



US005375662A

United States Patent [19]

[11] Patent Number: **5,375,662**

Echols, III et al.

[45] Date of Patent: **Dec. 27, 1994**

[54] **HYDRAULIC SETTING SLEEVE**

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[75] Inventors: **Ralph H. Echols, III; Colby M. Ross,**
both of Carrollton; **Phillip T. Thomas,**
Lewisville, all of Tex.

[73] Assignee: **Halliburton Company,** Houston, Tex.

[21] Appl. No.: **86,104**

[22] Filed: **Jun. 30, 1993**

Primary Examiner—William P. Neuder
Attorney, Agent, or Firm—Tracy W. Druce; Dennis T. Griggs

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 1,020, Jan. 6, 1993, which is a continuation of Ser. No. 743,792, Aug. 12, 1991, Pat. No. 5,180,016.

[51] Int. Cl.⁵ **E21B 33/13**

[52] U.S. Cl. **166/386; 166/187;**
166/238

[58] Field of Search 166/386, 387, 181, 187,
166/188, 194, 238

[57] ABSTRACT

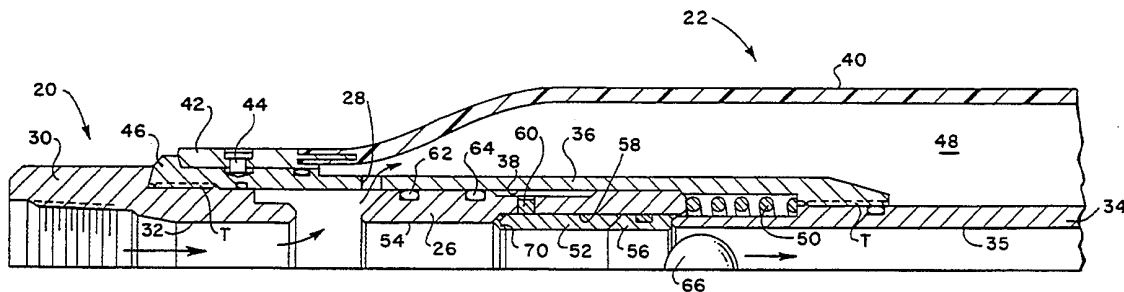
A hydraulic setting apparatus has an isolation sleeve which covers setting ports and prevents entry of hydraulic setting fluid into a pressure settable tool such as an inflatable packer or a hydraulic packer. The mandrel of the setting tool is mechanically coupled to the mandrel of the pressure settable completion tool by a guide tube which provides an enlarged counterbore chamber. The guide tube is intersected by radial setting ports which permit entry of the pressurized fluid for pressurizing a hydraulic pressure chamber in the completion tool. A shiftable isolation sleeve opens and closes the setting ports. A radially outwardly biased split C-ring is engaged against the bore of the isolation sleeve. Longitudinal travel of the split C-ring is limited by a shear collar which is releasably pinned to the isolation sleeve.

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18 Claims, 4 Drawing Sheets



BAKER HUGHES INCORPORATED
AND BAKER HUGHES OILFIELD
OPERATIONS, INC.
Exhibit 1009
BAKER HUGHES INCORPORATED
AND BAKER HUGHES OILFIELD
OPERATIONS, INC. v. PACKERS
PLUS ENERGY SERVICES, INC.

