

MULTI-FUNCTIONAL DOOR-CUM-FURNITURE PRODUCT

BACKGROUND OF THE INVENTION

[0001] Technical Field

[0002] The Invention relates to a multi-functional door-cum-furniture product used in daily life.

[0003] 2. Description of Related Art

[0004] Most existing doors or tables or chairs in the prior art have simple functions when used in daily life. For example, some tables are generally provided with containers, and some tables can be folded and placed in specified spaces after use; existing doors generally occupy room spaces after being opened, some doors have opening and closing functions, and hooks can be additionally arranged on the doors for hanging articles at best. In conclusion, the existing doors or tables or chairs are large in occupied space and area, simple in function and poor in using flexibility.

BRIEF SUMMARY OF THE INVENTION

[0005] In consideration of the technical defects in the prior art, the invention aims to provide a multi-functional door-cum-furniture product which has diversified functions in an effective space and is small in occupied space and high in flexibility.

[0006] According to the technical scheme provided by the invention for solving the technical problems, the multi-functional door-cum-furniture product comprises a supporting frame and at least one component board, and the supporting frame comprises at least two supporting rods which are not limited by the door frame installation position or the room layout; the supporting rods and the component boards are connected in a separable mode; various doors or furniture in different shapes can be formed after the component boards and the supporting frame are connected.

[0007] According to the main technical characteristics, the component boards are each formed by combining two or more polygonal boards, and every two adjacent polygonal boards can be folded oppositely.

[0008] According to the main technical characteristics, fasteners or hook-and-loop fasteners or magnetic elements used for sticking the component boards are arranged at the junctions of the supporting frame and the component boards.

[0009] According to the main technical characteristics, material pads which are made of different materials and have different hardnesses are arranged on the upper surfaces of the polygonal boards.

[0010] According to the main technical characteristics, the supporting frame is formed by perpendicularly arranging three supporting rods in a staggered mode in a three-dimensional space or arranging two supporting rods in parallel in a two-dimensional space.

[0011] According to the main technical characteristics, fasteners or hook-and-loop fasteners or magnetic elements used for sticking the component boards are arranged on the inner edges of the borders of the supporting frame.

[0012] The invention has the beneficial technical effects that the supporting frame comprises at least two supporting rods which are not limited by the door frame installation position or the room layout, the supporting rods and the component boards are connected in a separable mode, and various doors or furniture of different shapes are formed after the component boards and the supporting frame are connected. In use, the component boards are rotated and folded in different directions along the supporting rods and the polygonal boards are rotated and folded in different directions, so that a cushion, a deck chair, a bed, a table, a tea table, a stand, decorative furniture and the like are formed through folding, splicing and assembling, a door can be transformed into various different furniture or structures in different shapes to be applied to entities for different purposes and in

different shapes, namely, a door can be transformed into furniture, or furniture can be transformed into a door, or both a door and furniture can be obtained, and in this way, the effects of diversified use functions and purposes, small occupied space and flexibility improvement are achieved, and the door opening space is fully utilized.

[0013] A further detailed description of the technical scheme of the invention is given with accompanying drawings and embodiments as follows.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

- [0014] FIG. 1 is a sectional view of a combination product of the invention;
- [0015] FIG. 2 is a schematic diagram of a double-leaf door of the invention;
- [0016] FIGs. 3-4 are schematic diagrams of a single-leaf door of the invention;
- [0017] FIGs. 5-8 are schematic diagrams of the single-leaf door in a use state in an embodiment;
- [0018] FIGs. 9-15 are schematic diagrams of a pet door in an embodiment;
- [0019] FIG. 10 and FIG. 16 are schematic diagrams of a baby playpen in an embodiment;
- [0020] FIG. 17 is a schematic diagram of a cushion in an embodiment;
- [0021] FIG. 18 is a schematic diagram of a deck chair in an embodiment;
- [0022] FIG. 19 is a schematic diagram of a bed in an embodiment;
- [0023] FIGs. 20-28 are schematic diagrams of a table in an embodiment;
- [0024] FIG. 29 is a schematic diagram of a stand in an embodiment;
- [0025] FIGs. 30-45 are schematic diagrams of a decoration in an embodiment;
- [0026] FIG. 46 is a form schematic diagram of folded component boards in an embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0027] For a clearer introduction of the technical problems to be solved and the technical scheme and the beneficial effects of the invention, a further detailed description of the invention is given with the accompanying drawings and the embodiments as follows. It should be understood that the specific embodiments in the description are only used for explanation of the invention and do not limit the invention.

[0028] Please see FIG. 1 and FIG. 2, a description of a multi-functional door-cum-furniture product is given with the embodiment, and the multi-functional door-cum-furniture product comprises a supporting frame 1 and at least two component boards 2.

[0029] The supporting frame 1 comprises at least two supporting rods which are not limited by the door frame installation position or the room layout. The supporting frame 1 is formed by perpendicularly arranging three supporting rods in a staggered mode in a three-dimensional space or arranging two supporting rods in parallel in a two-dimensional space. Fasteners or hook-and-loop fasteners or magnetic elements used for sticking the component boards 2 are arranged at the junctions of the supporting frame 1 and the component boards 2.

