



US007533505B2

(12) **United States Patent
Henderson**

(10) **Patent No.:** US 7,533,505 B2
(45) **Date of Patent:** May 19, 2009

(54) **PILE ANCHOR FOUNDATION**

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(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 611 days.

(Continued)

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(21) Appl. No.: **10/734,281**

(22) Filed: **Dec. 15, 2003**

(Continued)

(65) **Prior Publication Data**

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

(Continued)

(52) **U.S. Cl.** **52/292**; 52/294; 52/295;
52/296; 52/155; 52/156; 405/228; 405/244;
405/232; 405/252.1; 405/229; 405/239

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(58) **Field of Classification Search** 52/111,
52/153, 156–158, 166, 169.9, 292–299, 741.15,
52/745.04, 745.17; 405/228–229, 232–233,
405/236–239, 242, 244, 249, 252.1
See application file for complete search history.

(57) **ABSTRACT**

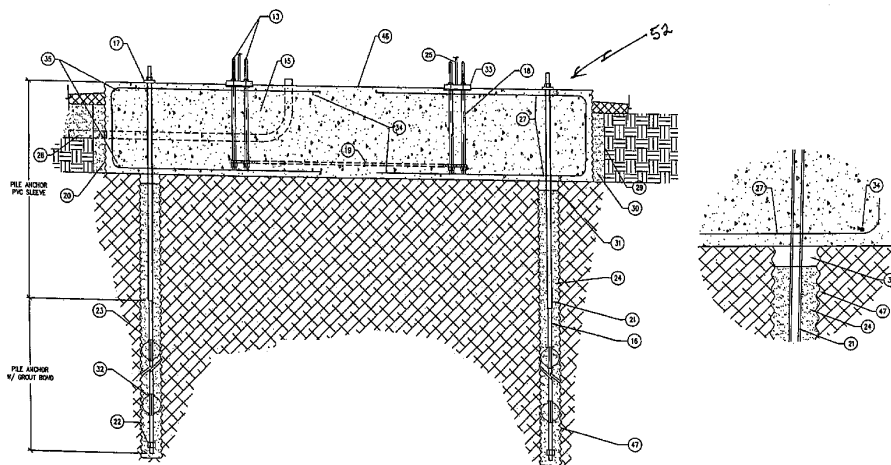
A circular concrete cap foundation poured in-situ within a perimeter forming corrugated metal pipe set atop or within an excavated pit and enclosing a series of circumferentially spaced pile anchors. The circular concrete cap foundation supports sets of inner and outer circumferentially spaced tower anchor bolts having their lower ends anchored to an embedded anchor ring and their upper ends projecting vertically and upwardly out the top of the circular foundation to engage the base flange of a supported tower. The pile anchors are formed with perimeter corrugated metal pipes set deep in subsurface soils with cementitious material surrounding and partially bonding to a centralized steel bolt or tendon which extends through the cap foundation. The tower anchor bolts and the pile anchor bolts are both partially encased in a PVC sleeve so that the bolts can be post-tensioned. The pile anchors are in tension only and serve to pull the cap foundation down to compress the underlying ground soils.

