



(11) **EP 2 294 264 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
29.08.2012 Bulletin 2012/35

(51) Int Cl.:
E02D 5/80 (2006.01) E04H 12/22 (2006.01)

(21) Application number: **09736025.9**

(86) International application number:
PCT/IB2009/051399

(22) Date of filing: **02.04.2009**

(87) International publication number:
WO 2009/130625 (29.10.2009 Gazette 2009/44)

(54) **FOUNDATION DEVICE FOR POSTS, PILES AND SIMILAR OBJECTS**

FUNDAMENTVORRICHTUNG FÜR PFOSTEN, PFEILER UND ÄHNLICHE OBJEKTE

DISPOSITIF DE FONDATIONS POUR POTEAUX, PIEUX ET AUTRES OBJETS SIMILAIRES

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK TR**

(30) Priority: **21.04.2008 IT BI20080005**

(43) Date of publication of application:
16.03.2011 Bulletin 2011/11

(73) Proprietor: **Vortek S.r.l.
13825 Valle Mosso (BI) (IT)**

(72) Inventor: **MASON, Arianna
I-13835 Quaregna (biella) (IT)**

(74) Representative: **Robba, Pierpaolo
Interpatent S.R.L.
Via Caboto 35
10129 Torino (IT)**

(56) References cited:
**EP-A- 1 975 345 WO-A-01/77444
WO-A1-2004/020743 DE-A1- 10 250 257
DE-A1-102005 045 574 DE-B3-102005 023 465
DE-U1- 20 304 257 DE-U1-202007 008 228
DE-U1-202008 010 913**

EP 2 294 264 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Technical field

[0001] The present invention relates to a foundation device for posts, piles and the like.

[0002] More precisely, the invention relates to a foundation device that can be fixed in the ground, for instance for supporting posts or vertical or inclined piles of different kinds, for instance for building palisades, fences, or for road signals, pylons, parasols, supporting structures and the like.

Prior art

[0003] It is known that posts, e.g. posts for hedges, are fixed in the ground with various methods, e. g. by means of pile drivers, by screwing, or by a combination of hitting and screwing.

[0004] Also screw or helical piles are known. Screw piles have at their lower end some turns of a cylindrical spiral with cutting edge made of cast iron, steel or forged iron. The shape of the screw depends on the nature of the subsoil.

[0005] Helical piles have a lower end consisting of a cusp having four helical ribs, and they are generally fixed by percussion and are used in soils with medium consistency.

[0006] Generally, fixing the post in the ground comprises preparing a hole into which the post is to be driven, with or without the formation of a base of concrete or other hardening material.

[0007] It is also known to use hand-driven or power-driven augers in order to drill the hole into the ground where the post is to be fixed.

[0008] Of course, depending on the soil consistency, for instance a rocky, friable, sandy ... soil, hole drilling and post fixing can be more or less easily performed.

[0009] In extreme cases, the ground hardness is such that hole drilling is difficult: one can think of grounds covered with waterproofing layers, such as road surfaces, or of particularly hard grounds; in other cases, drilling a durable hole, giving sufficient time for driving the post, is difficult due to the low consistency of the soil (think for instance of a sandy soil), and often it is necessary to drill holes of greater diameter, which are to be filled with jets of concrete into which the post is to be previously embedded.

[0010] Moreover, in many applications, for instance when building a fence or installing a fencing net or preparing stake rows for vineyards, it is necessary to install a considerable number of posts, which must withstand conditions of use that sometimes can be severe, as is for instance the case of a fence for a corral.

[0011] The above circumstances entail therefore considerable operating difficulties and high costs for both the materials and the labour.

[0012] Moreover, use of bases of concrete, besides

entailing high costs, is not always possible, both due to the type of ground, and because such use makes changing the post arrangement difficult.

[0013] EP 1975345 teaches using a post foundation device consisting of a hollow conical body with an external helix, which device is fixed in the ground and into which the post can be inserted. However such a device has the drawback that it requires use of a filling material capable of filling the hollow spaces that are created when the foundation device is screwed into the ground, in order to provide a sufficiently robust anchoring of the device in the ground.

[0014] DE 10 2005 045 574 A1 discloses a foundation device for posts, piles and the like, the device including a cylindrical section at the ground side with a neighboring conical section and a further cylindrical section. The spiral screw is at the conical section for screwing into the ground. The bottom cylindrical section has a pointed tip while the opposite end has means arranged to enable associating a bar for screwing the device into the ground.

[0015] DE 203 04 257 U1 on which the preamble of claim 1 is based discloses a ground anchor for posts, comprising a tube with screw part and stabilizer cap attached to help drive anchor into ground. The stabilizer cap has a planar shape and at least one tooth extending in a downwards direction and can be fitted onto the tube and can be brought into contact with the soil.

[0016] Moreover, the results attained with the above device are not always satisfactory, in that the posts often are not stable enough and tend to oscillate as time goes by.

Description of the invention

[0017] It is an object of the present invention to provide a solution for the problems mentioned above.

[0018] It is another object of the invention to provide a solution that is easy to be implemented and that can be industrially produced at reasonable costs.

[0019] The above and other objects are achieved with the support for posts and the like as claimed in the appended claims.

[0020] Thanks to the cooperation between the compression portion, radially extending with respect to the longitudinal axis of the device, and the screw or helical guiding portion enabling the device penetration, the device according to the invention can be advantageously used for making a stable foundation for posts, piles and the like, in any type of ground, even covered with asphalt layers.

[0021] Moreover, according to the invention, thanks to the provision of a shaped hole in the platter, and to the provision of the screw or helical guiding portion, the foundation device can be effectively fixed in the ground by screwing it by means of a suitable tool, either hand-driven or power-driven, which can be subsequently removed and replaced by a post, a pile or the like.

[0022] Moreover, the device according to the invention

can be advantageously used for supporting posts of any material and with any cross-sectional shape, in particular posts made of steel, wood, cement, plastics, with circular, T-shaped, square etc. cross-section, by changing the shape of the hole in the platter..

Brief Description of the Figures

[0023] Some preferred embodiments of the invention will be provided by way of nonlimiting examples with reference to the accompanying drawings, in which equal numerical references denote equal or equivalent parts, and in which:

- Fig. 1 is a side view of the device according to a first embodiment of the invention, fixed in the ground;
- Fig. 2 is a top view of the device shown in Fig. 1;
- Fig. 3 is a part-sectional view of the device shown in Fig. 1, associated with an adapter;
- Fig. 4 is a side view of the device on which a variant embodiment of the platter is mounted;
- Fig. 5 is a side view of the device shown in Fig. 4, with the platter removed;
- Fig. 6 is a top view of the device shown in Fig. 5;
- Fig. 7 is a side view of the device according to a second embodiment of the invention;
- Fig. 8 is a cross-sectional view of a variant embodiment of the locking device associated with the platter where a post is mounted;
- Fig. 9 is a top view of the platter shown in Fig. 8, without the post;
- Fig. 10 is a side view of a first embodiment of the guiding tool;
- Fig. 11 is a top view of a second variant embodiment of the platter,
- Fig. 12 is a side view of a second embodiment of the guiding tool;
- Fig. 13 is a part-sectional side view of a third embodiment of the device;
- Fig. 14 is an enlarged side view of the device shown in Fig. 13;
- Fig. 15 is a part-sectional side view of a fourth embodiment of the device;
- Fig. 16 is an enlarged side view of the device shown in Fig. 15.

Detailed description

[0024] According to the first embodiment of the invention, shown in Figs. 1 and 2, foundation device 11 includes an elongated body 13, arranged to be fixed in the ground and having a length varying depending on the applications and the soil for which the device is intended, for instance 50 cm for supporting posts of fences in soils with medium consistency.

[0025] According to the invention, body 13 is so shaped as to define, at a first end 13a (upper end), a compression portion including a platter 15, arranged on

a plane substantially perpendicular to longitudinal axis "S" of said elongated body 13. The platter thus radially extends with respect to said axis, and it is arranged to axially compress (arrow F) ground surface ST when said body is fixed in the ground.

[0026] At opposite end 13b (lower end) of said body 13, a guiding portion is provided, comprising a screw tip 17 enabling the introduction of the foundation device into ground TR through a rotational movement.

[0027] Body 13 preferably has a circular cross-section and has an internal axial cavity 19 extending over at least part (preferably at least 20%) of the length of body 13, starting from upper end 13a.

[0028] Moreover, said body 13 preferably has an annular rib 21 radially extending inside cavity 19 and defining an abutment, inside cavity 19, for the base of the shaft of a post or a pile or the like inserted in the foundation device.

[0029] Platter 15 is preferably frusto-conical, with the major base directed towards body 13, and has a central hole 23 allowing access to internal cavity 19 of body 13.

[0030] Moreover, platter 15 is equipped with a locking device 25 including a bracket 27, axially extending on platter 15 on the opposite side with respect to body 13. The bracket has a threaded throughhole 29 for a locking screw 31, arranged to radially engage the shaft of a post or a pile or the like that is partially received in hollow 19 and projects from the foundation device through hole 23 of platter 15. When said locking device 25 is in engagement configuration, said shaft cannot be rotated or removed from the foundation device.