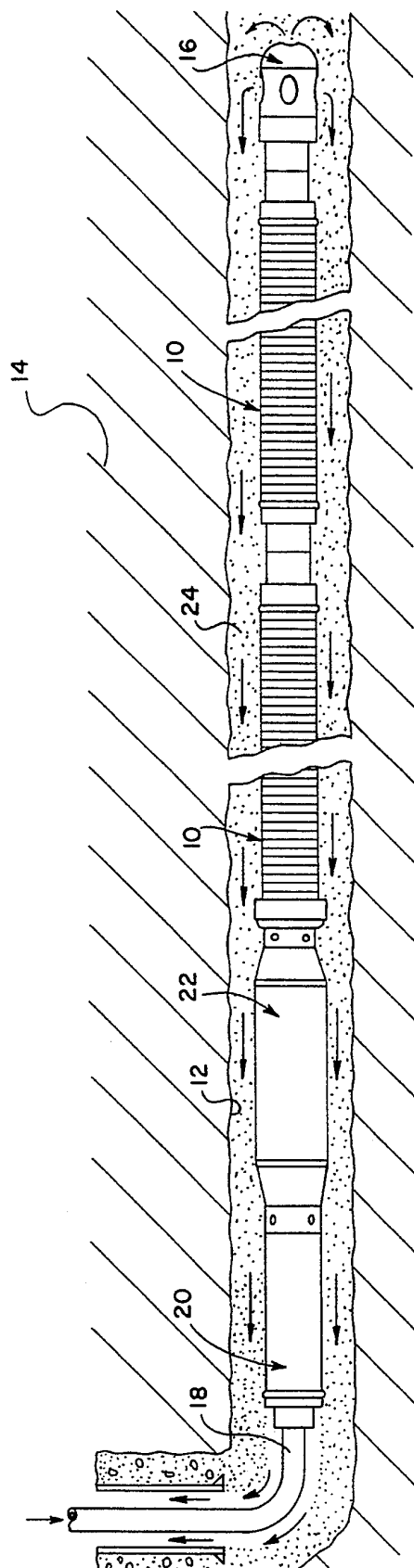


FIG. 1

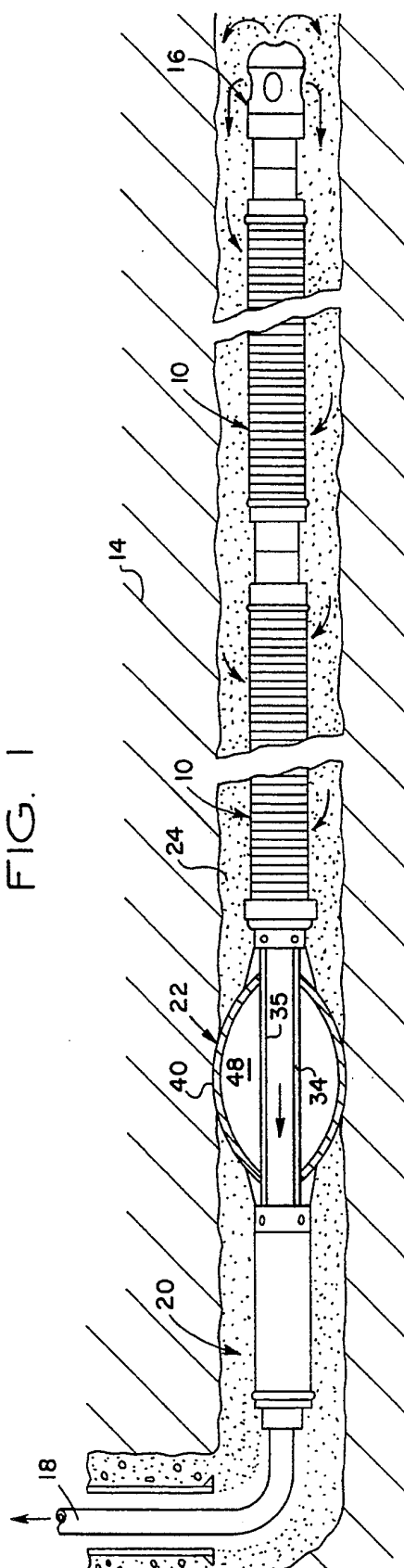


FIG. 2

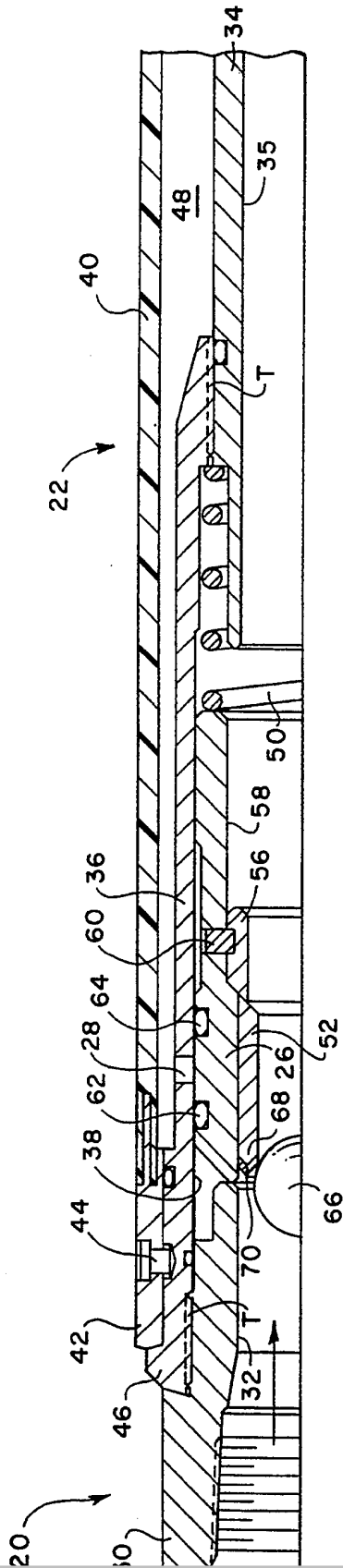


FIG. 3

