

FALLING AND DEATH LEAP DEFENSE ROTATING CYLINDER

SYSTEM

1. Field

[0001] The present invention relates to a falling and death leap
5 defense rotating cylinder system, and more particularly, to a falling and
death leap defense rotating cylinder system that is capable of inhibiting
a falling and death leap of a death leap attempter more effectively by
using a visible unit installed detachably in a supporter or a rotator.

10 2. Background

[0002] South Korea's suicidal death rate in 2011 was 31.7
persons per population of 100 thousand, marking the highest among
OECD countries since 2003. Even though the government put forth
suicide prevention comprehensive measures twice in each of 2004 and
15 2009, the suicidal rates are still increasing.

[0003] Meanwhile, in recent days, especially, suicidal rates of
falling from bridges, high-rise buildings and the like are rapidly
increasing. Facilities for preventing such suicidal falls include fences
installed on the edges of bridges, high-rise buildings and like.

20 **[0004]** Fences installed as bridge rails constructed along rivers or
the sea are installed in a relatively low height of within 1m in
consideration of wind load applied to the bridges and harmony with the
surrounding scenery or design and how they look from a distance and

the like. As aforementioned, since such conventional fences are installed in low heights, they are not effective in preventing a death leap attempter from climbing the fences and deliberately making a death leap.

5 **[0005]** Meanwhile, fences for rooftops of large buildings must be installed in a height of 2 to 3m so as to prevent any falls. However, in most cases, fences are being installed in heights of 1 to a little over 1.2m for cost and aesthetic reasons, and thus fences installed in buildings cannot effectively prevent deliberate death leaps just like in
10 bridges.

[0006] Korean Registered Patent no. 10-1631813 discloses a Death Leap Defense Rotating Cylinder System.

[0007] The Death Leap Defense Rotating Cylinder System of Korean Registered Patent no. 10-1631813 includes a supporter
15 installed in a structure and a rotator rotatably installed in the supporter and that rotates, wherein the system inhibits a death leap attempt of a death leap attempter using rotation of the rotator as the death leap attempter grasps the rotator.

[0008] According to the Death Leap Defense Rotating Cylinder
20 System of Korean Registered Patent no. 10-1631813, the position of the supporter is fixated. Therefore, there is a problem where, if the death leap attempter inhibits the rotation of the rotator using other tools and devices etc., and then climbs while grasping the rotator and supporter, chances of a successful death leap becomes very high.

SUMMARY

[0009] Therefore, a purpose of the present disclosure is to solve the aforementioned problems of prior art, that is, to provide a falling
5 and death leap defense rotating cylinder system that is capable of inhibiting a falling and death leap of a death leap attempter more effectively by using a visible unit that is detachably installed in a supporter or a rotator.

[0010] The aforementioned purpose is achieved by a falling and
10 death leap defense rotating cylinder system, including a supporter; a rotator that is rotatably installed in the supporter, and that inhibits a death leap of a death leap attempter by rotating when grasped by the death leap attempter; and a visible unit that forms a cutting edge, and that is detachably installed in any one or more of the supporter and the
15 rotator.

[0011] Further, the visible unit may be installed in a sliding form in any one or more of the supporter and the rotator.

[0012] Further, the supporter may be installed in either a ground or a structure.

20 [0013] Further, the supporter may change posture when the death leap attempter grasps the rotator and thus external force is applied, so that a center of gravity of the death leap attempter is disturbed.

[0014] Further, the rotator may include a pipe that forms inner space, an axis that is installed in the supporter and that is arranged in the inner space, and a bearing that contacts an inner circumference of the pipe and that is connected to the axis so as to be rotatable in the
5 inner space.

[0015] Further, the supporter may include a combining unit combined with the ground or the structure, and a main body where the rotator is installed on one end and that is formed in a narrower width than the combining unit so to be installed in the combining unit.

10 **[0016]** Further, the combining unit may be combined with the structure by suppressing an outer surface of the structure.

[0017] Further, the combining unit may be provided to have a predetermined angle against the ground.

[0018] Further, the rotator may be provided in one pair and may
15 be arranged to be spaced apart by a predetermined distance, and may further include a plate unit that is installed in the supporter but is arranged in the predetermined distance, and that has penetrating holes formed so that fluid can pass through.

