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(71) Applicant: **Polisac metal Makine Petrol Ürünleri Sanayi ve Ticaret Anonim Sirketi**
35640 Izmir (TR)

(72) Inventor: **Susuz, Mehmet**
35640, Izmir (TR)

(74) Representative: **Iskender, Ibrahim**
Destek Patent Inc.
Patent Department
Osmangazi Mah.
Tophane Ortapazar Cad.
Zindankapi Sok. No: 10
Osmangazi
16040 Bursa (TR)

(54) Adjustable spine stair embodiment

(57) The invention relates to adjustable spine stair embodiments containing steps (70) with or without rails, providing travel between at least two floors, platforms or structures of vertical height between them indoor or outdoor part of any type of locations, consisting of connection part (52) containing connection plates (53.1) connected to the lower surface of the said steps (70) used for connection of the said steps (70) as spine (50) and connection pipe (53.5) located under the said connection plate (53.1), spines (50) containing pipe (51) connected to the said connection part (52) by means of intermediate connection part (130), and it is characterized in that it consists of connection plate duct (11) located on the said connection plate (53.1) providing movement of the stair step (70) on the spine (50) in horizontal plane; connection member (20) passing from the said duct (11) and connected to the step (70); upper floor connection spine (10) mounted onto lower part of the top step (70) of the stair, providing connection of step (70) to the spine (50) and the step (70) to the upper floor (120)

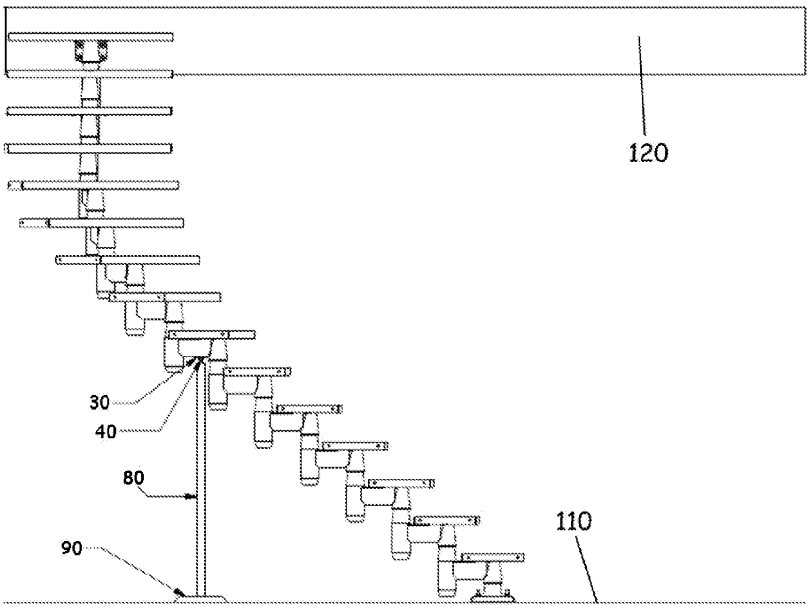

Figure 1

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Description

THE RELATED ART

[0001] The invention relates to static, spinal stairs with or without rails, providing travelling between platforms or structures of at least two flats with vertical heights inside or outside any types of buildings, and having steps.

[0002] The invention particularly relates to stairs with steeps which can be mounted, installed and dismounted later in the places where stairs have not been planned in advance or could not be planned but need for stairs has arisen later and the spine contained by such stairs in the said stair system embodiments.

BACKGROUND OF THE RELATED ART

[0003] In the related art, the stairs used in reinforced buildings particularly in reinforced structures are difficult to build and cost thereof is high. In addition, such types of stairs cannot be applied in the floors having high distance range without support in steps.

[0004] The reinforced stairs used in the related art cannot be used in narrow areas and locations requiring sharp turning and vertical ascending.

[0005] Some of the stairs which are used in the related art and mounted later have spine structure. However, the said stairs used later are not proper for locations requiring sharp turning and vertical ascending either.

[0006] It is difficult to provide communication between floors of high distances by use of stairs mounted later in the related art. Because if there is no structure to provide support near the stairs, it is considerably difficult to provide the stability and balance of the stairs.

[0007] Today it is known that there are several embodiments related to stairs. One of these embodiments is the winding stair disclosed under the patent numbered US5515657**.** The stair includes a newel post which has a plurality of elongated slots horizontally formed around the periphery at different elevations. Each steps of the winding stair is provided with an arched end plate located along an inner narrow end of the step. A curved flange portion extends upwardly along a top edge of the arched end plate. Each step column is secured in a manner to surround outwardly by use of the said curved end plate.

[0008] Another application numbered DE3220918 discloses the said winding stair. According to this embodiment, the stair is supported by rampart and floor and the steps are located by means of steel sliding and the steps of quarter or half in winding stairs.

[0009] Another application numbered JP2002161619 discloses the said spiral stair. It discloses spiral stairs containing spines made from steel arranged as spiral and mounted outside the circle support component made of steel, support feet mounted horizontally to upper surfaces of the spines, wooden steps mounted on the support feet.

[0010] The steps of the above mentioned stairs are mounted by means of columns or other support components from side end parts.

[0011] Another patent numbered TR 2004 01453 U relates to the said Steel spine stairs. The abstract of the said patent reads as follows "the present invention relates to steel spine stairs containing stair spines, carriers of stair head and steps of st 37 steel or stainless steel sheet of 6 mm-50 mm, formed by box profiles of 30 x 40, 40x80 in carrier system technically with platina sheet, pipe of Q25-60x2mm of platina sheet, having steps and balance profiles and manufactured in desired sizes capable to support itself."

[0012] Another application numbered TR2006 04020 U discloses Single Spine stair disclosed there under. The abstract part of the patent reads as follows: "the invention relates to single spine gradual stairs used in villa, flats, business places, fire stairs indoor and outdoor facilities and it is characterized in that integral and gradual sheet is used on right and left of thee spine forming the stair and thus sheet coating is made to the joint places of the sheets from bottom and top and the stair is fixed to the concrete platform by spine fixing metals, the steps are mounted to step mounting metals."

[0013] In the above mentioned applications, no pipes and connection members providing interconnection of pipes have been seen.

[0014] In conclusion, developments have been made in spine stairs and, therefore, new embodiments eliminating the above disadvantages and offering solutions to existing systems are needed.

PURPOSE OF THE INVENTION

[0015] The present invention relates to spine stair meeting the needs mentioned above, eliminating all disadvantages and providing some additional advantages.

[0016] The purpose of the invention is to disclose spine stairs having common area of use mainly in suspended ceiling connections, attic connections, interconnections in duplex , triplex buildings, in narrow locations for saving location, alternatively as fire stairs in building entrance floors, inside and outside towers, in sea vessels, surveillance towers, factories big storing tanks, store houses.

[0017] The purpose of the invention is to disclose spine stairs which can be used at desired vertical angle by means of turning with sharp angles in any stair spaces. The direction and height of them can also be adjusted according to stair space and thus used in narrow areas, half floors.

[0018] Another purpose of the invention is to disclose a spine stair mounting of which can be made in a short time period easily without need for qualified employee.