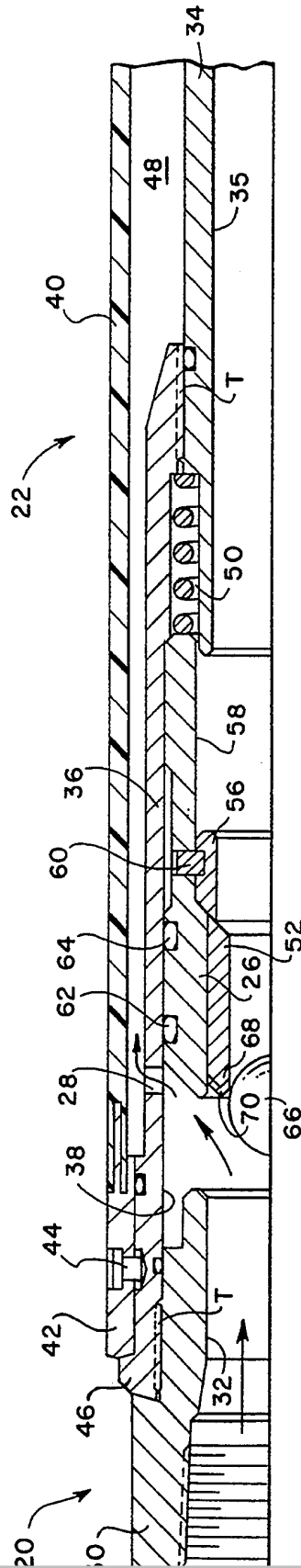


FIG. 4

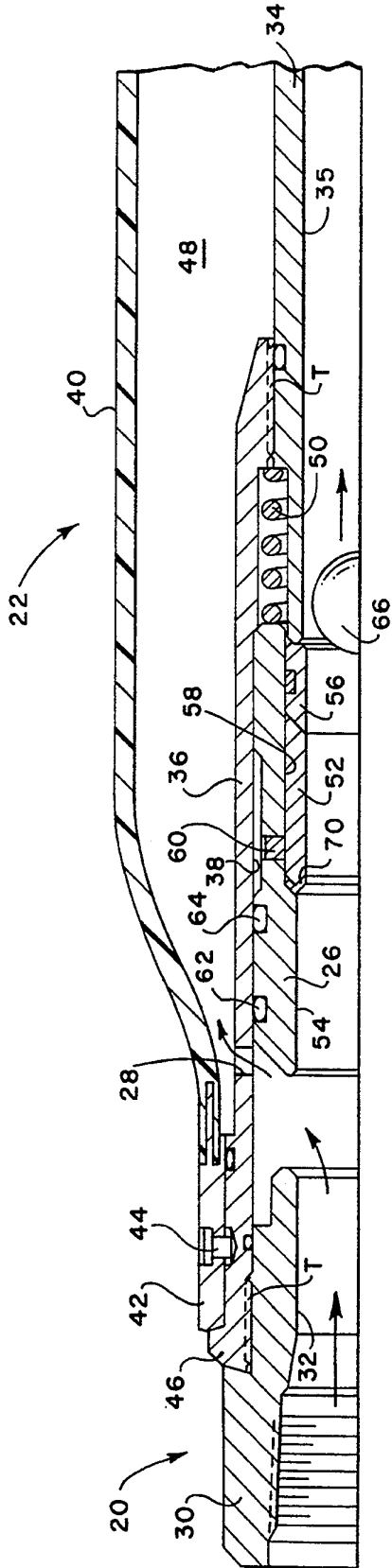


FIG. 5

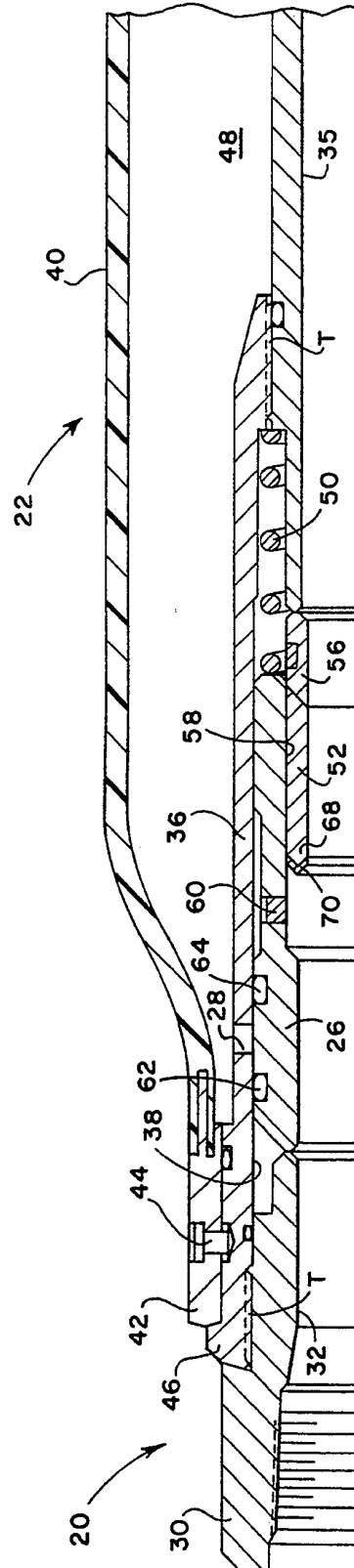


FIG. 6

