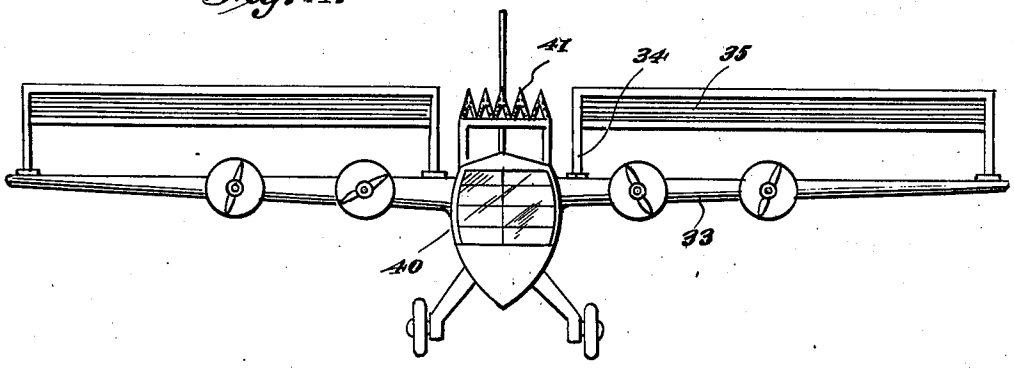


Fig. 12.

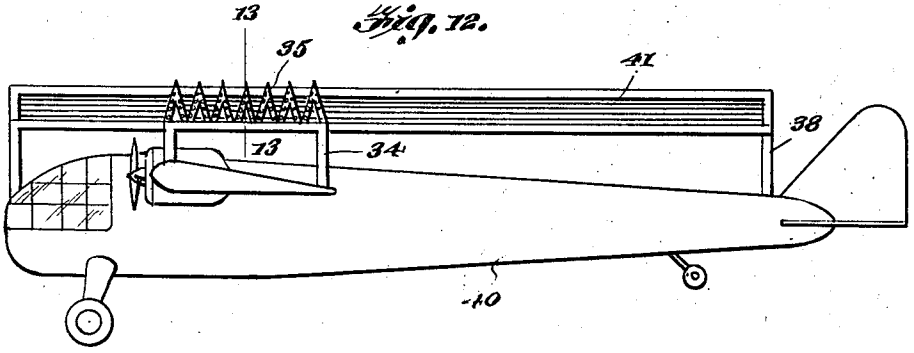
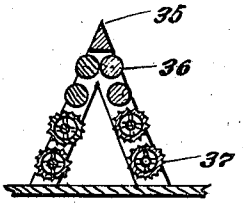


Fig. 13.



Fig. 14.



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Patented Dec. 21, 1943 2,337,165

UNITED STATES PATENT OFFICE

2,337,165

PROTECTING DEVICE FOR SHIPS AND OTHER STRUCTURES SUBJECT TO ENEMY ATTACK

Joseph M. Olaszy, Jamaica, N. Y.

Application March 8, 1943, Serial No. 478,396

12 Claims. (Cl. 114—240)

This invention relates to protective devices and more particularly to a device for protecting ships, airplanes, buildings, and other structures subject to enemy attack, from total or partial destruction due to the impact of aerial projectiles or to the explosion of torpedoes, shells, and other forms of ammunition used in modern warfare.

The object of the invention is to provide a guard or shield especially designed for installation on all types of marine craft for intercepting and preventing the explosion of torpedoes launched against a vessel by an enemy ship and thus prevent or minimize damage to said vessel.

A further object of the invention is to provide a guard or shield including a plurality of separate units adapted to be detachably suspended from the sides or other portions of a ship and provided with means for intercepting and holding a launched torpedo a safe distance from the ship with its war nose intact, thereby to render the torpedo harmless for destructive purposes.

A further object is to form the guard units with substantially V-shaped members spaced apart to define intermediate converging passages or pockets adapted to receive a launched torpedo, there being guide rollers mounted for rotation on said members near the free or pointed ends thereof for directing said torpedo within the adjacent passage, and gripping rollers at the rear of the guide rollers for automatically gripping the torpedo and preventing detonation of the war nose thereof.