[0019] A further purpose of the invention is to disclose a stair that can be provided in types such as "flat, winding, L, U" as per preference of decoration and in desired colour adding value to aesthetic features of the location where they are used in addition to functionality thereof.

[0020] A further purpose of the invention is to disclose

a stair having an ergonomic used in narrow locations and providing saving in space.

[0021] Another purpose of the invention is to disclose a stair preventing occurrence of non-desired materials such as construction debris, waste etc. arising from mounting works.

[0022] A further purpose of the invention is to disclose a stair which can be assembled and used at lower cost than the costs occurring as a result of operations such as planning and construction of a reinforced steel stair.

[0023] Another purpose of the invention is to disclose a spine stair which can be located by means of turning its steps at 360 degrees right and left.

[0024] Another purpose of the invention is to disclose a spine stair not causing much load onto the ground of the place where it is mounted as it is light.

[0025] The steps of the stairs being subject of the invention can be manufactured in various forms such as flat, angular, etc. The purpose of manufacturing the steps in angular form is to provide assembly in the desired direction, form and angle. The steps are capable to move 30 degrees on the spine. The spines can rotate 360 degree within themselves. The stair can be used appropriately in any direction and any form by help of these three features.

[0026] The techniques used in manufacturing stages of the sheet materials contained in structure of spine stair being subject of the invention and advantages thereof.

- **LASER CUTTING**: Provides advantages of manufacturing in higher numbers of a part at the same quality with serial production, minimum porosity and debris, zero deformation in the part, manufacturing without mould, low cost and working easiness, drilling hole of too small diameters, more economical process in comparison to machining, and prevention of crushing and damages in material. It is possible to locate on a plate of known sizes the different parts in certain numbers or more than one of the same single part provided that the thickness is equal, and then the parts are cut.

- **LEVELLING:** Levelling of desired geometry is the process of removal of sharp corners and dirt on the sheet material edge arising from cutting. Before sanding process, the dirt and sharp corners of the material are removed so as to obtain a better surface and a surface most convenient for painting. When the sharp corners are not removed, it causes breaking of paint after painting or less paint retaining of the surface. And this causes corrosion of the material on that point in time. In addition, sharp corners are highly exposed to cracking and deformation risk during transportation as well as mounting works. For those reasons, all sharp corners and dirt arising from cutting are levelled after cutting and before sanding so as to eliminate the said problems.

- **SANDING:** Surface preparation before painting is a very important issue. Because no matter what the quality of the painting, if the surface smoothness is inadequate, the paint application will be inadequate. Before applying paint, the surface should be cleaned off the oil, rust, particulate, wet or humidity or any other agents preventing retaining of the paint onto the surface. Because the paint makes curtaining in order to separate the metal and oxygen or humidity. The longer the life of the curtaining the better the paint retains on the surface. The paint adhered to the foreign agents existing on the surface goes off the surface together with the agent in time and the metal is left without protection. First of all, rust and corrosion visible or in micronized sizes on the metal surface is removed by sanding in order to reveal the core of the metal. Different abrasive agents depending on sector where they are used are used for different metal structure and manufacturing. The purpose of sanding process is to provide fully cleaning of the metal where the paint will be applied and obtain porosity and roughness on the metal surface for adherence of paint. If paint is applied onto a normal glass surface, the paint will leave the surface in a very short time period since it does not have the surface profile, in other words, porosity of the surface required for adherence of paint. Moreover, when paint is applied onto the porosity surface of grinding paper, the process of sanding onto the glass surface will provide a porosity just like the one of the grinding paper. Adherence of the paint onto the metal surface by means of any chemical reaction is not possible. Just as it is the example of glass surface, the paint contacts the surface and if there is no proper porosity on the surface, it removes after a period of time following drying. Full adherence of the applied paint onto the surface is only possible upon a mechanical adherence. For achievement of full adherence, surface porosity, i.e., sanding made by means of a convenient abrasive agent is a must. Non/metallic abrasive agents should be used as a measure for occurrence of any reaction for particularly stainless and aluminium materials.

[0027] In order to achieve all of the advantages mentioned above and described in details below, the present invention relates to adjustable spine stair embodiments containing steps (70) with or without rails, providing travel between at least two floors, platforms or structures of vertical height between them indoor or outdoor part of any type of locations, consisting of connection part (52) containing connection plates (53.1) connected to the lower surface of the said steps (70) used for connection of the said steps (70) as spine (50) and connection pipe (53.5) located under the said connection plate (53.1), spines (50) containing pipe (51) connected to the said connection part (52) by means of intermediate connection part (130), and it is characterized in that it consists of

- connection plate duct (11) located on the said connection plate (53.1) providing movement of the stair step (70) on the spine (50) in horizontal plane,
- connection member (20) extending from the said connection plate duct (11) and connected to the step (70);
- upper floor connection spine (10) which is mounted the step (70) onto the lower part of the top step (70) of the stair, providing connection between the step and the spine (50) and between the step (70) and the upper floor (120).

[0028] A preferred embodiment of the invention consists of connection member (20) used to provide interlocking of the connection pipe (53.5) connected to the said spine (50) and pipe (51) of the adjacent spine (50).

[0029] A preferred embodiment of the invention consists of safety member (30) of the said connection member (20) in order to provide safe interlocking of the said connection pipe (53.5) and connection member (20) of the adjacent spine pipe (51) .

[0030] In a preferred embodiment of the invention, the said safety member (30) is preferably washer.

[0031] Another preferred embodiment of the invention consists of fixer (40) providing fixing the said connection member (20) on the surface where one end thereof is connected.

[0032] A preferred embodiment of the invention consists of 1ixer (40) preferably nut.

[0033] Another embodiment of the invention consists of guide part (53.4) used for guiding proper connection of connection member (20) from lower part of the pipe (51) to upper part of thee pipe (51) while interconnecting the spines (50).

[0034] In a preferred embodiment of the invention, the said guide part (53.4) is in the form of threaded conic form.

[0035] Another preferred embodiment of the invention consists of spine cover (60) enclosed under the pipe (51) in order to ensure visual integrity of the said spine (50).

[0036] Another preferred embodiment of the invention consists of stair step (70) which can be manufactured as angular or flat and/or manufactured from wooden or sheet metal material.

[0037] Another preferred embodiment of the invention consists of support pole (80) used to enhance the stability of the stair having a certain height and distribute the load onto the ground (110) smoothly.

[0038] Another preferred embodiment of the invention consists of support pole base plate (90) providing location of the support pole (80) on the ground (110) in a smooth plane and on the surface.

[0039] Another preferred embodiment of the invention consists of ground base plate (100) providing location of the stair on the ground (110) in a smooth surface and on the plane. Another preferred embodiment of the invention consists of base plate member (101) of thee base plate (100).

[0040] Another preferred embodiment of the invention consists of base plate member (101) which is preferably a pipe.

[0041] Another preferred embodiment of the invention consists of connection pipe (53.5) and/or pipe (51) formed in conic form.

[0042] Another preferred embodiment of the invention consists of connection pipe (53.5) located on the said spine (50) formed in a manner expanding downward.

[0043] Another preferred embodiment of the invention consists of pipe (51) located on the said spine (50) formed in a manner narrowing upward.