[0030] The component boards 2 are each formed by combining two or more polygonal boards, and every two adjacent polygonal boards can be folded oppositely. Every two polygonal boards are folded into a small block. The supporting rods and the polygonal boards are spliced, folded and assembled through sticking fasteners or hook-and-loop fasteners or magnetic elements to form various doors or furniture in different shapes. Material pads which are made of different materials and have different hardnesses are arranged on the upper surfaces of the polygonal boards. Fasteners or hook-and-loop fasteners or magnetic elements used for sticking the component boards 2 are arranged on the inner edges of borders of the supporting frame 1.

[0031] With a double-leaf door as an embodiment, three supporting rods are

located on the same horizontal plane at the same time and arranged in parallel, and two parallel single-leaf doors are formed by the three supporting rods. Component boards 2 are fixedly installed in a frame formed by the three supporting rods through hook-and-loop fasteners or magnetic elements or sticking fasteners. In this way, the three supporting rods and the four component boards 2 are spliced and assembled to form the double-leaf door.

[0032] Please see FIG. 3 and FIG. 4, with a single-leaf door as an embodiment, two supporting rods are installed on the same plane in the same space and arranged in parallel. Two component boards 2 are installed at the upper end and the lower end of the interior of a frame formed by the two supporting rods through sticking fasteners or hook-and-loop fasteners or magnetic elements correspondingly. In this way, the two component boards 2 and the two supporting rods are spliced and assembled to form the single-leaf door, and the single-leaf door can be a rightward swinging door and can also be a leftward swinging door.

[0033] Please see FIGs. 5-8, two single-leaf doors are located in a three-dimensional space, two supporting rods are arranged on the plane of a horizontal space to form a frame and arranged in parallel. The other supporting rod is parallel to one supporting rod in the horizontal space, the horizontal space and a vertical space are perpendicularly arranged in a staggered mode, and frames are formed by the two supporting rods and the other supporting rod. Component boards 2 are fixedly installed in the frames formed by the two supporting rods through sticking fasteners or hook-and-loop fasteners or magnetic elements correspondingly, namely the two single-leaf doors are perpendicular to each other. Two component boards 2 can be installed in one of the two perpendicular single-leaf doors. One or more polygonal door bodies can also be installed in each single-leaf door.

[0034] Please see FIGs. 9-15, with a pet door as an embodiment, the single-leaf doors are perpendicular to each other, and the component board 2 located at the upper end

or the lower end of the single-leaf door on one side is opened or closed; or the polygonal board located at the upper end of the single-leaf door on one side is bent downwards to be opened, and the polygonal board on the component board 2 located at the lower end of the single-leaf door on the same side is bent upwards to be opened, so that pet doors in different shapes are formed.

[0035] Please see FIG. 10 and FIG. 16, with a baby playpen as an embodiment, the single-leaf doors are perpendicular to each other, the component board 2 located at the upper end of the single-leaf door on one side is opened, or the adjacent polygonal boards at the upper end and the lower end of the single-leaf door on one side are bent in the same direction, so that the baby playpen is formed.

[0036] Please see FIG. 17, with a cushion as an embodiment, the single-leaf doors are perpendicular to each other, and two component boards 2 arranged on the two perpendicular single-leaf doors are both folded to the bottoms of the single-leaf doors, so that the cushion is formed.

[0037] Please see FIG. 18, with a deck chair as an embodiment, the single-leaf doors are perpendicular to each other, two component boards 2 are directly perpendicular to the ground, and additional component boards 2 arranged on the single-leaf doors are folded and placed on the ground in parallel, so that the deck chair is formed.

[0038] Please see FIG. 19, with a bed as an embodiment, the single-leaf doors are perpendicular to each other, four component boards 2 arranged on the single-leaf doors are all folded in parallel and spread on the horizontal plane, and one set of the component boards 2 are arranged on the outer sides of the single-leaf doors, so that the bed is formed.

[0039] Please see FIGs. 20-28, with a table as an embodiment, the single-leaf doors are perpendicular to each other, the component boards arranged at the upper ends of the single-leaf doors are folded downwards to form a table top, and the two polygonal boards arranged at the lower ends of the single-leaf doors are then bent and folded inwards

to form supporting legs of the table top, so that the table in a certain shape is formed. The multiple polygonal boards arranged on the single-leaf doors are folded together in an overlapped mode, so that a polygonal board set is formed; the polygonal board set is arranged on the supporting rod in the center and can be placed in different directions, so that table tops in different shapes are formed. Three component boards arranged on the single-leaf doors are placed at the bottom ends of the single-leaf doors, and the other component board 2 is placed on the peripheries of the single-leaf doors, so that a table top is formed.

[0040] Please see FIG. 29, with a stand as an embodiment, the single-leaf doors are perpendicular to each other, the four component boards 2 arranged on the single-leaf doors are bent downwards and then bent inwards or outwards, so that the polygonal boards are connected, triangular containing spaces are formed between the polygonal boards and can be used for containing various articles, and the stand is formed.

