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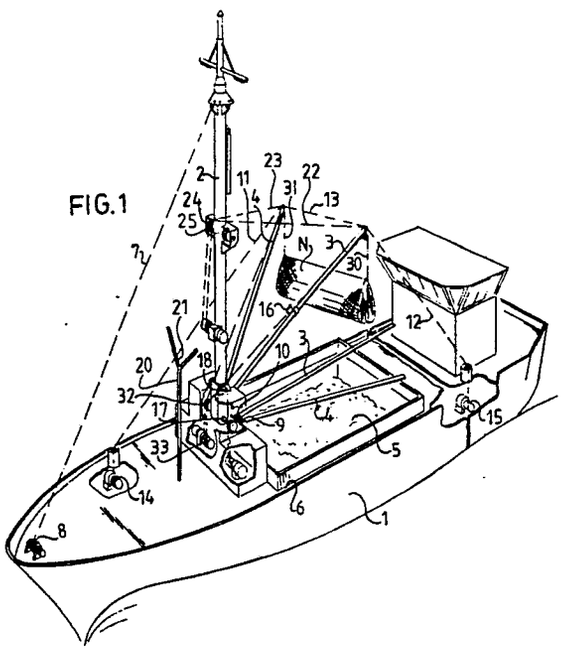
(54) Device for striking and hauling the standing and running rigging in a fishing boat.

(57) A device for hauling and striking the standing and running rigging in a fishing boat (1) such as a mussel cutter and the like, which boat is provided with a strikable mast with at least a boom (3, 4) and various striking and hauling winchens, wherein the or each broom is attached pivotally to a foot console bearing the mast wherein the free end of the boom (3, 4) suspended on the masthead with a halyard is coupled to at least two tensioning cables leading in each case to a tensioning winch placed on the after deck and foredeck respectively, such that no movement of the broom relative to the deck will occur during setting down of the boom onto the deck after the further striking of the mast (2), which considerably reduces the forces on the mast construction during striking.

FIG.1



EP 0 370 583 A2

DEVICE FOR STRIKING AND HAULING THE STANDING AND RUNNING RIGGING IN A FISHING BOAT

The invention relates to a device for hauling and striking the standing and running rigging in a fishing boat such as a mussel cutter and the like, which boat is provided with a strikable mast with at least a boom and various striking and hauling winches.

The invention has for its object to improve the device of the type described in the preamble such that the control of the booms and mast during striking and stowing thereof can take place more easily so that manpower is saved. Furthermore, the hauling and paying out of the net suspended on the booms is also facilitated.

The device according to the invention is distinguished in that the or each boom is attached pivotally to a foot console bearing the mast wherein the free end of the boom suspended on the masthead with a halyard is coupled to at least two tensioning cables leading in each case to a tensioning winch placed on the after deck and foredeck respectively.

As a result of the pivot connection with a fixed point relative to the boat no movement of the boom relative to the deck will occur during setting down of the boom onto the deck after the further striking of the mast, which considerably reduces the forces on the mast construction during striking. This striking and subsequent hauling movement of the mast can therefore be performed more easily. Furthermore, as a result of the tensioning winches on the fore- and after deck a precise locating of the free end of the boom on the deck is possible.

Should two booms be used on each side of a boat the second boom can be lowered into a saddle fixed to the first boom in a very simple manner as a result of the use of the separate winch.

For the running rigging use is made according to the invention of a brakeable winch, which running rigging is connected to the net suspended from the booms. The band brake of the brakeable winch is thereby self-releasing wherein the band is placed in the braking position by means of a constant resilience.

Above mentioned and other features of the invention will become apparent from the figure description following hereafter of an embodiment.

In the drawing:

fig. 1 shows a perspective top view of a boat provided with a standing and running rigging embodied as according to the invention;

fig. 2a and 2b show respectively in each case a top view of the boat according to fig. 1 in a position with spread booms and upright mast and with lowered booms and lowered mast;

fig. 3 shows a side view of a brakeable winch according to the invention.

