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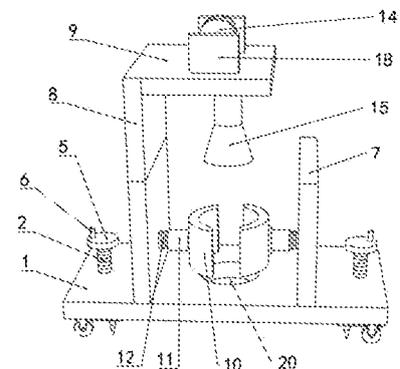
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Piling Equipment for Foundation Construction.

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The invention relates to the technical field of building engineering, and discloses piling equipment for foundation construction, which includes two supporting components, where the two supporting components are fixedly installed on two fixed plates, and the two supporting components are symmetrically arranged; the supporting components include a screw, a sleeve and a guard plate; one end of the screw is fixedly connected to the fixed plate; the screw is sleeved with the sleeve; the other end of the sleeve is installed on the guard plate through a bearing; and the two guard plates are symmetrically arranged; the support component penetrates through the base and is used for supporting the whole; the hammer assembly is positioned at the top of the two guard plates, where the top of one fixed plate is connected with an extension plate, and the top of the extension plate is fixed with a top plate. (Fig. 1)



PILING EQUIPMENT FOR FOUNDATION CONSTRUCTION

TECHNICAL FIELD

The invention relates to the technical field of building engineering, more specifically, it relates to piling equipment for foundation construction.

BACKGROUND

Buildings are built on the ground, and the ground will bear a lot of pressure. Therefore, it is necessary to ensure that the ground has enough strength to resist pressure. Usually, the ground bearing buildings is reinforced or improved to enhance the strength of the ground to resist pressure. The commonly used way is piling on the foundation, so that most of the weight of the building can be transmitted to a deep position below the ground through piles.

There are two existing piling methods: spiral piling and hammering. The spiral piling is a method of drilling holes into an underground drilling rig by using a drill bit. Generally, the piles of hammering are continuously smashed into the ground from a height by using heavy objects. No matter which piling method is used, the problem of pile position deviation will occur during the piling process due to the unstable fixation of concrete piles, which will further affect the quality of construction and pile foundation.

Therefore, piling equipment for foundation construction is needed to support the pile itself in the process of piling, so as to avoid the deviation of pile position.

SUMMARY

The purpose of the invention is to provide piling equipment for foundation construction, so as to solve the problems existing in the prior art. By arranging two supporting components, a pile body can be supported in the piling process, and deflection of the pile body can be effectively avoided.

In order to achieve the above purpose, the invention provides the following scheme: the invention provides piling equipment for foundation construction, which includes a base, where two fixing plates are fixedly connected to the base; two support assemblies, where the two support assemblies are fixedly installed on the two fixed plates and symmetrically arranged; the support assemblies include a screw, a sleeve and a guard

plate, one end of the screw is fixedly connected to the fixed plate, the screw is sleeved with the sleeve, the other end of the sleeve is installed on the guard plate through a bearing, and the two guard plates are symmetrically arranged; the support component penetrates through the base and is used for supporting the whole; the hammering assembly is located at the top of the two guard plates, where the top of one of the fixed plates is connected with an extension plate, and the top of the extension plate is fixed with a top plate, and the hammering assembly is fixedly installed on the top plate. LU509559

According to the piling equipment for foundation construction provided by the invention, the supporting component includes an adjusting bolt and a supporting plate, where the adjusting bolt penetrates the base downwards and is connected with the supporting plate, and a bottom cone is fixed at the bottom of the supporting plate.

According to the piling equipment for foundation construction provided by the invention, a turntable is fixed at the top of the adjusting bolt, and a handle is installed on the turntable.

According to the piling equipment for foundation construction provided by the invention, the hammer assembly includes a hoist, a counterweight and a motor, where the hoist is installed on the top plate, a steel cable is wound on the hoist, the hoist is connected with the counterweight through the steel cable, a rotating rod on the hoist is connected with the output end of the motor, and the motor is fixedly installed on the top plate.

According to the piling equipment for foundation construction provided by the invention, a bracket is fixed on the top plate, one end of the rotating rod is rotatably connected to one side of the bracket, and the other end penetrates through the bracket on the other side to be connected to the motor, and the motor is fixedly installed on the bracket.

According to the piling equipment for foundation construction provided by the invention, the top plate is provided with a through hole, and the steel cable penetrates through the through hole and is connected with the counterweight.

