Title: DEVICE OF AN OUTRIGGNER FOR STABILIZING A VESSEL

Abstract: It referred to a device of an outrigger for stabilizing a vessel, comprising an elongated shaft the end one of which includes a float, and the other end includes a means for attachment to the vessel, and where the outrigger in its use position is arranged to be provided with its float directed out from the vessel for by the said float to provide the necessary stability, and the outrigger includes a locking mechanism to secure the outriggers to the vessel. The device is characterised in that the outrigger (8) is supported with its one end of the deck of the vessel, and arranged to swing in a mainly horizontal direction out into the use stabilizing position, and the locking mechanism (1) includes locking body (6) arranged to form a locking interference with the shaft in the use position of the outrigger. Preferably the locking body (6) comprising an extended stem (14) comprising a hook shaped header (6) adapted to enclose and lock the shaft.
DEVICE OF AN OUTRIGGER FOR STABILIZING A VESSEL.

The present invention relates to a device of an outrigger for stabilizing a vessel, comprising an elongated shaft whose one end includes a float, and the other end includes a means for attachment to the vessel, and where outriggers in its use position is arranged to be provided with float directed outwardly from the vessel, for via the aforementioned float to provide the necessary stability, and the outriggers include a locking mechanism to secure the outriggers to the vessel.

In particular, the device is concerned with the stabilization of a floating vessel, such as a kayak, canoe or another boat. The invention also concerns applications of the device.

In the following reference is mainly made to the use of a kayak. A kayak is by definition a small boat with a deck that is paddled with a double paddle. The paddler sits in the boat through an opening in the deck and often have a splash cover to prevent water entering the kayak.

Basically, the kayak is an unstable boat and for example a long narrow kayak designed competition that is built for the highest possible speed, is very unstable if the paddler stops paddling, and it overturns easily. All round kayaks for leisure and experience is built more stable than a kayak for competition, yet added stability when at rest is still necessary.

Placing an outrigger in the kayak when at rest, changes the stability dramatically for the better, and the paddler can rest (sleep), fish or doing other activities. The kayak can not overturn when the outriggers are mounted. It is usually sufficient with one outrigger, for it provides sufficient torque towards overturn tendency the other way. An outrigger can also be set out on the other side so that one uses two of these. An outrigger is often a narrow pier for entering that one has in the marinas, shaped like an elongated narrow walkway with a float at the end.
An outrigger is an elongated rod with a float at the end. The inner end is fixed and permanent mechanical locked to an attachment in the deck so that the rod is arranged about 90° relative to the kayak's length, for example it is installed lying in the sea on the oar that the paddler paddle with.

The outrigger rod with the float is usually stored on top of the deck, preferably with an inflatable float, and is inflated either by mouth or with a cartridge, when the paddler lies in the sea. The float can also be as simple as a Styrofoam block that attaches to the end of the rod. On today's kayaks the spare paddle is the outrigger that makes it fulfills two purposes.

-Outriggers are therefore very important safety equipment for kayaks.

-Under normal conditions the known outrigger functions as intended, and it is acceptable that the paddler himself must inflate the float and install it from his seat on board.

But if the kayak overturns and the paddler must take on board from the sea, it's easy to turn the kayak, but he is completely dependent to mount the outriggers, for at all to take on board again. Without the outrigger is quite impossible, so he can hope that he can swim to shore, turning the kayak, empty it of water and then enter it again. Although filled with water the paddler can manage to pull himself up into the boat and pump out the water with a pump that all kayaks are equipped with.

When the paddler is in the water may still be a life-threatening situation if he has to use many operations to put out the outrigger, as in the sea you will be cold soon, even in the Nordic summer weather. Particularly affected are the hands and fingers that quickly become very stiff and difficult to make the hand grips as required to mount the outriggers and get it operate and stabilize the kayak.

U.S. 7,093,556 refers to an elongated rod with an inflatable float, and which is mounted to its use position by first swung in an arc vertically straight up, and then lowered into its use position. This design is for use when kayak overturns in which the rod swung vertically downwardly so that the kayak can be swung up to lie on the side, and then turned it into correct position.

U.S. patent 6,027,387 refers to a paddle with a float, which occasionally will act as a security oar. The paddle is intended for loose mounting to the kayak's deck. When
properly used, the user must release the oar and mount it to an attachment in the
deck so that it lies at a right angle to the kayak's longitudinal direction. However, it is
not intended to be pivoted as envisaged under the present invention.

In U.S. patent 5,295,454 a kayak that is equipped with a permanent outrigger is
disclosed, the one end of which is equipped with a mounting body that is detachable
arranged to be anchored in a corresponding attachment designed the kayak. In this
U.S. patent there are no parts to be swung out and stabilize.

With the known solutions, there are often malfunctions that impede a quick outrigger
mounting. All parts are exposed to sea water which can affect the anchoring so that
parts (such as swivel mechanisms) corrodes and gets stuck.

It is a purpose of the present invention to produce a new and simplified construction
of an outrigger.

It is further an objective to produce an outrigger that is easier to mount to the use
position than the known solutions.

Moreover, it is a purpose to produce a locking construction for the placement of the
outrigger in an exposed position, and which can be operated with a hand grip without
operations that require motoric precision with fingers.

It is further an objective to produce a design that easily allows the outriggers be used
as a spare paddle.

The device according to the invention is characterized by the outriggers is supported
with its one end of the vessels deck, and arranged to pivot in a mainly horizontal
direction out to the stabilizing use position, and locking mechanism includes lock
body arranged to form a locking interference with the shaft of the outriggers use
position.

The preferred embodiments of the device appear in the following claims 2-9.

According to the invention the device is used in connection with a kayak, canoe or
similar small craft, as specified in claim 10
with these solutions for an outrigger a number of advantages is achieved when using a kayak. The locking mechanism is always ready for use since it does not need to be disassembled. Only the oar rod with the float is loose from the kayak, as the shaft clicks into place in a center bolt. The locking mechanism is sturdy without parts that can corrode (rust) in contact with salt water, and get caught. The solution has only rounded parts so that the user does not get stuck in the cords and straps. The elongated shape (hook/hook-part and shank) of the center bolt and the deadweight makes for its own gravity is kept down, or when kept in down positions by means of a tension spring, surrounds the oar rod and hold it in place so that it can not start to pivot. The pivot mechanism is so designed that outrigger rod easily when needed can disengage and possibly used as an emergency paddle oar. For example, when the user will be fishing from a kayak, he takes hold of the oar rod behind his back, rotate the shaft with the float about the center pin to the preferred side until it stops at the hook bolt. Then he lifts up the hook bolt with the same hand and let the oar rod clicking into place. This use of outriggers is very suitable for example when the paddler wishes to rest after a long time of paddling.

It is also this operation paddler must complete when he enter the kayak from the sea. With the outriggers mounted, entering the kayak becomes easier where there is a jetty (pier) that the kayak can be accessed from.

At capsize the mechanism is used after the kayak is turned upright and the paddler is in the sea. He grabs the oar rod with the float until it stops at the hook bolt. He lifts up the elongated hook bolt and pulls the shaft so that it encounters close into the hook bolt which is hen released so that it snaps into place enclosing the oar shaft and locks it firmly in this position at a right angle 90°out from the kayak. Since the paddle is supported with its inner end in deck fittings, it will always, under its own gravity and momentum, be kept down so that the user only needs to pull in the oar rod to get it to swing sliding on the deck surface. So there is no danger that it can move. Having entered the kayak and prepared for the continued paddling, he may lift up the hook pin, and slide the oar shaft with the float backwards.

The structural plate with the elongated hook bolt is a robust construction and the risk of corrosion damages is completely eliminated as a result of the hook bolt is supported in a spacious designed hole in the mounting plate.
The invention is in the following explained with reference to the following figures, wherein:

Figure 1 shows one half of a kayak with the inventive outrigger structure ready for use on top of the kayak deck.

Figure 2 shows the same as figure 1 but where the outrigger is pivoted out to its use position.

Figures 3 and 4 show a preferred embodiment of the locking mechanism of a preferred design of the coupling of the outrigger to the kayak deck, that is in storage position (fig. 3) and the use position (fig. 4).

Figure 5 shows a spring clamp mechanism used by the user to adjust the outriggers storage position and its use position.

