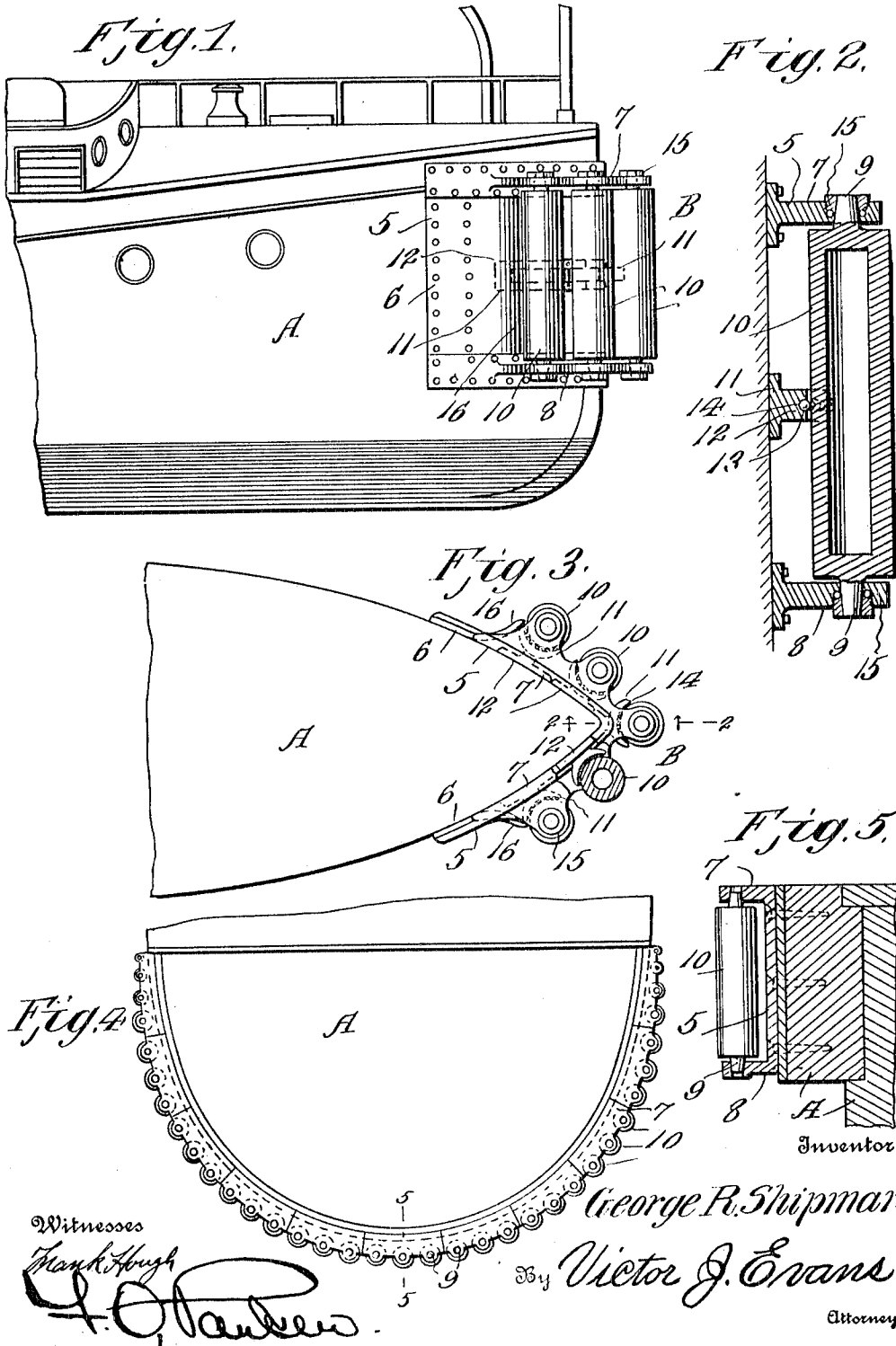


G. R. SHIPMAN.
FENDER FOR SHIPS.
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1,105,461.

Patented July 28, 1914.



UNITED STATES PATENT OFFICE.

GEORGE R. SHIPMAN, OF NORFOLK, VIRGINIA.

FENDER FOR SHIPS.

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Specification of Letters Patent.

Patented July 28, 1914.

