(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
5 February 2009 (05.02.2009)

PCT

(10) International Publication Number
WO 2009/015408 A1

(51) International Patent Classification:
B63H 16/04 (2006.01)

(21) International Application Number:
PCT/AU2008/000092

(22) International Filing Date: 30 January 2008 (30.01.2008)

(25) Filing Language: English

(26) Publication Language: English

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
— *upon request of the applicant, before the expiration of the time limit referred to in Article 21(2)(a)*

(54) **Title:** A SLEEVE ARRANGEMENT FOR AN OAR

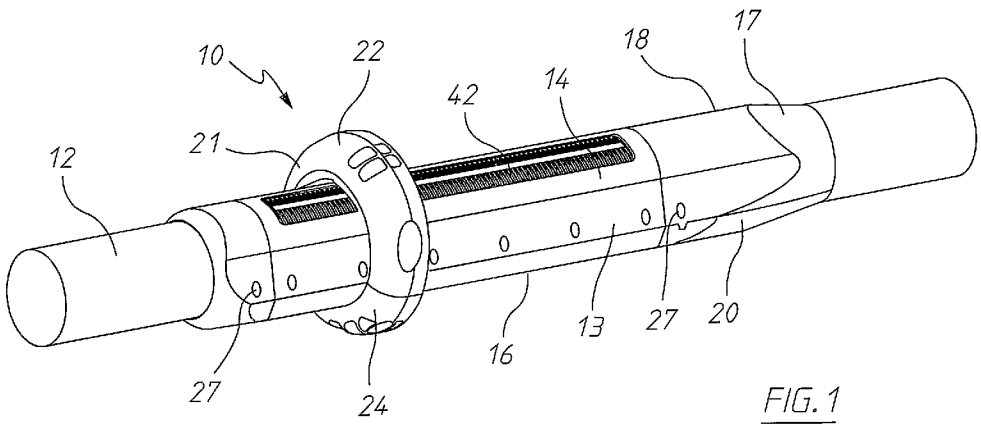

FIG. 1

(57) **Abstract:** Figure (1) depicts a sleeve arrangement (10) fitted to the shaft (12) of an oar. The sleeve arrangement includes an outer sleeve consisting of first sleeve shell (14) and second sleeve shell (16). The sleeve arrangement (10) further includes an inner sheath (17) consisting of first sheath shell (18) and second sheath shell (20). Should a user wish to change the sleeve, it can be replaced by the user using common hand tools. After removing the collar, the fasteners holding the sleeve shells (18, 20) are undone and the sleeve shells (18, 20) may then be removed from the sheath (17). After fitment of new sleeve shells, the fasteners and collar are reattached and the oar is ready for use. Advantageously, it is not necessary for a technician to perform the change.

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A SLEEVE ARRANGEMENT FOR AN OAR

Technical Field

The present invention relates to a sleeve arrangement for an oar and has application to oars that may be used in competitive and/or non-competitive rowing.

Background to the Invention

Oars such as those used in competitive rowing are sold with sleeves. The sleeves are fixedly bonded to the oar shaft at the factory and sold together with the oars.

Occasionally, a rower may wish to change the sleeve on an oar. The sleeve may have become worn and require replacement, or the rower may wish to change to another type of sleeve, for example to use the oar in conjunction with a different type of swivel. Specialised equipment is needed to perform the change and, to the best of the inventor's knowledge, currently the sleeve can only be changed by returning the oar to its manufacturer or a specialised technician. This is an expensive and time consuming process. It will be appreciated that at a rowing meeting there will often be comparatively scarce time between a participant's competitive events. Hence, achieving a change of sleeve in the short period of time available may be difficult or impossible using the prior art oars and the associated techniques.

Summary of the Invention

In a first aspect the present invention provides a sleeve arrangement for an oar including: a sleeve which is adapted to be fitted around the shaft of an oar and is held in place by a releasable sleeve fastening arrangement.

The sleeve may be made up of at least two sleeve members.

The at least two sleeve members may be held together by the sleeve fastening arrangement.

The sleeve fastening arrangement may include a number of threaded fasteners.

