

Title (en)  
PUMP RODS

Publication  
**EP 0143236 A3 19861029 (DE)**

Application  
**EP 84111093 A 19840918**

Priority  
DE 3335607 A 19830930

Abstract (en)  
[origin: US4592421A] The sucker rod system in a deep well sucker rod pump consists of a plurality of unidirectionally reinforced composite fiber rods extending substantially parallel but not in contact with each other, the cross-sectional area of which rods is less than 1 cm<sup>2</sup>. This enables the advantageous material properties to be utilized to a high degree. The sucker rod system can be assembled on site. The individual composite fiber rods can be monitored when they are in the working position.

IPC 1-7  
**F04B 21/00**; **F04B 47/02**

IPC 8 full level  
**G01N 21/84** (2006.01); **E21B 17/00** (2006.01); **E21B 17/16** (2006.01); **F04B 47/02** (2006.01); **G01N 27/04** (2006.01)

CPC (source: EP US)  
**E21B 17/00** (2013.01 - EP US); **F04B 47/026** (2013.01 - EP US); **Y10T 74/20456** (2015.01 - EP US); **Y10T 403/5781** (2015.01 - EP US)

Citation (search report)

- DE 2906283 A1 19800821 - MASSIER HELMUT DIPL ING
- US 4360288 A 19821123 - RUTLEDGE JR WOODROW T, et al
- CA 1087521 A 19801014 - JOSLYN MFG & SUPPLY CO

Designated contracting state (EPC)  
AT DE FR GB NL

DOCDB simple family (publication)  
**US 4592421 A 19860603**; AT E38414 T1 19881115; AU 3346984 A 19860410; AU 568573 B2 19880107; BR 8404869 A 19850813; CA 1230010 A 19871208; DE 3335607 A1 19850411; DE 3474984 D1 19881208; EG 16296 A 19861230; EP 0143236 A2 19850605; EP 0143236 A3 19861029; EP 0143236 B1 19881102; IN 161160 B 19871010; JP S6095195 A 19850528; NO 160020 B 19881121; NO 160020 C 19890301; NO 843695 L 19850401; RO 91066 A 19870227; RO 91066 B 19870228

DOCDB simple family (application)  
**US 64901784 A 19840910**; AT 84111093 T 19840918; AU 3346984 A 19840924; BR 8404869 A 19840927; CA 464253 A 19840928; DE 3335607 A 19830930; DE 3474984 T 19840918; EG 60284 A 19840929; EP 84111093 A 19840918; IN 688DE1984 A 19840830; JP 20217184 A 19840928; NO 843695 A 19840917; RO 11579084 A 19840924