

[54] SCUBA DIVING REEL

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[58] Field of Search.....242/85, 96, 125, 125.3, 136,
242/140, 54; 2/170, DIG. 6

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[57] ABSTRACT

An improved reel for carrying line in a convenient manner when scuba diving or skin diving. The reel straps securely about the forearm of a diver preferably wearing a wet-suit and is positioned to be easily unwound or rewound in full view of the diver. Cleating or wedging means are included to fix the unwound line at any length either prior to diving or when the desired depth has been attained. Features of the reel when attached to the arm of the diver allow it to be re-wound or unwound and secured solely with the use of the diver's other arm.

15 Claims, 8 Drawing Figures

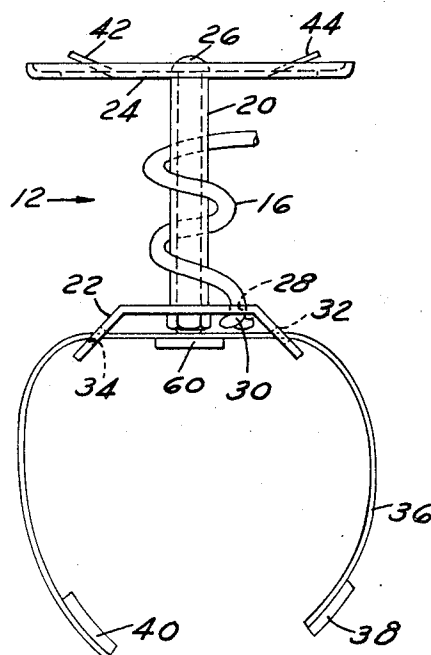


FIG. 1

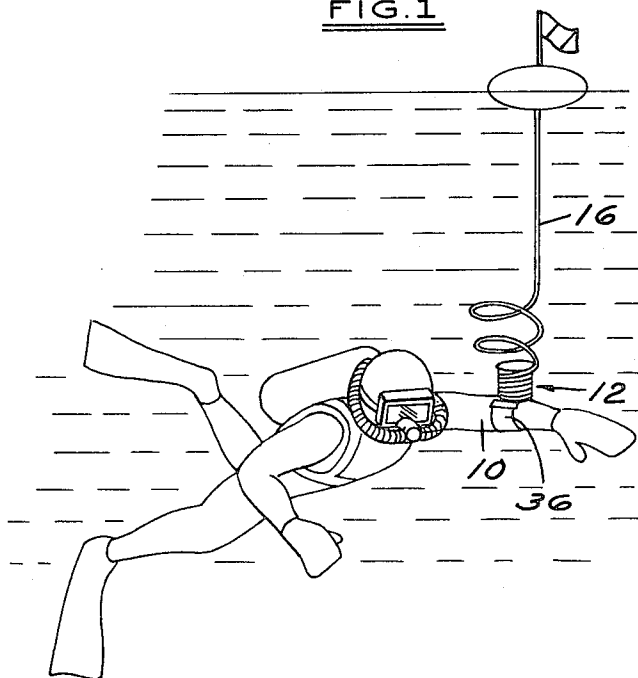


FIG. 2

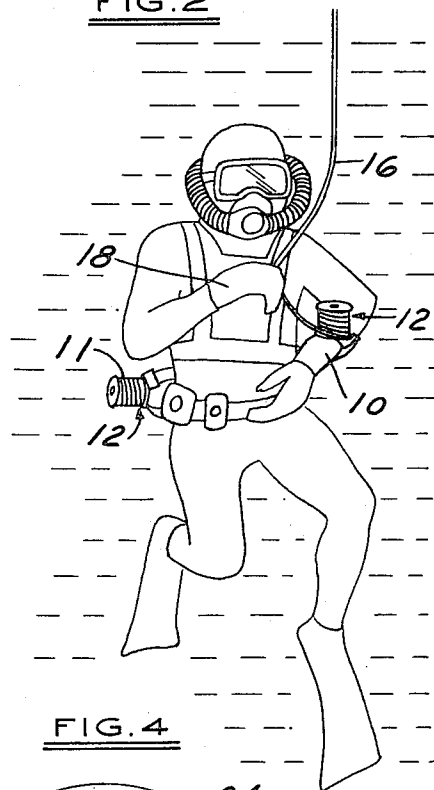


FIG. 3

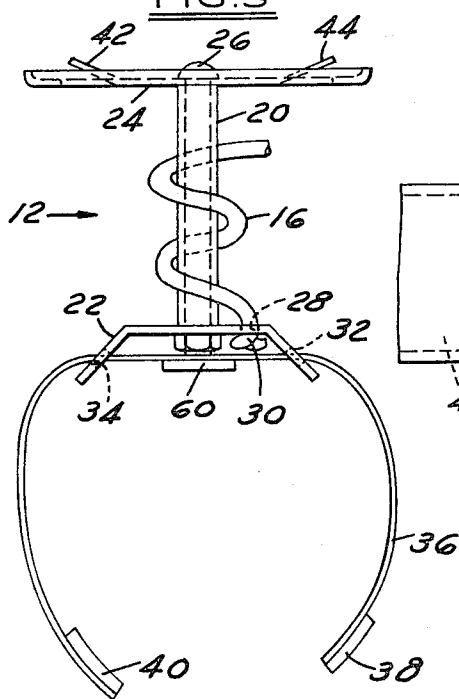


FIG. 4

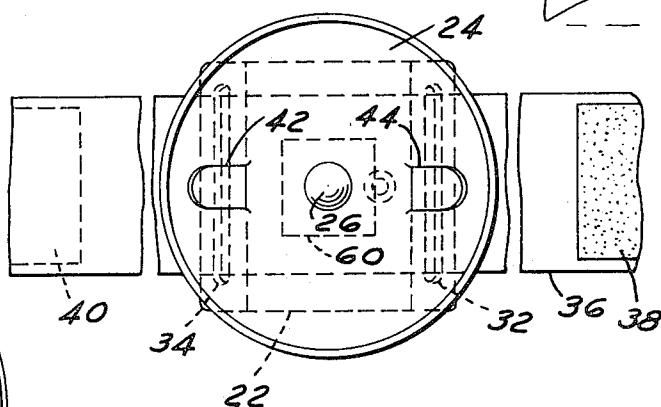
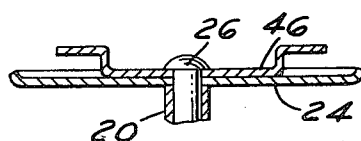
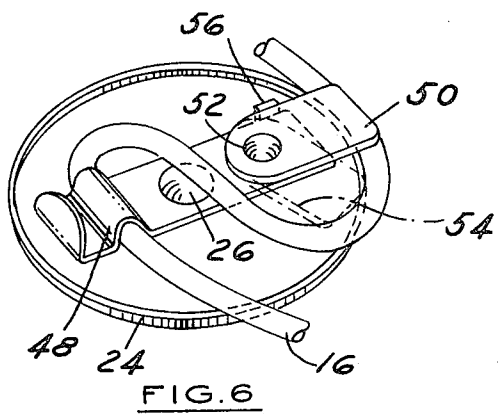
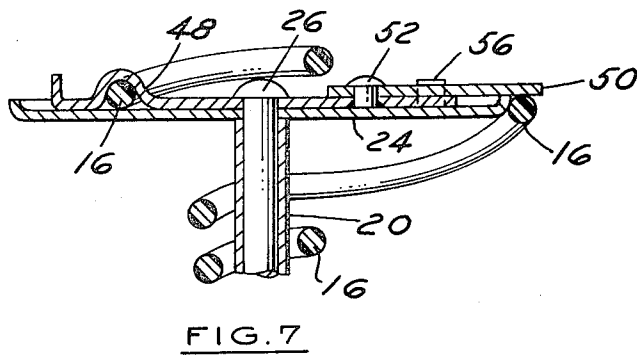
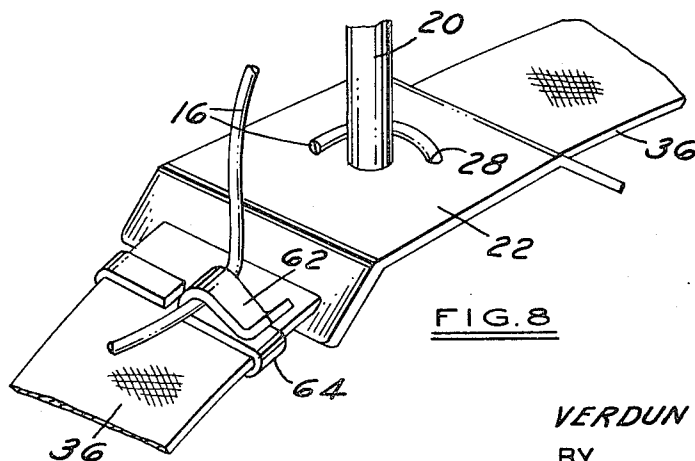


