A connection device of a loop of a mooring line for a recreational craft and the like to a fastening element fixed onto a quay is described, of the type comprising at least one pair of opposite ends intended to be joined together and firmly attached to the loop of the mooring line. Advantageously, such a connection device comprises a flexible core having a flat cross section and fitted into a cover sheath, with which it substantially constitutes a single body, the cover sheath extending along the flexible core so as to expose the substantially loop-shaped opposite ends.
CONNECTION DEVICE OF AN END OF A MOORING LINE FOR A RECREATIONAL CRAFT AND THE LIKE TO A FASTENING ELEMENT FIXED ONTO A QUAY

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention refers to a connection device of an end of a mooring line for a recreational craft and the like to a fastening element fixed onto a quay.

[0003] In particular, it refers to a connection device suitable to replace a connection chain for the fastening of a loop of a mooring line to a fastening element, like a cleat of a quay.

[0004] 2. Description of the Related Art

[0005] In the field of recreational crafts and the like, it is known to use connection chains for mooring lines, schematically represented in the attached FIGS. 1A and 1B. Generally, a mooring line 1 of a boat, substantially a cable exhibiting a loop 1a at one end, is secured, through a connection chain 2 to a fastening element, in particular fixed onto a quay 4.

[0006] Such a fastening element 3 is for example a cleat having a typical flared column shape solidly fixed onto the quay 4, as schematically illustrated in FIG. 1A. The fastening of the connection chain 2 to such a cleat 3 secures the mooring of the boat by way of the mooring line 1, which bays a corresponding cleat on the deck of the boat.

[0007] In particular, the connection chain 2 has a pair of end links that are brought closer together and fastened to the loop of the mooring line 1 through a shackle or a spring hook 5 suitable for clasping the end links and the loop 1a of the mooring line 1. In this way, the connection chain 2 makes a loop that can be slipped over the cleat 3 directly or by way of a suitable fastening ring 6 (FIG. 1B).

[0008] Such a fastening element 3 can also be a mooring ring, again fixed onto the quay 4. In that case, the connection chain 2 is made to pass through the mooring ring prior to using the spring hook 5 to close the end links of the chain on the loop 1a of the mooring line 1.

[0009] Moreover, as a fastening element 3 one may use a catenary, again fixed onto the quay 4. In particular, it is known that a catenary is made up of a plurality of links having a sufficient diameter to ensure the passage of the connection chain 2, which is made to pass through one of them prior to using the spring hook 5 to close the end links of the chain on the loop 1a of the mooring line 1.

[0010] During the mooring of the boat, such a connection chain 2 is subject to strong frictions and rubbing on the quay 4.

[0011] Indeed, the undertow, the wind or the currents prevent the boat, even if moored, from maintaining a static position and pull the connection chain 2 fast, in one direction and then in the other, causing the rubbing against the quay 4 with consequent wear and weakening of the connection chain 2 itself.

[0012] A connection chain 2 must therefore have satisfactory characteristics of flexibility, of mechanical strength, especially to pulling and tearing, and of resistance to wear.

[0013] Such a connection chain 2, however, is particularly heavy and not very practical, both during sailing and during mooring, as well as being susceptible to friction against the quay 4 and to atmospheric conditions.

[0014] The technical problem underlying the present invention is that of devising a connection device for a mooring line of a recreational craft, having structural characteristics such that enable to overcome the limitations and/or drawbacks that presently affect the chains made according to the prior art.

BRIEF SUMMARY OF THE INVENTION

[0015] The aforementioned technical problem is solved by a connection device for a mooring line of a recreational craft with the like, of the type comprising at least one flexible core having substantially loop-shaped opposite ends, such flexible core having a flat cross section and being fitted in a cover sheath, with which it substantially constitutes a single body, said sheath being made in silicone or similar materials and extending along said core so as to expose loop-shaped opposite ends.

[0016] The characteristics and advantages of a connection device according to the invention will become clearer from the following description of preferred embodiments thereof, given for indicative and not limiting purposes with reference to the attached drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0017] FIG. 1A schematically represents a connection chain made according to the prior art, inserted between a loop 1a of the mooring line and a quay fastening element;

[0018] FIG. 1B schematically represents a connection chain made according to the prior art, inserted in a fastening element;

[0019] FIG. 2 schematically represents a connection device made according to one embodiment of the invention;

[0020] FIG. 3 schematically represents another embodiment of the connection device according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0021] With reference to FIG. 2 a connection device made according to one particular embodiment of the present invention is schematically represented and generally indicated by 10.

[0022] Elements that are structurally and functionally the same as the connection chain described with reference to FIG. 1A or 1B shall be given the same reference numerals for the sake of simplicity of explanation.

[0023] In particular, the connection device 10 according to the invention replaces the connection chain 2 and connects a mooring line 1 to a fastening element 3, for example a cleat fixed onto a quay 4.

[0024] Advantageously according to the invention, the connection device 10 comprises a flexible core 11, exhibiting substantially loop-shaped opposing ends 11a, 11b.
Moreover, the flexible core 11 is fitted into a cover sheath 12 made of silicone or similar materials.

In a preferred embodiment, the flexible core 11 of the connection device 10 according to the present invention has a flat cross section, like a belt. Moreover, the flexible core 11 and the cover sheath 12 advantageously substantially constitute a single body.