In the figures the numeral 1 designates a random fishing boat provided with a strikable mast 2 and booms 3, 4 which can be swung outward, of which ship only one side, the starboard side, is drawn in full, wherein it is assumed that the other side, the port side, has a similar configuration of booms.

The boat is provided in the usual manner behind the mast with a hold 5 alongside of which are arranged gangways 6.

The mast 2 is strikable through paying out the front stay 7 which can be paid out and hauled in at the front by a winch 8.

According to a main characteristic of the invention each boom 3, 4 is arranged for pivoting on all sides to a point fixed relative to the boat 1 and close to the foot of the mast. This pivot point is indicated with the reference numerals 9 and 10.

The ends of the booms 3, 4 away from the pivot points 9 and 10 are the free ends on which a net N can be suspended via a running rigging cable to be further elucidated hereinafter.

The free end is furthermore connected to a tensioning cable 11 and 12 which leads respectively to a winch on the foredeck and to a winch on the after deck. Between the ends a coupling cable 13 is arranged. In the actual embodiment the parts 11, 12, 13 can of course consist of one cable connected fixedly in any suitable manner to the free ends of the booms 3, 4.

The cable 11 leads to a winch drum 14 on the foredeck, which winch drum can be of a random type and be for example pneumatically or hydraulically driven. The cable portion 12 leads to a winch drum 15 located on the after deck. It can be recommended to embody one of the cable drums 15 such that a constant tensioning winch is obtained. That is, that a constant tension is maintained on for example the cable portion 12 so that when the winch 14 is paid out the winch 15 immediately hauls in and, vice versa, when winch 14 is hauling in winch 15 pays out without further control.

The boom 3 is provided halfway along its length with a saddle 16 which serves for receiving the boom 4 in the struck position, which is further elucidated below.

The mast is arranged around the pivot pin 17 in the foot of the mast and can swivel backward around this pin when the front stay 7 is paid out. For locking, a locking pin 18 can be arranged above the pivot pin 17 so that without tension on the stay 7 the mast 2 also remains standing upright after arranging of the locking pin 18.

The construction of the mast 2 at the foot can therefore be considerably simplified wherein it is also unnecessary to reserve space for a mast-foot extending far downward. To this end a support construction is arranged in front of the mast step for the reinforcement thereof, for example for accommodating deck winches and the like. The reinforcing construction further serves for arranging of a forked shaft 20, the fork 21 of which serves to receive the front stay 7 should the mast be struck. When the stayline 7 is hauled by means of the winch 8 it is held at the correct angle relative to the struck mast 2 in order to be able to haul this again afterward.

The free ends of the booms 3, 4 are suspended from halyards 22, 23 each of which lead via a masthead block 24, 25 to a winch 26, 27 arranged on the side of the mast. By striking these cables 22, 23 the height of the free end above the deck and the surface of the water respectively can be adjusted.

The above described striking device for the mast 2 operates as follows:

It is assumed that the net N has been hauled in and the booms 3, 4 are free of load.

During pay out of the front stay 7 by means of releasing the winch 8 the mast 2 will drop backward after removal of the locking pin 18 whereby the booms 3, 4 drop downward as a result of the fixed distance of the drop wires 22, 23 relative to the masthead. By adjusting the winch 14 to the correct length of the cable 11 the free end of the boom 3 can be carried accurately to above the gangway 6 until it comes to lie thereon. With further striking of the mast 2 this free end will not slide further relative to the gangway 6 as a result of the fixed pivot point 9 close to the foot of the mast. Subsequently, when the cable 11 is paid out the boom 4 will want to swivel toward the boom 3 under the influence of the force of gravity whereby the coupling cable 13 will come to hang loosely. With further striking of the mast 2 the boom 4 will automatically arrive above the saddle 16 and can be collected therein. With further striking of the mast 2 the front stay 7 falls into the fork 21.

