



US008196680B2

(12) **United States Patent**
Buckman, Sr. et al.

(10) **Patent No.:** **US 8,196,680 B2**

(45) **Date of Patent:** **Jun. 12, 2012**

(54) **PERFORATING AND JET DRILLING METHOD AND APPARATUS**

(56) **References Cited**

(75) Inventors: **William G. Buckman, Sr.**, Bowling Green, KY (US); **William C. Maurer**, Austin, TX (US); **Zachary D. Pearl**, Bowling Green, KY (US)

(73) Assignee: **Buckman Jet Drilling**, Bowling Green, KY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 486 days.

(21) Appl. No.: **12/365,667**

(22) Filed: **Feb. 4, 2009**

(65) **Prior Publication Data**

US 2010/0193192 A1 Aug. 5, 2010

(51) **Int. Cl.**
E21B 7/08 (2006.01)

(52) **U.S. Cl.** **175/62; 175/75**

(58) **Field of Classification Search** **175/62, 175/67, 81, 424; 166/298, 55.1, 222**

See application file for complete search history.

U.S. PATENT DOCUMENTS

2,743,781	A	5/1956	Lane
4,256,179	A	3/1981	Shillander
5,295,544	A	3/1994	Umphries
5,372,190	A	12/1994	Coleman
5,445,220	A	8/1995	Gurevich et al.
5,853,056	A	12/1998	Landers
6,125,949	A	10/2000	Landers
6,250,386	B1	6/2001	Ellingsen
6,263,984	B1	7/2001	Buckman, Sr.
6,283,230	B1	9/2001	Peters
6,378,629	B1	4/2002	Baird
6,578,636	B2	6/2003	Mazorow
6,668,948	B2	12/2003	Buckman
7,168,491	B2	1/2007	Malone
7,350,577	B2	4/2008	Howard et al.
2004/0231845	A1	11/2004	Cooke, Jr.

Primary Examiner — David Andrews

(74) *Attorney, Agent, or Firm* — Claude Cooke, Jr.; John J. Love; Cooke Law Firm

(57) **ABSTRACT**

A tool body on tubing directs a mechanical cutter or jet bit to the casing in an oil or gas well. A hole is cut in casing and a rotary detent mechanism may be used to drill additional holes through casing and enable alignment of a jet bit with the holes for drilling drainholes without removing apparatus from the well. Disposable nozzles in a guide channel or nozzles on the tool body may be used for drilling through casing.

3 Claims, 7 Drawing Sheets

