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(54) Burglar arresting assembly

(57) A criminal arresting method includes preparing a frame assembly, activating a first weight releasing device (16) to allow a first weight (31) to fall inside the frame assembly, activating reducing of size of a first loop (15) inside the frame assembly, activating a second weight releasing device (17) to allow a second weight (18) to fall relative to the frame assembly and activating reducing of size a second loop (191) inside the frame assembly.

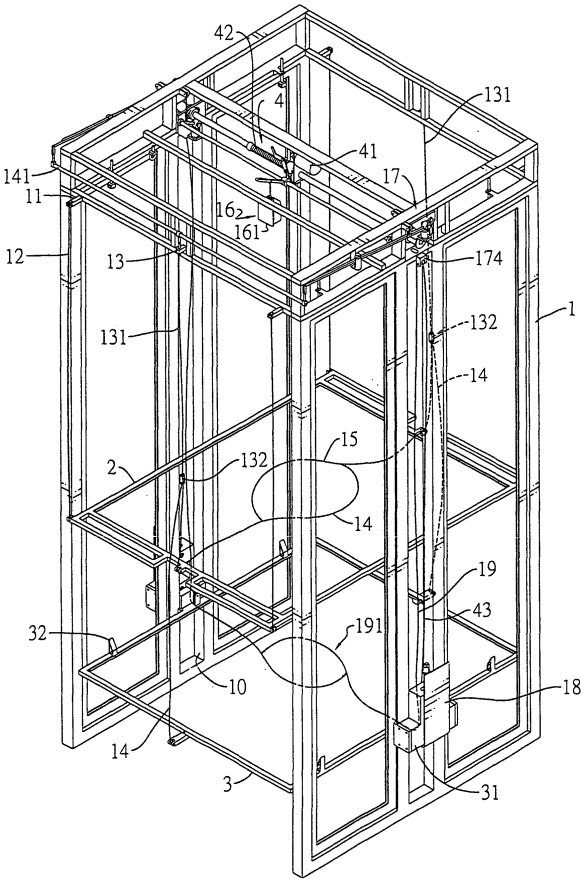

FIG. 2

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Description

1. Field of the Invention

[0001] The present invention relates to an assembly for arresting a criminal, and more particularly to the assembly for arresting a criminal which is able to seize the suspect's chest and feet to prevent the suspect from fleeing.

2. Description of Related Art

[0002] Throughout the world, the proliferation of armed robbery, especially the use of firearms against financial institutions, has been on the increase for many years. One reason for this is the apparent ease with which the criminals can rob banks, convenience stores and so on. In fact, staff at such establishments are generally told to simply comply with the criminals' demands, and the general public is also cautioned against any acts of heroism. The irony is that criminals probably feel encouraged to commit such crimes due to the tolerance of the authorities.

[0003] Generally, security guards are stationed inside a financial or transaction business center to prevent any unexpected accidents. However, due to the rampant gun smuggling and the infested black-market, almost every outlaw owns a powerful pistol. It is known that every policeman carries a standard issued 90mm handgun, but not every security guard is equipped with a handgun, some may even have a stick and a flashlight as the standard issued equipment. For those business centers where there are no security guards to safeguard the customers as well as to the properties from the potential danger, the outlaws may easily getaway without any attempt from anyone in the business centers trying to stop them. Even when there is some brave passersby trying to stop the outlaws, the passersby will be warned afterward not to do things to jeopardize one's own life. Therefore, it is commonly seen that the convenient store keepers are advised to let the rubbers take the money and run. It's also advised not to do things to agitate the outlaws in order to save one's own life. The passive attitude toward the outlaws seems to encourage the crime and thus positive measures are to be taken to effectively stop crime rate increase.

[0004] To overcome the shortcomings, the present invention tends to provide an improved assembly for arresting a criminal to mitigate the aforementioned problems.

[0005] The primary objective of the present invention is to provide an improved assembly for arresting a criminal to effectively stop the escape of a criminal.

[0006] Another objective of the present invention is that the assembly for arresting a criminal is able to seize the criminal's chest and the feet such that even a still-armed criminal who has been arrested is not able to threaten anyone. Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

In the drawings:

[0007]

Fig. 1 is a perspective view of the arrest device of the present invention;
Fig. 2 is a schematic perspective view showing the full employment of the arrest device of the present invention so as to demonstrate the components of the present invention;
Fig. 3 is a side view showing the structure of the first weight releasing device;
Fig. 4 is an enlarged schematic side view showing that the first weight is securely attached to the first weight releasing device;
Fig. 5 is an enlarged schematic side view showing that the first weight is released by the first weight releasing device;
Fig. 6 is a cross sectional view showing the profile of the inner frame;
Fig. 7 is a schematic perspective view showing the employment of the inner frame;
Fig. 8 is a schematic perspective view showing the employment of the inner frame and the outer frame inside the main frame without showing the deployment of the second loop for brevity;
Fig. 9 is a side plan view showing the interrelationship between the second weight releasing device and the second weight;
Fig. 10 is a side plan view showing that the second weight is released by the second weight releasing device;
Fig. 11 is an enlarged partial perspective view showing how the second weight and first weight affect the arrest device to seize a suspect; and
Fig. 12 is a schematic perspective view showing that a suspect is being detained by using the arrest device of the present invention.

[0008] With reference to Figs. 1 and 2, the arrest device configured in accordance with the present invention includes a main frame (1), an inner frame (2) slidably received in the main frame (1) and an outer frame (3) supporting the inner frame (2) and slidably received in the main frame (1).

[0009] The main frame (1) includes multiple columns and multiple rails mutually connected to the columns so as to form a substantially rectangular main frame. The main frame (1) has a pair of guiding tracks (10) oppositely formed on opposed sides of the main frame, multiple first rollers (11) each freely rotatably mounted on a top portion of the main frame (1) and having first wire (12) (four are shown in this embodiment) respectively extending downward from a corresponding one of the first rollers (11) to

securely connect to ends of the inner frame (2) so as to support the inner frame (2). Two holes (13) are defined in opposed sides on the top portion of the main frame (1) and two second wires (131) are respectively extended downward from two driving rods (141) which are laterally mounted on top of the main frame (1). Each second wire (131) has a second roller (132) provided on a free end of the second wire (131) after the second wire (131) has been extended through a corresponding one of the holes (13) to connect to a third wire (14). Each third wire (14) has a first end securely connected to a side face of the outer frame (3) and a second end extending over the second roller (132) and extending through a side face of the inner frame (2). After two second ends of the two third wires (14) are extended over side faces of the inner frame (2), the two second ends of the two third wires (14) are combined to form a first loop (15).

[0010] From the above description, it is noted that the inner frame (2) is held by the first wires (12) and the outer frame (3) is suspended by the combination of the second wires (131) and the third wires (14) after the inner frame (2) and the outer frame (3) are released from the main frame (1).

[0011] With reference to Figs. 3, 4 and 5, to discuss the release mechanism of the main frame (1), it is crucial to learn that the outer frame (3) is provided with two first weights (31) (clearly shown in Fig. 8) integrally and respectively formed on opposed sides of the outer frame (3) and movably received in the guiding tracks (10) of the main frame (1). The main frame (1) has a first weight releasing device (16) to selectively clamp/release the first weight (31) of the outer frame (3). The first weight releasing device includes an electromagnetic valve (161) and a lever (162) pivotally mounted on the top portion of the main frame (1) and having a claw (163) formed on a free end of the lever (162) to correspond to and clamp the first weight (31). Thus when the electromagnetic valve (161) is not energized, the claw (163) is able to securely clamp the first weight (31) and when the electromagnetic valve (161) is energized, the lever (162) is attracted by the electromagnetic valve (161) and pivoted. After the lever (162) is pivoted, the claw (163) releases the first weight (31) to allow the first weight (31) to free fall relative to the main frame (1), as shown in Fig. 5. In order to conceal the first wire (12) and the second wire (131) when the arrest device of the present invention is not employed, the inner frame (2) has a U shaped cross section as indicated in Fig. 6.

[0012] With reference to Fig. 7 and still using Fig. 2 for reference, it is appreciated that when the inner frame (2) is released, the inner frame (2) is held by four first wires (12). Two second wires (131) are extended from opposed sides of the top portion of the main frame (1) to respectively connect to a second roller (132) and then a third wire (14) is extended downward to pass through the side face of the inner frame (2) and connected to the side face of the outer frame (3). Furthermore, the outer frame (3) has spacers (32) formed on the side faces of the outer frame (3) to space apart the outer frame from the inner frame (2) when the inner frame (2) and the outer frame (3) are restricted on the top portion of the main frame (1).