The sleeve arrangement may further include an inner sheath which is adapted to

be permanently affixed to the shaft of an oar.

The inner sheath may be made up of at least two sheath members.

The at least two sheath members may be held together by a sheath fastening arrangement.

The sheath fastening arrangement may include a snap fit between a series of clips and lugs.

The sheath fastening arrangement may include a number of threaded fasteners.

The sleeve may be formed of a softer material than the inner sheath.

The sleeve arrangement may further include a collar adapted to be mounted to the sleeve.

The collar may be made up of two collar members.

The collar members may be held together by a collar fastening arrangement.

Preferably the collar fastening arrangement includes a number of threaded fasteners.

Brief Description of the Drawings

An embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a sleeve arrangement according to an embodiment of the invention shown fitted to the shaft of an oar;

Figure 2 is an exploded perspective view of the sleeve arrangement of figure 1; and

Figure 3 is an exploded side view of the sleeve arrangement of figure 1.

Detailed Description of the Preferred Embodiment

Referring to figure 1, a sleeve arrangement 10 is shown fitted to the shaft 12 of an oar. The sleeve arrangement includes an outer sleeve consisting of two sleeve members in the form of first sleeve shell 14 and second sleeve shell 16. The sleeve arrangement 10 further includes an inner sheath 17 consisting of two sheath members in the form of first sheath shell 18 and second sheath shell 20. The sleeve arrangement further includes a collar 21 consisting of two collar members in the form of first collar shell 22 and second collar shell 24.

The outer profile of the sleeve is shaped to be a good fit with a popular type of oarlock used in competition rowing known as the "MK1" and sold under the brand Magik Rowing™. However, the outer profile of the sleeve is believed to also be compatible with various other commercially available oarlocks.

Now with reference to figures 2 and 3, the procedure for assembling the sleeve arrangement 10 in conjunction with the shaft 12 of an oar will be described. The oar shaft 12 will normally be formed from carbon fibre and be hollow. Firstly, a glue is applied to the inside surfaces of inner sheath shells 18 and 20 they are then fitted about an appropriate section of shaft 12 and pressed together. A series of clips 28 provided on first sheath shell 18 snap fit with a series of lugs 26 provided on the second sheath shell 20. Threaded fasteners in the form of nuts and bolts and/or self-taping screws, are then threaded through corresponding holes 27, 29 provided in the first and second sheath shells 18, 20 on either side of oar shaft 12. The threaded fasteners are then tightened to an appropriate degree. It is envisaged that the inner sheath 17 be applied only once to an oar and is intended to last for the life of the oar. The inner sheath may be applied to the oar shaft at the time of manufacture of the oar, or by a specialised technician.

The first and second sleeve shells 14, 16 are then placed about the inner sheath 17 and brought together. The outer profile of the inner sheath 17 is dimensioned to be a snug fit with the inner profile of the sleeve 13. A series of projections 32 provided on the first sleeve shell 14 locate in slots 34 provided on the second sleeve shell 16, but do not engage with a snap fit. A number of threaded fasteners in the form of nuts and bolts are then threaded through corresponding holes 36, 38 provided in the first and second sleeve shells 14, 16 and are tightened appropriately.

Collar 21 is now fitted to the sleeve 13 by placing the first and second collar

shells 22, 24 about the sleeve 13 and passing threaded fasteners in the form of nuts and bolts through corresponding holes 23, 25 in the collar shells. Only one pair of holes 23, 25 is visible in figure 2. Another pair of holes 23, 25 is provided in the collar shells on the hidden side of the oar shaft.

The collar 21 provides a degree of adjustment of the inboard dimension of the oar, that is, the distance between the oarlock, and the inboard end of the oar. This distance can be adjusted to allow for differences in the dimensions of different boats, or to suit the preference of a particular rower. Upper and lower collar shells 22, 24 include internal projections (see for instance reference numeral 40 in figure 2) which engage with racks 42 provided on the sleeve shells 14, 16. The inboard dimension of the oar is adjusted by selecting the position of the collar 21 along the sleeve 13. Collar 21 is positioned at the desired position and the fasteners holding the collar shells 22, 24 together are appropriately tightened. The sleeve assembly is now complete and ready for use.