[0044] Another preferred embodiment of the invention consists of mounting extension (53.3) located on the said connection plate (53.1) used during mounting of the said connection plate (53.1) to the lower surface of the step (70).

[0045] The invention relates to mounting method for stairs with or without rails, providing travelling between platforms or structures of at least two flats with vertical heights inside or outside any types of buildings and having steps (70) wherein the said steps (70) are connected from the spines (50) and it is characterized in that it comprises process steps of

- mounting the ground plate (100) having ground plate member (101) onto the ground (110),
- mounting the connection pipe (53.5) on the spine (50) to the ground plate (100),
- connecting the connecting pipe (53.5) of the adjacent spine (50) to the pipe (51) located on the spine (50),
- interlocking the connecting pipe (53.5) to the connecting member (20) of the adjacent spine pipe (51),
- connection of the spines mounted as per height consecutively to the upper flat (120) and upper flat connection spine (10),
- location of the steps (70) to the spines (50) by means of connection plate duct (11).

[0046] In another preferred embodiment of the invention, ground base plate (100) is mounted by means of connection members (20), fixer (40) and safety member (30).

[0047] In another preferred embodiment of the invention, adjacent connection pipe (53.5) is located inside the spine pipe (51).

[0048] In another preferred embodiment of the invention, the stair step (70) moves 30° in horizontal plane on the spine (50) by means of connection plate duct (11).

[0049] In another preferred embodiment of the invention, the stair step (70) moves in horizontal plane on the spine (50) by means of connection plate duct (11).

[0050] In another preferred embodiment of the invention, support pole (80) is mounted to the support pole base plate (90).

[0051] In another preferred embodiment of the invention, support pole (80) is mounted to various spines (50) depending on the number and position of the stair step (70).

[0052] In another preferred embodiment of the invention, the said support pole (80) is located in moving manner.

[0053] In another preferred embodiment of the invention, the said connection member (20) passes from housing (51.31) in the support member (51.3) before the lower part adjacent spine pipe (51) and then through connection space (51.1) located in upper part and contacts the guiding part (53.4) in order to provide interlocking of the connection pipe (53.5) to the adjacent spine pipe (51).

[0054] In another preferred embodiment of the invention, connection member (20) containing safety member (30) providing safe connection of the connection member (20) on the surface where it is connected is used.

[0055] The structural and characteristics features of the invention and all advantages will be understood better in detailed descriptions with the figures given below and with reference to the figures, and therefore, the assessment should be made taking into account the said figures and detailed explanations.

BRIEF DESCRIPTION OF FIGURES

[0056] In order to make the embodiment and additional members being subject of the present invention as well as the advantages clearer for better understanding, it should be assessed with reference to the fallowing described figures.

Figure -1 Is a front view of the illustrative embodiment of the invention.

Figure -2 Is a left view of the illustrative embodiment of the invention.

Figure -3 Is a perspective view of demounted stair spines of the invention.

Figure -4a Is a left cross-section view of stair spines mounted to each other.

Figure -4b: Is a front cross-section view of stair spines mounted to each other.

Figure -5a is a perspective view indicating demounting of the ground base plate to ground and spine.

Figure -5b: is a perspective view indicating demounting of the ground base plate to spine.

Figure -6 is a perspective view indicating connection of support pole to stair spine and steps to the spine.

Figure -7a is a perspective view indicating flat stair embodiment provided by use of only flat steps.

Figure -7b: is a perspective view indicating winding stairs up to 360° provided by use of only angular steps.

Figure -7c: is a top view indicating winding stairs up to 360° provided by use of only angular steps.

Figure -7d; is front view of the stairs with curving to right or left.

Figure -8 is a top and perspective view indicating the flat and angular steps used in the invention.

Figure -9a is a perspective view indicating illustration of wooden appearing metal or wooden steps used in the invention.

Figure -9b: is a perspective view indicating illustration of strip band attached steps used in the invention.

Figure-9c: is a perspective view indicating illustration of steps used as surface raised in the invention.

Figure-9d: is a perspective view indicating illustration of carpet or fabric coated steps used in the invention.

Figure - 9e: is a perspective view indicating illustration of steps used as surface raised and with holes in the invention.

REFERENCE NUMBERS

[0057]

10. Upper flat connection spine
11. Connection plate duct
20. Connection member
30- Safety member
40. Fixer
50. Spine
51. Pipe
51.1. Connection space
51.2. Conic surface
51.3- Support member
51.31- Support member housing
52. Connection Part
53.1. Connection Plate
53.2. Conic surface
53.3. Mounting extension
53.4. Guide Part
53.5. Connection pipe
60. Spine cover
70. Step
71. Strip tape
72. fabric coated surface
73. Raised surface
74. Perforated surface
80. Support pole
90. Support pole base plate
100. Ground base plate
101. Ground plate member (pipe)
110. Ground
120- Upper floor
130. Intermediate part

DETAILED DESCRIPTION OF THE INVENTION

[0058] In this detailed description, the preferred embodiments of the spine stair being subject of the invention have been described in a manner not forming any restrictive effect and only for purpose of better understanding of the matter.

[0059] Figure 2 shows a left view of illustrative embodiment and figure 3 shows perspective view of demounted stair spines of the invention.

[0060] The invention relates to adjustable spine stairs with or without rails, providing travelling between platforms or structures of at least two flats with vertical heights inside or outside any types of buildings, and having steps and it is characterized in that it consists of

- spine (50) containing connection part (52), intermediate part (130) and pipe (51); upper floor connection spine (10) providing connection between the step (70) mounted onto the lower part of the top step (70) of the stair and the spine (50) and the step (70) and the upper floor (120), connection plate duct (11) located on the said connection plate providing movement of the stair step (70) on the spine (50) in horizontal plane; connection member (bolt) (20) preferably selected as bolt connected to the step (70) after passing through connection plate duct (11), providing adjustment of step (70) angle and also providing interconnection of other members in the invention; Safety member (washer) (30) providing safe connection of connection member (20) to the surface where it is connected; fixer (nut) (40) providing fixing the said connection member (20) on the surface where one end thereof is connected, preferably used as nut; spine (50) containing intermediate part (130) providing interconnection of the steps (70) and one part thereof connected to lower surface of the step (70) while other part to other spine (50); guide part (53.4) in the form of threaded conic form, used for guiding proper connection of connection member (20) from lower part of the pipe (51) to upper part of the pipe while interconnecting the spines (50), stair step (70) which can be manufactured as angular or flat and/or manufactured from wooden or sheet metal material, spine cover (60) enclosed under the pipe in order to ensure visual integrity of the said spine (50); support pole (80) used to enhance the stability of the stair having a certain height and distribute the load onto the ground (110) smoothly, support pole base plate (90) providing location of the support pole (80) on the ground (110) in a smooth plane and on the surface, ground base plate (100) providing location of the stair on the ground (110) in a smooth surface and on the plane.

Figure -4a shows left cross-section of mounting of the stair spines to each other while figure -4b shows front cross-section of mounting of the stair spines to each other.