[0013] With reference to Fig. 8, it is noted that when the first weight releasing device is activated to allow the claw (not shown in this drawing) to disengage from the first weight (31), the first weight (31) integrally formed on the opposed sides of the outer frame (3) as well as the outer frame (3) free falls from the top portion of the main frame (1). Due to the addition of the first weight (31) on the outer frame (3), the outer frame (3) has a falling speed greater than that of the inner frame (2) so that the inner frame (2) and the outer frame (3) are separated during their descents. Furthermore, due to the length limitation of the first wires (12) and the second wires (131), the inner frame (2) and the outer frame (3) are respectively stopped at a predetermined position. Of course, the position of the outer frame (3) is designed to be lower than that of the inner frame (2) inside the main frame (1). However, just before the outer frame (3) reached its designated position, the second ends of the two third wires (14) respectively having a previously designed length and extending through the side face of the inner frame (2) are pulled so that the first loop (15) is reduced.

[0014] With reference to Figs. 9 and 10, it is to be appreciated that the main frame (1) further has two second weight releasing devices (17) respectively mounted on opposed side faces of the main frame (1) to respectively control movement of two second weights (18). Each second weight releasing device (17) includes the driving rod (141) extending across the top portion of the main frame (1), a driven rod (171) pivotally connected to one of the rails of the main frame (1) and having a first end fixedly connected to a distal end of the driving rod (141) and a second end provided with a second claw (172) to clamp the second weight (18). Further, it is noted from the depiction of Fig. 2 that a distal end of the second wire (131) is securely connected to the driving rod (141) so that the second wire (131) is able to control movement of the driving rod (141).

[0015] As previously described, after the outer frame (3) falls to the predetermined position, the second wire (131) is stretched by the weight of the outer frame (3) together with the first weight (31). The stretching force to the driving rod (141) forces the driving rod (141) to move, which causes the driven rod (171) to pivot simultaneously. When the driven rod (171) is pivoted, the second claw (172) releases clamping to the second weight (18) and thus the second weights (18) from opposed sides of the main frame (1) fall. Still further, the main frame (1) has two fourth wires (19) respectively provided on opposed sides of the main frame (1) and each having a first end securely connected to a top face of the corresponding second weight (18) after passing over a third roller (174) on the top portion of the main frame (1) and a second end passing through a corresponding one of the second weights (18) and a side face of the outer frame (3) to mutually form a second loop (191) inside the outer

frame (3) with the second end of the other fourth wire (19), as shown in Fig. 2.

[0016] Referring to Fig. 2 and taking reference of Fig. 11, it is noted that the two third wires (14) forming the first loop (15) are connected to each other via a slipknot such that after the inner frame (2) reaches its predetermined position, the continued descent of the outer frame (3) causes the two third wires (14) to be extended, which reduces the first loop (15). When the second weights (18) are released by the second weight releasing device (17), the fourth wire (19) is stretched so that the second loop (191) is reduced.

[0017] With reference to Fig. 12, it is noted that when a person suspected of just committing a crime is trying to flee from the business center installed with the arrest device of the present inventionand is walking right under the main frame (1), an operator is able to activate the first weight releasing device (16) to charge the electromagnetic valve (161) such that the lever (162) is attracted to pivot, which results in the release of the first weight (31) by the claw (163). Because the inner frame (2) is supported and spaced away from the outer frame (3) by the spacer (32) which is integrally formed on the outer frame (3) and the first weight (31) of the outer frame (3) is also integrally formed with the outer frame (3), the release of the first weight (31) allows the inner frame (2) and the outer frame (3) to fall inside the main frame (1). However, due to the addition of the first weight (31) in the outer frame (3), the outer frame (3) has a greater falling speed with respect to the inner frame (2). However, after the outer frame (3) reaches its designated position, the second wire (13) as well as the third wire (14) is stretched. Thus the first loop (15) composed of two distal ends from two opposite third wires (14) is reduced.

[0018] As stated earlier, when the second wire (13) is stretched, the driving rod (141) of the second weight releasing device (17) is pulled, which activates the driven rod (171) to pivot relative to the driving rod (141). Due to the pivotal movement of the driven rod (171), the second claw (172) formed on the free end of the driven rod (171) releases the clamp to the second weight (18). After the second weight (18) is released, the fourth wire (19) is stretched, which reduces the second loop (191). Because the first loop (15) and the second loop (191) are designated to seize the suspect's chest and feet respectively, after the first loop (15) and the second loop (191) are reduced, the suspect is securely arrested.

[0019] Furthermore, to return the inner frame (2) and outer frame (3) to their original positions, a reel (4) is mounted on the top portion of the main frame (1). The reel (4) includes a motor (41) and a threaded bolt (42), as shown in Fig. 2, operably connected to the motor (41) such that the motor (41) is able to drive the threaded bolt (42) to rotate. A fifth wire (43), as shown in Figs. 2 and 8, has a first end securely wound around the threaded bolt (42) and a second securely connected to the first weight (31). Therefore, when the motor (41) is activated, the rotation of the threaded bolt (42) is able to lift the first weight (31), whereby in turn, the outer frame (3) and the inner frame (2) are lifted.

[0020] It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

Claims

1. A criminal arresting method comprising:

   preparing a frame assembly;
   activating a first weight releasing device (16) to allow a first weight (31) to fall inside the frame assembly;
   activating reducing size of a first loop (15) inside the frame assembly;
   activating a second weight releasing device (17) to allow a second weight (18) to fall relative to the frame assembly; and
   activating reducing size of a second loop (191) inside the frame assembly.

2. The method as claimed in claim 1, wherein the frame assembly includes an inner frame (2) and an outer frame (3), wherein the inner frame (2) is supported by and spaced away from the outer frame (3) by spacers (32) formed on side faces of the outer frame (3).

3. The method as claimed in claim 2, wherein the first weight releasing device (16) activating step includes:

   energizing an electromagnetic valve (161);
   pivoting a lever (162) which is pivotally connected to a top portion of a main frame (1); and
   releasing the first weight (31).

4. The method as claimed in claim 3, wherein the first loop size reducing activating step includes
   stopping travelling of the inner frame (2) by first wires (12) each having a first end securely and fixedly connected to the top portion of the main frame (1) and a second end securely connected to side faces of the inner frame (2);
   stopping travelling of the outer frame (3) by a combination of a pair of opposite second wires (131) and a pair of opposite third wires (14), each second wire (131) having a first end securely and fixedly connected to the top portion of the main frame (1) and a second end provided with a first roller (11), and each

third wire (14) having a first end securely and fixedly connected to a side face of the outer frame (3) and a second end passing over the first roller (11) and a side face of the inner frame (2) to form the first loop (15) with the second end of the other third wire (14).

5. The method as claimed in claim 4, wherein the second weight releasing device activating step includes activating movement of a driving rod (141) which is mounted on the top portion of the main frame (1); and pivoting a driven rod (171) to allow a second claw (172) formed on a free end of the driven rod (171) to release clamping to the second weight (18).

6. The method as claimed in claim 5, wherein the second loop (191) is composed of a pair of opposite fourth wires (19) each having a first end securely and fixedly connected to the top portion of the main frame (1) and a second end passing over the second weight (18) and a side face of the outer frame (3) to form the second loop (191) with the second end of the other fourth wire (19).

7. The method as claimed in claim 4, wherein the second ends of the opposite pair of third wires (14) are connected to each other by a slipknot to form the first loop (15).

8. The method as claimed in claim 7, wherein the second ends of the opposite pair of fourth wires (19) are connected to each other by a slipknot to form the second loop (191).

