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(54) Automatic transit-dissuading column

(57) An automatic foldaway column-shaped dissuader (10) comprising a formwork (12) fixed in the ground, a container (14) fixed detachably in the formwork (12), and a column (16) received in the inside of the container (14) and coupled to the container through at least a piston (26) that moves the column (16) vertically in respect to the container (14).

Besides the dissuader comprises at least three telescopic guides (18) the ends of which are fixed to the column (16) and to the container (14), respectively in order to guide the movement of the column (16) in respect to the container (14) according to a rectilinear direction.

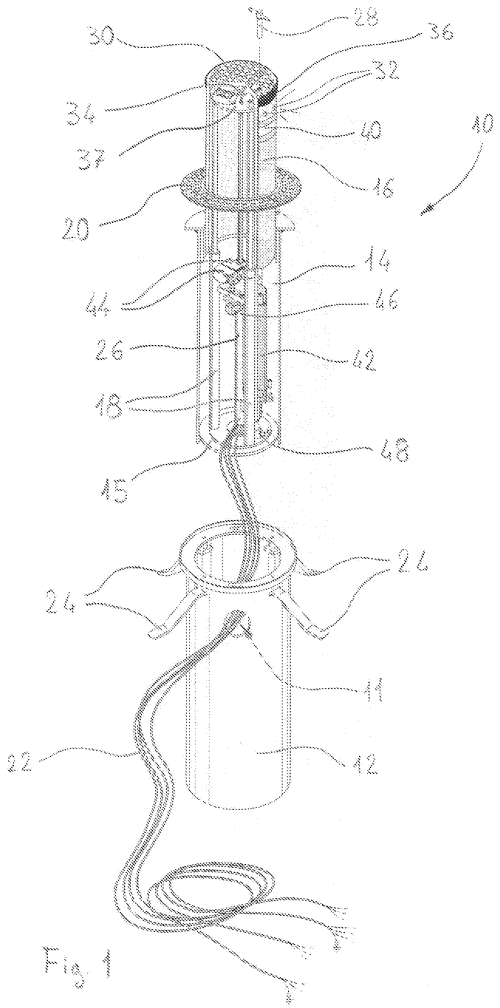

Fig. 1

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Description

[0001] This invention refers to a column with a hydraulic automation controlled remotely and acting as a dissuader of traffic.

[0002] More particularly, the invention refers to a plant comprising a column-shaped element that moves vertically so as to be lowered or raised in respect to the road pavement in which the whole plant is fixed. The column may be raised from the road pavement in order to prevent the access of vehicles in limited traffic areas such as parkings, cycle tracks, residential areas and other ones, otherwise, the column may be lowered and disappear completely to let the passage free.

[0003] As is known, in particular urban areas such as public gardens, old town centres, parkings, private urban areas and other ones, the traffic of big vehicles such as cars and lorries is prevented while the access of bicycles and pedestrians is permitted so that fixed barriers such as kerbstones or other barriers are mounted in said places. In case the passage of special vehicles such as ambulances or other rescue vehicles, motor vehicles or vehicles to effect occasional activities such as maintenance works for the non-accessible area, removals or other is necessary, said fixed barriers must be disassembled manually, which involves a cost in time and the necessity of utilizing suitable tools.

[0004] Easily removable barriers have been therefore conceived, for instance barriers hinged to ground so as to be lowered by making them rotate about one or more ground pivots. These barriers may be fixed in two positions (dissuasion position and passage position) by means of suited padlocks or equivalent means. Barriers of this kind can be utilized more easily but it is still necessary to actuate them manually.

[0005] Automatic bars are used to solve said problem. From a horizontal position of passage block, the automatic bars rotate about a pivot point in an upright and reach a vertical position on letting the passage free. This kind of barriers is practical but these barriers always remain in sight and are ugly to look at, especially when mounted in old town centres or areas where stylishness is required.

[0006] Said problems have been removed by utilizing disappearing columns as transit dissuading elements. These columns move vertically and prevent vehicles of certain dimensions to pass when the columns are positioned out of the surface. When the columns are withdrawn in the ground by means of pneumatic, hydraulic, electrical devices or other ones, the passage is free.

[0007] Said disappearing column devices have removed the problems of aesthetic sense since the columns are lowered when it is necessary to let the passage free and the upper surface of the column is positioned essentially at the same height of the ground. In this way, the column is hidden and does not bar even light vehicles.

