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(71) Applicant: **Space Engineering Inc.**
Seoul 06260 (KR)

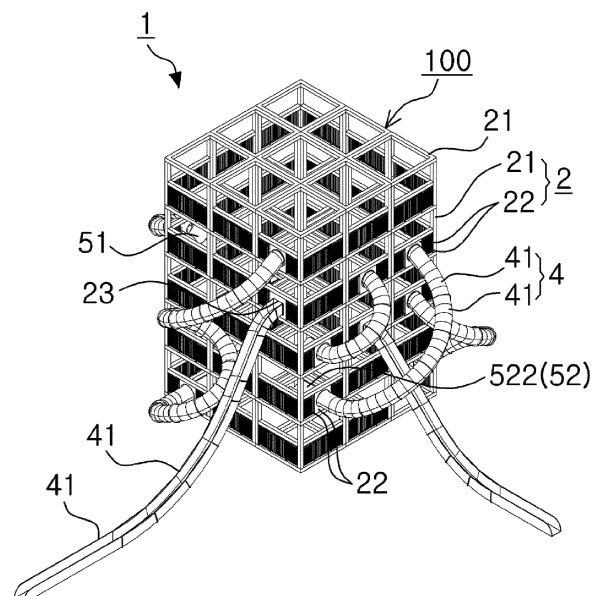
(72) Inventors:
• **SONG, Hong Seok**
Seoul 06628 (KR)
• **CHANG, Seong Kyu**
Seoul 04969 (KR)

(74) Representative: **Jeon, Jin**
c/o Boehmert & Boehmert
Anwaltspartnerschaft mbB
Pettenkoferstraße 22
80336 München (DE)

(54) **SLIDE TOWER SYSTEM**

(57) Provided is a slide tower system, which includes module members formed in a polyhedral shape; a connection unit configured to connect the module members with respect to a base to form a tower body; and a plurality of slide members selectively connected to connection holes formed in the module members that form the tower body by connecting the module members to the base and configured to allow sliding motion in a vertical manner, so that various slide towers of different sizes and shapes may be constructed by selectively assembling the plurality of modules.

FIG. 1



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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a slide tower system having improved usability by allowing various slide towers of various sizes and shapes to be configured through selective assembly of a plurality of modules.

[0002] Specifically, the present disclosure relates to a slide tower system in which a plurality of slides are installed at different vertical heights relative to the base and are organically connected to allow each slide to perform independent sliding play, thereby maximizing interest.

BACKGROUND ART

[0003] Recently, various new leisure sports have been popularized among the general public to experience extreme thrills, and leisure sports that stimulate people's sense of adventure are gradually diversifying.

[0004] These leisure sports include, for example, slides, bungee jumping, parachuting, paragliding, flying fox, mountain fox, and artificial or natural rock climbing, and various adventure courses are provided to allow users to experience them considering the installation environment.

[0005] Various facilities for experiencing the adventure courses of such leisure sports are manufactured separately according to their characteristics and installed independently.

[0006] One of them is Korean Patent Application No. 10-2012-0117212 (Title: Composite Playground Equipment/October 22, 2012). As disclosed in the publication, the composite playground equipment includes a connection structure installed at each upper end of the support and composed of an upper structure having a polyhedral structure of unit connecting faces that become wider and a lower connection body having a polyhedral structure of unit connecting faces that become wider from the bottom to the top in a vertical symmetry with the upper structure; a connection rope composed of an upper connection rope having one end connected to the upper end of a unit connection surface of an upper connection body in one connection structure selected from connection structures facing each other and the other end connected to the lower end of a unit connection surface of a lower connection body in another connection structure, a lower connection rope having one end connected to the lower end of a unit connection surface of the upper connection body and the other end connected to the upper end of the unit connection surface of the lower connection body, and a side connection rope for connecting the upper connection rope and the lower connection rope to each other, thereby providing a point-symmetrical cloud bridge between the connection structures; and a plurality of fixed ropes having one end connected to one side of the connection structure and the other end fixedly coupled

to the ground.

[0007] Also, in Korean Patent Application No. 10-2013-0138743 (Title: Tower-type Extreme Leisure Sports Structure/November 15, 2013), as disclosed in the publication, sports structure includes a central tower which is installed in the center of the tower-type extreme leisure sports structure, has an observation deck on the upper part, has a two-story structure in which users may move up and down, and has a station in which users may rest and wait on at least one floor; a plurality of extreme leisure sports facilities which are installed at the edge of the central tower and allow users to experience various extreme leisure sports; an extreme jungle gym which is installed at the edge of the central tower and provides movement between adjacent facilities in association with the central tower; a plurality of support frames which are installed around the edge of the central tower and support the extreme jungle gym and the extreme leisure sports facilities; and a plurality of connection frames for connecting the support frames.

[0008] The central tower includes a plurality of main frames that are provided as a starting point for experiencing the extreme jungle gym and the extreme leisure sports facility using the station and as a place to view and observe the tower-type extreme leisure sports structure and its surroundings using the observation deck and are fixed vertically from the ground to form a shaft; a plurality of auxiliary frames that are installed around the main frames to assist in supporting the central tower; an observation deck that is installed on the upper part of the main frame; a plurality of stations that are configured with a plurality of floors having a certain height between the ground and the observation deck and are installed on each floor so that users may rest, wait, and look out or serve as start points for the extreme jungle gym and the extreme leisure sports facilities; and lifting devices that enable movement up and down between the floors of the central tower.

[0009] Meanwhile, Korean Utility Model Application No. 20-2006-0017689 (Title: Sky Challenge Tower facility/June 30, 2006) discloses a tower facility that includes, as disclosed in the publication, three pillar structures erected vertically from the ground and composed of a steel structure; a platform that is installed and supported on the upper side of the pillar structures, has at least three edges, and has a space on the upper surface where experiencers may stay; and a plurality of adventure facilities that are installed on the upper edge of the platform.

[0010] Also, Korean Utility Model Application No. 20-2009-0006955 (Title: Extreme Sports Tower 10/June 3, 2009) discloses, as disclosed in the publication, a sports tower structure, which includes a four-axis three-dimensional tower made of a truss-type steel structure and installed vertically from the ground or floor, facilities such as scaffold diving, bungee jumping, ejection seat, big swing, descent course, catapult, sky jump, and vertical running installed at the edge of the truss-type steel structure and the upper platform, an elevator with

controlled ascent and descent from the ground to the upper platform inside the truss-type steel structure, an artificial rock climbing wall facility installed outside the truss-type steel structure so that the artificial rock climbing wall may be used all year round, and an observation deck where facility users may stay at the top of the tower while having a simple beverage and enjoying the natural scenery.

DISCLOSURE

Technical Problem

[0011] However, the conventional play (sports) facilities described above have a problem of low usability because they may not constitute various slide towers of various sizes and shapes depending on the selection.

[0012] Moreover, there is a problem in that the user's destination is all connected to the ground when performing a slide, so the slide usage path is not organically connected.

[0013] The present disclosure is proposed to solve the above-mentioned problems of the prior art, and the object of the present disclosure is to provide a slide tower system in which various slide towers of various sizes and shapes may be configured through selective assembly of a plurality of modules, thereby improving usability, and in which a plurality of slides are installed at different vertical heights relative to the base and are organically connected so that each performs independent sliding play, thereby maximizing interest generation.

[0014] Another object of the present disclosure is to provide a slide tower system with maximized quality of use by forming the height of the destination for each slide differently so that the user's slide path may be organically connected and the user may stay longer inside the tower.