The figures show a kayak 10 as described in the introduction. It includes a kayak deck 11 to which the inventive structure is mounted. The sitting opening the well for the paddler is shown at 9. The outrigger structure in the form of an elongated shaft 8 with a float 13 turned away from its opening, lies top of the deck 11.

At the other end the outrigger shaft 8 is detachable and pivotable mounted to a locking mechanism attached to a deck 11. Figure 2 shows the outriggers swung out into the use position and the locking mechanism is activated so that the outrigger is stable in a direction approximately 90° on the kayak's longitudinal direction.

By help of the inventive outrigger, the kayak is kept stable and roll movements may be will be reduced.

Figure 3 and figure 4 show the mechanism itself in detail. An assembly section consisting of an upper plate and lower 15, 17 plates of plastic or metal is attached with screws or bolts not shown to the deck 11, in that one plate 17 is inserted to the inside (the ceiling) of the kayak's deck plate 11, while the second upper plate 15 is mounted on the upper side.

Two hook bolts 14', 14" are movable mounted through the plates 15, 17 in spacious holes (not shown) that are drilled through the plates and the deck 11. The upper part
of the hook bolt 14 is bended in a partial circle / hook shape to form a hook part 6', 6'
which can be brought to lie around the outrigger shaft 8 as the right hoop 6" in figure
4 is mounted. Where the bending starts an upper stop section in the form of a stop
nut 19 is mounted. At the bottom of each bolt/stem 14, i.e. on the bolt ends, there is
a similar stop section in the form of the stop nut 21. The respective holes are
spacious but obviously of smaller opening diameter than the stop nuts 17, 19 so that
the hook bolts 6', 6" can not be pulled completely out of the holes through the deck
11. That these bolts can lie so spacious and not exactly fit inside the holes, it means
firstly that none of them can rust to stick (e.g. the bolt can not rust to stick in the
plate) in contact with seawater, and most importantly: the hook bolts can be drawn
up by a paddler with a stiff cold fingers even when the bolts are in an inclined
position because the pass is so spacious. In order to place the hook 6 around the
shaft 8 bolt is lifted up manually with your fingers and swung about the vertical axis
and released again so that it falls down and encloses the shaft.

The stem 14 has substantially smaller diameter than the diameter of the opening /
hole in the plates so that it provides a roomy fit. This can be illustrated by the hole
may have an opening in the range of 12 mm, while the stem is only 10 mm in
diameter, in that the stop nuts 21 have an outer diameter of 3.5 cm for example. In
its storage position the bolt is down in and protected in the kayak room under the
deck plate 11, and only the hook portion 6 is visible. But the locking bolts 14 'and 14''
are preferably mounted inside in protective covers 27', 27'' which are mounted to the
lower plate 17. The purpose of this feature is that they should be protected against
damage during operation of the kayak.

To keep the hook designed bolt in grip around the paddle rod, a tension spring 40 is,
as shown in figure 5, inserted onto the hook stem, and that acts between the stop
nut and the underside of the plate 17. I.e. that the hook can be lifted upwards by the
user against the spring effect that, when he let go, pulls the hook clamp down to
keep it stable around the shaft 8 as will be explained in the following.

According to the invention the outrigger rod 8 is detachable and pivotable attached to
a bolt 20 that extends through the mounting plates 15, 17 and the deck 11. The shaft
8 is positioned in its storage position by the end piece in the form of a thinner
elongated plate section includes a hole with which the end piece is inserted down
over the bolt 20. Across the bolt is drilled a hole for transverse insertion of a stop
body in the form of a locking tab or locking ring 32 above the end piece 8, after this
has been placed down, so that the shaft 8 is not accidentally be pulled up again by
the bolt 20. Now the outrigger can easily swing horizontally between the stock
position and the position of use.

Furthermore, the shaft, according to the invention can comprise telescoping
retractable shaft parts. In its storage position on the deck the sections are pushed
together so that the outrigger takes a limited space, and when it swings out to use
the position, the telescoping sections are pulled out so that it gets its intended length.

Locking tab 32 may, as the figure shows, include a regular carabiner inserted into
the hole/boring. A locking ring of a carabiner hook type, includes a spring-loaded
opening tap or stud, which can easily be opened with the fingers and the ring 32 can
thus be pulled out of the bore and the shaft / spare paddle can be easily released
from the bolt.

According to an embodiment the shaft end piece is designed as two parallel plate
designed legs 28A, 28B which are arranged with a mutual distance. Through the
legs respective flush elements are to be inserted onto the bolt 20.

As appears the hook bolt snags the rod a distance from the pivot point, the distance
is 20 cm for example. This means that both hook bolts on the figures have such a
distance from the pivot axis represented by bolt X on figures 3 and 4.

The shaft 8 has preferably an elongated pipe shape, but it can also have a square
cross-section or other appropriate cross section. The hook of the locking bolt 6 has a
shape approximately corresponding to the shaft shape. The outrigger can be a
reserve oar that is stored on top of the deck and where one end is supported to the
locking mechanism as shown in the figures. Then it can be easy either loosened, the
float 13 being drawn off and used as a paddle oar. The main purpose of the
outriggers is of course that it should swing out to stabilize the kayak, when the
paddler is to rest or he must enter on board again after having overturned.

In the storage position shown in figure 1 the outriggers is placed parallel to the
kayak’s longitudinal direction, while in figure 2 is shown laid out perpendicular to the
longitudinal direction. During pivoting to use position, the outrigger pivots until it
abuts against the hook (the rest of the bolt is located below the plate, see the figure).
Because of the loose extending of the bolt 14 through the hole through the deck 11 it can easily be drawn upward and dropped down so that the curved hook portion grips the shaft 8 and brace it in place.

It is this operation, for example, a frozen stiff paddler relatively easily can do to activate the outrigger stabilizing the kayak so he can concentrate on to pull himself aboard and empty kayak of water, as described earlier. When the outrigger is launched and the kayak is moving in the sea due to waves, the movements of the hook bolt inside the sleeve 14', 14" defines how much the oar and hence the float, will pivot.

The construction according to the invention is designed to be mounted to the kayaks and vessel that are already in use. For new kayaks this will be incorporated in the design and production (moulding) of new kayaks.

With the present invention, a new construction for stabilizing a vessel by means of an outrigger is provided, and it provides a significant improvement of security for the use of kayaks and other small boats types.
PATENT CLAIMS

1. Device of an outrigger for stabilizing a vessel, comprising an elongated shaft the one end of which includes a float, and the other end includes a means for attachment to the vessel, and where the outrigger in its use position is arranged to be provided with its float directed out from the vessel for by the said float to provide the necessary stability, and the outrigger includes a locking mechanism to secure the outriggers to the vessel, characterized in that

   the outrigger (8) is supported with its one end of the deck of the vessel, and arranged to swing in a mainly horizontal direction out into the use stabilizing position, and

   the locking mechanism (1) includes locking body (6) arranged to form a locking interference with the shaft in the use position of the outrigger.

2. Device according to claim 1, characterized in that the locking body comprises an elongated shaft (14) with a deflected hook-shaped header (6) adapted to enclose and lock the shaft.

3. Device according to claim 1, characterized in that each shaft (14) includes upper and lower stop bodies (19, 21) so that the locking body can not be pulled out of the opening/hole in the plate (15, 17).

4. Device according to claim 1, characterized in that the shaft (14) has substantially smaller diameter than the diameter of the opening/hole in the plate (15, 17), so that it provides a roomy fit.

5. Device in accordance with any of the preceding claims, characterized in that the shaft (14) is movable upward and downward through an opening in the locking mechanism mounting plate (15, 17), and possibly tensioned by means of a tensioning spring (40).

6. Device in accordance with any of the preceding claims, characterized in that the shaft (8) has an elongated pipe shape, or possibly a square cross-section or other appropriate cross sections, in that the eye of the locking body (6) has a shape approximately corresponding to the shaft cross-sectional shape.

7. Device in accordance with any of the preceding claims, characterized in that the
shaft (8) is pivotable anchored to the locking mechanism, and is detachable from this.

8. Device in accordance with any of the preceding claims, characterized in that the outrigger includes a shaft with a fixed mounted float.

9. Device in accordance with any of the preceding claims, characterized in that shaft is composed of telescoping retractable shaft parts.

10. Use of the device according to the preceding claim, in connection with a kayak, canoe or similar small vessel.
A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC.

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: B63B, F16B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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International patent classification (IPC)

**B63B 43/14** (2006.01)

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