[0008] The aim of this invention is to remove the above problems and other ones by carrying out a transit dissuading column device, easy to be mounted and repaired, its structure being simple and strong.

[0009] All said aims and advantages are reached according to the invention with an automatic dissuader with disappearing column, comprising a formwork fixed in the ground, a container fixed detachably in the formwork, and a column received in the inside of the container and coupled to the container through at least a piston that moves the column vertically in respect to the container. This dissuader is **characterized in that** it comprises at least three telescopic guides the ends of which are fixed to the column and to the container, respectively in order to guide the movement of the column in respect to the container according to a rectilinear direction.

[0010] The presence of the three or more rectilinear guides causes the column to move according to a precise rectilinear direction in the raising and lowering phases, even if it is subjected to important lateral loads.

[0011] Advantageously, each of the three or more guides may comprise a bush, for instance a bronze bush, to further guarantee a linear movement and rigidity to the stresses since the dissuader may be mounted in traffic-congested areas where even very heavy vehicles pass on the lowered column.

[0012] The assembly of the dissuader is simple and easy: it is sufficient to fix the formwork on the ground and then, to insert in the same formwork the container together with the column that is put in the inside of the container.

[0013] The dissuader according to this invention comprises a gearcase to control the at least a piston. Said gearcase is contained in the inside of the container so that less space is required.

[0014] Advantageously, the upper lateral edge of the column comprises a shock absorber, for instance a rubber shock absorber, which protects the column and possible means from accidental knocks.

[0015] The same upper part of the column may comprise a removable cover that permits the access to a coupling means such as an eyebolt so that column and container can be removed together.

[0016] The lowering of the column is allowed in that the dissuader may comprise also releasing means for the release of the at least a piston. The releasing means are operated by utilizing an actuating instrument and are connected through a tap with the gearcase.

[0017] Advantageously, the dissuader may comprise a releasing solenoid valve to lower the column in case the dissuader is not fed.

[0018] A collar may be provided on the container top so that the cover is at the same level as the collar when the column is lowered completely.

[0019] Advantageously, the dissuader comprises a load limiting means connected with the at least a piston and the gearcase. The load limiting means controls the lowering of the column if the upward movement of the column is opposed by a strength of a given entity. In this way, when a pedestrian or a vehicle is on the lowered column during the raising of the column, the vertical up-

ward movement is stopped and the column is lowered.

[0020] Besides, the dissuader may comprise fixing means to fix each guide to the container. Said fixing means adjust the height of each guide in order to vary the inclination of the column in respect to the container in the testing phase or assembling phase of the dissuader.

[0021] Light emission means such as LEDs or reflectors may be provided on the lateral surface of the column to show the movement and/or the presence of the lifted column.

[0022] Advantageously, the dissuader is carried out in such a way that the inner parts of the formwork, container and column are connected with each other and passage openings are obtained in the cover and formwork bottom through which the rainwater flows downwards in the inner part of the dissuader from the upper part of the column to the ground.

[0023] Further features and details of the invention will be better understood from the following specification, given as a non-limiting example, as well as from the accompanying drawings wherein:

Fig. 1 is an axonometric exploded view of a traffic dissuader according to this invention;
Fig. 2 is an axonometric view of some components of the dissuader in Fig. 1;
Fig. 3 and 4 are axonometric sectional views of the components of the dissuader in Fig. 2;
Fig. 5 is an axonometric view of some components of the dissuader in Fig. 1;
Fig. 6 and 7 are schematic axonometric views of some parts of the dissuader in Fig. 1,
Fig. 8 is an axonometric view from below of the dissuader in Fig. 1.

[0024] With reference to the accompanying drawings, in particular to Fig. 1, number 10 denotes a traffic dissuading device comprising a hollow cylindrical formwork 12, a cylindrical container 14 received in the inside of the formwork 12 and a column 16 that translates vertically in the inside of the cylindrical container 14.

[0025] Coupling tongues 24 are fixed on the formwork 12 as it can be seen in Fig. 5. The tongues 24 in turn are embedded in the concrete in the inside of the hole in the ground where the formwork 12 is put when the dissuader is assembled in the wished place.

[0026] One or more holes 11 are made in the formwork 12 for the passing of feed and control threads 22 for the feeding and control of the device placed in the inside of the dissuader 10.

[0027] The column 16 moves vertically in the inside of the cylindrical container 14. The vertical movement is caused by a hydraulic piston 26 fixed on the horizontal base 15 of the container 14 in a central position.