Should a user wish to change the sleeve due to it becoming worn, or perhaps to change to a different style of sleeve, then it can be replaced by the user using common hand tools. The collar is removed by releasing its fasteners. Then the fasteners holding the sleeve shells 18, 20 are removed. The sleeve shells 18, 20 may then be removed from the sheath 17 and be replaced by the new sleeve shells. The fasteners and collar are then reattached and the oar is again ready for use. It is not necessary to send the oar away to a technician to perform the change. Additionally, the time taken to change the sleeve is typically significantly shorter as compared to the period of time required for the known prior art methods. Additionally, the embodiment of the invention allows for more cost efficient replacement of the sleeve as compared to the known prior art methods.

The sheath shells 18, 20 are formed from a rigid material, for example carbon fibre or a plastics material such as a nylon / glass composite, so as to promote a long service life. The sleeve shells 14, 16 are formed from a self-lubricating plastics material to help reduce the friction and noise experienced during use. In one embodiment the sleeve shells 14, 16, are constructed from a non-glass filled nylon. In other embodiments the sheath shells 18, 20 and/or the sleeve shells 14, 16 may be constructed from one or more polyolefins including polyethylene, high density polyethylene and polypropylene. In some embodiments the sleeve shells 14, 16 are formed from a softer material than the sheath shells 18, 20 so as to promote wear of the sleeve shells 14, 16

in preference to wear of the sheath shells 18, 20. The sleeve shells are intended to be a sacrificial component and will wear out over time. Indeed, the relative ease of replacement of the sleeve means that less importance may be placed upon the sleeve's long-term wear characteristics, which allows for a greater range of choice of materials from which to construct the sleeve.

The embodiment described above makes use of fasteners in the form of nut and bolt combinations and/ or self-taping screws. However, in alternative contemplated embodiments other forms of releasable fasteners may be utilised to affix the inner sheath shells 18 and 20 about the shaft 12, to affix the first and second sleeve shells 14, 16 to the inner sheath and to affix the upper and lower collar shells 22, 24 to the sleeve. Non-limiting examples of alternative releasable fasteners include clips, rivets that can be easily removed with a drill or similar tool, Duz fasteners and/or press studs.

In an alternative embodiment, the outer profile of the sheath 17 is integrally formed from carbon fibre with the shaft of the oar at the time of manufacture. In this embodiment, it is not necessary to fasten separate sheath shells to the oar shaft.

Any reference to prior art contained herein is not to be taken as an admission that the information is common general knowledge, unless otherwise indicated.

Finally, it is to be appreciated that various alterations or additions may be made to the parts previously described without departing from the spirit or ambit of the present invention.

CLAIMS:

1. A sleeve arrangement for an oar including:
a sleeve which is adapted to be fitted around the shaft of an oar and is held in place by a releasable sleeve fastening arrangement.

2. A sleeve arrangement according to claim 1 wherein the sleeve is made up of at least two sleeve members.

3. A sleeve arrangement according to claim 2 wherein the at least two sleeve members are held together by the sleeve fastening arrangement.

4. A sleeve arrangement according to any preceding claim wherein the sleeve fastening arrangement includes a number of threaded fasteners.

5. A sleeve arrangement according to any preceding claim and further including an inner sheath which is adapted to be permanently affixed to the shaft of an oar.

6. A sleeve arrangement according to claim 5 wherein the inner sheath is made up of at least two sheath members.

7. A sleeve arrangement according to claim 6 wherein the at least two sheath members are held together by a sheath fastening arrangement.

8. A sleeve arrangement according to claim 7 wherein the sheath fastening arrangement includes a snap fit between a series of clips and lugs.

9. A sleeve arrangement according to either of claim 6 or claim 7 wherein the sheath fastening arrangement includes a number of threaded fasteners.

10. A sleeve arrangement according to claim 5 wherein the sleeve is formed of a softer material than the inner sheath.

11. A sleeve arrangement according to any preceding claim and further including a collar adapted to be mounted to the sleeve.