[0061] Spines (50) are used to provide interconnection of stairs (70) in the spine stairs being subject of the invention. The said spine (50) contains connection part (52) containing step connection plate (53.1) providing connection to the lower surface of the step (70). It contains pipe (51) containing connection space (51.1) connected by means of the said step connection part (52) and intermediate part (130). Ducts (11) are located on the connection plate (53.1) providing movement of the stair step (70) on upper part of the spine (50) in horizontal plane. Pipe (53.5) containing a space is provided in lower part of the said connection plate (53.1). The said spines (50) are interconnected in a manner providing interlocking of the pipes (51, 53,5). The connection of the said spines (50) to the said steps (70) is provided by means of plates (53.1). The said connection plate (53.1) contains mounting extension (53.3). The said mounting extension (53.3) provides better location of the connection plate (53.1) to the lower surface of the step (70). The pipes (51, 53.5) located on the said spine (50) are formed conically and can move 360 degrees in respect to each other. In addition, the steps (70) can move minimum 30 degrees in the ducts (11) by means of connection members (20) located on lower surface of the said step (70). The said ducts (11) are preferably formed in moon. Pipe (51) of adjacent spine (50) is located inside the pipe (53.5) located in the said connection part (52). The pipe (53.5) located in the connection part (52) of the spine (50) contains a conic surface (53.5) expanding downward while other pie (51) connected to intermediate part (130) contains a conic surface (51.2) narrowing down upward. A guide part (53.4) is located in the inner part of the said connection pipe (53.5). A support member (51.3) is located inside the pipe (51) located by means of connection part (52) and intermediate part (130). In order to provide interlocking of adjacent pipe (51) located inside connection pipe (53.5) of a spine to the said connection pipe (52), the connection member (20) passing through the housing (51.31) located on the support member (51.3) from lower part of the pipe (51) finds its way through the connection space (51.1) formed on upper part of the said pipe (51) and ends in guide part (53.4) for connection. Before connection of the said connection member (20) to the spine (50), safety member (30) is located on the said connection member (20). The said safety member (30) is preferably washer. After connecting pipe (51) to the said connection member (20) connection part (52) by means of connection member (20), cover (60) is located under the connection pipe (53.5) in order to ensure visual integrity of the spine (50). When the said connection member (20) is tightened, adjacent pipes (51, 53.5) containing conic surface (51.2, 53.2) are interlocked and interconnected, When the connection member (20) is loosened and dismantled, similarly, adjacent pipes (51, 53.5) containing conic surface (51.2, 53.2) are disconnected, In addition, while interconnecting the spines (50), preferably a threaded guide part (53.4) is used to ensure easy finding the way by the connection member (20). It is the upper floor connection spine (10) which provides connection between the step (70) mounted onto the lower part of the top step (70) of the said stair and the spine (50) and the step (70) and the upper floor (120). Ground base plate (100) containing base plate member (101) to provide connection to the connection pipe (53.5) located on the said connection part (52) in order to ensure connection of spines (50) to ground is located. The said ground plate member (101) is pipe. Inner part of the base plate mem-

ber (101) located on the said plate (100) is threaded. In addition, the member (pipe)(101) located on the said plate (100) is also provided in conic form just like the pipes on the other said spines (50). In order to enhance the stability of the stair having a certain height and thus to distribute the load thereof onto ground smoothly, the support pole (80) shown in figure 6 is used. It is a support pole base plate (90) which provides location of the support pole (80) on the ground in a smooth plane and on the surface.

[0062] Mounting of the said spine stair to an upper floor (10) through ground is described below.

- Holes are drilled for ground base plate (100) mounting upon selection of appropriate location sizes (circle, L, flat etc.) from existing prepared tables as per the status of the place where the stair will be mounted.
- Since the height of floors is not standard, ground base plate is manufactured in a manner where height is adjustable. As shown in figure 5a, ground base plate (100) is mounted onto ground by help of connection member (20), safety member (30), fixer (40) and thus mounting of spine stair can be started.
- As shown in figure 5b, the connection pipe (53,5) located on the spine (50) is interlocked onto the member in the form of pipe located on the ground base plate (100).
- The spines (50) are interconnected by means of a connection member (20) from connecting pipe (53.5) and the adjacent spine pipe (51). Thus the spines (50) can rotate 360 degrees around their axis and so the stair can be used by means of giving any desired direction in any position which has not been predetermined, planned or could be planned.
- In order to increase the stability of spine stair, as shown in figure 1, the said support pole is mounted to base plate (90) and one of the spines (50) by means of safety member (30) and fixer (40). The support pole (80) is mounted to different spines (50) depending on the number and position of step (70) of the stair. For that reason, the support pole (80) can be mounted to the spine (50) specified and required under mounting specification in accordance with number of the step (70). In addition, support pole (80) is mobile (up-down) so as to ensure parallel position of stair.
- Upper floor connection spine (10) is mounted after drilling holes at convenient locations for connection to upper floor (120) ground, and thus mounting of he spine stair to upper floor (120) and ground (110) is completed and spine part of the stair is formed.
- After forming the spines (50), the steps (70) are connected to the ducts (11) located on the connection plate (53.1) of the said spine (50) and to the mounting extension (53.3) at the desired angles to the spine (50). The said steps (70) are connected to the ducts (11) by means of connection member (20) located on lower surface of the step (70). The steps (70) can move 30 degrees in itself by means of the said ducts (11). Thus the stair step (70) can be adjusted according to the desired position.)

[0063] The mounting can be realized on condition that it is started from lower or upper. However, in case of starting mounting from upper, the connection pins will be exposed to higher load and therefore is more risky. For that reason, starting mounting from lower part is more healthy method.

[0064] Figure 7a shows perspective view of the flat stair embodiment provided by use of only flat step while figure 7b shows perspective view of the stair rotating up to 360 degrees formed by use of only angular steps and figure 7c shows upper view of the stair rotating up to 360 degrees formed by use of only angular steps, while figure 7d shows front view of stairs with curving to right or left. Figure 8 is a top and perspective view indicating the flat and angular steps used in the invention.

[0065] The steps (70) used in the invention are metal with wooden appearance or wooden as shown in figure 9a, and as shown in figure 9b, strip tape (71) can be used while as shown in figures 9c, raised surface can be provided and as shown in figure 9d, carpet or fabric coated surface (72) can be provided and as shown in figure 9e, raised (73) and/or perforated surface can be used.

[0066] The protection area of this application has been specified under claims and cannot be limited to the descriptions only given as sampling above. It is clear that any innovation can be provided by a person skilled in the related art by use of the similar embodiments and/or can also apply this embodiment in other areas for similar purposes used in the related art. Therefore, such embodiments will be lack of innovation criteria and particularly exceeding the related art.

Claims

1. The invention relates to adjustable spine stair embodiments containing steps (70) with or without rails, providing travel between at least two floors, platforms or structures of vertical height between them indoor or outdoor part of any type of locations, consisting of connection part (52) containing connection plates (53.1) connected to the lower surface of the said steps (70) used for connection of the said steps (70) as spine (50) and connection pipe (53.5) located under the said connection plate (53.1); spines (50) containing pipe (51) connected to the said connection part (52) by means of intermediate connection part (130), and it is **characterized in that** it consists of

    • connection plate duct (11) located on the said connection plate (53.1) providing movement of the stair step (70) on the spine (50) in horizontal

plane,

• connection member (20) extending from the said connection plate duct (11) and connected to the step (70);

• upper floor connection spine (10) which is mounted the step (70) onto the lower part of the top step (70) of the stair, providing connection between the step and the spine (50) and between the step (70) and the upper floor (120).