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25 Claims, 4 Drawing Sheets



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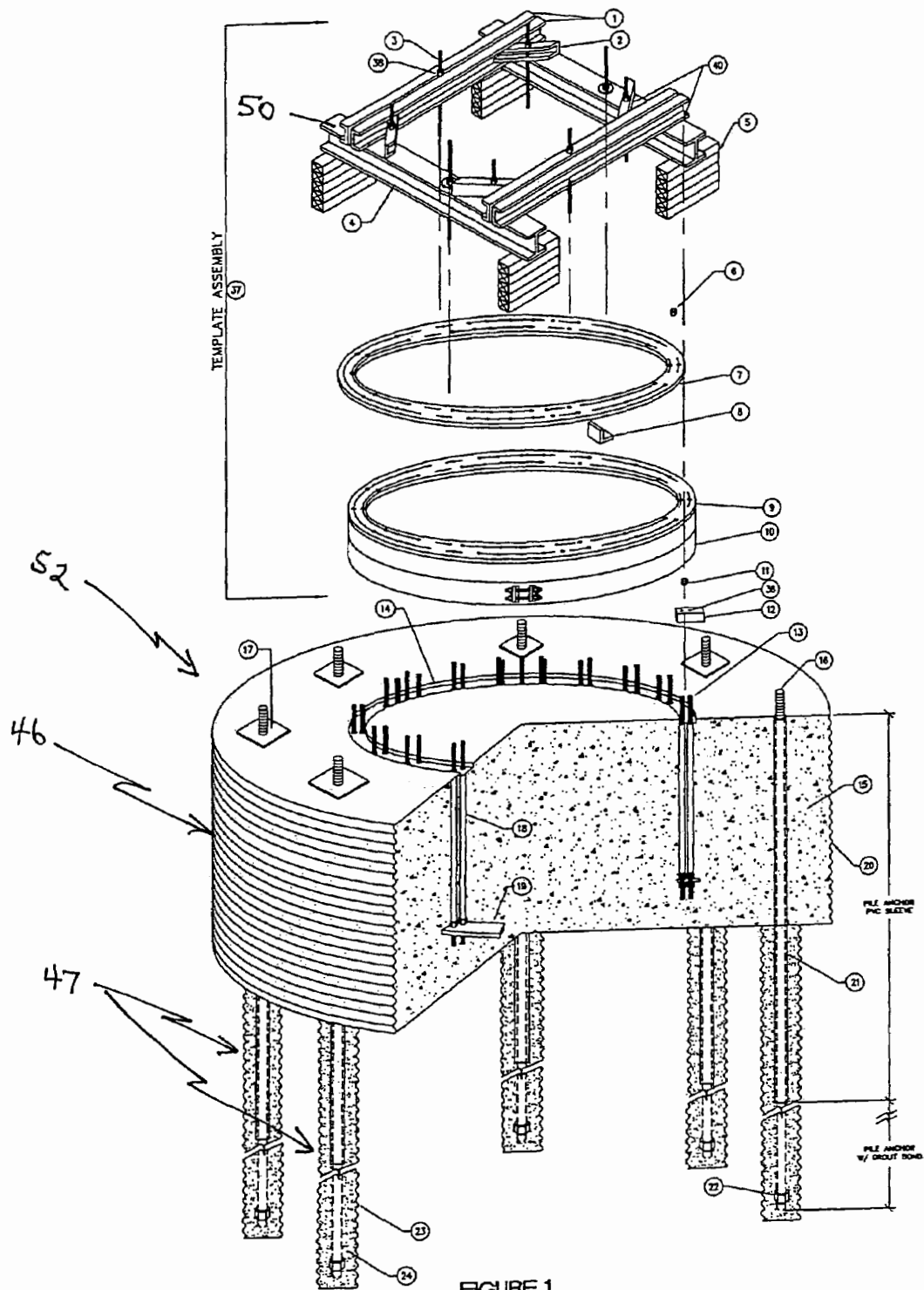