[0031] Since platter 15 is brought in contact with ground surface ST when foundation device 11 is being fixed, and since the foundation device is preferably screwed into the ground, it is clear that the circular shape of platter 15 is preferable; however, other geometrical shapes, e.g. a square or hexagonal shape, are possible for platter 15.

[0032] Moreover, according to the invention, said platter 15 will have a sufficient radial extension to ensure a large abutment surface against the ground, and therefore its diameter will be at least twice, preferably at least three times, the diameter of body 13.

[0033] In the embodiment illustrated, screw tip 17 has some turns of a cylindrical spiral with cutting edge 33 and ends with a conical portion 35.

[0034] Turning now to Fig. 3, an adapter 41 associated with foundation device 11 is shown, which adapter enables receiving in the foundation device thus obtained the base of the shaft of a post or a pile or the like having a different cross-section (in the case illustrated, a greater cross-sectional size) from the section of hole 23 and cavity 19.

[0035] Adapter 41 has a stem 43 whose shape and size are compatible with hole 23 and cavity 19, and a cylindrical body 45, defining a corresponding seat 47 for the base of the shaft of a post or a pile or the like, is associated with, for instance welded to, the stem.

[0036] Moreover, cylindrical body 45 preferably has a radial hole 49 through which a radial screw for locking the shaft of the post or pile or the like received in seat 47 can pass.

[0037] Advantageously, stem 43 can be introduced into cavity 19 of body 13 through hole 23, and then locked by means of locking device 25.

[0038] Referring to Figs. 4 to 6, a valiant embodiment of platter 15 is shown, in which the platter has a central portion 15a associated with, for instance welded to, body 13, and a second removable annular portion or ring 15b. Securing means, for instance some screws 18, in the example illustrated three screws spaced apart by 120°, are provided for securing ring 15b to central portion 15a

[0039] Moreover, ring 15b can preferably be associated with body 13 by introducing tip 17 through the central opening of ring 15b and by locking screws 18 when ring 15b has been brought in contact with central portion 15a

[0040] Advantageously, according to this variant embodiment, it is thus possible to obtain platters 15 with the size and shape required by the different soil types, by simply replacing ring 15b, with a resulting considerable saving in production, distribution and storage of the foundation device. In particular, platters 15 may have a size preferably in the range 15 to 50 cm in diameter.

[0041] Turning now to Fig. 7, there is shown a second embodiment of the foundation device, generally denoted 111. Parts identical to those described above are denoted by the same reference numerals.

[0042] According to this embodiment, foundation device 111 has an elongated body 113 formed by a metal rod 114 twisted in form of a spiral, preferably cylindrical or conical, and arranged to be fixed in the ground.

[0043] At a first end 113a (upper end) of said body 113 a compression portion is defined, arranged to axially compress (arrow F) the ground surface when said body is fixed in the ground, said portion including a platter 115, radially extending with respect to said elongated body 113, and an axial seat 119 arranged to receive the base of the shaft of a post or a pile or the like.

[0044] At opposite end 113b (lower end), a guiding portion is defined, arranged to facilitate the introduction of the foundation device into the ground through a rotational movement

[0045] In the illustrated example, metal rod 114 is twisted to a spiral so that axial seat 119 has a greater cross-sectional size than remaining portion 113b of body 113, each said portion being however preferably cylindrical with constant cross-sectional size.

[0046] In this manner, device 111 is capable of receiving posts with larger sizes than the cross sectional size of guiding portion 113b, and moreover transition region 121 between both portions forms an abutment for the base of the shaft of the post or the like when the latter is inserted in seat 119.

[0047] Referring to Figs. 8 and 9, a first variant embodiment of the locking means, here generally denoted 125, is shown. In that embodiment, the locking means

include a frusto-conical plate 26 secured to platter 15 by means of an axial screw 28 adjacent to central hole 23. As screw 28 is being screwed into platter 15, plate 26 is advantageously radially deformed by compression towards the inside of hole 23, thereby assisting in locking post shaft PT the base of which is received in the foundation device.

[0048] Referring to Figs. 10, there is shown a first embodiment of the tool guiding the descent of the foundation device according to the invention into the ground through a rotational movement.

[0049] According to this embodiment, tool 61 includes a corresponding T-shaped key having, at the base of shank 63, an insertion end 65 with half-circular cross-section, compatible with the cross-section of hole 23 in platter 15. Advantageously, tool 61 can be gripped at the ends of control handle 67 and rotated to guide the descent of the foundation device into the ground

[0050] Referring to Figs. 11 and 12, there are respectively shown a platter 115, provided with a circular central hole 123 and two diametrically opposite holes 16, and a T-shaped key 71 provided, at the bottom of central shank 73, with a circular insertion end 75 arranged to engage hole 123 and with two axial pins 76 carried by radial arms and intended to engage holes 16 in platter 115. Advantageously, tool 71 can be gripped at the ends of control handle 77 and rotated to guide the descent of the foundation device into the ground.

[0051] In the alternative, the foundation device according to the invention can also be fixed in the ground by using a power-driven tool.

[0052] Turning now to Figs. 13 and 14, there is shown a third embodiment of the foundation device, generally denoted 211. Parts identical to those described above are denoted by the same reference numerals.

[0053] According to this embodiment, foundation device 211 includes a platter 215 formed of two frusto-conical portions 215a, 215b arranged one over the other and connected together by locking means 225, preferably consisting of one or more screws 228 that are secured in corresponding threaded holes 230 formed in lower platter portion 215a and that pass through radial slots 232 formed in upper platter portion 215b. Advantageously, thanks to the above arrangement, portions 215a, 215b of platter 215 are slidable relative to each other and, since they are frusto-conical, respective axes S, S' can be arranged at different angles.

[0054] Referring in particular to Fig. 13, axis S' of upper portion 215b and axis S of lower portion 215a are shown, defining an angle of about 5° between them.

[0055] According to this embodiment, lower platter portion 215a is secured, for instance welded, to upper end 13a of body 13, whereas upper platter portion 215b can be advantageously associated with a post or a post receiving member or the like 234, which can be mounted vertically or at any desired angle, by correcting alignment errors, if any, of body 13 once the latter has been fixed in the ground thanks to the mutual sliding of platter por-

tions 215a, 215b.

[0056] Turning to Figs. 15 and 16, there is shown a fourth embodiment of the foundation device, generally denoted 311. Parts identical to those described above are denoted by the same reference numerals.

[0057] According to this embodiment, foundation device 311 includes a platter 315 formed of two frusto-conical portions 315a, 315b arranged one over the other and connected together by locking means 325, preferably consisting of one or more screws 328 that are secured in corresponding threaded holes 330 formed in lower platter portion 315a and pass through holes 332 formed in upper platter portion 315b.

[0058] According to this embodiment, lower portion 315a of platter 315 is secured, for instance welded, to upper end 13a of body 13. Both portions 315a, 315b of platter 315 have a respective central hole 336a, 336b allowing passage of a portion of a sphere 338 mounted idle, in correspondence of platter 315, in cavity 19 provided in body 13 of device 311. In correspondence of the sphere portion passing through hole 336 and projecting out of platter 315, said sphere 338 is associated with a post or a post receiving member or the like 334, which, by rotating sphere 338 inside cavity 19, can therefore be tilted so that its axis S' forms a desired angle α with axis S of body 13. The tightening of screws 328 results in sphere 338 becoming locked between both platter portions 315a, 315b and hence in the impossibility of further changing said angle α .

[0059] According to this embodiment, alignment errors, if any, between axes S and S' can be corrected by rotating sphere 338 inside cavity 19 while assembling the device.

[0060] Advantageously, the foundation device according to the invention, in the various embodiments described, can be made of steel or plastics or other suitable materials.