FIG. 5



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SCUBA DIVING REEL

BACKGROUND OF THE INVENTION

Skin diving and scuba diving have become a sport of wide participation with a wide variety of equipment needed for both safety and enjoyment. Important for both safety and enjoyment are lines that may be extended from the diver to the surface where a buoy is attached and lines carried by the diver for attaching to submerged objects which will be subsequently raised to the surface or marked by buoys at the surface. While skin diving equipment is relatively simple and does not require complicated breathing apparatus, scuba diving requires extensive breathing apparatus carried by the diver. Work or enjoyment underwater in both cases also requires additional equipment such as knives to be carried. Since working with equipment underwater is relatively cumbersome it is important that the equipment be as simple and convenient as possible as well as being adaptable to carriage on the body. Loose lines that may become entangled with the other apparatus carried by the diver are an obvious hazard. Therefore, devices have been needed to carry the line on the diver in a safe and convenient manner.

The prior art includes reels which fasten to the weight belt of a diver and have mechanical wind up means which may be cranked to wind up the line. Such reels are relatively expensive because of their movable mechanical parts and are not located conveniently in view of the diver when in use. Other prior art includes metal frames with handles attached. The line is merely wound around the metal frame and must be hand carried by the diver, an obvious inconvenience and potential hazard.

SUMMARY OF THE INVENTION

The scuba diving reel comprises a spool having the line wound thereupon and a strap attached to one of the spool ends. The strap is wrapped about the diver's arm preferably over a wet-suit and securely fastened with multiple hook and complementary multiple loop elastic fastening means sold under the Velcro trademark although other quick release means such as snaps may be utilized. The other end of the spool has cleating or wedging means attached whereby the diver may secure the line to the spool to prevent unwinding. The primary use of the reel is for line attached to a diver's buoy on the surface. When the diver reaches a particular depth, he may then cleat the line on the reel and the buoy will move around of the surface generally following the movement of the diver below. With the reel attached to the forearm of the diver, the line will play out evenly and smoothly as the diver dives. When the diver desires to ascend, he merely twists his arm inward and the reel is in a convenient position to rewind the line with the use of the diver's other hand and directly within his sight. Optionally, a Velcro fastener may be secured to the wet-suit of the diver in the proper position and a complementary Velcro fastener may be located on the strap thereby allowing the diver to attach the reel with one hand in the proper position on the diving suit.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective of a diver having the reel attached to his arm and the line unwinding;

FIG. 2 is a sketch of a diver having the reel attached to his arm and the line being rewound by the other hand;

FIG. 3 is a side view of the reel;

FIG. 4 is an end view of the reel taken from the cleat end;

FIG. 5 is a partial side view with an alternate separate cleat;

FIG. 6 is a perspective of an alternate securing means;

FIG. 7 is a partial side view of the alternate securing means; and,

FIG. 8 is a view of a second alternate securing means.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1, the diver has the reel 12 secured by straps 14 about the forearm 10. The reel is positioned generally upwardly so that the line 16 may play out easily as shown. While the line may be made of any commonly used material, synthetic or natural, the preferable line is a buoyant polyethylene line in common use today. The line will thus play out evenly and any surplus will tend to float thereby staying out of the diver's way.

In FIG. 2, the diver's forearm 10 is twisted inwardly so that the reel 12 is generally in front of the diver with his forearm 10 in view. The line 16 thus may be rewound with the diver's other hand 18 as shown.

In FIG. 3, the reel, generally denoted by 12 has a central tube 20 and two spool ends 22 and 24 held together with a bolt 26 passing through the tube 20. The line 16 is wrapped around the spool tube 20 and passes through a hole 28 in spool end 22. A knob 30 secures the end of the line 16 outside of the spool end 22, therefore, the line 16 can be evenly and smoothly wrapped about the spool tube 20. Slots 32 and 34 are provided in spool end 22 for the attachment of the strap 36 passing therebetween and covering the knot 30. A suitable material for the strap is nylon webbing although other materials may be utilized. Attached to the strap 36 on either side of the spool end 22 are complementary fasteners 38 and 40 sold under the Velcro trademark. Reference is made to U.S. Pat. No. 2,717,437 issued Sept. 13, 1955 for a more detailed disclosure of the Velcro components. Other quick releasing fasteners might be utilized such as snaps, however, Velcro is preferable since it is conveniently adjustable and can always be easily released with one hand by peeling.

Spool end 24 has integral wedging clips 42 and 44 whereby the line 16 may be looped under and wedged tightly to prevent further unwinding of the line. In use, when the diver reaches the desired depths usually near the bottom, he then secures the line to the clips 42 and 44 until he is ready to ascend. Alternately, he may secure the line with a length substantially equal to the depth of the dive he desires to make prior to making the dive. A separate cleat, as shown in FIG. 5, may be utilized in an alternate embodiment. The cleat 46 is secured to the spool end 24 by the bolt 26. While the cleat may be preferred by some divers, it is not quite as convenient as the clips 42 and 44, since the cleat 46 requires more movement by the other hand of the diver when cleating or uncleating the line 16. On the other hand, the clips 42 and 44 are not as secure as a properly cleated line.

A second alternative is shown in FIGS. 6 and 7 wherein a more secure wedging means is shown. The alternate wedging means comprises a wedging clip 48 secured to the spool end 44 by the bolt 26. Attached to the wedging clip 48 diametrically opposite the wedging end, is a tongue 50 secured by a pivot 52 so that the tongue 50 may be moved into the position shown in dotted outline 54. In position 54 the tongue 50 does not extend beyond the outer periphery of the spool end 24 and the line can freely unwind from the spool as shown in FIG. 1. When the diver desires to secure the line, he moves the tongue 50 into the position shown in solid line where it extends beyond the outer periphery of the spool end 24 and the line is wrapped in a "S" curve about the tongue and under the wedging clip 48. Stop means 56, integral with the clip 48, are provided to prevent the tongue 50 from swiveling in the direction opposite the dotted outline 54. The line 16 is thus tightly secured in place and cannot further unwind from the reel 12.

In FIG. 8 a second alternate securing means comprises a spring clip 62 for securing the line 16. The spring clip 62 includes a portion 64 which wraps about the strap 36 adjacent the spool end 22 sufficiently tightly to prevent sliding off beyond the Velcro fastener 40 when the strap is loose.

Returning to FIG. 3, the strap 36 may additionally have a snap or piece of Velcro fastener 60 secured to the strap between the slots 32 and 34 of the spool end 22. A complementary piece of Velcro fastener may be cemented to the rubber suit of the diver in the position (preferably on the diver's forearm) where he secures the reel. The reel, therefore, will always be located in the desired position on the diver's arm and the reel will be much less likely to slip from position once strapped in place. This additional fastening also facilitates putting the reel on, since the reel can now be easily secured to the diver's arm with the use of his other hand alone. Merely by pushing the Velcro fastener against this complementary piece, the reel will stay in place and the diver can easily wrap the strap 36 about his forearm with one hand and secure the Velcro fasteners 38 and 40 together. The additional Velcro fastener 60 allows the diver to change reels underwater alone and he may carry extra reels 17 on his weight belt as shown in FIG. 2.

In summary, the new diving reel is relatively simple in construction and has no moving mechanical parts with the exception of the alternate tongue in FIGS. 6 and 7. The line may be rewound on the spool with the diver's right hand substantially as quickly as the prior art reel can be cranked. However, with the new diving reel the rewinding action is conveniently within the view of the diver.

I claim:

1. A reel suitable for carrying line for scuba diving, comprising; a spool for winding line thereupon, a first spool end having line attachment means for securing a line, a second spool end having strap attachment means, a strap secured to said strap attachment means, quick release means on said strap to fasten said strap about the arm of a diver sufficiently tightly to prevent movement of said spool independently of said arm.

2. The reel of claim 1 wherein said line attachment means include a cleat on said first spool end.

3. The reel of claim 1 wherein said line attachment

means include wedging clips on said first spool end.

4. The reel according to claim 1 wherein said line attachment means includes a wedging clip and a tongue secured substantially diametrically opposite on said first spool end, and pivotal means securing said tongue extendably beyond the periphery of said first spool end.

5. The reel of claim 1 wherein said strap attachment means include at least one slot having said strap threaded therethrough.

6. The reel of claim 5 wherein said quick release means include complementary Velcro fasteners, one of which comprises projecting hook like elements with the other comprising a multiplicity of projecting loop elements, secured to said strap.

7. The reel of claim 6 wherein said quick release means include a Velcro fastener secured to said strap between two slots of said strap attachment means and complementary with a Velcro fastener secured to the diving suit of a diver at a pre-selected position.

8. The reel according to claim 5 wherein said quick release means include a Velcro fastener secured to said strap and complementary with a Velcro fastener, one of which comprises projecting hook like elements with the other comprising a multiplicity of projecting loop elements, secured to the diving suit of a diver at a pre-selected position.

9. The reel of claim 5 including means for securing a line end comprising a hole in said second spool end, said hole located between two slots in said strap attachment means to thereby position a line end securing knob between said strap and said second spool end.

10. A reel suitable for carrying line for scuba diving, comprising; a spool for winding line thereupon, means for securing one end of a line to said spool, a first spool end having wedging means for securing a line, a second spool end having a pair of slots, a strap threaded through said slots, and quick release means on said strap to fasten said strap about the arm of a diver sufficiently tightly to prevent movement of said spool independently of said arm.

11. The reel of claim 10 wherein said quick release means include complementary Velcro fasteners, one of which comprises projecting hook like elements with the other comprising a multiplicity of projecting loop elements, secured to said strap.

12. The reel of claim 11 wherein said quick release means include a Velcro fastener secured to said strap between said pair of slots and complementary with a Velcro fastener secured to the diving suit of a diver at a preselected position.

13. The reel of claim 10 including a tongue pivotally secured substantially diametrically opposite said wedging means on said first spool end and extendable beyond the periphery of said spool end.

14. A reel suitable for carrying line for scuba diving, comprising; a spool for winding line thereupon, means for securing one end of a line to said spool, a spool end having strap attachment means, a strap engaging said strap attachment means, quick release means on said strap to fasten said strap about the arm of a diver sufficiently tightly to prevent movement of said spool independently of said arm and line attachment means engaging said strap adjacent said spool end.

15. The reel of claim 14 wherein said line attachment means comprises a clip having a portion wrapped about said strap.

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