# United States Patent [19]

#### Iwasaki et al.

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Date of Patent:

Apr. 18, 1989

[54]	COUPLING PIN FOR SUCKER ROD MADE OF FIBER-REINFORCED PLASTIC MATERIAL				
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[73]	Assignee:	Nippon Kokan Kabushiki Kaisha, Tokyo, Japan			
[21]	Appl. No.:	62,765			
[22]	Filed:	Jun. 15, 1987			
[30]	Foreign Application Priority Data				
Jul. 4, 1986 [JP] Japan 61-156215					
[52] [58]	U.S. Cl				
[56]		References Cited			

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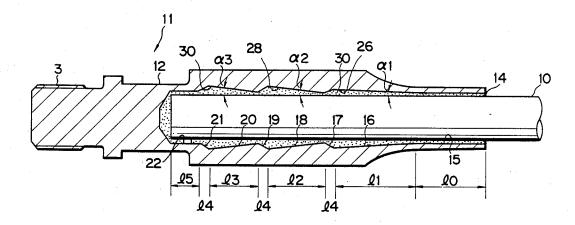
4,653,953	3/1987	Anderson et al	403/268
4,662,774	5/1987	Morrow, Jr	403/266

Primary Examiner-Andrew V. Kundrat Attorney, Agent, or Firm-Frishauf, Holtz, Goodman & Woodward

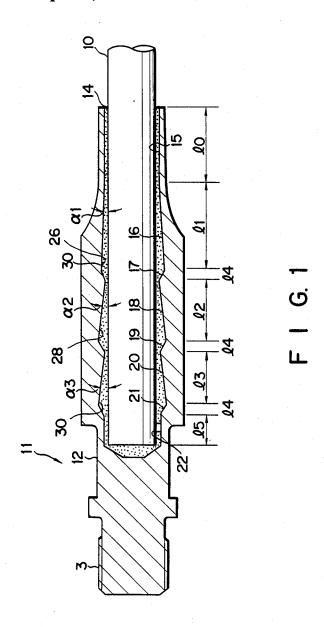
#### ABSTRACT [57]

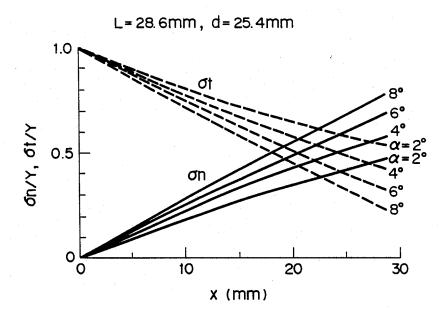
A sucker rod coupling pin comprises a hole into which the sucker rod is to be inserted, and has a plurality of annular depressions which surround the inner wall of the hole. As viewed crosswise, the annular depressions respectively have tapered surface portions arranged in series from the open end to the closed end of the coupling pin hole. The tapered surface portions whose cross sections progressively increase toward the closed end of the coupling pin hole have their respective lengths progressively shortened in relation to the preceding tapered portion, toward the closed end of the coupling pin hole, and the angle of inclination of the respective tapered surface portions progressively increases toward the closed end of the coupling pin hole.

14 Claims, 4 Drawing Sheets

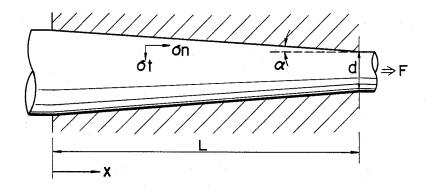






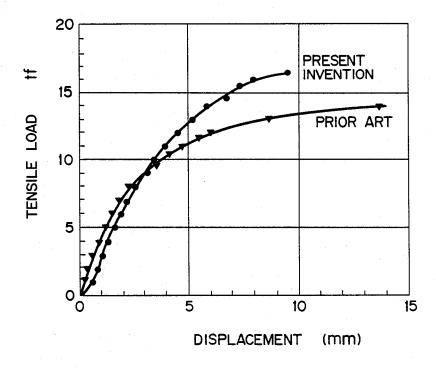


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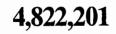


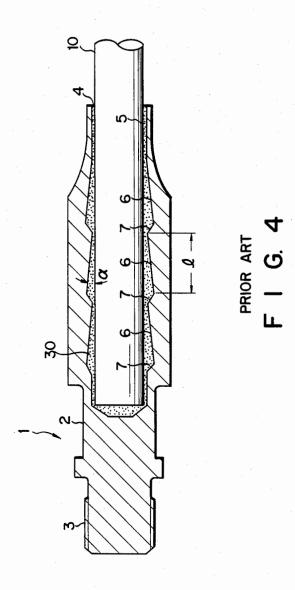
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