[0019] Further, the plate unit may be provided in plural, and may
20 be installed in the supporter such that a portion thereof face each other.

[0020] Further, the plate unit may be made of polycarbonate.

[0021] According to the present disclosure, due to the visible unit that is detachably installed in the supporter or the rotator, a falling and

death leap of a death leap attempter can be inhibited more effectively.

[0022] Further, according to the present disclosure, there is an effect of installing the combining unit in the structure without damaging the structure.

5 **[0023]** Further, according to the present disclosure, in the case where a death leap attempter grasps the rotator in order to attempt a death leap, the posture of the supporter changes, and thus the center of gravity of the death leap attempter may be disturbed, and accordingly, the death leap attempter is effectively prevented from
10 going over the supporter.

[0024] Further, according to the present disclosure, there is an effect of inhibiting not only the death leap of the death leap attempter but also preventing others besides the death leap attempter from falling as well. That is, in areas with high risk of falling, there is an
15 effect of preventing safety accidents of children or adults and the like from falling due to negligence.

[0025] Further, according to the present disclosure, as the main body is installed in the combining unit such that it has a predetermined angle against the ground, the death leap attempter can be prevented
20 more effectively from grasping the rotator and the main body to climb over.

[0026] Further, according to the present disclosure, due to the main body that is formed in a narrower width than the combining unit, there is an effect of saving manufacturing costs of the supporter.

[0027] Further, according to the present disclosure, due to a projection formed in the main body, the death leap attempter can be effectively prevented from grasping the supporter and climbing over.

[0028] Further, according to the present disclosure, due to the
5 plate unit that is arranged in the predetermined distance between the plurality of rotators and that has penetrating holes for fluid to pass through, scenery is secured, and at the same time, wind load applied to the structure can be minimized.

[0029] Further, according to the present disclosure, due to the
10 plate unit provided in plural and that is installed in the supported such that one portion thereof face each other, a flow route for fluid to flow is additionally secured, and accordingly, there is an effect of further reducing the wind load applied to the structure.

15 **BRIEF DESCRIPTION OF THE DRAWINGS**

[0030] FIG. 1 illustrates an overall front view of a falling and death leap defense rotating cylinder system according to a first embodiment of the present disclosure;

[0031] FIG. 2 illustrates an overall rear view of the falling and
20 death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0032] FIG. 3 illustrates a side view of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0033] FIG. 4 illustrates a side view of a first operation of a main body of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0034] FIG. 5 illustrates a side view of a second operation of the
5 main body of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0035] FIG. 6 illustrates a side view of a falling and death leap defense rotating cylinder system according to a first modified example of the present disclosure;

10 **[0036]** FIG. 7 illustrates a side view of a falling and death leap defense rotating cylinder system according to a second modified example of the present disclosure;

[0037] FIG. 8 illustrates a rotator and a supporter of the falling and death leap defense rotating cylinder system according to the first
15 embodiment of the present disclosure being combined with each other;

[0038] FIG. 9 illustrates the supporter of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure being combined with the structure;

[0039] FIG. 10 illustrates a bearing of the falling and death leap
20 defense rotating cylinder system according to the first embodiment of the present disclosure rotating in a counterclockwise direction;

[0040] FIG. 11 illustrates the bearing of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure rotating in a clockwise direction;

[0041] FIG. 12 illustrates an electrical configuration connected to a control unit of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0042] FIG. 13 illustrates an operation of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0043] FIG. 14 illustrates a visible unit installed in the supporter and the rotator of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0044] FIG. 15 illustrates an installation groove formed in the rotator of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure;

[0045] FIG. 16 illustrates installing the visible unit in the installation groove of the rotator of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure in a sliding form;

[0046] FIG. 17 illustrates the supporter of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure installed on ground;

[0047] FIG. 18 illustrates a form in which a combining unit of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure is installed in a structure;

[0048] FIG. 19 illustrates an overall front view of a falling and death leap defense rotating cylinder system according to a second

embodiment of the present disclosure;

[0049] FIG. 20 illustrates an overall rear view of the falling and death leap defense rotating cylinder system according to the second embodiment of the present disclosure; and

5 [0050] FIG. 21 illustrates a side view of the falling and death leap defense rotating cylinder system according to the second embodiment of the present disclosure.