9. A criminal arresting assembly comprising:

a main frame (1);
an inner frame (2) selectively held in a top portion of the main frame (1) and movably received in the main frame (1);
an outer frame (3) detachably connected to the top portion of the main frame (1) to selectively support the inner frame (2) and having a first weight (31) formed on opposed sides of the outer frame (3);
an inner frame holding assembly sandwiched between the top portion of the main frame (1) and side faces of the inner frame (2) to support the inner frame (2) when the inner frame (2) is detached from the top portion of the main frame (1);
an outer frame holding assembly sandwiched between the top portion of the main frame (1) and side faces of the outer frame (3) to support the outer frame (3) when the outer frame (3) is detached from the top portion of the main frame (1);
a first weight releasing device (16) mounted on the top portion of the main frame (1) to selectively release the first weight (31) of the outer frame (3);
a first activating device to activate the first weight releasing device (16) so as to release the first weight (18);
a second weight releasing device (17) mounted on the top portion of the main frame (1) to selectively release the second weight (18);
a second activating device to activate the second weight releasing device (17) so as to release the second weight (18);
a first loop (15) received in the inner frame (2) to have a first dimension when the first weight (31) of the outer frame (3) is securely attached by the first weight releasing device (16) and a second dimension when the first weight (31) of the outer frame (3) is detached by the first weight releasing device (16); and
a second loop (191) received in the outer frame (3) to have a first dimension when the second weight (18) is attached by the second weight releasing device (17) and a second dimension when the second weight (18) is detached by the second weight releasing device (17).

10. The criminal arresting assembly as claimed in claim 9, wherein the inner frame holding assembly comprises multiple first wires (12) each having a first end securely connected to the top portion of the main frame (1) and a second end securely connected to the side faces of the inner frame (2) so as to support the inner frame (2) when the inner frame (2) is away from the top portion of the main frame (1).

11. The criminal arresting assembly as claimed in claim 10, wherein the first weight releasing device (16) comprises a lever (162) movably positioned between a first position and a second position on the top portion of the main frame (1) and a first claw (163) formed on a distal end of the lever (162) to attach to the first weight (31) when the lever (162) is at the first position and to detach the first weight (31) when the lever (162) is at the second position.

12. The criminal arresting assembly as claimed in claim 11, wherein the first activating device is an electromagnetic valve (161) to attract the lever (162) to allow the lever (162) to pivot between the first position and the second position.

13. The criminal arresting assembly as claimed in claim 12, the second weight releasing device (17) comprises a driving rod (141) mounted across the top portion of the main frame (1), a driven rod (171) securely connected to the driving rod (141) and movable between a first position and a second position and a second claw (172) formed on a free end of the driven rod (171) to attach the second weight (18)

when the driven rod (171) is at the first position and detach the second weight (18) when the driven rod (171) is at the second position.

14. The criminal arresting assembly as claimed in claim 13, wherein the second activating device includes two opposite second wires (131) each having a first end securely connected to the driving rod (141) and a second end in connection with the outer frame holding assembly so as to receive weight of the outer frame (3).

15. The criminal arresting assembly as claimed in claim 14, wherein the first loop (15) is composed of two opposite third wires (14) each having a first end passing over a second roller (132) which is suspended by the second end of each of the second wires (131) to securely connect to a side face of the outer frame and a second end extending through a side face of the inner frame so as to form the first loop with the second end of the other second wire.

16. The criminal arresting assembly as claimed in claim 15, wherein the second loop (191) is composed of two opposite fourth wires (19) each having a first end securely connected to the top portion of the main frame (1) and a second end passing through the second weight (18) and a side face of the outer frame (3) so as to form the second loop with the second end of the other fourth wire (19).

17. The criminal arresting assembly as claimed in claim 1 comprising:

a main frame (1);
an inner frame (2) selectively held in a top portion of the main frame (1) and movably received in the main frame (1);
an outer frame (3) detachably connected to the top portion of the main frame (1) to selectively support the inner frame (2) and having a first weight (31) formed on opposed sides of the outer frame (3);
an inner frame holding assembly sandwiched between the top portion of the main frame (1) and side faces of the inner frame (2) to support the inner frame (2) when the inner frame (2) is detached from the top portion of the main frame (1);
an outer frame holding assembly sandwiched between the top portion of the main frame (1) and side faces of the outer frame (3) to support the outer frame (3) when the outer frame (3) is detached from the top portion of the main frame (1);
a first weight releasing device (16) mounted on the top portion of the main frame (1) to selectively release the first weight (31) of the outer frame (3);
a first activating device to activate the first weight releasing device (16) so as to release the first weight (18);
a second weight releasing device (17) mounted on the top portion of the main frame (1) to selectively release the second weight (18);
a second activating device to activate the second weight releasing device (17) so as to release the second weight (18);
a first loop (15) received in the inner frame (2) to have a first dimension when the first weight (31) of the outer frame (3) is securely attached by the first weight releasing device (16) and a second dimension when the first weight (31) of the outer frame (3) is detached by the first weight releasing device (16); and
a second loop (191) received in the outer frame (3) to have a first dimension when the second weight (18) is attached by the second weight releasing device (17) and a second dimension when the second weight (18) is detached by the second weight releasing device (17).

18. The criminal arresting assembly as claimed in claim 17, wherein the inner frame holding assembly comprises multiple first wires (12) each having a first end securely connected to the top portion of the main frame (1) and a second end securely connected to the side faces of the inner frame (2) so as to support the inner frame (2) when the inner frame (2) is away from the top portion of the main frame (1).

19. The criminal arresting assembly as claimed in claim 18, wherein the first weight releasing device (16) comprises a lever (162) movably positioned between a first position and a second position on the top portion of the main frame (1) and a first claw (163) formed on a distal end of the lever (162) to attach to the first weight (31) when the lever (162) is at the first position and to detach the first weight (31) when the lever (162) is at the second position.

20. The criminal arresting assembly as claimed in claim 19, wherein the first activating device is an electromagnetic valve (161) to attract the lever (162) to allow the lever (162) to pivot between the first position and the second position.

21. The criminal arresting assembly as claimed in claim 20, wherein the second weight releasing device (17) comprises a driving rod (141) mounted across the top portion of the main frame (1), a driven rod (171) securely connected to the driving rod (141) and movable between a first position and a second position and a second claw (172) formed on a free end of the driven rod (171) to attach the second weight (18) when the driven rod (171) is at the first position and

detach the second weight (18) when the driven rod (171) is at the second position.

22. The criminal arresting assembly as claimed in claim 21, wherein the second activating device includes two opposite second wires (131) each having a first end securely connected to the driving rod (141) and a second end in connection with the outer frame holding assembly so as to receive weight of the outer frame (3).

23. The criminal arresting assembly as claimed in claim 22, wherein the first loop (15) is composed of two opposite third wires (14) each having a first end passing over a second roller (132) which is suspended by the second end of each of the second wires (131) to securely connect to a side face of the outer frame and a second end extending through a side face of the inner frame so as to form the first loop with the second end of the other second wire.

24. The criminal arresting assembly as claimed in claim 23, wherein the second loop (191) is composed of two opposite fourth wires (19) each having a first end securely connected to the top portion of the main frame (1) and a second end passing through the second weight (18) and a side face of the outer frame (3) so as to form the second loop with the second end of the other fourth wire (19).

25. The criminal arresting assembly as claimed in claim 24, wherein a reel (4) comprising a motor (41), a threaded bolt (42) operably connected to the motor (41) and a fifth wire (43) having a first end securely wound around the threaded bolt (42) and a second end securely connected to each one of the first weights (31) such that rotation of the threaded bolt (42) by the motor (41) is able to lift the first weight (31), the outer frame (3) and the inner frame (2).

