



US007618217B2

(12) **United States Patent**
Henderson

(10) **Patent No.:** **US 7,618,217 B2**
(45) **Date of Patent:** **Nov. 17, 2009**

(54) **POST-TENSION PILE ANCHOR
FOUNDATION AND METHOD THEREFOR**

(76) Inventor: **Allan P. Henderson**, 1965 Airport Dr.,
Bakersfield, CA (US) 93308

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

(21) Appl. No.: **11/797,772**

(22) Filed: **May 7, 2007**

(65) **Prior Publication Data**

US 2007/0269273 A1 Nov. 22, 2007

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/734,281,
filed on Dec. 15, 2003.

(60) Provisional application No. 60/797,746, filed on May
5, 2006.

(51) **Int. Cl.**
E02D 27/00 (2006.01)

(52) **U.S. Cl.** **405/255**; 52/294; 52/295;
52/296; 405/239; 405/251; 405/256

(58) **Field of Classification Search** 52/223.4,
52/294-296, 741.1, 741.14, 741.15; 405/233,
405/236, 239, 249, 251, 256

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 1,048,993 A * 12/1912 Meriwether 405/253
- 2,162,108 A * 6/1939 Newman 405/239
- 2,374,624 A * 4/1945 Schwendt 52/223.5
- 2,706,498 A * 4/1955 Upson 285/290.4
- 2,724,261 A * 11/1955 Rensaa 52/295
- 3,186,181 A * 6/1965 Snow et al. 405/233
- 3,382,680 A * 5/1968 Takano 405/252
- 3,559,412 A * 2/1971 Fuller 405/237
- 3,600,865 A * 8/1971 Vanich 52/73

- 3,793,794 A * 2/1974 Archer et al. 52/632
- 3,839,874 A * 10/1974 Wyant 405/233
- 3,842,608 A 10/1974 Turzillo
- 3,916,635 A * 11/1975 Lynch et al. 405/253
- 3,963,056 A 6/1976 Shibuya et al.
- 3,963,065 A 6/1976 Dauwalder
- 4,038,827 A 8/1977 Pryke
- 4,060,994 A * 12/1977 Chitis 405/238
- 4,217,738 A 8/1980 Smith
- 4,228,627 A 10/1980 O'Neill
- 4,232,846 A 11/1980 Bressani
- 4,287,691 A 9/1981 Guenther

(Continued)

FOREIGN PATENT DOCUMENTS

DE 27 58 489 11/1978

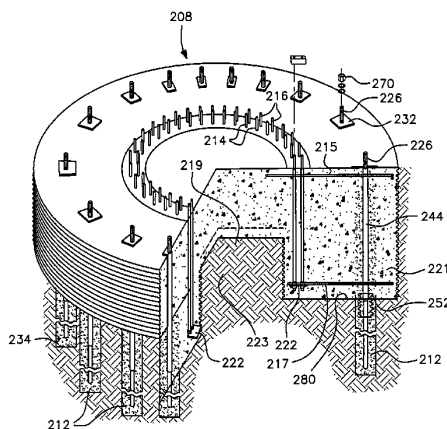
(Continued)

Primary Examiner—Tara Mayo-Pinnock
(74) *Attorney, Agent, or Firm*—Jacobson Holman PLLC

(57) **ABSTRACT**

A post-tensioned pile anchor foundation and method therefor creates a void or highly compressible region between a drilled or driven pile anchor surrounding a post-tensioned anchor bolt or tendon and the bottom of a foundation cap. The void or compressible region can be formed by compressible spacers or void forming elements placed between the top of the pile anchor and the concrete cap. As the anchor bolt or tendon is post-tensioned against the cap, the void forming element is compressed or crushed, allowing the cap to be pulled downwardly and the pile anchor to be pulled upwardly toward the cap against the resistance of the surrounding soil.