Claims

1. A foundation device (11; 111) for posts, piles and the like, the device including an elongated body (13; 113), arranged to be fixed in the ground and shaped so as to define, at a first end (13a; 113a), a compression portion radially extending with respect to the longitudinal axis (S) of said elongated body (13; 113) and arranged to axially compress the ground surface when said elongated body (13; 113) is fixed in the ground, said compression portion including a platter (15; 115; 215; 315) arranged on a plane substantially perpendicular to the longitudinal axis (S) of said elongated body (13; 113) and radially extending with respect to said axis, said platter being arranged to axially compress the ground surface when said elongated body (13; 113) is fixed in the ground, and so as to define, at the opposite end (13b; 113b), a screw or helical guiding portion, said first end (13a; 113a) being further provided with means arranged to enable associating a post, a pile or the like with said device, said means including an axial cavity (19; 119) extending over at least part of the length of said first end and arranged to receive the base of the shaft of a post, a pile or the like, **characterized in that** said platter (15; 115; 215; 315) has a diameter at least twice the diameter of said elongated body and **in that** said platter (15; 115; 215; 315) is frusto-conical, with the major base directed towards the elongated body (13; 113), and has a central hole (23) allowing access to said internal cavity (19; 119) of said elongated body (13) which receives the shaft of a post, a pile or the like.
2. The device as claimed in claims 1, wherein said platter (15; 115; 215; 315) has circular, square or hexagonal shape.
3. The device as claimed in any of claims 1 or 2, wherein said platter (15; 115; 215; 315) is further equipped with a locking device (25) including a bracket (27), axially extending on the platter on the opposite side with respect to the elongated body (13) and having a threaded throughhole (27) for a locking screw (31) arranged to radially engage the shaft of a post or a pile or the like the base of which is received in the foundation device.
4. The device as claimed in any of claims 1 to 3, wherein the platter (15; 115; 215; 315) is further equipped with a locking device (125) including a plate (26) secured to the platter (15) by means of an axial screw (28) adjacent to a central hole (23) formed in the platter, said plate (26) being arranged to be radially deformed towards the inside of said hole (23) thereby assisting in locking the shaft of the post, pile or the like the base of which is received in the foundation device.
5. The device as claimed in any preceding claim, wherein an adapter (41) is provided which can be associated with the foundation device (11) and has a stem (43) having associated therewith a cylindrical body (45) defining a corresponding seat (47) for the base of the shaft of a post or a pile or the like, thereby enabling receiving the base of the shaft of a post or a pile or the like in the foundation device.
6. The device as claimed in any preceding claim, wherein said guiding portion includes a screw tip (17) arranged to enable the introduction of the foundation device into the ground through a rotational movement
7. The device as claimed in claim 6 wherein the screw tip (17) carries some turns of a cylindrical spiral (33) with cutting edge and ends with a conical portion

(35).

8. The device as claimed in claim 1, wherein said elongated body (13; 113) has an annular rib (21) radially extending inside the cavity (19; 119) and defining a corresponding abutment for the base of the shaft of a post or a pile or the like inserted in the foundation device (11; 111). 5
9. The device as claimed in claim 1, wherein said platter (15; 115; 215; 315) has a central portion (15a) associated with the elongated body (13; 113) and a second annular portion or ring (15b) that is removable, locking means being provided for locking said two platter portions together. 10 15
10. The device as claimed in claim 1, wherein said elongated body (13; 113) is formed from a metal rod (114) twisted to a spiral and arranged to be fixed in the ground. 20
11. The device as claimed in claim 10, wherein said metal rod (114) is twisted to a spiral so that the axial seat (19; 119) has a greater cross-sectional size than the remaining portion (113b) of the elongated body (113). 25
12. The device as claimed in claim 1, wherein said platter (215) is formed of two frusto-conical portions (215a, 215b) arranged one over the other so as to be slidable relative to each other and connected together by locking means (225), a first one of said portions being associated with said elongated body (13; 113) and a second one of said portions being arranged to support a post, a pile or the like. 30 35
13. The device as claimed in claim 12, wherein said locking means include one or more screws (228) that are secured in corresponding threaded holes (230) formed in the first portion (215a) of said platter and that pass through slots (232) formed in the second portion (215b). 40
14. The device as claimed in claim 1, wherein said platter (315) is formed of two frusto-conical portions (315a, 315b) arranged one over the other, said platter portions (315a, 315b) having a respective central hole (336a, 336b) allowing the passage of a portion of a sphere (338) mounted idle in correspondence of said platter (315), a post, a post receiving member or the like (334) being associated in correspondence of the sphere portion projecting out of platter (315). 45 50
15. The device as claimed in claim 14, wherein said platter includes locking means for blocking the rotation of said sphere. 55

Patentansprüche

1. Fundamentvorrichtung (11; 111) für Pfosten, Pfeiler und Ähnliches, wobei die Vorrichtung einen länglichen Körper (13; 113) aufweist, der zur Befestigung im Boden vorgesehen und so geformt ist, dass an einem ersten Ende (13a; 113a) ein Druckabschnitt definiert ist, der sich in Bezug auf die Längsachse (S) des länglichen Körpers (13; 113) radial erstreckt und dafür vorgesehen ist, die Bodenfläche axial zu komprimieren, wenn der längliche Körper (13; 113) im Boden befestigt ist, wobei der Druckabschnitt eine Platte (15; 115; 215; 315) aufweist, die in einer Ebene im Wesentlichen senkrecht zur Längsachse (S) des länglichen Körpers (13; 113) angeordnet ist und sich in Bezug auf die Achse radial erstreckt, wobei die Platte dafür vorgesehen, die Bodenfläche axial zu komprimieren, wenn der längliche Körper (13; 113) im Boden befestigt ist, und um am gegenüberliegenden Ende (13b; 113b) einen Schraubenführungsabschnitt oder spiralförmigen Führungsabschnitt zu definieren, wobei das erste Ende (13a; 113a) ferner mit Mitteln versehen ist, die dafür vorgesehen sind, einen Pfosten, einen Pfeiler oder Ähnliches der Vorrichtung zuzuordnen zu können, wobei die Mittel einen axialen Hohlraum (19; 119) enthalten, der über mindestens einen Teil der Länge des ersten Endes verläuft und angeordnet ist, das Unterteil des Schafts eines Pfostens, eines Pfeilers oder von Ähnlichem aufzunehmen, **dadurch gekennzeichnet, dass** die Platte (15; 115; 215; 315) einen Durchmesser aufweist, der mindestens doppelt so groß wie der Durchmesser des länglichen Körpers ist, und dadurch, dass die Platte (15; 115; 215; 315) kegelstumpfförmig ist, wobei die größere Grundfläche zu dem länglichen Körper (13; 113) hin gerichtet ist und ein mittiges Loch (23) aufweist, das den Zugang zu dem inneren Hohlraum (19; 119) des länglichen Körpers (13) ermöglicht, der den Schaft eines Pfostens, eines Pfeilers oder von Ähnlichem aufnimmt.
2. Vorrichtung nach Anspruch 1, wobei die Platte (15; 115; 215; 315) eine kreisförmige, quadratische oder sechseckige Form hat.
3. Vorrichtung nach einem der Ansprüche 1 bis 2, wobei die Platte (15; 115; 215; 315) ferner mit einer Arretiervorrichtung (25) ausgestattet ist, die einen Halter (27) aufweist, der axial auf der Platte auf der gegenüberliegenden Seite bezogen auf den länglichen Körper (13) verläuft und eine Durchgangsbohrung (27) mit Gewinde für eine Befestigungsschraube (31) aufweist, die angeordnet ist, um radial auf den Schaft eines Pfostens oder eines Pfeilers oder von Ähnlichem einzuwirken, dessen Unterteil in der Fundamentvorrichtung aufgenommen ist.

4. Vorrichtung nach einem der Ansprüche 1 bis 3, wobei die Platte (15; 115; 215; 315) ferner mit einer Arretiervorrichtung (125) ausgestattet ist, die eine Platte (26) aufweist, die mittels einer Axialschraube (28) angrenzend an ein mittiges Loch (23), das in der Platte geformt ist, an der Platte (15) befestigt ist, wobei die Platte (26) angeordnet ist, um radial in Richtung der Innenseite des Lochs (23) verformt zu werden, wodurch sie die Arretierung des Schafts des Pfostens, Pfeilers oder von Ähnlichem unterstützt, dessen Unterteil in der Fundamentvorrichtung aufgenommen ist. 5
5. Vorrichtung nach einem vorhergehenden Anspruch, wobei ein Adapter (41) vorgesehen ist, der zu der Fundamentvorrichtung (11) hinzugefügt werden kann und einen Schaft (43) aufweist, zu dem ein zylindrischer Körper (45) gehört, der einen entsprechenden Sitz (47) für das Unterteil des Schafts eines Pfostens oder eines Pfeilers oder von Ähnlichem definiert, wodurch das Aufnehmen des Unterteils des Schafts eines Pfostens oder eines Pfeilers oder von Ähnlichem in der Fundamentvorrichtung ermöglicht wird. 10
6. Vorrichtung nach einem vorhergehenden Anspruch, wobei der Führungsabschnitt eine Schraubenspitze (17) aufweist, die dafür vorgesehen ist, das Einbringen der Fundamentvorrichtung in den Boden durch eine Drehbewegung zu ermöglichen. 15
7. Vorrichtung nach Anspruch 6, wobei die Schraubenspitze (17) einige Windungen einer zylindrischen Spirale (33) mit Schneidkante aufweist und mit einem konischen Abschnitt (35) endet. 20
8. Vorrichtung nach Anspruch 1, wobei der längliche Körper (13; 113) eine ringförmige Rippe (21) aufweist, die sich in dem Hohlraum (19; 119) radial erstreckt und einen entsprechenden Anschlag für das Unterteil des Schafts eines Pfostens oder eines Pfeilers oder von Ähnlichem, der in der Fundamentvorrichtung (11; 111) steckt, definiert. 25
9. Vorrichtung nach Anspruch 1, wobei die Platte (15; 115; 215; 315) einen mittigen Abschnitt (15a) aufweist, der zu dem länglichen Körper (13; 113) gehört, und einen zweiten ringförmigen Abschnitt oder Ring (15b), der abnehmbar ist, wobei Befestigungsmittel vorgesehen sind, um die beiden Plattenabschnitte aneinander zu befestigen. 30
10. Vorrichtung nach Anspruch 1, wobei der längliche Körper (13; 113) aus einem Metallstab (114) gebildet ist, der als eine Spirale gedreht ist und angeordnet ist, um im Boden befestigt zu werden. 35
11. Vorrichtung nach Anspruch 10, wobei der Metallstab

(114) zu einer Spirale gebogen ist, sodass der axiale Sitz (19; 119) eine größere Querschnittsgröße aufweist als der übrige Abschnitt (113b) des länglichen Körpers (113).