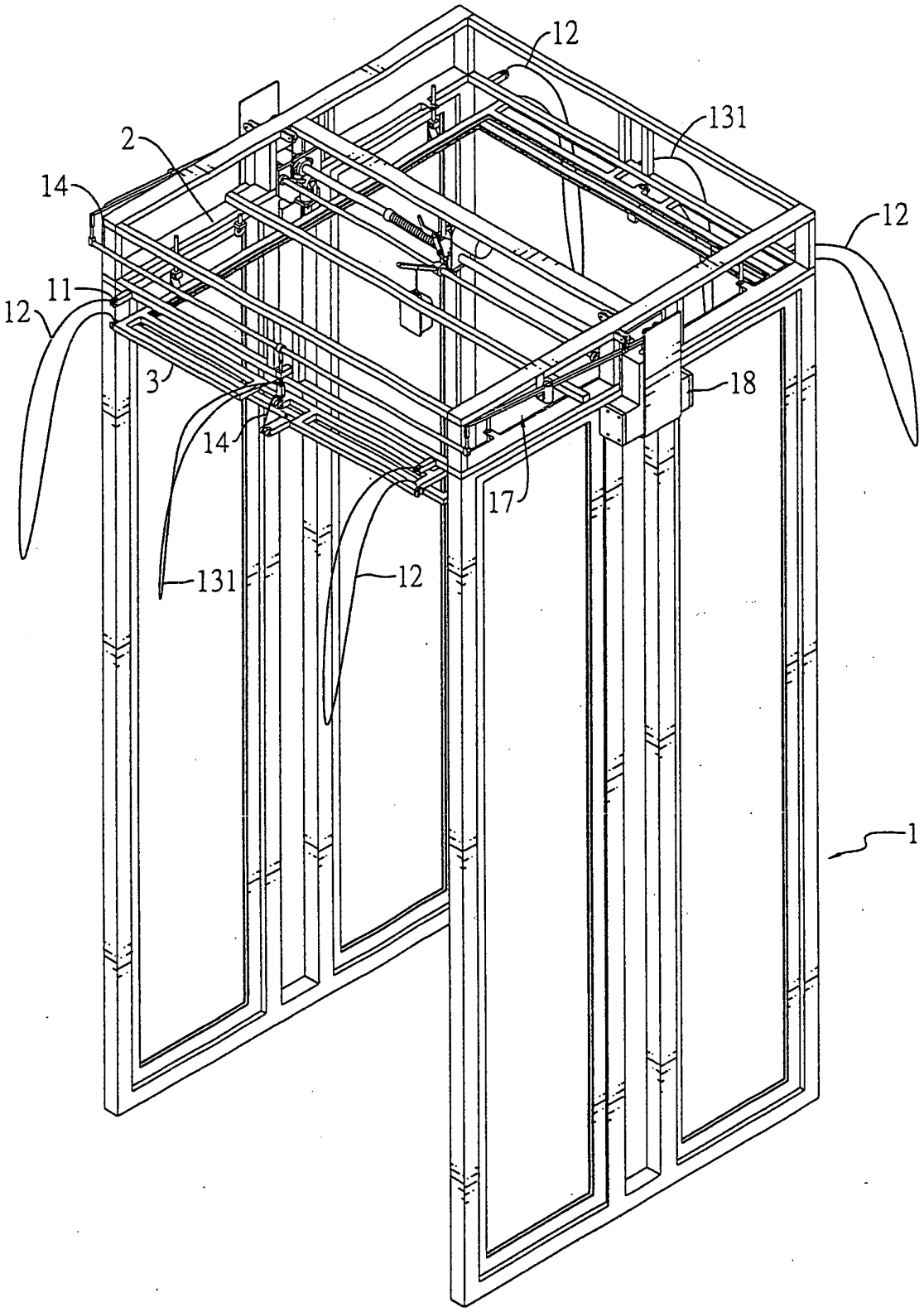

FIG. 1

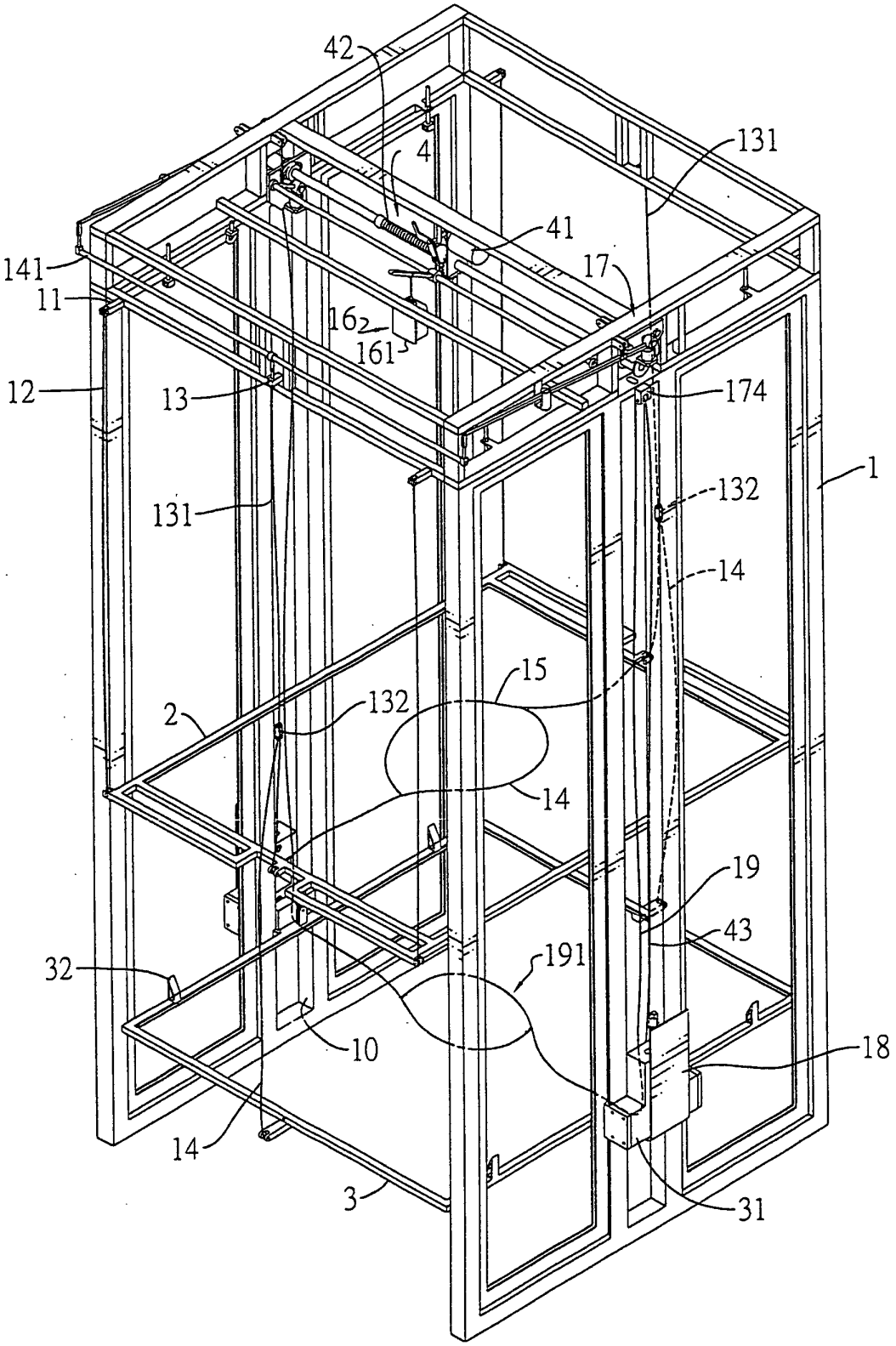
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FIG. 2

