April 5, 1927. J. PASINI 1,623,888

SHIP

Filed July 8, 1926

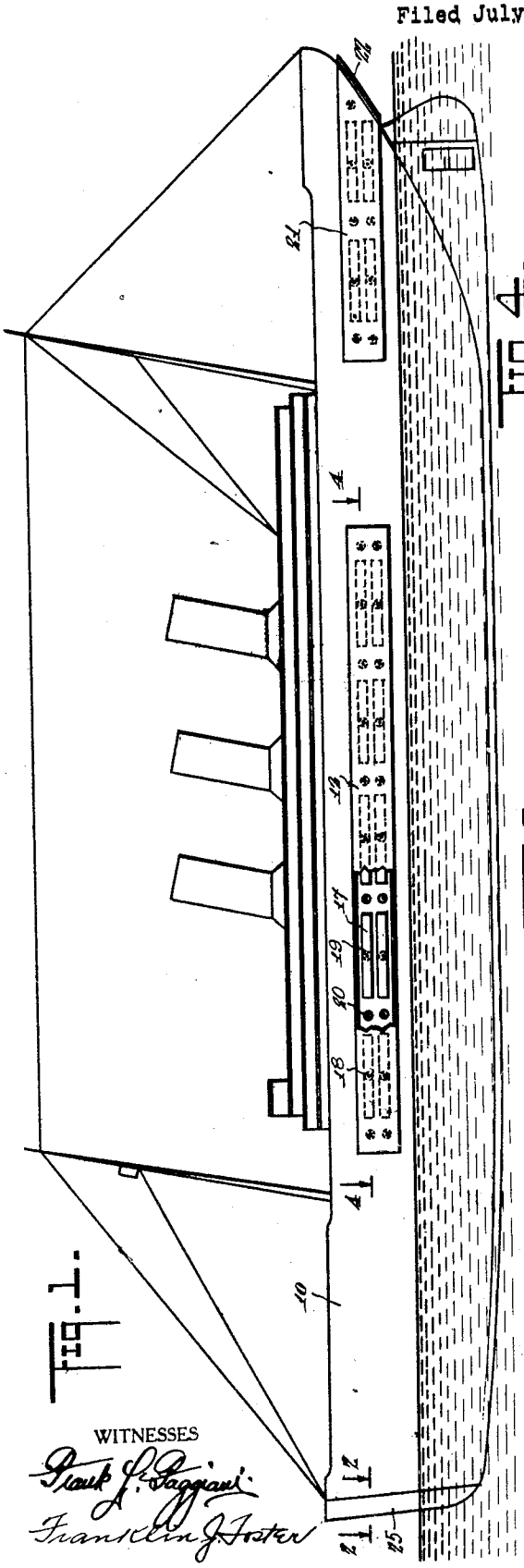


Fig. 1.

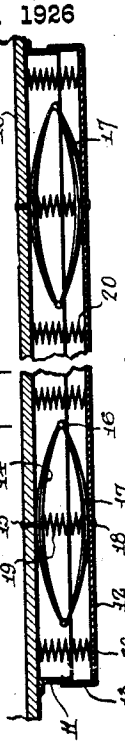


Fig. 4.

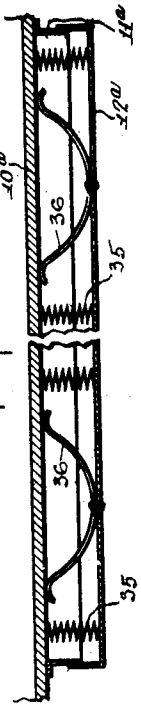


Fig. 5.



Fig. 6.

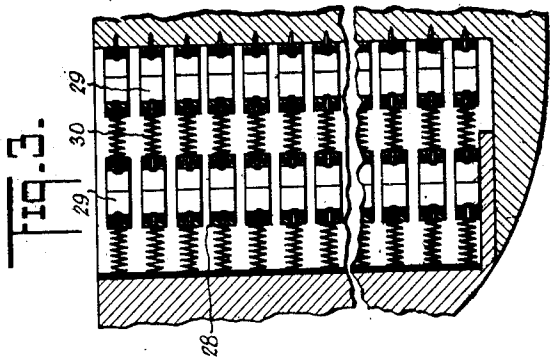


Fig. 3.

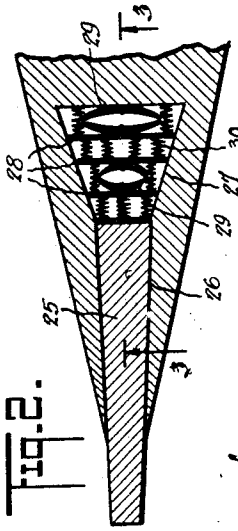


Fig. 2.

WITNESSES

Frank J. Baggiani

Franklin J. Foster

INVENTOR

Jerome Pasini.

BY Munn & Co

2852-1 ATTORNEYS

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UNITED STATES PATENT OFFICE.

JEROME PASINI, OF NEW YORK, N. Y.

SHIP.

Application filed July 8, 1926. Serial No. 121,210.

The present invention is applicable to any type of boat or ship, from the smallest row boat to the largest ocean liner, and is concerned with the provision of a novel type of bumper means for cushioning the shock of impact in the case of collisions at times when the ship is swung against a dock or in case two ships are secured together at a dock.

A further object of the invention is to provide a cushioning means in the nature of bumpers which will prevent a ship from being stove in, in case of collisions, and which, in the case of large ships will prevent any damage to the ships in case they collide head on with a submerged floating derelict.

