Dec. 10, 1963 A. E. MOUNTCASTLE 3,113,546

BOAT FENDER DEVICE

Filed March 4, 1963

Fig. 1

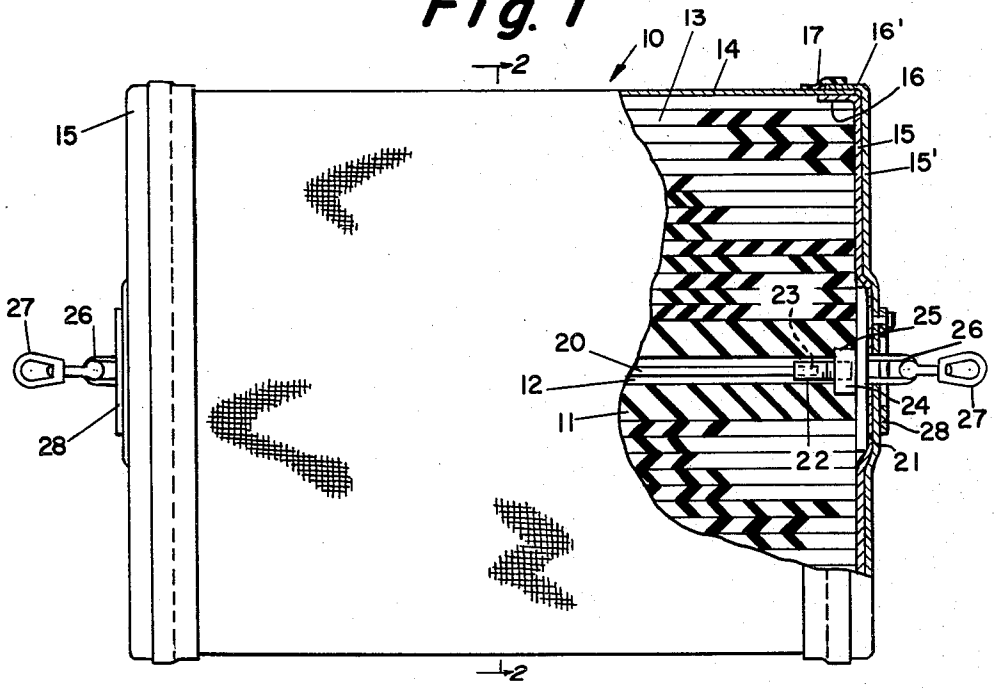
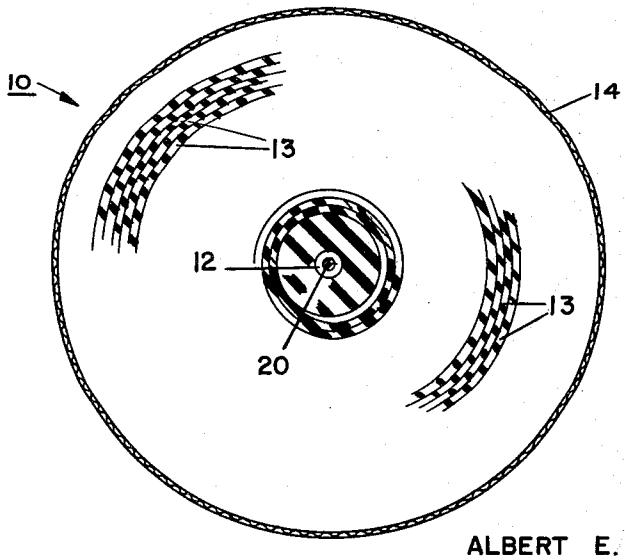


Fig. 2



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BOAT FENDER DEVICE

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1 Claim. (Cl. 114—219)
(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

This invention relates to an improved boat fender or bumper and more specifically to such a device which is formed of material and in a manner to provide a structure having requisite buoyancy and yet is sufficiently rugged to withstand long and hard usage.

Such devices of the prior art have been found deficient in many respects. Some have been for the most part made of cork, woven rope, kapok, solid rubber, etc., but these have not provided the desired buoyancy or resiliency. Others have been constructed of materials suitable for providing buoyancy but these have not been sufficiently rugged to withstand extended periods of use or have not had the desired water repellent or non-flammable characteristics.

In its broader aspects, the boat fender or bumper of this invention is formed of a core of resilient material which has a longitudinal passageway therethrough in which is mounted structure for attaching a mooring line. A sheet of cellular material is disposed about the core to provide the principal resilient body structure having the desired diameter and this assembly is then provided with a water repellent covering. The improved features of the invention reside in the details of the mooring line mounting structure and in the manner of affixing the covering to the resilient body to provide a device which is readily manipulable by the user, is buoyant, water repellent and practically indestructible by fire or high temperature conditions.