12. Vorrichtung nach Anspruch 1, wobei die Platte (215) aus zwei kegelstumpfförmigen Abschnitten (215a, 215b) gebildet ist, die übereinander angeordnet sind, so dass sie relativ zueinander verschiebbar sind, und miteinander durch Befestigungsmittel (225) verbunden sind, wobei ein erster der Abschnitte zu dem länglichen Körper (13; 113) gehört und ein zweiter der Abschnitte vorgesehen ist, um einen Pfosten, einen Pfeiler oder Ähnliches zu halten. 40
13. Vorrichtung nach Anspruch 12, wobei die Befestigungsmittel eine oder mehrere Schrauben (228) enthalten, die in entsprechenden Gewindebohrungen (230) gesichert sind, die in dem ersten Abschnitt (215a) der Platte geformt sind, und die durch Schlitze (232) hindurchragen, die in dem zweiten Abschnitt (215b) gebildet sind. 45
14. Vorrichtung nach Anspruch 1, wobei die Platte (315) aus zwei kegelstumpfförmigen Abschnitten (215a, 215b) gebildet ist, die übereinander angeordnet sind, wobei die Plattenabschnitte (215a, 215b) ein entsprechendes mittiges Loch (336a, 336b) aufweisen, das das Passieren eines Abschnitts einer Kugel (338) ermöglicht, die frei im Eingriff mit der Platte (315) montiert ist, wobei ein Pfosten, ein Pfostenaufnahmeelement oder Ähnliches (334) entsprechend mit dem Kugelabschnitt, der aus der Platte (315) ragt, verbunden ist. 50
15. Vorrichtung nach Anspruch 14, wobei die Platte Arretierungsmittel zum Blockieren der Drehbewegung der Kugel aufweist. 55

Revendications

1. Dispositif de fondations (11 ; 111) pour poteaux, pieux et autres objets similaires, le dispositif comportant un corps de forme allongée (13 ; 113), agencé en vue d'être fixé dans le sol et configuré de façon à définir au niveau d'une première extrémité (13a ; 113a), une partie de compression s'étendant radialement par rapport à l'axe longitudinal (S) dudit corps de forme allongée (13 ; 113) et agencé pour comprimer axialement la surface du sol lorsque ledit corps de forme allongée (13 ; 113) est fixé dans le sol, ladite partie de compression incluant une bride (15 ; 115 ; 215 ; 315) disposée sur un plan essentiellement perpendiculaire à l'axe longitudinal (S) dudit corps de forme allongée (13 ; 113) et s'étendant radialement par rapport au dit axe, ladite bride étant disposée afin de comprimer axialement la surface

- du sol lorsque ledit corps de forme allongée (13 ; 113) est fixé dans le sol, et de façon à définir, au niveau de l'extrémité opposée (13b ; 113b), une vis ou une partie de guidage hélicoïdale, ladite première extrémité (13a, 113a) étant, de plus, dotée de moyens agencés pour permettre d'associer un poteau, un pieu ou un autre objet similaire au dit dispositif, lesdits moyens comportant une cavité axiale (19 ; 119) s'étendant sur une partie au moins de la longueur de ladite première extrémité et agencée pour recevoir la base du tronc d'un poteau, d'un pieu ou d'un autre objet similaire, **caractérisé en ce que** ladite bride (15 ; 115 ; 215 ; 315) présente un diamètre d'au moins deux fois le diamètre dudit corps de forme allongée et **en ce que** ladite bride (15 ; 115 ; 215 ; 315) est tronconique, la grande base étant dirigée vers le corps de forme allongée (13 ; 113), et présente un trou central (23) permettant l'accès à ladite cavité interne (19 ; 119) dudit corps de forme allongée (13) qui reçoit le tronc d'un poteau, d'un pieu ou d'un autre objet similaire.
2. Dispositif selon la revendication 1, dans lequel ladite bride (15 ; 115 ; 215 ; 315) est de forme circulaire, carrée ou hexagonale.
 3. Dispositif selon l'une quelconque des revendications 1 ou 2, dans lequel ladite bride (15 ; 115 ; 215 ; 315) est, de plus, dotée d'un dispositif de verrouillage (25) incluant une extension (27), s'étendant axialement sur la bride du côté opposé par rapport au corps de forme allongée (13) et comportant un trou de passage taraudé (27) destiné à une vis de blocage (31) disposée afin de s'engager radialement avec le tronc d'un poteau ou d'un pieu ou d'un autre objet similaire dont la base est reçue dans le dispositif de fondations.
 4. Dispositif selon l'une quelconque des revendications 1 à 3, dans lequel ladite bride (15 ; 115 ; 215 ; 315) est, de plus, dotée d'un dispositif de verrouillage (125) comportant une plaque (26) fixée sur la bride (15) au moyen d'une vis axiale (28) de façon adjacente au trou central (23) formé dans la bride, ladite plaque (26) étant agencée en vue de se déformer radialement vers l'intérieur dudit trou (23) de façon à aider au verrouillage du tronc du poteau, du pieu ou d'un autre objet similaire dont la base est reçue dans le dispositif de fondations.
 5. Dispositif selon l'une quelconque des revendications précédentes, dans lequel un adaptateur (41) est prévu, lequel peut être associé au dispositif de fondations (11) et comporte une tige (43) présentant, associée à elle, un corps cylindrique (45) définissant une embase correspondante (47) destinée à la base du tronc d'un poteau, d'un pieu ou d'un autre objet similaire, permettant, de ce fait, de recevoir la base du tronc d'un poteau, d'un pieu ou d'un autre objet similaire dans le dispositif de fondations.
 6. Dispositif selon l'une quelconque des revendications précédentes, dans lequel ladite partie de guidage comporte une extrémité en forme de vis (17) agencée pour permettre l'introduction du dispositif de fondations dans le sol par un mouvement de rotation.
 7. Dispositif selon la revendication 6, dans lequel l'extrémité en forme de vis (17) porte quelques tours d'une spirale cylindrique (33) présentant un bord de coupe et s'achève par une partie conique (35).
 8. Dispositif selon la revendication 1, dans lequel ledit corps de forme allongée (13 ; 113) présente une nervure annulaire (21) s'étendant radialement à l'intérieur de la cavité (19 ; 119) et définissant une partie de butée correspondante pour la base du tronc d'un poteau, d'un pieu ou d'un autre objet similaire inséré dans le dispositif de fondations (11 ; 111).
 9. Dispositif selon la revendication 1, dans lequel ladite bride (15 ; 115 ; 215 ; 315) présente une partie centrale (15a) associée au corps de forme allongée (13 ; 113) et une seconde partie annulaire ou bague (15b) qui est amovible, des moyens de verrouillage étant fournis pour bloquer ensemble lesdites deux parties de la bride.
 10. Dispositif selon la revendication 1, dans lequel ledit corps de forme allongée (13 ; 113) est formé à partir d'une tige métallique (114) torsadée en spirale et agencée pour être fixée dans le sol.
 11. Dispositif selon la revendication 10, dans lequel ladite tige métallique (114) est torsadée en spirale de façon que l'embase axiale (19 ; 119) présente une dimension de section transversale plus grande que la partie restante (113b) du corps de forme allongée (113).
 12. Dispositif selon la revendication 1, dans lequel ladite bride (215) est formée de deux parties tronconiques (215a, 215b) disposées l'une sur l'autre de façon à pouvoir coulisser l'une par rapport à l'autre et raccordées ensemble par des moyens de verrouillage (225), la première desdites parties étant associée au dit corps de forme allongée (13 ; 113) et la seconde desdites parties étant agencée en vue de supporter un poteau, un pieu ou un autre objet similaire.
 13. Dispositif selon la revendication 12, dans lequel lesdits moyens de verrouillage comprennent une ou plusieurs vis (228) qui est (sont) fixée(s) dans des trous taraudés correspondants (230) formés dans la première partie (215a) de ladite bride et qui passent à travers des fentes (232) formées dans la seconde

partie (215b).

