



US006354384B1

(12) **United States Patent**  
Newell et al.

(10) **Patent No.:** US 6,354,384 B1  
(45) **Date of Patent:** Mar. 12, 2002

(54) **SURFACE EFFECT DRILLING CRAFT FOR OBTAINING CONTINUOUS CORE SAMPLES**

4,073,144 A \* 2/1978 Lea ..... 405/61  
4,718,501 A \* 1/1988 Lawler ..... 180/117  
6,200,069 B1 \* 3/2001 Miller ..... 405/196

(75) Inventors: **Wayne Linwood Newell**, Leesburg; **Donald Garrett Queen**, Round Hill, both of VA (US); **Hubert Browning Firminger**, St. Joseph, MI (US); **Hugh John Scott**, Wellington; **John Andrew Clarke**, Picton, both of (CA)

\* cited by examiner

(73) Assignee: **The United States of America as represented by the Secretary of the Interior**, Washington, DC (US)

*Primary Examiner*—Frank Tsay  
(74) *Attorney, Agent, or Firm*—Ross F. Hunt, Jr.

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

A surface effect drilling craft or hovercraft is provided for taking continuous core samples in normally inaccessible environmentally sensitive regions such as wetlands. The hovercraft includes an inner hull including an inner hull floor and a bottom hull disposed beneath the inner hull and a base mounting plate secured to the inner hull floor. A drill tube extends through the base mounting plate, inner hull floor and bottom hull. A drill rig including a multi-sonic drill is mounted on the base mounting plate adjacent to the drill tube. The drill rig includes a fixed lower section, and a pivotable upper section movable between an erected, operative position for drilling and a collapsed, inoperative position during maneuvering of the hovercraft. A drill cap is used to close off the drill tube during this maneuvering.

(21) Appl. No.: 09/598,796

(22) Filed: Jun. 21, 2000

(51) Int. Cl.<sup>7</sup> ..... E21B 7/02; B60V 1/104

(52) U.S. CL. .... 175/5; 175/203; 405/195.1; 180/117

(58) Field of Search ..... 175/203, 5, 9, 175/18; 166/352; 205/195.1, 203; 180/117, 127

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,853,349 A \* 12/1974 Moore ..... 296/189

17 Claims, 2 Drawing Sheets