[0028] The vertical movement of the column is made perfectly rectilinear by three telescopic stem guides 18 fixed, in the lower part, on the horizontal base of the container 14 and fixed, in the upper part, on the top of the column 16, in particular the stem.

[0029] The three guides 18 are supported by their respective brass bushes which guarantee a perfect linearity in the movement and rigidity to the stresses.

[0030] The piston 26 is controlled by a hydraulic central control 42 which is received in the inside of the container 14 and is connected through the threads 22 with feed and control devices.

[0031] The two extreme positions of the column (completely lowered column to permit the passing and completely raised column for the dissuasive function) are registered by two hermetic electromechanical stops 44 which are positioned in the inside of the container 14 and are engaged by two adjustable feeler pins at the time of the testing of the dissuader in the factory.

[0032] The upper part of the column 16 is provided with a cap 30 fixed with screws 31. The cap 30 covers some elements which are provided in the upper part of the column 16 and are fixed on a base 37 shown, in details, in Figure 3. In fact, just under the cap 30, a coupling eyebolt 34 is fixed on the piston 26 and facilitates the assembling and disassembling phases of the unit column/container.

[0033] In addition, an element 38 for the manual release is fixed on the base 37 and is actuated with a suited key 28. The manual release element 38 is connected with a manual release tap 48 which in turn is connected with the central control 42. In case of stall of the dissuader 10, it is possible to manually lower the column 16 once the release element 38 has been actuated.

[0034] Besides, the access to the elements arranged on the base 37 is possible by removing the cap 30 and intervening on a blocking system 52 with suited keys, as it can be seen in Figure 4.

[0035] A rubber circular element or buffer 36 is put on the upper edge of the column 16 to protect from shocks caused by the column 16 itself. Under the rubber circular element there are provided signaling lights 32, for instance LEDs that flash when the column moves.

[0036] Adhesive reflex reflectors 40 are adjacent to said lights to signal the presence of the column that is raised in the night hours.

[0037] The upper end of the container 14 comprises a horizontal edge 19 as it can be seen in Figures 2 and 3. A covering collar 20 is fixed with screws 21 on said edge so that the cover 30 of the column 16 is at the same level as the collar 20 when the column is lowered completely.

[0038] The dissuader according to the present invention is not hermetic to the liquid flow, for instance rain fluids so that the liquids can flow towards the bottom; in fact, the formwork 12 has to be mounted on a gravel bottom and is provided with lower passage opening to allow liquids to flow downwards.

[0039] Naturally, the dissuader in question is actuated by a known electronic programmer, installed remotely, which controls all the functions: as soon as the control impulse has been received through a radio or encoded key selector, the column rises unless infrared photocells

to be positioned before the column detect the presence of obstacles or passing vehicles or unless parked vehicles are detected by metal detectors.

[0040] The lower part of the container 14, namely, its base 15, is provided with screws or grub screws 50 as it can be seen in Figure 8 to allow an axial alignment of the column 16. In other terms, these grub screws 50 adjust the height of each guide 18 in relation to the base 15 so as to vary the inclination of the column in relation to the container 14, said adjustment being done in the testing phase or assembling phase of the dissuader.

[0041] The so-described dissuader may comprise further elements to accomplish new functions. For instance, a release solenoid valve 46 is provided in the inside of the container 14 to lower the column 16 in case the dissuader 10 is not fed, said valve being connected with the central control 42.

[0042] Besides, a pressure switch sensor may be comprised and is connected with the central control 42 to sense the presence of loads exceeding a given weight when the column 16 is in the lifting phase and to control the lowering of the column.

[0043] A further optional device to be mounted in the dissuader 10 is a buzzer that emits an intermittent audible alarm during the upward and downward motion of the column 16.

[0044] In addition, it is possible to mount a device in the dissuader 10 to detect the audible alarms of the vehicles of public rescue and safety and to lower the column 16 in case it is in its dissuading position.

Claims

1. Automatic foldaway column-shaped dissuader (10) comprising:

- a formwork (12) fixed in the ground,
- a container (14) fixed detachably in the formwork (12),
- a column (16) received in the inside of the container (14) and coupled to the container through at least a piston (26) that moves the column (16) vertically in respect to the container (14),

characterized in that it comprises:

- at least three telescopic guides (18) the ends of which are fixed to the column (16) and to the container (14), respectively in order to guide the movement of the column (16) in respect to the container (14) according to a rectilinear direction.