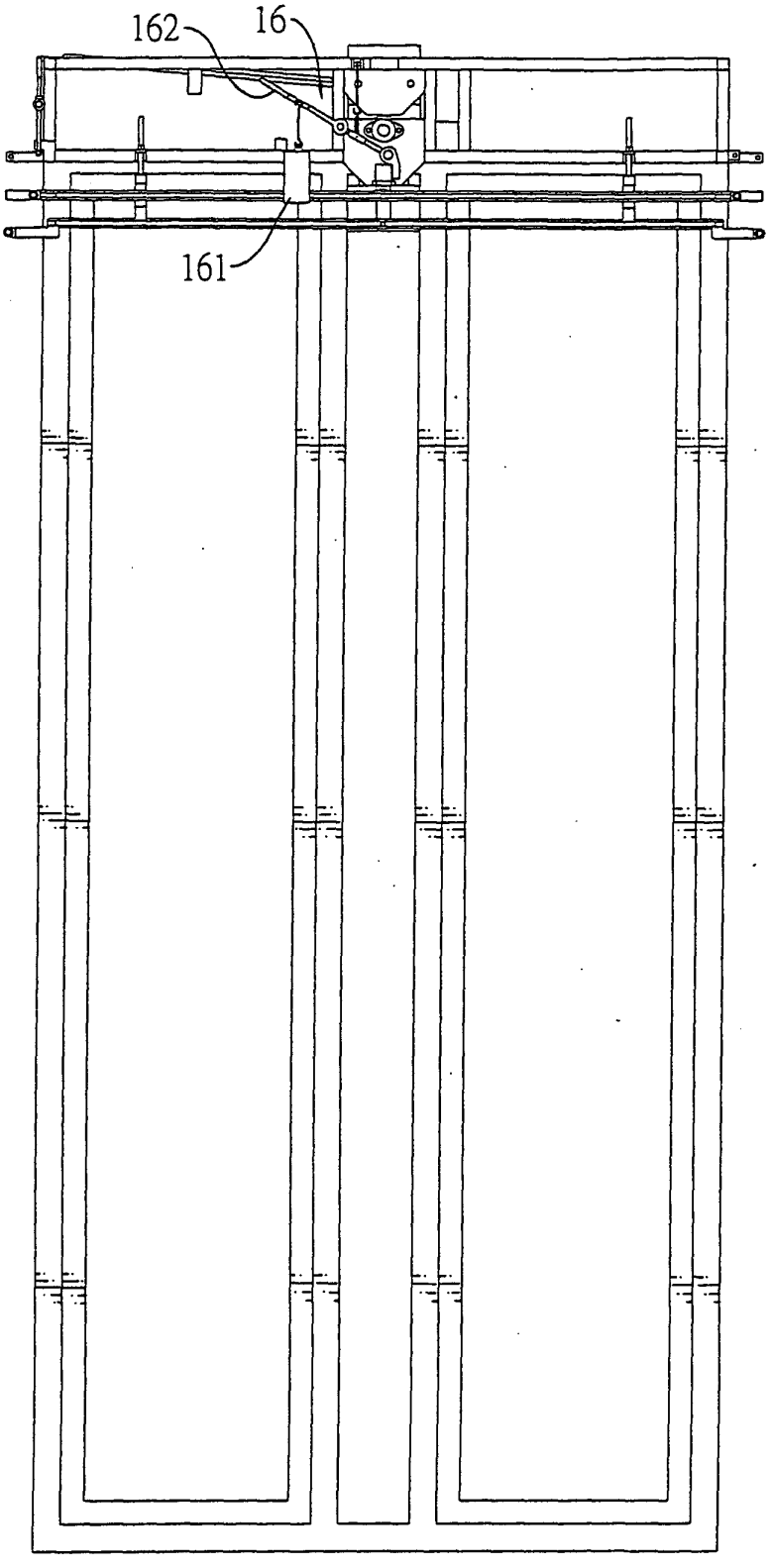

FIG. 3

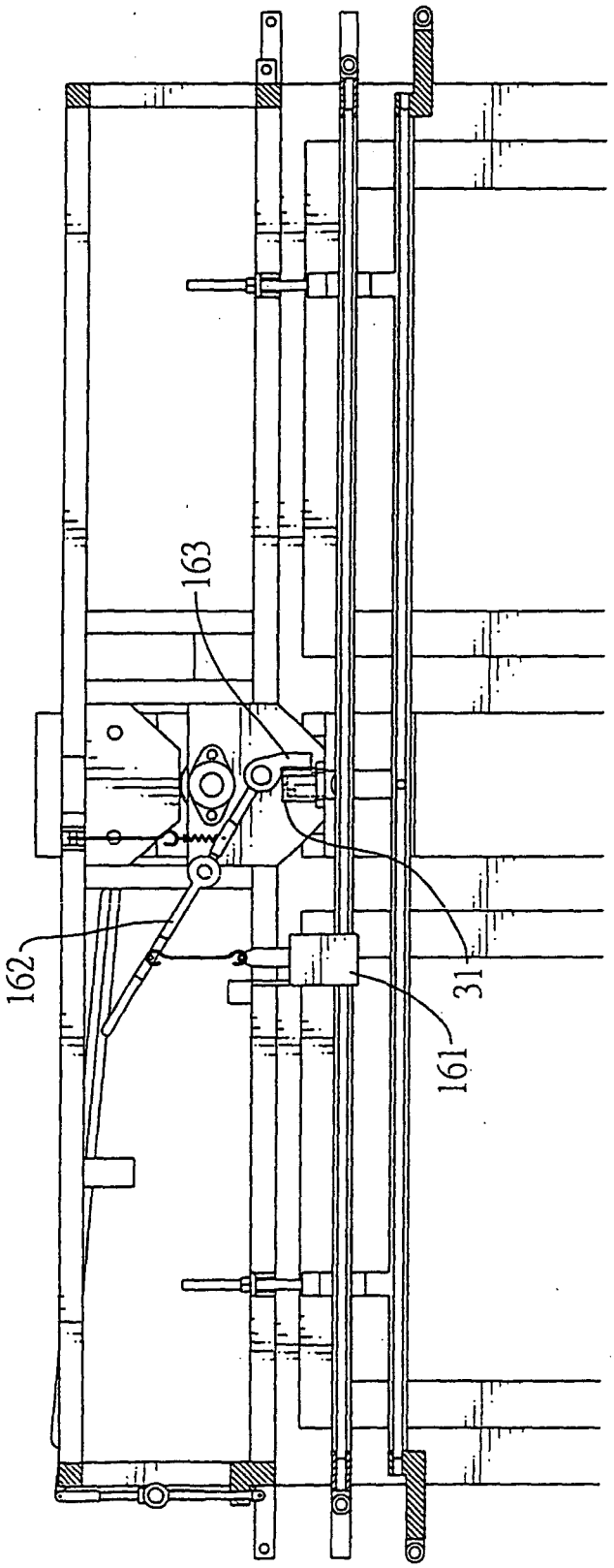

FIG. 4

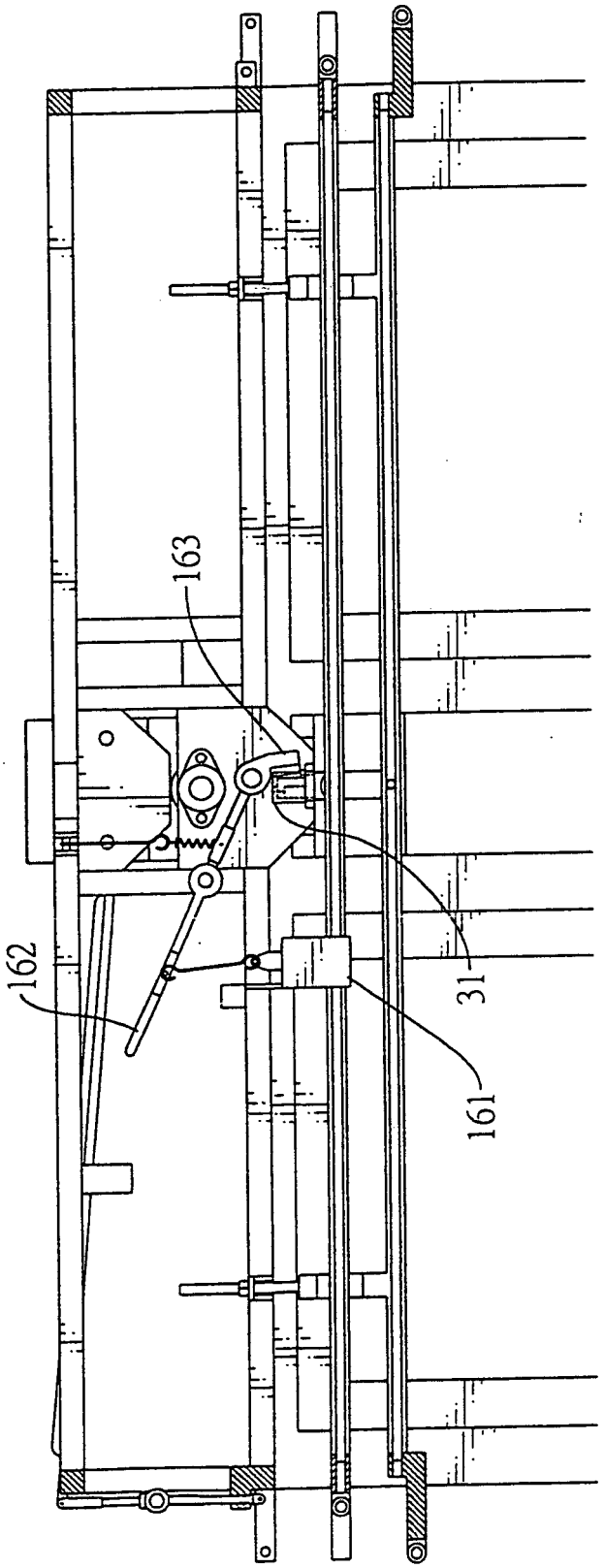

FIG. 5

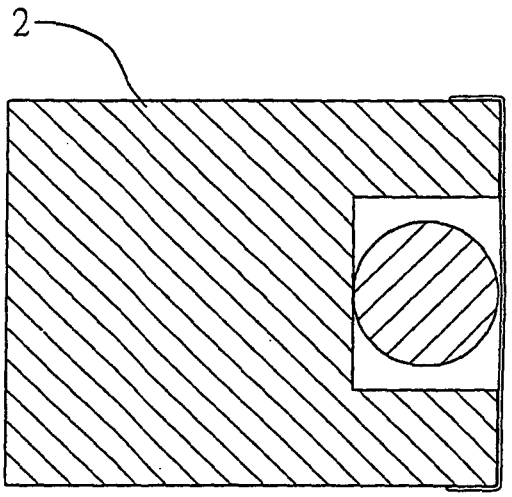

FIG. 6

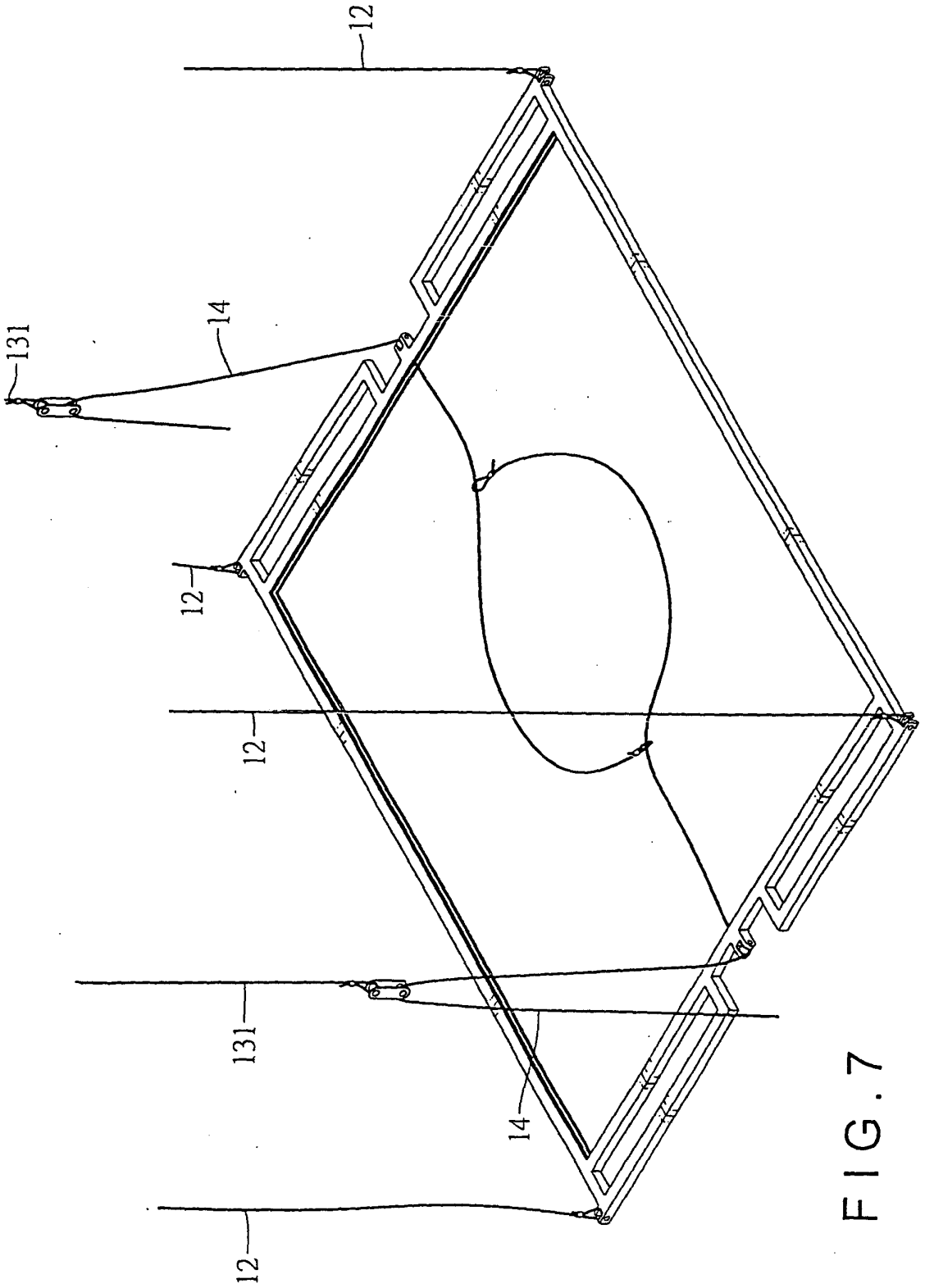

FIG. 7

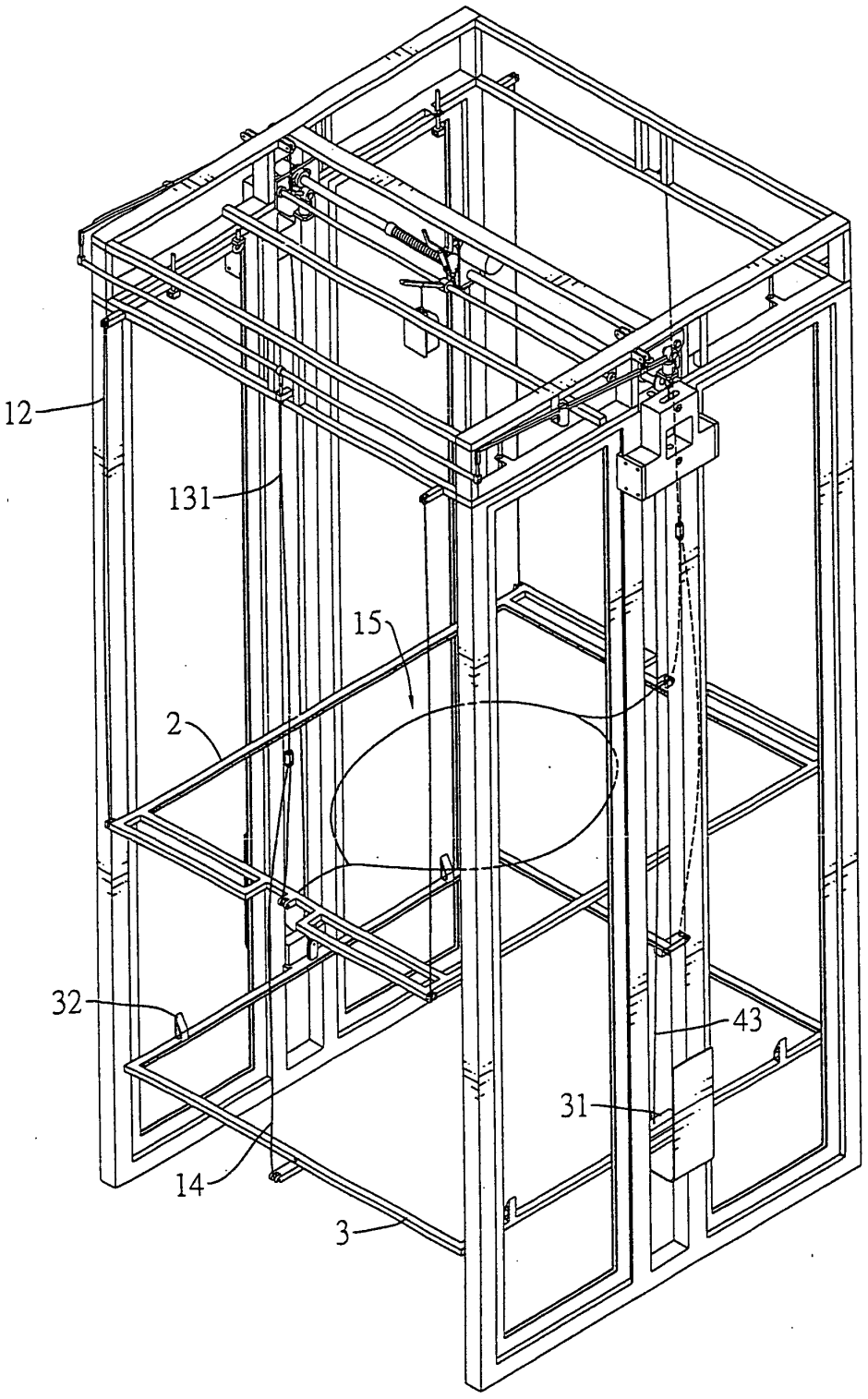

FIG. 8

