June 15, 1954 ÅKE ALBIN HULTBERG 2,680,859

BOAT-BUOY

Filed Dec. 31, 1951

Fig. 1

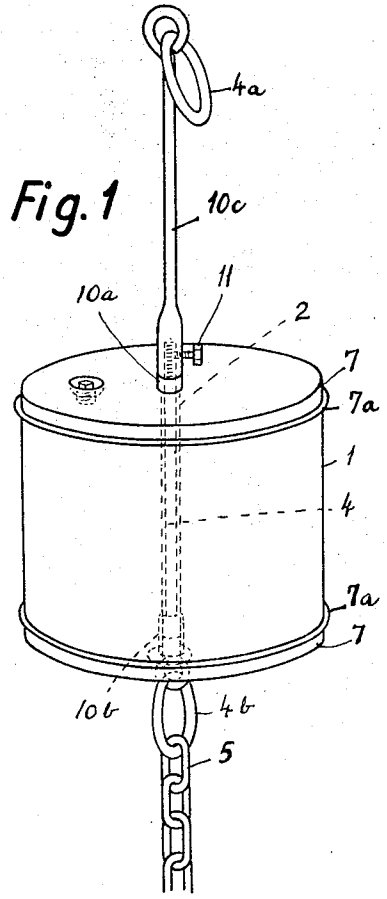


Fig. 2

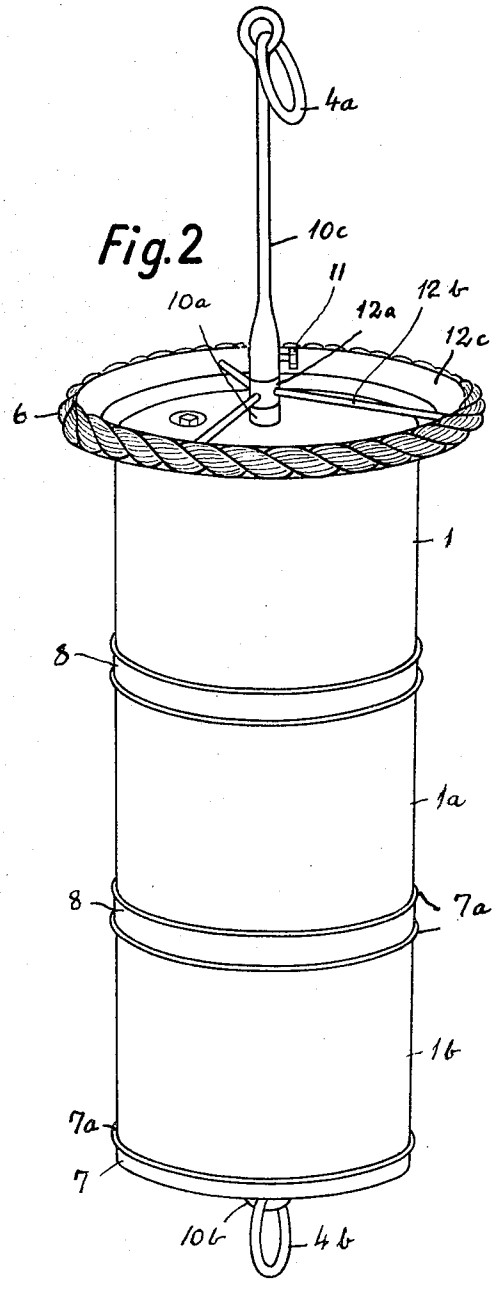


Fig. 3



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Patented June 15, 1954 2,680,859

UNITED STATES PATENT OFFICE

2,680,859

BOAT-BUOY

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Application December 31, 1951, Serial No. 264,297

1 Claim. (Cl. 9—8)

1

This invention relates to a mooring buoy of the kind used for boats or ships in harbours etc. The main object of the invention is to provide means for assembling one or several buoy elements into a combined buoy having sufficient buoyancy according to the requirements of the actual case without necessitating the use of a number of different models of buoys.

A further object of the invention is to provide a standardized buoying element for boat-buoys, which can be used either alone individually to form a relatively small boat-buoy or coupled together with other similar buoying elements to form boat-buoys of a larger size and a greater buoyancy. It will be seen that this construction will involve great advantages in respect to the standardization of the production and reduction of the costs. To achieve this object the buoying element has the form of a closed substantially cylindric body, for instance manufactured of sheet metal and provided with an axial channel passing from end to end and adapted to receive a rod or some other connecting element which extends through the buoying element and is adapted to be coupled to the buoy-chain at one end while its other end is formed as or provided with a loop or hook or some similar attachment element for the mooring of the boat or the like.

