

Gutter for a hose for transfer of oil between
two floating structures

5 The present invention is related to a gutter for storing and connecting of a hose for transfer of oil between two floating structures.

 Transfer of oil offshore today is performed according to different principles, and increasingly a transfer system is
10 used shuttle tanker from a stationary ship equipped with the loading system STL arranged near the bow of the ship which is used as a storing tank. Unloading is performed over the stern of the ship to the shuttle tanker.

 The hoses used for loading must be treated very
15 carefully and several developments are made to ensure such a claim.

 With the present invention a system is provided, ensuring consider it treatment and rapid preparations for oil transfer and the following parking of the transfer hose. This is
20 achieved according to the features stated in the claims.

 The drawing discloses in figure 1 a ground view of part of a stern of a storing tanker with the gutter according to the present invention, figure 2 discloses a sketch of the stern of the ship and figure 3 discloses a sideview of the gutter
25 according to the invention.

 A set 3 of rails extend from the stern of the storing tanker and to the bow of the ship substantially along the entire length of the ship. The rail set 3 is arranged at a height above the deck of the ship. On the rail set is provided a carriage 1
30 having wheels gripping above and below the rails of the rail set 3. To the carriage 1 is secured a wire extending forwardly to a not disclosed wire winch.

 Lowered in relation to the rails of the set 3 of rails are arranged transversal rollers 9 in the entire length of the
35 set 3 of rails. Near the stern 8 of the ship the track continuous with rollers 9 in a curve downwardly into a substantially vertical direction. The vertical portion of the rail comprising rollers 9 is situated directly above or in front of the stern 8 of the ship.

On the carriage 1 is journaled a ball link 4 in which a hose 2 is secured. In connection with the ball link 4 is arranged a T-piece 5 opposite the ball link 4 in relation to the bearing. At the stern is secured a turnable unloading manifold 6 comprising a connection connected with the piping system of the ship via a swivel and closing valve. The ball link 4 and its bearing is secured to the carriage on parts extending rearwardly from the carriage in such a way that the hose 2 with the carriage 1 in the rear position, is suspending downwardly behind the heck 8 of the ship.

By connecting the hose 2 to another ship, a forerunner is shot over to a shuttle tanker. The forerunner is connected with a chain which again is connected with the end of the hose 2 which is arranged on the rollers 9 near the stern 8.

The mooring hawser and the chain is pulled over to the shuttle tanker and thereby pulling the hose 2 whereas the wire winch is holding the carriage 1 back such that the hose 2 only is given out corresponding to the transfer to the shuttle tanker.

When the complete length of the hose 2 is given out from the ship, the carriage 1 is situated at the rear end of the rail set 3 and the hose 2 will suspend freely downwardly in such a way that the T-piece 5 is protruding up from the bearing of the ball link 4. Thereby the T-piece 5 is in position for connection by means of flanges secured to the T-piece, to the unloading manifold 6.

The hose 2 being suspended without momentum forces vertically downwardly from the ball link 4 on the storing tanker and in a catenary curve to the shuttle tanker, may in the horizontal plane be directed anywhere within an angle limited by a parallel with the stern 8 of the ship and a parallel to the side 7 of the ship.

When the hose 2 is given out it will follow the track with rollers 9 which at the stern has a radius sufficiently large to ensure the hose against any damage.

Upon finishing the unloading operation the hose 2 is released from the shuttle tanker and lowered into the sea, vertically downwards from the ball link 4. By means of the wire winch the carriage 1 is pulled to the bow of the ship in such a way that the hose 2 very carefully is withdrawn and brought to

rest on the rollers 9. The carriage 1 is provided with means for locking in both end positions.

The set of rails 3 and the rollers 9 does not extend beyond the stern 8 of the ship when the carriage 1 is situated
5 in the bow position. The gutter according to the present invention provides considerate treatment of the hose 2 during the unloading operation in the connected position as well as in the storing position. The hose 2 is free from any momentum forces when it is suspended from the ball link 4 beyond the stern 8 and
10 the hose 2 is well secured.