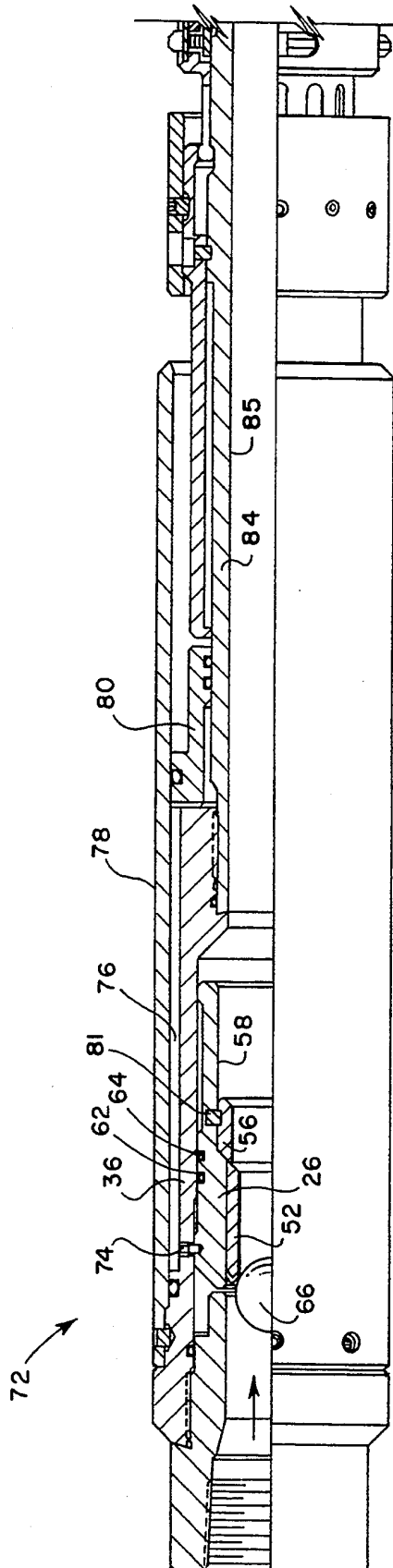


FIG. 7

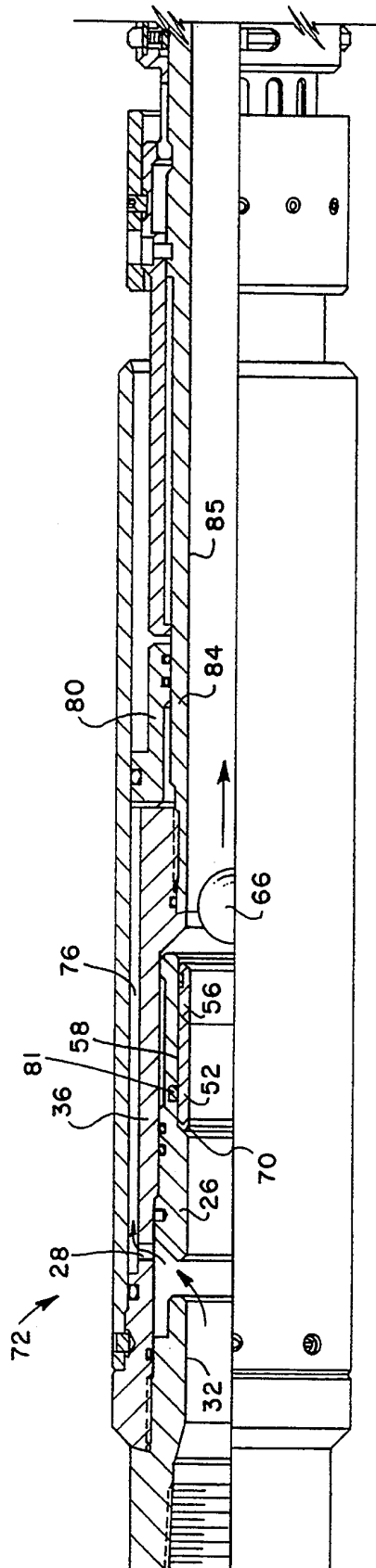


FIG. 8

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