

(12) **United States Patent**
Themig

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(54) **HYDRAULIC OPEN HOLE PACKER**

(76) Inventor: **Daniel Jon Themig**, 52 Glenhill Drive,
Cochrane, AB (CA) T4C 1G9

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patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

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7,134,505, which is a division of application No.
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E21B 23/06 (2006.01)
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(52) **U.S. Cl.** **166/191**; 166/50; 166/313;
277/337

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166/50, 245, 313, 387, 185, 186; 277/322,
277/337, 342, 338

See application file for complete search history.

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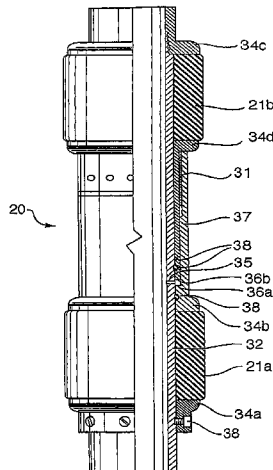
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Primary Examiner—Kenneth Thompson
(74) *Attorney, Agent, or Firm*—Smith IP Services, P.C.

(57) **ABSTRACT**

A tubing string assembly is disclosed for fluid treatment of a
wellbore. The tubing string can be used for staged wellbore
fluid treatment where a selected segment of the wellbore is
treated, while other segments are sealed off. The tubing string
can also be used where a ported tubing string is required to be
run in in a pressure tight condition and later is needed to be in
an open-port condition.

