

# Europäisches Patentamt European Patent Office Office européen des brevets



(11) **EP 1 557 352 A3** 

(12)

### **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: 16.11.2005 Bulletin 2005/46

(51) Int Cl.7: **B63B 27/34**, B63B 43/18

(43) Date of publication A2: **27.07.2005 Bulletin 2005/30** 

(21) Application number: 05008023.3

(22) Date of filing: 10.10.2002

(84) Designated Contracting States: CH FR GB IT LI NL

(30) Priority: **12.10.2001 GB 0124570 18.03.2002 GB 0206353** 

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC: 02781462.3 / 1 434 711 (71) Applicant: Bluewater Energy Services B.V. 2130 KC Hoofddorp (NL)

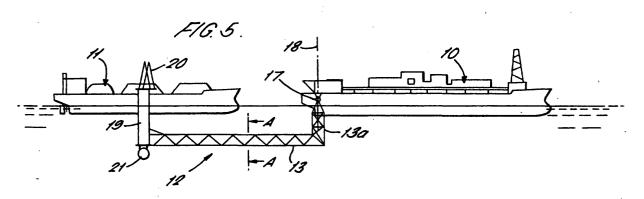
(72) Inventor: **De Baan**, **Jacob K**. **3146 BH Maassluis (NL)** 

 (74) Representative: Merrifield, Sarah Elizabeth et al Boult Wade Tennant Verulam Gardens
 70 Gray's Inn Road London WC1X 8BT (GB)

#### (54) Offshore fluid transfer system

(57) Apparatus (12) for transferring fluid between floating vessels (10, 11) is described, comprising a submerged rigid transfer arm (13) carrying a fluid pipeline (16). The apparatus (12) is provided with thrusters (21) and positioning monitoring means (24). A control system (25) operates the thrusters (21) to move the arm

(13) if the position monitoring means (24) shows the arm (13) and the second vessel (11) is outside a given range, to restore the separation to within the range. The pipeline (16) is located in a tunnel (30) on the arm (13) which opens above the waterline at each end to allow personnel access therein for inspection and maintenance of the pipeline (16).





## **EUROPEAN SEARCH REPORT**

**Application Number** EP 05 00 8023

Category	Citation of document with in	dication, where appropriate,	Relevant	CLASSIFICATION OF THE	
D,Y	GB 2 328 196 A (BLU	ges EWATER TERMINAL SYSTEMS	to claim	B63B27/34	
-,-	NV) 17 February 199		9-12, 14-17	B63B43/18	
	* figures *				
Y	US 3 354 479 A (DIC 28 November 1967 (1	KSON ALEXANDER F ET AL) 967-11-28)	1-5, 9-12, 14-17		
	* figure 2 *		1 1 1		
Y	GB 2 021 781 A (LIC 5 December 1979 (19		5,17		
A		- line 46; figures *	1		
P,A	W0 02/44013 A (SMAR 6 June 2002 (2002-0 * page 3, line 27 - 1a *		1,5		
A	GB 2 168 939 A (EXX CO) 2 July 1986 (19 * figure 4 *		1,9	TECHNICAL FIELDS SEARCHED (Int.Cl.7)	
A	US 3 783 816 A (DE 8 January 1974 (197 * figure 1 *		1,11,12	B63B	
A	US 3 957 291 A (EDL 18 May 1976 (1976-0 * figures 2-6 *	ING PORTER R ET AL) 5-18)	1		
A	GB 2 136 375 A (TEC 19 September 1984 ( * figures 1,3 *		1		
	The present search report has b	·			
	Place of search	Date of completion of the search		Examiner M	
	The Hague	22 September 2005	vai	n Rooij, M	
X : parti Y : parti docu A : tech	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with anothement of the same category inological background written disclosure	L : document cited for	ument, but publ the application r other reasons	ished on, or	

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

EP 05 00 8023

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 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-09-2005

Patent document cited in search report	Publication date		Patent family member(s)		Publication date
GB 2328196 A	17-02-1999	GB	2328197	Α	17-02-1999
US 3354479 A	28-11-1967	BE DE DK GB NL SE	673874 1280698 112229 1093860 6414787 313774	B B A A	16-06-1966 17-10-1968 18-11-1968 06-12-1967 20-06-1966 18-08-1969
GB 2021781 A	05-12-1979	DE NO	2823096 791645		29-11-1979 27-11-1979
WO 0244013 A	06-06-2002	AU GB GB GB US	2210102 2369607 2388355 2388356 2005005833	A A A	11-06-2002 05-06-2002 12-11-2003 12-11-2003 13-01-2005
GB 2168939 A	02-07-1986	AU AU CA NO US	567051 4450385 1220386 852499 4602586	A A1 A	05-11-1987 03-07-1986 14-04-1987 25-06-1986 29-07-1986
US 3783816 A	08-01-1974	CA FR GB JP JP NL NO OA	965649 2133307 1357997 48049185 54025316 7204864 136082 3997	A5 A A B A B	08-04-1975 24-11-1972 26-06-1974 11-07-1973 27-08-1979 18-10-1972 12-04-1977 15-09-1979
US 3957291 A	18-05-1976	NONE			
GB 2136375 A	19-09-1984	DE EG ES FR IT NL NO OA US	3407616 17751 8503594 2542690 1208125 8400734 840934 7679 4606294	A A1 A1 B A A	27-09-1984 30-10-1990 16-06-1985 21-09-1984 06-06-1989 01-10-1984 17-09-1984 23-05-1985 19-08-1986

FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82