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(54) A tilting gravity davit for a free-fall boat.

(57) Launching apparatus for a free-fall boat with a sloping launching cradle (4) at a board or side of a ship or offshore structure (1), on which a lifeboat can be releasibly locked, wherein that said cradle (4) is mounted for tilting movement and when its lock (9) has been released can be tilted between an inwardly tilted position, in which the cradle (4) occupies a stand-by position sloping away from the board or side of a ship or offshore structure (1) and an outwardly tilted position, in which said cradle (4) extends substantially downwardly along the outboard side, said tiltable cradle (4) constituting part of a davit (3) which, in the outwardly tilted position of the cradle, can be operative to raise or lower a free-fall boat, said cradle being connected at a fixed angle to a hoisting/veering arm (6) and the davit assembly (30) constituted by said cradle (4) and said arm (6) being hingedly (2) mounted along the board or side of a ship or offshore structure (1) with the centre of gravity of the assembly being located outboard of the hinge (2), the davit (3) being tiltable between an inward end position, in which the cradle (4) is in a lockable (9), sloping stand-by position, and an outward end position, in which the cradle (4) extends substantially vertically downwardly along the side, and the hoisting/veering arm (6) extends outboard with the head (12) of the arm beyond the cradle (4).

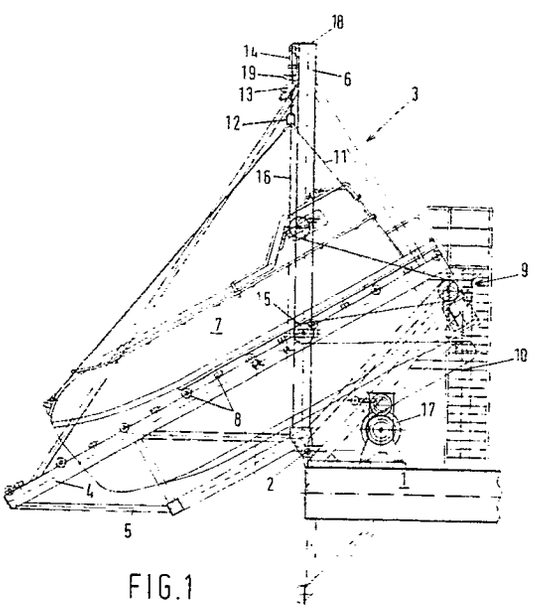

FIG.1

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A TILTING GRAVITY DAVIT FOR A FREE-FALL BOAT

This invention relates to launching apparatus for a free-fall boat with a sloping launching cradle at a board or side of a ship or offshore structure, on which a lifeboat can be releasibly locked.

On board seagoing ships or offshore rigs, in addition to life-saving devices in which boats or rafts are lowered by gravity, free-fall boats are also used. These are anchored on a sloping cradle at a board or side with the bow directed outboard. When the boat has been manned, the locking is released, and the boat slides off the sloping cradle.

One advantage of free-fall boats is that, owing to the fall movement, they move directly away from the launching apparatus. Another advantage is that, once water-born, no further uncoupling operations are needed.

A disadvantage is that this form of launching cannot always take place, for example, in case ice and flotsam are floating in the water, on which the boat may be smashed.

Boat drills with a free-fall boat will require the boat to be repeatedly hoisted and placed in the stowed position on its cradle.

Accordingly, a veering and hoisting tackle is needed both for lowering the boat onto the water in a controlled manner and for hoisting it and placing it on the cradle.

It is an object of the present invention to provide means at the cradle of a free-fall boat, which independently of power supply enables the boat to be launched both through free fall and in a controlled manner, and further provides the possibility of grappling a water-born boat, hoisting it, and stowing it on its cradle. These last operations naturally do require energy.