DETAILED DESCRIPTION

10 [0051] Hereinbelow, with reference to the attached drawings, the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure will be explained in detail.

[0052] FIG. 1 illustrates an overall front view of the falling and death leap defense rotating cylinder system according to the first
15 embodiment of the present disclosure; FIG. 2 illustrates an overall rear view of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure; FIG. 3 illustrates a side view of the falling and death leap defense rotating cylinder system according to the first embodiment of the present
20 disclosure; FIG. 4 illustrates a side view of a first operation of a main body of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure; FIG. 5 illustrates a side view of a second operation of the main body of the falling and death leap defense rotating cylinder system according to the

first embodiment of the present disclosure; FIG. 6 illustrates a side view of a falling and death leap defense rotating cylinder system according to a first modified example of the present disclosure; FIG. 7 illustrates a side view of a falling and death leap defense rotating cylinder system according to a second modified example of the present disclosure; FIG. 8 illustrates a rotator and a supporter of the falling and death leap defense rotating cylinders system according to the first embodiment of the present disclosure being combined with each other; FIG. 9 illustrates the supporter of the falling and death leap defense rotating cylinders system according to the first embodiment of the present disclosure being combined with the structure; FIG. 10 illustrates a bearing of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure rotating in a counterclockwise direction; FIG. 11 illustrates the bearing of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure rotating in a clockwise direction; FIG. 12 illustrates an electrical configuration connected to a control unit of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure; FIG. 13 illustrates an operation of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure; FIG. 14 illustrates a visible unit installed in the supporter and the rotator of the falling and death leap defense rotating cylinder system according to the first embodiment of

the present disclosure; FIG. 15 illustrates an installation groove formed in the rotator of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure; FIG. 16 illustrates installing the visible unit in the installation groove of the rotator of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure in a sliding form; FIG. 17 illustrates the supporter of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure installed on ground; and FIG. 18 illustrates a form in which a combining unit of the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure is installed in a structure.

[0053] As illustrated in FIGs. 1 to 18, the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure 100 includes the supporter 110, the rotator 120, a surveillance camera 130, a speaker 140, a control center 150 and the visible unit 160.

[0054] The supporter 110 is installed on a ground or a structure, and the rotator 120 that will be explained hereinafter is to be installed on the supporter 110.

[0055] Here, the ground may be a floor surface where the supporter 110 is to be installed, that is, the floor surface of an apartment, high-rise building, facility at an edge of a roof of a general housing building or bridge, freeway, overhead walkway, ship and the

like.

[0056] Further, here, the structure may be an apartment, high-rise building, facility at an edge of a roof of a general housing building or bridge, freeway, overhead walkway, existing rails or theater installed
5 on both edges of a ship, tourist side, rails installed in a playground, objects such as H beam installed in other places with high risk of fall and the like.

[0057] That is, the supporter 110 may be installed solely on the ground using an anchor (refer to FIG. 17), installed on the ground in an
10 earth work method, installed on an upper end of an H beam installed on the ground (refer to FIG. 17), or installed on existing rails.

[0058] In the case where the supporter 110 is installed on existing rails, in installing a death leap defense system, the inconvenience of removing the entirety of the existing rails is reduced,
15 and when constructing the death leap defense system, the existing rails can be utilized as there are, and thus there is an advantage of shortening the construction period and saving the construction costs, and also an advantage of easy repair and maintenance.

[0059] Such a supporter 110 changes posture such that the
20 center of gravity of the death leap attempter is disturbed when external force is applied as the death leap attempter grasps the rotator 120 that will be explained hereinafter. One end of the supporter 110 is installed in the structure, while on the other end of the supporter 110, the rotator 120 that will be explained hereinafter may be installed such that

it is rotatable.

[0060] The supporter 110 may be manufactured in a casting method. The supporter 110 may be manufactured in various lengths depending on the site situations. However, when the supporter 110 is
5 long, there is a problem where the supporter 100 may be distorted. Therefore, the supporter 110 may have a protruding wing at one side surface to prevent the aforementioned problem of distortion.

[0061] Meanwhile, more specifically, the supporter 110 includes the combining unit 111 and the main body 112.