A further object is to construct the gripping rollers of inner and outer nested sections yieldably supported in spaced relation by suitable springs so as to allow the outer sections of the gripping rollers to yield under impact of a torpedo coming in contact therewith and grip said torpedo and, further, to provide the upper ends of the gripping rollers with visual indicators for determining when a launched torpedo has been trapped between said gripping rollers.

A further object is to provide a torpedo guard or protecting device, the construction of which is such that, regardless of the direction of travel of a torpedo in its passage toward a ship, the war nose thereof cannot impact against a solid surface and thereby cause explosion of the detonating charge of the torpedo in the vicinity of said ship.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

In the accompanying drawings:

Figure 1 is a side elevation of a ship provided with a protecting device or guard constructed in accordance with the present invention.

Figure 2 is a top plan view.

Figure 3 is an enlarged top plan view of one of the guard units showing the manner of suspending the same from the side of a ship.

Figure 4 is a vertical sectional view taken on the line 4—4 of Figure 3.

Figure 5 is an enlarged vertical sectional view of one of the gripping rollers.

Figure 6 is a transverse sectional view taken on the line 6—6 of Figure 5.

Figure 7 is a transverse sectional view taken on the line 7—7 of Figure 4.

Figure 8 is an enlarged transverse sectional view showing how the gripping rollers are actuated by impact with a launched torpedo to grip the same and prevent detonation of the war nose thereof.

Figure 9 is a side elevation showing the device mounted on the roof of a building or other structure to prevent damage thereto by aerial projectiles.

Figure 10 is a detail vertical sectional view taken on the line 10—10 of Figure 9.

Figure 11 is a front elevation of an airplane equipped with the improved protecting device.

Figure 12 is a side view thereof.

Figure 13 is a vertical sectional view taken on the line 13—13 of Figure 12.

Figure 14 is a vertical sectional view taken on the line 14—14 of Figure 13.

The improved protecting device forming the subject of the present invention may be used on any structure subject to enemy attack and, in Figure 1 of the drawings, is shown applied to a ship or vessel to prevent or minimize damage thereto incident to the launching of a torpedo thereagainst by an enemy ship or airplane.

Any type of vessel, such as warships, transport ships, or commercial ships, may be equipped with the improved protecting device and, by way of illustration, there is shown a ship of conventional construction in which the numeral 5 indicates the hull thereof, 6 the forward deck, and 7 the aft deck.

The device comprises a protecting guard or shield formed of a plurality of independent sections or guard units 8 adapted to be suspended from the opposite sides of the hull and, if desired, from the bow and stern thereof, said units being constructed of metal or other suitable material and provided with a plurality of pockets or passages 9 adapted to receive an incoming launched torpedo indicated at 10. The opposite

side walls of the pockets converge inwardly in the direction of the hull of the vessel so that the outer portion of each pocket presents a wide mouth to permit easy entrance of a torpedo while the inner portion of each pocket is constricted to retard forward movement of the torpedo, in a manner to be hereinafter explained.

Each guard unit comprises upper and lower V-shaped members or bars 11 connected at their forward or pointed ends by a vertically disposed solid deflecting abutment 12 having a terminal knife edge 13 and which abutments serve to guide or deflect an approaching torpedo within the adjacent passage or pocket 9. The units 8 may be made in any desired length and are suspended from the hull of the ship by means of depending pins 14 which detachably fit within perforated brackets 15 secured to the adjacent side of the hull, as best shown in Figure 4 of the drawings.

Mounted for rotation in suitable ball bearings 16 on the bars 11 of the guard units 8, are guide roller 17, said rollers being disposed at the rear of the deflecting abutments 12 and serving to assist in guiding a launched torpedo in contact with the gripping rollers indicated at 18. The gripping rollers 18 are mounted for rotation on the guard units 8 at the rear of the guide rollers 17, each gripping roller being formed of inner and outer nested sections 19 and 20 normally and yieldably supported in spaced relation to each other by longitudinal springs 21 secured to the inner section 19 and yieldably engaging the inner wall of the outer section 20. The outer sections 20 of the gripping rollers are of different cross sectional diameter, the upper portion 22 of each outer section being of greater diameter than the lower portion 23 thereof so that the upper portions of the gripping rollers will intercept and minimize the destructive action of projectiles fired at the vessel, while the lower portions 23 of the gripping rollers are reduced in cross sectional diameter to intercept an incoming launched torpedo and prevent the explosion thereof. The outer sections 20 of the gripping rollers are preferably corrugated or serrated longitudinally, as indicated at 24, so as to present a roughened surface to an incoming torpedo and thus assist in holding the same.