Technical Solution

[0015] In one aspect of the present disclosure, there is provided a slide tower system comprising: module members formed in a polyhedral shape; a connection unit configured to connect the module members with respect to a base to form a tower body; and a plurality of slide members selectively connected to connection holes selectively formed in the module members that form the tower body and configured to allow sliding motion in a vertical manner.

[0016] The module member may include a module frame forming each edge of the module member, and module walls attached to and detached from the module frame to form each surface.

[0017] The slide tower system may further comprise a start member mounted to the connection hole formed in the module wall of the module member so that a user starts to the slide member; and an landing member mounted to the connection hole so that a user lands in a space within the module members from the slide mem-

bers.

Advantageous Effects

[0018] The slide tower system according to the present disclosure configured as above has the effect of improving usability by selectively assembling a plurality of module members through connection units to form a tower body of a selected size and shape.

[0019] Moreover, a plurality of slide members are installed at different vertical heights from the tower body and are organically connected to each other so that each slide may perform independent sliding play, thereby maximizing the effect of generating interest.

[0020] That is, by forming the height of the destination point differently for each slide member, the user's slide path may be organically connected, and the user may stay inside the tower longer, which has the effect of maximizing the quality of use.

[0021] In addition, since the periodic shape transformation of slide members is possible by users, it has the effect of maintaining long-term interest in the facility.

DESCRIPTION OF DRAWINGS

[0022]

FIGS. 1 to 3 are schematic perspective views showing a slide tower system according to an embodiment of the present disclosure.

FIGS. 4 and 5 are schematic views showing the slide tower system according to this embodiment.

FIG. 6 is a schematic view showing a portion of the slide tower system according to this embodiment.

FIG. 7 is a schematic view showing an example of a start member of the slide tower system according to this embodiment.

FIG. 8 is a schematic diagram showing an example of an landing member of the slide tower system according to this embodiment.

FIG. 9 is a schematic diagram showing a control state of the slide tower system according to this embodiment.

FIG. 10 is a schematic diagram showing an example of an opening/closing member of the slide tower system according to this embodiment.

FIGS. 11 and 12 are schematic diagrams showing other assembly examples of a tower body of the slide tower system according to this embodiment.

BEST MODE

[0023] Hereinafter, a slide tower system according to a preferred embodiment according to the present disclosure will be described in detail with reference to the attached drawings.

[0024] The embodiments of the present disclosure may be modified in various forms, and the scope of the

present disclosure should not be construed as being limited to the embodiments described in detail below. The following embodiments are provided to more completely explain the present disclosure to a person having average knowledge in the art. Accordingly, the shapes of elements in the drawings may be exaggerated to emphasize a clearer explanation. It should be noted that in each drawing, the same parts are sometimes illustrated with the same reference numerals. Detailed descriptions of known functions and configurations that are judged to unnecessarily obscure the gist of the present disclosure are omitted.

[0025] FIGS. 1 to 12 are drawings showing a slide tower system 1 according to an embodiment of the present disclosure. The slide tower system 1 according to this embodiment includes module members 2 formed in a polyhedral shape; and a connection unit 3 configured to connect the module members 2 to a floor to form a tower body 100.

[0026] That is, the tower body 100 is assembled by selectively assembling a plurality of the module members 2 through the connection unit 3.

[0027] At this time, the tower body 100 is configured such that a plurality of the module members 2 are vertically stacked as well as horizontally arranged in each layer, as the tower body 100 is assembled in a size and shape selected by the user; so the present disclosure may be applied appropriately according to the user's selection.

[0028] In the above, the module member 2 may include a module frame 21 forming each edge; and module walls 22 detachably attached to the module frame 21 to form each surface.

[0029] That is, a plurality of module frames are connected as 'frames' in a 'polyhedral' shape to form the module frame 21, and then the module wall 22 is assembled and fastened to the module frame 21 to form the module member 2.

[0030] In the above, the module frame may be formed as a 'square pipe' having a 'pipe' shape with a 'square' cross-section; so it may be applied appropriately according to the user's choice.

[0031] In the above, the module wall 22 may be formed as a 'plate' in the shape of a 'plane polygon'; so it may be applied appropriately according to the user's choice.

[0032] In the above, the connection unit 3 may be formed of a separate 'fixing element' such as a 'bolt', and may be formed of an 'adhesive element' such as a 'welding'; so the configuration and structure of the connection unit may suitably adopt a configuration and structure selected by a user from conventionally known technologies.

[0033] The slide tower system 1 according to this embodiment includes a plurality of slide members 4 selectively connected to connection holes 23 formed selectively in the module members 2 that form the tower body 100 and configured to allow sliding motion in a vertical manner.

[0034] That is, a plurality of the slide members 4 are organically connected while being installed at different vertical heights in the tower body 100.

[0035] Accordingly, each of the slide members 4 performs independent sliding play, thereby maximizing interest.

[0036] In the above, the slide member 4 may be formed by connecting and assembling a plurality of slide tubes 41, each of which is a hollow 'tube' with both ends penetrating, in a 'straight-line shape', a 'curved shape', or a 'vortex shape', and the configuration and structure thereof may suitably adopt a configuration and structure selected by the user.

[0037] In the above, the slide tubes 41 may be assembled through separate 'coupling elements' such as 'bolts' and may be assembled with 'adhesive elements' such as 'welding', and the configuration and structure selected by the user may be suitably applied.

[0038] In the module wall 22 of the module member 2 above, the connection hole 23 may be selectively formed according to the user's selection and connected to the slide member 4, and the connection hole 23 may be not formed in the module wall 22, and the configuration and structure selected by the user may be suitably applied.

[0039] In the above, the module wall 22 having the connection hole 23 may be applied at the end of the slide member 4 in an assembled state.

[0040] That is, as shown in FIGS. 11 and 12, when assembling the tower body 100, the module wall 22, which is integrally provided at the end of the slide member 4, may be fitted and assembled into the space between the module members 2, thereby configuring the tower body 100.

[0041] The slide tower system 1 according to this embodiment includes a start member 51 assembled into the connection hole 23 formed in the module wall 22 of the module member 2 to allow a user to start to the slide member 4, and an landing member 52 assembled into the connection hole 23 to allow a user to arrive from the slide member 4 into the inside of the module member 2.

[0042] That is, among the connection holes 23 where both ends of the slide member 4 are respectively connected, the start member 51 is fastened to the connection hole 23 located at the top, and the landing member 52 is fastened to the connection hole 23 located at the bottom. Thus, when the user arrives the inside of the slide member 4 through the start member 23, the user enjoys sliding by freely falling inside the slide member 4, and finally arrives the inside of the module member 2 located at the bottom through the landing member 52.

[0043] In the above, the start member 51 may include a 'ring'-shaped start flange 511 fastened and assembled to the edge of the connection hole 23 in the module wall 22, and a 'hemispherical' start plate 512 formed by extending from the start flange 511 with a length and having an open top and bottom so that the user may seat on the floor.

[0044] That is, the user may start to the inside of the slide member 4 by placing the buttocks on the start plate

512 in a state where the start plate 512 is assembled to the module member 2 via the start flange 511.

[0045] In the above, the landing member 52 may include a 'ring'-shaped landing flange 521 fastened and assembled to the edge of the connection hole 23 in the module wall 22, and a 'hemispherical' landing plate 522 formed by extending from the landing flange 521 with a length and having an open top and bottom so that the user may seat on the floor.