21 Claims, 11 Drawing Sheets



US 7,618,217 B2

Page 2

U.S. PATENT DOCUMENTS

4,618,287	A	10/1986	Kinnan	5,960,597	A	10/1999	Schwager
4,842,447	A	6/1989	Lin	6,119,425	A	9/2000	Shimonohara
4,910,940	A	3/1990	Grady, II	6,216,414	B1	4/2001	Feldberg
5,131,790	A	7/1992	Simpson	6,270,308	B1	8/2001	Groppel
5,228,806	A	7/1993	De Medieros, Jr. et al.	6,665,990	B1 *	12/2003	Cody et al. 52/295
5,231,808	A	8/1993	Angelette	6,672,023	B2	1/2004	Henderson
5,289,626	A *	3/1994	Mochida et al. 29/452				
5,379,563	A	1/1995	Tinsley				
5,474,399	A *	12/1995	Chia-Hsiung 405/229				
5,586,417	A	12/1996	Henderson et al.				
5,625,988	A	5/1997	Killick				
5,678,382	A	10/1997	Naito				
5,761,875	A	6/1998	Oliphant et al.				
5,826,387	A	10/1998	Henderson et al.				
5,878,540	A	3/1999	Morstein				

FOREIGN PATENT DOCUMENTS

FR	1463696	3/1967
FR	2030478	11/1970
JP	55 122916	9/1980
JP	58 166195	10/1983
JP	59 150830	8/1984
JP	61 233131	10/1986
JP	6 316942	11/1994

