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[54] **STRAPLESS RING BUOY AND METHOD OF MAKING THE SAME**
9 Claims, 5 Drawing Figs.

[52] **U.S. Cl.**..... 9/340,
 264/45
 [51] **Int. Cl.**..... **B63c 9/10**
 [50] **Field of Search**..... 9/340, 329,
 14, 311, 11, 13, 310; 264/45, 51, 53, 275;
 114/66.5 F

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ABSTRACT: A strapless ring buoy and method of making the same in which an elongated rope is formed into a circle having a plurality of spaced inwardly directed loops. The rope is placed around a mold in which the ring body portion of the buoy is to be molded, with the loops extending across the mid-portion of the mold. The loops are coated with a heat-reacting adhesive composition so that the expanded polystyrene foam material forming the ring is bonded to the loops at the same time and through the same means used for molding the ring. The loops are held within the ring securely to attach the rope without straps or other fastening means of any kind either inside or outside of the ring. The portions of the rope between the loops substantially encircle the ring. The strands forming the loops may be crossed and/or passed through eyelet fittings to provide added strength.

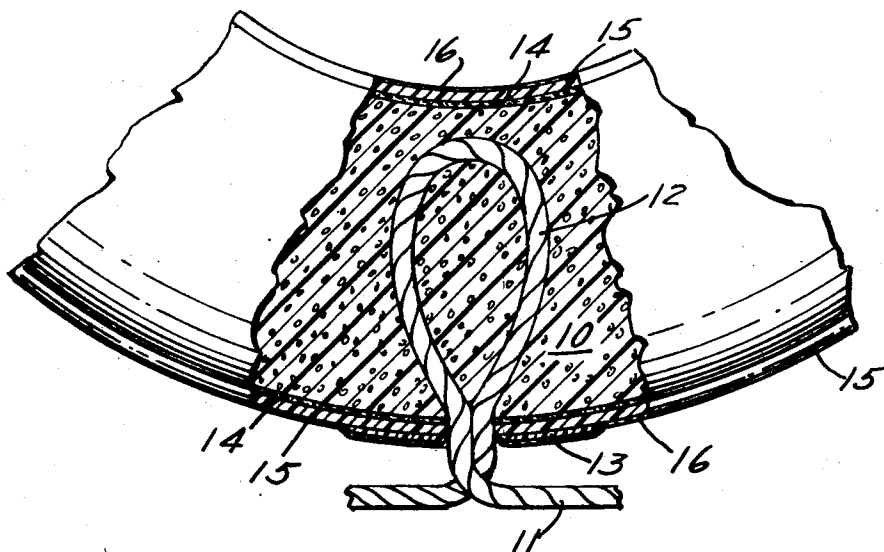


Fig. 1.

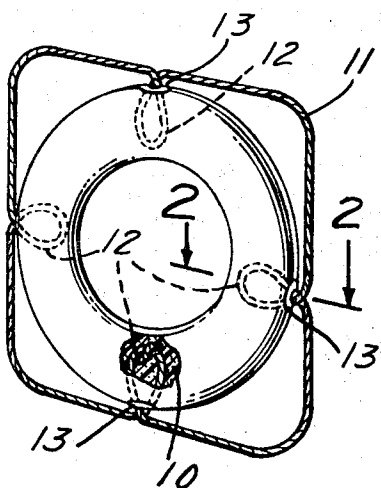
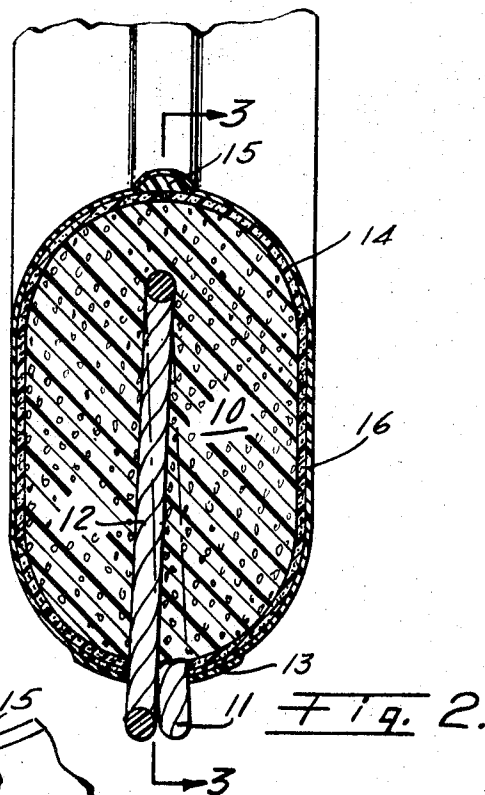


Fig. 3.

