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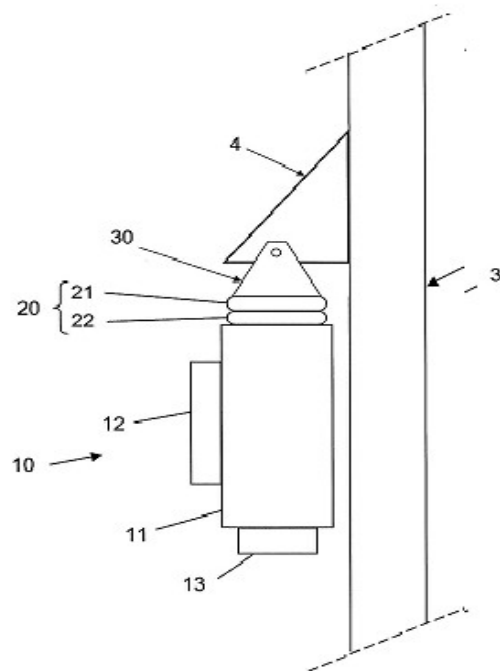
**54 Pile driving apparatus**

57 A pile driving apparatus (1) for driving a pile (2) into ground comprises:

- a vertical guide mast (3);
- a support carriage (4) displaceable along the mast (3);
- a vibration hammer (10);
- a rotator coupling (20) and a tilt coupling (30) connected between the support carriage (4) and the vibration hammer (10).

The vibration hammer (10) further comprises first clamping means (12) arranged at the side of a hammer main body (11), adapted for holding and clamping a pile at any position along the length of such pile; and

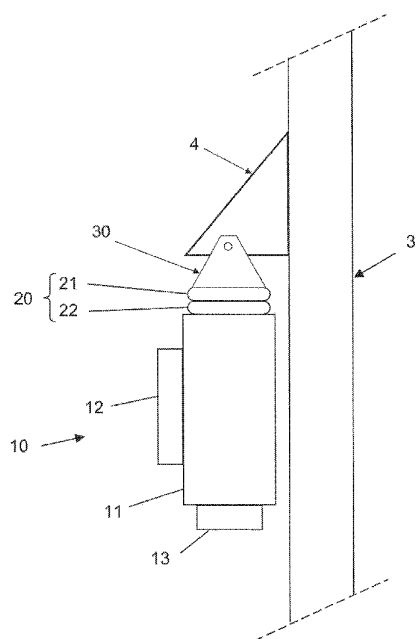
the vibration hammer (10) further comprises second clamping means (13) arranged at the lower end of the hammer main body (11), adapted for holding and clamping a pile at a top end of the pile.





- (51) **International Patent Classification:**  
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- (71) **Applicant:** **FOUNDIZ B.V.** [NL/NL]; Kroonstraat 1, 4879 AV Etten-Leur (NL).
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- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.
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(54) **Title:** PILE DRIVING APPARATUS



(57) **Abstract:** A pile driving apparatus (1) for driving a pile (2) into ground comprises: - a vertical guide mast (3); - a support carriage (4) displaceable along the mast (3); - a vibration hammer (10); - a rotator coupling (20) and a tilt coupling (30) connected between the support carriage (4) and the vibration hammer (10). The vibration hammer (10) further comprises first clamping means (12) arranged at the side of a hammer main body (11), adapted for holding and clamping a pile at any position along the length of such pile; and the vibration hammer (10) further comprises second clamping means (13) arranged at the lower end of the hammer main body (11), adapted for holding and clamping a pile at a top end of the pile.



FIG. 2



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(54) **PILE DRIVING APPARATUS** 6,691,797 B1 \* 2/2004 Hart ..... E02D 11/00  
173/128

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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 136 days.

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(57) **ABSTRACT**

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A pile driving apparatus and method for driving a pile into ground. The apparatus includes a vertical guide mast, a support carriage displaceable along the mast, a vibration hammer, a rotator coupling and a tilt coupling connected between the support carriage and the vibration hammer. The vibration hammer includes first clamping means arranged at the side of a hammer main body, adapted for holding and clamping a pile at any position along a length of the pile second clamping means arranged at the lower end of the hammer main body, adapted for holding and clamping the pile at a top end of the pile. The method includes driving the support carriage to a relatively low position, operating the first clamping means, first operating the vibration hammer, driving the support carriage to a higher position, operating the second clamping means, and second operating the vibration hammer.

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See application file for complete search history.

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**10 Claims, 4 Drawing Sheets**