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P a t e n t c l a i m

Gutter for storing and connection of a hose (2) for
5 transferring oil between two floating structures, especially
between a storing tanker and a shuttle tanker offshore, CHARAC-
TERIZED IN a set of rails (3) extending, lifted up from the deck
of the storing tanker, from the stern substantially to the bow
of the tanker, a carriage (1) being adapted to run on the set of
10 rails (3) comprising equipment which extends beyond the stern (8)
of the storing tanker with the carriage in the rear position, the
hose (2) being connected to a ball link (4) being journalled on
the portions extending behind the carriage (1) and comprising a
T-piece (5) connected with the ball link opposite the bearing of
15 the ball link, being adapted for connection to an unloading
manifold (6) secured to the deck with the carriage (1) in the
rear position, transversal rollers (9) being arranged preferably
lowered in the rail set (3) along its entire length and
terminating near the stern (8) in an arcuate transition to
20 substantially a vertical direction, adapted as a rolling path for
the hose (2), and that a wire extends from the carriage (1) to
a winch arranged near the bow of the ship.

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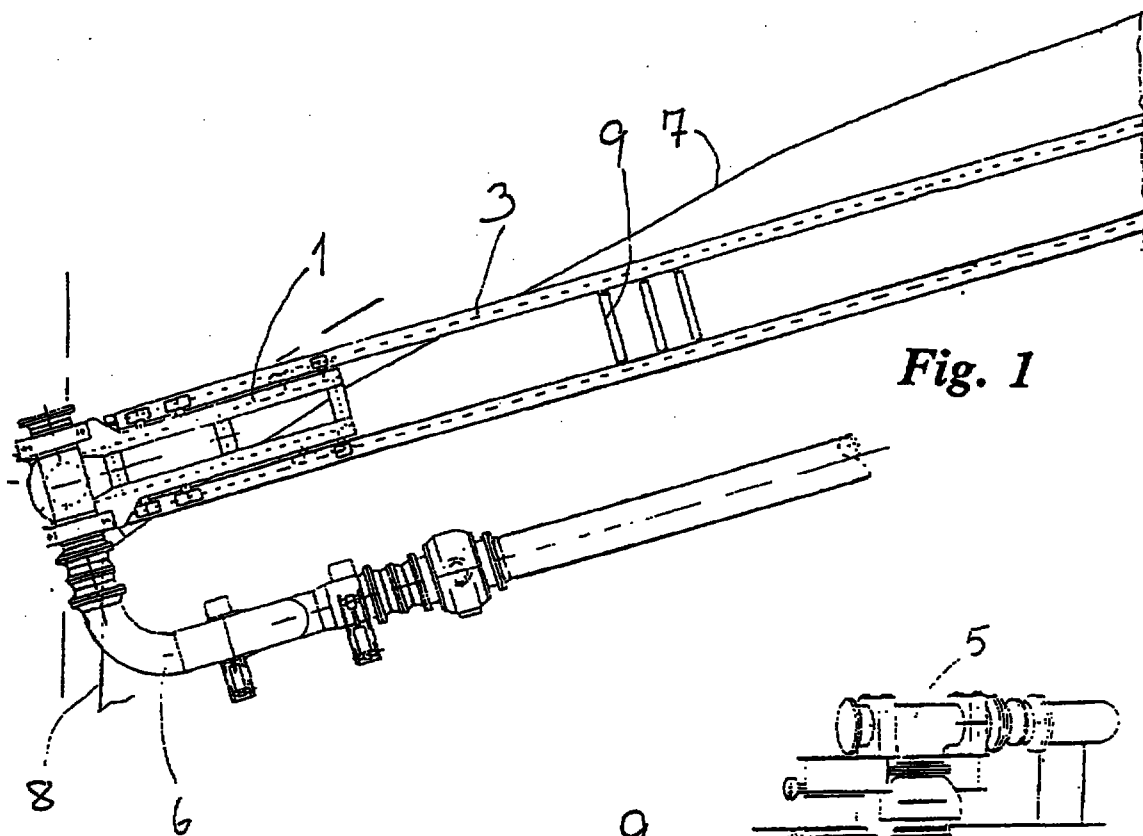