2. A spine stair according to claim 1 and it is ***characterized in that*** it consists of connection member (20) and safety member (30), preferably washer, used to provide interlocking of the connection pipe (53.5) connected to the said spine (50) and pipe (51) of the adjacent spine (50).

3. A spine stair according to claim 1 and claim 2 and it is ***characterized in that*** it consists of guide part (53.4) which is in shape of threaded conic used for guiding proper connection of connection member (20) from lower part of the pipe (51) to upper part of the pipe (51) while interconnecting the spines (50).

4. A spine stair according to claim 1 to 3 and it is ***characterized in that*** it consist of stair step (70) which can be manufactured as angular or flat and/or manufactured from wooden and/or sheet metal material.

5. A spine stair according to claim 1 to 4 and it is ***characterized in that*** it consist of support pole (80) containing pole base plate (90) used to enhance the stability of the
stair having a certain height and distribute the load onto the ground (110) smoothly.

6. A spine stair according to claim 1 to 5 and it is ***characterized in that*** it consists of support pole base plate (100) which contains base plate member (101), preferably pipe, providing location of the stair on the ground (110) in a smooth plane and on the surface.

7. A spine stair according to claims 1 to 6 and it is ***characterized in that*** it consists of connection pipe (53.5) located on the said spine (50) formed in a manner expanding downward and spine cover (60) enclosed under the pipe (51) in order to ensure visual integrity of the said spine (50).

8. A spine stair according to claims 1 to 7 and it is ***characterized in that*** it consists of mounting extension (53.3) located on the said connection plate (53.1) used during mounting of the said connection plate (53.1) to the lower surface of the step (70).

9. The invention relates to mounting method for stairs with or without rails, providing travelling between platforms or structures of at least two flats with vertical heights inside or outside any types of buildings and having steps (70) wherein the said steps (70) are connected from the spines (50) and it is **characterized in that** it comprises process steps of

- preferably by means of connection members (20) and/or fixer (40) and/or safety member (30), mounting the ground plate (100) having ground plate member (101) onto the ground (110),
- mounting the connection pipe (53.5) on the spine (50) to the ground plate (100),
- connecting the connecting pipe (53.5) of the adjacent spine (50) to the pipe (51) located on the spine (50),
- interlocking the connecting pipe (53.5) to the connecting member (20) of the adjacent spine pipe (51),
- connection of the spines (50) mounted as per height consecutively to the upper flat (120) and upper flat connection spine (10),
- location of the steps (70) to the spines (50) by means of connection plate duct (11).

10. A spine stair mounting method according to claim 9 and it is **characterized in that** adjacent connection pipe (53.5) is located inside the pipe (51).

11. A spine stair mounting method according to claims 9 to 10 and and it is **characterized in that** the stair step (70) moves 30° in horizontal plane on the spine (50) by means of connection plate duct (11).

12. A spine stair mounting method according to claims 9 to 11 and it is **characterized in that** the stair step (70) moves 360 ° in horizontal plane on the spine (50) by means of connection plate duct (11).

13. A spine stair mounting method according to claims 9 to 12 and it is **characterized in that** support pole (80) is mounted to the support pole base plate (90) in a moving manner and after support pole (80) is mounted to various spines (50) depending on the number and position of the stair step (70).

14. A spine stair mounting method according to claims 9 to 13 and it is **characterized in that** the said connection member (20) passes from housing (51.31) in the support member (51.3) before the lower part of adjacent pipe (51) and then through connection space (51.1) located in upper part and contacts the guiding part (53.4) in order to provide interlocking of the connection pipe (53.5) to the adjacent spine pipe (51).

15. A spine stair mounting method according to claims 9 to 13 and it is **characterized in that** connection member (20) containing safety member (30) providing safe connection of the connection member (20)

on the surface where it is connected is used.

