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(54) **Covering for hulls of vessels**

(57) Covering comprising at least one tarpaulin (1, 1') suitable for being applied to a hull (2) of a vessel, wherein an upper edge of the tarpaulin (1, 1') is provided

with one or more loops (3, 3') for a belt (17), while one or both lateral edges of the tarpaulin (1, 1') are provided with fasteners (10) for joining the tarpaulin (1, 1') to another tarpaulin arranged beside it.

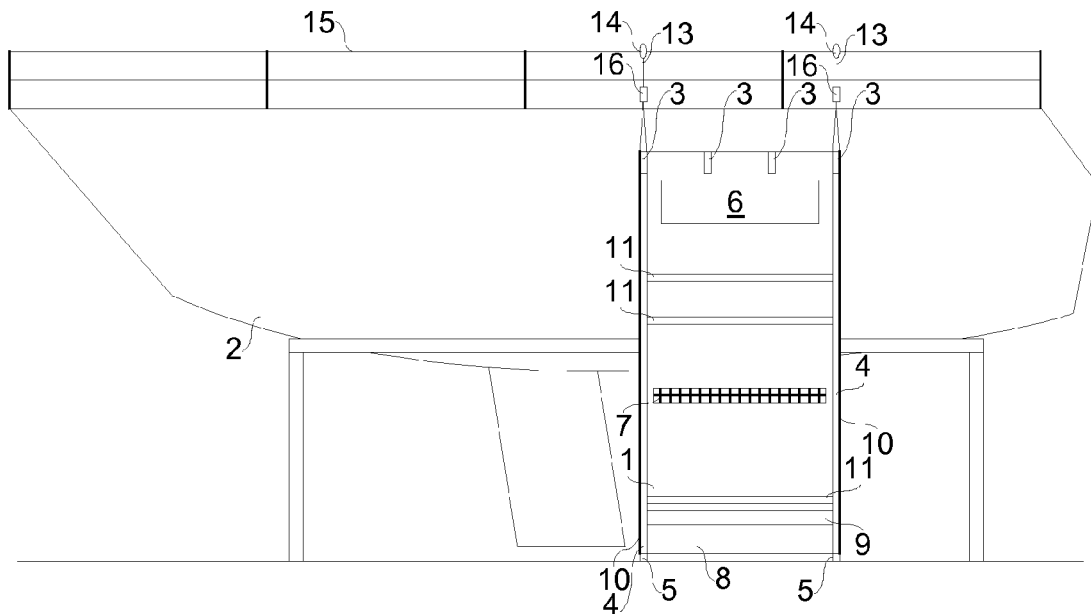


Fig.1

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Description

[0001] The present invention relates to a covering for hulls of vessels, and in particular to a covering which can be used when a vessel is on dry land for its maintenance.

[0002] Vessels are extracted from water and mounted on a support for the maintenance of the hull, in particular for scraping and repainting its surface. Said support is arranged in a closed shed for protecting the maintenance operations from dirt and wind, as well as for avoiding the propagation of the paint fumes.

[0003] As an alternative, plastic tarpaulins can be applied to the hull by means of adhesive tape, so that the vessel does not need to be moved into a shed. However, these tarpaulins are moved by the wind and can thus touch the hull, so as to hamper or even compromise the maintenance.

[0004] US 5355823 discloses a rigid covering which is thus difficult, complex and expensive to be manufactured and mounted, while SU 1661054 discloses an inflatable covering, which however requires the continuous use of air compressors for avoiding that the covering collapses.

[0005] It is therefore an object of the present invention to provide a covering which is free from said disadvantages. Said object is achieved with a covering, whose main features are disclosed in the first claim, while other features are disclosed in the remaining claims.

[0006] Thanks to the particular accessories of the tarpaulins composing the covering according to the present invention, this covering can be assembled and disassembled in a simple and fast manner for protecting a hull in a rain-proof and wind-proof manner. The resistance of the covering is further improved by pockets which can be easily filled with ballasts.

[0007] The tarpaulins are preferably provided with pads coated with an anti-slip material for allowing a high seal and a suitable support of the tarpaulins, without damaging the hull.

[0008] The tarpaulins are further preferably provided with particular removable uprights and spacers for creating in a simple and fast manner a wide working space around the hull for its maintenance.