[0046] That is, in a state where the landing plate 522 is assembled to the module member 2 via the landing flange 521, a user who enjoys free-falling sliding inside the slide member 4 may land stably by decelerating with the buttocks being guided by the landing plate 522.

[0047] In the above, the length of the landing plate 522 is formed longer than the length of the start plate 512, so that the user's deceleration guidance is facilitated, and the user's starting movement to the slide member 4 through the start plate 512 may be performed more stably.

[0048] The slide tower system 1 according to this embodiment, which is configured as above, includes detection sensors 6 respectively provided in the module members 2 to detect the departure status and the arrival status of the user, and a control unit 7 configured to perform operational control based on detection data obtained from the detection sensors 6 and to display and control operational status of each of the slide members 4.

[0049] That is, the detection data for the departure status and the arrival status of the user detected through the detection sensors 6 inside the module member 2 are operationally operated and controlled through the control unit 7 to detect the usage status of each slide member 4, so that the detection data is displayed through a separate display device (not shown) or controlled to restrict the usage.

[0050] Accordingly, safety in use is secured by controlling the simultaneous use of a single slide member 4 by multiple people.

[0051] The detection data for the departure status and for arrival status of the user detected through the detection sensors 6 are operationally operated and controlled through the control unit 7 to detect the usage status of each slide member 4, so that the detection data is displayed through a separate display device (not shown) or controlled to restrict the usage.

[0052] Accordingly, safety in use is secured by controlling the simultaneous use of a single slide member 4 by multiple people.

[0053] In the above, the detection sensor 6 may be a 'light sensor' configured to detect the proximity of a user, or a 'motion sensor', a 'weight sensor', etc. configured to detect the motion of a user, and the configuration and structure of the detection sensor 6 may suitably adopt a configuration and structure selected by a user from conventionally known technologies.

[0054] The detection sensors 6 and the control unit 7 described above are electrically connected via wired or

wireless communication to transmit the detection data, and the detection sensors 6 may be applied appropriately according to the user's choice.

[0055] In the slide tower system 1 according to this embodiment as described above, the module members 2 may include a light-emitting signal unit 8 that notifies the status that the user playing on the slide inside the slide member 4 arrives at the module member 2 equipped with the landing member 52.

[0056] That is, the detection data detected by each of the detection sensors 6 provided in each of the module members 2 are calculated through the control unit 7, and the user's application status for the slide member 4 where the user slides is detected.

[0057] By applying detection of the user's application status calculated in this way, each of the light-emitting signal units 8 respectively provided in the module members 2 connected to the slide member 4, which is in progress with sliding play, is controlled and driven, thereby informing the user in the future of the usage status of the slide member 4.

[0058] Therefore, safety in use is achieved.

[0059] In the slide tower system 1 according to this embodiment configured as above, a plurality of the module members 2 and slide members 4 are implemented to be modified in various ways according to the user's selection, so that the positions of the start members 51 and the landing members 52 may be variably applied.

[0060] At this time, each of the detection sensors 6 respectively provided to the start members 51 and the landing members 52 is electrically connected to the control unit 7 via a communication network/internet network, so that the transmission/reception and control of detection data may be changed and controlled in real time. Thus, the departure-arrival pairing may be changed through a software change operation of the control unit 7 even when the entrances and exits of the slide members 4 are changed in various ways.

[0061] That is, each of the detection sensors 6 may be applied by selectively switching the role of user departure detection and arrival detection as needed, so that economic benefits and customized design quality may be improved through improved usability.

[0062] In the above, the module member 2 may include an opening/closing member 24 detachably fastened to open and close the connection hole 23 of the module member 2.

[0063] That is, when forming the tower body 100 by selectively connecting a plurality of slide members 4 to the connection holes 23 of the module members 2, the opening/closing member 24 is fastened to the unused connection holes 23, which are not connected to the slide members 4, to close the unused connection holes 23.

[0064] In addition, when the positions of a plurality of the slide members 4 connected to the module members 2 are changed in various ways according to the user's choice, the opening/closing member 24 fastened to the connection hole 23 may be separated to open the con-

nection hole 23 and to connect and assemble the slide members 4.

[0065] Accordingly, in the tower body 100 that is installed to have a vertical height differently, users enjoying the slide play are prevented from unauthorized entry into the unused connection holes 23, thereby ensuring safety in use.

[0066] In addition, when changing the fastening position of the slide member 4, the opening/closing member 24 may be simply separated from the connection hole 23 to open the connection hole 23, thereby enabling easier and more organic connection work.

[0067] Therefore, usability is improved.

[0068] In the above, the opening/closing member 24 may be assembled to the connection hole 23 through a separate 'fastening element' such as a 'bolt', and may be configured to be attached and detached by a 'detachable element', and thus a configuration and structure selected by the user may be suitably applied.

[0069] The slide tower system 1 according to this embodiment as described above is characterized by a technical configuration in which a plurality of the module members 2 selectively configure various tower bodies 100 of selected sizes and shapes through the connection unit 3, and in which the slide members 4 in the tower body 100 are installed at different vertical heights and organically connected to perform an independent slide play.

[0070] The above-described embodiment of the present disclosure is merely exemplary, and a person skilled in the art to which the present disclosure belongs will readily recognize that various modifications and equivalent other embodiments are possible. Therefore, it will be readily understood that the present disclosure is not limited to the forms mentioned in the above detailed description. Accordingly, the true technical protection scope of the present disclosure should be determined by the technical idea of the appended claims. In addition, the present disclosure should be understood to include all modifications, equivalents, and substitutes within the idea and scope of the present disclosure defined by the appended claims.

Claims

1. A slide tower system comprising:

module members formed in a polyhedral shape;
a connection unit configured to connect the module members with respect to a base to form a tower body; and
a plurality of slide members selectively connected to connection holes selectively formed in the module members that form the tower body and configured to allow sliding motion in a vertical manner.

2. The slide tower system according to claim 1,

wherein one of the module members includes module frames configured to form each edge of the one of the module members, and module walls configured to be detachably attached to the module frames to form each surface of the module members.

3. The slide tower system according to claim 1, further comprising:

a start member mounted to one connection hole selectively formed in one module wall of the module members, wherein the start member is configured to allow a user to start sliding on the slide member; and
an landing member mounted to one connection hole selectively formed in one module wall of the module members, wherein the landing member is configured to allow the user to land in a space within the module members from the slide members.

4. The slide tower system according to claim 1, further comprising:

detection sensors provided in the respective module members and configured to detect a departure status and an arrival status of a user, respectively; and
a control unit configured to perform operational control based on detection data obtained from the detection sensors to display and control an operational status of each of the slide members.