[0041] Please see FIGs. 30-45, with a decoration as an embodiment, the single-leaf doors are perpendicular to each other, the component boards 2 can be bent and folded into decorative articles in different shapes according to different requirements of customers, and the decorative articles are different types of decorations in different shapes and with different sizes.

[0042] Please see FIG. 46, the single-leaf doors are perpendicular to each other, the multiple component boards arranged on the single-leaf doors are all folded onto the supporting rod located at the perpendicular position of the two single-leaf doors.

[0043] The supporting frame 1 is supported on the ground of a typical door opening space through at least two main supporting bodies. The supporting frame can structurally stand by itself and does not need to be fixed to an existing door frame or an existing environment. The supporting frame 1 depends on the door swinging direction and can adapt to the existing room layout with a leftward swinging door or a rightward

swinging door. Since the supporting frame 1 is supported on the side wall and in front of a door frame on the other side, when the supporting frame 1 is placed, the existing room layout does not need to be changed, and existing passageway circulation is not hindered. The supporting frame 1 also has an attractive characteristic so that the foldable component boards 2 can be attracted to be attached to different places of the supporting frame 1. The foldable component boards 2 can be manually mounted on the supporting frame or dismounted in time and can be mounted and dismounted repeatedly. The foldable component boards 2 are each composed of at least three small components and are connected. Wrinkles of different styles can be formed, and various furniture or shapes can be formed through folding to achieve different functions. The independent components can be made into different articles, for example, soft components can be used for sitting, sleeping and the like, and hard components can be used for containing objects, working and the like. All the independent components can be attracted, so that the folded portions stick together.

[0044] In addition, the foldable component boards 2 can be unfolded in different ways, specifically, the foldable component boards 2 can be completely unfolded to serve as a standard door or partially unfolded to serve as the barrier or the pet door or other furniture. The foldable component boards 2 can be transformed into a door with a partial opening, or the barrier and can also be transformed into different furniture including, but not limited to, a cushion, a deck chair, a bed, a table, a tea table, a stand and the like. According to the aim of the invention, a novel door is established and can be transformed into various furniture or shapes for different purposes, the door opening space is fully utilized, and thus the space occupied by the furniture can be reduced.

[0045] According to the invention, a door can be transformed into furniture, and furniture can be transformed into a door, or both a door and furniture can be obtained. Therefore, the door of the invention has various functions, for example, the door can be

transformed into a supine cushion, a table, a chair, a stand, a baby playpen, a pet door and the like; the application range of ordinary doors is widened, the door can be applied to the home space more flexibly, and the problem of narrow living spaces in metropolis such as Hong Kong, Tokyo and Shenzhen can be solved.

[0046] In conclusion, the supporting frame 1 comprises at least two supporting rods which are not limited by the door frame installation position or the room layout, the supporting rods and the component boards are connected in a separable mode, and various doors or furniture in different shapes is formed after the component boards and the supporting frame are connected. In use, the component boards 2 are rotated and folded in different directions along the supporting rods and the polygonal boards are rotated and folded in different directions, so that the cushion, the deck chair, the bed, the table, the tea table, the stand and decorative furniture are formed through folding, splicing and assembling, one door can be transformed into various different furniture or structures in different shapes to be applied to entities for different purposes and in different shapes, namely, a door can be transformed into furniture or furniture can be transformed into a door or both a door and furniture can be obtained, and thus the effects of diversified use functions and purposes, small occupied space and flexibility improvement are achieved.

[0047] The foregoing reference drawings describe the preferred embodiments of the invention and do not limit the protection scope of the invention. Any modification, equivalent substitutions and improvements made by those skilled in the field without deviating from the scope and the essence of the invention should be included in the protection scope of the invention.

Claims

1. A multi-functional door-cum-furniture product comprising: a supporting frame and a component board, characterized in that the product further comprises a plurality of supporting rods, where the supporting rods and the component boards are spliced, folded and assembled by a plurality of connecting means in such a way that, the component boards can be rotated and folded in different directions along the supporting rods to form doors or furniture of different shapes.
2. The multi-functional door-cum-furniture product according to Claim 1, wherein the component board is formed by joining a plurality of foldable polygonal boards, where at least two adjacent polygonal boards are foldable oppositely.
3. The multi-functional door-cum-furniture product according to Claim 1, wherein the connecting means are fasteners, hook-and-loop fasteners or magnetic elements.
4. The multi-functional door-cum-furniture product according to Claim 2, further comprises a material pad arranged on at least one surface of the polygonal boards.
5. The multi-functional door-cum-furniture product according to Claim 1, wherein the supporting frame is formed by perpendicularly arranging three supporting rods in a staggered mode in a three-dimensional space or arranging two supporting rods in parallel in a two-dimensional space.
6. The multi-functional door-cum-furniture product according to Claim 1, wherein the fasteners or hook-and-loop fasteners or magnetic elements used for sticking the component boards on the inner edges of the supporting frame.