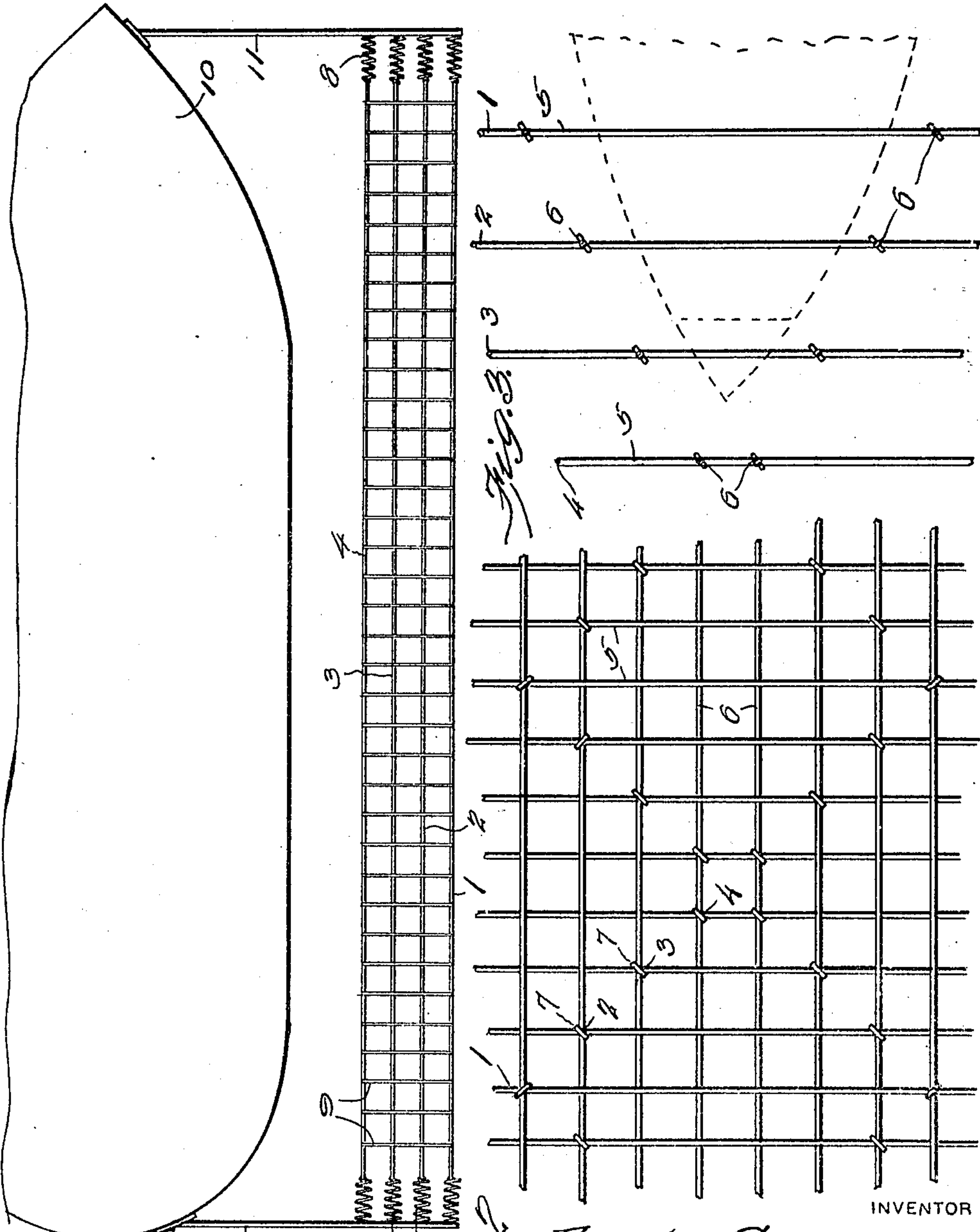


F. GARACA.
SHIP PROTECTOR.
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1,298,325.

Patented Mar. 25, 1919.



WITNESSES

[Signature]

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Fig. 1

Fig. 2

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FRANK GARACA, OF BESSEMER, ALABAMA.

SHIP-PROTECTOR.

1,298,325.

Specification of Letters Patent.

Patented Mar. 25, 1919.

Application filed September 29, 1917. Serial No. 194,051.

To all whom it may concern:

Be it known that I, FRANK GARACA, citizen of the United States, residing at Bessemer, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Ship-Protectors, of which the following is a specification.

This invention is a ship protector and has special reference to devices which are designed to protect ships against torpedo attacks.

One object of this invention is the production of a ship protector which is mounted upon the ship to protect the same against torpedo attacks, although presenting a small resistance to the movement of the ship.

Another object of this invention is the production of a ship attachment which is provided with a plurality of yieldably supported nets, whereby when a torpedo engages the nets they will yield so as to limit the movement of a torpedo.

A still further object of this invention is the production of a ship protector wherein yieldably supported nets are positioned in substantially parallel relation in respect to each other, these nets being formed of wire having pockets formed therein, the pockets diminishing in size from the outer nets to the inner nets, whereby the torpedo will be caught by its nose and directed into the pocket formed in the path of its movement, thus causing the yieldable nets to stop the torpedo.

With these and other objects in view, this device consists of certain novel combinations, constructions, and arrangements of parts, as will be hereafter fully described and claimed.

One practical form of construction and assembly will be described and illustrated in the accompanying drawing, in which,

Figure 1 is a top plan view of the ship protector showing the same as it appears when in use.