According to the piling equipment for foundation construction provided by the invention, the base is provided with an opening, and the counterweight is located above the opening.

According to the piling equipment for foundation construction provided by the invention, the two guard plates are respectively located at two sides of the opening.

The invention discloses the following technical effects:

the device is provided with two supporting components, which are located at both sides of the pile body, so that the pile body can be stably supported in the piling process, and the phenomenon that the pile body is deviated can be prevented; and the distance between the two protecting plates can be adjusted through the sleeve and the screw, so that the device can adapt to piles with different diameters, can support piles with different diameters, and has stronger applicability; the device is also provided with a support assembly, which supports the whole device to ensure the stability of the whole device in the piling process and further ensure the piling quality; the hammer assembly is arranged in the device, which can hammer the pile body instead of manual work and save labour.

BRIEF DESCRIPTION OF THE FIGURES

In order to explain the embodiments of the invention or the technical scheme in the prior art more clearly, the drawings needed in the embodiments will be briefly introduced below. Obviously, the drawings described below are only some embodiments of the invention, and other drawings can be obtained according to these drawings without creative work for ordinary people in the field.

Fig. 1 is a schematic diagram of the overall structure of the invention;

Fig. 2 is a structural schematic diagram of the other side of the invention;

Fig. 3 is a schematic structural diagram of the support assembly in the invention;

where, 1. Base; 2. Adjusting bolt; 3. Support plate; 4. Bottom cone; 5. Turntable; 6. Handle; 7. Fixed plate; 8. Extension plate; 9. Top plate; 10. Guard plate; 11. Sleeve; 12. Screw; 13. Bearing; 14. Hoist; 15. Counterweight; 16. Steel cable; 17. Motor; 18. Bracket; 19. Rotating rod; 20. Opening; 21. Passing hole.

DESCRIPTION OF THE INVENTION

In the following, the technical scheme in the embodiment of the invention will be clearly and completely described with reference to the attached drawings. Obviously, the described embodiment is only a part of the embodiment of the invention, but not the whole embodiment. Based on the embodiments in the invention, all other embodiments obtained by ordinary technicians in the field without creative labour belong to the scope of protection of the invention.

In order to make the above objects, features and advantages of the invention more obvious and easy to understand, the invention will be further described in detail with the attached drawings and specific embodiments.

As shown in Figs. 1-3, the invention provides piling equipment for foundation construction, which includes a base 1, and two fixed plates 7 are fixedly connected to the base 1; two support assemblies, which are fixedly installed on two fixed plates 7 and symmetrically arranged, include a screw 12, a sleeve 11 and a guard plate 10, where one end of the screw 12 is fixedly connected to the fixed plates 7, the screw 12 is sleeved with the sleeve 11, the other end of the sleeve 11 is installed on the guard plate 10 through a bearing 13, and the two guard plates 10 are symmetrically arranged; a supporting component which penetrates through the base 1 and is used for supporting the whole; hammer assembly, which is located at the top of two guard plates 10, where the top of one fixed plate 7 is connected with an extension plate 8, and the top of the extension plate 8 is fixed with a top plate 9, and the hammer assembly is fixedly installed on the top plate 9. LU509559

The two guard plates 10 are arc-shaped and symmetrically distributed, which can support the pile body located between the two guard plates 10, and the two guard plates support the pile body in an encircling manner to prevent the pile body from deviating during piling.

There is an internal thread in the sleeve 11, which is matched with the external thread on the screw 12, the other end of the sleeve 11 is fixed on the guard plate 10 through the bearing 13, and the sleeve 11 is sleeved on the screw 12; by rotating the sleeve 11, the distance between the two guard plates 10 can be adjusted, so that the two guard plates 10 can effectively support piles with different diameters, which makes the device more applicable. The bearing 13 is installed between the sleeve 11 and the guard plate 10, so that the guard plate 10 can keep its original state when the sleeve 11 rotates, that is, rotating the sleeve 11 can change the distance between the two guard plates 10, but it does not change the vertical state of the guard plate 10, and the guard plate 1 will not rotate with the rotation of the sleeve 11.

The hammer assembly includes a hoist 14, a counterweight 15 and a motor 17, where the hoist 14 is installed on the top plate 9, a steel cable 16 is wound on the hoist 14, the hoist 14 is connected with the counterweight 15 through the steel cable 16, a rotating rod 19 on the hoist 14 is connected with the output end of the motor 17, and the motor 17 is fixedly installed on the top plate 9.