12. A sleeve arrangement according to claim 11 wherein the collar is made up of two collar members

13. A sleeve arrangement according to claim 12 wherein the collar members are held together by a collar fastening arrangement.

14. A sleeve arrangement according to claim 13 wherein the collar fastening arrangement includes a number of threaded fasteners.

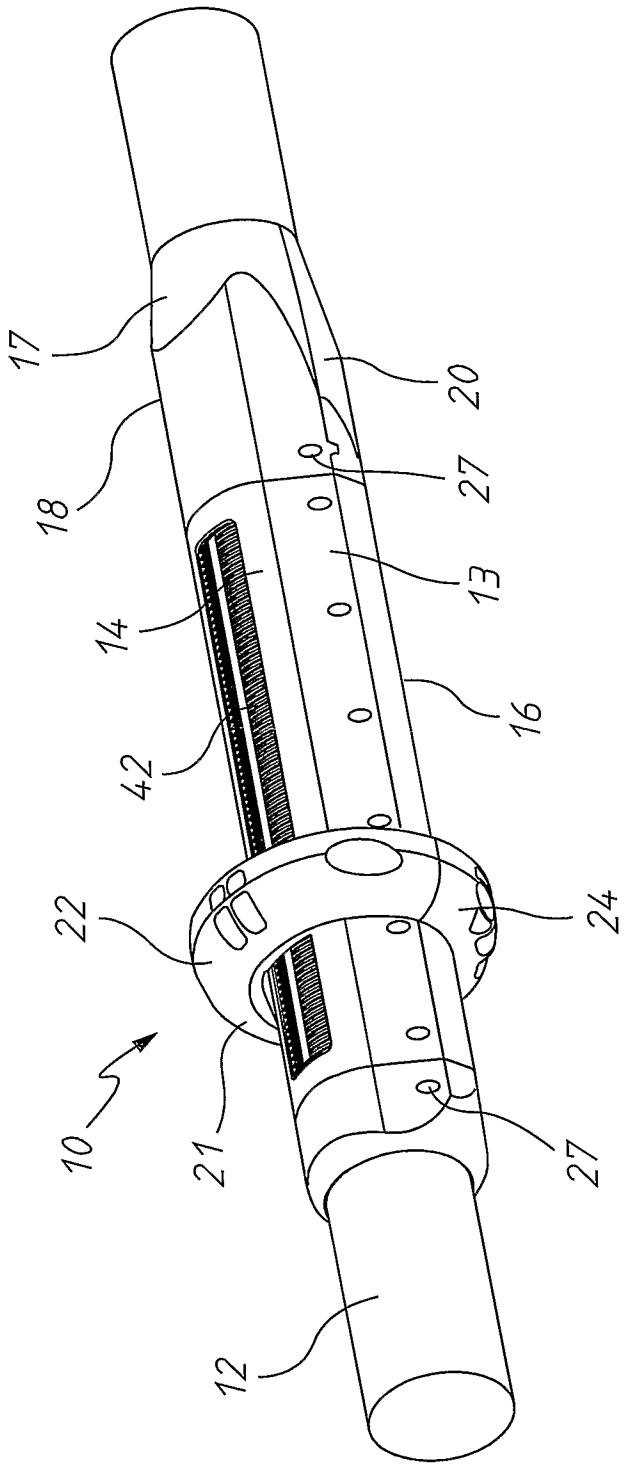

FIG. 1

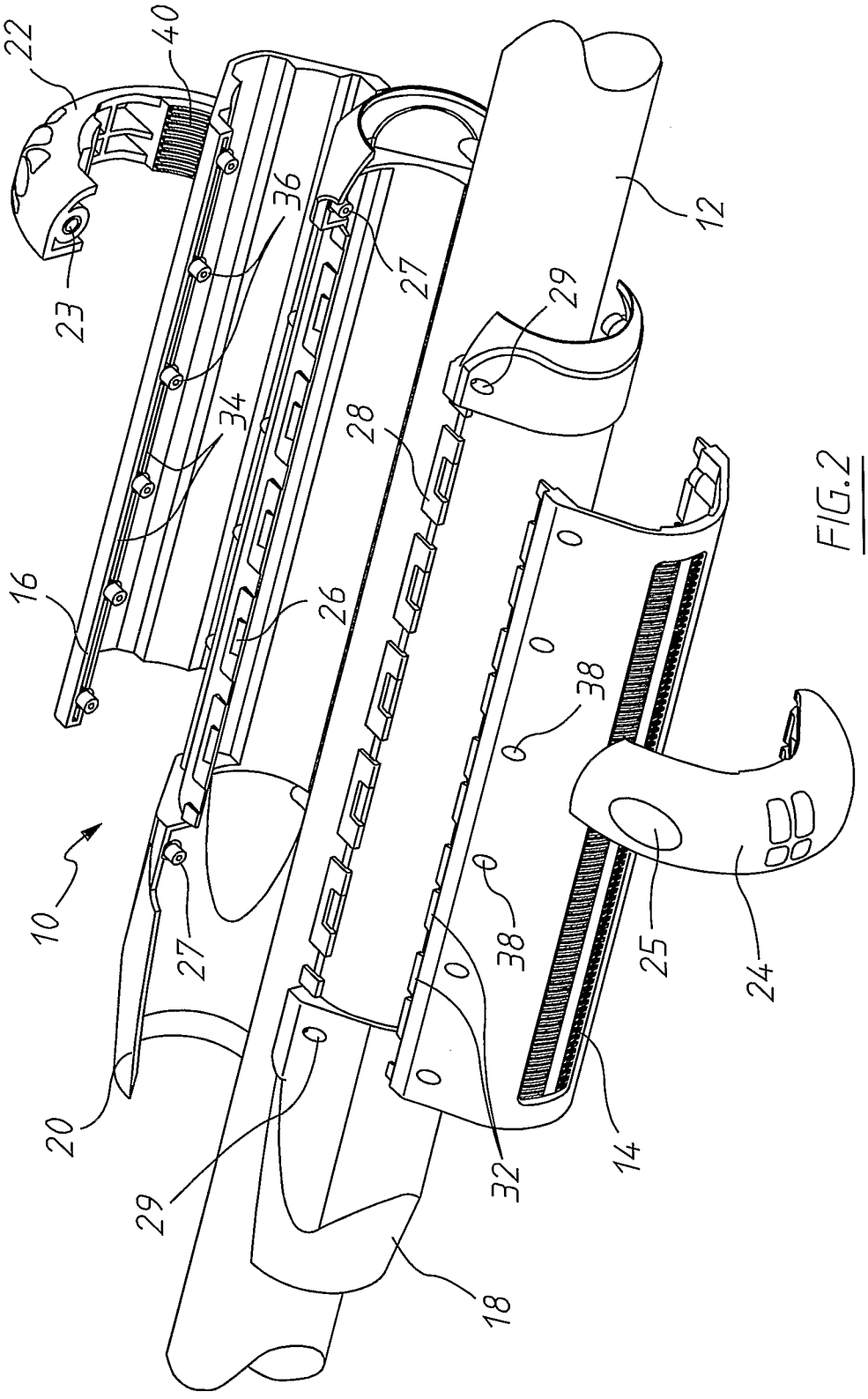

FIG.2

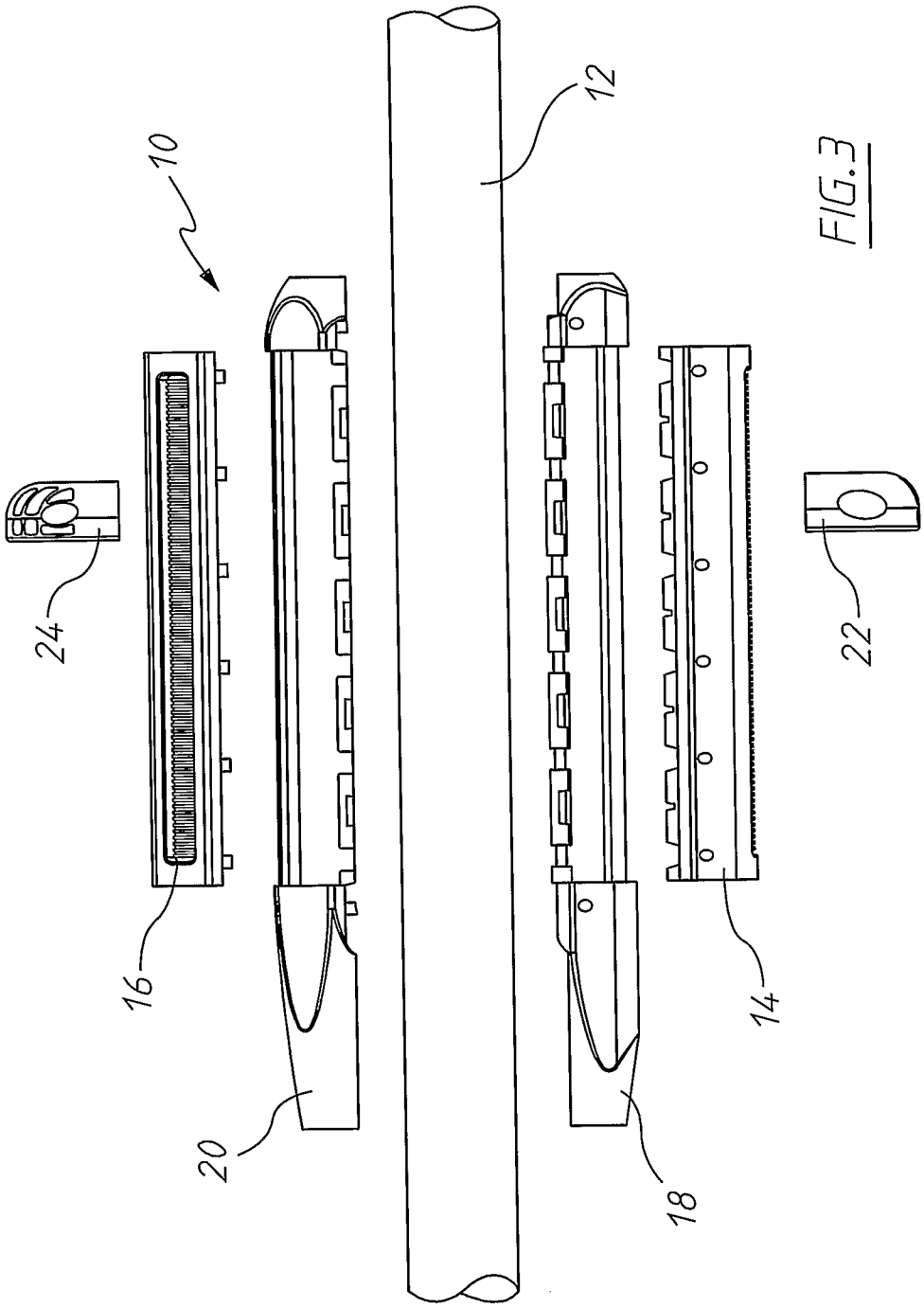

FIG.3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2008/000092

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

B63H 16/04 (2006.01)

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)

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)
DWPI IPC B63H 16/04 and keywords: sleeve, collar, bush and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5324218 A (RIJNDERS) 28 June 1994 Figs. 1, 4, 5	1-6, 11-14
X	US 4820216 A (MASTERS) 11 April 1989 Figs. 3, 10	1-6, 11-14
X	FR 2771374 A1 (LEMOINE) 28 May 1999 Abstract; page 4, lines 26-32; figs. 1, 2, 5, 6	1-5, 11-14
X	GB 471718 A (FRASER) 9 September 1937 Page 2, lines 12-36; fig. 4	1-4, 11-14

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

* Special categories of cited documents:

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"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

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 April 2008	18 APR 2008
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized officer **S.J. DESCHANEL** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : (02) 6283 2368

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU2008/000092

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member				
US 5324218					
US 4820216	DE	3837573	GB	2214150	
FR 2771374					

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX