



US 20100320811A1

(19) **United States**

(12) **Patent Application Publication**
Lin et al.

(10) **Pub. No.: US 2010/0320811 A1**

(43) **Pub. Date: Dec. 23, 2010**

(54) **STORABLE STRUCTURE OF TABLE AND CHAIR**

Publication Classification

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(51) **Int. Cl.** *A47B 83/02* (2006.01)
(52) **U.S. Cl.** 297/143

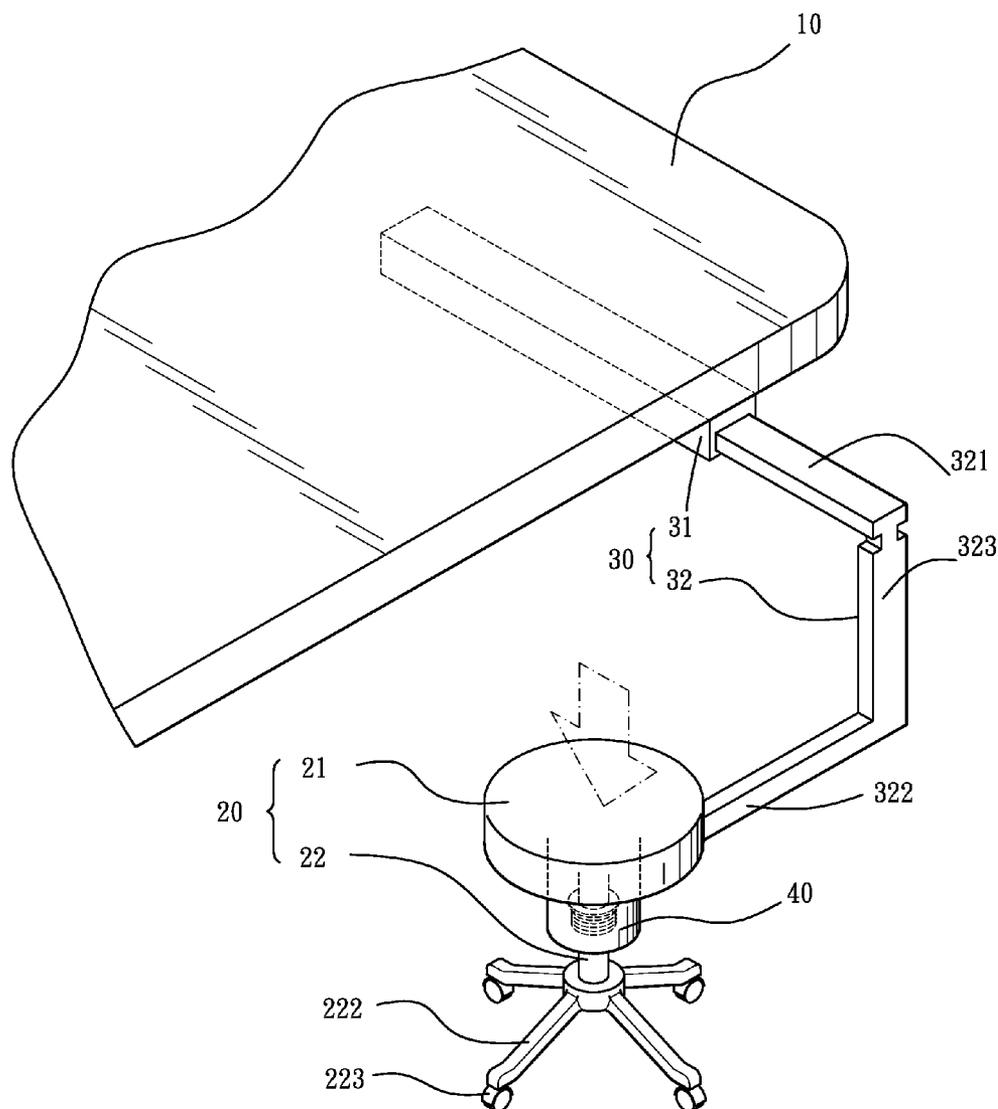
(57) **ABSTRACT**

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A storable structure of the table and chair includes a tabletop and at least one chair member positioned adjacent the tabletop. Each of the at least one chair member includes a chair, a lifting device and a sliding device. The lifting device connects to the chair for vertically moving the chair. The sliding device connects to the lifting device and the tabletop. The chair slides horizontally via the sliding device for storage under the tabletop.

(21) Appl. No.: **12/485,927**

(22) Filed: **Jun. 17, 2009**



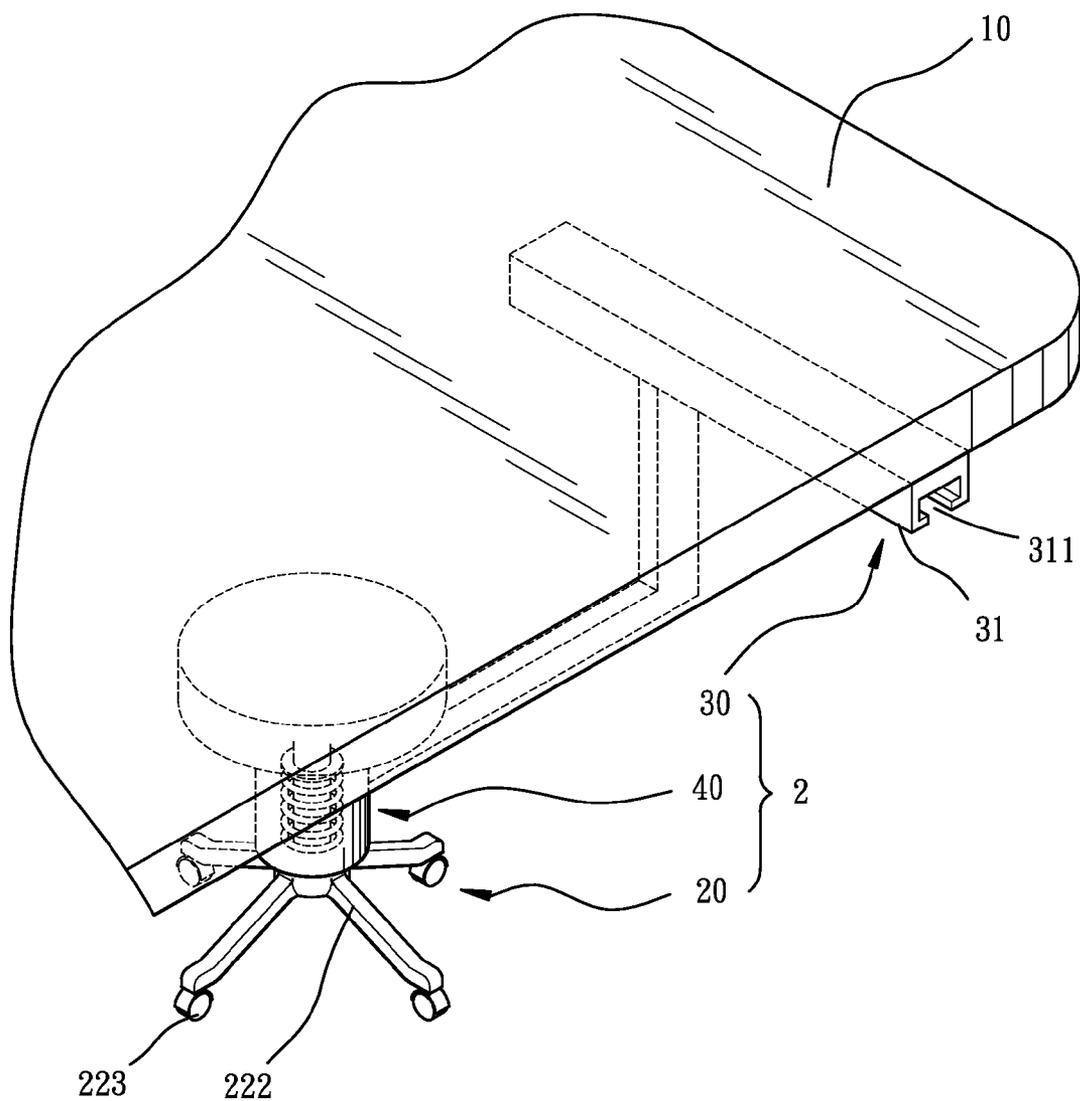


FIG. 1

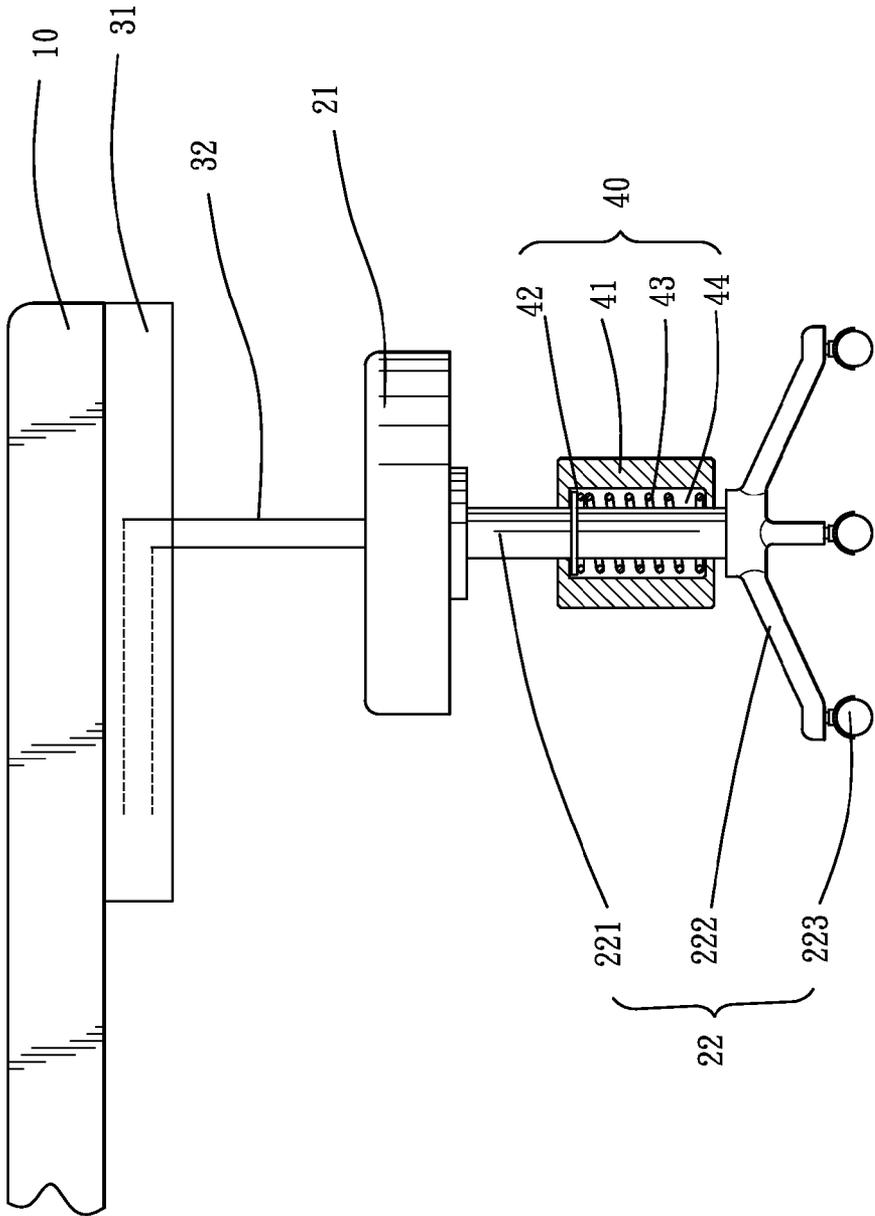


FIG. 2

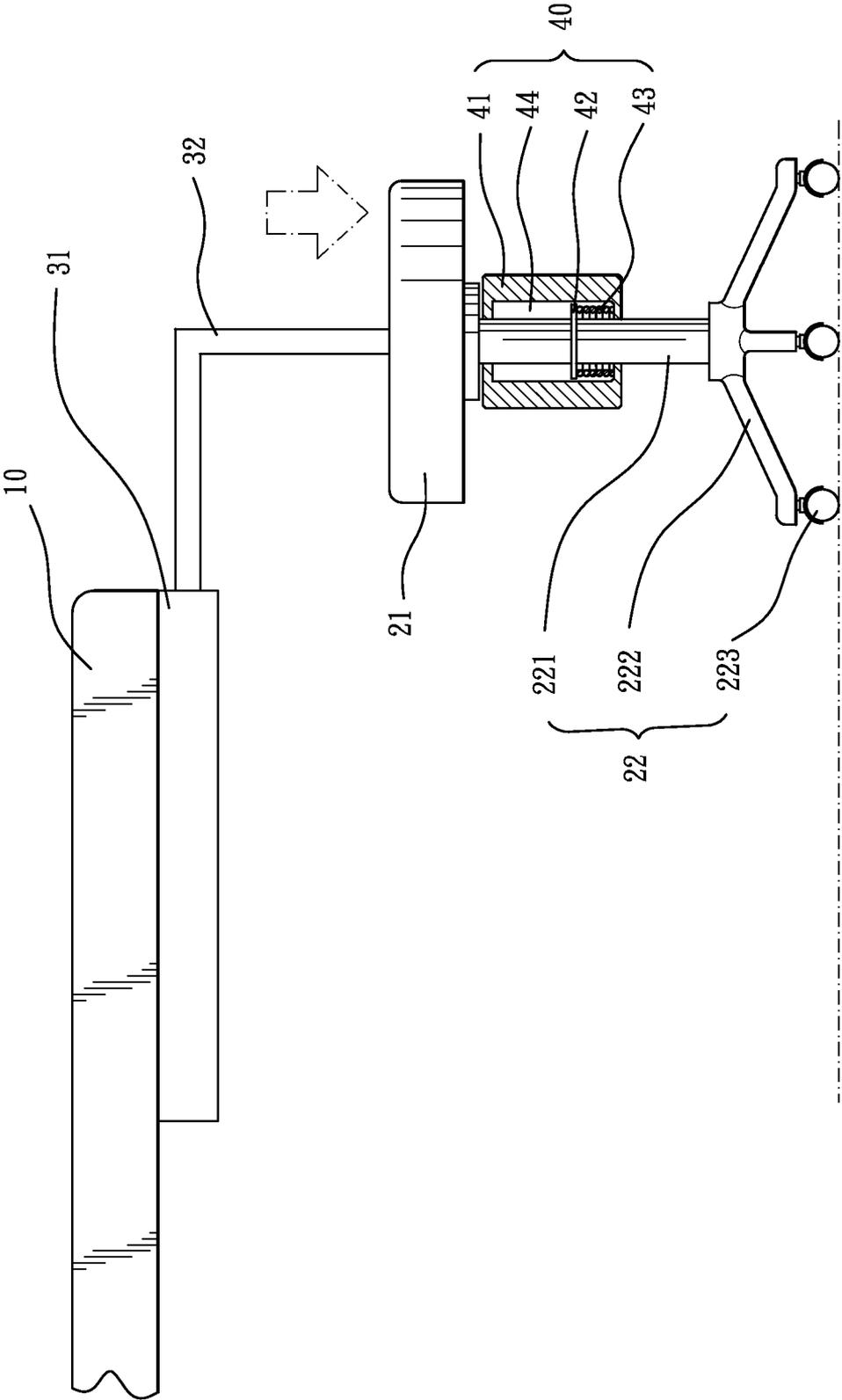


FIG. 4

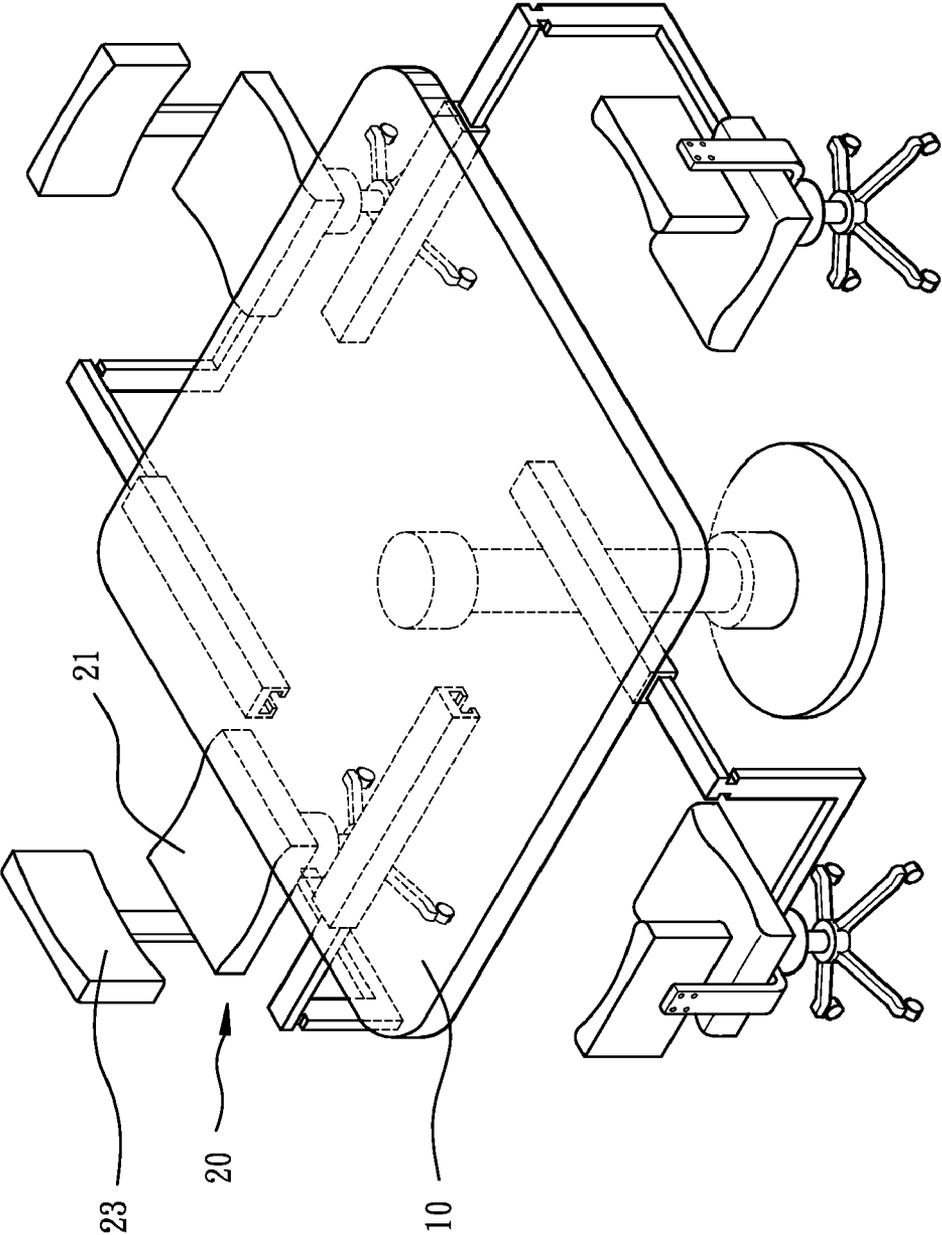


FIG. 5

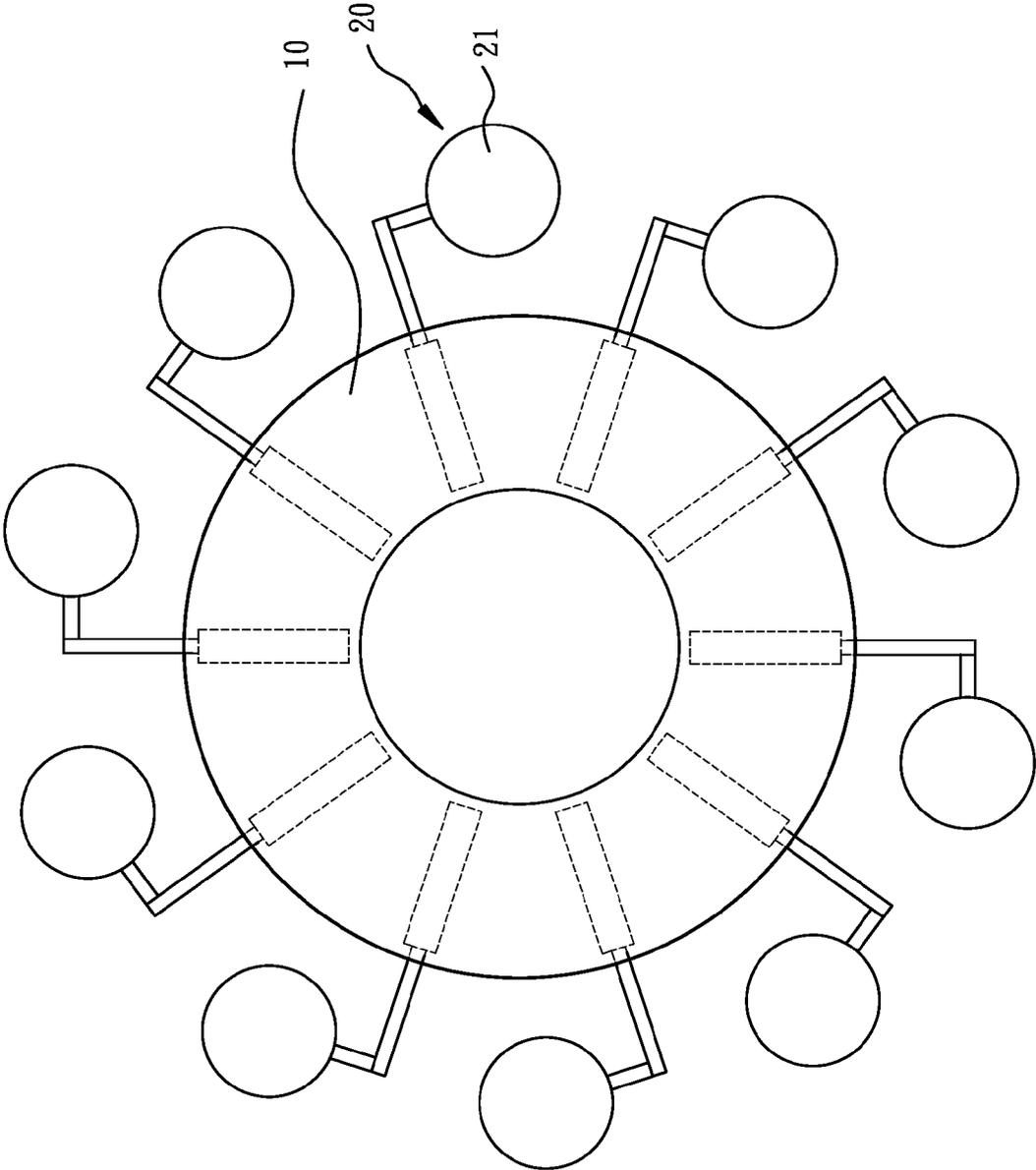


FIG. 6

STORABLE STRUCTURE OF TABLE AND CHAIR

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a storable structure of table and chair, and more particularly to a structure for storage at least one chair under a table and lifting or lowering the chair from the floor.

[0003] 2. Description of Related Art

[0004] A conventional combination table and chairs in accordance with the prior art comprises a table which is supported by support members extending from the table beyond the plane of the table and connecting with the chair members, with the points of connection of the support members to the table and chairs lying substantially in a common vertical plane. The chair seat members are mounted for movement in all directions in the plane of the seat.

[0005] However, the prior art suffered from several disadvantages. Due to the complicated structure of the combination table and chairs, the chairs are not able to be moved freely on the floor. For the reason, a user can not easily move the chair to a suitable position from the edge of the table. Moreover it is inefficient and difficult to detach the chairs from the table since many tubular supports are used in the combination of the table and chairs. Therefore this is not convenient to store the chairs and save the space.

[0006] The present invention has arisen to mitigate and/or obviate the disadvantages of the conventional combination table and chairs.

SUMMARY OF THE INVENTION

[0007] The main objective of the present invention is to provide an improved storable structure of table and chair,

[0008] To achieve the objective, the storable structure of the table and chair includes a tabletop and at least one chair member positioned adjacent the tabletop. Each of the at least one chair member includes a chair, a lifting device and a sliding device. The lifting device connects to the chair for vertically lifting or lowering the chair. When a force is applied downwardly to the chair, the chair is lowered to abut against a floor so as to be sat stably by a person, and when the force is released, the chair is lifted upwardly by the lifting device. The sliding device which connects to the lifting device and the tabletop has a guide rail and a cantilever, the guide way is attached underneath the tabletop. The cantilever connects the chair and the guide rail. The chair slides horizontally along the guide rail so as to be storable under the tabletop.

[0009] Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a perspective view of a preferred embodiment of the storable structure of table and chair as the chair is stored under the tabletop;

[0011] FIG. 2 is a side view of the preferred embodiment of the storable structure of table and chair as the chair is stored under the tabletop;

[0012] FIG. 3 is an operational perspective view of the preferred embodiment of the storable structure of table and chair as the chair is pulled out and a force is applied on the chair;

[0013] FIG. 4 is an operational side view of the preferred embodiment of the storable structure of table and chair as the chair is pulled out and a force is applied on the chair;

[0014] FIG. 5 is a perspective view of a second embodiment of the storable structure of table and chair; and

[0015] FIG. 6 is a perspective view of a third embodiment of the storable structure of table and chair.

DETAILED DESCRIPTION OF THE INVENTION

[0016] Referring to the drawings and initially to FIGS. 1-4, a storable structure of table and chair in accordance with a preferred embodiment of the present invention comprises a tabletop 10 and at least one chair member 2 which positions adjacent the tabletop 10.

[0017] Each of the at least one chair member 2 comprises a chair 20 and a lifting device 40 movably connected to the chair 20. The chair 20 comprises a seat 21 and a chair base 22 having an upper end pivotally attached to the seat 21. The chair base 22 has a support post 221 which one end is used to vertically support the seat 21 thereatop and the other end is mounted on a support base 222. The chair 20 has a plurality of casters 223 underneath the support base 222 for abutting against a floor. Therefore the chair 20 moves freely on the floor via the casters 223.

[0018] The lifting device 40 movably connected to the chair base 22 is a spring member. The lifting device 40 comprises a vertical sleeve 41 sleeved on the support post 221 and having a receiving space 44 defined between the support post 221 and the vertical sleeve 41. The lifting device 40 further includes a spring 43 and a flange 42 which both are accommodated in the receiving space 44. The spring 43 is compressible and sleeved on the support post 221. One end of the spring 43 abuts against a bottom of the flange 42 and the other end of the spring 43 abuts against an inner bottom of the vertical sleeve 41. The flange 42 is fixed to the support post 221 and thereby moves upwardly or downwardly with the chair 20. When a force is applied downwardly, the chair 20 is lowered to abut against the floor. The chair 20 is lifted upwardly by the spring 43 when the force is released.

[0019] The chair member 2 further comprises a sliding device 30 connected to the lifting device 40 and the tabletop 10. The sliding device 30 comprises a guide rail 31 attached beneath the tabletop 10 and a cantilever 32 connected to the guide rail 31 and the lifting device 40. The guide rail 31 has a T-shaped groove 311 forming at least one opening outwardly to the edge of the tabletop 10. The cantilever 31 has a first portion 321 corresponding to the T-shaped groove 311, a vertical portion 323 and a second portion 322. Both end of the vertical portion 323 respectively connect to the first portion 321 and the second portion 322 in an L shape, and thus the first portion 321 is perpendicular to the second portion 322. The first portion 321 is parallelly received in the T-shaped groove 311 and slidably moves along the T-shaped groove 311. The second portion 322 attaches to the vertical sleeve 41 for supporting the chair 20 away from the floor. Thereby the chair 20 slidably moves along the guide rail 31 relatively to the tabletop 10.