2. Automatic dissuader (10) according to claim 1, wherein a central control (42) is included in the inside of the container (14) to control at least a piston (26).

3. Automatic dissuader (10) according to one of the foregoing claims, wherein the upper edge of the column (16) is provided with a buffer (36).

4. Automatic dissuader (10) according to one of the foregoing claims, wherein the upper part of the column (16) comprises a detachable cover (30).

5. Automatic dissuader (10) according to claim 4, wherein the column (16) comprises a coupling element (34) under the cover (30) in order to remove the column (16) together with the container (14).

6. Automatic dissuader (10) according to claim 4, wherein the top of the container (14) is provided with a collar (20) and when the column is lowered completely the cover (30) is at the same level as the collar (20) in order to carry out a hermetic closure with staff angle (36) around the column (16) through the buffer (36).

7. Automatic dissuader (10) according to claim 4, wherein the internal parts of the framework (12), container (14) and column (16) are interconnected and through-openings are obtained in the cover (30) and in the bottom of the framework (12) so that the rain water flows from the upper part of the column (16) to the ground through the internal part of the dissuader (10).

8. Automatic dissuader (10) according to one of the foregoing claims, wherein release means are provided to release at least a piston (26) and are actuated by means of an actuating instrument (28) and are connected through a tap (48) to the central control (42) in order to manually release the movement of the piston (26).

9. Automatic dissuader (10) according to one of the foregoing claims, wherein a release solenoid valve (46) is provided to lower the column (16) in case the dissuader (10) is not fed.

10. Automatic dissuader (10) according to one of the foregoing claims, wherein a load limiting element is connected to at least a piston (26) and to the central control (42) to actuate the lowering of the column when the upward movement of the column is held up by a force of determined entity.

11. Automatic dissuader (10) according to one of the foregoing claims, wherein fixing means (50) are provided to fix each guide (18) to the container (14) and to adjust the height of each guide (18) in order to vary the inclination of the column (16) in respect to the container (14) in the assembling phase of the dissuader (10).

12. Automatic dissuader (10) according to one of the foregoing claims, wherein light emitting means (32, 40) are provided to put in evidence the movement and/or the presence of the column (16).