FIG. 1

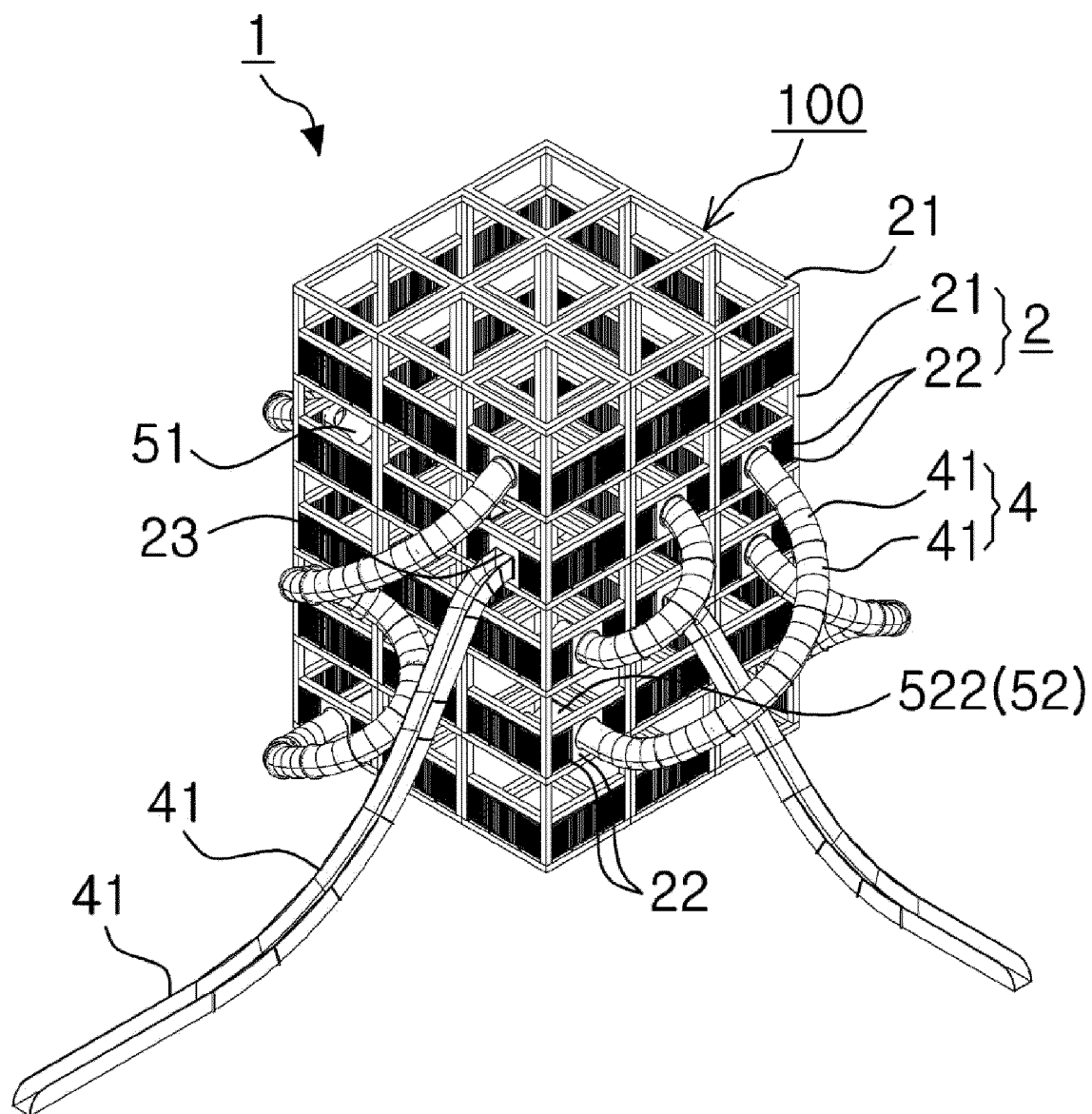


FIG. 2

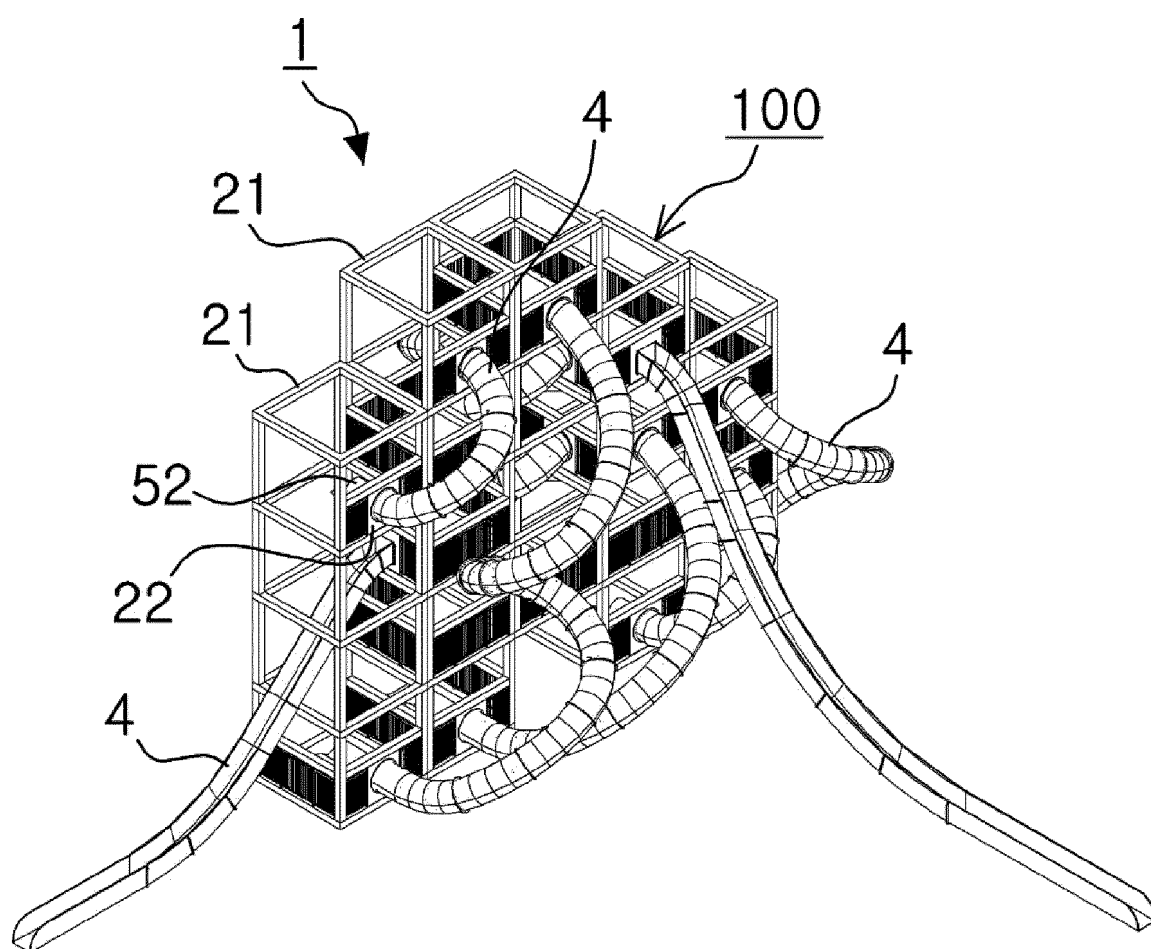


FIG. 3

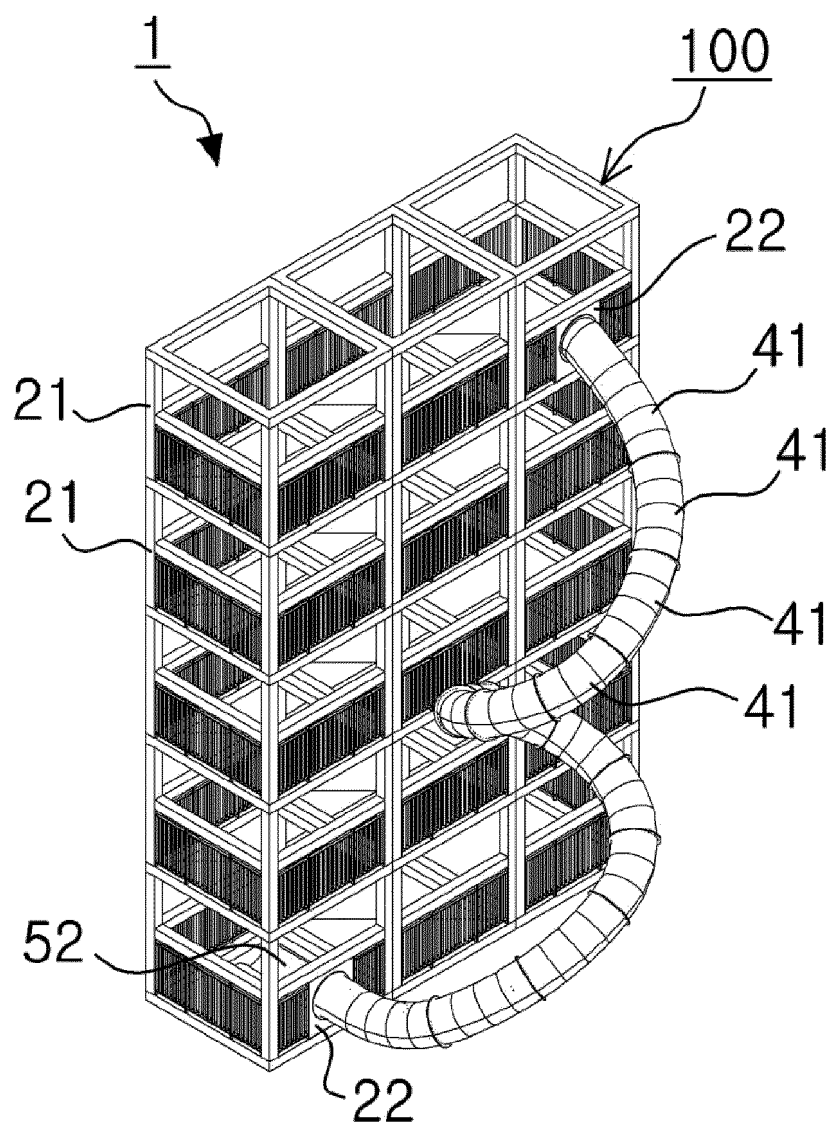


FIG. 4

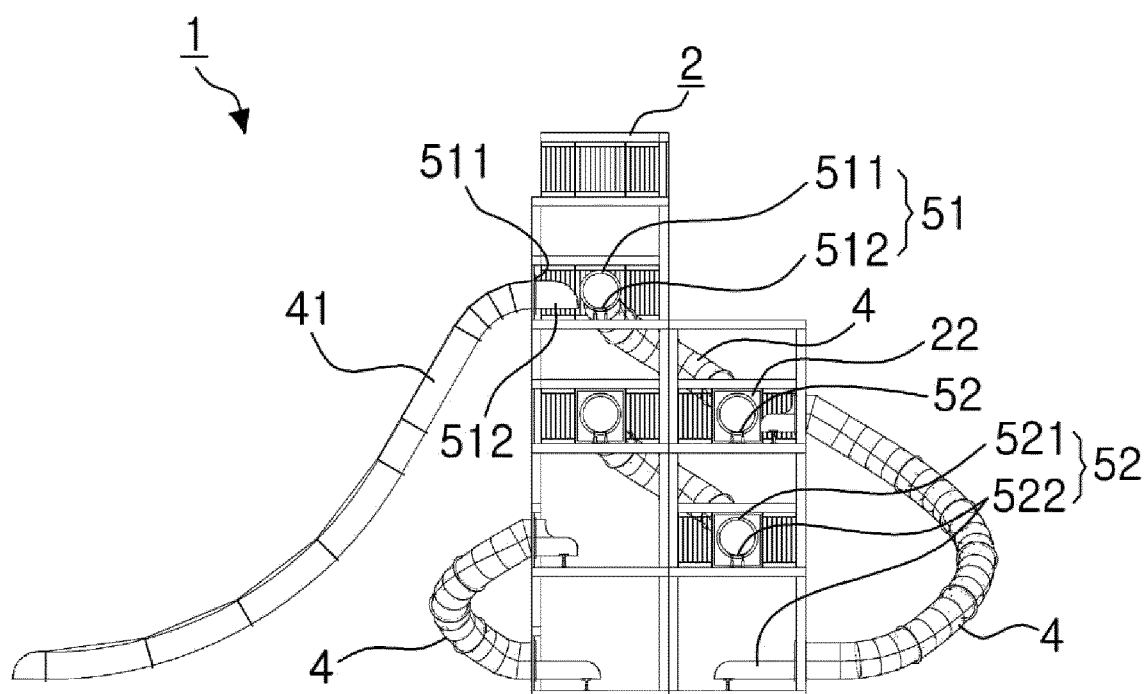


FIG. 5

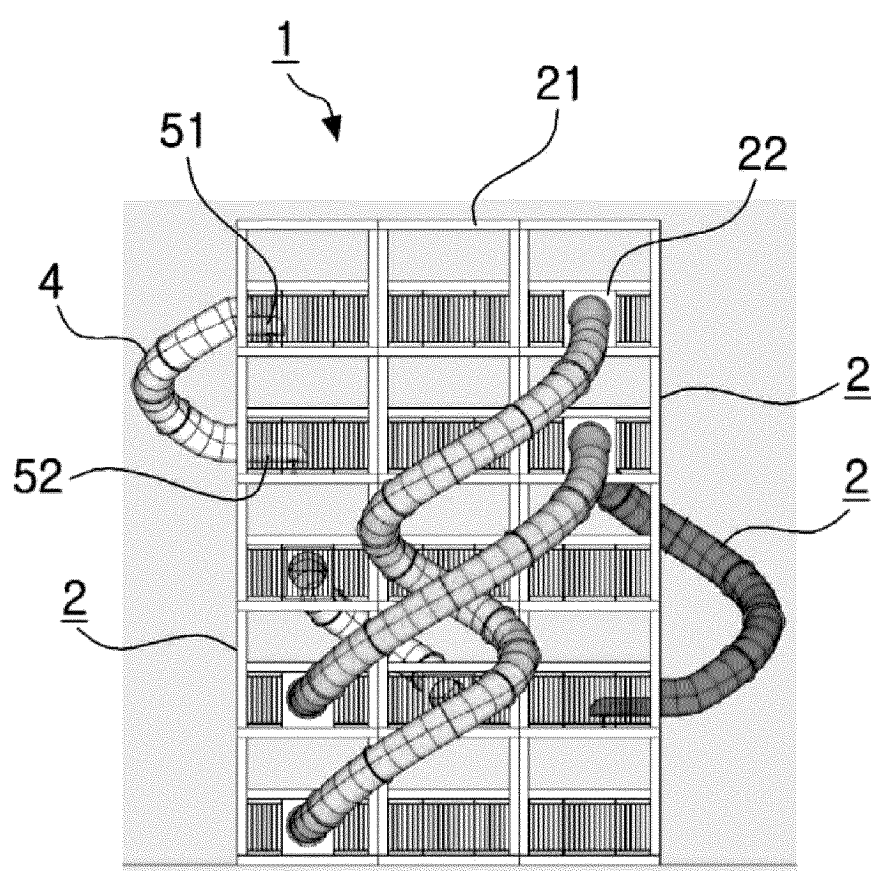


FIG. 6

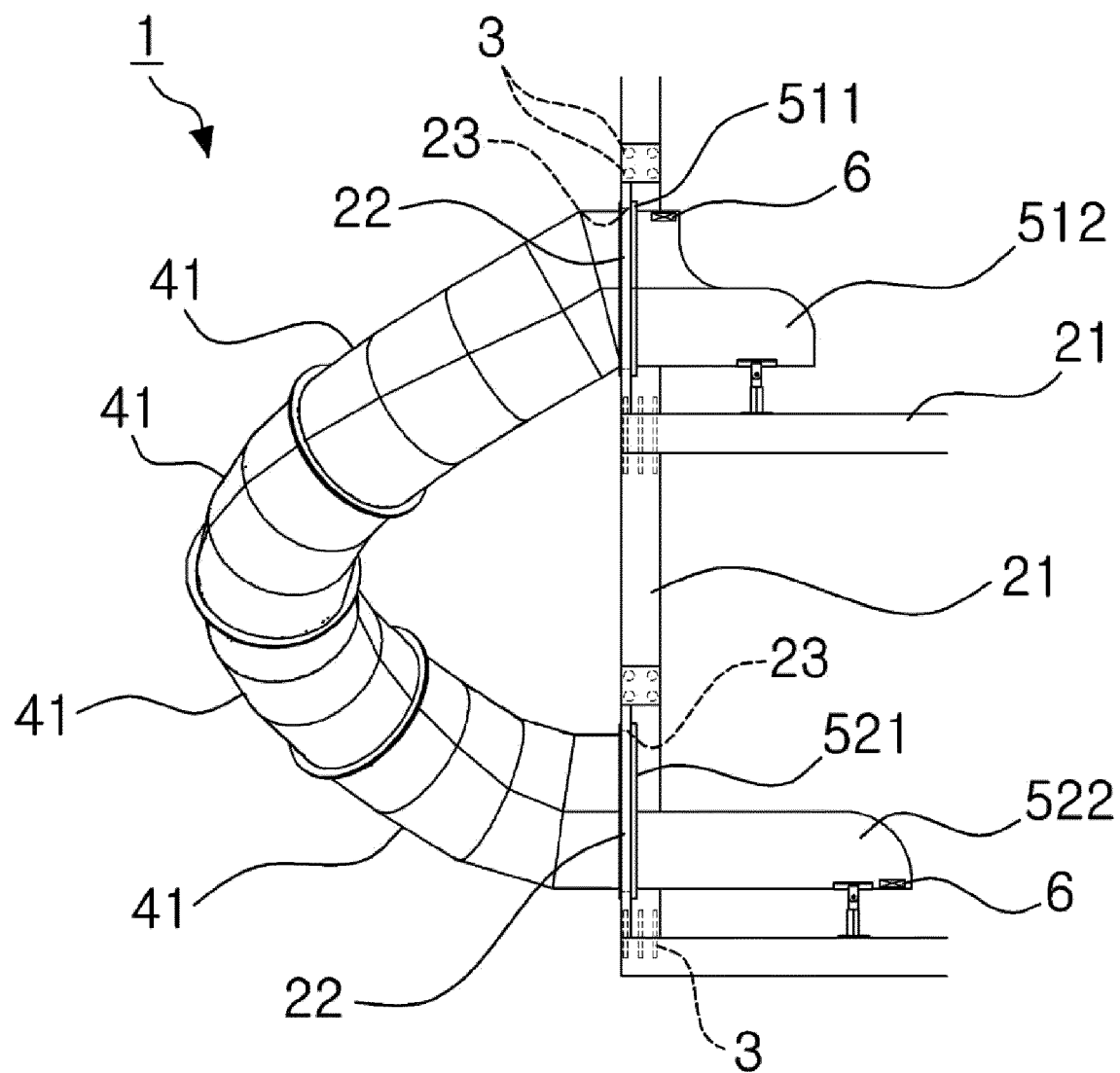


FIG. 7

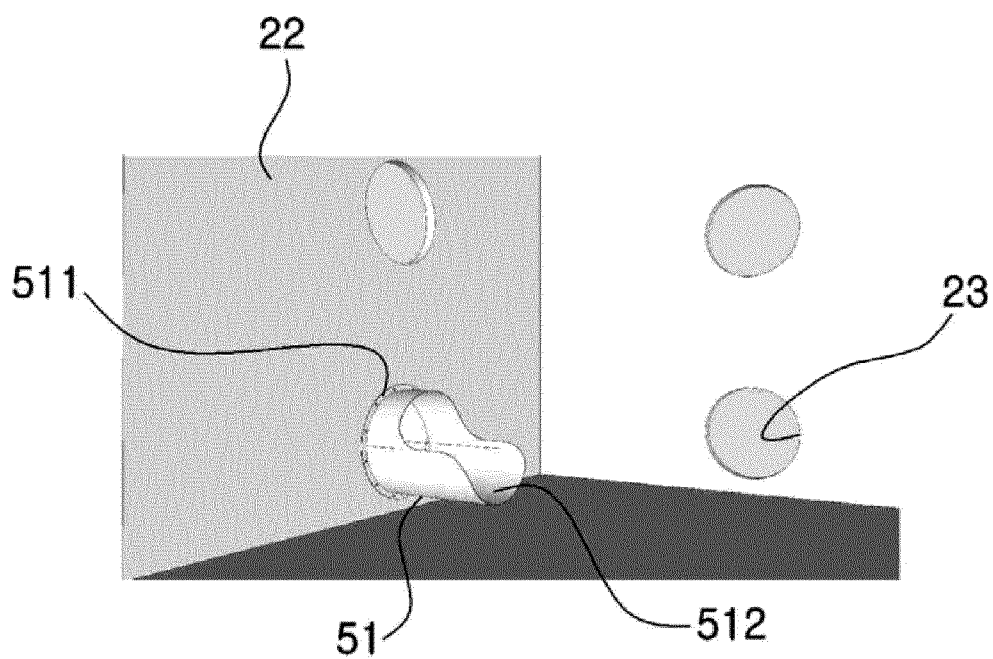


FIG. 8

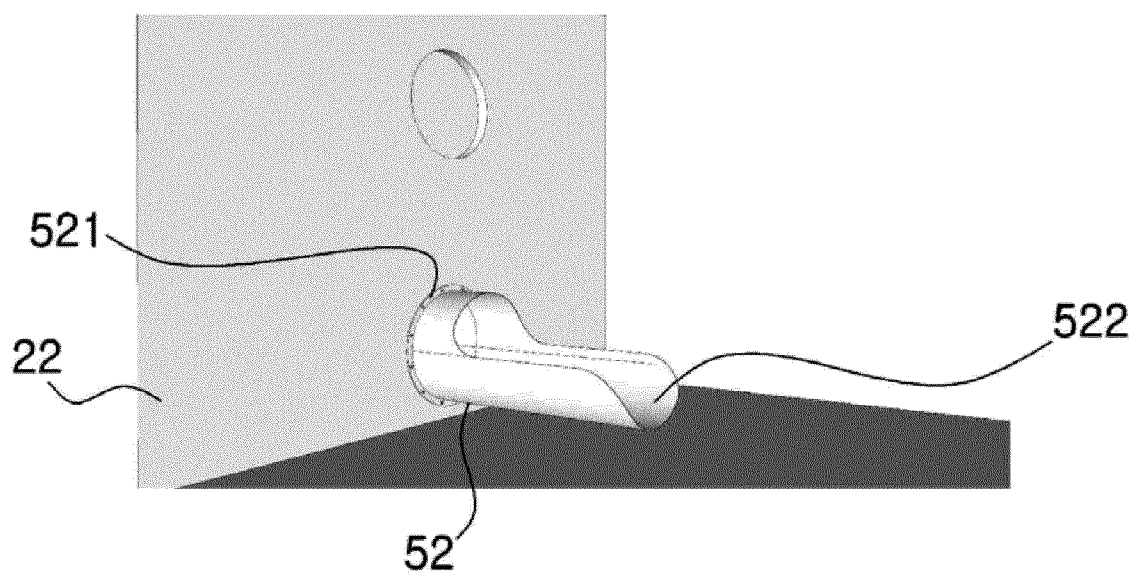


FIG. 9

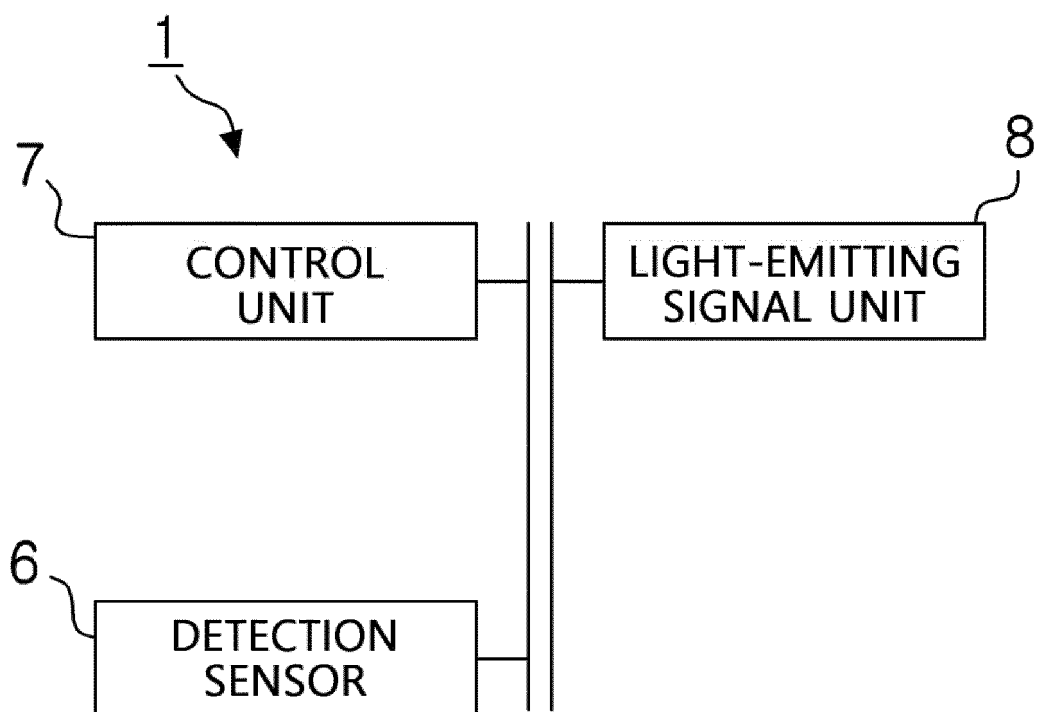


FIG. 10

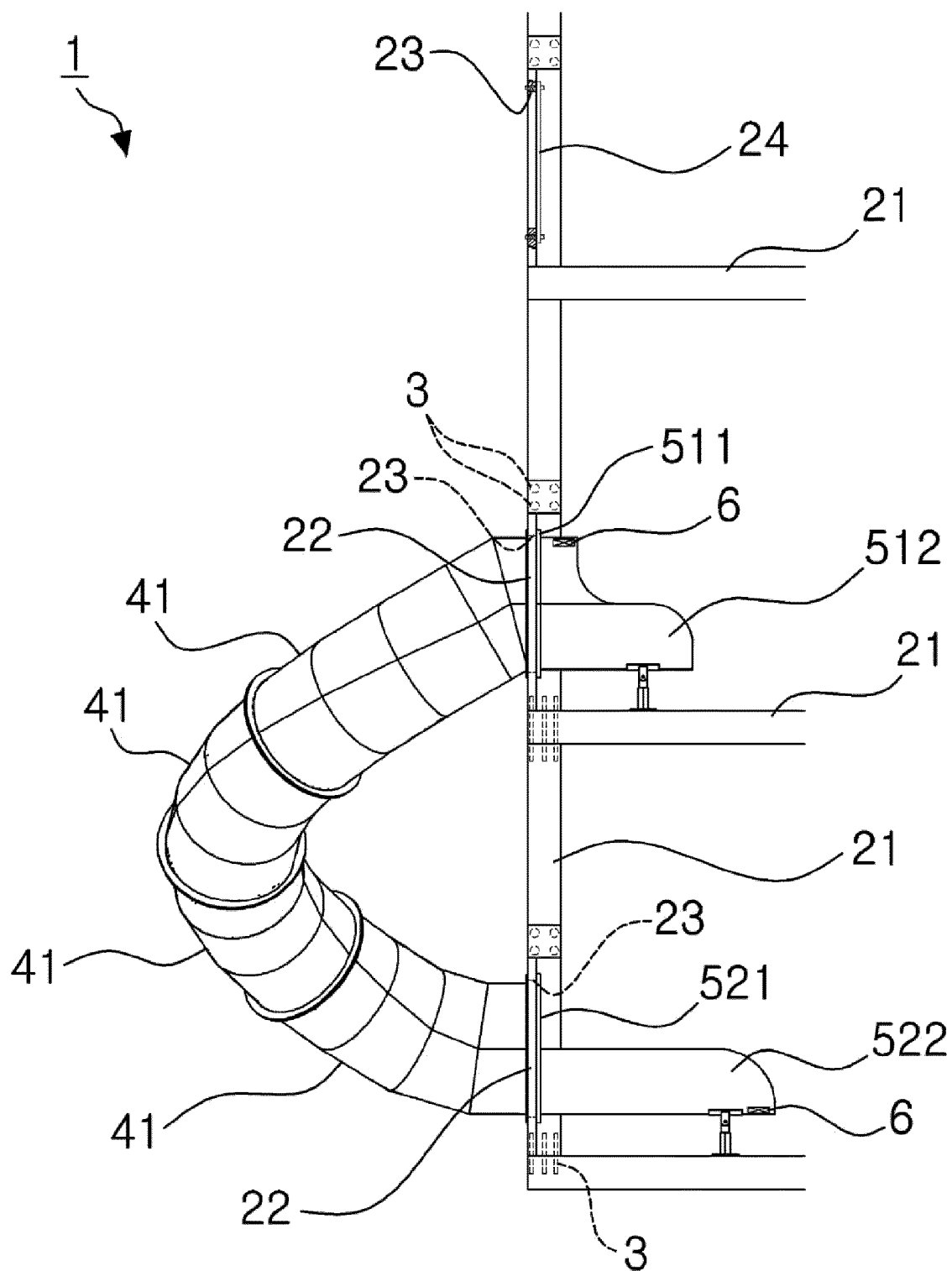


FIG. 11

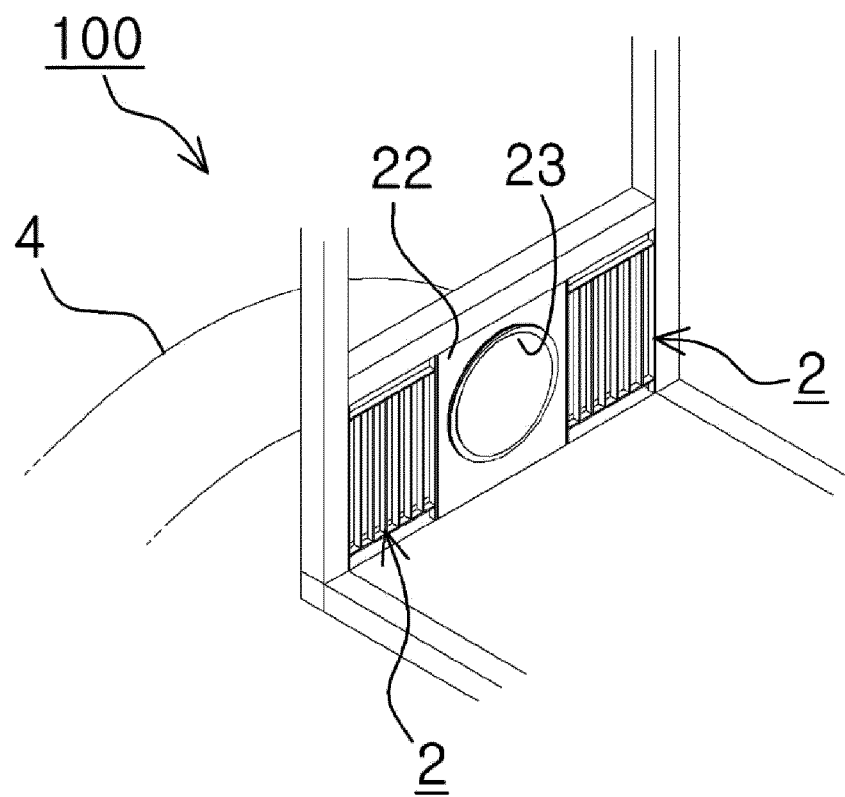
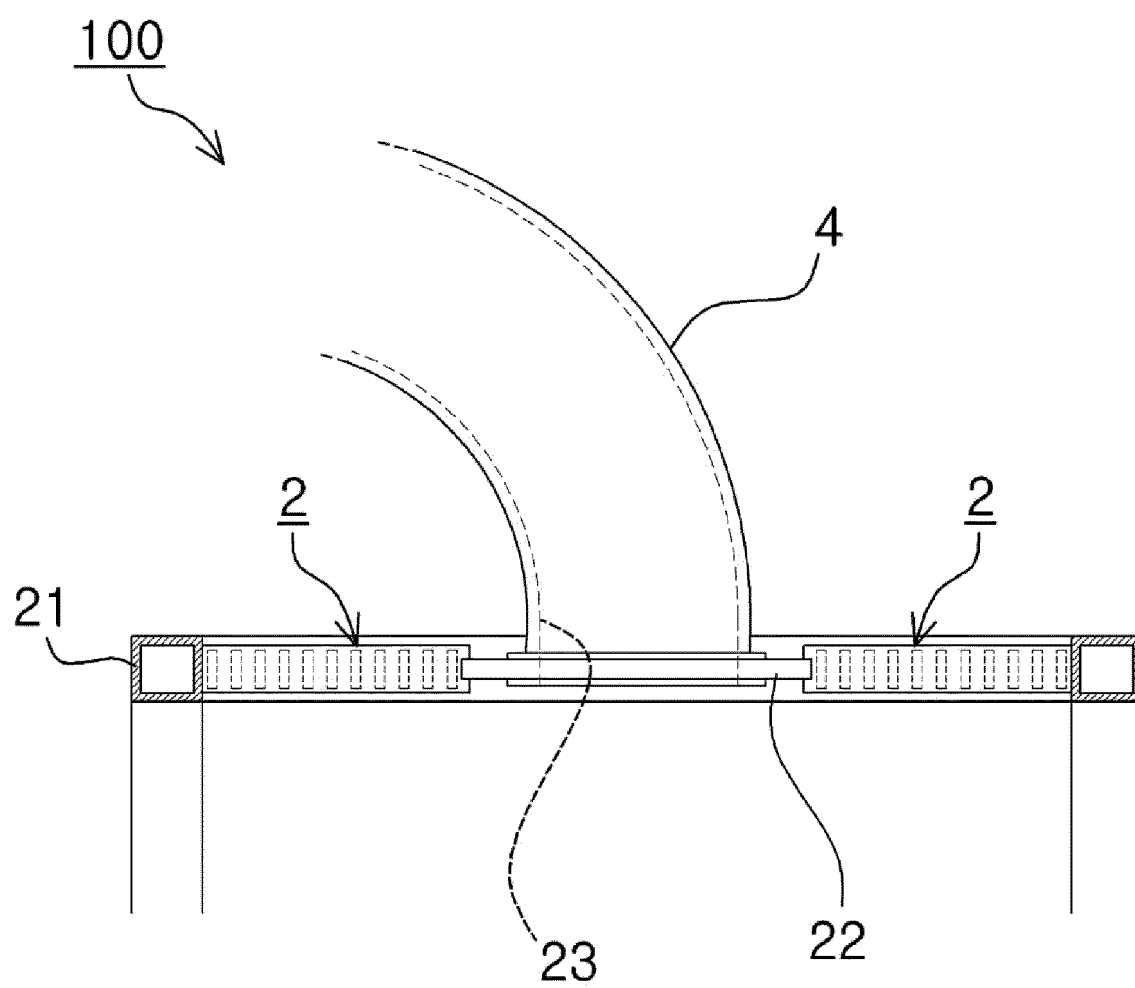


FIG. 12