[0020] As shown in FIGS. 1-2, the vertical sleeve 41 of the lifting device 40 is supported by the cantilever 32, and the spring 43 is in unloaded condition. Therefore the chair 20 is

held away from the floor by the cantilever 32. Furthermore the chair 20 slidably moves along the guide rail 31 by the sliding device 30 for storage under the tabletop 10.

[0021] As shown in FIGS. 3-4, when a force is applied downwardly on the seat 21, the flange 42 descends and thus compresses the spring 43. The chair 20 moves downwardly to abut against the floor so as to be sat stably by a person. The spring 43 is compressed between the flange 42 and the inner bottom of the vertical sleeve 41 which is held by the cantilever 32. When the force is released, the spring 43 pushes the flange 42 upwardly, and thus the chair 20 is lifted by the spring 43.

[0022] Furthermore, the lifting device 40 is adjustable by different loading. Thereby the chair 20 is suitable for persons in different weight.

[0023] In another embodiment, the lifting device 40 may be a pneumatic cylinder or a set of worm and gear.

[0024] FIG. 5 shows a second embodiment of a storable structure of table and chair according to the present invention. The elements and effects of the second embodiment which are the same with the preferred embodiment are not described, only the differences are described. The tabletop 10 is configured in a shape of square, rectangular, or other configurations. In this embodiment, the tabletop 10 is in the shape of square, and disposed four chair members 2 at four sides of the tabletop 10 respectively. And each of the chair members 2 has the chair 20 with a rest back 23. The chair 20 is stored under the tabletop 10 and the rest back 23 of the chair 20 abuts against the edge of the tabletop 10.

[0025] FIG. 6 is a general illustration of a third embodiment of a storable structure of table and chair. The elements and effects of the third embodiment which are the same with the preferred embodiment are not described, only the differences are described. The tabletop 10 is configured in a round shape. Ten chair members 2 are disposed to surround the tabletop 10, and each of the seats 21 is configured in a round shape.

[0026] Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:

- 1. A storable structure of table and chair comprising:
 - a tabletop;
 - at least one chair member positioned adjacent the tabletop,
 - each of the at least one chair member comprising:

a chair;

a lifting device connected to the chair for vertically lifting or lowering the chair, wherein when a force is applied downwardly, the chair is lowered to adapt to abut against a floor, and the chair is lifted upwardly by the lifting device without the force; and

a sliding device connected to the lifting device and the tabletop, wherein the chair slides horizontally under the tabletop via the sliding device for storage.

2. The storable structure of table and chair as claimed in claim 1, wherein the sliding device comprises a guide rail disposed beneath the tabletop and a cantilever having a first portion slidably moved along the guide rail and a second portion connected to the lifting device; the chair moves along the guide rail relatively to the tabletop.

3. The storable structure of table and chair as claimed in claim 1, wherein the chair comprises a seat and a chair base having an upper end pivotally attached to the seat, the chair base sleeved by the lifting device thereon.

4. The storable structure of table and chair as claimed in claim 1, wherein the chair comprises a plurality of casters located underneath the chair for freely moving on the floor.

5. The storable structure of table and chair as claimed in claim 1, wherein the lifting device is a spring member.

6. The storable structure of table and chair as claimed in claim 1, wherein the lifting device is a pneumatic cylinder.

7. The storable structure of table and chair as claimed in claim 1, wherein the lifting device is a set of worm and gear.

8. The storable structure of table and chair as claimed in claim 2, wherein the cantilever has a vertical portion connects to the first portion and second portion.

9. The storable structure of table and chair as claimed in claim 2, wherein the guide rail comprises a T-shaped groove defined therein for receiving the first portion.

10. The storable structure of table and chair as claimed in claim 2, wherein the second portion of the cantilever connects to the lifting device surrounding the chair base for supporting the chair away from the floor.

11. The storable structure of table and chair as claimed in claim 8, wherein the first portion is parallel to the guide rail, the first portion and the second portion both connecting to the vertical portion in an L shape, wherein the first portion is perpendicular to the second portion.

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