According to the present invention, said cradle is mounted for tilting movement and when its lock has been released can be tilted between an inwardly tilted position, in which the cradle occupies a stand-by position sloping away from the board or side of a ship or offshore structure and an outwardly tilted position in which said cradle extends substantially downwardly along the outboard side, said tiltable cradle constituting part of a davit which, in the outwardly tilted position of the cradle, can be operative to raise or lower a free-fall boat, said cradle being connected at a fixed angle to a hoisting/veering arm and the davit assembly constituted by said cradle and said arm being hingedly mounted along the board or side of a ship or offshore structure with the centre of gravity of the assembly being located outboard of the hinge, the davit being tiltable between an inward end position, in which the cradle is in a lockable, sloping stand-by position, and an outward end position, in which the cradle extends substantially vertically downwardly along the side and the hoisting/veering arm extends outboard with the head of the arm beyond the cradle.

For the free-fall launching of a boat, there is no difference with prior equipment. If, however, it is desired for the boat to be lowered in a controlled manner, it is attached to the davit, the cradle is tilted away from under the boat, and the boat is lowered by the davit.

When the option is for the controlled launching of a boat locked on the cradle, the boat is fastened to a winch rope or cable passed over the head of the hoisting/veering arm. The davit is tilted to the forward position, in which the cradle extends vertically downwards along the side. During this tilting movement, the boat's weight is taken over by the hoisting rope or cable, and after the cradle has been tilted away from under the boat, the boat can be launched by veering.

Preferably, the apparatus comprises a winch whose rope or cable is passed to the head of the hoisting/veering arm, and which winch is so adjustable, in conjunction with the positive torque acting on the davit due to the location of the centre of gravity relative to the hinge, that both with and without a boat being placed on the cradle, the davit tilts to its outboard end position under the control of the brake of the winch when the cradle is unlocked.

In that arrangement, when a boat initially placed on the sloping cradle is lowered from a hoisting rope or cable in a controlled fashion, after the cradle has been tilted away from under the boat, veering will follow automatically until the boat is water-born.

In order that it may be possible to the occupants of a lowered boat to break the connection with the hoisting rope or cable, use can be made, according to a further feature of this invention, of a suspension block of such a weight that the block only, without any load being carried by it, is capable of veering the winch rope or cable. When a lowered boat is water-born, the winch rope or cable will be paid out further under the influence of the weight of the suspension block, and the tension in the hoisting cable or rope will be released, so that the block can be readily detached from the boat. Another advantage of this feature is that, for example in boat drills, when a boat is water-born, it is possible, without driving the winch in a veering sense, to lower the suspension block for grappling the boat and hoisting it.

Furthermore, according to the invention, a stop for said block may be provided near the head of

the hoisting arm, so that, in addition to the controlled outboard tilting of the assembly of cradle and hoisting/veering arm, the winch can also be used for tilting the assembly of cradle and hoisting/veering arm from the outward end position back to the inward end position.

When a launched boat must be hoisted up again, the procedure is as follows. When the boat has been lowered through a free-fall launch, first the davit must be tilted to the outboard position. When the boat has been lowered in a controlled way, the davit is already in the outboard position.

As far as necessary, the hoisting rope or cable is lowered and fastened to the boat. Subsequently, the winch is driven in a winding sense so that the boat is hoisted out of the water. This hoisting operation is maintained until the suspension block touches the stop near the head of the hoisting/veering arm. From this moment, pulling with the winch will cause the davit to tilt inwardly, while the boat remains at the same distance from the head of the arm. As a consequence, the boat is pulled inwards until it reaches a position over the cradle at the moment the cradle reaches its stand-by, sloping starting position. The cradle can now be locked and the boat can be lowered onto it. When the boat has been locked on the cradle, the suspension block can be detached from the boat and the boat is ready for a free-fall launch.

For the controlled launching of the free-fall boat, it is fastened to the hoisting block, uncoupled from the cradle, and during the outward tilting movement the boat is automatically lifted off its cradle. During the subsequent veering of the boat, the resultant of the rope forces acting on the hoisting arm may be such relative to the hinge that the davit is kept in the inward tilted position, and the cradle bars the boat from being lowered further.

