J. CONNERS.
SUBMARINE FENDER FOR SHIPS.
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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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Inventor

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Attorney
To all whom it may concern:

Be it known that I, JAMES CONNERS, a citizen of the United States, residing at Arcola, in the county of Douglas and State of Illinois, have invented certain new and useful Improvements in Submarine Fenders for Ships, of which the following is a specification.

This invention relates to ships and more particularly to new and useful improvements in submarine fenders therefor.

An object of my invention is to provide a strong substantially constructed guard or fender for use on the bow of a vessel preferably below the water line for contact with hidden floating mines and the like, whereby to discharge the mine before the vessel is so dangerously close as to injure the vessel.

Another object of my invention is to provide a fender which while of a strong and durable construction is of such construction as will present a small area to receive the force of the discharge, and will not materially interfere with the proper handling of the vessel, nor to any appreciable extent retard its progress on its course.

A further object of my invention is to provide a device of the character described which may be readily moved into and out of operative position, simple and inexpensive means being provided for indicating a "drag" or the presence of an obstacle on the fender.

Other objects and the advantages in my invention will appear from the following description and the claims, taken with an inspection of the accompanying drawing, in which—

Figure 1 is a side elevational view of the bow or stem of a vessel equipped with my improved fender, showing the latter in its operative position. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal sectional view taken on line 2—2 of Fig. 1 looking in the direction of the arrows, and Fig. 4 is a detail enlarged view of the strain indicating means of my invention.

Referring more particularly to the drawing, wherein similar characters of reference designate like and corresponding parts throughout the various views, 1 designates the hull of a vessel and 2 the bow or stem.

My improved fender comprises a frame designated 3 in its entirety and comprising side beams 4 and 5 preferably formed of angle iron and maintained in spaced relation by a transverse angle iron strut 6. The inner ends of the beams 4 and 5 are connected to and movable with a shaft 7 arranged preferably below the water line and athwart the bow 2. The shaft 7 is journaled in bearings 9, suitable packings 10 preventing leakage of the vessel. The mine or obstacle engaging end of the frame 3 carries an arcuate obstacle engaging member 11, preferably of greater length than the beam of the ship below the water line. A plurality of pins 12 radiate from the arcuate member for contact with obstacles. The frame is raised to inoperative position or is maintained at a desired angle or height by means of a pair of cables 13 connected at 18° to the frame and which are trained over sheaves 14 carried by a standard 15 mounted on the deck of the vessel near the bow. The free ends of the cables are wound about a hoisting drum 16 which may have the usual steam or electric mechanism associated therewith for winding the cables. Diagonally extending cross-braces 17 on the frame 3 serve to maintain rigid the forward end thereof.

I have provided means for indicating undue stress on the cables, which includes an arcuate resilient strip 20 provided with openings 21 adjacent its extremities through which the cable is arranged. Normally the device is in position shown in Fig. 4, but when the cable is unduly strained the strip will straighten.

It is thought that the use of my invention as well as its advantages may be readily seen from the foregoing, and the application of the device in connection with that class of naval vessels known as "mine-destroyers" will increase the efficiency of such vessel, at the same time protecting them.

Of course, I do not limit myself to the provision of one fender, and I desire to lay particular stress on the arcuate deflector, which is of greater length than the width of a vessel to which the device is attached.

From the above description taken in connection with the accompanying drawings, it is thought that a clear and comprehensive understanding of the construction, operation and advantages of my invention may be had, and while I have shown and described
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my invention as embodying a specific structure, I desire that it be understood that I may make such changes on said structure as do not depart from the spirit and scope of the invention as described.

What I claim as my invention and desire to secure by Letters Patent is:

1. In a fender for vessels, a pivoted frame, an arcuate obstacle deflector carried by the free end of said frame, hoisting means for said frame, and means associated with said hoisting means for indicating undue stress on the fender.

2. A strain indicator for cables comprising an arcuate strip of resilient metal having a pair of openings therein adjacent the ends thereof through which the cable is arranged.

In testimony whereof I affix my signature hereto.

JAMES CONNERS.