10 **[0062]** The combining unit 111 is combined with the ground or the structure, and the main body 112 that will be explained hereinafter is installed on an upper surface of the combining unit 111. Such a combining unit 111 may be combined with the structure by a locking member.

15 **[0063]** Meanwhile, in the case where the combining unit 111 is being combined with the structure in a method such as bolting combination and the like (combination in the form of damaging the structure itself), there occurs a problem regarding the safety rating of the existing structure. Therefore, in the case where the combining unit
20 111 is being combined with the structure, it is desirable that the combining unit 111 is combined with the structure as it suppresses an outer surface of the structure, as illustrated in FIG. 18. (This does not affect the rating of the structure).

[0064] The main body 112 is where the rotator 120 that will be

explained hereinafter is to be installed on one end of the main body 112, and the other end of the main body 112 is installed on an upper surface of the combining unit 111 mentioned above. Such a main body 112 is formed in a narrower wide than the combining unit 111. That is, the main body 112 is installed on the upper surface of the combining unit 111 in a direction perpendicular to the direction in which the combining unit 111 is installed in the structure. Here, the width of the main body 112 is formed to be narrower than the width of the combining unit 111.

10 **[0065]** According to the combining structure of the main body 112, less material is input when manufacturing the main body 112, and thus there is an effect of saving the manufacturing cost of the main body 112.

[0066] Meanwhile, the main body 112 may be provided to have a predetermined angle x against the ground. It is desirable that the predetermined angle x is provided to be between 40 and 75 degrees, which includes both acute and obtuse angles against the ground. That is, in the case where the predetermined angle x is an acute angle, the main body 111 tilts towards the death leap attempter, and in the case
15 where the predetermined angle x is an obtuse angle, the main body 111 tilts away from the death leap attempter (refer to FIGs. 3 and 6).

20 **[0067]** Further, such a main body 112 may be manufactured in various forms that suit the surrounding environment in consideration of the surrounding environment (refer to FIG. 7).

[0068] Further, on such a main body 112, a projection 112d may be formed. Due to such a projection 112d, the death leap attempter can be effectively prevented from trying to grasp the supporter 110 and climbing over.

5 **[0069]** Further, on one side surface of the main body 112, an installation groove may be formed along a longitudinal direction. And on such an installation groove, the visible unit 160 that will be explained hereinafter may be detachably installed in a sliding method.

[0070] According to the aforementioned visible unit 160, the
10 death leap attempter is prevented from grasping the main body 112 in the first place, and thus the death leap attempt of the death leap attempter can be inhibited more effectively.

[0071] Meanwhile, as illustrated in FIGs. 4 and 5, on the main body 112, an elastic means (not illustrated) may be installed for
15 allowing an upper end of the main body 112 to tilt towards the ground when a predetermined external force is applied to the upper end of the main body 112 and for restoring the upper end of the main body 112 when the external force is removed. According to such an elastic means (not illustrated), in the case where the death leap attempter grasps a
20 pipe 121 installed on the upper end of the main body 111, the pipe 121 tilts towards the ground, thereby disturbing the center of gravity of the death leap attempter. Therefore, according to such an elastic means (not illustrated), the death leap attempt of the death leap attempter can be inhibited more effectively.

[0072] The rotator 120 is rotatably installed on one end of the main body 112 mentioned above. When grasped by the death leap attempter, the rotator 120 rotates and inhibits the death leap of the death leap attempter.

5 **[0073]** Such a rotator 120 may be provided in plural, and may be slantly installed on the main body 112 sequentially. Here, it is desirable that the distance between the rotators 120 is provided to be smaller than the narrowest width of a normal adult's head (13cm to 15cm), so that the death leap attempter cannot go through. Meanwhile, supposing
10 a normal adult's height is 170cm, considering the aforementioned distance of the rotators 120, it is desirable that three rotators 120 are provided and arranged sequentially.

[0074] The aforementioned rotator 120 includes a pipe 121, an axis 122, a bearing 123 and a pressure sensor 124.

15 **[0075]** The pipe 121 forms inner space where the axis 122 and bearing 123 that will be explained hereinafter are to be installed. When grasped by the death leap attempter, the pipe 121 contacts the bearing 123 inside and rotates, thereby easily preventing the death leap attempter from grasping the pipe 121 and climbing over.