By providing the hoisting arm with a catch, in accordance with the present invention, which catch is operative to support the block through a limited tilting angle of the arm, the boat can be temporarily suspended from the catch, until the assembly of davit and the boat hanging above the cradle tilts to the outboard position. The catch, which may take the form of a hook projecting from the arm, may be so dimensioned that, after a tilting movement of the davit assembly which moves the cradle outside the launching path of the boat, the hoisting block is no longer supported by the hook, and the boat can be veered.

The tilting davit can also be used for correcting the cradle slope at various list positions.

One embodiment of the tilting gravity davit for a free-fall boat in accordance with the present invention will now be described, by way of example, with reference to the accompanying drawings. In said drawings,

Fig. 1 is a side-elevational view of the davit in the inward tilted position, suitable for launching a life-boat in free fall;

Fig. 2 shows the davit illustrated in Fig. 1 in the position in which the boat can be lowered by the davit in a controlled fashion; and

Figs. 3A and 3B are enlarged details, showing the head of the hoisting/veering arm in two different tilted positions.

Referring to the drawings, there is shown, on a board or side of a rig or other structure 1, tiltable about a hinge 2, a davit 3, essentially composed of a cradle 4 and a hoisting/veering arm 6 connected to the cradle at a fixed angle by a frame 5. Davit 3 is shown in Fig. 1 in an inwardly tilted position, in which the cradle slopes outwardly in a stand-by position for the free-fall launch of a life-saving sloop 7 placed on it. The sloop 7, which rests upon and between rollers 8, is lockable relative to cradle 4 from the sloop.

When circumstances do not permit sloop 7 to be launched in free fall, it can be lowered in a controlled fashion by means of davit 3.

For this purpose, the sloop is attached through so-called bridles 11 to the eyelet 12 of a hoisting block 13, which through a stop 14 is fastened to a cable 16 of a winch 17, passed over rollers 15. Near the head 19 of the hoisting/veering arm 6 a hook-shaped catch 19 extends a small distance outwardly from hoisting/veering arm 6. In the inwardly tilted position of davit 3 (see Fig. 1 and Fig. 3A), the hoisting/veering arm 6 is directed virtually vertically, and block 13 rests upon catch 19. When the sloop lock has been released, the weight of the (manned) sloop 7 is transmitted through block 13 to catch 19. When the cradle has been unlocked, and winch cable 16 is veered, then, as the centre of gravity of the assembly of davit 3 and boat 7 is located on the outboard side of hinge 2, the davit is tilted to the outboard position illustrated in Fig. 2, whereby catch 19 continues to support block 13 until the hoisting/veering arm 6 has reached the position shown in Fig. 3B, in which catch 19 has released block 13. This position of the hoisting and veering arm 6 corresponds to such a distribution of forces in the cable that, even without being supported on catch 19, the assembly of cradle 4, hoisting/veering arm 6, and sloop 7 tilts on into the outward end position, in which frame 5 is in contact with a stop 20, which corresponds to a virtually vertical position of the cradle next to, and outside of, the launching path of sloop 7.

Block 13 is sufficiently heavy for cable 16 to be veered even without carrying the sloop. This is of importance in connection with the possibility of practicing with the tiltable gravity davit and a free-fall boat, which requires the sloop to be repeatedly hauled out of the water and re-installed on the

cradle.

After a free-fall launch, the davit is in the position shown in Fig. 1. Hoisting the sloop requires the davit to be first moved into the position shown in Fig. 2. This is effected during boat drills by unlocking cradle 4 at 9, and releasing the winch brake. Under the influence of the outboard location of the centre of gravity, davit 3 tilts automatically into its outboard position, and block 13, which has meanwhile been released by catch 19 is lowered, while winch cable 16 is being veered, to the water surface, where the sloop can be grappled. By driving the winch, the sloop is hoisted until block 13 touches stop 14. The winch 17 then pulls davit 3 inwards, and sloop 7 comes to hang a short distance above the cradle 4, which has returned into its stand-by position. When cradle 4 has again been locked (at 9), the sloop can be lowered onto the cradle and locked relative to cradle 4.