Fig. 2 is a fragmentary side elevation of a portion of the ship protector to illustrate the construction of one of the pockets, and

Fig. 3 is a fragmentary sectional view through a portion of the nets further illustrating the projection of the pocket and illustrating in dotted lines the manner in which the nose of the torpedo is directed into one of these pockets.

Referring to the accompanying drawings

by numerals it will be seen that the ship protector is to be used in connection with a ship as indicated in general at 10.

The supporting arms 11 are provided with plates 12 fixedly secured by the elements 13 adjacent each end of the ship 10. These arms 11 are elongated and for this reason project for a considerable distance beyond the sides of hull of the ship as shown clearly in Fig. 1.

The nets of the protector comprise an outer net 1, an interposed net 2 and an auxiliary interposed net 3 and the inner net 4. It is of course obvious that any number of these nets desired may be used in connection with this invention without departing from the spirit of the device.

Each net is formed of a plurality of vertical strands 5 and horizontal strands 6. It will be noted that these horizontal and vertical strands may be bound together as shown at 7 or may be secured in any other desired manner.

By referring particularly to Fig. 2, it will be noted that the vertical strands of the outer nets are the farthest apart while the vertical strands of the inner nets are the closest together, this construction being somewhat similar to the arrangement of the horizontal strands. As a result pockets will be formed every few feet throughout the entire length of the protector upon each side of the ship and these pockets will be of substantially pyramid shape. As a result a torpedo which engages the protector will be directed into one of the pockets and the nose of the torpedo will be firmly gripped so as to stop the movement of a torpedo. The coil springs are secured at their ends to the arms 11 and also to the ends of the nets of the protector. It is of course obvious that the connection may be made in any manner desired, as it is the function of these springs to yieldably support the nets at their ends upon the arms 11. It will further be noted, by referring to Fig. 1 that the strands 9 may be secured at the top or lower portions of the nets, for properly spacing the nets intermediate their ends, in this way holding the same from sagging when in operation.

From the foregoing description it will be seen that a very efficient ship protector has been provided such as is positioned upon each side of the ship for protecting the same against torpedo attacks. It will further be

noted that as the nets are spaced from each other and the strands of each net are arranged so as to provide reduced openings toward the inner nets, these openings will
 5 present pyramid shaped pockets for deflecting the head or nose of the torpedo into a pocket which will finally engage the nose to such an extent as to stop the movement of the torpedo. It will further be noted that
 10 as the torpedo is finally engaged by all nets of the protector, the springs will yield so as to permit the protector upon one side of the ship to yield for constituting a resilient means for absorbing the shock when the
 15 rapidly moving torpedo is stopped. It is intended to have the nets formed of some non-rustable material, such for instance as copper, although, of course, it is obvious the strands may be made of steel or even hemp
 20 cables or the like may be employed, without departing from the spirit of the invention, as the main idea of the invention is to provide a number of nets having pyramid shaped pockets for the purpose specified.

25 It is of course obvious that many changes may be made in the detail construction of this invention, such for instance as the manner in which the strands are secured together, without departing from the spirit of
 30 the device and for this reason it is not intended to limit the construction of the specific form herein shown, as it is intended to include all such forms of the invention as properly come within the scope of the device
 35 as claimed.

What is claimed is:

1. In a device of the class described, the combination of a protector formed from a plurality of nets, each net having openings
 40 formed therein, the openings in said nets registering and being smaller toward the inner net thereby providing a plurality of substantially pyramid shaped pockets whereby the nose of the torpedo will be directed
 45 into said pockets for limiting the movement of such a torpedo.

2. In a device of the class described, the combination of a plurality of nets, each net formed of vertical and horizontal strands,
 50 the strands of the outer net being placed at the greatest distance apart while the strands

of the inner nets are closer together, thereby providing a plurality of converging pockets in the protector, whereby the nose of a torpedo may be gripped within a pocket
 55 for limiting the movement of the torpedo.

3. In a device of the class described, the combination of a plurality of nets, said nets being formed of substantially horizontal and vertical strands secured together, the strands
 60 of the outer net being the farthest apart, and the strands of the next succeeding nets being progressively closer together, thereby forming a plurality of converging pockets in the nets, springs connected to the ends of
 65 said nets for resiliently supporting the same, said pockets being adapted to receive the nose of the torpedo for limiting the movement of the torpedo and said springs being adapted to yield for absorbing the shock of
 70 engagement of the torpedo.

4. In a device of the class described, the combination of a plurality of arms, means for securing said arms on a ship, coil springs connected to said arms, nets connected to
 75 said coil springs, and said nets having converging pockets formed therein, said nets being adapted to receive a torpedo within a pocket for limiting the movement of the torpedo in one direction.
 80

5. In a device of the class described, the combination of arms, means for securing said arms upon the hull of a ship, spaced nets interposed between said arms, means for yieldably supporting said nets upon said
 85 arms, said nets being formed of strands, a plurality of strands extending at right angles to the remaining strands, the strands of the outer net being farthest apart and the strands of the remaining nets being progressively spaced closer together, thereby
 90 forming converging pockets in said nets, whereby a torpedo directed against said nets will be projected into one of the pockets and will be firmly gripped so as to have its movement limited.
 95

In testimony whereof I affix my signature in presence of two witnesses.

FRANK GARACA.

Witnesses:

E. E. WILSON,
 J. HOWARD McENERY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."