20 **[0076]** It is desirable that such a pipe 121 is provided in a greater diameter than a normal person's hand span so that it cannot be easily grasped by the death leap attempter.

[0077] Further, it is desirable that such a pipe 121 is made of aluminum so that it has reduced weight but increased strength.

[0078] Meanwhile, on such a pipe 121, the pressure sensor 124 may be installed, and near the pipe 121, facilities such as a surveillance camera 130 and a speaker 140 that will be explained hereinafter may be installed. By the facilities such as the pressure sensor 124, the surveillance camera 130 and the speaker 140, when the death leap attempter grasps the pipe 121, the control center 150 may perceive this immediately, and generate alarm sounds with the speaker 140 and input management manpower instantly at the same time. By doing this, death leaps of death leap attempters can be inhibited more effectively.

10 **[0079]** Further, as illustrated in FIG. 7, on an outer circumference of such a pipe 121, a plurality of blades 121a may be installed along a longitudinal direction of the pipe 121. The blades 121a may make it more difficult for the death leap attempter to grasp the pipe 121, thereby inhibiting the death leap attempt of the death leap attempter
15 more effectively.

[0080] Meanwhile, as illustrated in the expanded portion in FIG. 7, such blades 121a may be bent at an end side while having an inclination against a direction perpendicular to a tangent line of the outer circumference of the pipe 121. Due to such shapes of the blades
20 121a, it is practically impossible for the death leap attempter to grasp the pipe 121, and thus the death leap attempt of the death leap attempter can be inhibited more effectively.

[0081] In the case where such blades 121a are installed in the pipe 121, the pipe 121 must be provided in a smaller diameter than the

diameter of the pipe 121 when the blades 121a are not installed, in which case there is an effect of significantly saving the manufacturing cost of the pipe 121.

[0082] Further, when such blades 121a are installed in the pipe
5 121, the pipe 121 may be rotated by wind. If an electric charge module is connected to the pipe 121 that rotates by the aforementioned process, an effect of producing electricity may also be expected.

[0083] Further, in such a pipe 121, a brake means (not illustrated) for inhibiting rotation of the pipe 121 may be additionally installed.
10 Such a brake means (not illustrated) is installed to be interlocked to a proximity sensor (not illustrated) that senses presence of an object near the pipe 121. Therefore, if there is no death leap attempter near the pipe 121, the brake means (not illustrated) operates and thus the pipe 121 does not rotate, but when a death leap attempter approaches
15 near the pipe 121, the proximity sensor (not illustrated) may sense this and release the brake means (not illustrated), thereby rotating the pipe 121. According to the aforementioned process, the pipe 121 being rotated by the effects of the wind is effectively prevented, and thus the problem where the pipe 121 is rotated by the wind to generate noise is
20 effectively prevented.

[0084] Further, in the pipe 121, an installation groove may be formed along the longitudinal direction. And in such an installation groove, the visible unit 160 that will be explained hereinafter may be detachably installed in a sliding method.

[0085] Due to the aforementioned visible unit 160, the death leap attempter is prevented from grasping the pipe 121 in the first place, and thus the death leap attempt of the death leap attempter can be effectively inhibited.

5 **[0086]** Further, the pipe 121 may be made of polycarbonate and that its inside is transparent. If a lighting (not illustrated) is installed inside such a transparent pipe 121, there is an aesthetic effect and an effect of being utilized as traffic inducement etc. Further, when using the transparent pipe 121, there is an effect of displaying a phrase,
10 photo, image, hologram and the like for preventing death leap attempts inside the pipe 121, thereby delivering a message that is helpful to death leap attempters.

[0087] The axis 122 is installed at one end of the main body 112, and arranged in the inner space mentioned above and thus connected
15 to the bearing 123 installed in the inner space. Such an axis 122 may be formed such that its diameter increases along the direction towards the one end of the main body 112 in the bearing, and thus when seen from the side surface, provided in a taper form (that is, a shape where an upper side is horizontal and a lower side has an inclination).