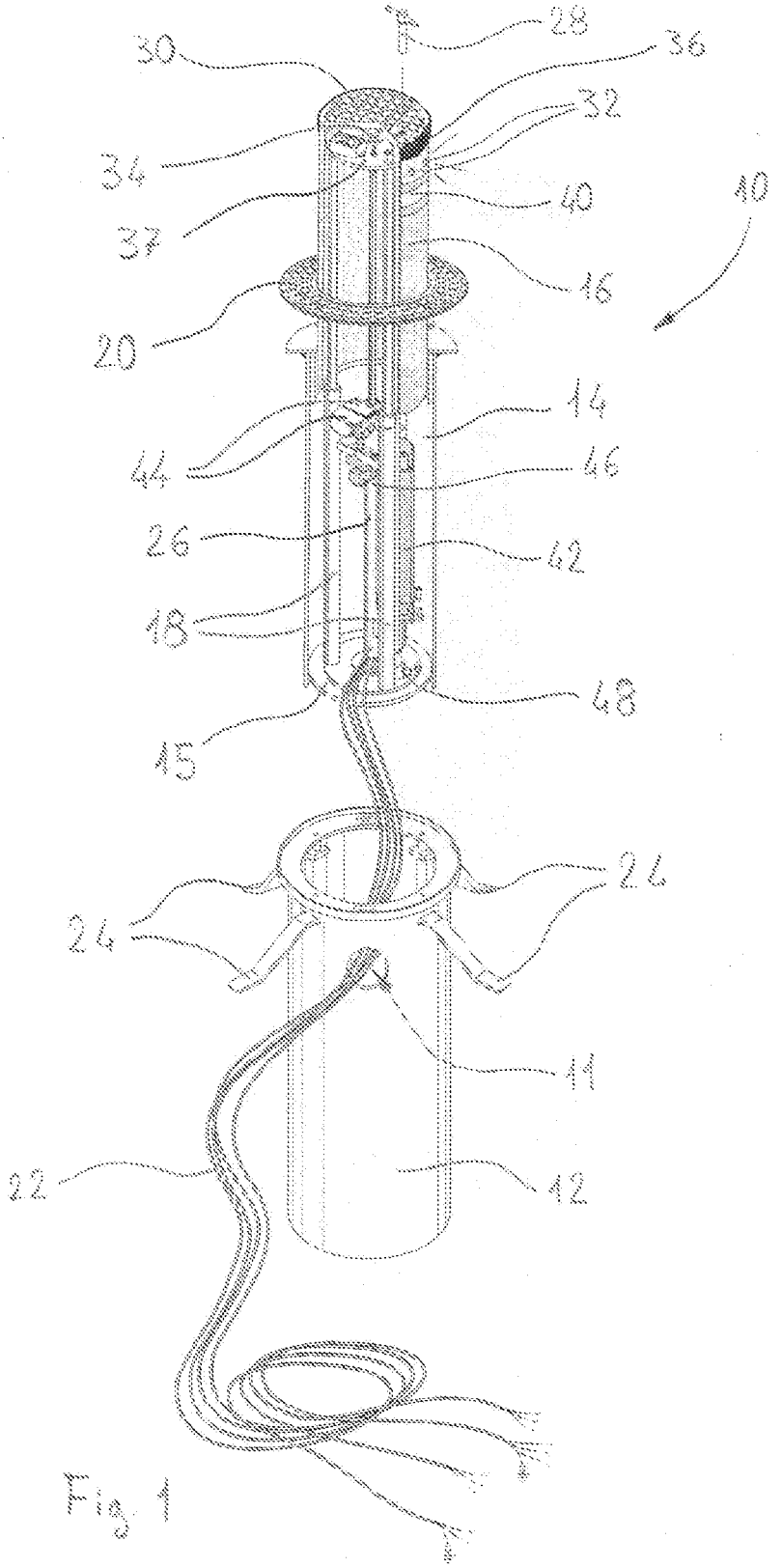

Fig. 1

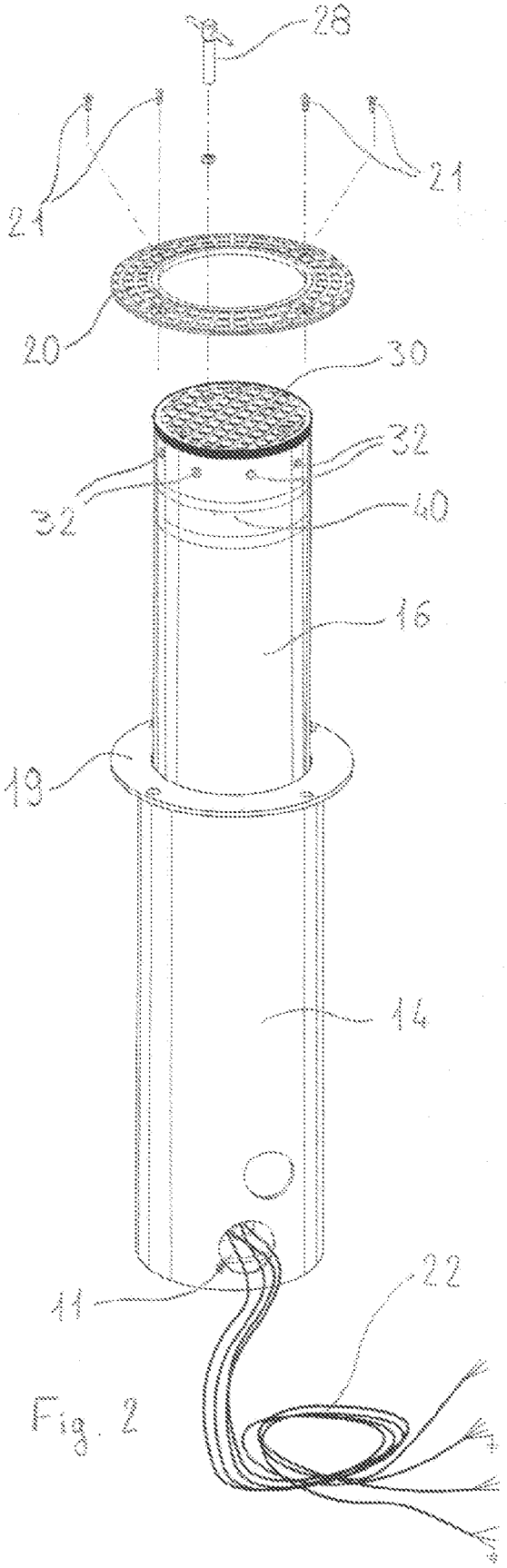
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Fig. 2