A further object of the invention is to provide said cylindric buoying element at its ends with a groove, impression, or ridge extending entirely or partly around the periphery of the cylinder, and adapted to receive and engage with a coupling element, which may consist of a ring of substantially the same diameter as the buoying element.

Still a further object of my invention is to provide the ends of the said rod protruding from the buoying element with stoppers which may or may not be threaded and by means of which several adjacent buoying elements can be coupled together in the axial direction. Said rings also guide the buoying elements in vertical direction.

One embodiment of the invention is illustrated in the drawing enclosed, in which:

Fig. 1 shows a perspective view of an individual buoying element together with a fragment of the associated chain,

Fig. 2 shows a similar view of three buoying elements coupled together and

Fig. 3 shows the coupling ring separately.

The buoying element 1 according to Fig. 1 consists of a hollow cylinder of metal or other

2

material having an axial channel 2 passing from end to end. If required ballast can be arranged inside the cylinder, for instance in the form of an annular disk of concrete or some other material. Extending through the channel 2 is a rod 4, the lower end of which is threaded and provided with a stop member or socket 10*b* screwed thereon. The socket is connected to a ring or loop 4*b*, which, preferably by means of a shackle (not shown) is coupled to the mooring chain 5 of the buoy. The top end of the rod 4 may also be threaded and carries a stop element or socket 10*a* screwed thereon. The top end of the rod 4 also carries an extension 10*c* threaded thereon and having at the top a ring or loop 4*a* or some other contrivance for attaching the mooring line of the boat. The elements 10*a* and 10*b* engage the external end surfaces of the buoy and prevent the rod 4 from being displaced axially in the channel 2, and the rod 4 serves as an axial coupling element for interconnecting several buoying elements in axial relation. A stop screw 11 can be arranged to lock the extension 10*c* to the rod 4. Similar stop screws may be provided for the stopper sockets 10*a*, 10*b*. If desired, the rod 4 may also carry a carrier consisting of a hub 12*a* and radial spokes 12*b* carrying a ring 12*c* (Fig. 2) for a fending hawser 6 or some similar lining.

Around the periphery adjacent each end of the buoy element is a flange or abutment 7*a* leaving an annular groove or space 7 at the end for enabling alignment or interconnection of several adjacent buoying cylinders 1, 1*a*, 1*b*, as shown in Fig. 2. For the interconnection a ring 8 (Fig. 3) is used (which if required can be provided with tongues of some resilient material protruding upwards and/or downwards). The ring 8 is fitted around the adjacent spaces 7 of the two cylinders 1, 1*a* and 1*a*, 1*b* respectively, arranged end to end closely together, and the cylinders are thereby secured in close relation transversely, their axial joining being effected by the rod 4 extending through all of the buoying elements. The length of the rod 4 is, of course, adjusted according to the number of buoying elements 1, 1*a*, 1*b* to be interconnected. It should also be noted that the width of the ring 8 (which may consist of a steel or iron strap) is chosen so as to overlap the spaces 7 between the flanges 7*a* and the joint between two adjacent buoying elements 1, 1*a* or 1*a*, 1*b*.

In this manner it is possible to assemble any desired number of practically identical buoy units or elements into a mooring buoy of the

size and buoyancy desired according to the actual requirements. The pulling stresses between the mooring line of the boat and the chain of the buoy need not necessarily be taken up by the coupling element 8 but is transferred by means of the rod 4. If desired the rod 4 can consist of several mutually joinable parts, for instance provided with threads, keys, clutches, or shackles, so as to adjust the length of the rod in any suitable manner.

Preferably, the cylinders 1, 1*a*, 1*b* are practically symmetrical so that it will be of no importance if one or the other of their ends is turned upwards or downwards.

The spaces 7 can be formed as grooves or reduced portions extending along the whole periphery or part of it so as to serve as support for the rings 8. Fending hawsers can be arranged at the free spaces 7 at the top and/or at the bottom of the buoy, if desired also outside the ring or rings 8. The hawser 6 and its support may be omitted.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claim which follows.

What I claim is:

A boat buoy, comprising in combination at least two substantially cylindrical, hollow, closed buoying elements arranged end to end close together in axial alignment, a rod extending axially through and protruding from the ends of said buoying elements, stop members at each protruding end of said rod, said stop members abutting against the ends of the outermost of said buoying elements for preventing displacement of said rod in said buoying elements and for connecting said buoying elements together, a flange adjacent each end of each of said buoying elements, each of said flanges having a greater diameter than the portion of each of said buoying element between said flange and the nearest end of said buoying element, and a coupling ring extending around the periphery of the adjacent ends of said buoying elements, said coupling ring being located between and abutting the flanges of said adjacent ends of said buoying elements and overlapping the joints between the buoying elements.

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