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United States Patent [19]

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Echols, III et al.

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- [54] **HYDRAULIC SETTING SLEEVE**
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- [73] Assignee: **Halliburton Company,** Houston, Tex.
- [21] Appl. No.: **86,104**
- [22] Filed: **Jun. 30, 1993**

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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

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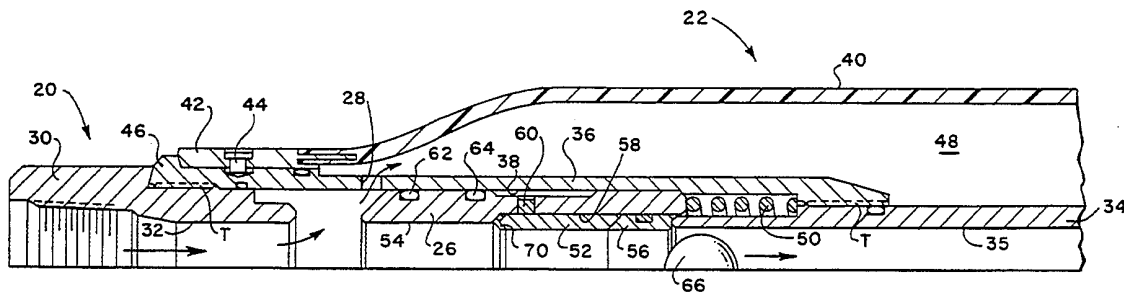
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[57] ABSTRACT

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.

