

P. KUHARCHEK,
SHIP FENDER.

APPLICATION FILED JULY 19, 1918.

1,296,669.

Patented Mar. 11, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

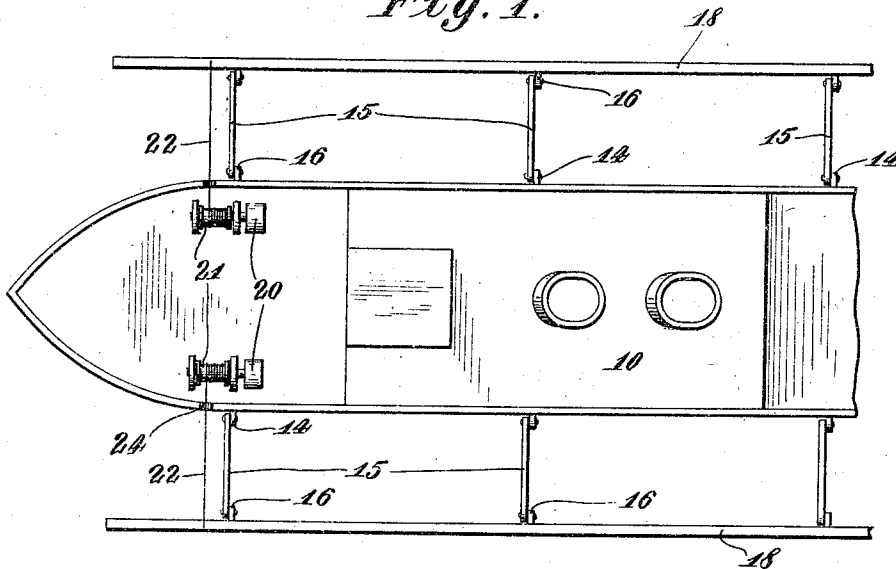
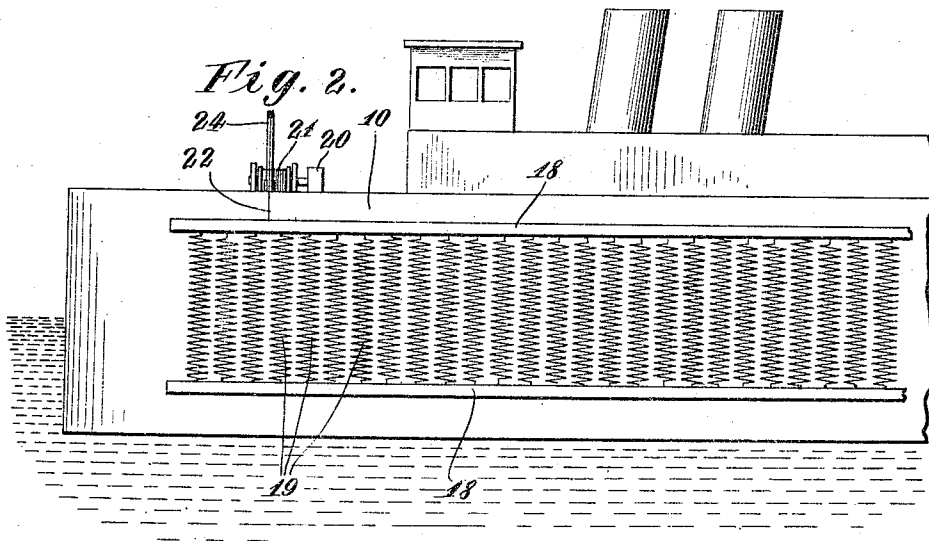


Fig. 2.



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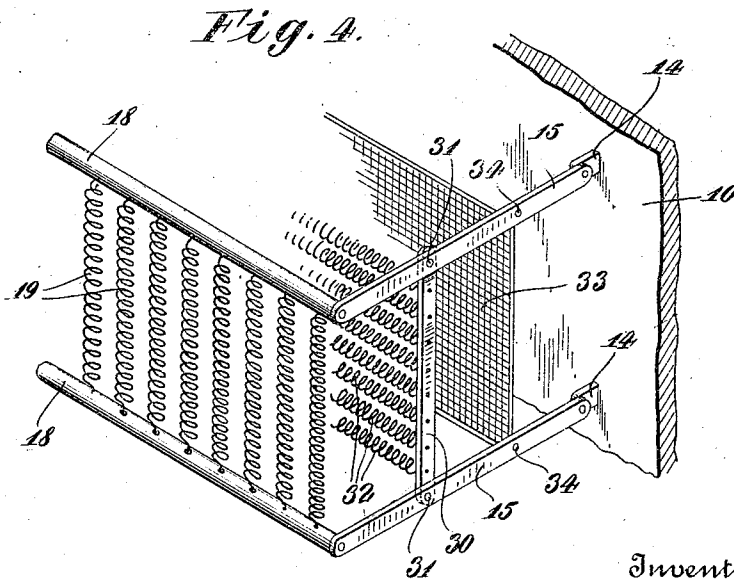
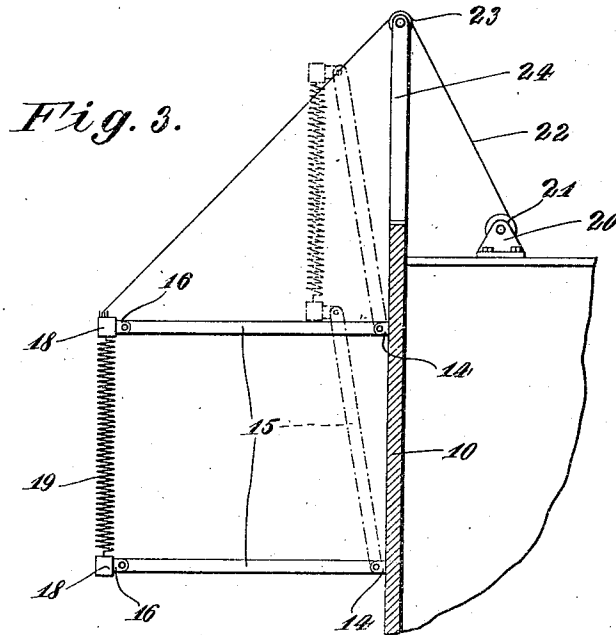
By his Attorney