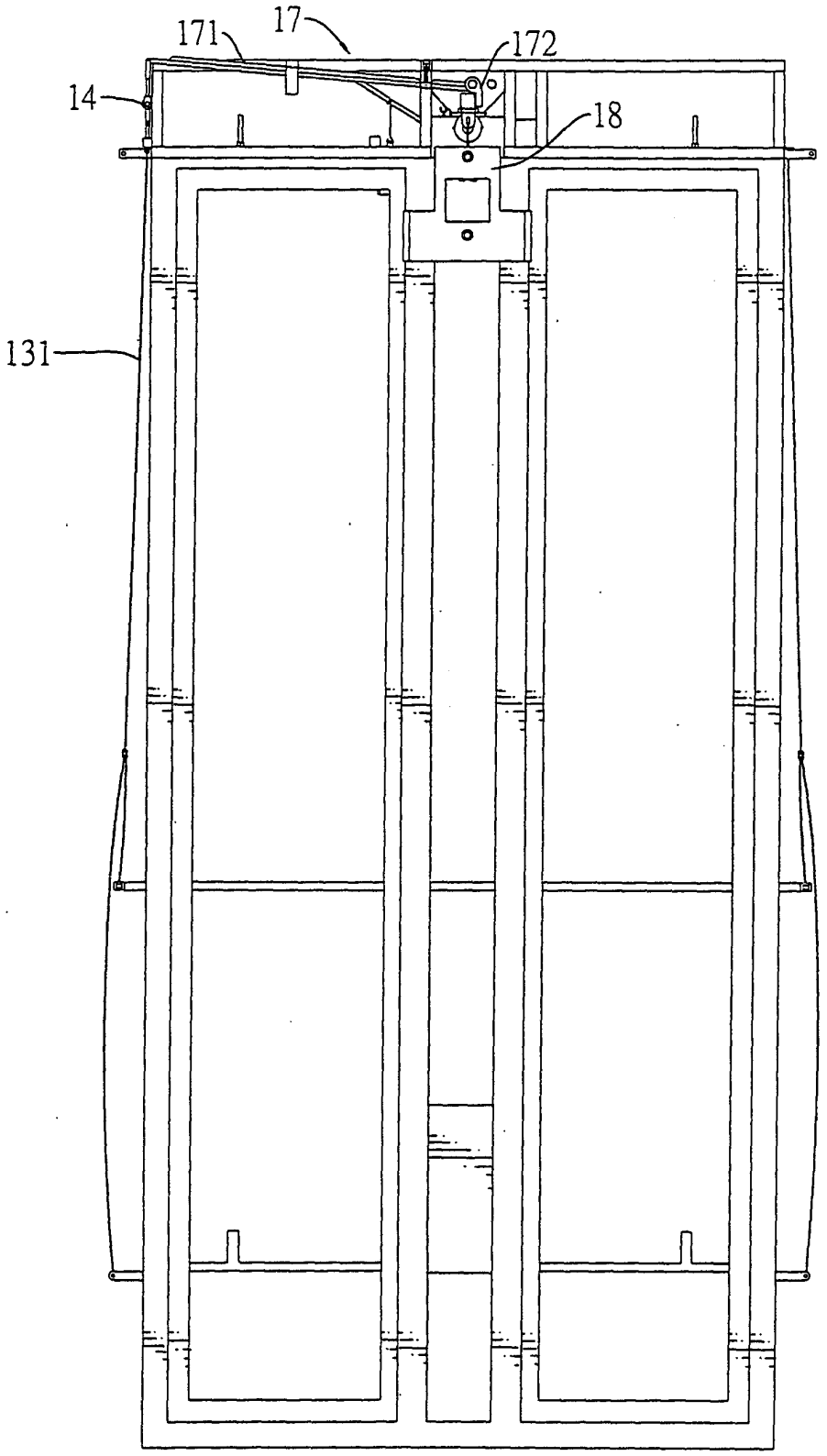

FIG. 9

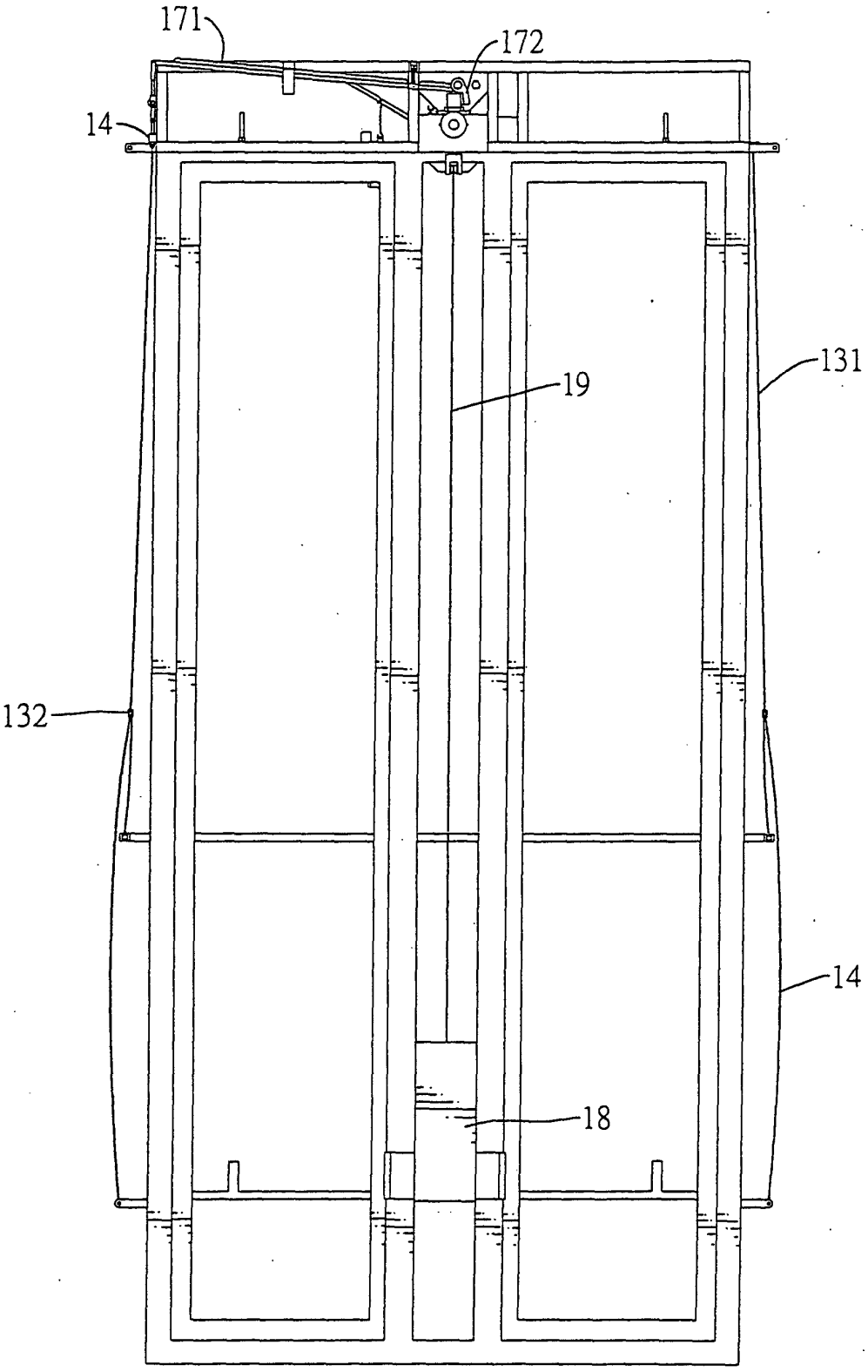

FIG. 10

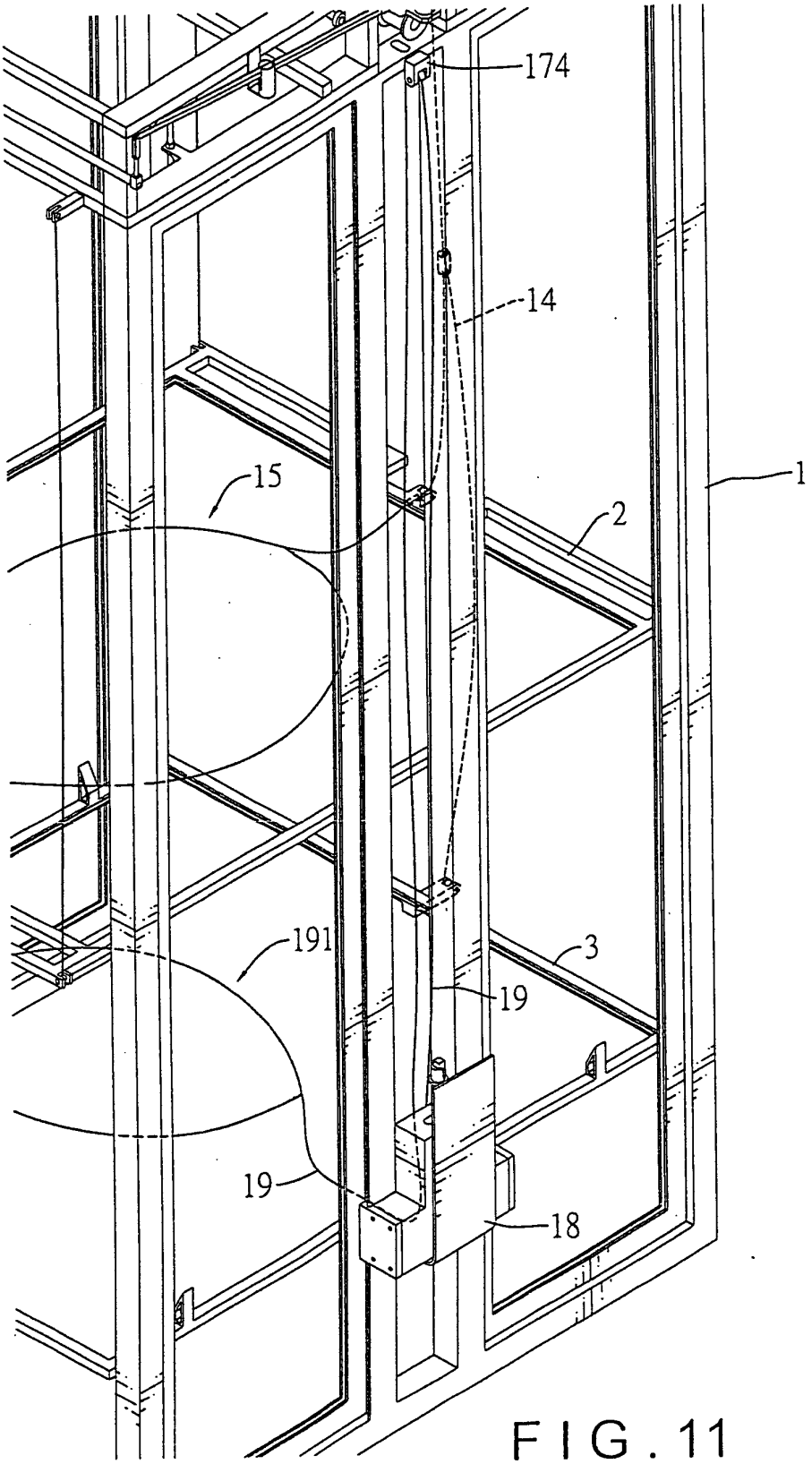

FIG. 11

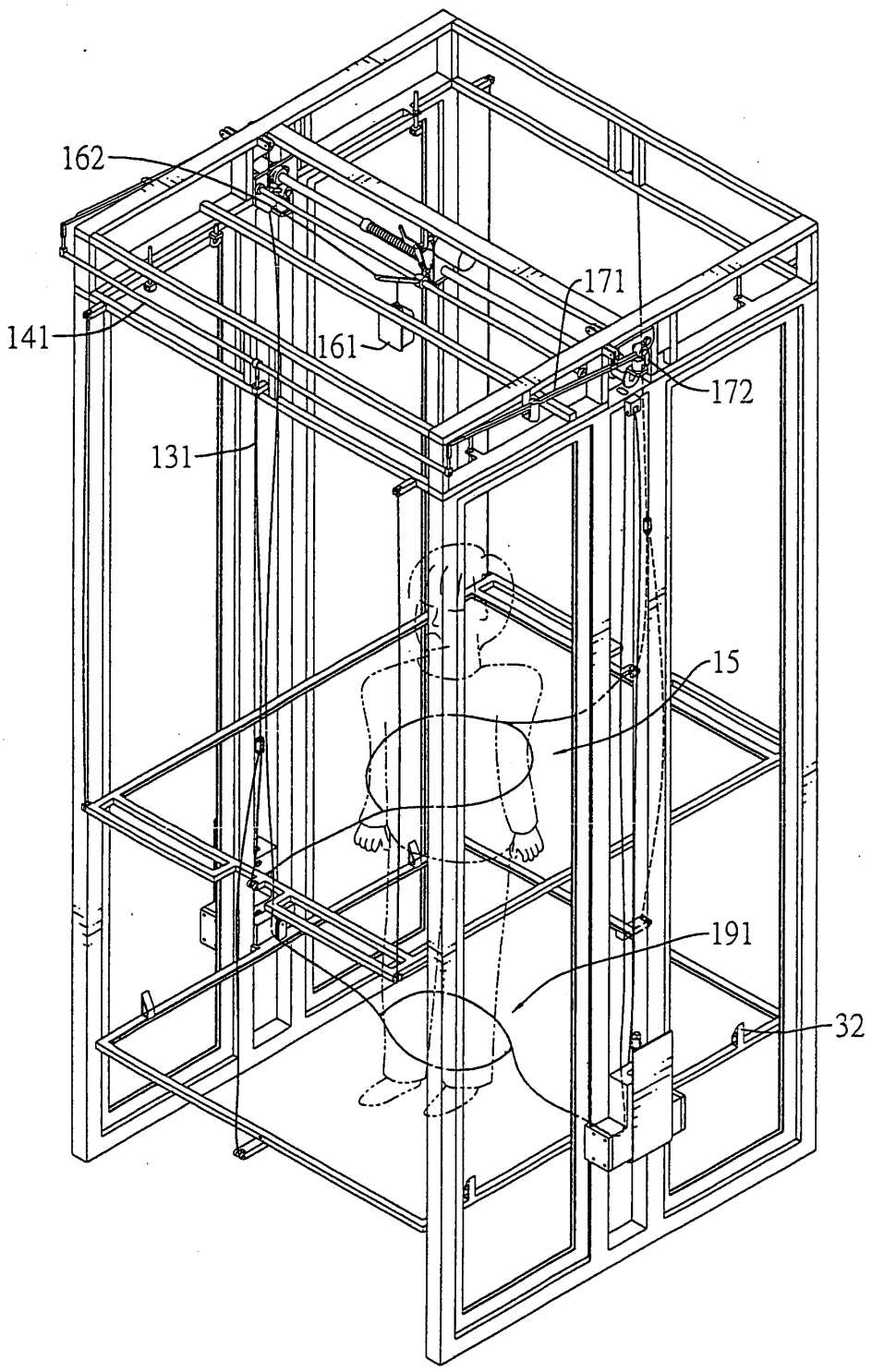

FIG. 12

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 02 1286

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	DATABASE WPI Section Ch, Week 200106 Derwent Publications Ltd., London, GB; Class A93, AN 2001-048506 XP002309680 -& RU 2 140 800 C1 (VYUGOV V K) 10 November 1999 (1999-11-10) * abstract *	1-25	E05G5/02 B08B15/00
A	US 3 965 827 A (REEVES TOM) 29 June 1976 (1976-06-29) * column 2, line 1 - column 2, line 22; figure 1 *	1-25	
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A	DE 198 25 506 A (BUGIEL HORST GEORG) 5 January 2000 (2000-01-05) * the whole document *	1-25	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	8 December 2004	Wille, H-J

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