A bracket 18 is fixedly mounted on the top plate 9.

The top of one fixed plate 7 is fixedly connected with an extension plate 8, and the top of the extension plate 8 is fixed with a top plate 9, a bracket 18 is fixed on the top plate 9, and a hammer assembly is installed on the bracket 18, the hammer assembly

includes a hoist 14, a counterweight 15 and a motor 17, one end of a rotating rod 19 of LU509559 the hoist 14 is rotatably installed on one side of the bracket 18, and the other end penetrates through the other side of the bracket 18 to be connected with the output end of the motor 17, which is fixedly installed on the bracket 18, a steel cable 16 is wound around the hoist 14, and the hoist 14 is connected with a counterweight 15 through the steel cable 16.

The top plate 9 is provided with a passing hole 21, and the steel cable 16 penetrates downward through the passing hole 21 and is connected with a counterweight 15, which is located below the top plate 9 and above the two guard plates 10 for hammering the pile body.

The rotation of the motor 17 drives the rotating rod 19 to rotate, and the rotation of the rotating rod 19 drives the hoist 14 to rotate, thereby winding the steel cable 16, during the winding process of the steel cable 16, the steel cable 16 lifts the counterweight 15 upward to store energy, and then the motor 17 is controlled to rotate reversely, at this time, the hoist 14 releases the steel cable 16, and the counterweight 15 hammers the pile body downward under its own gravity, so that the pile body enters the ground.

There are two support assemblies, which are located outside the two fixing plates 7, the support assemblies include adjusting bolts 2 and supporting plates 3, the adjusting bolts 2 penetrate the base 1 downwards and are connected to the top of the supporting plates 3, through the adjusting bolts 2, the supporting plates 3 are attached to the ground to support the whole device or are lifted away from the ground upwards.

A turntable 5 is fixed on the top of the adjusting bolt 2, and a handle 6 is installed on the top of the turntable 5, by rotating the handle 6, the turntable 5 and the adjusting bolt 2 are driven to rotate, so as to adjust the height of the support plate 3, a plurality of bottom cones 4 are fixed at the bottom of the support plate 3, which is convenient to be inserted into the ground, strongly supports the whole device, and can also be supported in soft land or sand, so that the application range is wider.

The base 1 is provided with an opening 20, and the two guard plates 10 are located at both sides of the opening 20, and the pile body penetrates through the opening 20, so that the two guard plates 10 can support the pile body.

In this device, a universal wheel is installed below the base 1, which is convenient for the whole device to move, move the device to the piling position, turn the handle 6 to enable the adjusting bolt 2 to adjust the height of the support plate 3, and insert the bottom cone 4 into the ground, the support plate 3 and the bottom cone 4 support the

whole device and enhance the stability of the device; adjust the distance between the two guard plates 10 according to the diameter of the pile body, rotate the sleeve 11 to make the two guard plates 10 close to each other, and support the pile body to prevent the pile body from deviating during piling, control the motor 17 to drive the rotating rod 19 and the hoist 14 to work, and realize the hammering of the pile body by the counterweight 15 by winding and releasing the steel cable 16, so that the pile body can vertically enter the ground. LU509559

In the description of the invention, it should be understood that the terms longitudinal, lateral, upper, lower, front, rear, left, right, vertical, horizontal, top, bottom, inner and outer are based on the azimuth or positional relationship shown in the attached drawings, and is only for the convenience of describing the invention, and does not indicate or imply that the device or element referred to must have a specific orientation, be constructed and operated in a specific orientation, and therefore cannot be understood as limiting the invention.

The above-mentioned embodiments only describe the preferred mode of the invention, and do not limit the scope of the invention. Under the premise of not departing from the design spirit of the invention, various modifications and improvements made by ordinary technicians in the field to the technical scheme of the invention shall fall within the protection scope determined by the claims of the invention.

CLAIMS

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1. A piling equipment for foundation construction, comprising:

a base(1), on the base two fixed plates(7) are fixedly connected;

two support assemblies, which are fixedly installed on two fixed plates(7) and symmetrically arranged, and comprise a screw(12), a sleeve(11) and a guard plate(10), wherein one end of the screw(12) is fixedly connected to the fixed plates(7), the screw(12) is sleeved with the sleeve(11), the other end of the sleeve(11) is mounted on the guard plates(10) through a bearing(13), and the two guard plates(10) are symmetrically arranged; the supporting component penetrates through the base(1) and is used for supporting the whole;

the hammer assembly is located at the top of the two guard plates(10), wherein the top of one of the fixed plates(7) is connected with an extension plate(8), and the top of the extension plate(8) is fixed with a top plate(9), and the hammer assembly is fixedly installed on the top plate(9).