49 Claims, 9 Drawing Sheets



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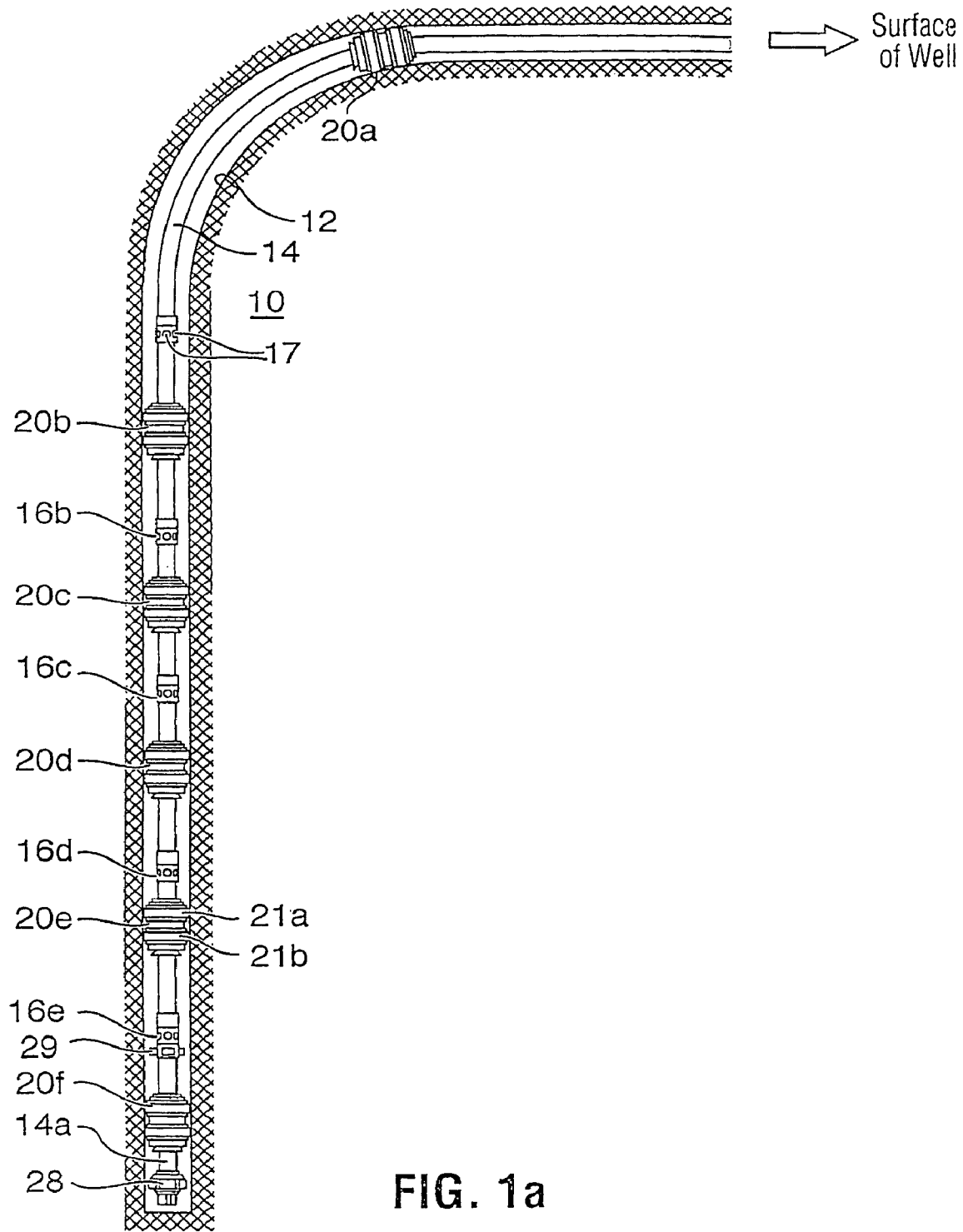
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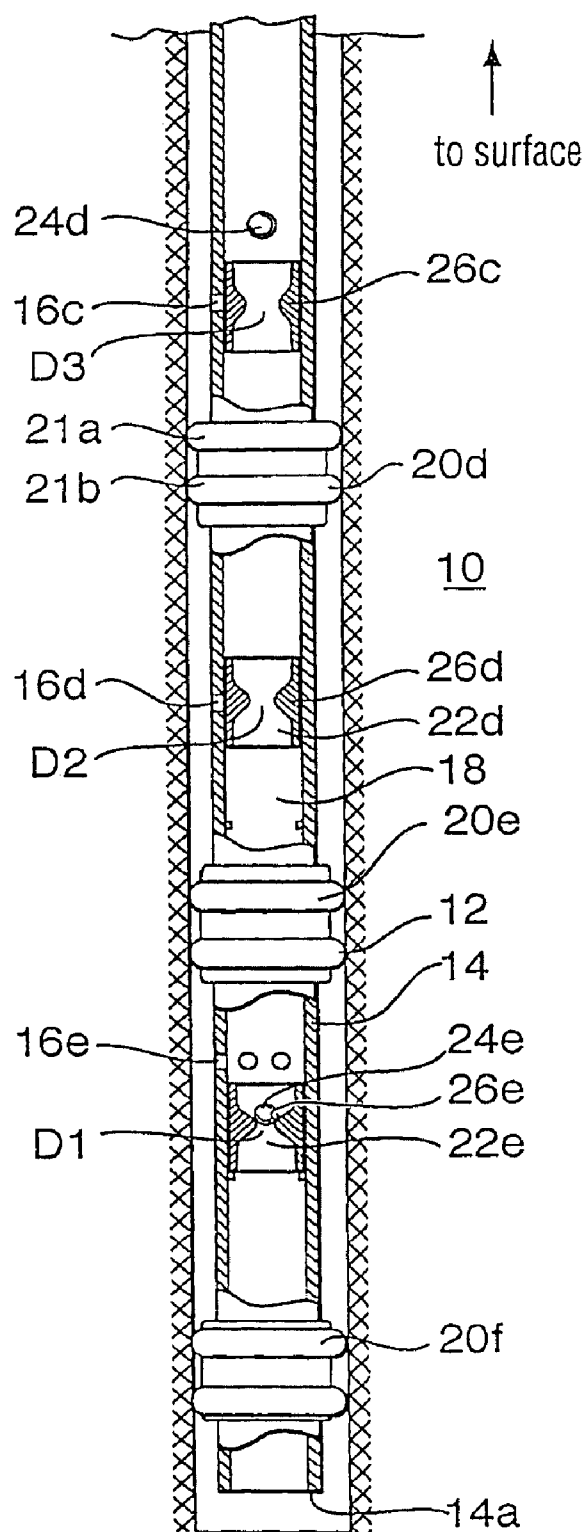