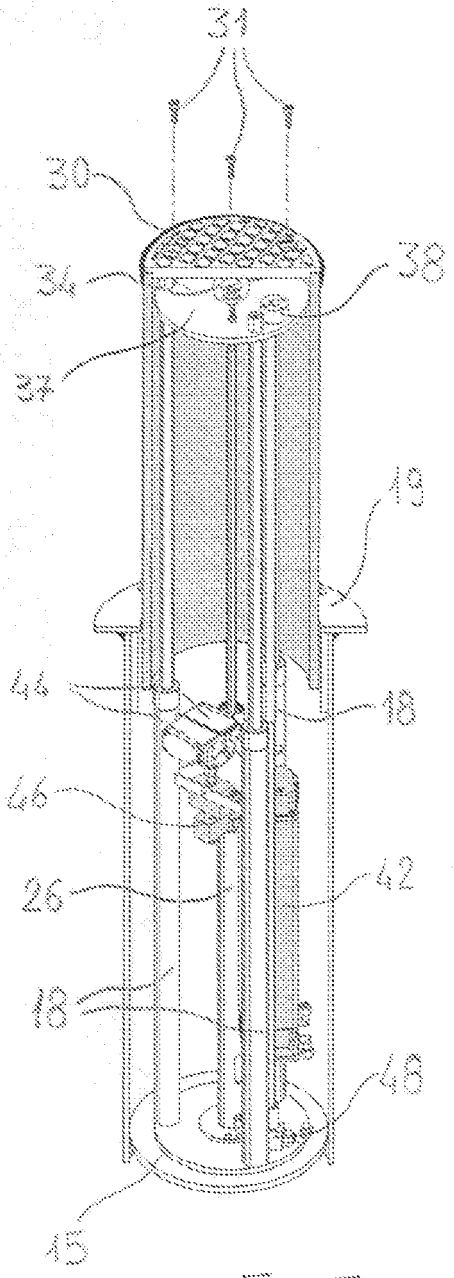
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Fig. 3

