

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

GREENE'S ENERGY GROUP, LLC,

Petitioner,

v.

OIL STATES ENERGY SERVICES, LLC,

Patent Owner.

Case IPR2014-00216

Patent No. 6,179,053

PATENT OWNER PRELIMINARY RESPONSE
UNDER 37 C.F.R. § 42.107

EXHIBIT A



[54] **BLOWOUT PREVENTER PROTECTOR FOR USE DURING HIGH PRESSURE OIL/GAS WELL STIMULATION**

[76] Inventor: **L. Murray Dallas**, 801 New England Ct., Allen, Tex. 75002

[21] Appl. No.: **783,860**

[22] Filed: **Jan. 16, 1997**

[51] **Int. Cl.⁶** **E21B 33/068**

[52] **U.S. Cl.** **166/308**; 166/86.1; 166/87.1; 166/90.1; 166/386; 166/387

[58] **Field of Search** 166/308, 386, 166/387, 86.1, 87.1, 90.1

[56] **References Cited**

U.S. PATENT DOCUMENTS

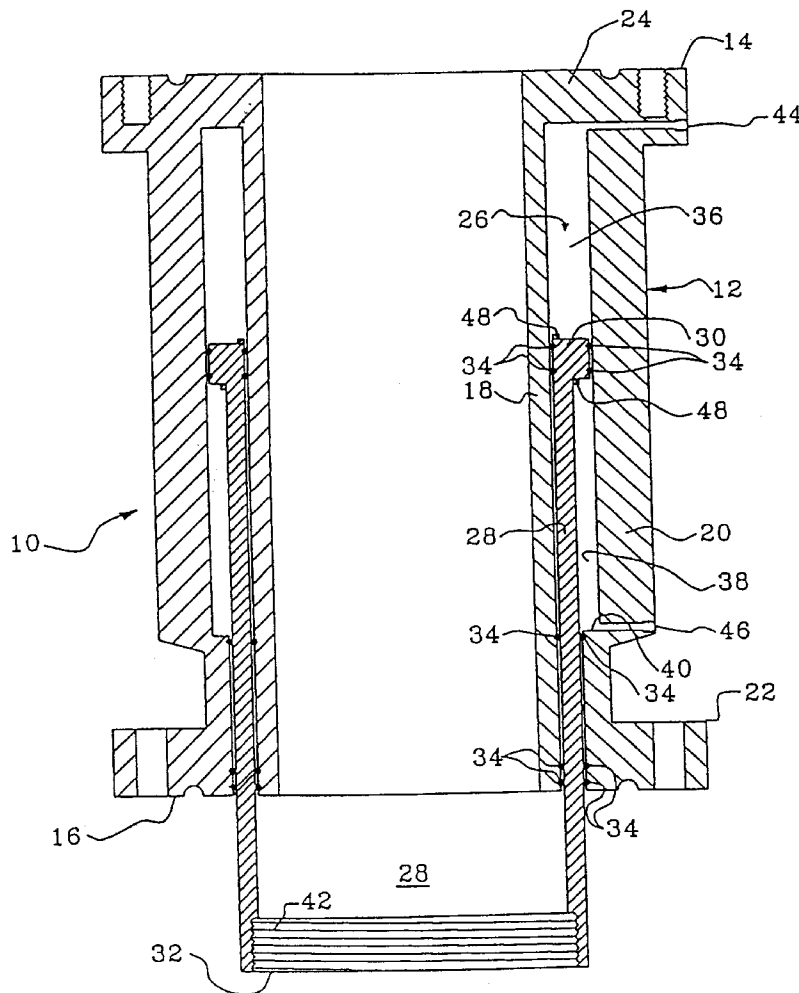
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Primary Examiner—Roger J. Schoepfel
Attorney, Agent, or Firm—Dority & Manning, P.A.

