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(54) **APPARATUS AND METHOD FOR SECURING A TUBULAR LINER IN A COMPOSITE PIPE**

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F16L 55/00 (2006.01)

(52) **U.S. Cl.** **285/55; 285/251; 285/247**

(58) **Field of Classification Search** **285/55, 285/148.12, 148.13, 148.17, 222, 222.1-222.5, 285/258, 245, 382.4, 334.5, 251, 248, 247, 285/249**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,175,532 A * 3/1916 Lambkin 285/249
2,234,350 A 3/1941 Muller
2,441,718 A * 5/1948 Parker et al. 285/222.4

2,485,975 A * 10/1949 Main, Jr. 285/222.1
2,535,460 A * 12/1950 Rotter et al. 285/222.4
2,550,583 A * 4/1951 Millar 285/258
2,733,940 A * 2/1956 Millar 285/222.4
2,750,210 A * 6/1956 Trogdon et al. 285/222.4
3,008,736 A * 11/1961 Samiran 285/222.5
3,140,106 A * 7/1964 Thomas et al. 285/256
4,437,689 A * 3/1984 Goebel et al. 285/246
4,660,867 A * 4/1987 Kemper et al. 285/256
4,729,583 A * 3/1988 Lalikos et al. 285/256
4,813,715 A 3/1989 Policelli
4,887,847 A * 12/1989 Barnoach 285/55
5,255,944 A * 10/1993 Blin et al. 285/222.2
5,332,049 A 7/1994 Tew
5,771,975 A 6/1998 Anderson et al.
5,813,467 A 9/1998 Anderson et al.
6,364,368 B1 * 4/2002 Kilgore 285/251

* cited by examiner

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(57) **ABSTRACT**

A device for mechanically securing a tubular liner in a pipe having a tubular member and connectors on each end. The connector has a bore with an internal seat that may have grooves and be tapered depending upon the application. The liner extends through the tubular member into the bore. The ends of the liner are radially and plastically deformed into engagement with the seats. An inner ring is positioned inside the liner to retain the end of the liner in engagement with the seat. The inner ring may be held by threads or by radially and plastically deforming it. The connectors are mounted to the tubular member independently of the liner, such as by adhesive. The liner may be replaced by removing the inner rings without affecting the connection between the tubular member and the connectors.

4 Claims, 6 Drawing Sheets