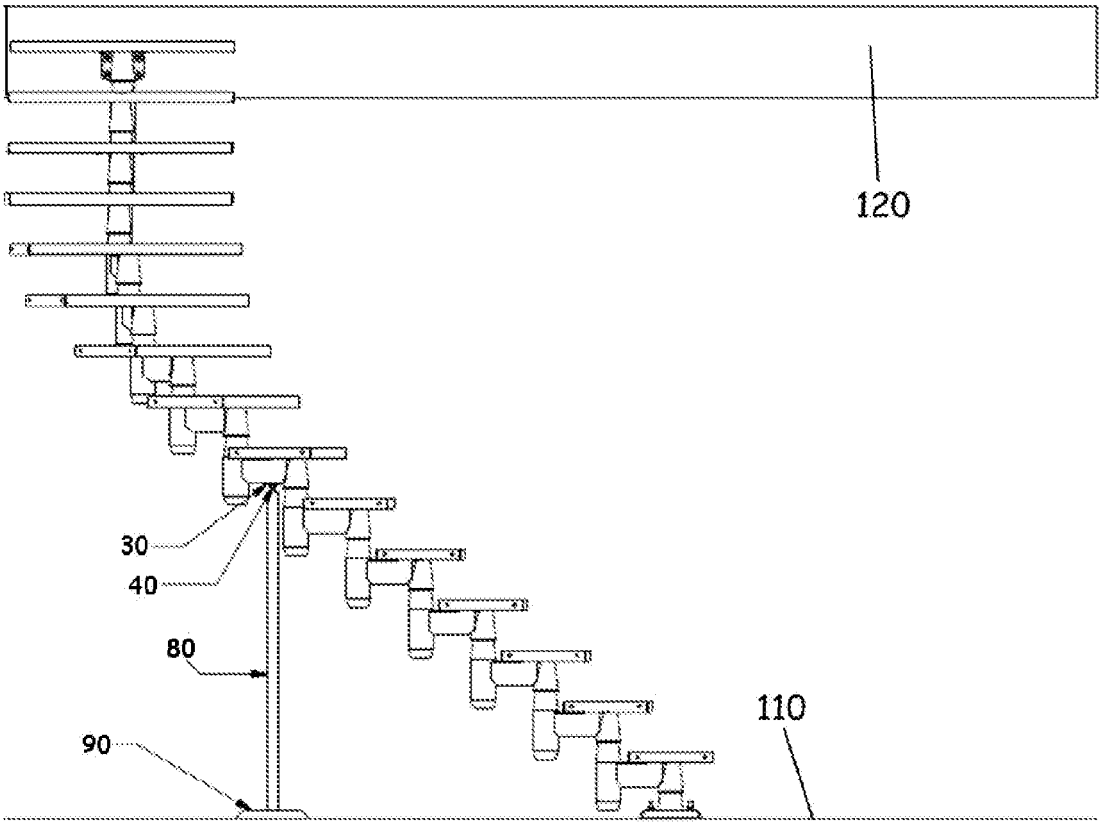


Figure 1

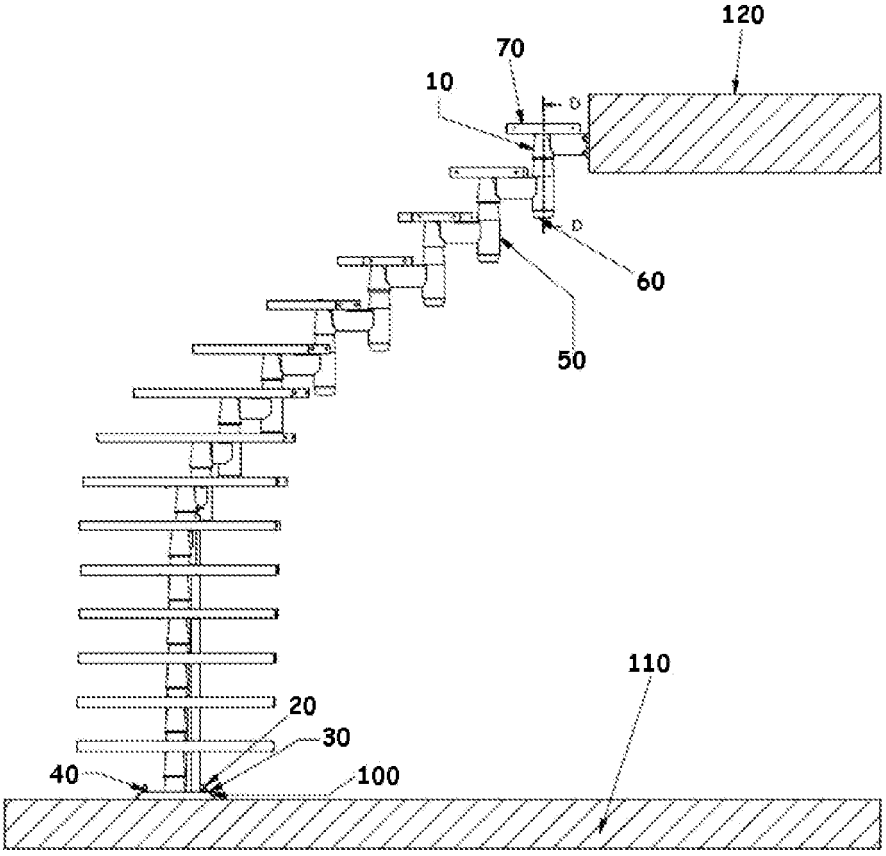


Figure 2

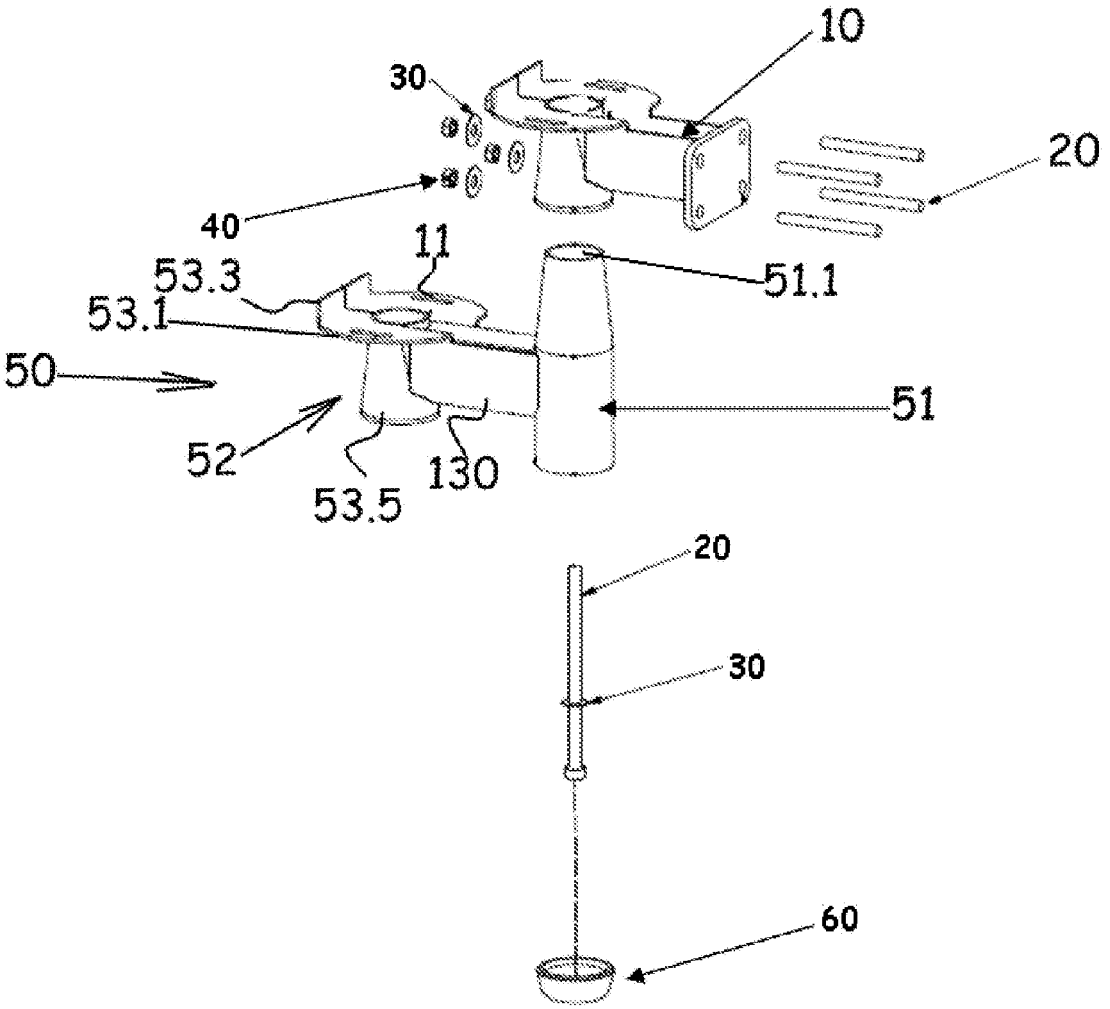


Figure 3

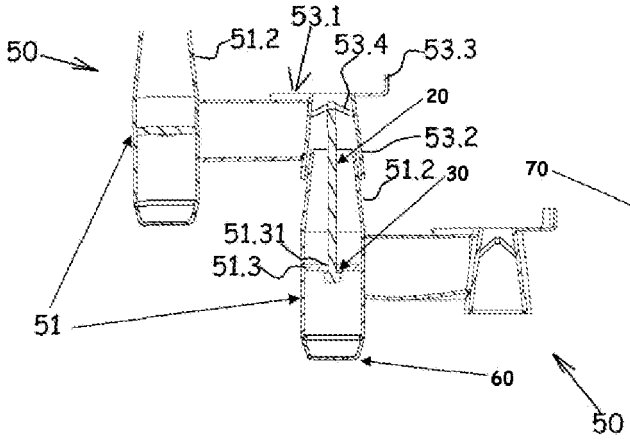


Figure 4a

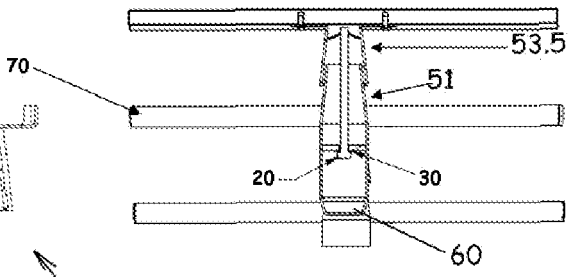
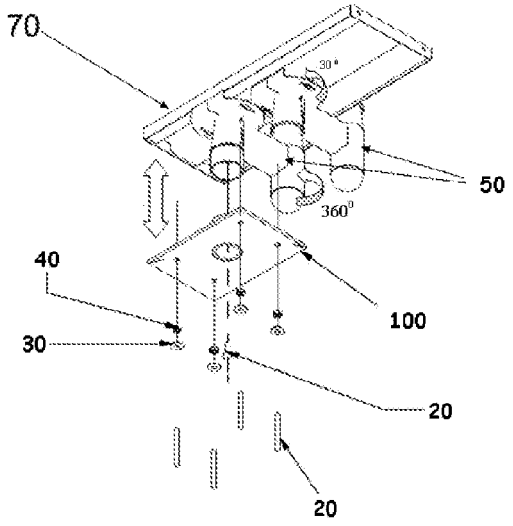