- 14.** Dispositif selon la revendication 1, dans lequel ladite bride (315) est formée de deux parties tronconiques (315a, 315b) disposées l'une sur l'autre, lesdites parties de bride (315a, 315b) présentant un trou central respectif (336a, 336b) permettant le passage d'une partie d'une sphère (338) montée au repos en correspondance avec ladite bride (315), un poteau, un élément de réception d'un poteau ou un autre objet similaire (334) étant associé de façon correspondante à la partie de sphère faisant saillie à l'extérieur de la bride (315).
- 15.** Dispositif selon la revendication 14, dans lequel ladite bride comporte des moyens de verrouillage pour bloquer la rotation de ladite sphère.

20

25

30

35

40

45

50

55

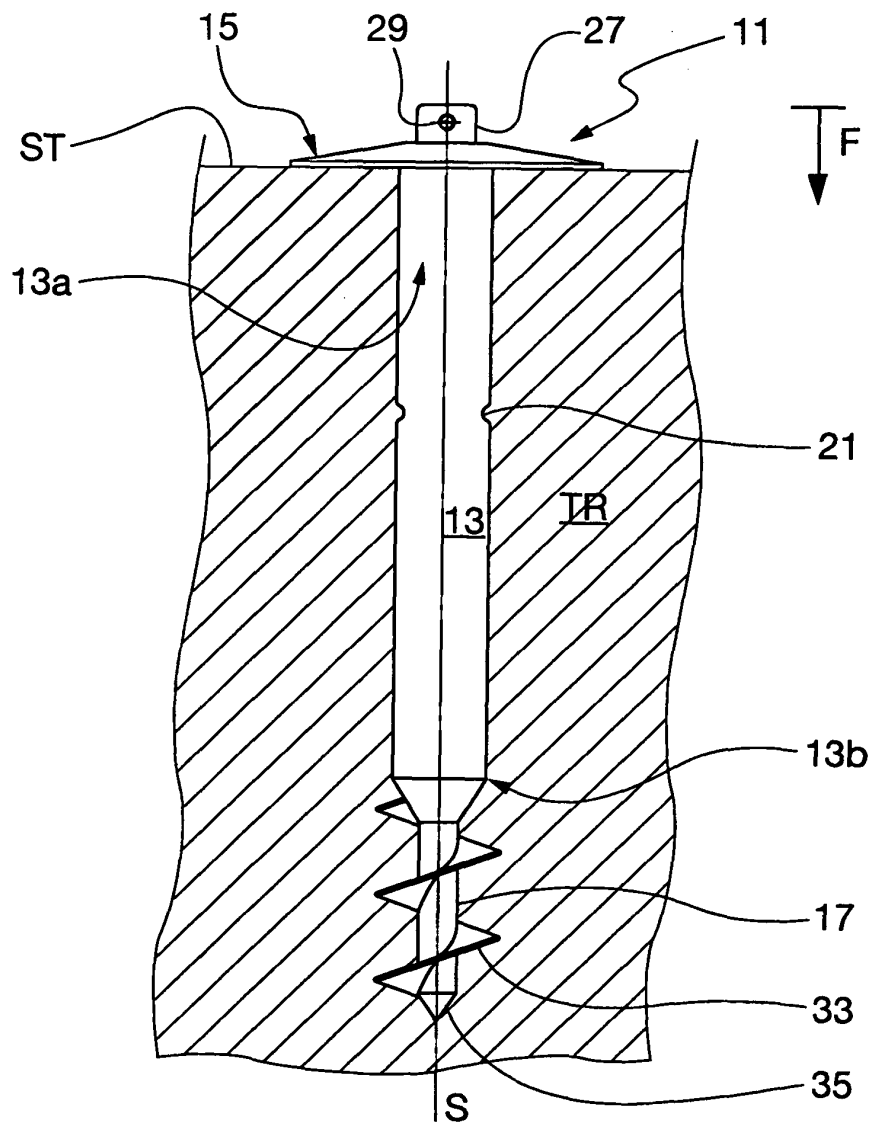


Fig. 1

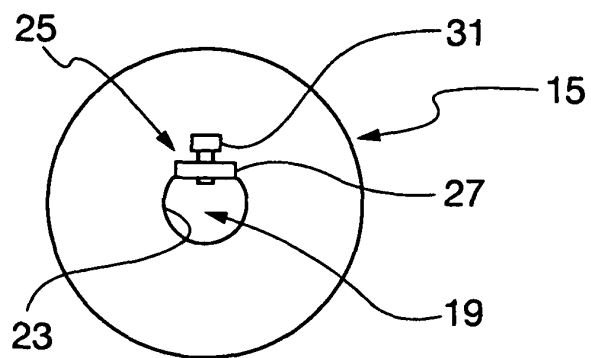


Fig. 2