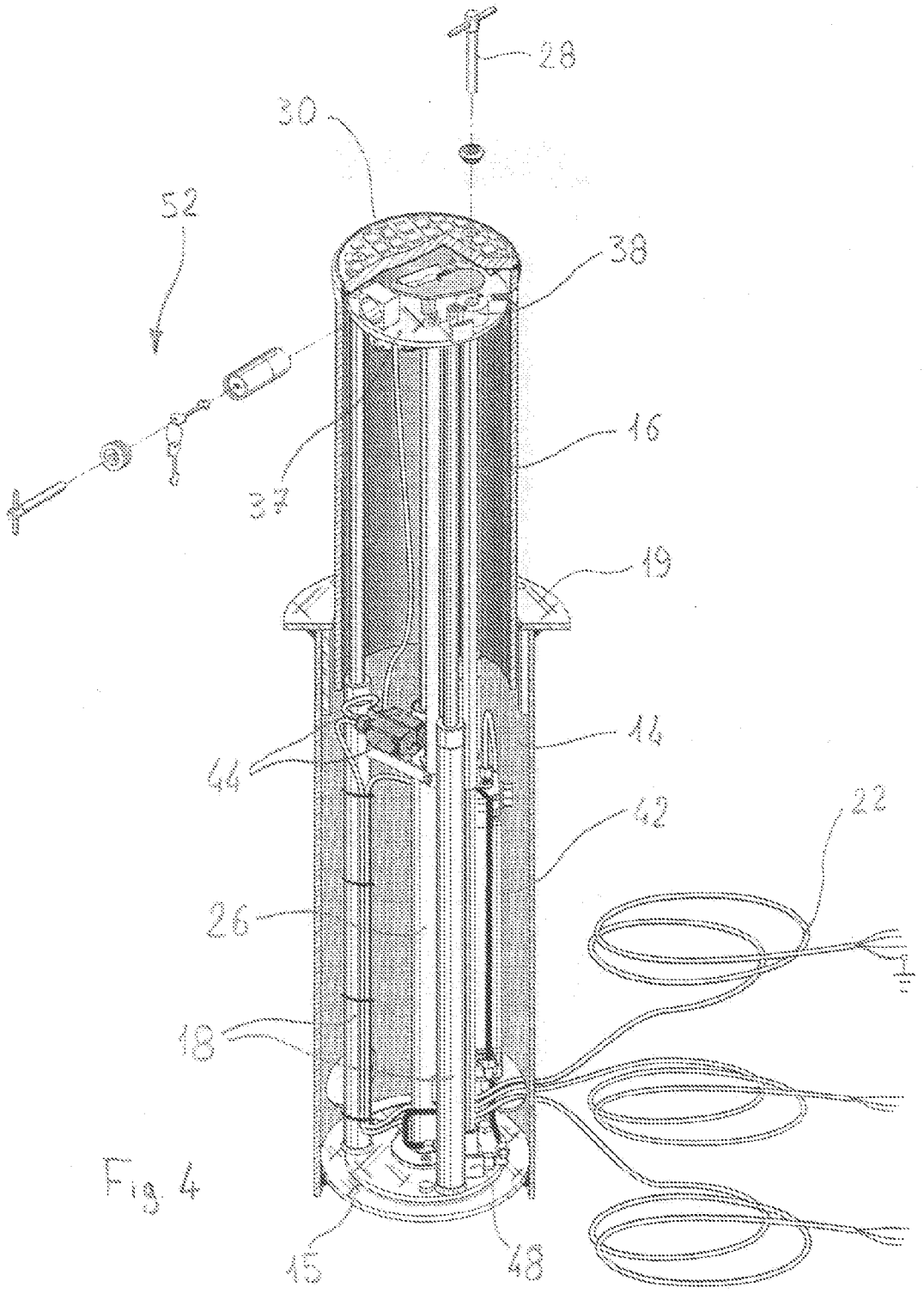

Fig. 4

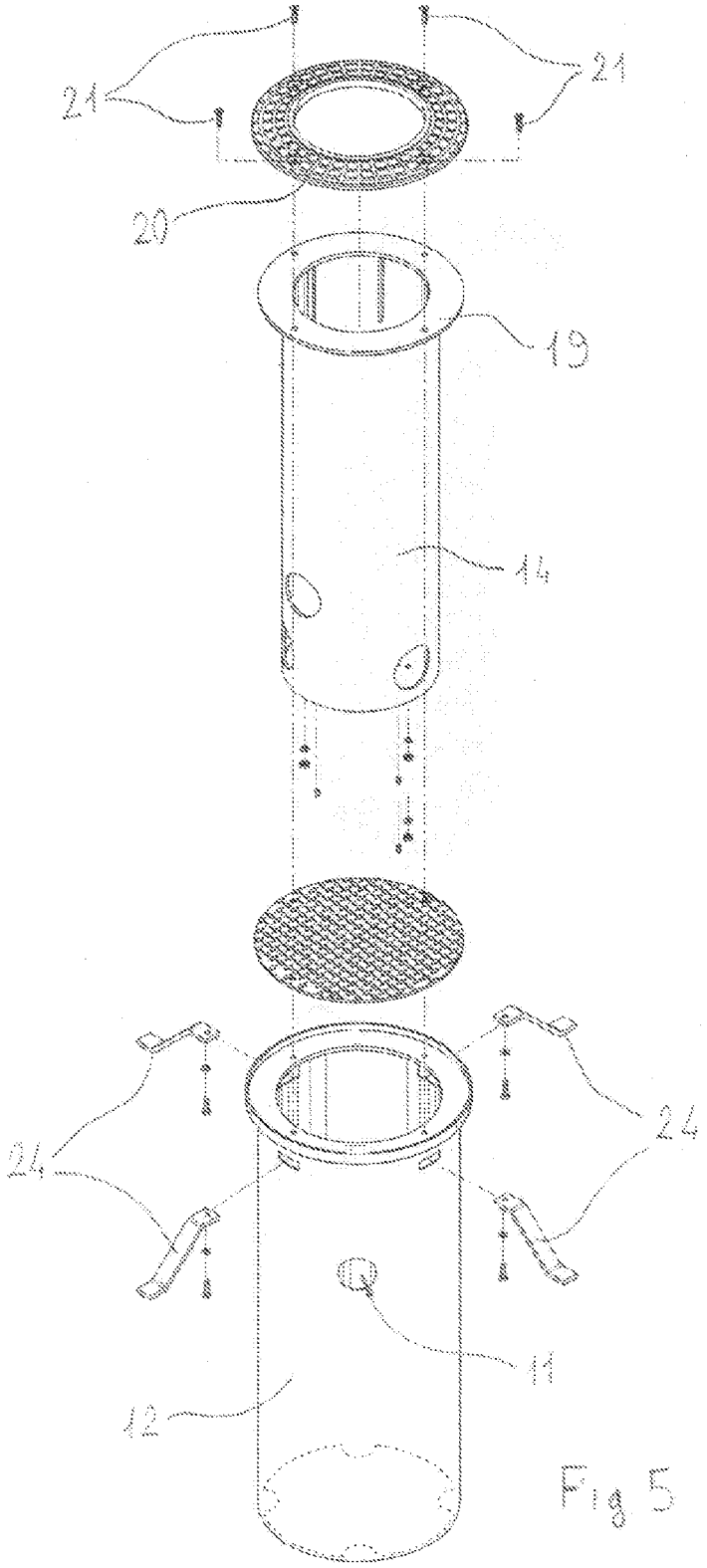

Fig 5

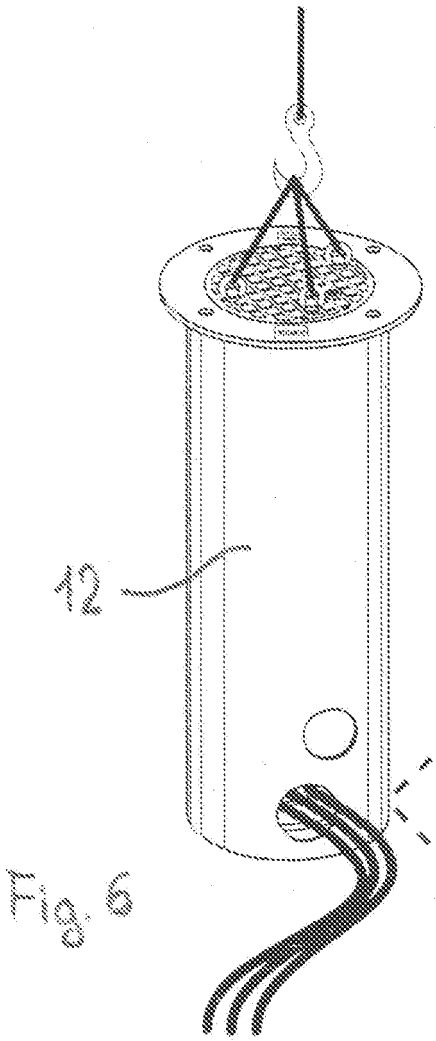