FIGURE 1

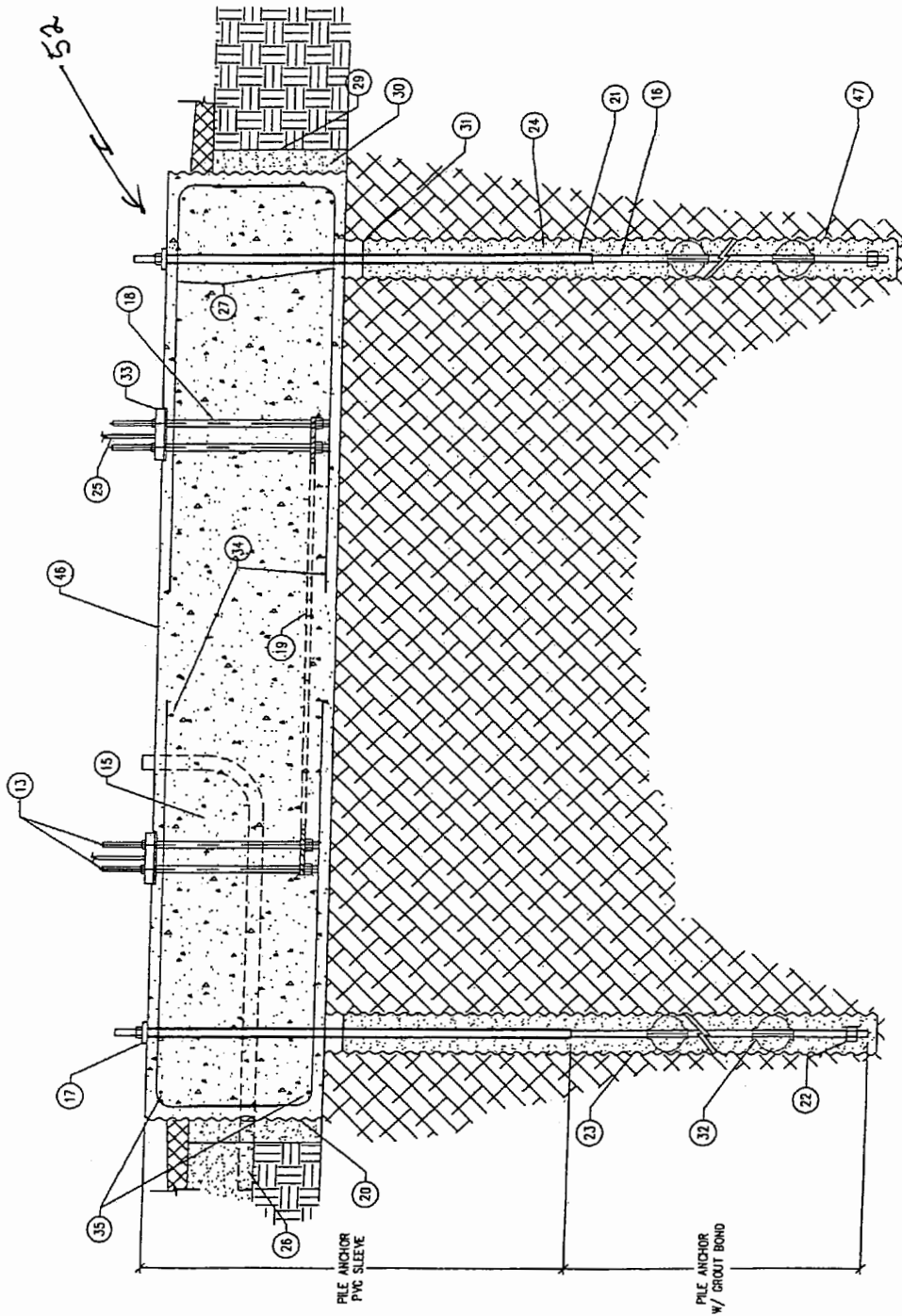
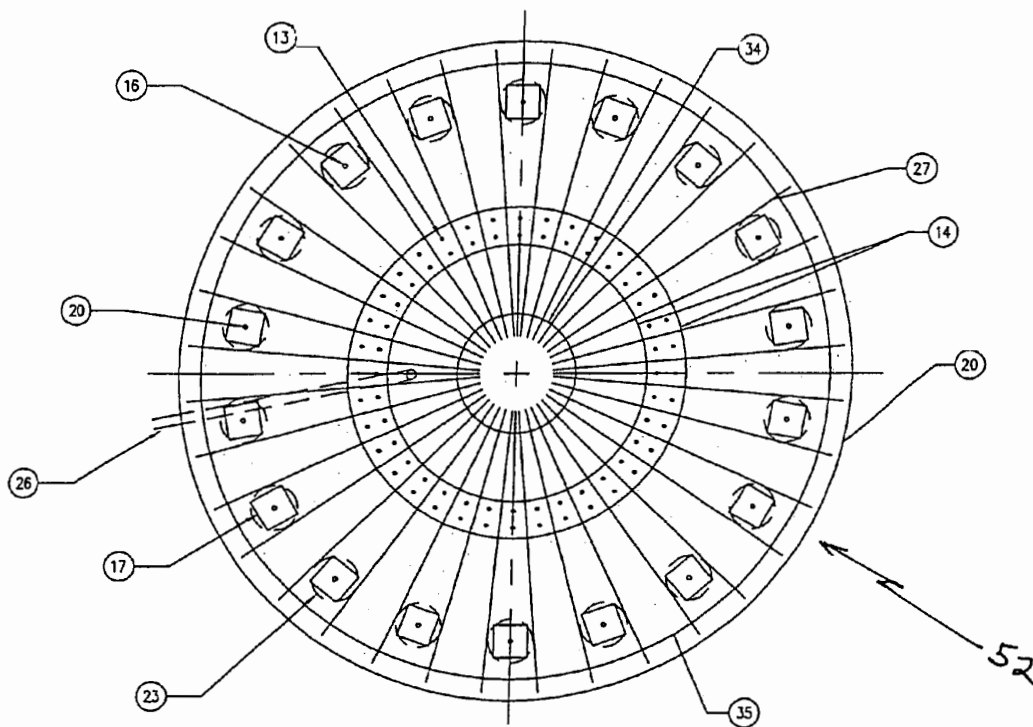


FIGURE 2



TOP VIEW
FIGURE 3

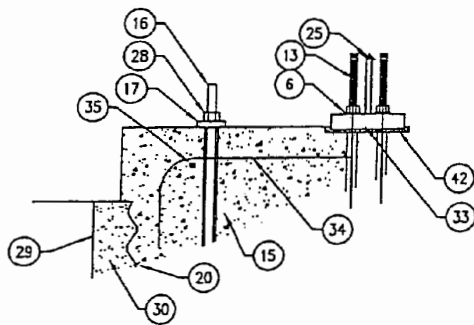


FIGURE 4

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