



US007308953B2

(12) **United States Patent**  
**Barnes**

(10) **Patent No.:** **US 7,308,953 B2**  
(45) **Date of Patent:** **\*Dec. 18, 2007**

(54) **MOBILE DRILLING RIG**

(76) Inventor: **R. Michael Barnes**, 3303 FM 1960  
West, Suite 230, Houston, TX (US)  
77068

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 289 days.

This patent is subject to a terminal dis-  
claimer.

(21) Appl. No.: **11/069,787**

(22) Filed: **Mar. 1, 2005**

(65) **Prior Publication Data**

US 2005/0194189 A1 Sep. 8, 2005

**Related U.S. Application Data**

(60) Provisional application No. 60/549,485, filed on Mar.  
2, 2004.

(51) **Int. Cl.**

**E21B 15/00** (2006.01)

**E04H 12/34** (2006.01)

(52) **U.S. Cl.** ..... **175/203; 175/122; 52/118;**  
52/119; 52/120

(58) **Field of Classification Search** ..... 166/379;  
175/122, 57, 102, 203, 219, 85; 52/143,  
52/651.05, 745.17, 118, 119, 120

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

- 2,577,642 A \* 12/1951 Woolslayer et al. .... 52/118
- 3,807,109 A \* 4/1974 Jenkins et al. .... 52/120
- 3,922,825 A \* 12/1975 Eddy et al. .... 52/116
- 4,135,340 A \* 1/1979 Cox et al. .... 52/115

- 4,305,237 A \* 12/1981 Borg et al. .... 52/116
- 4,489,526 A \* 12/1984 Cummins ..... 52/125.6
- 4,759,414 A \* 7/1988 Willis ..... 175/170
- 4,821,816 A \* 4/1989 Willis ..... 175/57
- 4,899,832 A \* 2/1990 Bierscheid, Jr. .... 173/187
- 5,109,934 A \* 5/1992 Mochizuki ..... 175/170
- 5,711,382 A \* 1/1998 Hansen et al. .... 175/52
- 6,848,515 B2 \* 2/2005 Orr et al. .... 173/1
- 6,962,030 B2 \* 11/2005 Conn ..... 52/741.1
- 6,994,171 B2 \* 2/2006 Orr et al. .... 173/28
- 2002/0166698 A1 \* 11/2002 Beato et al. .... 175/77
- 2003/0102166 A1 \* 6/2003 Jortveit ..... 175/162
- 2004/0206551 A1 \* 10/2004 Carriere et al. .... 175/203
- 2004/0211598 A1 \* 10/2004 Palidis ..... 175/162
- 2005/0194189 A1 \* 9/2005 Barnes ..... 175/122
- 2006/0027373 A1 \* 2/2006 Carriere et al. .... 166/379
- 2006/0260844 A1 \* 11/2006 Patton et al. .... 175/52

\* cited by examiner

*Primary Examiner*—Jennifer H. Gay

*Assistant Examiner*—Shane Bomar

(74) *Attorney, Agent, or Firm*—Buskop Law Group, PC;  
Wendy Buskop

(57) **ABSTRACT**

An embodied mobile drilling rig is made of three sections,  
two substructures and a mast section, which are easily  
transported and installed at a drilling site. Each substructure  
includes a mast starting section; a floor side box connected  
to the mast starting section; a subbase side box; elevating  
legs connected to the floor side box and the subbase side  
box; and a raising cylinder. The mast section connects to the  
mast starting sections. The raising cylinders engage the mast  
in order to raise the mast into a vertical orientation and then  
raise the floor side boxes into an operating position. The  
embodied mobile drilling rigs are configurable to be trans-  
ported by road with as little as three major loads, all within  
legal or permissible load and dimensional limits for most  
regions.

**31 Claims, 17 Drawing Sheets**