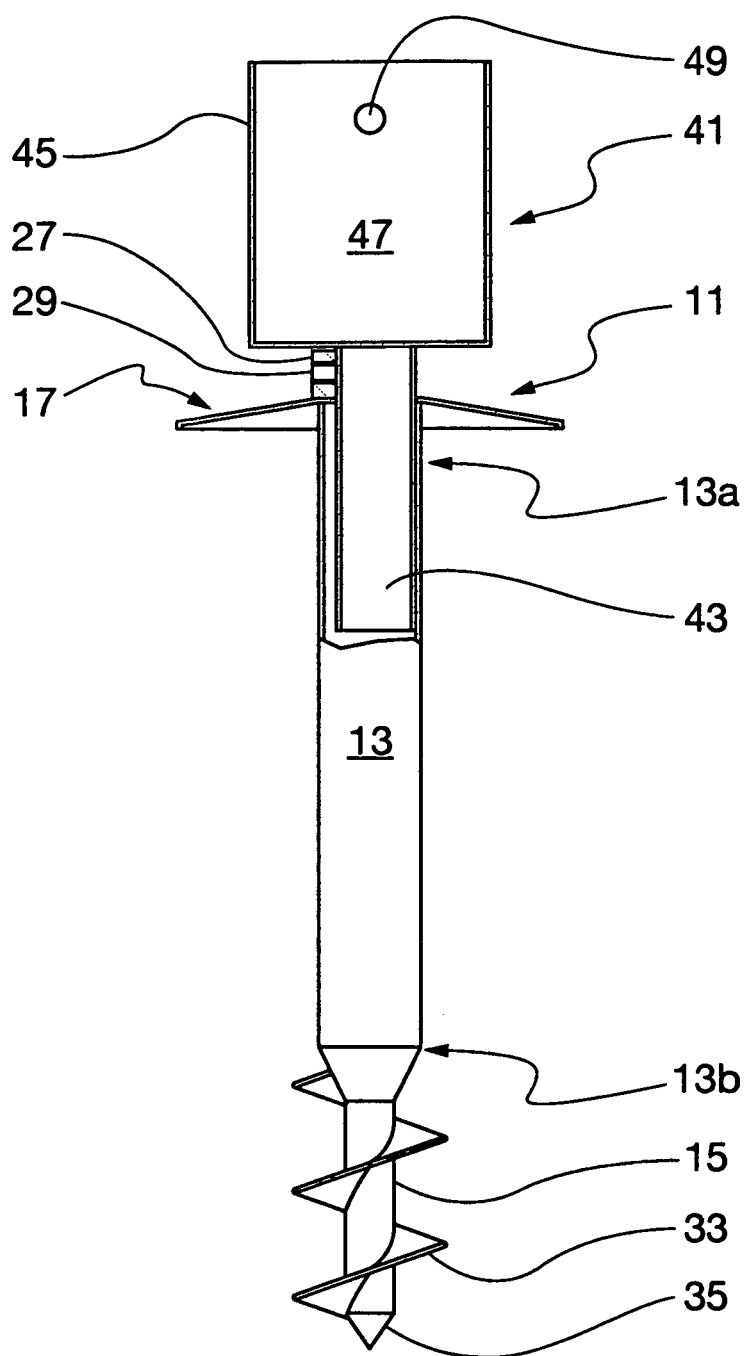


Fig. 3

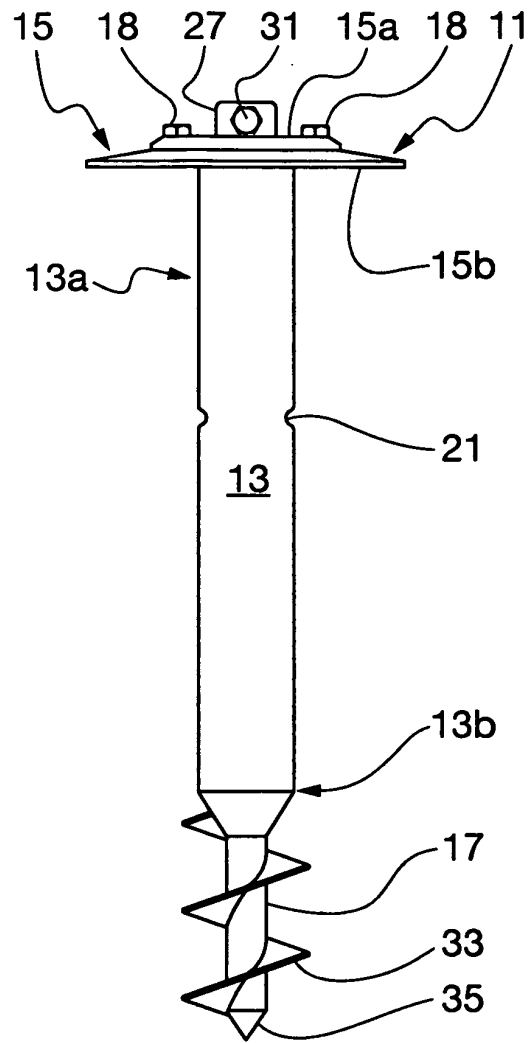


Fig. 4

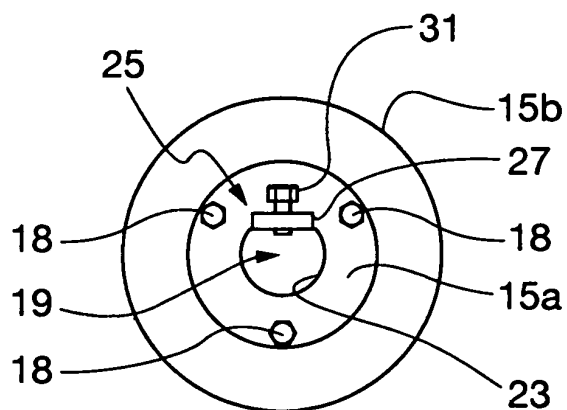


Fig. 6

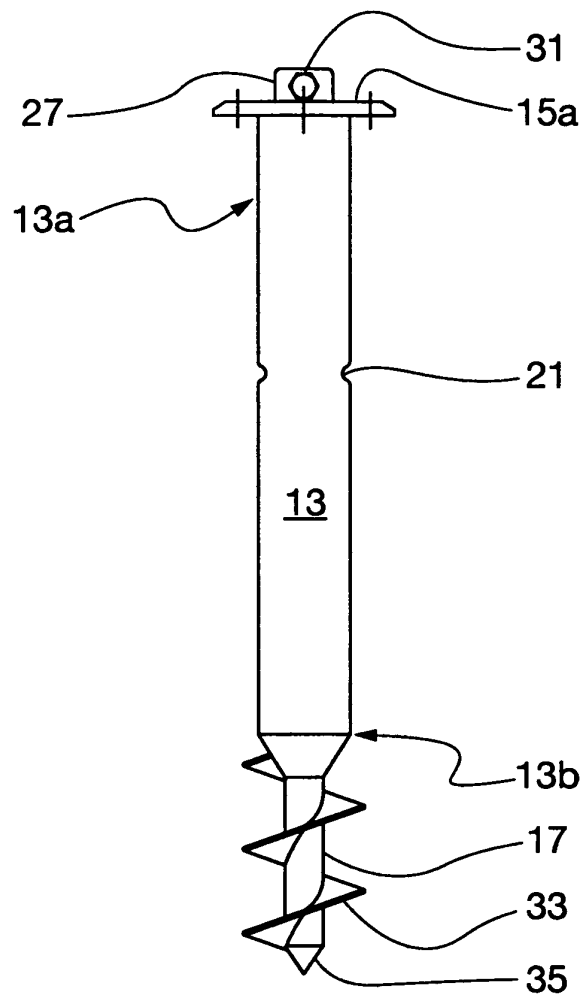


Fig. 5

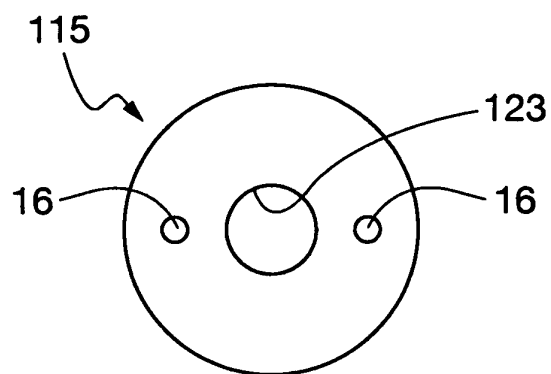


Fig. 11

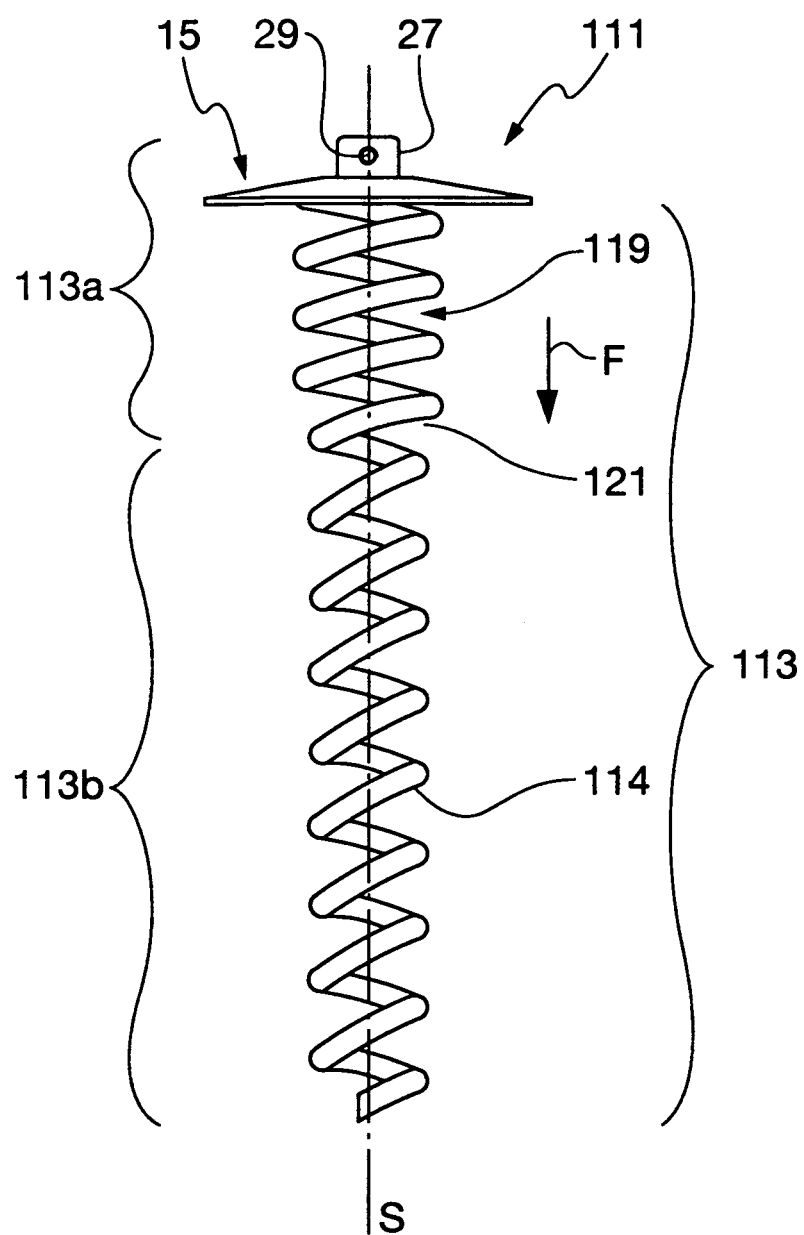


Fig. 7

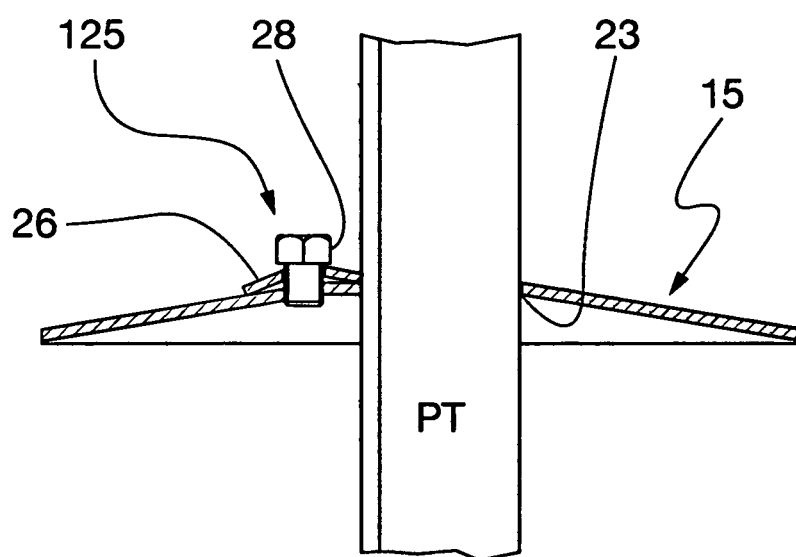


Fig. 8

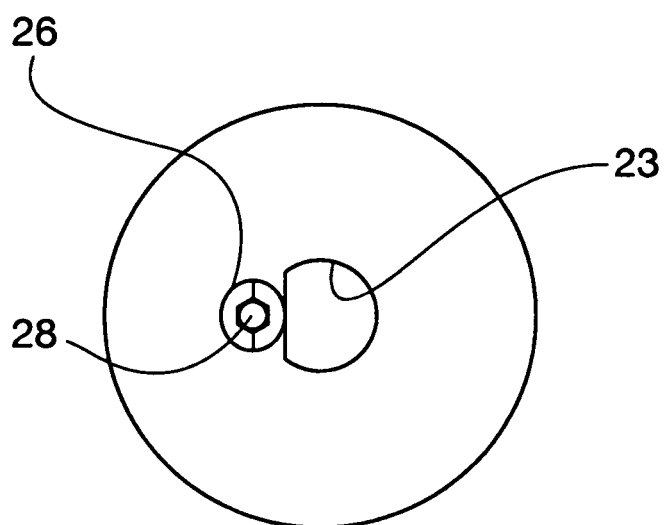


Fig. 9