The hauling of the mast takes place in reverse sequence. When hauling the mast, the booms 3 and 4 can subsequently be provided with a load in the form of a net N which can be swung from above the deck to the side of the boat by hauling in tensioning cable 11 whereby tensioning cable 12 is automatically paid out. The intermediate cable 13 is hereby held tight. The net N can subsequently be paid out into the sea and fishing can take place.

When the net N is full the hoisting cables for the net N can be hauled in and when the net N is at a sufficient height the tensioning cable 11 can be paid out whereby tensioning cable 12 is automatically hauled in. The net can therefore be swung above the deck. The content thereof can be unloaded into the hold 5.

It will be apparent that the operation and control of the hauling and striking device is considerably simplified because the winches can all be controlled from the wheelhouse. The deck-hands need use little force thereby.

The net N hangs on the hoisting cables 30, 31 which each run via an end block at the free end of the booms 3, 4 and a guide pulley 32, of which the rotating shaft is aligned with the pivot pin 17 of the mast-foot of the mast 2, to a winch 33 arranged around the foot of the mast 2 in the deckhouse. This winch is a brakeable winch, which construction is further elucidated in fig. 3. The hoisting cable 30 is wound around the drum 34 which is rotatable in a console 35 on the deck 36 of the boat 1. Arranged adjoining the drum 34 is a brake drum 37 with a brake band 38 acting therearound. The brake band is fixedly connected to the console 35 at the pivot point 40. The other end 41 of the brake band is coupled pivotally to an angle lever 42 which is pivotable at 43 relative to the console 35. The free end of the lever 42 is coupled at 44 to a piston rod 45 of a pneumatic cylinder 46. The piston 47 of the cylinder 46 is spring-loaded by means of the helical spring 48, this such that the angle lever 42 is turned clockwise about the point 43. This will therefore tension the band 38 around the band drum 37. The resilience of spring 48 is such that a maximum braking force is exerted on the drum 34 and the net with laden weight can be fully held in place.

The band 38 around the drum 34 is arranged such that the brake band is self-releasing under tensile stress of cable 30. This has the merit of a uniform action of the brake, which is advantageous in use and which will be further elucidated hereinafter.

The release of the brake band 38 takes place through supplying of a pressure above the piston 47 in the cylinder 46. This pressure is provided, for example, by pressurized air which is fed from a pressure source 50. In the line between pressure source 50 and the cylinder 46 is arranged a throttle valve 51 which can be placed into a determined position by manual control 52 such that a predetermined, gradually increasing pressure can be generated in the cylinder 46, this counter to the resilience of the spring 48.

The winch thereby operates as follows. When the motor is non-operational the winch can be driven anti-clockwise, see fig. 3, whereby the cable 30 is hauled in and the net N is raised. Since much ground may be present in the material fished it is recommended to suddenly pay out the net again

whereby the coupling between the motor and the drum 34 can be released. The band 38 is immediately tightened by spring 48 because the cylinder 46 is tensionless, whereby the brake becomes operational. By briefly placing the cylinder 46 under pressure the band can be released, which can easily take place as a result of the self-releasing. The cable 30 is suddenly paid out and the net N with contents thereof can plunge into the water whereby cleaning takes place.

When cable 30 is once again hauled the band 38 must first be released by applying sufficient pressure on cylinder 46. It is recommended that the coupling in the transmission between the motor and the drum 34 also takes a pneumatic form whereby the entire control of the winch can be pneumatic.

When the pressure falls away from pressure source 50 the band 38 will be always tightened so that an operationally safe hoisting winch is obtained.

The invention is not limited to the embodiment described above.

Claims

1. Device for hauling and striking the standing and running rigging of a fishing boat such as a mussel cutter and the like, which boat is provided with a strikable mast with at least a boom and various striking and hauling winches, **characterized in that** the or each boom is attached for pivoting to a foot console bearing the mast, wherein the free end of said boom suspended on the masthead with a halyard is coupled to at least two tensioning cables leading in each case to a tensioning winch placed on the foredeck and after deck.

2. Device as claimed in claim 1 wherein two booms are arranged per ship side, **characterized in that** the free ends of the booms are coupled by a connecting cable.