20 **[0088]** Due to such a shape of the axis 122, fluid being introduced from outside to an upper side surface of the axis 122 can easily flow towards the main body 112 along an inclined plane at a lower side of the axis. (Meanwhile, when the axis 122 is rotated by external force and then the external force is removed, by the self-

weight of the lower side portion of the axis 122, the axis 122 is naturally rearranged in the form where the upper side is horizontal and the lower side has an inclination).

[0089] Due to such a shape of the axis 122, when a substance
5 from outside, such as rain, moisture and snow gets into the inner space along the axis 122, by changes in the diameter of the axis 122, that is by the inclined plane of the axis 122, the substance from outside cannot get into the inner space, but can easily escape outside again along the inclined plane. Accordingly, a phenomenon where the bearing
10 123 freezes at winter and thus keeping the pipe 121 from rotating is effectively prevented.

[0090] The bearing 123 is connected to the axis 122 such that it is rotatable in the inner space, and contacts the inner circumference of the pipe 121 mentioned above. Due to such a bearing 123, when the
15 death leap attempter grasps an outer surface of the pipe 121, the pipe 121 can be easily rotated.

[0091] Such a bearing 123 is arranged in the inner space. That is, the bearing 123 is installed inside the pipe 121 without being exposed outside, and thus there is a low chance that it can be frozen by the
20 substance from outside such as rain, moisture and snow. Accordingly, a phenomenon where the pipe 121 is not rotated at winter is effectively prevented.

[0092] In such a bearing 123, there may be installed a plurality of auxiliary axes 123a on its outer surface such that when the pipe 121

rotates, the pipe 121 faces only towards the road, and a stumbling member 123b that is made of an elastic material and that is installed in one or more of the plurality of auxiliary axes 123a.

[0093] As illustrated in FIG. 10, when the bearing 123 is rotated in a counterclockwise direction, the stumbling member 123b is rotated as it is since it is not interrupted by the shape formed inside the bearing 123. However, as illustrated in FIG. 11, when the bearing 123 is rotated in a clockwise direction, the stumbling member 123b gets stuck due to the interruption by the shape formed inside the bearing 123, and accordingly, rotation of the pipe 121 is inhibited.

[0094] In the case where the bearing 123 rotates the pipe 121 in only one direction as mentioned above, when the death leap attempter grasps the pipe 121, the pipe 121 is rotated towards the inside, that is towards the death leap attempter, and thus the death leap and falling of the death leap attempter can be effectively prevented. Further, for example, there may be a case where a worker steps on the pipe 121 with his/her foot while working near the pipe 121 using a ladder and the like. In this case, the pipe 121 will be rotated towards the inside, and thus the worker may fall towards the road. Therefore, due to such a bearing 123, safety of the worker can be guaranteed effectively.

[0095] The pressure sensor 124 is installed in the bearing 123, and senses the death leap attempter contacting the bearing 123 and generates contact information, and then delivers the generated contact information to the control center 150. Meanwhile, it is desirable that

such a pressure sensor 124 is installed in the inner space of the pipe 121 mentioned above so that it is prevented from being damaged by outside dust, rain and the like.

[0096] Due to the rotator 120 including such a pipe 121, axis 122, bearing 123 and pressure sensor 124, when the rotator 120 is grasped by the death leap attempter, the rotator 120 can rotate and the death leap of the death leap attempter can be inhibited effectively.

[0097] The surveillance camera 130 is installed in the structure side and photographs the death leap attempter and generates image information. The surveillance camera 130 is electrically connected to the control center 150 that will be explained hereinafter to transmit the generated image information to the control center 150. Due to such a surveillance camera 130, when the death leap attempter attempts the death leap, the control center 150 may sense the attempt immediately, and thereby input management manpower to the death leap attempter instantly.

[0098] The speaker 140 is installed in the structure side and generates alarm sounds. The speaker 140 is electrically connected to the control center 150 and is controlled by the control center 150. Due to such a speaker 140, it is possible to easily inhibit the death leap of the death leap attempter.

[0099] The control center 150 monitors the death leap attempter based on the information photographed in the surveillance camera 130. When the pressure sensor senses that external force is applied to the

pipe 121, the control center 150 operates the speaker 140 and inputs the management manpower to the death leap attempter.

[00100] Due to such a control center, not only is it possible to monitor the death leap attempt of the death leap attempter more effectively, but it is also possible to prevent the death leap of the death leap attempter effectively.