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2023/010420

A. CLASSIFICATION OF SUBJECT MATTER

A63B 17/04(2006.01)i; A63B 71/06(2006.01)i; A63B 9/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A63B 17/04(2006.01); A62B 35/00(2006.01); A63B 17/00(2006.01); A63B 71/06(2006.01); A63B 9/00(2006.01);
A63G 21/10(2006.01); A63G 31/00(2006.01); A63J 11/00(2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models: IPC as above

Japanese utility models and applications for utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & keywords: 다면체형상(polyhedral shape), 모듈부재(module member), 타워본체(tower body), 연결수단(connection means), 슬라이드부재(slide member), 슬라이드타워시스템(slide tower system)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5226864 A (SHOWERS, David F.) 13 July 1993 (1993-07-13) See column 2, line 29 - column 4, line 7; claim 1; and figures 1-11.	1-3
Y		4
Y	KR 10-2404799 B1 (SPACE ENGINEERING INC.) 02 June 2022 (2022-06-02) See paragraphs [0086]-[0093]; and figures 9-11.	4
A	US 6099411 A (VAN WAGENEN, Gary B.) 08 August 2000 (2000-08-08) See column 2, lines 25-53 and figures 1 and 2A-2C.	1-4
A	US 2021-0016116 A1 (JIMI IP, L.L.C.) 21 January 2021 (2021-01-21) See paragraphs [0066]-[0073]; and figures 1-5.	1-4
A	US 2018-0272172 A1 (BROWNING, Michael, Jr.) 27 September 2018 (2018-09-27) See paragraphs [0046]-[0077]; and figures 1-11.	1-4

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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“&” document member of the same patent family

Date of the actual completion of the international search

15 November 2023

Date of mailing of the international search report

15 November 2023

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon Building 4, 189 Cheongsaro, Seo-gu, Daejeon 35208

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2023/010420

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	KR 10-2545810 B1 (SPACE ENGINEERING INC.) 20 June 2023 (2023-06-20) See claims 1 and 4; and figures 1-12. "This document is a published earlier application that serves as a basis for claiming priority of the present international application."	1-4

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2023/010420

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KR	10-2404799	B1	02 June 2022		None				
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REFERENCES CITED IN THE DESCRIPTION

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