



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
13.06.2012 Bulletin 2012/24

(51) Int Cl.:
B63B 7/02 (2006.01)

(21) Application number: **10805949.4**

(86) International application number:
PCT/CN2010/070809

(22) Date of filing: **01.03.2010**

(87) International publication number:
WO 2011/015045 (10.02.2011 Gazette 2011/06)

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**

(30) Priority: **04.08.2009 CN 200910041617**

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(54) **FASTENING APPARATUS OF COMBINED BOAT**

(57) A fastening apparatus of a combined boat for securely joining boat hulls of the combined boat is disclosed. Grooves (3) are provided at the peripheries of joints of the boat hulls. The fastening apparatus includes a holding band (2) with ridges (4) mating with the grooves

(3), and the holding band engages via the ridges (4) with the grooves (3) so as to join the boat hulls of the combined boat together securely. The fastening apparatus of the combined boat is simple in structure, easy to manufacture, and convenient to mount and dismount.

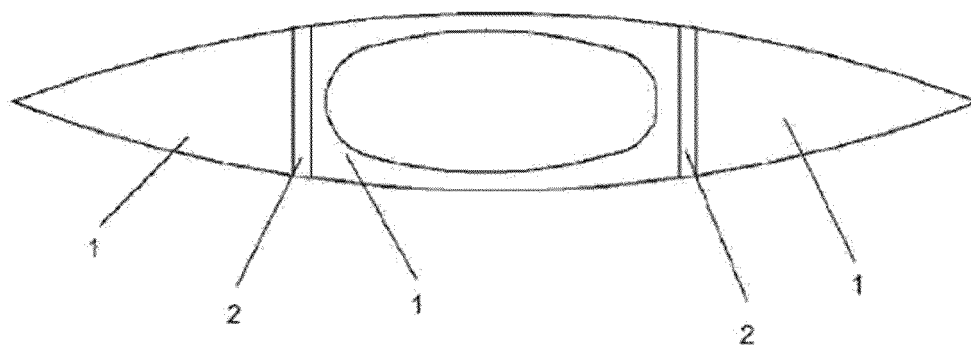


Figure 1

Description

Technology Field

[0001] This design relates to an apparatus of combined boat and kayak, especially a kind of combined boat that has semicircle shaped band fastening part with grooves inside to fasten the boat securely.

Background Technologies

[0002] Compared to traditional single-piece boat or kayak, the combined boat is combined with the front, middle and back separated parts of the boat. The structure is simple, and is easily dismounted, and the damaged body can be replaced in time, and increases the usability of the boat. The boat does not need big piece of material as used on traditional boats. The materials can be obtained easily from many places, and they are cheap. It is easy to get transported. However, the combined boats designed before have problems such as complex structure, hard to manipulate, and it is not secure for people to use, etc.

Design Content

[0003] To solve the above problems, this design is intended to provide an apparatus that is a simple, secure, easy to manufacture, convenient to mount and dismount.

[0004] To achieve the above results, this design uses the following technologies: an apparatus of combined boat and kayak, used to combine the parts of separated parts of a boat and kayak. The characteristics are: grooves are provided at the joints of the boat hulls; the fastening apparatus includes a holding band with ridges mating with the grooves, and the holding band engages via the ridges with the grooves so as to join the boat hulls of the combined boat together securely.

[0005] By using the above technologies, since the holding band has ridge on it, it mates the groove part on the boat tightly and securely. The holding band has a closed loop that can connect all the surfaces on the boat together tightly. The whole apparatus is simple structured; since the ridge and the grooves are connected tightly, these two parts are not easy to slide away from each other, and to make sure the whole boat is travelled in the water smoothly and safe.

[0006] As an improvement of the above technology, the holding band has a connecting part that can form a connecting or disconnecting status. When the connecting part is on the connecting status, the separated parts of the boat are combined together to form a complete boat; when the combined boat needs to be separated, the connecting part is on the disconnecting status. It is convenient to connect or disconnect the boat.

[0007] As an improvement of the above technology, the connecting part is a lock.

[0008] As an improvement of the above technology,

the holding band has chain structured parts around the edge of the boat. Having the chain parts makes the holding band better connected two separated parts of the boat, to ensure the boat travels safer and more stable.