Max Geier

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2 SHEETS—SHEET 2.



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PROKOFY KUHARCHEK, OF JEROME, PENNSYLVANIA.

SHIP-FENDER.

1,296,669.

Specification of Letters Patent.

Patented Mar. 11, 1919.

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To all whom it may concern:

Be it known that I, PROKOFY KUHARCHEK, a citizen of Russia, residing at Jerome, county of Somerset, and State of Pennsylvania, have invented certain new and useful Improvements in Ship-Fenders, of which the following is a specification.

This invention relates to improvements in ship fenders and particularly to types adapted to defend the ship against the attack of torpedoes, mines and like undersea projectiles.

The principal object of the invention is to provide a fender comprised of resilient elements adapted to receive the impact or blow of a projectile, when in an operative position, so as to effectually prevent damage being done to the hull of the ship.

A further object is to provide means whereby the fender may be raised or retracted when not in use so as not to impede the progress of the ship through the water.

A still further object is to provide a fender comprised of few and simple parts, easily operated and readily applied.

These and other like objects are attained by the novel construction and combination of parts hereinafter described and shown in the accompanying drawings, forming a material part of this disclosure, and in which:—

Figure 1 is a fragmentary top plan view, showing a conventional type of ship and indicating the attachment of the invention.

Fig. 2 is a side elevational view of the same.

Fig. 3 is a transverse vertical sectional view, taken through a portion of the hull of the vessel and the fender elements employed, and

Fig. 4 is a perspective fragmentary view showing a modified form of the fender elements.

Engaged with the hull of the ship 10, here conventionally represented, and possessing all of the necessary paraphernalia for propulsion and navigation, are extending lugs 14, the same being arranged at spaced intervals in two horizontal rows around the hull and pivotally engaged in them are link bars 15, the same operating in the manner of a hinge and adapted to extend horizontally outward when in an operative position, from the hull of the ship.

These bars engage with similar lugs 16 carried by rigid rails 18, arranged in rows,

parallel with the central line of the ship and at a considerable distance therefrom, according to the length of the connecting bars 15.

Extending between the pairs of rails 18 are a plurality of coiled springs 19, the same being arranged in spaced vertical relation along the entire length of the supporting rails 18.

Fixed upon the deck of the ship are winches 20, operating drums 21, to which are attached cables 22, the cables passing over pulleys 23, mounted upon the upper ends of vertical posts 24, secured upon the hull of the ship, the cables ultimately being connected, at their extreme outer ends, with the upper rails 18 in such manner that when the drums are rotated, the cables will be wound thereon and the arms 15, together with the springs 19, raised into the position shown in the broken lines in Fig. 3, thus elevating the entire structure, which normally extends downward into the water in which the ship floats, to such an extent as to offer no impediment to the progress of the ship.

In the modification shown in Fig. 4, the same identical construction is used with the addition of vertical bars 30 pivoted on pins 31 to the bars 15, and extending between the vertical bars 30 are a plurality of horizontally disposed helical springs 32, thus forming a net work, the elements of which are spaced uniformly apart.

As a further protection, a woven net 33 is suspended at its corners by the pins 34 to the bars 15 so that should a torpedo or like projectile pass the springs 19 and 32, in addition to its being retarded thereby, it will be prevented from close approach to the hull of the ship, due to the net 33, this arrangement, like that previously described, being readily raised completely out of the water by actuating the winches 20.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is.

In a ship fender, the combination with the hull of a ship, and a plurality of lugs secured in spaced relation in two rows to the sides of said hull, of link bars pivotally engaged with said lugs, said link bars being adapted to fold in the manner of a hinge, rails pivoted at the extremities of said link bars, winches fixed on the deck of the ship, cables operated by said winches, said cables

being connected with the uppermost of said rails whereby they may be raised or lowered, a plurality of coiled springs extended vertically between said rails, vertical bars pivotally secured between said link bars, other
5 coiled springs arranged horizontally and engaged at their ends with said vertical bars, and a meshed net pivotally engaged with said

link bars, all of said bars, springs and nets being raised upon the operation of said 10 winches, all substantially shown and described.

In testimony whereof I have affixed my signature.

PROKOFY KUHARCHEK.

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