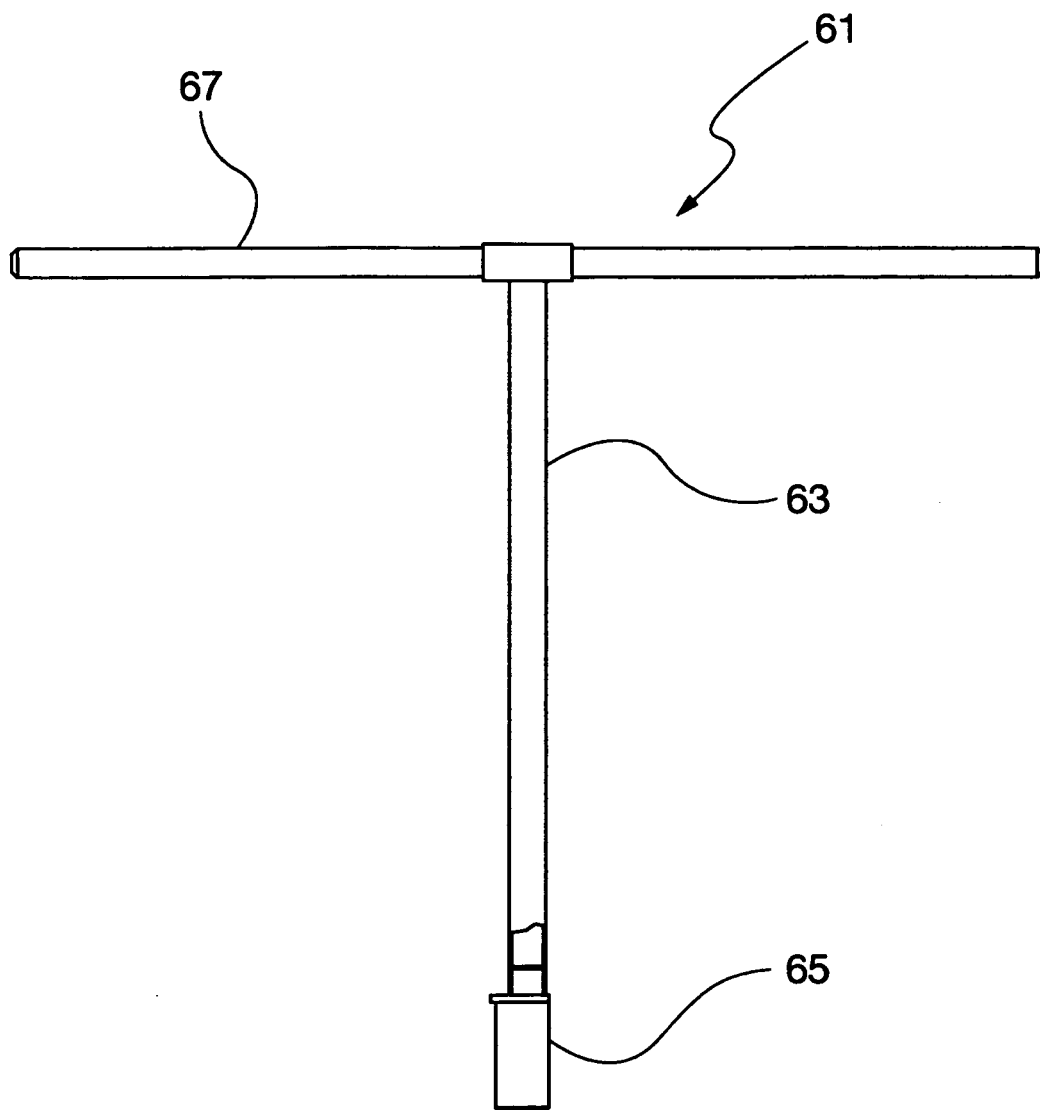


Fig. 10

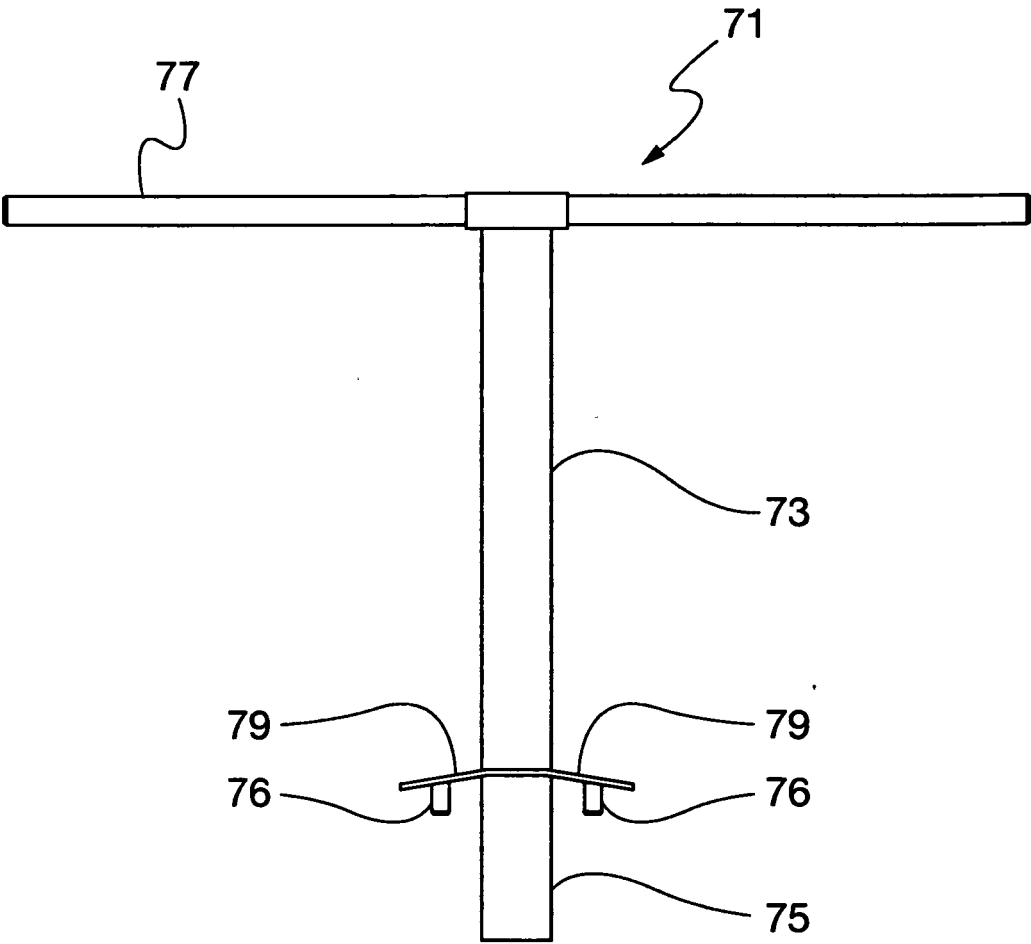


Fig. 12

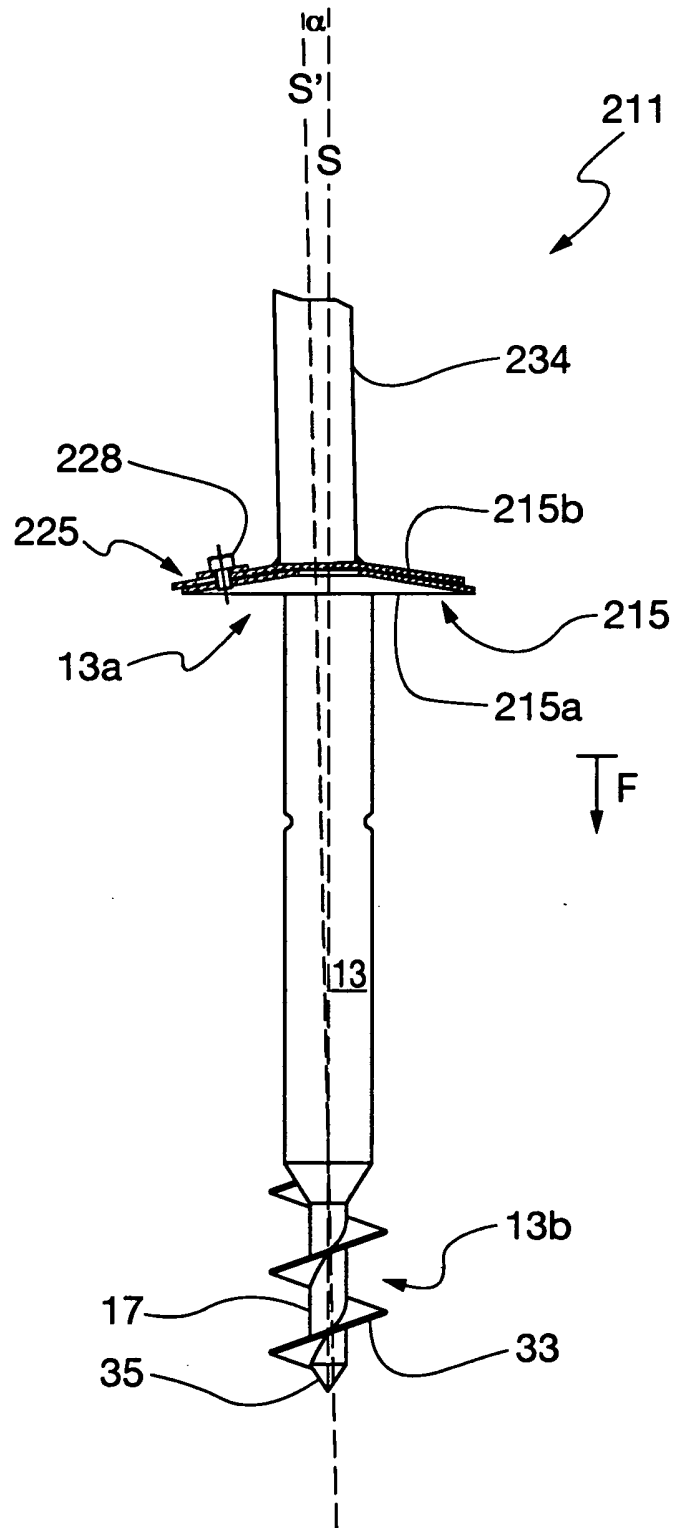


Fig. 13

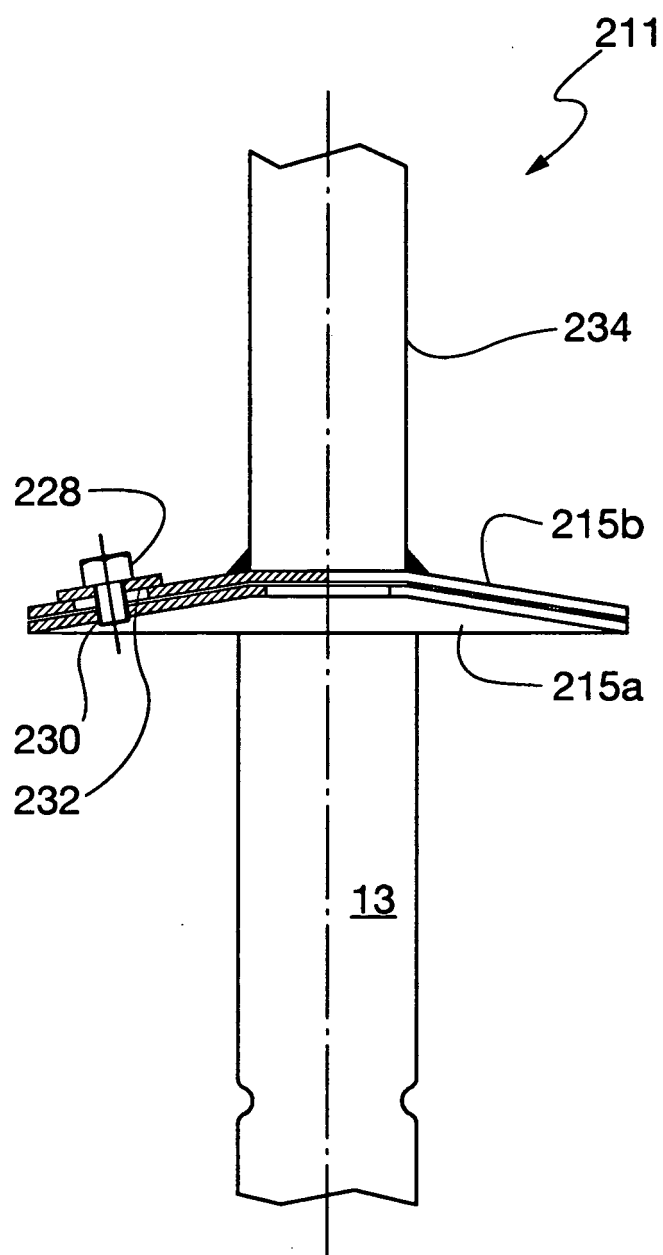


Fig. 14

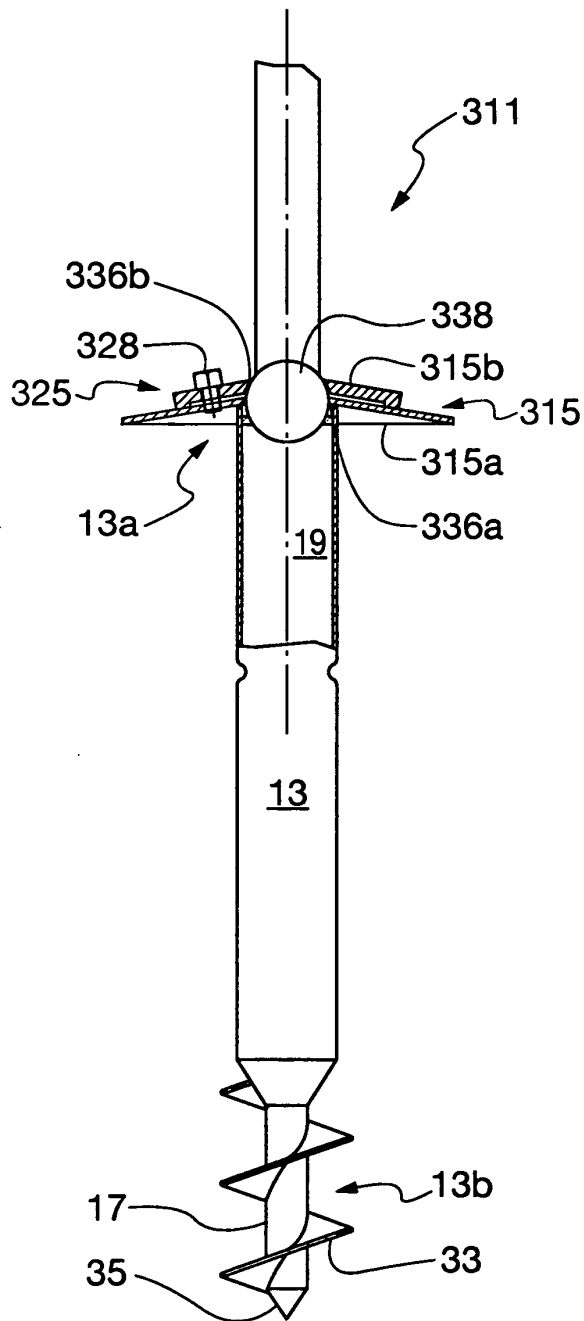


Fig. 15

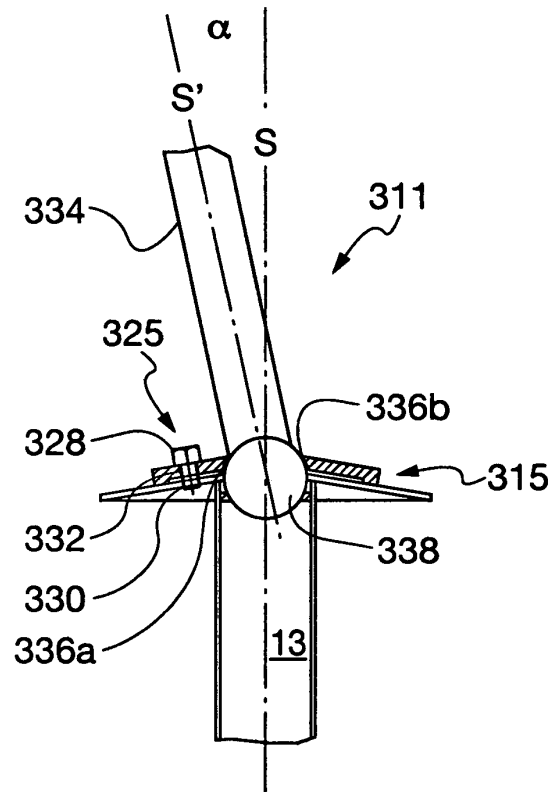


Fig. 16

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 1975345 A [0013]
- DE 102005045574 A1 [0014]
- DE 20304257 U1 [0015]