[00101] The visible unit 160 forms a plurality of cutting edges along a longitudinal direction. The visible unit 160 is detachably installed in a sliding form in an installation groove formed in any one or more of the aforementioned supporter 110 and the rotator 120.

[00102] Due to the aforementioned visible unit 160, the death leap attempter is prevented from grasping the supporter 110 or the rotator 120 from the first place, and thus the death leap attempt of the death leap attempter can be inhibited more effectively.

[00103] Therefore, according to the falling and death leap defense cylinder system according to the first embodiment of the present disclosure 100 that includes the supporter 110, the rotator 120, the surveillance camera 130, the speaker 140, the control center 150 and the visible unit 160, due to the visible unit 160 detachably installed in the supporter 110 or the rotator 120, the falling and death leap of the death leap attempter can be inhibited more effectively, and there is an effect of installing the combining unit in the structure without damaging the structure.

[00104] Further, according to the falling and death leap defense

rotating cylinder system according to the first embodiment of the present disclosure 100, when the death leap attempter attempts the death leap, the center of gravity is disturbed, and thus the death leap of the death leap attempter can be inhibited effectively, and there is an effect of preventing a person other than the death leap attempter from falling. That is, in areas with high risk of falling, there is an effect of preventing safety accidents of children or adults and the like from falling due to negligence.

[00105] Hereinafter, with reference to the attached drawings, a falling and death leap defense rotating cylinder system according to the second embodiment of the present disclosure will be explained in detail.

[00106] The falling and death leap defense rotating cylinder system according to the second embodiment of the present disclosure 200 includes the supporter 110, the rotator 120, the surveillance camera 130, the speaker 140, the control center 150, a plate unit 260, a connector 270 and a lighting 280.

[00107] Here, the supporter 110, the rotator 120, the surveillance camera 130, the speaker 140 and the control center 150 are the same as those explained in the falling and death leap defense rotating cylinder system according to the first embodiment of the present disclosure 100, and thus repeated explanation will be omitted.

[00108] FIG. 19 illustrates an overall front view of the falling and death leap defense rotating cylinder system according to the second embodiment of the present disclosure; FIG. 20 illustrates an overall

rear view of the falling and death leap defense rotating cylinder system according to the second embodiment of the present disclosure; and FIG. 21 illustrates a side view of the falling and death leap defense rotating cylinder system according to the second embodiment of the present disclosure.

[00109] As illustrated in FIGs. 19 to 21, the plate unit 260 is installed in the supporter 110 but is arranged in the distance between one pair of rotators 120, and has penetrating holes formed so that fluid can pass through.

10 **[00110]** Due to such penetrating holes formed in the plate unit 260, wind may flow, and accordingly, wind load can be greatly reduced. Meanwhile, such penetrating holes may be formed in the form of long holes formed according to the height direction of the plate unit 260, but there is no limitation thereto. In the case of forming such penetrating
15 holes as logos, figures, pictures and the like, there is an effect of increased view and aesthetic aspects. In the case of forming the penetrating holes as logos, figures, pictures and the like, and then installing a lighting 280 that will be explained hereinafter on a bottom end of the penetrating holes, light is focused along the cutting plane of
20 the penetrating holes, providing an effect of significantly improving the scenery at night time.

[00111] Meanwhile, such a plate unit 260 may be provided in plural, and may be installed in the supporter 110 such that a portion thereof faces each other. Due to such a plate unit 260, there is secured

an additional flow route where wind flows, and accordingly, there is an effect of reducing the wind load being applied to the structure.

[00112] It is desirable that such a plate unit 260 is made of polycarbonate such that the penetrating holes can be easily formed and
5 to reduce the entire weight.

[00113] The connector 270 installs the plate unit 260 in the supporter 110. One end of the connector 270 is connected to the plate unit 260, and the other end of the connector 270 is installed in the supporter 110.

10 **[00114]** The lighting 280 radiates light to the penetrating holes so that light is focused along the cutting planes of the penetrating holes. The lighting 280 is installed on a lower side of the plate unit 260.

[00115] As aforementioned, in the case where the penetrating holes are formed as logos, figures and pictures, due to the
15 aforementioned lighting, as light is focused along the cutting planes of the penetrating holes, there is an effect of significantly improving the scenery at night times.