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To all whom it may concern:

Be it known that I, GEORGE R. SHIPMAN, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Fenders for Ships, of which the following is a specification.

The invention relates to safety devices for water craft, and more particularly to the class of fenders for ships, boats, or the like.

The primary object of the invention is the provision of a fender wherein the same will avoid or lessen the damage to the hull or body of the ship, boat, or the like, on the same contacting with an object, either in collision with another vessel, or while landing at docks or ferry slips.

Another object of the invention is the provision of a fender which can be readily and easily applied to the hull of a ship so as to protect the same, and which is of novel form.

A further object of the invention is the provision of a fender of this character which is extremely simple in construction, thoroughly reliable and efficient in its purpose, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts as will be hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereunto appended.

In the drawing:—Figure 1 is a fragmentary side elevation of a ship's hull, showing the fender constructed in accordance with the invention applied thereto, the bow of the ship being shown. Fig. 2 is a sectional view on the line 2—2 of Fig. 3. Fig. 3 is a top plan view. Fig. 4 is a top plan view showing the stern of the ship's hull with the fender applied thereto. Fig. 5 is a fragmentary sectional view on the line 5—5 of Fig. 4.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, A designates a portion of a ship's hull, which may be of the ordinary well-known construction, and B the safety fender constructed in accordance with the invention, and herein-after fully described.

The safety fender comprises a suitable frame 5, preferably made from metal, the

same being bent to extend about either the bow or stern of the hull of the ship, and is formed with end plates 6 through which are passed suitable fasteners for the securing of the frame in position on the hull as shown.

The numerals 7 and 8 designate upper and lower bearing flanges of the frame 5 in which are engaged the journal ends 9 of rollers 10 which are arranged in spaced parallel relation to each other, the rollers being constructed from any suitable material to withstand shocks when contacting with an object such as a vessel, wharf, dock, or ferry slip. The rollers may be varied with respect to their length, and also can be arranged close or separated any desirable distance apart within the supporting frame therefor. The rollers 10 avoid or lessen the damage to the hull of the ship in event of collision with another vessel or while landing at docks or ferry slips.

Arranged rearwardly of each roller 10 intermediate the ends thereof is a reinforcing segmental-shaped abutment 11 formed with a base 12 adapted to be secured to the ship's hull, and in this abutment is provided a raceway 13 in which are arranged a series of bearing balls 14 with which is adapted to contact the roller adjacent thereto should excessive strain be exerted upon the same, so as to avoid the cracking or breaking of the roller under sudden concussion when striking an obstruction.

The journal ends 9 of the rollers 10 have arranged concentrically thereto bearing balls 15 which are suitably supported and removably held in the bearing flanges of the frame 5 so that friction is reduced to a minimum, thus permitting the rollers to freely rotate when engaging a fixed structure or coming in contact with an obstruction.

It is of course to be understood that the abutments 14 can be increased in number should the rollers 10 be of lengths to require the same.

The frame at opposite ends thereof has outwardly flared portions 16 which serve to deflect small obstacles against the outermost rollers of the series and thereby preventing the same from working through the frame to the rear of the rollers.

From the foregoing it is thought that the construction and manner of use of the device

will be clearly understood, and therefore a more extended explanation has been omitted.

What is claimed is:—

- 5 1. The combination with a ship's hull, of a plurality of rollers journaled exteriorly thereof at one or more points of the same, the said rollers being disposed vertically and in close parallel relation to each other, 10 frames for rotatably supporting the rollers and adapted to be fixed to the said hull, an outwardly flared portion on the frame at the outer side of the outermost rollers to serve in deflecting small obstacles against 15 the latter for preventing the said obstructions from working between the rollers and the frame.

- 20 2. The combination with a ship's hull, of a plurality of rollers journaled exteriorly thereof at one or more points of the same,

the said rollers being disposed vertically and in close parallel relation to each other, frames for rotatably supporting the rollers and adapted to be fixed to the said hull, an outwardly flared portion on the frame at 25 the outer side of the outermost rollers to serve in deflecting small obstacles against the latter for preventing the said obstructions from working between the rollers and the frame, abutments arranged between the hull 30 and the rollers and formed with raceways, and bearing balls arranged within the raceways and working against said rollers intermediate the ends thereof.

In testimony whereof I affix my signature 35 in presence of two witnesses.

GEORGE R. SHIPMAN.

Witnesses:

F. O. PARKER,

BENNETT S. JONES.

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