18 Claims, 4 Drawing Sheets



BAKER HUGHES INCORPORATED
 Exhibit 1009

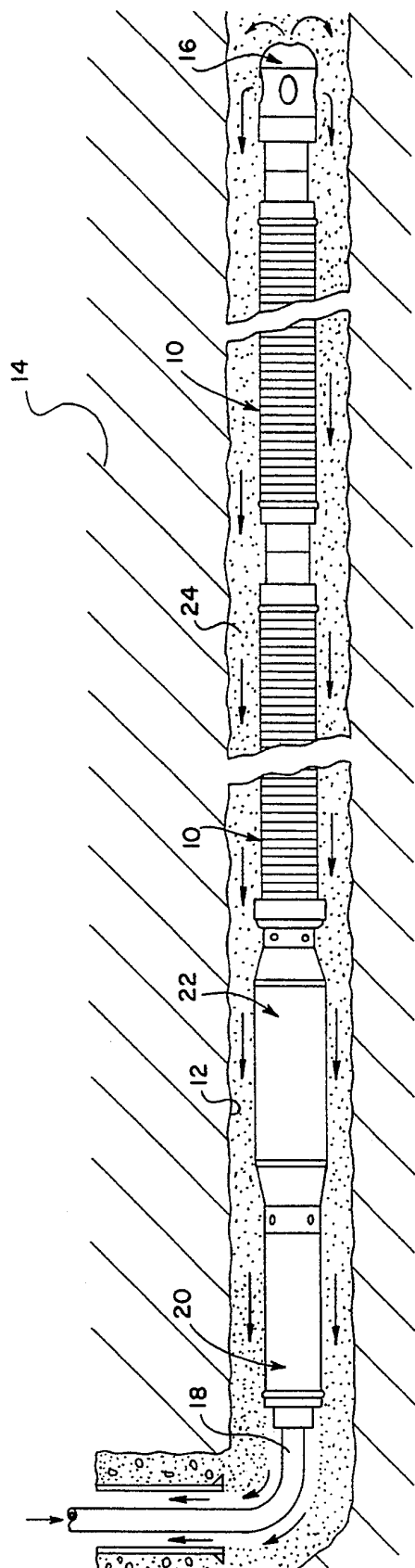


FIG. 1

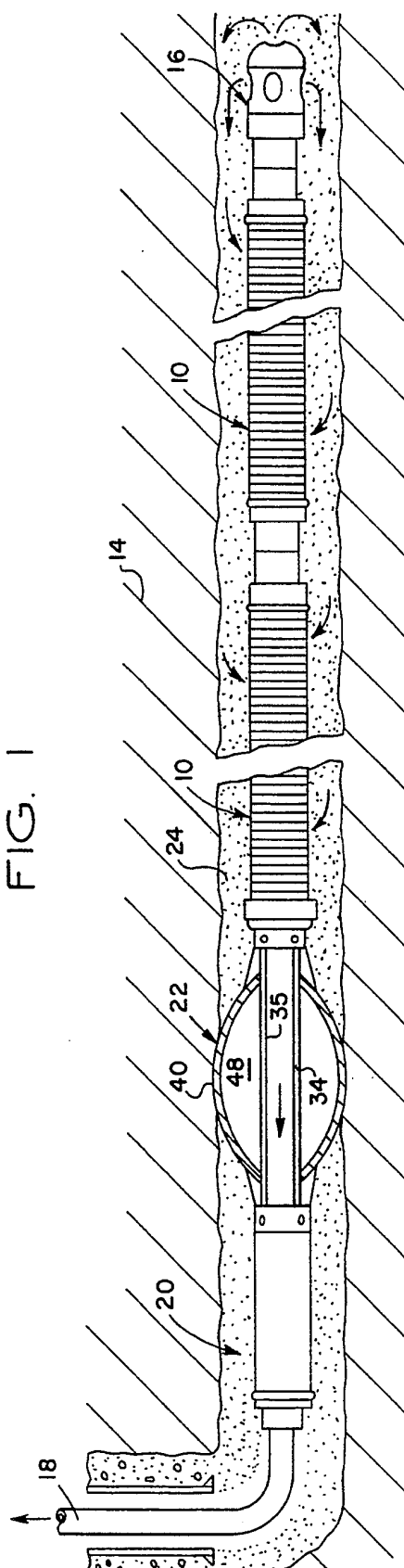


FIG. 2

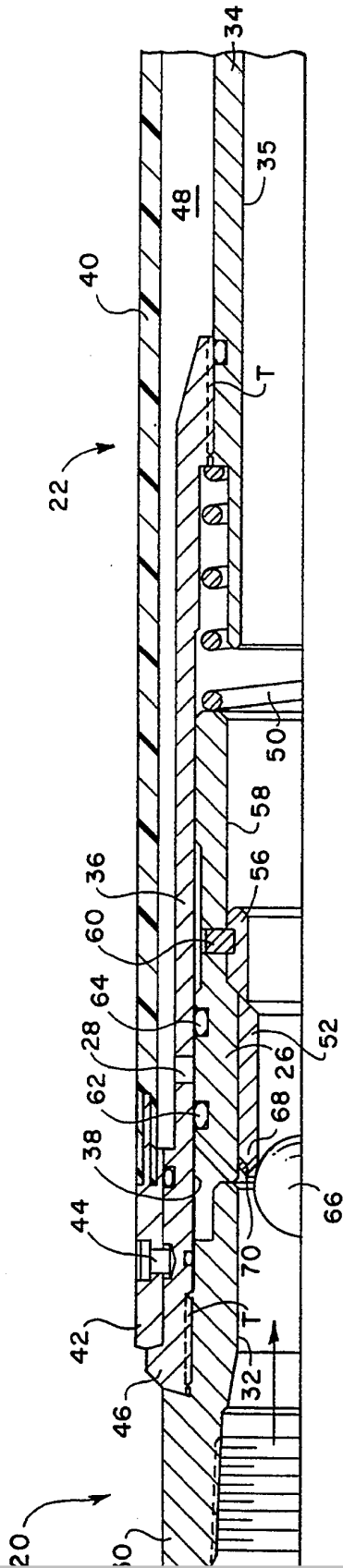


