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Hosie et al.

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- (54) **WELLHEAD LOAD RING**
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- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 60 days.

4,362,211 A	*	12/1982	Fisher, Jr.	166/156
4,460,042 A		7/1984	Galle, Jr.	
4,469,179 A	*	9/1984	Crow et al.	166/319
4,496,162 A	*	1/1985	McEver et al.	166/123
4,528,738 A		7/1985	Galle, Jr.	
4,574,883 A		3/1986	Carroll et al.	166/255
4,651,830 A	*	3/1987	Crotwell	166/217
4,982,795 A	*	1/1991	King	166/208
5,066,048 A	*	11/1991	Farrell	285/123.4
6,125,939 A		10/2000	Abreo, Jr.	

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Related U.S. Application Data

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- (51) **Int. Cl.⁷** **E21B 43/010**
- (52) **U.S. Cl.** **166/208**; 166/348; 166/75.14; 166/237
- (58) **Field of Search** 166/348, 368, 166/338, 208, 75.14, 237, 77.51; 403/368, 372

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,334,923 A	*	8/1967	Putch	166/348
3,454,289 A	*	7/1969	Fowler	166/348
3,693,714 A	*	9/1972	Baugh	166/348
3,845,815 A	*	11/1974	Garwood	166/154
3,937,279 A		2/1976	Raulins	166/214
4,295,665 A	*	10/1981	Pierce	285/123.2

FOREIGN PATENT DOCUMENTS

GB 2339582 2/2000

OTHER PUBLICATIONS

Composite Catalog 1978–1979, 33rd Revision, Cameron mudline suspension system, 3 pages.

* cited by examiner

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(57) **ABSTRACT**

A wellhead load ring constructed in the shape of a C-ring is pre-installed in a wellhead in a storage position that maintains full bore of the wellhead. The load ring is secured in this position by shear pins. The shear pins are sheared by a tool that pushes the load ring into an operational position where it rests on a landing shoulder of a support ring. The load ring is further secured in this position by one of several latching methods.

8 Claims, 6 Drawing Sheets