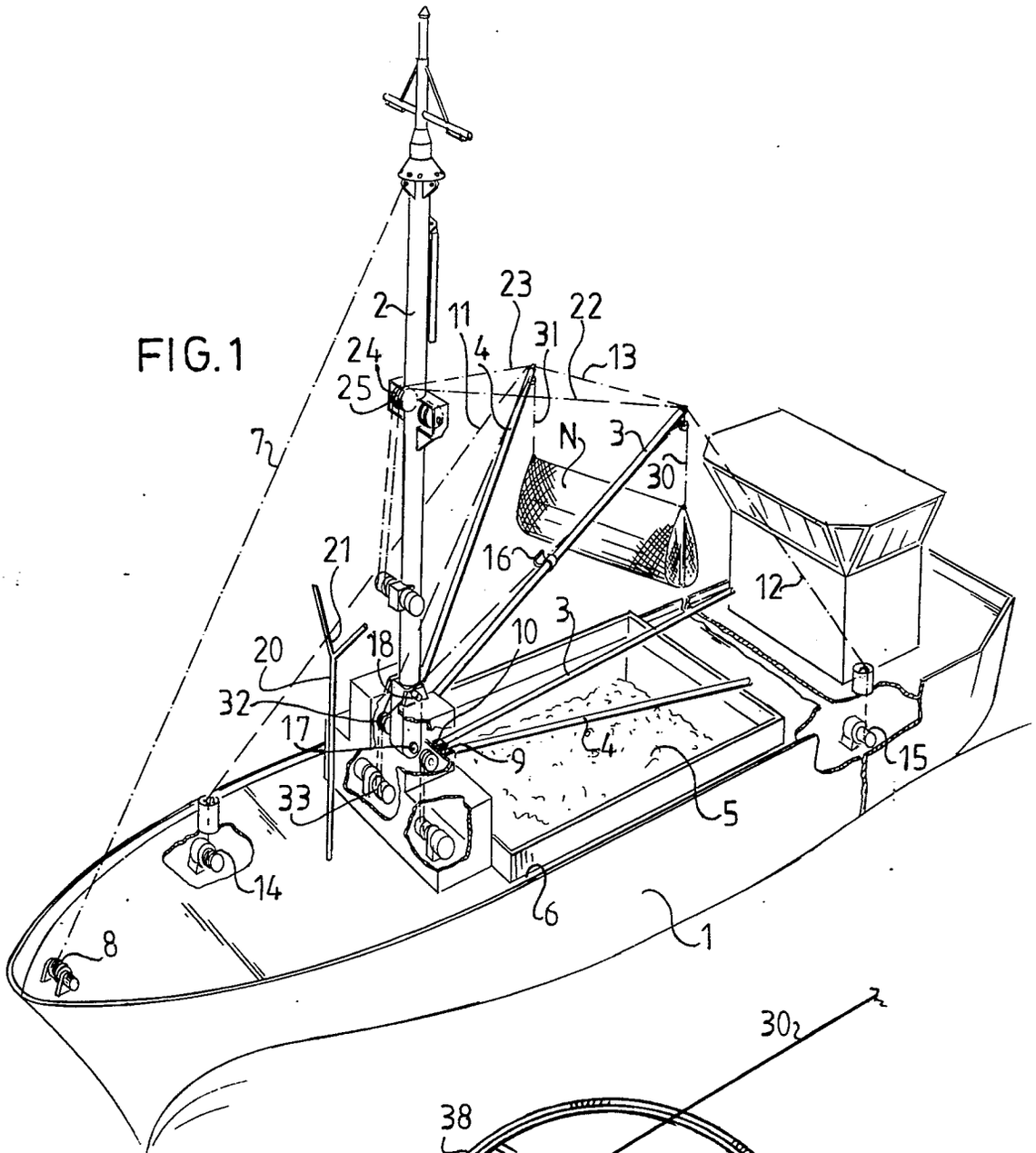
3. Device as claimed in claims 1 and 2, **characterized in that** one of the winches functions as tensioning winch and the other as hauling winch.

