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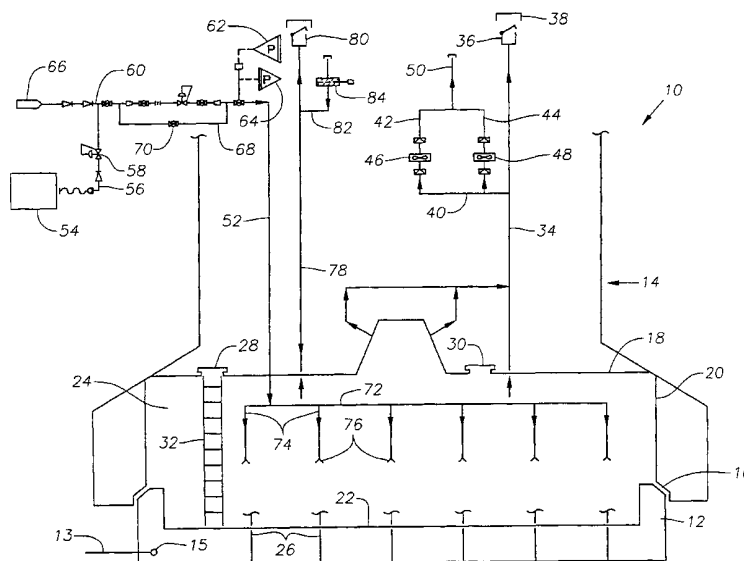
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(54) Title: EXPLOSION PREVENTION SYSTEM FOR INTERNAL TURRET MOORING SYSTEM



(57) Abstract: A method and apparatus for ensuring against explosion of the gaseous atmosphere of a closed chamber, such as the QDCD room (24) of an internal turret (14) of an offshore production and offloading buoy (12) wherein the chamber has production risers (26) and conduit connectors representing a potential source of flammable gas. The method comprises mixing and diluting the oxidant content of the air by introducing within the chamber (24) a sufficient quantity of inert gas to render the mixture of the air and any flammable gas non-combustible regardless of the flammable gas content of the mixture, which is removed by purging thereof to the natural atmosphere, while introducing inert gas, thereby leaving inert atmosphere within the closed chamber (24).



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/05877

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :E21B 35/00
 US CL :166/363, 364; 169/45, 69; 114/256, 264
 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)

U.S. : 166/336, 356, 357, 363, 364; 169/45, 47, 49, 67, 69; 114/256, 257, 264, 265; 73/35.17

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,709,302 A (STULTS) 09 January 1973 (09.01.73), entire document.	1-12
A	US 3,770,059 A (GRAHAM) 06 November 1973 (06.11.73), entire document.	1-12
Y	US 4,081,039 A (WARDLAW) 28 March 1978 (28.03.78), col.5, lines 42-68; col.6., lines 1-68; col.7, lines 46-68; col.8, lines 1-54.	13, 14, 16 and 23
Y	US 4,254,521 A (PAPMAHL) 10 March 1981 (10.03.81), col.3, lines 44-68; col.4, lines 1-68; col.5, lines 1-68; col.6, lines 1-23.	13, 14, 16 and 23
A	US 4,899,827 A (POOLE) 13 February 1990 (13.02.90), entire document.	13-24

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

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 04 AUGUST 2000	Date of mailing of the international search report 29 AUG 2000
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,766,836 A (BEHAR et al) 30 August 1988 (30.08.88), entire document.	13-24
A	US 5,437,332 A (PFEFFER) 01 August 1995 (01.08.95), abstract.	1-24