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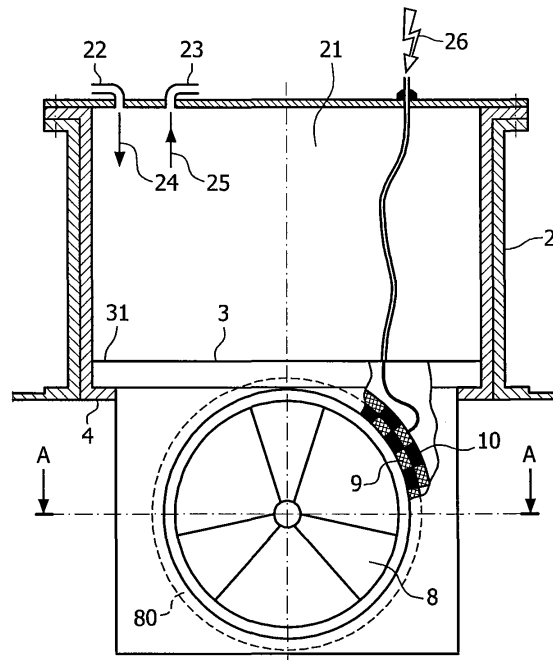
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(30) Priority: **06.07.2006 EP 06116730**

(54) **Retractable thruster for vessels**

(57) A thruster device provides thrust for moving a vessel. A thruster unit (1) has a propeller (8) for generating the thrust and a compact power system (9,10) for providing power to rotate the propeller. A compact retractor assembly moves the thruster unit between a recessed position and an operational position. The thruster unit (1) has a piston element (3), and the retractor assembly comprises a housing (2) having an inner space (21) for receiving the piston element. The inner space receives a pressure fluid (24) for applying a hydraulic pressure on the piston element for the moving of the thruster unit. The propeller has an outer ring (80). The outer ring has a sequence of magnets (9) cooperating with coils (10). A coil current provided by a power control unit generates a magnetic force on the sequence of magnets to rotate the propeller.



**FIG. 2**



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# EUROPEAN SEARCH REPORT

Application Number  
EP 07 10 9804

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 833 502 A (ANDERSON CARL J [US]) 10 November 1998 (1998-11-10) * column 1, line 67; figure 2 * -----	1-4,6,11	INV. B63H25/42 B63H23/24 B63H21/17
X	FR 2 560 147 A (CITROEN MESSIAN DURAND ENGREN [FR]) 30 August 1985 (1985-08-30) * figures 1-11 * -----	1-4,6,11	
X	US 3 483 843 A (HAWTHORNE JAMES M) 16 December 1969 (1969-12-16) * figures *	1-4,6,11	
X	GB 2 370 922 A (BROWN ANDREW DAVID [GB]) 10 July 2002 (2002-07-10) * figures 1-4 * -----	8,9,11	
X	DE 33 12 063 A1 (LICENTIA GMBH [DE]) 4 October 1984 (1984-10-04) * figures 6,7 *	8,9,11	
X	DE 31 41 339 A1 (LICENTIA GMBH [DE]) 5 May 1983 (1983-05-05) * figures 2-4 * -----	8,9,11	TECHNICAL FIELDS SEARCHED (IPC)  B63H
The present search report has been drawn up for all claims			
Place of search <b>The Hague</b>		Date of completion of the search <b>11 February 2008</b>	Examiner <b>van Rooij, Michael</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)



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### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- ☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-7,11

retractable thruster device

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2. claims: 8-10,11

electronic thruster unit

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 10 9804

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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11-02-2008

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