In particular, the cover sheath 12 is fitted over the flexible core 11 and extended for at least a portion of such a flexible core 11 so as to expose the substantially loop-shaped ends 11a, 11b.

In such a way it is possible, as seen with relation to the prior art, to bring closer together such ends 11a and 11b and fasten them to the loop 1a of the mooring line 1.

The connection device 10 made according to the invention is thus able to replace the connection chains 2 used in the prior art.

Preferably, the cover sheath 12 is positioned on the flexible core 11 without the interposition of adhesive material, the firm attachment with the flexible core 11 of the connection device being ensured by the close contact of the cover sheath 12 on it.

It should be noted that the cover sheath 12 is preferably made from silicone, a material that is notoriously practically unaffected by the corrosive action of atmospheric and marine agents and, thanks to its particular self-lubricating characteristic, it is particularly suitable for making a connection device 10 for nautical use that is resistant to wear due to rubbing against the quay 4.

Moreover, it is preferable to make the flexible core 11 in HT polyester.

Advantageously, in accordance with another characteristic of the present invention, the cover sheath 12 extends for almost the entire length of the flexible core 11, exposing only the loop-shaped ends 11a and 11b, thus protecting the flexible core 11 from the corrosive action of atmospheric and marine agents and from wear linked to friction against the quay 4.

According to a preferred embodiment of the present invention, the flexible core 11 of the connection device 10 comprises a strip folded over to form a double layer with opposite ends joined together to form a loop, advantageously flattened so as to substantially make a core 11 having a flat cross section.

In such a case, the end portions 11a and 11b not coated by the cover sheath 12, extending throughout for almost the entire length of the double-layered flexible core 11, are already loop-shaped.

It should be noted that the doubling in thickness of the flexible core 11, by closing it in a loop, enables to obtain an increase in mechanical strength of the connection device 10 as a whole and the formation of the two loops at its ends in a single operation.

Advantageously, in order to increase the flexibility of the connection device 10, the cover sheath 12 can comprise a plurality of segments 15 (FIG. 3), lined up in a head-to-tail arrangement, each one of which is individually fitted over the flexible core 11.

More specifically, the distance between successive sheath segments 15 is suitably determined, in particular reduced, so that an edge of a quay 4 or other potential rubbing objects cannot come into direct contact with the flexible core 11 of the connection device 10, by wedging between two adjacent segments of sheath and causing the connection device 10 to weaken.

It should be noted that the flexible core 11 of the connection device 10 according to the present invention can advantageously be made from special fabrics, already used in the nautical field, to make the so-called boat lifting straps. Such fabrics have, in particular, satisfactory characteristics of flexibility, mechanical strength, especially to pulling and tear, and of resistance to wear related to nautical usage.

The present invention also refers to a method for making the connection device 10 as described, of singular simplicity and safety.

Such a method comprises the steps of:

- providing a strip of suitably resistant material;
- cutting a piece of such a strip according to a length substantially equal to double the length of the connection device 10 that is intended to be made;
- joining together opposite ends of such a piece of band to form a loop;
- flattening such a loop; and
- fitting a cover sheath 12 onto such a loop so as to expose substantially loop-shaped opposite ends 11a, 11b.

In another embodiment of such a method, the step of fitting the cover sheath 12 comprises a plurality of steps of fitting on a plurality of sheath segments 15, lined up in a head-to-tail arrangement and suitably close to one another.

In conclusion, the connection device 10 according to the present invention allows a recreational craft to be moored safely, substantially reducing the weight of the connection device itself and eliminating any wear deriving from its rubbing against the quay 4, at the edges or projections, also canceling out the corrosive effect of atmospheric or marine agents that limit the lifetime of conventional connection chains.

All of the above U.S. patents, U.S. patent application publications, U.S. patent applications, foreign patents, foreign patent applications and non-patent publications referred to in this specification and/or listed in the Application Data Sheet, are incorporated herein by reference, in their entirety.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

1. A connection device for use at the end of a mooring line comprising a loop for a recreational craft and the like to a fastening element associated with a mooring quay, the device comprising:
at least one pair of opposite ends intended to be joined together by means of said loop of said mooring line, characterized in that it comprises a flexible core having a flat cross section and fitted into a cover sheath, with which it substantially constitutes a single body, said cover sheath extending along said flexible core so as to expose said substantially loop-shaped opposite ends.

2. A connection device according to claim 1, wherein said cover sheath is made in anti-abrasion silicone or similar materials.

3. A connection device according to claim 1, wherein said flexible core comprises a strip folded over to form a double layer with opposite ends joined together to form a flattened loop.

4. A connection device according to claim 1, wherein said flexible core is made of HT polyester.

5. A connection device according to claim 1, wherein said cover sheath comprises a plurality of sheath segments, separately fitted onto said flexible core in a substantially head-to-tail arrangement.

6. A method for making a connection device for use in combination with a loop of a mooring line for a recreational craft and the like to a fastening element, the method comprising the steps of:

- providing a strip of suitably resistant material;
- cutting a piece of said strip according to a length substantially equal to double the length of said connection device;
- joining together opposite ends of said piece of strip to form a loop;
- flattening said loop; and
- fitting a cover sheath onto said loop so as to expose substantially loop-shaped opposite ends.

7. A method according to claim 6, wherein said step of fitting said cover sheath comprises fitting a plurality of segments of sheath, lined up in a head-to-tail arrangement and suitably close to one another.

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