4. Device as claimed in any of the foregoing claims, wherein in each case a brakeable hauling winch is arranged for a hauling line of the net, **characterized in that** the brake is a band brake such that this is self-releasing and wherein a constant resilience acts as braking force.

5. Device as claimed in claim 4, **characterized in that** an air cylinder controlled by a throttle valve counters the constant resilience.

6. Device as claimed in any of the foregoing claims, **characterized in that** the halyard is wound around a winch fixed to the mast.

FIG.1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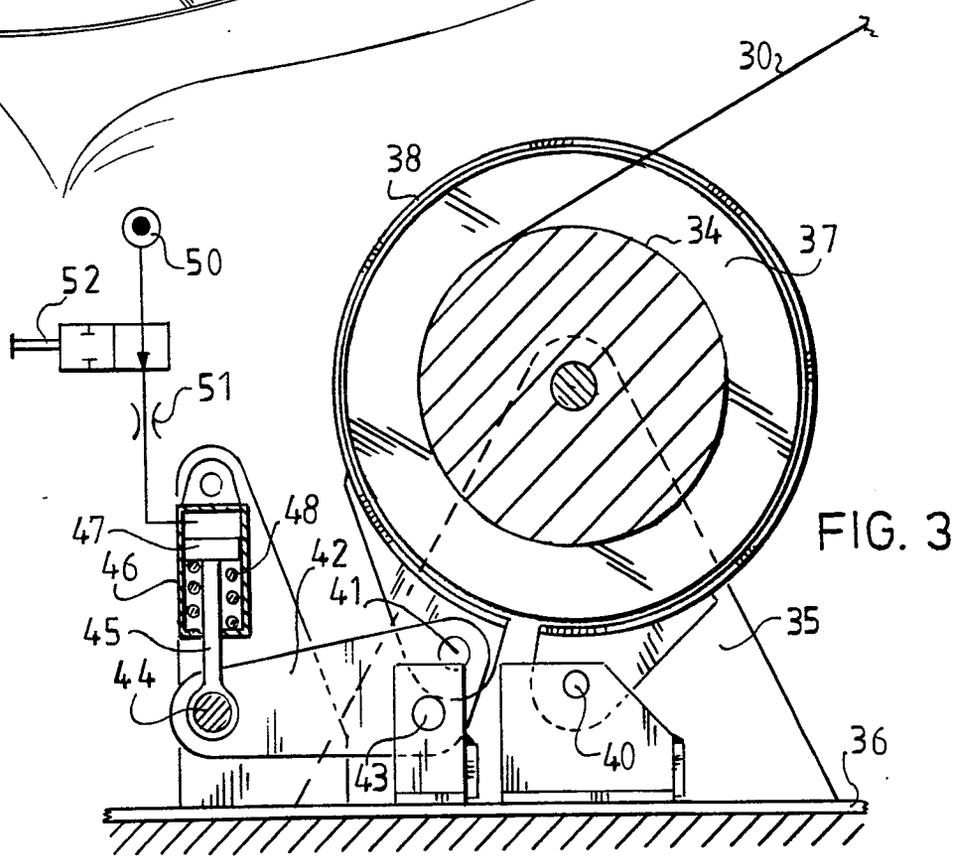
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FIG. 3

A,B.

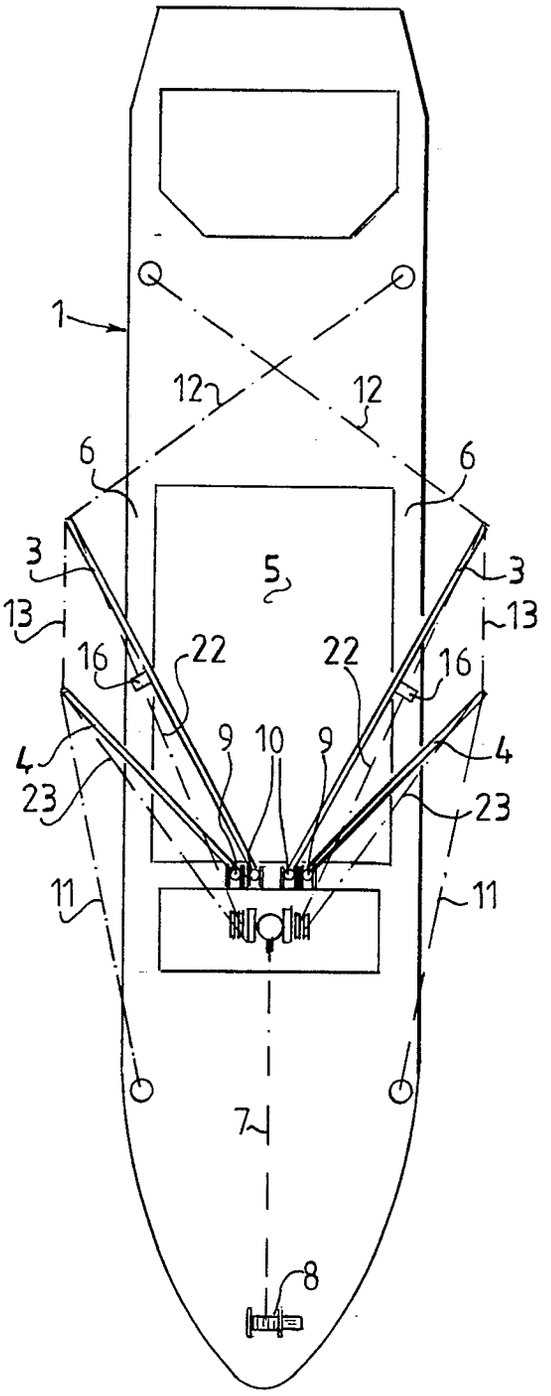
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FIG. 2 a

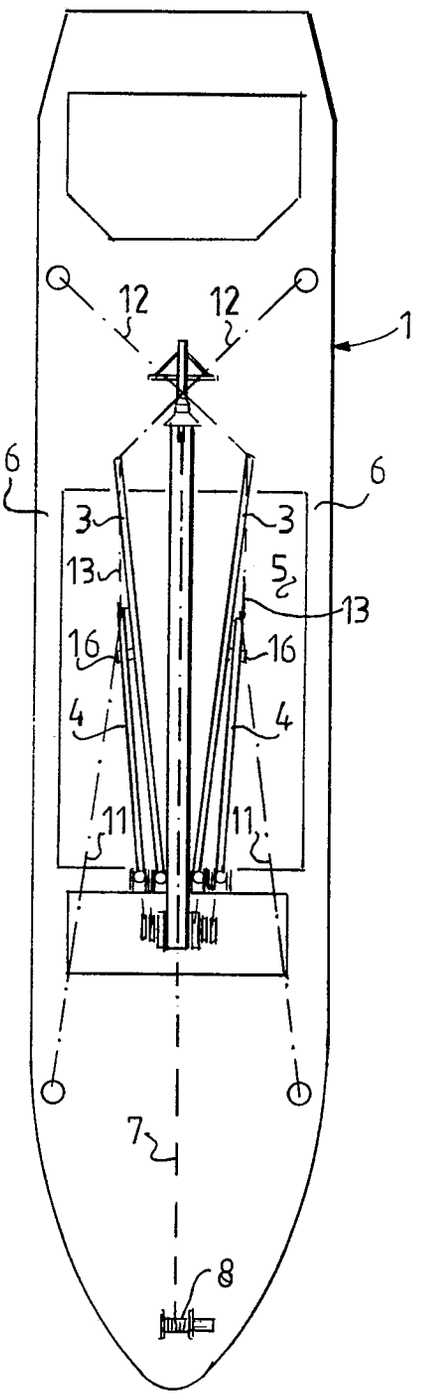
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FIG. 2 b