[0009] As an improvement of the above technology, the holding band is made of hard material.

Drawing Description

10 [0010]

Figure 1 is the top view of the fastening apparatus of combined boat

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Figure 2 is the side view of the fastening apparatus of combined boat

Figure 3 is the grooves on the combined boat

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Figure 4 is the semicircle shaped apparatus side view

Figure 5 is the semicircle shaped apparatus inside view

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Figure 6 is the semicircle shaped apparatus lock side view

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Figure 7 is to show how the separated parts are connected together

Detailed Operation Method

35 [0011] The following is an example on how to operate the combined boat with the drawings:

According to Figure 1 to 7, this fastening apparatus is intended to combine the part 1 together tightly. The part 1 contains grooves (3); the fastening apparatus contains holding band (2), and the holding band is made of hard material. Holding band (2) has ridges (4) that match the grooves. The ridges (4) and the grooves (3) are tightly connected together via the holding band to make sure the separated pieces of the boat combined as a whole body.

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[0012] Based on the above technology, since the holding band has ridges (4), which matches the grooves (3), and to make sure these two parts are connected together tightly. The closed loop on the holding band (2) connects separated bodies into a whole body. The holding band is made of hard material. The whole structure is simple; since grooves (3) and ridges (4) are mated together, two separated boat bodies are not easily slide away from each other, so the boat is traveling safer and more stable.

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[0013] In this example, the boat is combined with three separated bodies. The bodies are connected using the holding bands (2) from each other. If there are more bod-

ies, the same method applies to other bodies and the holding bands on each separated boat body can connected the bodies from one to another.

[0014] In this example, according to Figure 4 and 6, the holding band (2) has a connecting part (6) that can be in connecting status or disconnecting status. When the connecting part (6) is at connecting status, separated pieces of boat are connected together; when it needs to be separated, the connecting part (6) is at disconnecting status. The operation of connecting and disconnecting is simple. In this example, the connecting can be a lock. Using this kind of connecting method can set holding band (2) to be at connecting or disconnecting status, to connect the separated boat pieces together or separate them. The connecting part can be other publicly known connecting structures if it can set the holding band (2) at connecting or disconnecting status, which is not further illustrated here.

[0015] In this example, according to Figure 4, the holding band (2) has chain structure around the edge of the boat body. The chain structure (5) around the edge of the boat benefits the holding band to attach to the body of the boat better, so that two separated bodies are connected together tighter, and the boat is more stable. At the mean while, since the holding band is made of hard material, having the chain structure (5) around the edge of the boat can reduce the wearing down of the hard material, and increase the lifespan of the holding band (2).

[0016] The above illustration is only the theory of this design and a good example of showing how to operate it. It needs to be pointed out that to the technicians in this technology field, based on the theory of the original design, anyone can make more other modified version of this kind of combined boats, which are protected under this patent of design.

the characteristic is: the holding band has chain structured parts around the edge of the boat.

5. As the apparatus described in Claim Point 4, the characteristic is: the holding band is made of hard materials.

Claims

1. An apparatus of combined boat and kayak, used to combine the parts of separated parts of a boat and kayak. The characteristics are: grooves are provided at the joints of the boat hulls; the fastening apparatus includes a holding band with ridges mating with the grooves, and the holding band engages via the ridges with the grooves so as to join the boat hulls of the combined boat together securely.
2. As the apparatus described in Claim Point 1, the characteristic is: the holding band has a connecting part that can be formed in connecting or disconnecting form.
3. As the apparatus described in Claim Point 2, the characteristic is: the connecting part is a lock.
4. As the apparatus described in Claim Point 1, 2 or 3,