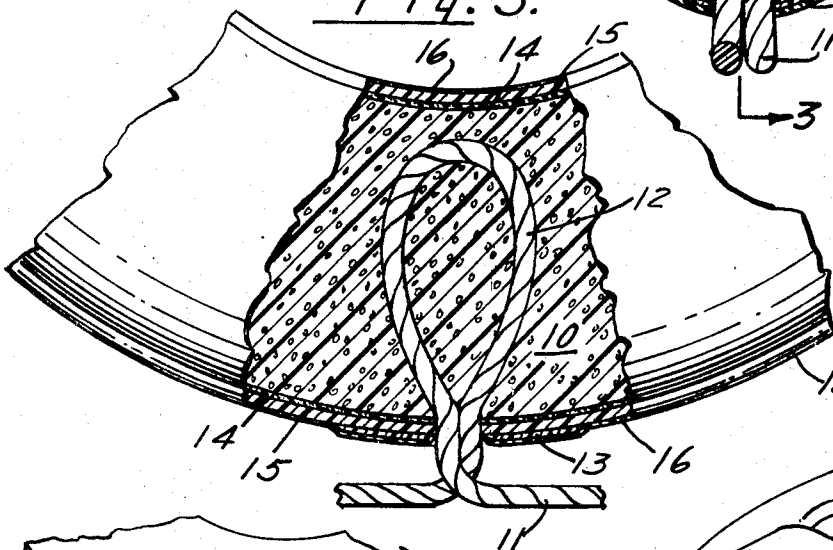


Fig. 4.

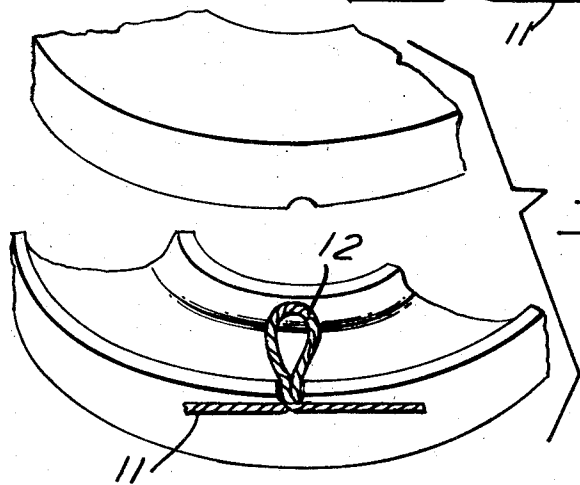


Fig. 5.

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STRAPLESS RING BUOY AND METHOD OF MAKING THE SAME

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a ring buoy which has no straps or beackets and to a method of making a strapless ring buoy.

2. Description of the Prior Art

Conventional ring buoys are provided with a plurality of spaced straps which hold a rope which encircles the buoy. The straps are customarily the weakest part of the buoy and are the part which wears out first.

SUMMARY OF THE INVENTION

The invention relates to a strapless ring buoy and to a method of making ring buoys having no beackets or straps.

The invention relates particularly to such ring buoys which are molded of plastic material such as expanded polystyrene foam and in which spaced loops formed from the ropes are integrally molded into the body of the buoy at the time the buoy is formed. There is accordingly no need for any beackets or straps to secure the rope to the body portion of the buoy. The rope is securely held without any danger of its coming loose from the buoy.

It is accordingly among the objects of the invention to provide a strapless ring buoy and method of making the same having all of the advantages and benefits set forth above and described hereinafter in this specification.

Another object of the invention is to provide a ring buoy which is more economical to manufacture and which provides further economy through increased longevity in use. Such increased longevity is provided primarily through the elimination of the straps.

It is a further object of the invention to provide a ring buoy which is simpler and more economical to manufacture and which is actually stronger than conventional buoys having straps.

Another object of the invention is to provide a ring buoy in which the rope is securely bonded to the body of the buoy at the time the buoy is molded, so that the joined portions of the two elements become substantially integral with each other.

The invention also comprises such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by the invention.

While I have shown in the accompanying drawings a preferred embodiment of the invention, it should be understood that the same is susceptible of modification and change without departing from the spirit of the invention.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of my strapless ring buoy partly broken away to show the interior;

FIG. 2 is a sectional view of the same taken along line 2-2 of FIG. 1;

FIG. 3 is a sectional view of the same taken along line 3-3 of FIG. 2, with the loop shown in elevation;

FIG. 4 is a perspective view of a portion of a mold showing one of the loops disposed therein prior to molding the ring;

FIG. 5 is a perspective view of the eyelet fitting used around the loop outlets.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment which has been selected to illustrate the invention comprises a body portion in the form of a ring 10, which is formed of molded expanded polystyrene foam material. A rope 11 which may be formed of polypropylene or other suitable material, has a length substantially greater in the circumference of the ring 10.

The rope 11 is folded to provide four loops 12. The inner end of one of the loops 12 preferably comprises the ends of the rope, which are sewed or otherwise attached to each

other. The loops 12 are preferably spaced 90° from each other and are held by a jig or other suitable means so that they extend transversely across the midportion of a conventional donut-shaped mold in which the ring 10 is formed. The inner ends of the loops 12 are preferably disposed somewhat short of the opposite or inner edge of the mold and are preferably somewhat flared to each side. The loops 12 are preferably coated before the molding operation with a suitable heat-reacting adhesive composition. A neoprene base adhesive has been found satisfactory for the purpose, which is to bond the polystyrene foam material forming the ring 10 to the loops 12 at the same time that the ring 10 is molded.

When the ring 10 is molded, the loops 12 are securely held and bonded within the ring 10. The two strands of the rope 11 which emerge from each of the loops 12 are preferably crossed, as shown in the drawings, to provide greater resistance to their being torn out from the ring 10.

Four eyelet fittings 13, which are preferably formed of substantially rigid molded plastic material, are mounted on the outer edge of the ring 10. The eyelet fittings 13 are adhered to the ring 10 with an adhesive composition such as an epoxy resin. The two strands of the rope 11 which emerge from each of the loops 12 extend through an opening in the center of the eyelet fitting 13. The eyelet fittings 13 thus act to seal the joints and also prevent any undesirable abrasive action against the ring 10 when pressure is exerted on the rope 11.

The entire outer surface of both sides of the ring 10 is covered with a layer 14 of somewhat resilient flat sheet stock polyvinyl chloride foam material, which is adhered to the ring 10 with a suitable adhesive composition.

Beading 15, which has a crescent-shaped cross section, is used to cover and seal the joints along the inner and outer edges of the ring 10 where the layers 14 of covering material abut. The beading 15 is preferably adhered to the layers 14 with a suitable adhesive composition. The entire outside of the completed ring buoy may then be sprayed with vinyl plastisol material 16.

The result is a strapless ring buoy which is capable of meeting United States Coast Guard standards and obtaining its approval. The rope 11 is securely held without the use of any beackets or straps. Since the beackets are the part of the buoy which customarily wears out first, the strapless buoy has a substantially longer life than a conventional buoy with beackets or straps. The strapless buoy is also more economical to manufacture because the manufacturing and assembly operations have been greatly reduced and simplified.

The strapless buoy is equal or superior in strength to a conventional ring buoy with straps. It resists weather and temperature extremes, will not rot or mildew and may be easily cleaned with soap and water.

It should also be noted that the strands of the rope 11 are held in such a manner that they project outwardly from the ring 10 and make the rope 11 easier for the user to grasp.

I claim:

1. A method of making a strapless ring buoy comprising forming an elongated rope into a circle having a plurality of spaced inwardly directed loops, placing said rope around a mold in which the ring body portion of said ring buoy is to be molded, with said loops being disposed within said mold, coating said loops with a heat-reacting adhesive composition, applying heat to said mold to form a ring of expanded polystyrene foam material or the like around said loops so that said loops are enclosed within said ring and securely bonded to said ring at the time and through the same means used to mold said ring, to secure said rope to said ring without straps or other fastening means of any kind either within or outside of said ring, the portions of said rope between said loops substantially encircling said ring.

2. The structure described in claim 1, and disposing said loops in a position extending in a horizontal plane transversely across the midportion of said mold, so that said loops extend in a horizontal plane transversely across the midportion of the interior of said ring after said ring is molded.

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3. The method described in claim 1, and covering the entire outer surface of both sides of said ring with a layer of polyvinyl chloride foam material or the like, and adhering said material to said ring with an adhesive composition.

4. The method described in claim 2, and crossing the strands forming each of said loops to provide added resistance to the separation of said rope from said ring.

5. The method described in claim 3, and adhesively securing beading to seal the junction along the inner and outer edges of said ring where the edges of said covering material abut, and spraying the outside of said ring buoy with vinyl material or the like.

6. A strapless ring buoy comprising a body portion in the form of a ring of expanded polystyrene foam material or the like, a rope substantially encircling the entire outer periphery of said ring, said rope having a plurality of spaced inwardly directed loops extending a substantial distance into said ring, said loops being adhesively secured within said ring by a heat-

reacting adhesive composition forming a bond between said loops and said ring at the same time that said ring is formed, so that said rope is secured to said ring without straps or other fastening means of any kind either within or outside of said ring.

7. A ring buoy as described in claim 6, in which said loops extend in a horizontal plane transversely across substantially the entire midportion of said ring.

8. A ring buoy as described in claim 7, in which the strands of said rope forming each of said loops are crossed to provide added resistance to the separation of said rope from said ring.

9. A ring buoy as described in claim 6, the entire outer surface of both sides of said ring being covered with a layer of polyvinyl chloride foam material, beading sealing the joints along the inner and outer edges of said ring where the edges of said covering material abut, and a coating of vinyl material covering the outside of said ring buoy.

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