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United States Patent [19]

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Dallas

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[54] **WELLHEAD ISOLATION TOOL AND METHOD OF USE**

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[57] **ABSTRACT**

[21] Appl. No.: **160,477**

A wellhead isolation tool is disclosed that is unique because the tool has no direct connection between the high pressure valve and the mandrel. Well stimulation fluids are pumped through one or more high pressure bores which communicate with a mandrel injection head that directs the fluids into the mandrel. The injection head and the mandrel are enclosed in a sealed bore and reciprocatably movable with a piston which is used to stroke the mandrel into and out of a wellhead and to lock the mandrel in an operating position wherein ports in the injection head are aligned with the high pressure bores. The piston may be reciprocated using a mechanical screw. A concentric mandrel embodiment providing a pack-off nipple expander is also disclosed. The tool provides superior safety features and ease of operation.

[22] Filed: **Dec. 1, 1993**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 958,502, Oct. 8, 1992, Pat. No. 5,332,044.

[51] Int. Cl.⁵ **E21B 33/00**

[52] U.S. Cl. **166/386; 166/86**

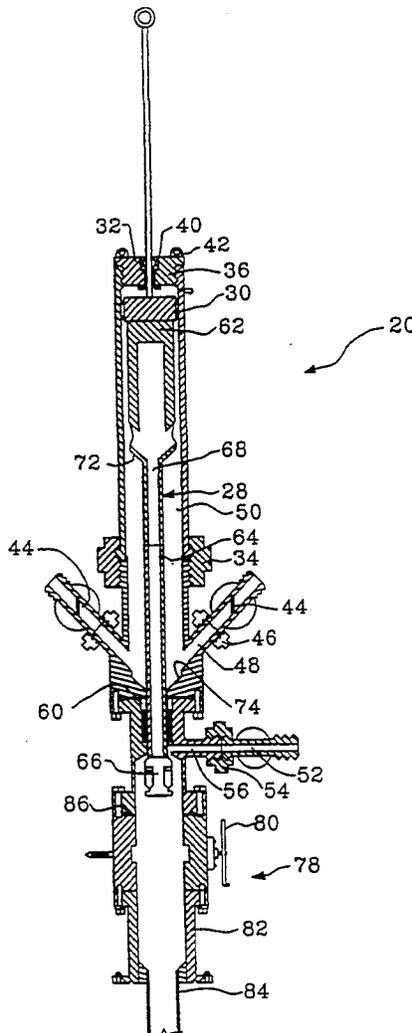
[58] Field of Search 166/386, 387, 381, 86-88