FIG. 3

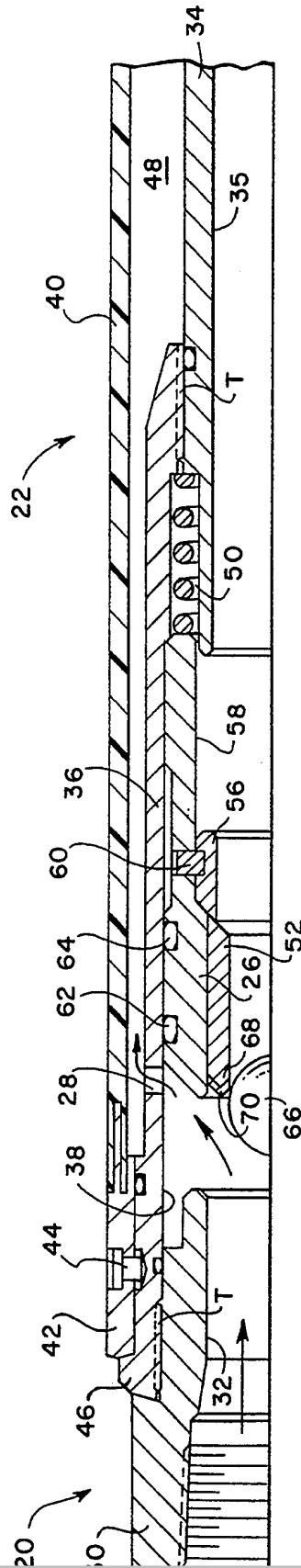


FIG. 4

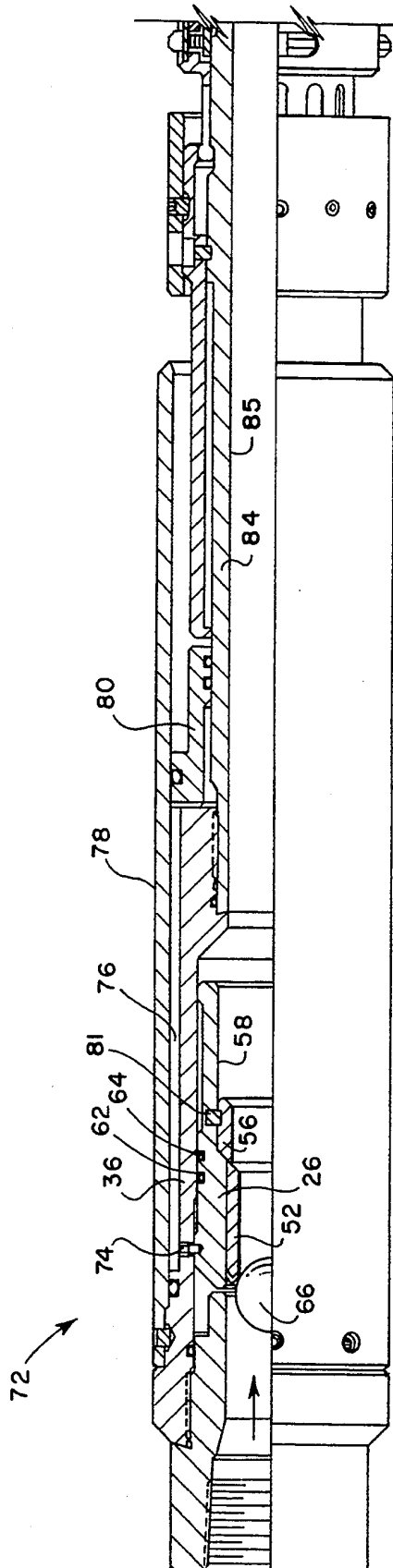


FIG. 7

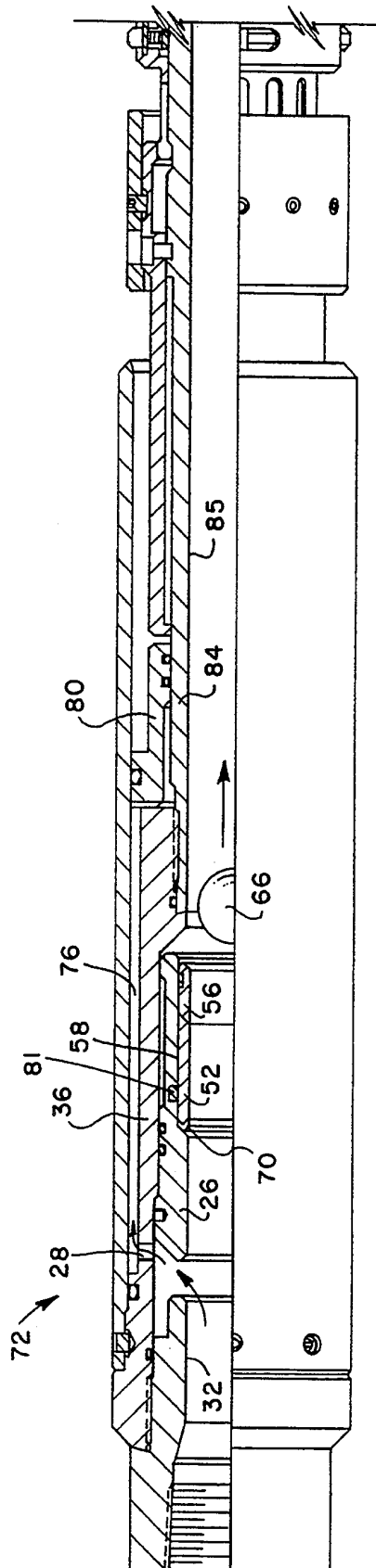


FIG. 8

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