* cited by examiner

FIG. 1

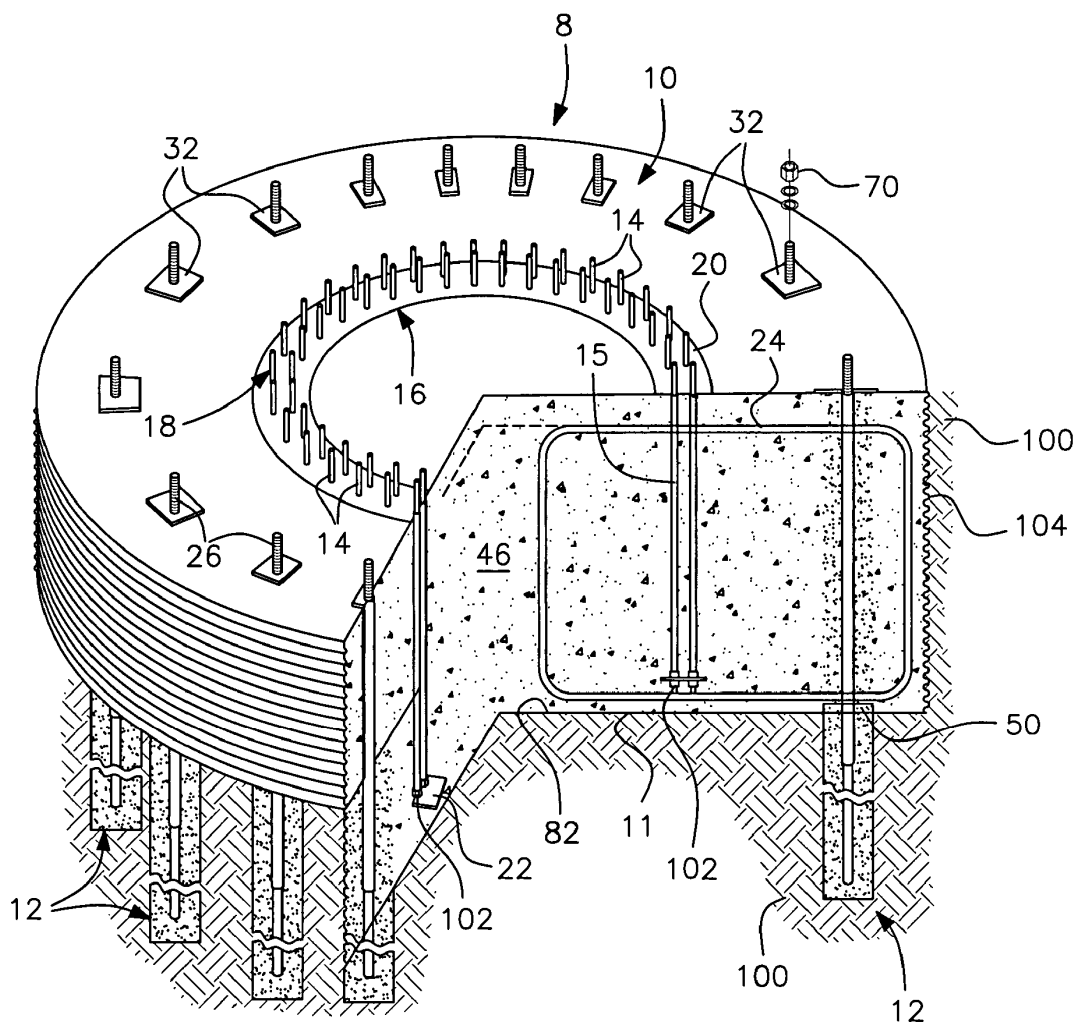


FIG. 2

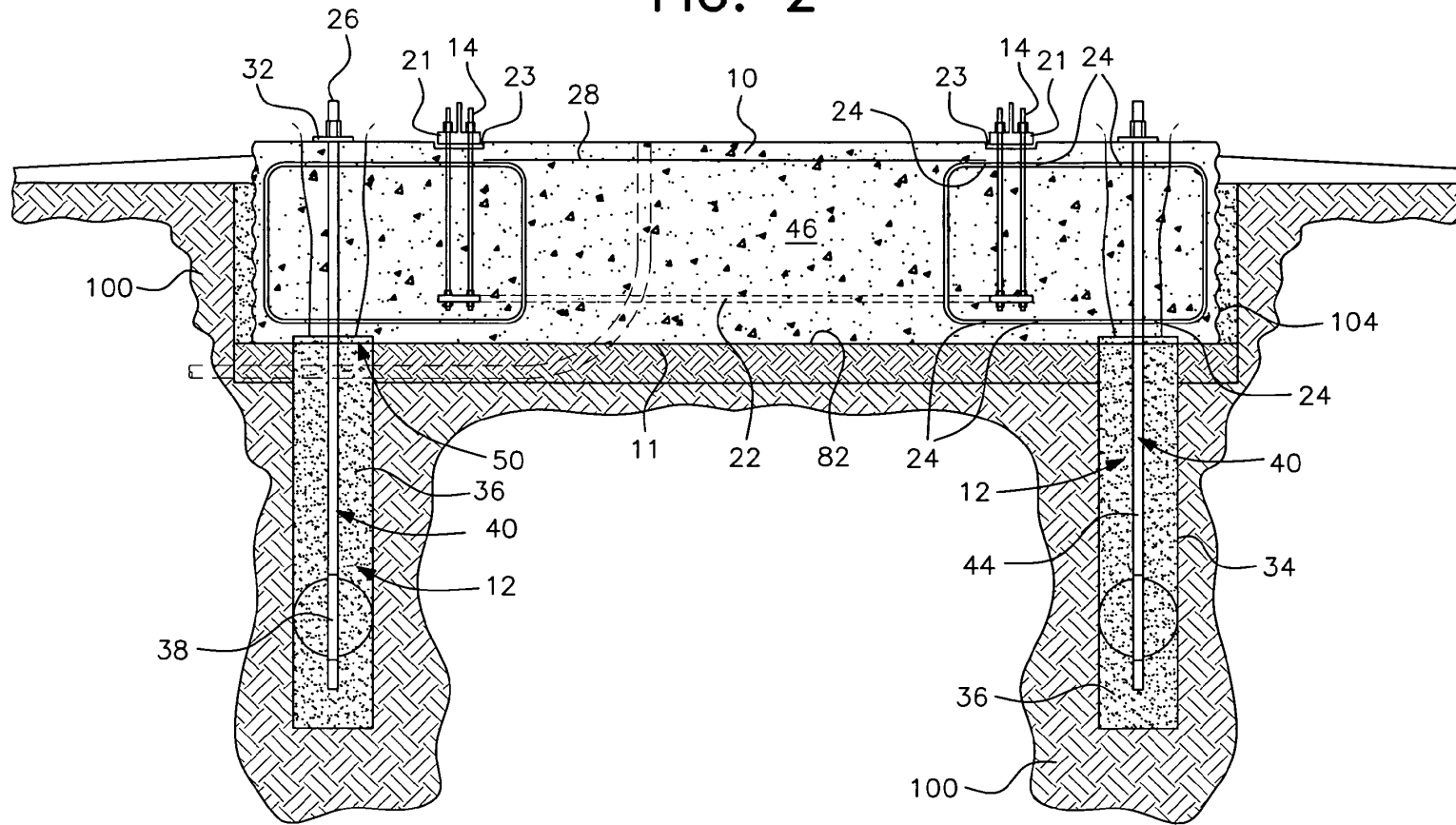