Further objects of the invention are to provide a bumper means applicable to all classes of vessels, with a few slight modifications, which will be simple and practical in construction, rugged, durable and efficient in use, and capable of manufacture with comparative economy.

Still other objects of the invention are to provide bumper means which may be applied to any ordinary vessel without requiring any material changes in the construction of the vessel, and which is thus adapted either for attachment to a conventional type of ship, or for building into a new ship.

A further object of the invention is to provide a bumper structure which will not detract from the attractive appearance of a ship to which it is applied.

With the above noted and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter set forth and pointed out in the claims. The invention may be more fully understood from the following description in connection with the accompanying drawings, wherein—

Fig. 1 is a view mainly in side elevation of a ship embodying the present invention, part of the side bumper casing being broken away and in section for the sake of clearness.

Fig. 2 is an enlarged sectional plan detail on the line 2—2 of Fig. 1.

Fig. 3 is a broken fragmentary vertical sectional detail on the line 3—3 of Fig. 2.

Fig. 4 is a broken longitudinal sectional view on the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 4, but illustrating a modified type of bumper intended more particularly for small boats.

Fig. 6 is a perspective view of one of the springs used in connection with the bumper of Fig. 5.

In the drawings I have used the reference numeral 10 to designate the hull of a ship, the hull or body being provided at each side with a longitudinally extending bumper which I shall now describe. As illustrated, the side bumper is disposed above the water line, but it may if desired, extend well below the water line, and it may be made either in sections or housed within a long casing as shown. The casing includes a boxlike open member 11 preferably of generally rectangular shape coacting with a cover member 12 to cooperatively define a casing or housing for the cushioning springs. Cover 12 is provided with marginal flanges 13 embracing the member 11 and affording a telescopic connection between the two casing sections.

A set of leaf springs 14 secured as at 15 to the outer side of the ship are connected at their ends by shackles 16 to similar springs 17 secured at their intermediate portions to the casing as by securing devices 18. These springs may be reinforced by coiled expansion springs 19 interposed between them and any appropriate number of additional coiled springs 20 may be arranged in the casing with one end bearing against the side of the ship their other end bearing against the cover 12. The particular arrangement of springs is of course subject to a wide variety of variations, and the spring assemblage illustrated is merely indicative of one form which the invention may take. This particular style of bumper spring permits the leaf springs 14 and 17 to be used for positively connecting the cover 12 to the side of the ship and preventing accidental loss of the cover.

In the case of swinging the ship against the dock, in the case of collision, or in the event that two ships are anchored side by side, a spring bumper will effectively cushion shocks of impact and prevent injury to the body of the vessel.

Additional bumpers designated generally by the reference characters 21 may be arranged on the sides of the ship near the stern, and a stern bumper 22 may also be provided.

In the case of the forward bumper which consists of a yielding bow section 25, backed by a set of springs which I shall later describe, I prefer to extend the bumper well

below the water line, in fact, all the way to the keel of the vessel, so that the bumper will also be effective to prevent injury to the ship in the case of collision with floating submerged hulks. The false bow 25 is in the nature of a wedge shaped plate constituting the prow of the ship and mounted in a tapered pocket 28 at the forward end of the ship. Pocket 26 communicates at its rear end with another tapered pocket 27 which constitutes a housing for the cushioning springs which back up the member 25. It will be noted that the shape of the member 25 and pocket 26 is such that the pocket limits forward thrusts of the member 25 under the impetus of its springs, and thus under ordinary conditions prevents any leakage of water into the pocket 27 which houses the springs.

The spring structure illustrated consists of a series of rows of spaced plates 28, certain of the plates having interposed between them leaf spring units 29 of the character above described, others of the plates being spaced apart by coiled expansion springs 30. The ends of the plate 28 engage the tapering walls of the pocket 27 to limit the forward thrust of each set of springs, and in the case of impact on the member 25, this member is forced rearwardly, and all of the sets of springs cooperatively act to resist and cushion the impact.

Obviously a tremendous number of variations might be made in the particular arrangement of springs which are used to cushion the rearwardly moving member 25 at the time a collision occurs.

In Figs. 5 and 6 I have illustrated a modified type of bumper adapted primarily for use in connection with small boats, such as row-boats, or the like. In this instance, the side of the boat is indicated at 10^a and a casing member 11^a, 12^a similar to the casing 11, 12 above described is used. Relatively light coiled springs 35 are interposed between the cover and the side of the ship, and these springs are assisted by the use of star shaped springs 36 of the type illustrated in Fig. 6.

Numerous changes and alterations might be made in the general form and arrangement of parts described without departing from the invention. Hence I do not wish to limit myself to the details set forth, but shall consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. A ship having a tapered pocket in its bow, a vertical plate tapered in accordance with the pocket and including an edge projecting forwardly of the ship and constituting the prow, a series of cushioning springs interposed behind the plate and forcing the same into firm engagement with the tapered pocket.

2. A device of the class described in claim 1, wherein the springs are mounted in a tapered pocket forming a continuation of the pocket which receives the plate, said springs being arranged in sets with plates between them which engage the walls of the pocket to limit the forward thrust of the springs.

3. A boat including side bumpers, said bumpers comprising a casing secured to the side of the ship, a flanged telescoping cover for the casing, springs opposing the telescoping movement of the casing and cover, said springs being connected to the side of the ship and the casing cover to limit outward telescoping movement of the cover.

JEROME PASINI.