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15 Claims, 8 Drawing Sheets



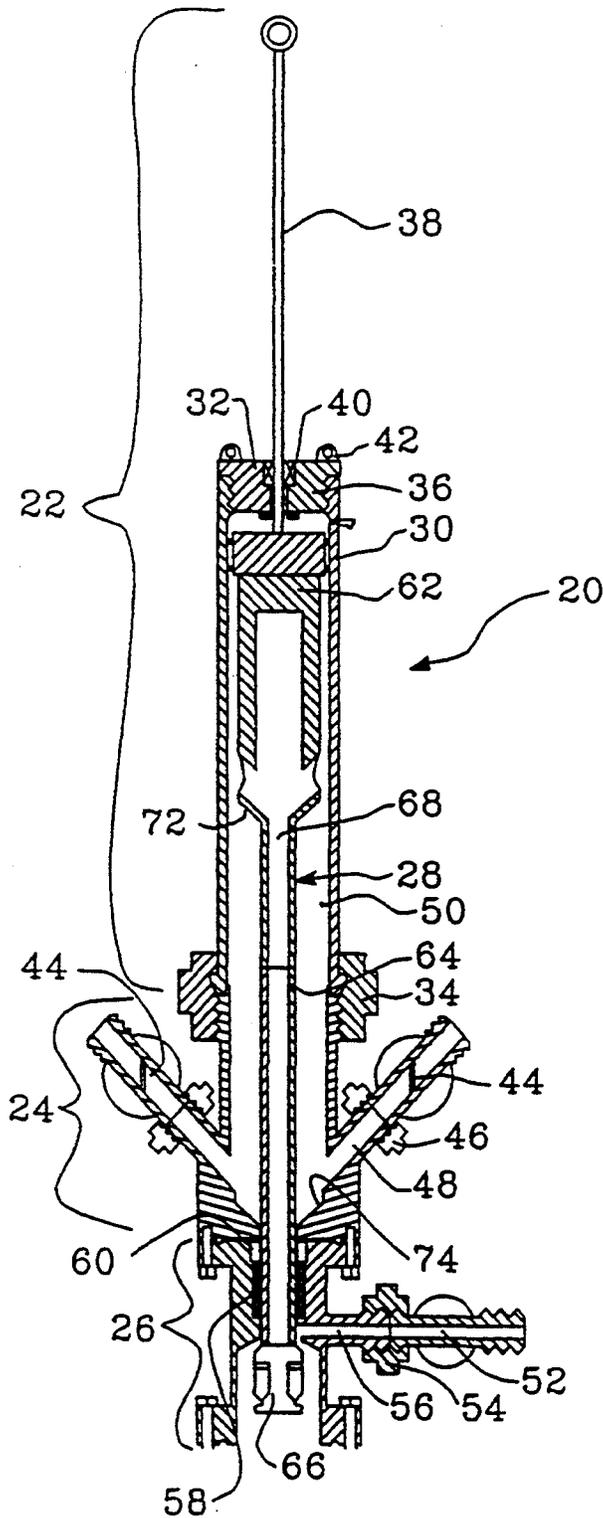


FIG. 1

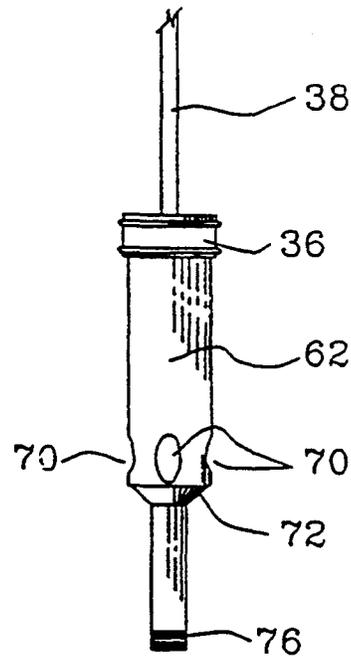


FIG. 1A