[0009] Further advantages and features of the covering according to the present invention will become clear to those skilled in the art from the following detailed and non-limiting description of an embodiment thereof with reference to the attached drawings, wherein:

- figure 1 shows a side view of a vessel during the assembly of the covering;
- figure 2 shows a front view of the vessel of figure 1;
- figure 3 shows a side view of the vessel of figure 1 with the assembled covering;
- figure 4 shows a front view of the vessel of figure 3; and
- figure 5 shows enlarged section V-V of figure 4.

[0010] Referring to figures 1 and 2, it is seen that the

covering according to the present invention comprises in a known way at least one tarpaulin 1 suitable for being applied outside a hull 2 of a vessel. Tarpaulin 1 is made of an impermeable or breathable opaque plastic material and has a substantially rectangular shape.

[0011] Tarpaulin 1 is provided with one or more loops 3 arranged along an upper edge and with at least one longitudinal seat 4 substantially parallel to one or both lateral edges. Loops 3 and/or longitudinal seats 4 can comprise strips of the same material of tarpaulin 1 or of another material, which stripes are joined to tarpaulin 1 by means of at least two parallel seams. Longitudinal seats 4 are suitable for containing in a stable manner an upright 5 for supporting tarpaulin 1 against hull 2. Upright 5 can comprise a lower portion and an upper portion, wherein the upper portion is more flexible than the lower portion. In particular, upright 5 is made up of at least two tubes having a different diameter and inserted one into the other, wherein the tube with the smaller diameter is more flexible than the tube with the larger diameter. The lower end of upright 5 is provided with a foot for resting on the ground. Tarpaulin 1 can be provided with a transparent window 6 preferably in the upper half of tarpaulin 1 and with a grill 7 preferably in the lower half of tarpaulin 1. At least one pocket 8 suitable for containing a ballast is arranged along a lower edge of tarpaulin 1. The upper opening 9 of pocket 8 is bent downward and is provided with fasteners, in particular fastening tapes such as Velcro tapes or the like. One or both lateral edges of tarpaulin 1 are provided with fasteners 10, for example fastening tapes, clip-fasteners, etc., in particular zip fasteners, for joining tarpaulin 1 to another tarpaulin arranged beside it. The fasteners 10 on one lateral edge of tarpaulin 1 are preferably complementary to the fasteners 10 on the other lateral edge of tarpaulin 1. A plurality of ribs 11 are fastened to tarpaulin 1 substantially parallel to its lower edge. At least one pad 12 is fastened to an inner side of tarpaulin 1 suitable for being turned toward hull 2 in correspondence with loops 3, which are instead arranged on the opposite side of tarpaulin 1. The outer surface of pad 12 is preferably coated with an anti-slip material.

[0012] During a first assembly step, uprights 5 are inserted into longitudinal seats 4 and tarpaulin 1 is hung to the vessel by means of at least two ropes 13 which are provided with a hook 14 suitable for being fastened for example to the railing 15 of the vessel. Ropes 13 pass through a hole, a ring or a loop 3 of tarpaulin 1 and their length can be adjusted by means of a buckle 16, so as to hang tarpaulin 1 at a determinate height with respect to hull 2. Each longitudinal seat 4 of tarpaulin 1 is in contact with the inner surface of pad 12, so that the upper end of an upright 5 can press pad 12 toward hull 2.

[0013] Referring to figures 3 and 4, it is seen that in a second assembly step further tarpaulins 1 are hung on the sides of hull 2 by means of cables 13 and are joined one to the other by means of fasteners 10, after which one or more belts 17 are inserted into loops 3 of tarpaulins 1 and pulled by means of a buckle 18, so as to urge pads

12 of tarpaulins 1 against hull 2. Pockets 12 are filled with ballasts and closed by pressing both edges of upper opening 9. A further tarpaulin 1' similar to the other tarpaulins 1 but provided with a curved upper edge can be arranged under the stem of hull 2. At least one loop 3' is arranged on the top of the upper edge of tarpaulin 1'.

[0014] Referring to figure 5, it is seen that tarpaulins 1 are preferably provided with at least one spacer 19 suitable for being arranged between a tarpaulin 1 and hull 2. An end of spacer 19 is provided with a suction cup 20 suitable for being applied to the outer surface of hull 2, while the other end is inserted into a sleeve 21 provided with a flexible tongue 22. Flexible tongue 22 is provided with fastening tapes on both sides for being fastened between two further fastening tapes 23 joined to tarpaulin 1, wherein at least one fastening tape 23 is sewn to tarpaulin 1 only along an edge acting as a hinge. Spacer 19 is arranged in a horizontal or inclined position and is joined to tarpaulin 1 thanks to fastening tapes 23 in correspondence with an upright 5, so as to bend its upper portion, while the lower portion is substantially rectilinear and vertical.

[0015] The rear portion of hull 2 may be covered by further tarpaulins 1 or left open, as in the present embodiment.

[0016] Possible modifications and/or additions may be made by those skilled in the art to the hereinabove disclosed and illustrated embodiment while remaining within the scope of the following claims.

Claims

1. Covering comprising at least one tarpaulin (1, 1') suitable for being applied to a hull (2) of a vessel, **characterized in that** an upper edge of the tarpaulin (1, 1') is provided with one or more loops (3, 3') for a belt (17), while one or both lateral edges of the tarpaulin (1, 1') are provided with fasteners (10) for joining the tarpaulin (1, 1') to another tarpaulin arranged beside it.
2. Covering according to the previous claim, **characterized in that** the tarpaulin (1, 1') comprises at least one longitudinal seat (4) substantially parallel to one or both lateral edges for containing in a stable manner an upright (5) suitable for supporting the tarpaulin (1, 1').
3. Covering according to the previous claim, **characterized in that** it comprises at least one upright (5) suitable for being arranged in the longitudinal seat (4) for supporting the tarpaulin (1, 1').
4. Covering according to the previous claim, **characterized in that** the upright (5) comprises a lower portion and an upper portion, wherein the upper portion is more flexible than the lower portion.
5. Covering according to one of the previous claims, **characterized in that** at least one pocket (8) suitable for containing a ballast is arranged along a lower edge of the tarpaulin (1, 1').
6. Covering according to one of the previous claims, **characterized in that** at least one pad (12) is fastened to a side of the tarpaulin (1, 1') in correspondence with the loops (3, 3').
7. Covering according to the previous claim, **characterized in that** the loops (3, 3') and the pad (12) are arranged on opposite sides of the tarpaulin (1, 1').
8. Covering according to claim 6 or 7, **characterized in that** the outer surface of the pad (12) is coated with an anti-slip material.
9. Covering according to one of claims 6 to 8, **characterized in that** the longitudinal seat (4) of the tarpaulin (1, 1') is in contact with the inner surface of the pad (12).
10. Covering according to one of the previous claims, **characterized in that** it comprises at least two ropes (13) which are provided with a hook (14) and with a buckle (16) for hanging the tarpaulin (1, 1') at a determinate height with respect to the hull (2).
11. Covering according to one of the previous claims, **characterized in that** it comprises one or more belts (17) suitable for being inserted into the loops (3, 3') of the tarpaulin (1, 1') and pulled by means of a buckle (18) for urging the tarpaulin (1, 1') against the hull (2).
12. Covering according to one of the previous claims, **characterized in that** it comprises at least one spacer (19) suitable for being arranged between the tarpaulin (1, 1') and the hull (2).
13. Covering according to the previous claim, **characterized in that** an end of the spacer (19) is provided with a suction cup (20) suitable for being applied to the outer surface of the hull (2).
14. Covering according to claim 12 or 13, **characterized in that** an end of the spacer (19) is inserted into a sleeve (21) provided with a flexible tongue (22).
15. Covering according to the previous claim, **characterized in that** the flexible tongue (22) is provided with fastening tapes on both sides for being fastened between two further fastening tapes (23) joined to the tarpaulin (1, 1').

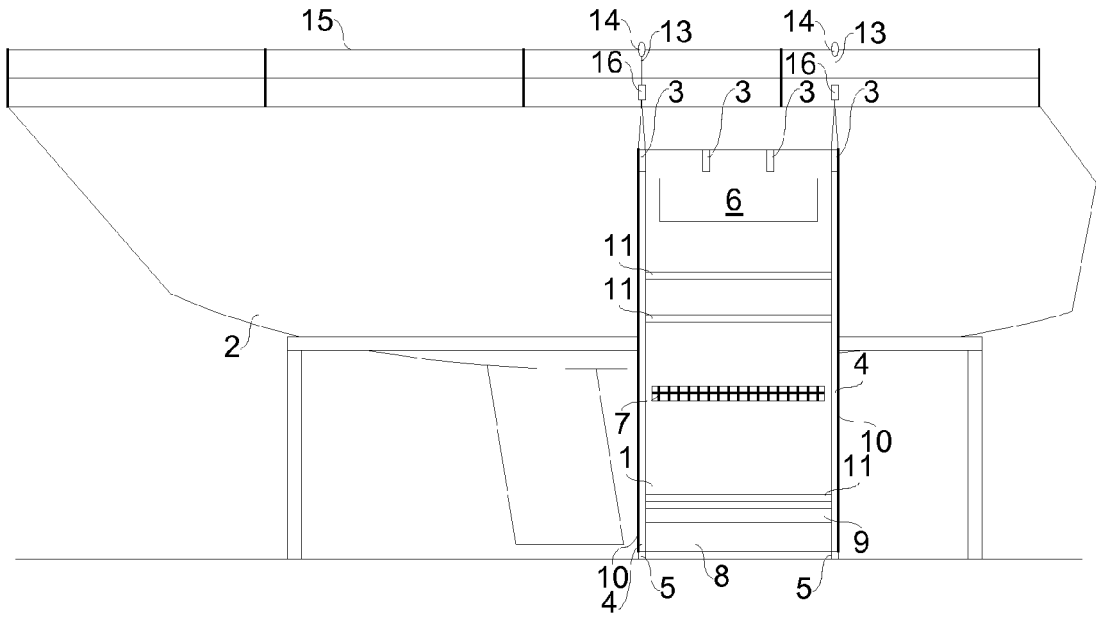


Fig. 1

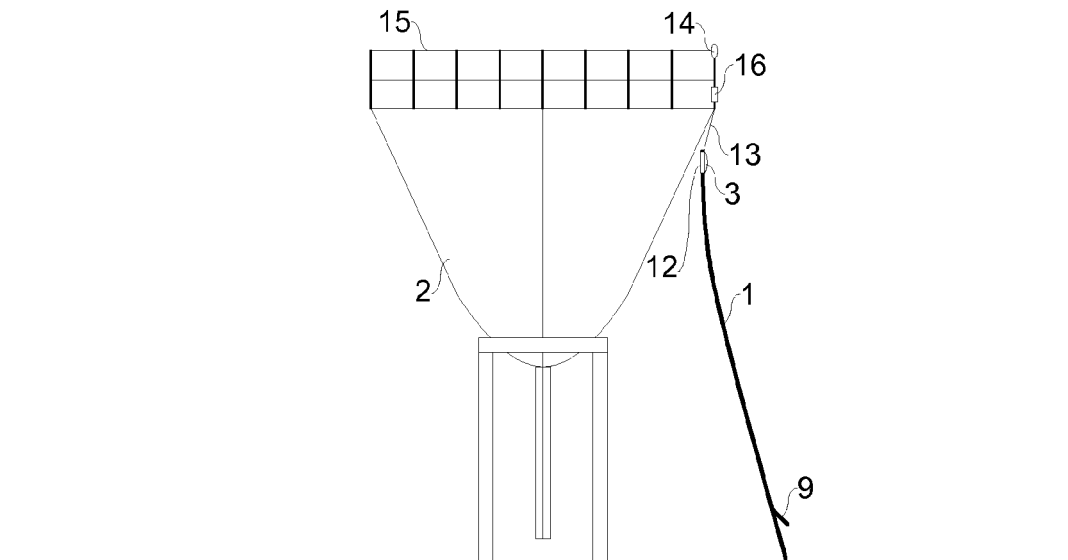


Fig. 2

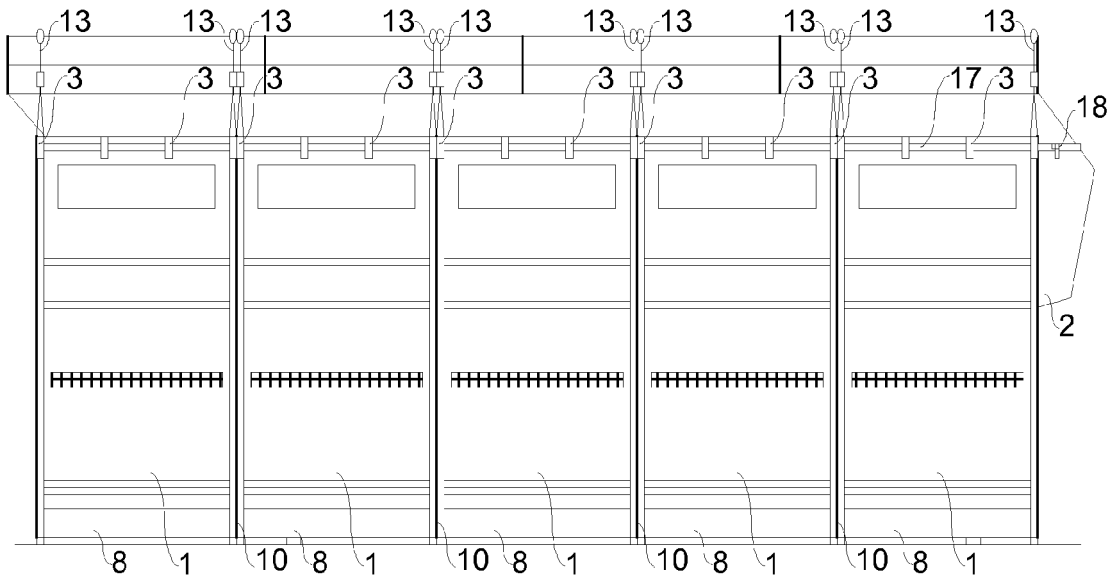


Fig. 3

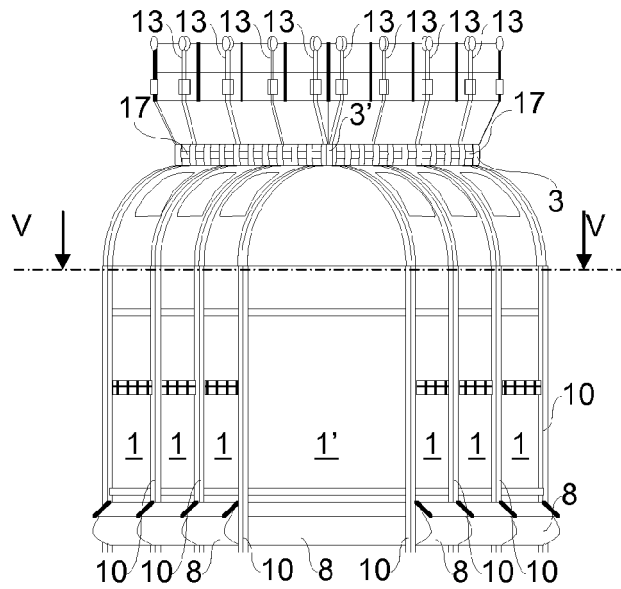
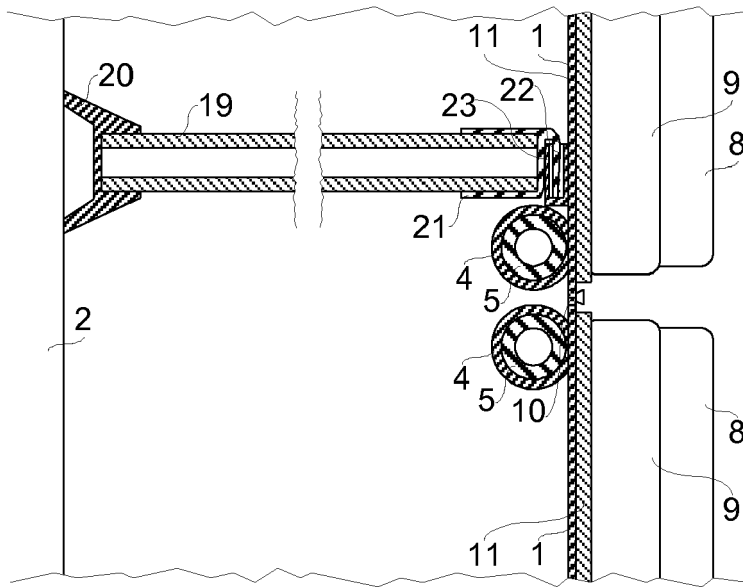


Fig. 4





EUROPEAN SEARCH REPORT

Application Number
EP 10 30 5536

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	US 3 399 687 A (FRIEDER LEONARD P) 3 September 1968 (1968-09-03) * column 2, line 37 - column 3, line 54; figure 1 *	1,2,10, 11 5,15	INV. B63B59/00
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) B63B
Place of search Munich		Date of completion of the search 21 October 2010	Examiner Brumer, Alexandre
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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