When a launched torpedo approaches the vessel, it will be directed by the abutments 12 and rollers 17 within the adjacent pocket 9 and when the side walls of the torpedo come in contact with the outer sections 20 of the gripping rollers, the impact of the torpedo thereagainst will move said outer sections laterally against the tension of the springs 21 and, at the same time, the outer sections will be partially rotated so as to firmly grip the torpedo with the war nose 24' thereof spaced from the side of the ship, thereby to render the torpedo harmless for destructive purposes, as best shown in Figure 8 of the drawings. The upper ends of the inner members 19 of the gripping rollers are provided with squared heads 25 adapted to be engaged by a wrench or other suitable tool for rotating the gripping rollers to release the torpedo when desired, it being understood that the friction between the springs 21 and the outer sections 22 of the gripping rollers is such as to cause the inner and outer sections of the gripping rollers to move in unison while, at the same time, allowing the outer sections 22 to move laterally with respect to the inner sections.

As a means for determining whether a torpedo has been trapped between the gripping rollers there is provided a graduated dial 26 secured to the guard unit 8 and which cooperates with a pointer 27 secured to the adjacent squared head 25, the position of the pointer with respect to the graduations on the dial 26 serving to indicate the extent of rotation of the gripping rollers and thus enable the crew of the ship to ascertain from the deck thereof when a launched torpedo has been trapped between said gripping rollers.

It will here be noted that the gripping rollers are so disposed at the converging ends of the guard units 8 that two of said gripping rollers will face each other and cooperate to grip and hold a torpedo entering the adjacent pocket of the guard unit and, as the outer sections of said guard units are yieldably supported with respect to the inner sections, a cushioning effect is produced and damage to said gripping roller is reduced to a minimum.

It will furthermore be noted, particularly by reference to Figure 7 of the drawings, that inasmuch as the guide rollers 17 and gripping rollers 18 are spaced apart vertically, intermediate passages are formed therebetween which will permit the flow of water therethrough so that said guard units do not form a material obstruction to the progress of a vessel through the water.

Arranged in spaced relation to the forward and aft decks of the hull of the vessel is a superstructure 28 having a plurality of guard units 29, similar in construction to the guard units 8 with the exception that the guard units on the superstructure extend in a vertical plane therefrom so as to intercept and retard aerial projectiles which may be launched against the ship from airplanes and the like. If desired, however, the superstructure 28 may extend the entire length of the ship, in which event, said superstructure will be so fashioned that the guard units mounted thereon will protect the smoke stacks, pilot house and adjacent portions of the vessel.

In Figures 9 and 10 of the drawings, there is illustrated a modified form of the invention particularly designed to protect private dwellings, office buildings, and other structures, from the destructive action of enemy projectiles. When the device is used in this manner, a framework 30 will be erected directly on the building or in spaced relation to the roof 31 thereof, and a plurality of vertical guard units 32 of the construction previously described, mounted on said framework.

A further form of the invention is illustrated in Figures 11 to 14 inclusive, in which the protecting device is shown in connection with an airplane 33 of standard construction. When the device is used for protecting aircraft, a supporting frame 34 is secured to the upper surface of each wing of the airplane in spaced relation thereto and preferably extending the entire length thereof and on this supporting frame are mounted vertically disposed guard units 35 provided with guide rollers 36 and gripping rollers 37 for intercepting different kinds of aerial projectiles. A similar frame 38 also extends longitudinally of the fuselage 40 at the top thereof, said frame being provided with guard units 41.

It will, of course, be understood that the guard units may be made in any desired lengths and, when suspended from the hull of a ship, the lower or reduced ends of the gripping members will be

disposed below the waterline of the vessel so as to intercept torpedoes while the upper or larger ends of said gripping members will be arranged above the waterline so as to intercept any kind of projectile fired at the vessel by an enemy ship.