[57] **ABSTRACT**

An apparatus for protecting blowout preventers during well fracturing and/or stimulation treatments is disclosed. The apparatus includes a hollow spool with spaced-apart inner and outer sidewalls that define an annular cavity. A mandrel is forcibly reciprocable in the cavity. The mandrel includes an annular seal at a bottom end for sealingly engaging a bit guide attached to a top end of the casing. The apparatus is mounted above a BOP attached to a casing spool of the well before well stimulation procedures are begun. The mandrel is stroked down through the BOP to protect it from exposure to fluid pressure as well as abrasive and/or corrosive well stimulation fluids, especially extreme pressures and abrasive proppants. The advantage is a simple, easy to operate apparatus for protecting BOPs which provides full access to the well casing with well servicing tools to facilitate well stimulation at pressures approaching the burst pressure rating of the well casing.

45 Claims, 5 Drawing Sheets



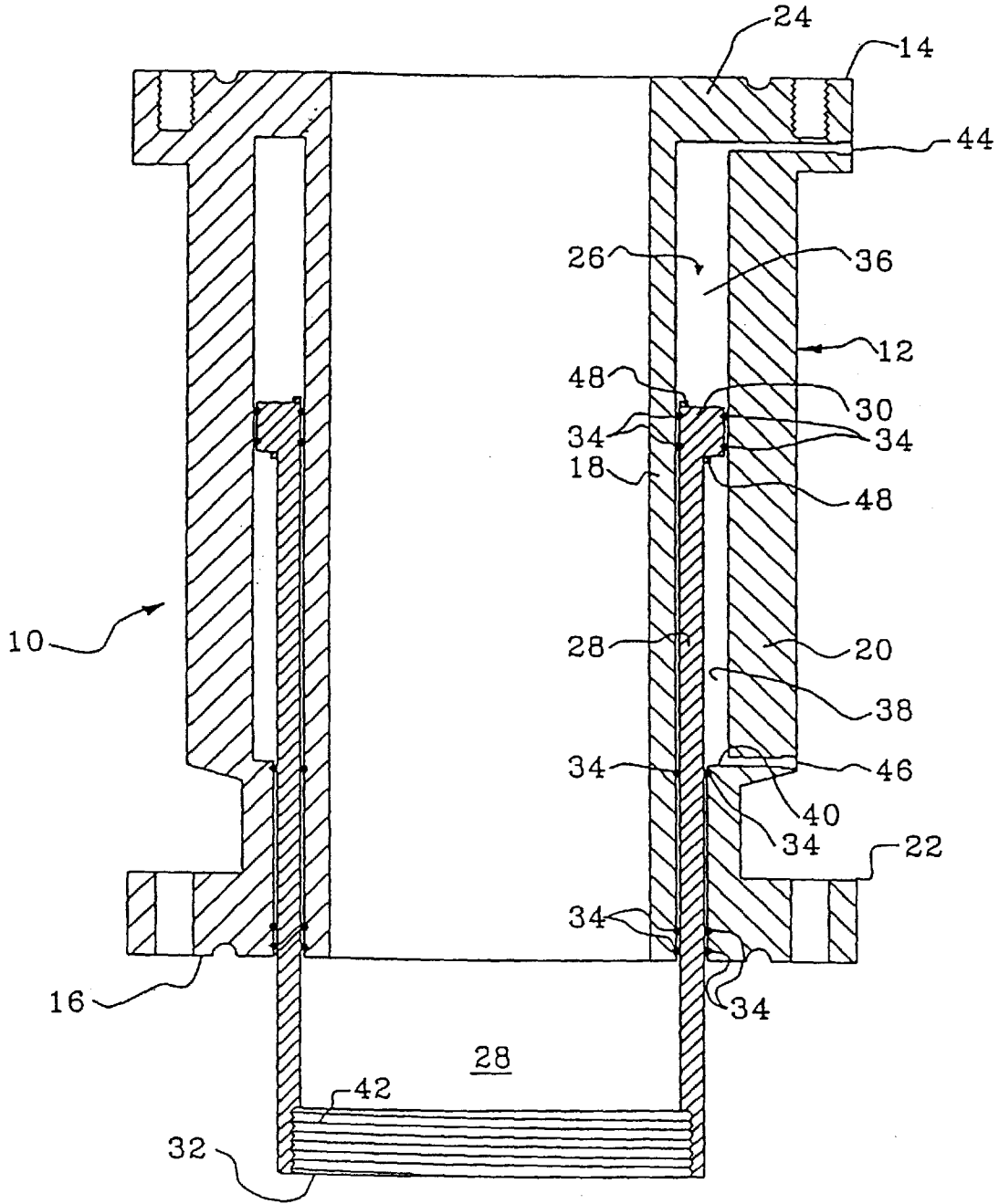


FIG. 1

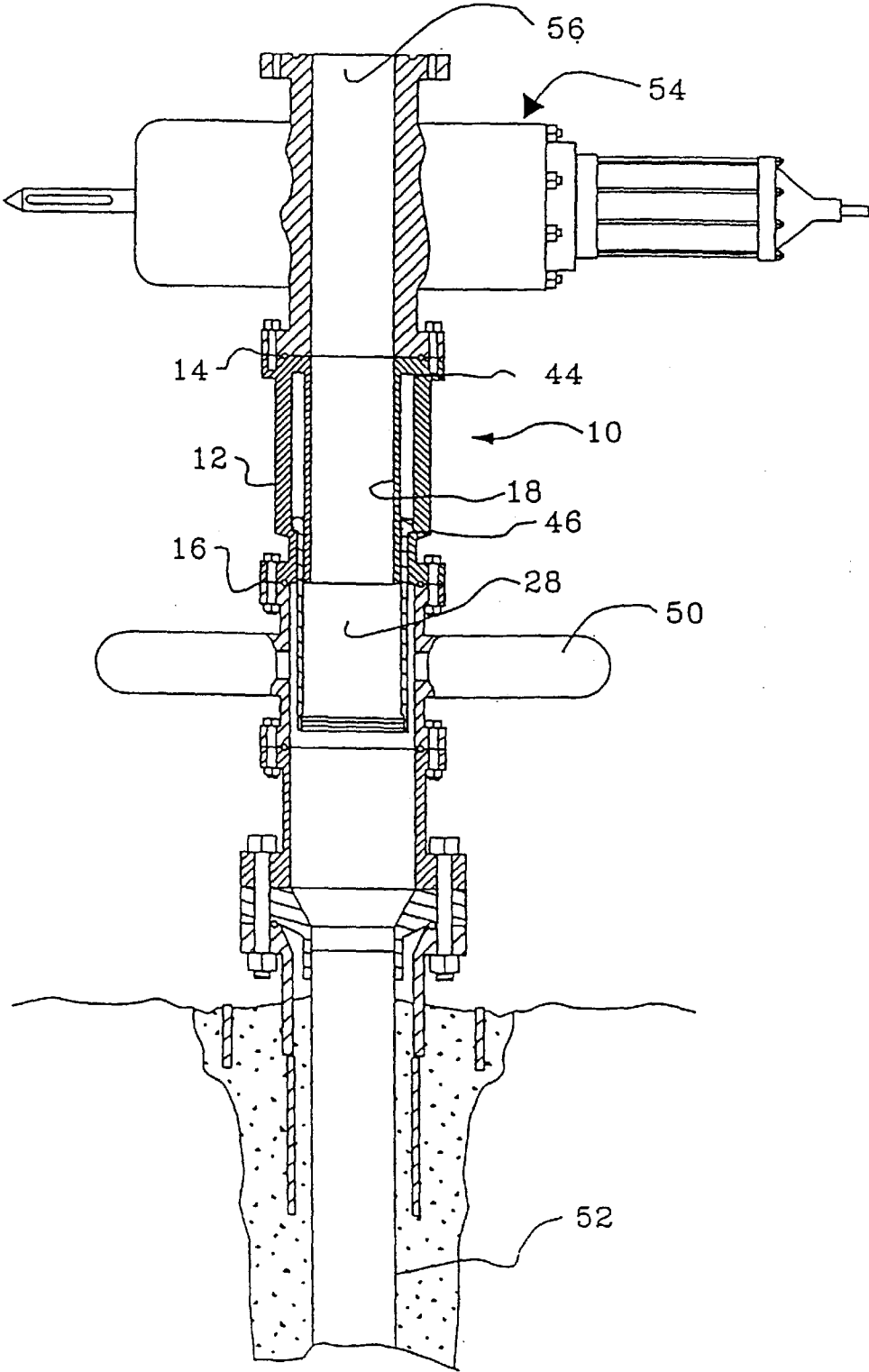


FIG. 2

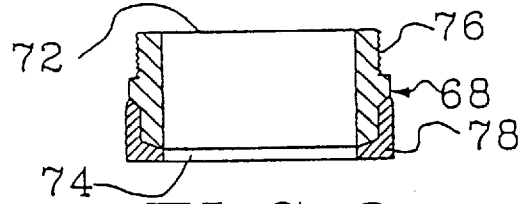
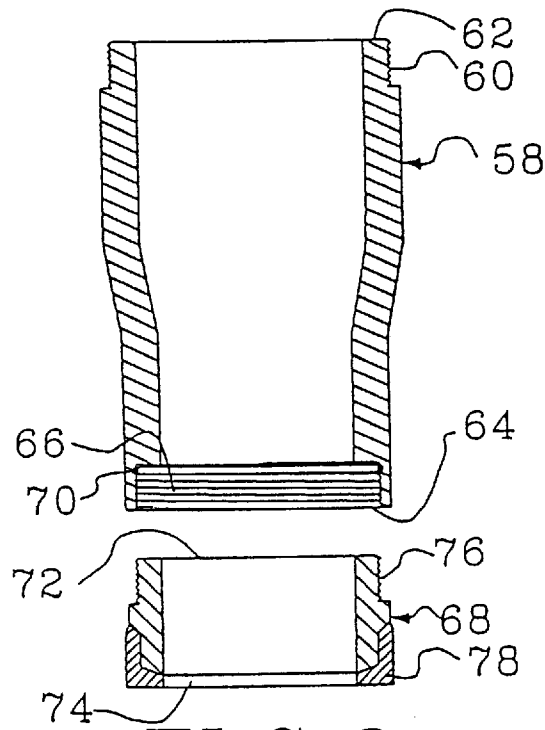
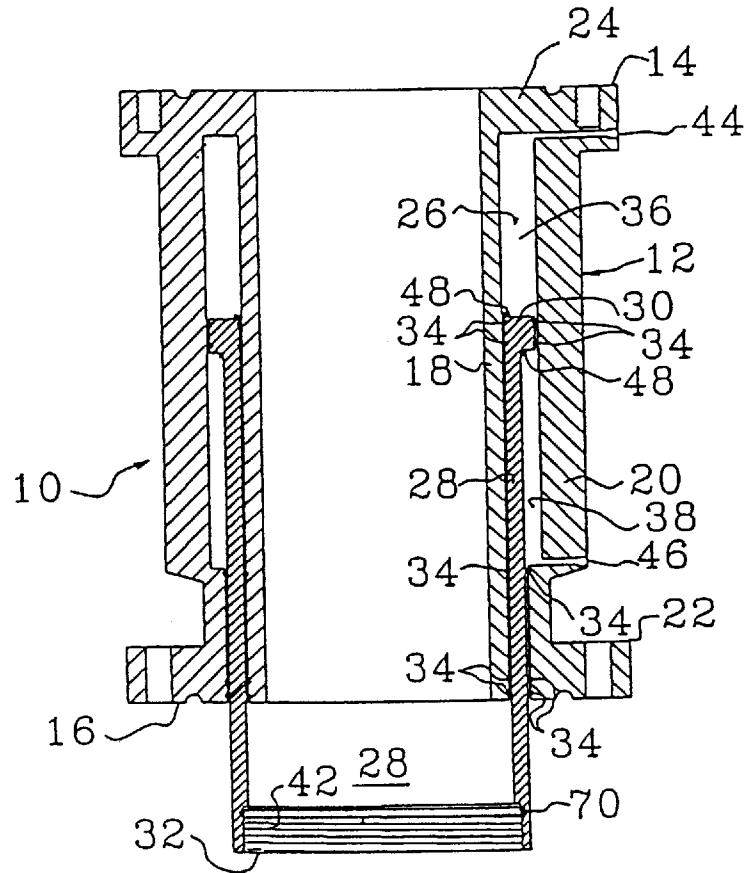


FIG. 3

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