2. The piling equipment for foundation construction according to claim 1, characterized in that the supporting assembly comprises an adjusting bolt(2) and a supporting plate(3), wherein the adjusting bolt(2) penetrates the base(1) downwards and is connected with the supporting plate(3), and a bottom cone(4) is fixed at the bottom of the supporting plate(3).

3. The piling equipment for foundation construction according to claim 2, characterized in that a turntable(5) is fixed on the top of the adjusting bolt(2), and a handle(6) is installed on the turntable(5).

4. The piling equipment for foundation construction according to claim 1, characterized in that the hammering assembly comprises a hoist(14), a counterweight(15) and a motor(17), wherein the hoist(14) is installed on the top plate(9), and a steel cable(16) is wound on the hoist(14), the hoist(14) is connected with the counterweight(15) through the steel cable(16), and a rotating rod(19) on the hoist(14) is connected with the output end of the motor(17), which is fixedly installed on the top plate(9).

5. The piling equipment for foundation construction according to claim 4, characterized in that a bracket(18) is fixed on the top plate(9), one end of the rotating rod(19) is rotatably connected to one side of the bracket(18), and the other end is connected to the motor(17) through the bracket(18) on the other side, and the motor(17) is fixedly installed on the bracket(18).

6. The piling equipment for foundation construction according to claim 5, LU509559 characterized in that the top plate(9) is provided with a passing hole(21), and the steel cable(16) penetrates through the through hole(21) and is connected with the counterweight(15).

7. The piling equipment for foundation construction according to claim 6, characterized in that the base(1) is provided with an opening(20), and the counterweight(15) is located above the opening(20).

8. The piling equipment for foundation construction according to claim 7, characterized in that the two guard plates(10) are located at both sides of the opening(20) respectively.

PATENTANSPRÜCHE

1. Pfahlvorrichtung für den Fundamentbau, umfassend:

eine Basis (1), auf der Basis sind zwei feste Platten (7) fest verbunden;

zwei Stützenanordnungen, welche fest auf zwei festen Platten (7) installiert und symmetrisch angeordnet sind und eine Schraube (12), eine Hülse (11) und eine Schutzplatte (10) umfassen, wobei ein Ende der Schraube (12) fest mit den festen Platten (7) verbunden ist, die Schraube (12) mit der Hülse (11) ummantelt ist, das andere Ende der Hülse (11) über ein Lager (13) an den Schutzplatten (10) angebracht ist und die beiden Schutzplatten (10) symmetrisch angeordnet sind; das Stützteil durch die Basis (1) hindurchgeht und zur Unterstützung des Ganzen dient;

die Hammeranordnung an der Oberseite der beiden Schutzplatten (10) angeordnet ist, wobei die Oberseite einer der festen Platten (7) mit einer Verlängerungsplatte (8) verbunden ist und die Oberseite der Verlängerungsplatte (8) mit einer oberen Platte (9) befestigt ist und die Hammeranordnung fest auf der oberen Platte (9) installiert ist.

2. Pfahlvorrichtung für den Fundamentbau nach Anspruch 1, dadurch gekennzeichnet, dass die Stützenanordnung einen Stellbolzen (2) und eine Stützplatte (3) umfasst, wobei der Stellbolzen (2) die Basis (1) nach unten durchdringt und mit der Stützplatte (3) verbunden ist und ein Bodenkonus (4) am Boden der Stützplatte (3) befestigt ist.

3. Pfahlvorrichtung für den Fundamentbau nach Anspruch 2, dadurch gekennzeichnet, dass ein Drehteller (5) an der Oberseite des Stellbolzens (2) befestigt ist, und ein Handgriff (6) an dem Drehteller (5) angebracht ist.

4. Pfahlvorrichtung für den Fundamentbau nach Anspruch 1, dadurch gekennzeichnet, dass die Hammeranordnung eine Winde (14), ein Gegengewicht (15) und einen Motor (17) umfasst, wobei die Winde (14) auf der oberen Platte (9) installiert ist, und ein Stahlseil (16) um die Winde (14) gewickelt ist, die Winde (14) mit dem Gegengewicht (15) durch das Stahlseil (16) verbunden ist und eine Drehstange (19) auf der Winde (14) mit dem Ausgangsende des fest auf der oberen Platte (9) installierten Motors (17) verbunden ist.