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art and further description thereof is deemed unnecessary.

Having thus described the invention, what is claimed is:

1. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with pockets for receiving a projectile, and gripping members mounted for rotation on said unit at opposite sides of the pockets for gripping and holding an incoming projectile.

2. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with pockets having their side walls converging inwardly and adapted to receive a launched projectile between them, guide rollers mounted on said unit at opposite sides of the pockets near the outer ends thereof, and gripping members mounted for rotation at the rear of said guide rollers for gripping and holding an incoming projectile.

3. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with substantially V-shaped pockets for receiving a launched projectile, the converging side walls of adjacent pockets intersecting to form knife edge abutments for deflecting the projectile into the adjacent pocket, and gripping rollers mounted for rotation on said unit at the rear of said knife edge abutments for gripping and holding an incoming projectile.

4. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with pockets having inwardly converging side walls and adapted to receive an incoming launched projectile between said side walls, and gripping members carried by said unit at the converging walls thereof and each comprising inner and outer sections mounted for rotation on said unit, and springs interposed between said sections for yieldably supporting the sections in spaced relation, said gripping members serving to grip and hold an incoming projectile.

5. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with pockets having inwardly converging side walls and adapted to receive a projectile between said side walls, and roughened gripping rollers yieldably mounted for rotation on the opposite side walls of said pockets for gripping and holding an incoming projectile.

6. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with pockets having inwardly converging side walls and adapted to receive a launched torpedo between said side walls, gripping members yieldably mounted for rotation on the opposite side walls of said pockets for gripping and holding the torpedo, and an indicator operatively connected with certain of the gripping members for indicating the extent of rotation of said gripping members.

7. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with pockets having inwardly converging side walls and adapted to receive a launched torpedo, gripping rollers of varying cross sectional diameter yieldably mounted for rotation on the opposite side walls of said pockets, said gripping rollers each comprising inner and outer sections yieldably supported in spaced relation to each other, an index plate mounted on the guard unit, and an angular head formed on the inner section of each gripping roller and provided with a pointer movable over the surface of the adjacent index plate for indicating the extent of rotation of said gripping rollers.

8. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided with pockets having inwardly converging side walls adapted to receive a launched torpedo between said side walls, said guard unit being provided on the outer edges of the walls of the pockets with terminal deflecting abutments, gripping rollers yieldably mounted for rotation on the opposite side walls of said pockets at the rear of the abutments and each comprising an outer longitudinally corrugated section having its lower portion reduced in cross sectional diameter and an inner section spaced from the outer section, and springs interposed between said sections.

9. The combination with a structure subject to enemy attack, of a guard unit mounted on said structure and provided wtih spaced pockets opening outwardly and formed at their open ends with deflecting abutments, the side walls of the pockets converging in the direction of said structure and adapted to receive a launched projectile between them, and gripping rollers yieldably mounted for rotation on said converging side walls, said rollers having their lower portions offset inwardly and adapted to engage and grip a torpedo and their upper portions of greater cross sectional diameter than their lower portions and adapted to intercept a projectile.

10. The combination with a ship's hull, brackets secured to the opposite sides of the hull, a guard unit comprising separate sections each provided with a pocket having inwardly converging side walls adapted to receive a launched projectile between them, hooks carried by said sections and detachably engaging adjacent brackets, and serrated gripping rollers yieldably mounted for rotation on the converging side walls of the pockets for gripping and holding an incoming projectile.

11. The combination with a ship's hull, of a guard unit suspended from the hull and provided with pockets having side walls, and gripping rollers yieldably mounted for rotation on the side walls of the pockets, the lower portions of said rollers being adapted to grip and hold an incoming launched torpedo and the upper portions of the rollers being of greater cross sectional diameter than the lower portions and adapted to intercept and retard the movement of an incoming projectile.

12. The combination with a marine craft including a hull, of a plurality of horizontally and vertically disposed guard units mounted on the hull and provided with spaced pockets having oppositely disposed converging side walls, and gripping rollers yieldably mounted for rotation on the side walls of the pockets for gripping and holding an incoming projectile.

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