[00116] Therefore, according to the falling and death leap defense cylinder system according to the second embodiment of the present
20 disclosure 200 that includes the aforementioned supporter 110, the rotator 120, the surveillance camera 130, the speaker 140, the control center 150, the plate unit 260, the connector 270 and the lighting 280, the death leap of the death leap attempter can be effectively inhibited, the scenery can be secured, and the wind load applied to the structure

can be minimized at the same time.

[00117] The right of the scope of the present disclosure is not limited to the aforementioned embodiments but may be realized in various types of embodiments within the claims attached hereto. It will
5 be apparent to one of ordinary skill in the art that various changes in form and details may be made in these examples without departing from the spirit and scope of the claims and their equivalents.

[00118] **【Reference numerals】**

10 10 : STRUCTURE

10 100: FALLING AND DEATH LEAP DEFENSE ROTATING CYLINDER
SYSTEM ACCORDING TO A FIRST EMBODIMENT OF THE PRESENT
DISCLOSURE

 110: SUPPORTER

 111: COMBINING UNIT

15 112: MAIN BODY

 112a: FIRST UNIT

 112b: SECOND UNIT

 112c: THIRD UNIT

 112d: PROJECTION

20 120: ROTATOR

 121: PIPE

 121a: BLADE

 122: AXIS

 123: BEARING

123a: AUXILIARY AXIS

123b: INHIBITING MEMBER

124: PRESSURE SENSOR

130: SURVEILLANCE CAMERA

5 140: SPEAKER

150: CONTROL CENTER

160: VISIBLE UNIT

200: IMPROVED DEATH LEAP DEFENSE ROTATING CYLINDER

SYSTEM ACCORDING TO A SECOND EMBODIMENT OF THE PRESENT

10 DISCLOSURE

260: PLATE UNIT

270: CONNECTER

280: LIGHTING

WHAT IS CLAIMED IS:

1. A falling and death leap defense rotating cylinder system, comprising:

5 a supporter;

a rotator that is rotatably installed in the supporter, and that inhibits a death leap of a death leap attempter by rotating when grasped by the death leap attempter; and

a visible unit that forms a cutting edge, and that is detachably
10 installed in any one or more of the supporter and the rotator.

2. The falling and death leap defense rotating cylinder system of claim 1,

wherein the visible unit is installed in a sliding form in any one or
15 more of the supporter and the rotator.

3. The falling and death leap defense rotating cylinder system of claim 1,

wherein the supporter is installed in either a ground or a
20 structure.

4. The falling and death leap defense rotating cylinder system of claim 3,

wherein the supporter changes posture when the death leap

attempter grasps the rotator and thus external force is applied, so that a center of gravity of the death leap attempter is disturbed.

5 5. The falling and death leap defense rotating cylinder system of any one of claims 1 to 4,

wherein the rotator comprises a pipe that forms inner space, an axis that is installed in the supporter and that is arranged in the inner space, and a bearing that contacts an inner circumference of the pipe and that is connected to the axis so as to be rotatable in the inner
10 space.

6. The falling and death leap defense rotating cylinder system of claim 5,

wherein the supporter comprises a combining unit combined with
15 the ground or the structure, and a main body where the rotator is installed on one end and that is formed in a narrower width than the combining unit so to be installed in the combining unit.

20 7. The falling and death leap defense rotating cylinder system of claim 6,

wherein the combining unit is combined with the structure by suppressing an outer surface of the structure.

8. The falling and death leap defense rotating cylinder system of

claim 7,

wherein the combining unit is provided to have a predetermined angle against the ground.

5 9. The falling and death leap defense rotating cylinder system of claim 8,

wherein the rotator is provided in one pair and is arranged to be spaced apart by a predetermined distance,

 further comprising a plate unit that is installed in the supporter
10 but is arranged in the predetermined distance, and that has penetrating holes formed so that fluid can pass through.

 10. The falling and death leap defense rotating cylinder system of claim 8,

15 wherein the plate unit is provided in plural, and is installed in the supporter such that a portion thereof face each other.

 11. The falling and death leap defense rotating cylinder system of claim 10,

20 wherein the plate unit is made of polycarbonate.