

# United States Patent [19]

Adamek et al.

[11] Patent Number: 4,709,933

[45] Date of Patent: Dec. 1, 1987

[54] TEMPERATURE TRANSIENT RESISTANT SEAL

[75] Inventors: Frank C. Adamek, Pasadena; Charles D. Bridges, Houston, both of Tex.

[73] Assignee: Vetco Gray Inc., Houston, Tex.

[21] Appl. No.: 39,060

[22] Filed: Apr. 16, 1987

[51] Int. Cl.<sup>4</sup> ..... F16J 15/06

[52] U.S. Cl. .... 277/167.5; 277/236; 277/22

[58] Field of Search ..... 277/167.5, 207 A, 207 B, 277/236, DIG. 2, DIG. 22; 285/917

[56] References Cited

### U.S. PATENT DOCUMENTS

3,197,218 7/1965 Coulter ..... 277/167.5  
3,414,273 12/1968 Sumner ..... 277/207 A X

4,361,331 11/1982 Kohler ..... 285/917 X  
4,452,462 6/1984 Karr ..... 277/167.5 X

### FOREIGN PATENT DOCUMENTS

845130 7/1952 Fed. Rep. of Germany ..... 277/236

Primary Examiner—Robert S. Ward  
Attorney, Agent, or Firm—Edward L. Kochev, Jr.;  
William H. Montgomery

[57] ABSTRACT

A cylindrical seal ring 20 has an inwardly extending rib 60, and upwardly 66 and downwardly 82 extending cantilever arms, each carrying outwardly facing seal surfaces 68, 84. The cantilever arms preload the seals and support the seals while providing flexibility between the seal areas and the rib 60. Temperature transients are readily accommodated.

5 Claims, 4 Drawing Figures