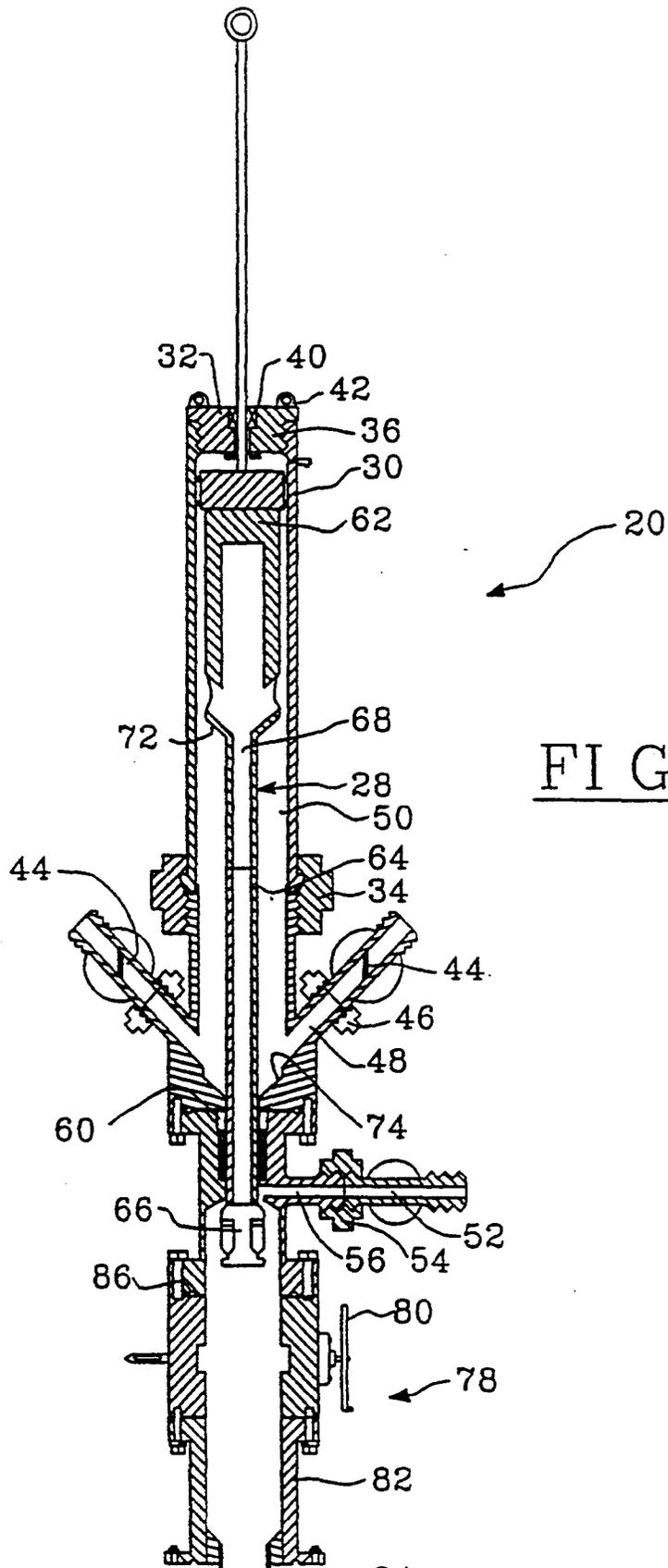


FIG. 2

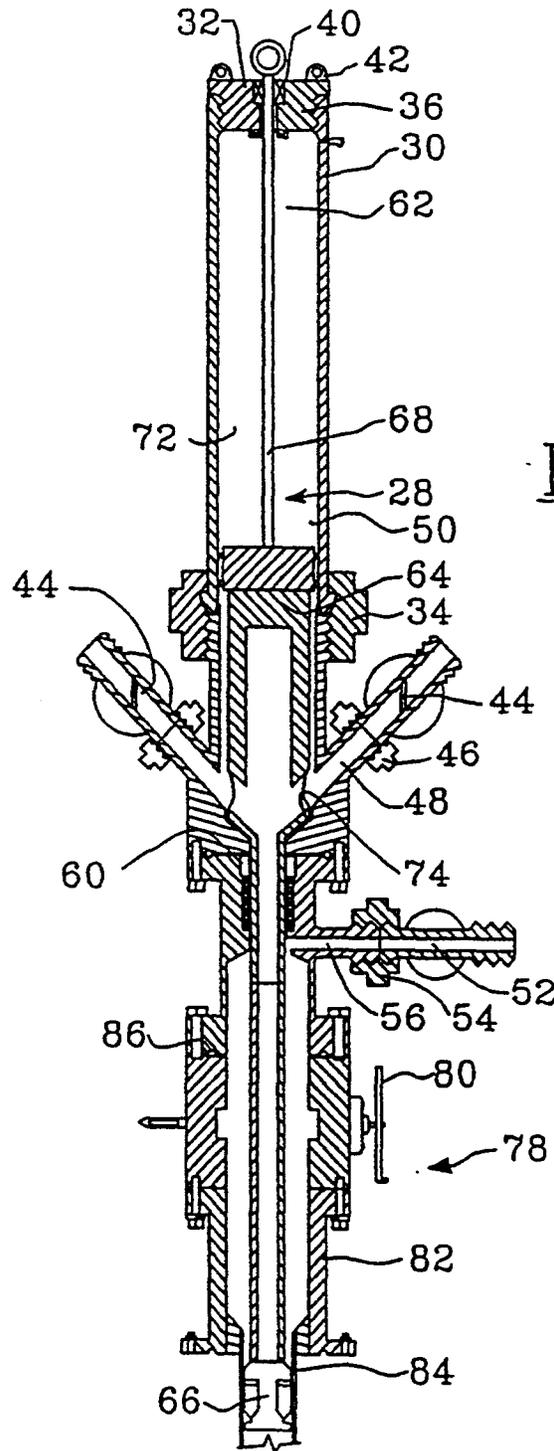


FIG. 3

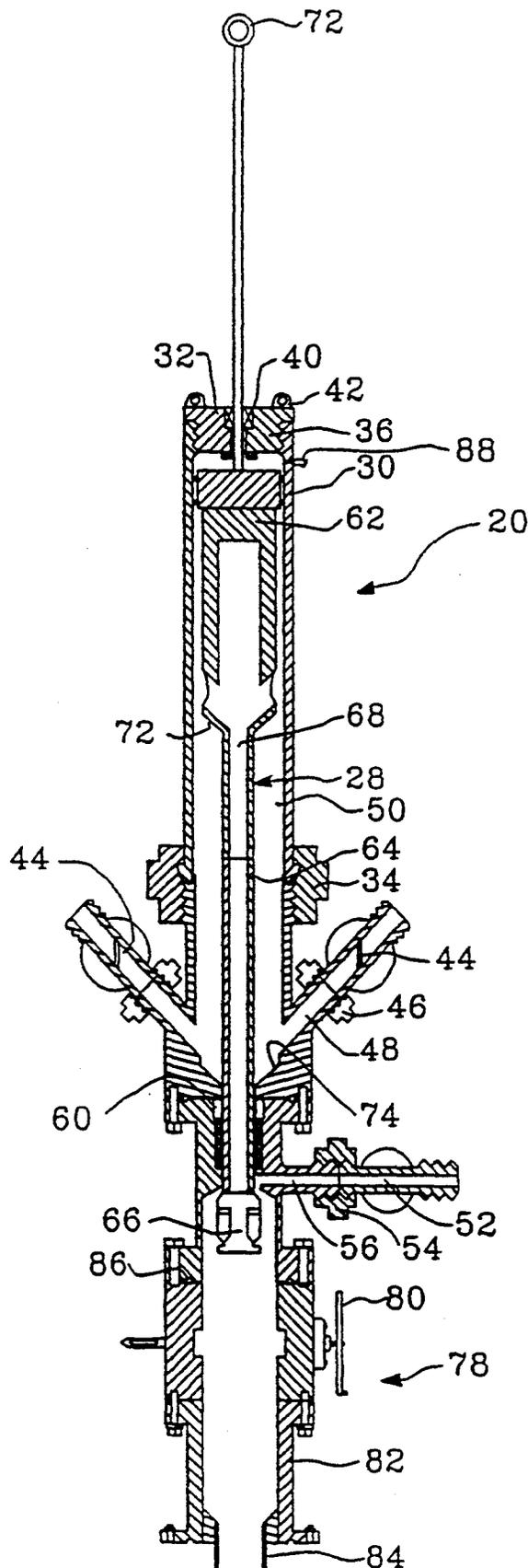


FIG. 4

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