The principal object of this invention is to provide a boat fender or bumper which has the requisite physical characteristics for preventing damage to a boat by the landing dock structure.

Another object of this invention is to provide a boat fender or bumper which is of relatively light weight and is readily handled by the user.

Another object of this invention is to provide a boat fender or bumper which is constructed of material and in a manner to permit usage over extended periods of time.

Other objects, advantages and novel features of the invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawings wherein:

FIG. 1 is a view in plan of the assembled boat fender of this invention with a portion sectioned to show details of construction of one end of similarly formed ends;

FIG. 2 represents a view taken on the line 2—2 of FIG. 1 but for the purpose of clarity shows only portions thereof in true section.

In FIG. 1, the assembled boat fender is indicated generally at 10 and is constructed of a rubber core 11 which has a longitudinal passageway 12 extending therethrough in which mooring line structure, to be described later in detail, is located. The principal part of the fender is formed of foam or cellular material 13 which may be rubber, resin, etc., in sheet form permitting it to be wrapped about the core 11 in spiral fashion, as shown in FIG. 2. As an example of the fender size, the sheet

may be considered to have a width of three feet and the spiral configuration, when completed, may have a diameter of two feet. The purpose of the foam sheet is to provide a pliable or resilient body of light weight buoyant material and in order to prevent this material from being damaged or effected by heat or water, a covering is added which may, for example, be nylon cord tire fabric to provide a water repellent and heat resistant assembly.

The covering as shown in FIG. 1 is formed of a sleeve section indicated at 14 for the periphery of the spiralled sheet 13 and similar end sections which are in the form of caps. Each end section comprises, as shown in the sectioned portion of FIG. 1, an inner cap 15 and an outer cap 15'. The inner cap has an annular flange 16 over which an end of sleeve 14 is lapped and the outer cap has an annular flange 16' which is lapped over the end of the sleeve 14. A seal is provided at the lapped area formed by the sleeve 14 and the caps 15 and 15' and takes the form of a rubberized tape which is cemented around the lapped area.

Prior to covering the cellular material 13, the mooring line structure is assembled within the core 11. As shown in the sectioned portion of FIG. 1, the mooring line structure consists of a rigid rod or cable 20 which is secured between similar end plates 21 in a manner to in effect provide a clamping means. For this purpose a fitting 22 is disposed at each end of the passageway 12 and each fitting 22 has a recess 23 at its inner end for receiving one end of the rod or cable 20 while each fitting has its outer end threaded and received in a threaded lug 24. The lugs 24 are welded to each end plate 21 and the longitudinal passageway 12 is enlarged at each end forming recesses 25 which seal the lugs for positioning the end plates 21 flush with the edges of the spiralled layer 13 when the plates and other components are assembled. Each end plate then has a staple 26 welded to its exterior face for conveniently receiving a link and swivel connection indicated generally at 27 for receiving a mooring line and finally a locking ring 28 is provided at each end of the assembly as shown in FIG. 1 exteriorly of the end cover caps 15' and each locking ring is suitably secured to an end plate 21, for example, by bolt connections, not shown, to provide a unitary assembly.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claim the invention may be practiced otherwise than as specifically described.

I claim:

A waterproof boat fender assembly comprising

(*a*) a cylindrical resilient core having an axial passageway therein,

(*b*) cellular material applied to said core to provide a cylindrical buoyant body having transverse ends which are substantially flush with the ends of said resilient core,

(*c*) a rod in said passageway having a first threaded end portion disposed inwardly of one end of the core and a second threaded end portion disposed inwardly of the other end of the core,

(*d*) a pair of connectors each formed of a plate having a threaded lug extending therefrom,

(*e*) one connector having its lug threadedly engaged with one end of the rod and positioning its plate in abutment with one end of the core and one transverse end of the buoyant body and the other connector having its lug threadedly engaged with the other end of the rod and positioning its plate in abut-

ment with the other end of the core and the other transverse end of the buoyant body,

(*f*) a water repellant covering for the unit comprising a sleeve disposed about the periphery of the buoyant body and a cap for each end of the unit, each having an annular flange providing an overlap adjacent each end of the sleeve,

(*g*) a circumferential strip disposed about each overlap providing seals between the sleeve and caps, and

(*h*) a staple secured to one of the connector plates and extending outwardly through a cap of the covering for the reception of mooring line equipment.

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