The location of guide rollers 15 has been so selected that during the hoisting of the sloop, it is just the sloop which moves upwards, without davit 3 being tilted back.

When a sloop has been lowered in a controlled fashion and has to be hoisted up, the davit is already in the outboard position shown in Fig. 2 and the block can be directly coupled to the waterborn sloop.

Claims

1. Launching apparatus for a free-fall boat with a sloping launching cradle at a board or side of a ship or offshore structure, on which a lifeboat can be releasibly locked, characterized in that said cradle (4) is mounted for tilting movement and when its lock (9) has been released can be tilted between an inwardly tilted position, in which the cradle (4) occupies a stand-by position sloping away from the board or side of a ship or offshore structure (1) and an outwardly tilted position, in which said cradle (4) extends substantially downwardly along the outboard side, said tiltable cradle (4) constituting part of a davit (3) which, in the outwardly tilted position of the cradle, can be operative to raise or lower a free-fall boat, said cradle being connected at a fixed angle to a hoisting/veering arm (6) and the davit assembly (30) constituted by said cradle (4) and said arm (6) being hingedly (2) mounted along the board or side of a ship or offshore structure (1) with the centre of gravity of the assembly being located outboard of the hinge (2), the davit (3) being tiltable between an inward end position, in which the cradle (4) is in a lockable (9), sloping stand-by position, and an outward end position, in which the cradle (4) extends substantially vertically downwardly along the side, and the hoisting/veering arm (6) extends outboard with the head (12) of the arm beyond the cradle (4).

2. Apparatus as claimed in claim 1, characterized by further comprising a winch (17) whose rope or cable is passed to the head (12) of the hoisting/veering arm (6), which winch (17) is so adjustable, in conjunction with the positive torque acting on the davit (3) due to the location of the centre of gravity relative to the hinge (2), that both with and without a boat (7) being placed on the cradle (4), the davit (3) tilts to its outboard end position under the control of the brake of the winch when the cradle is unlocked.

3. Apparatus according to claim 2, characterized in that use is made of a suspension block (13) of such a weight that the block (13) only, without any load being carried by it, is capable of veering the winch rope or cable.

4. Apparatus according to claim 3, characterized by a stop (14) for said block (13) being provided near the head (18) of said arm (6).

5. Apparatus according to claim 3 or 4, characterized in that the arm (6) is provided with a catch (19) operative to support the block (13) through a limited tilting angle of the arm (6).