Fig. 6

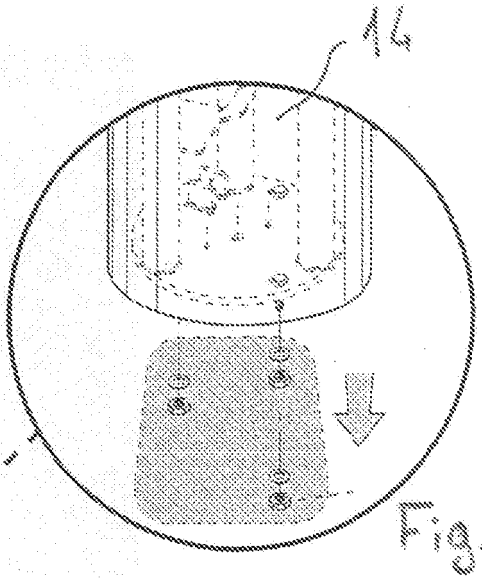

Fig. 7

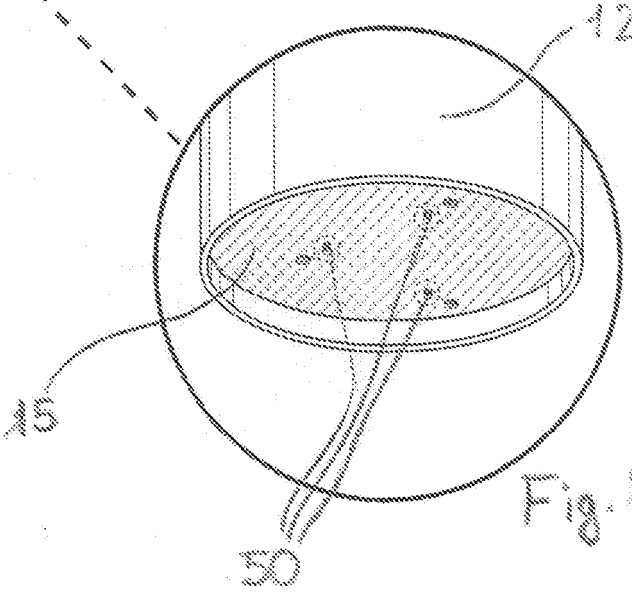

Fig. 8