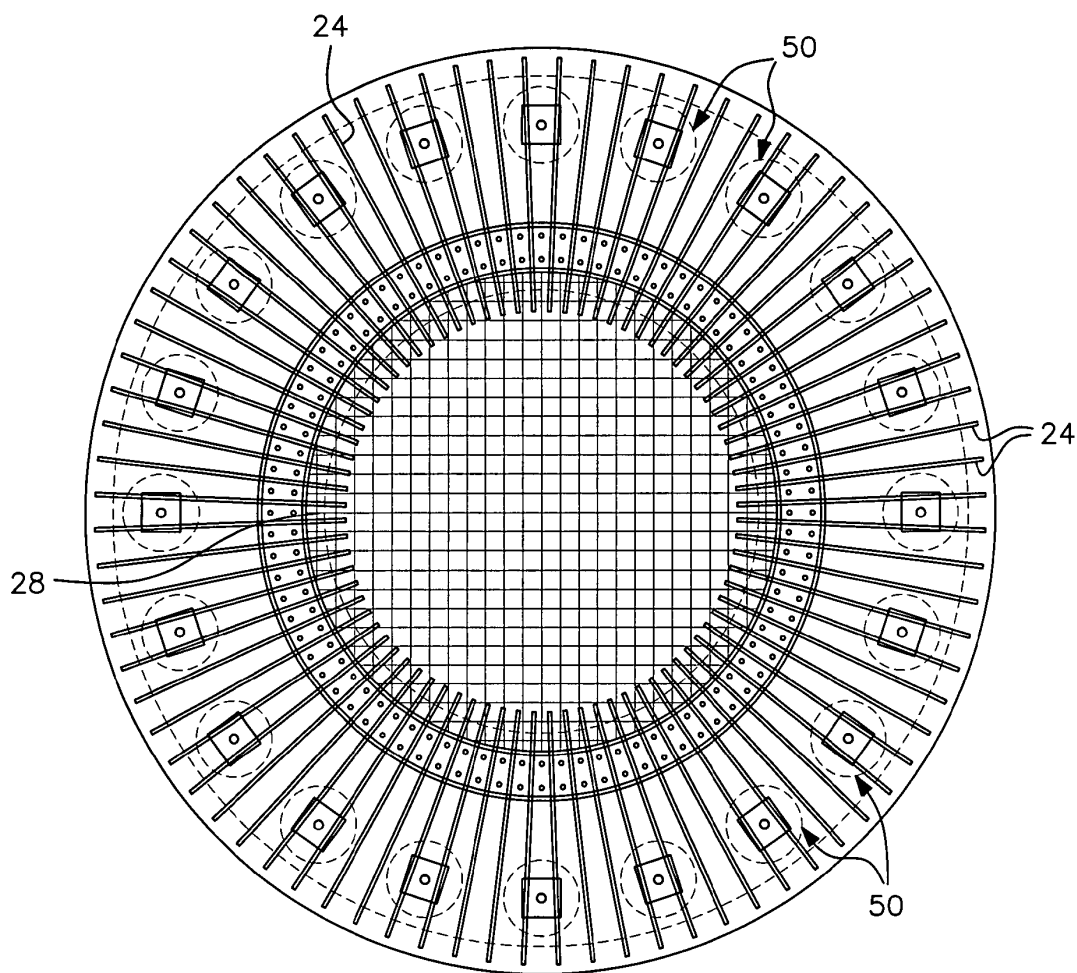


FIG. 3



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.