Fig. 1

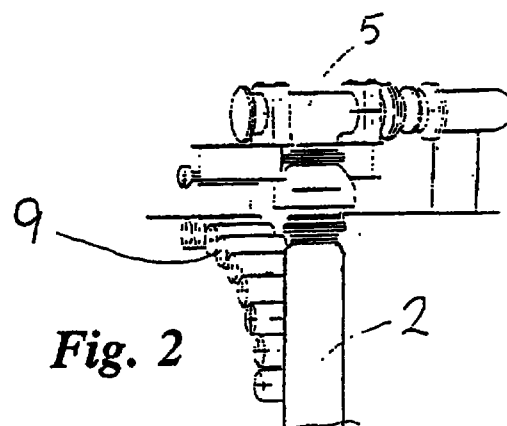


Fig. 2

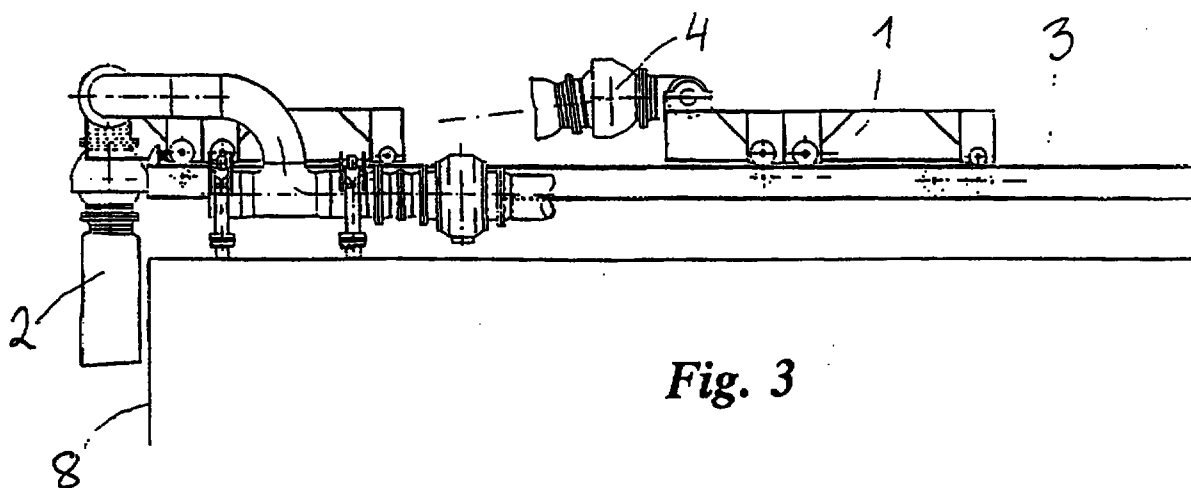
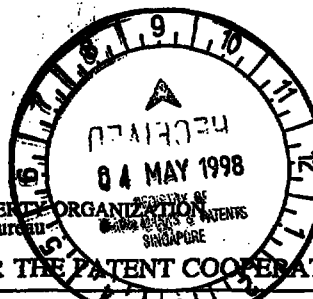


Fig. 3

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(21) International Application Number: PCT/NO96/00218 (22) International Filing Date: 9 September 1996 (09.09.96) (30) Priority Data: 953544 8 September 1995 (08.09.95) NO (71) Applicant (for all designated States except US): HITEC MARINE A/S [NO/NO]; Kittelsbukt 1, N-4800 Arendal (NO). (72) Inventor; and (75) Inventor/Applicant (for US only): ØDESKAUG, Lars [NO/NO]; Sandstøhaven, N-4812 Kongshavn (NO). (74) Agent: TANDBERGS PATENTKONTOR A/S; P.O. Box 7085, N-0306 Oslo (NO).		(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> <i>In English translation (filed in Norwegian).</i>
(54) Title: GUTTER FOR A HOSE FOR TRANSFER OF OIL BETWEEN TWO FLOATING STRUCTURES		
(57) Abstract Gutter for storing and connection of a hose (2) for transferring oil between two floating structures, especially between a storing tanker and a shuttle tanker offshore, where a set of rails (3) is extending, lifted up from the deck of the storing tanker, from the stern substantially to the bow of the tanker, a carriage (1) being adapted to run on the set of rails (3) comprising equipment which extends beyond the stern (8) of the storing tanker with the carriage in the rear position, the hose (2) being connected to a ball link (4) being journaled on the portions extending behind the carriage (1) and comprising a T-piece (5) connected with the ball link opposite the bearing of the ball link, being adapted for connection to an unloading manifold (6) secured to the deck with the carriage (1) in the rear position, transversal rollers (9) being arranged preferably lowered in the rail set (3) along its entire length and terminating near the stern (8) in an arcuate transition to substantially a vertical direction, adapted as a rolling path for the hose (2), and that a wire extends from the carriage (1) to a winch arranged near the bow of the ship.		