

- [54] **INTEGRALLY REDUNDANT SEAL**
- [75] **Inventors:** **Frank C. Adamek**, Pasadena; **Rick C. Hunter**, Sugar Land, both of Tex.
- [73] **Assignee:** **Vetco Gray Inc.**, Houston, Tex.
- [21] **Appl. No.:** **299,724**
- [22] **Filed:** **Jan. 19, 1989**
- [51] **Int. Cl.<sup>5</sup>** ..... **F16J 15/06**
- [52] **U.S. Cl.** ..... **277/167.5; 277/183; 277/236; 285/112; 285/336**
- [58] **Field of Search** ..... **277/105, 166, 167.5, 277/178, 183, 212 C, 212 F, 225, 236; 285/112, 336, 917**

4,410,186	10/1983	Pierce, Jr. ....	277/167.5 X
4,452,462	6/1984	Karr, Jr. ....	277/236 X
4,471,965	9/1984	Jennings et al. ....	277/105 X
4,550,921	11/1985	Smith .	
4,643,461	2/1987	Thau, Jr. et al. ....	285/112
4,877,272	10/1989	Chevallier et al. ....	285/917 X

**FOREIGN PATENT DOCUMENTS**

2410149	9/1975	Fed. Rep. of Germany ...	277/212 C
2817198	10/1979	Fed. Rep. of Germany .....	285/112
491966	12/1955	Italy .....	285/112

*Primary Examiner*—Allan N. Shoap  
*Assistant Examiner*—Scott Cummings  
*Attorney, Agent, or Firm*—James E. Bradley

[57] **ABSTRACT**

A metal seal has features that make it particularly useful for wide temperature variations of the fluid flowing through the conduits that it seals. The seal ring locates within a groove in the face of each conduit. The seal ring engages the outer wall of the grooves. The seal ring has inner legs that engage the inner wall of the grooves. The legs are separated from a mid-section of the seal ring by a slot. The radial width of the seal ring is greater than the distance radially across the grooves so as to provide an interference fit. The deformation of the seal is elastic, not permanent. The sealing surfaces are cylindrical or conical. The seal is not axially compressed.

**4 Claims, 2 Drawing Sheets**

[56] **References Cited**  
**U.S. PATENT DOCUMENTS**

2,552,750	5/1951	Thornhill .	
2,898,000	8/1959	Hanny .	
3,042,248	7/1962	Krueger .....	285/917 X
3,047,301	7/1962	Taylor et al. ....	285/917 X
3,216,746	11/1965	Watts .....	277/225 X
3,275,335	9/1966	Johnson et al. ....	277/180
3,285,615	11/1966	Trbovich .....	277/180
3,325,176	6/1967	Latham et al. ....	277/236 X
3,345,078	10/1967	Bialkowski .....	277/236 X
3,455,562	7/1969	Burtis .....	277/178 X
3,479,063	11/1969	Raver .	
3,682,489	8/1972	Fischer .	
4,214,763	7/1980	Latham .....	277/167.5