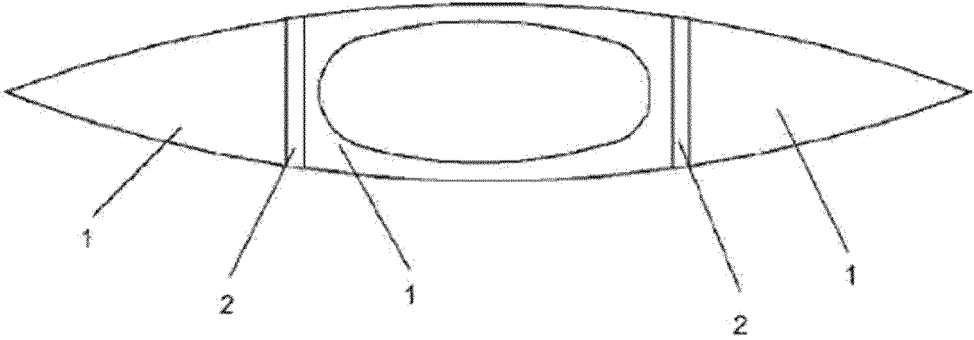


Figure 1

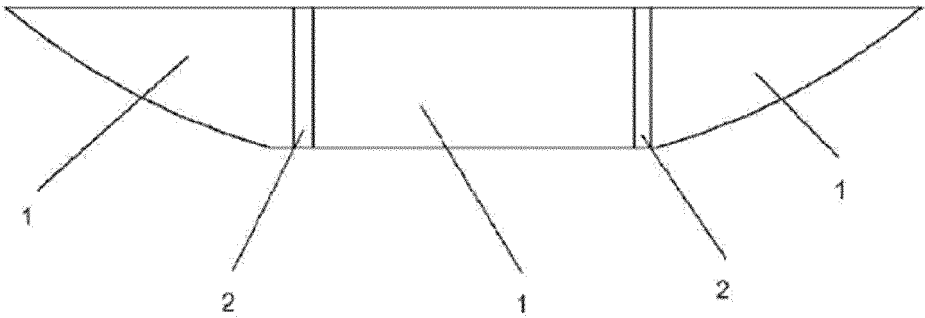


Figure 2

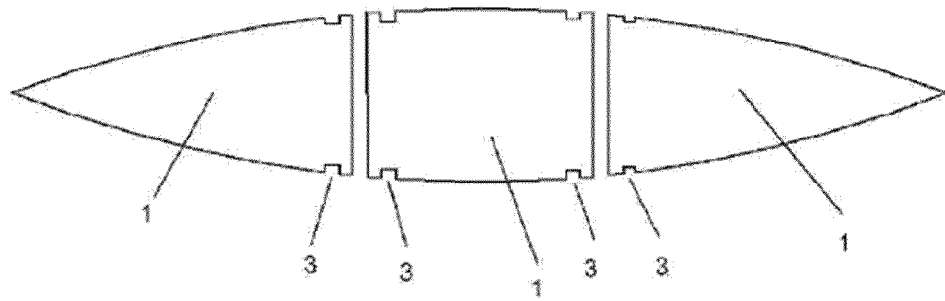


Figure 3

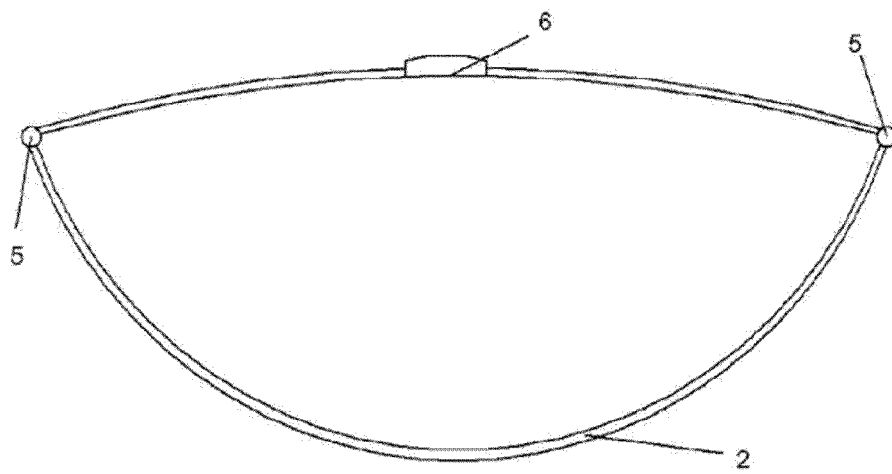


Figure 4

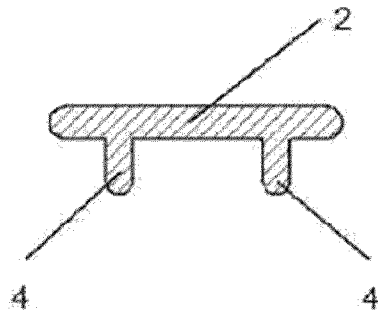


Figure 5

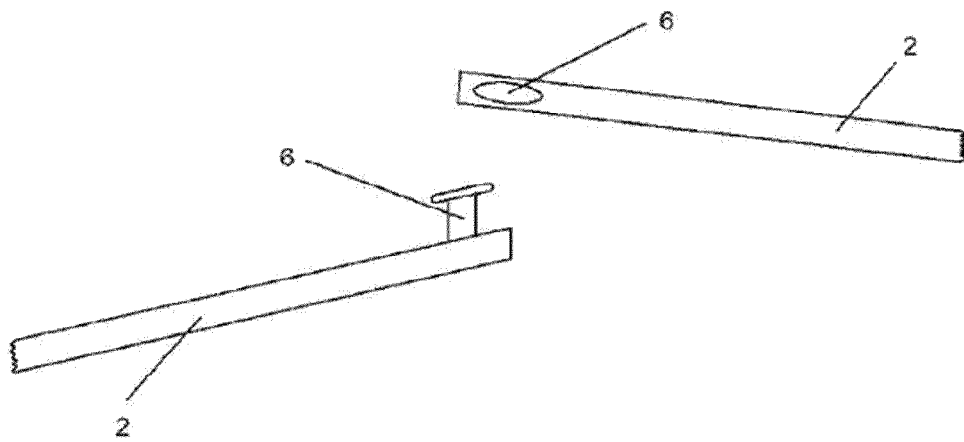


Figure 6

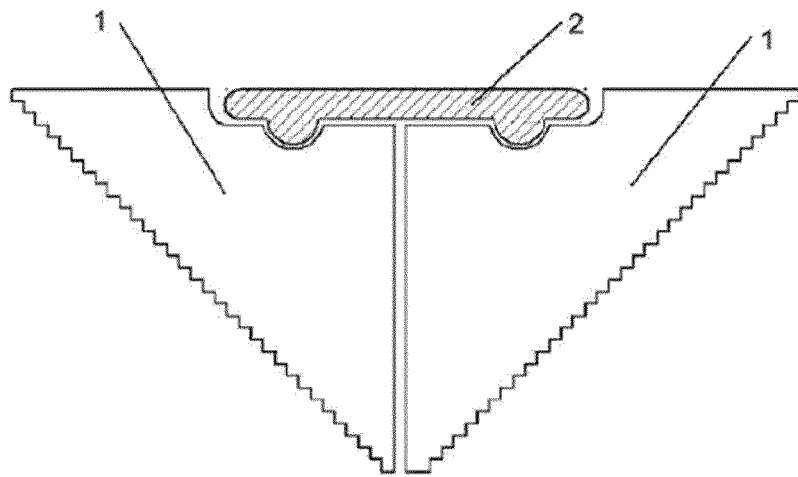


Figure 7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2010/070809

A. CLASSIFICATION OF SUBJECT MATTER

B63B 7/02 (2006.01) i

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

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

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

EPODOC, WPI:ship?,canoe?boat?,watercraft?,hull?,combin+,detach+,demount+,connect+,section+,strip?,strap?,
band?,ring?

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US6634825B2 (BLUEFIN ROBOTICS CORP) 21 Oct. 2003 (21.10.2003) column 3, lines 16-39; figure 1a	1-5
A	CN2106793U (LU, Weicheng) 10 Jun. 1992 (10.06.1992) the whole document	1-5
A	US4522145A (STONE, Selden A.) 11 Jun. 1985 (11.06.1985) the whole document	1-5
A	WO2008049158A1 (GRIFFIN, Owen) 02 May 2008 (02.05.2008) the whole document	1-5
A	JP5-131979A (HITACHI SHIPBUILDING ENG CO et al) 28 May 1993 (28.05.1993) the whole document	1-5

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search
05 May 2010 (05.05.2010)Date of mailing of the international search report
10 Jun. 2010 (10.06.2010)Name and mailing address of the ISA/CN
The State Intellectual Property Office, the P.R.China
6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2010/070809

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
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CN2106793U	10.06.1992	NONE	
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WO2008049158A1	02.05.2008	US2010024709A1	04.02.2010
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Form PCT/ISA /210 (patent family annex) (July 2009)