Figure 4b



gure 5a

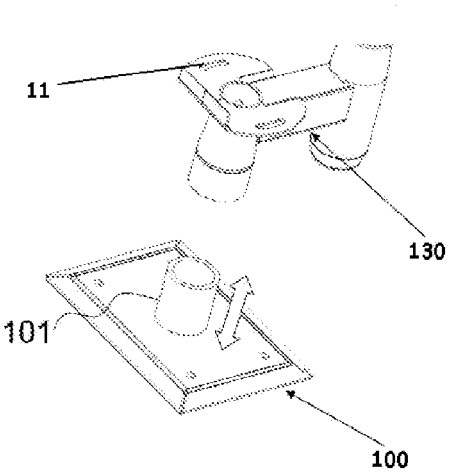


Figure 5b

Fi

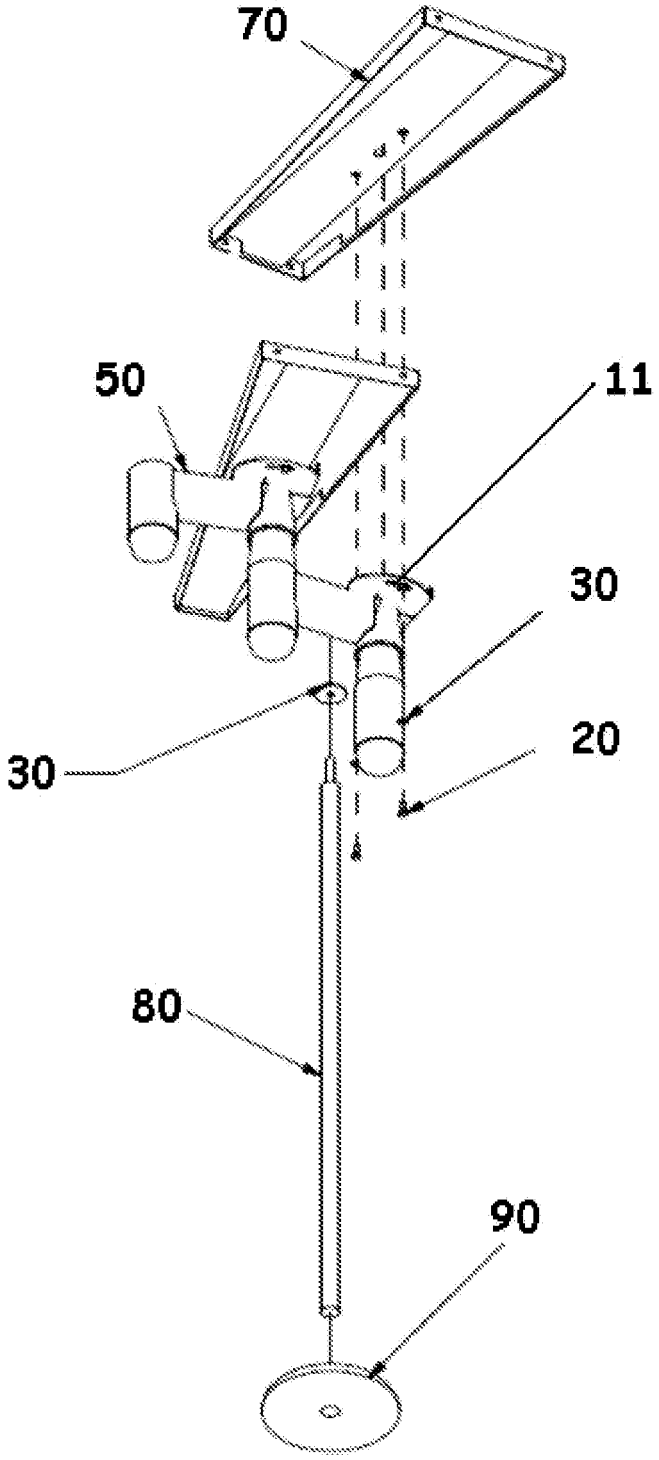


Figure 6

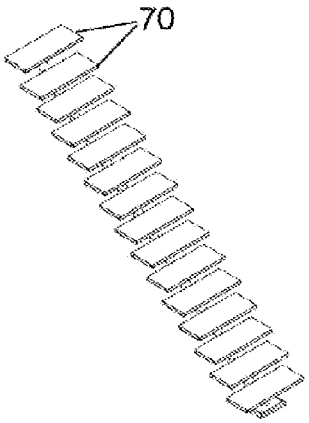


Figure 7a

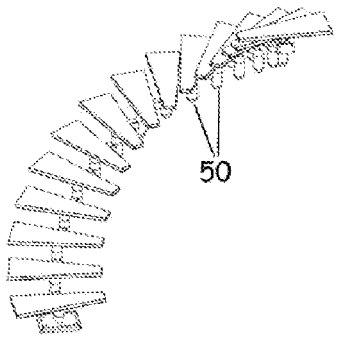


Figure 7b

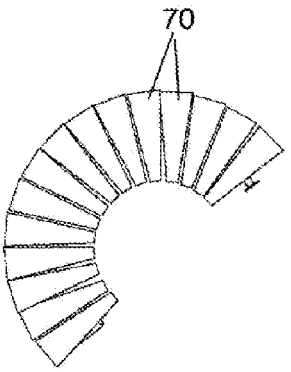


Figure 7c

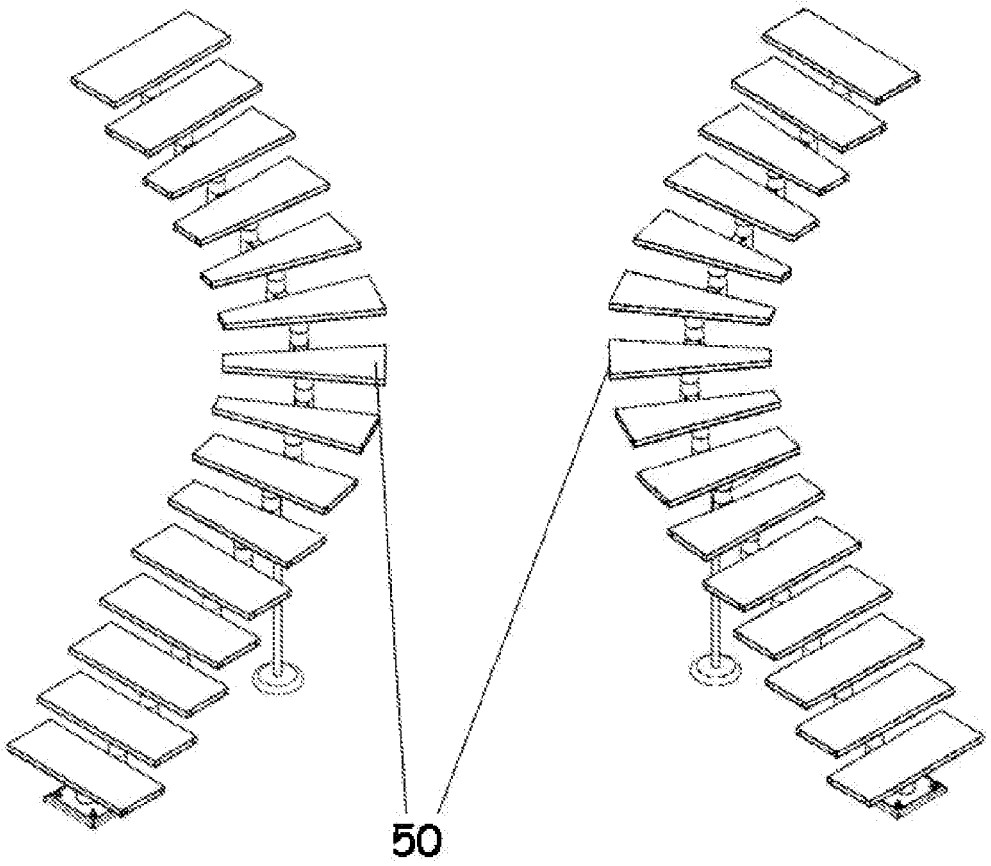


Figure 7d

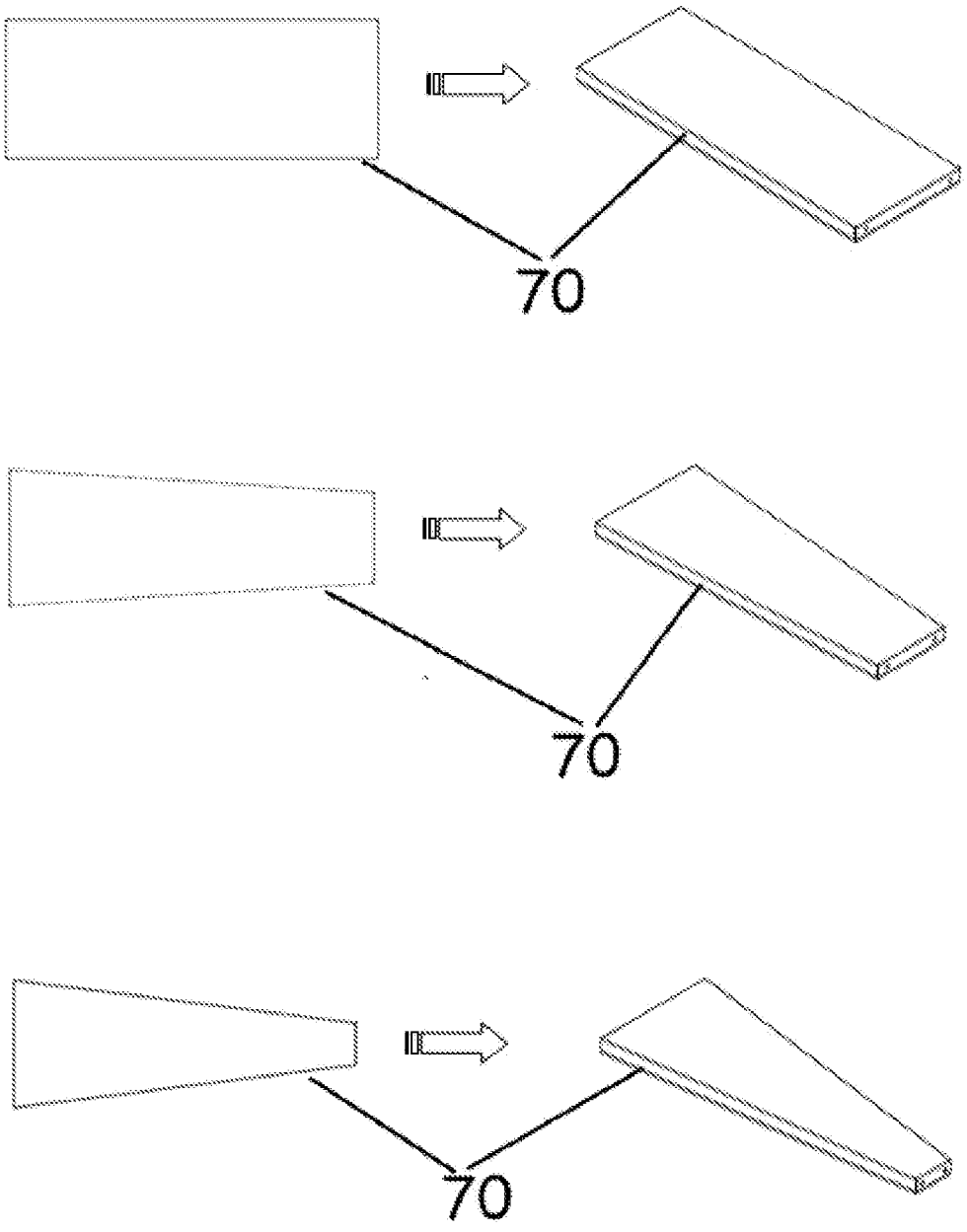


Figure 8

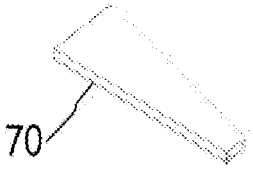


Figure 9a

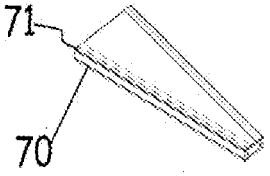


Figure 9b

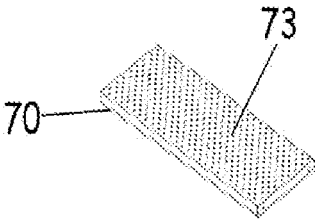


Figure 9c

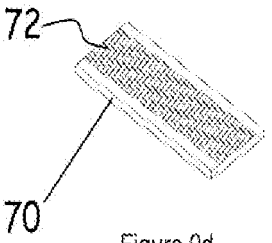


Figure 9d

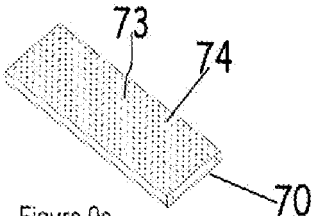


Figure 9e

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 5515657 A **[0007]**
- DE 3220918 **[0008]**
- JP 2002161619 B **[0009]**
- TR 200401453 U **[0011]**
- TR 200604020 U **[0012]**