FIG. 1b

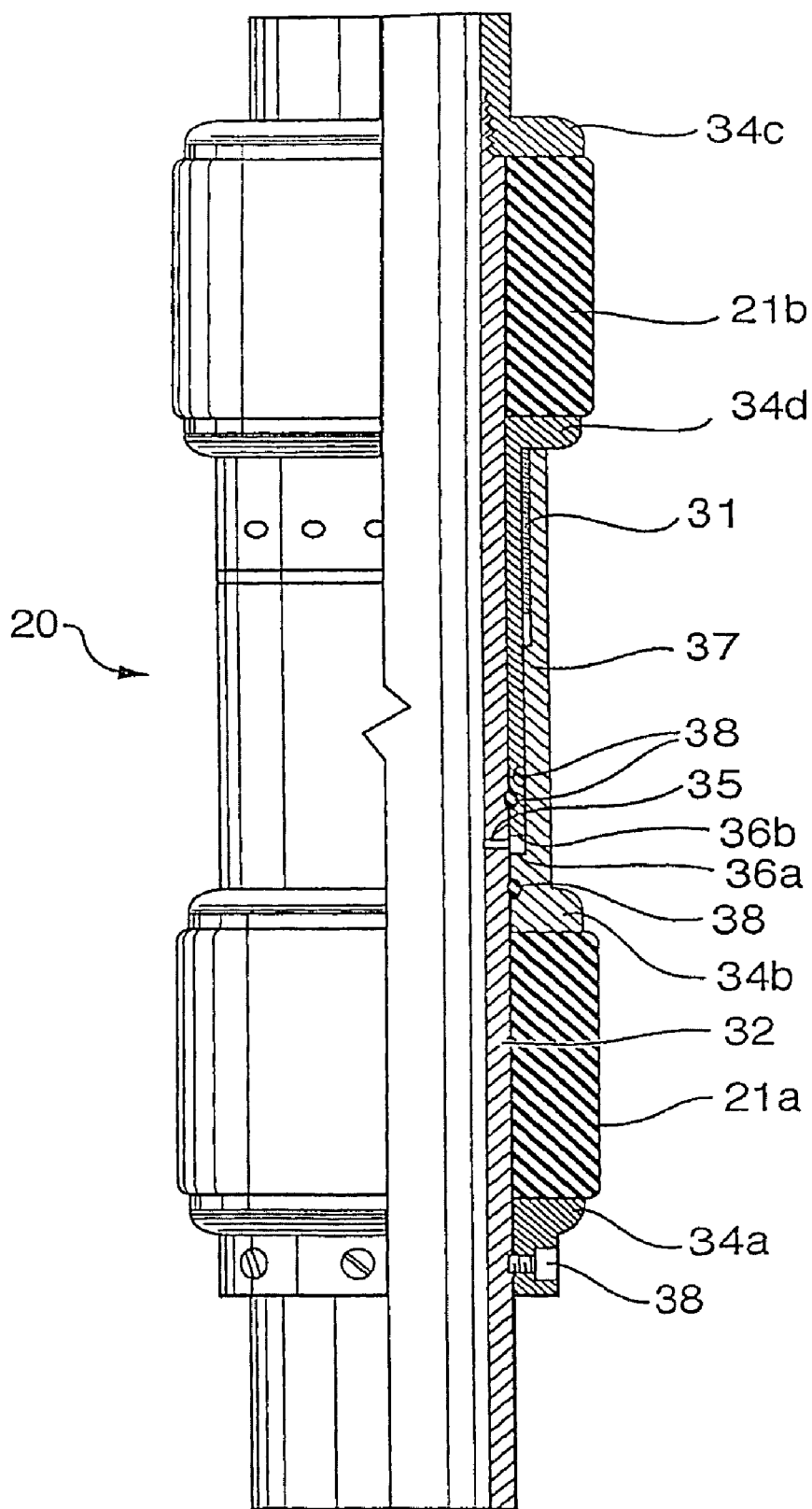


FIG. 2



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