5. Pfahlvorrichtung für den Fundamentbau nach Anspruch 4, dadurch gekennzeichnet, dass eine Halterung (18) an der oberen Platte (9) befestigt ist, ein Ende der Drehstange (19) drehbar mit einer Seite der Halterung (18) verbunden ist und das andere Ende durch die Halterung (18) auf der anderen Seite mit dem Motor (17) verbunden ist, und der Motor (17) fest an der Halterung (18) installiert ist.
6. Pfahlvorrichtung für den Fundamentbau nach Anspruch 5, dadurch gekennzeichnet, dass die obere Platte (9) mit einem Durchgangsloch (21) versehen ist, und das Stahlseil (16) durch das Durchgangsloch (21) hindurchgeht und mit dem Gegengewicht (15) verbunden ist.
7. Pfahlvorrichtung für den Fundamentbau nach Anspruch 6, dadurch gekennzeichnet, dass die Basis (1) mit einer Öffnung (20) versehen ist und das Gegengewicht (15) oberhalb der Öffnung (20) angeordnet ist.
8. Pfahlvorrichtung für den Fundamentbau nach Anspruch 7, dadurch gekennzeichnet, dass die beiden Schutzplatten (10) jeweils an beiden Seiten der Öffnung (20) angeordnet sind.

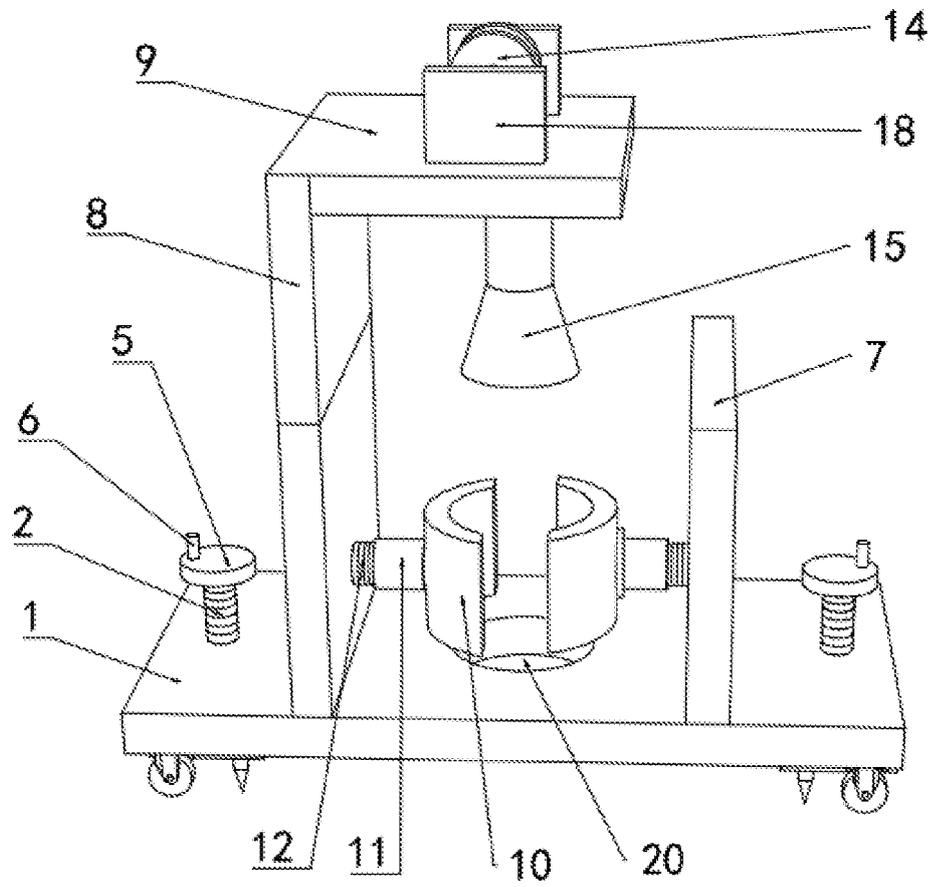


Fig. 1

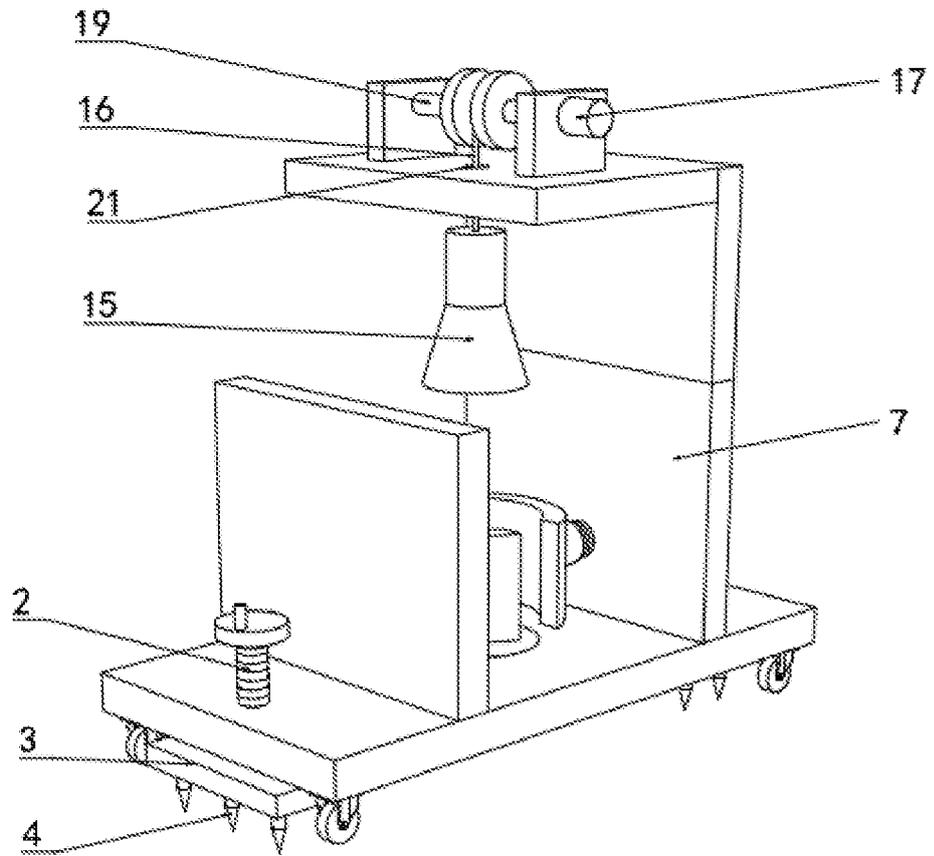


Fig. 2

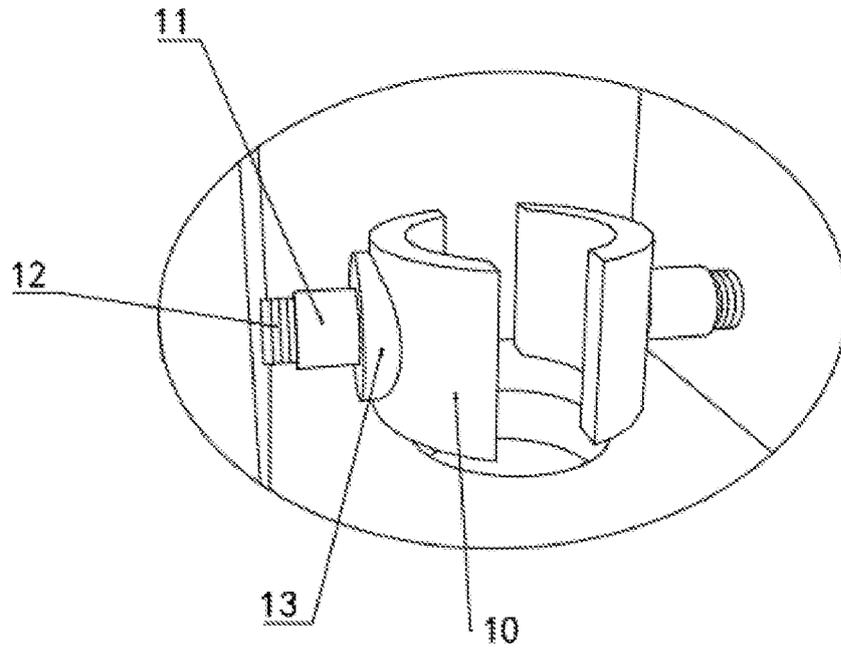


Fig. 3