6. Apparatus according to claim 5, characterized in that the catch has the form of a hook projecting from the arm (6).

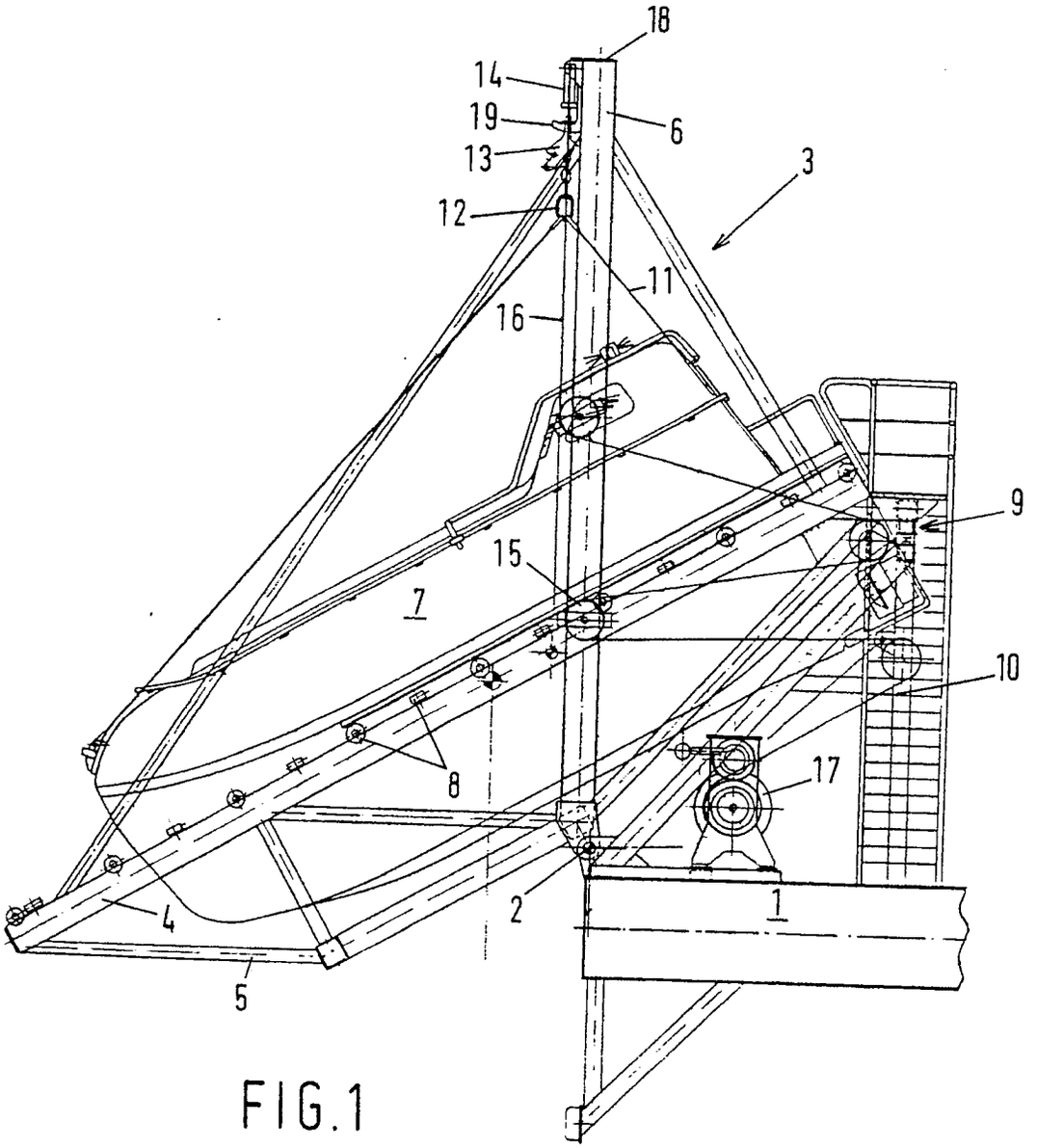

FIG.1

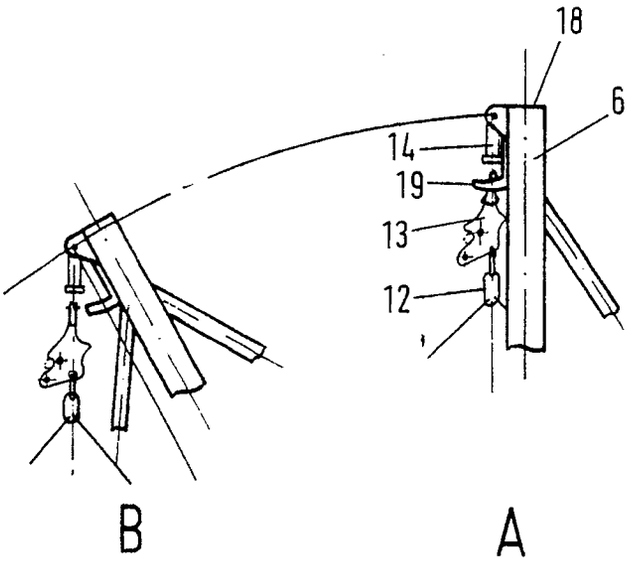

FIG.3

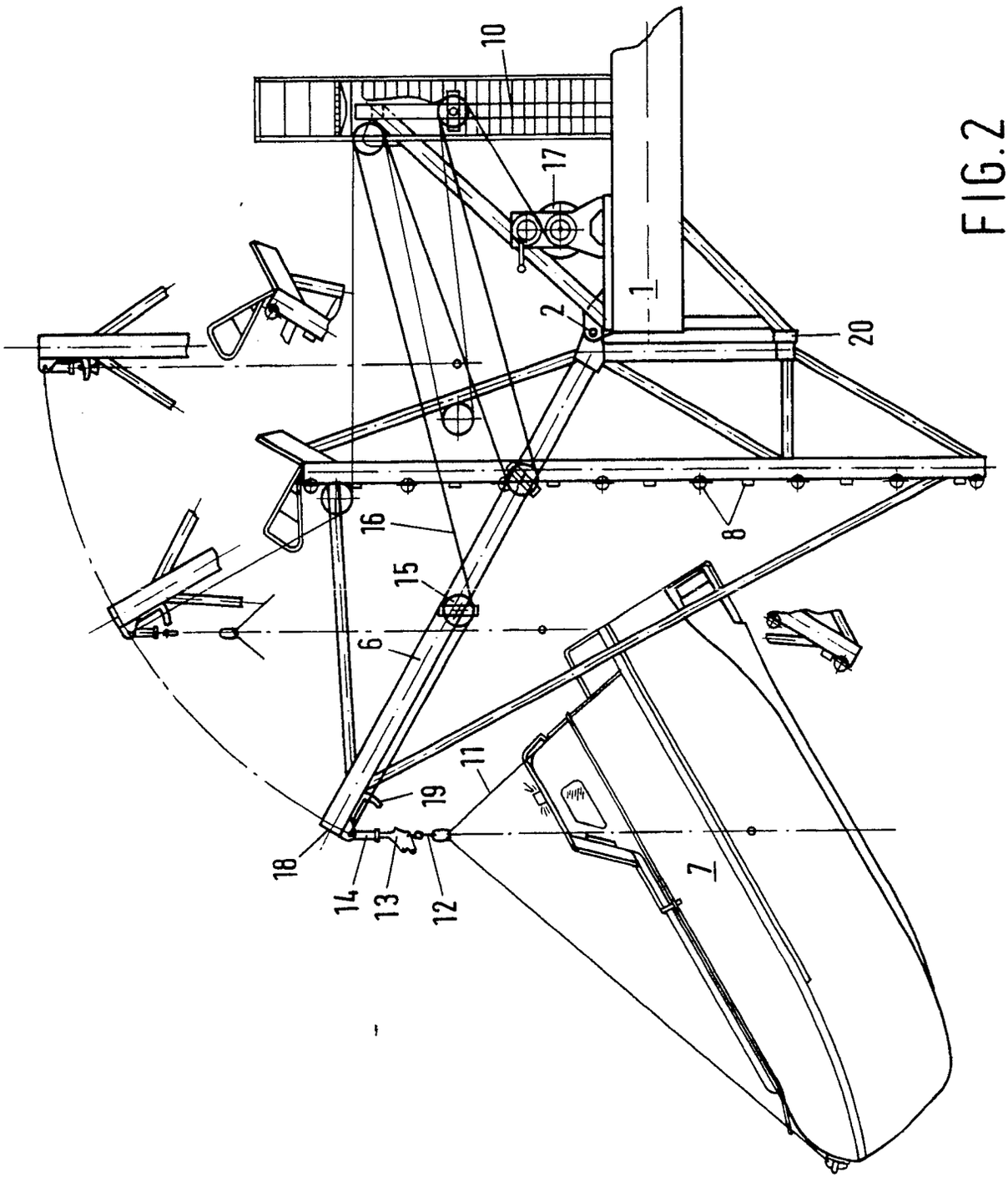

FIG.2

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EUROPEAN SEARCH REPORT

Application Number

EP 90 20 2237

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	DE-A-3 534 257 (HATECKE) * Abstract; figure 1 *	1	B 63 B 23/28
A	DE-A-3 515 544 (NEUENFELDER MASCHINENFABRIK) * Abstract; figure 1 *	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B 63 B

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	20 November 90	DE SCHEPPER H.P.H.

CATEGORY OF CITED DOCUMENTS

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