

REINFORCED HINGE

FIELD OF THE INVENTION

The present invention relates to hinges suitable for use in furnitures such as but not limited to cabinet(s).

5 BACKGROUND TO THE INVENTION

The following discussion of the background of the invention is intended to facilitate an understanding of the present invention. However, it should be appreciated that the discussion is not an acknowledgement or admission that any of the material referred to was published, known or part of the common general knowledge in any jurisdiction
10 as at the priority date of the application.

Hinges are designed and made for furnitures such as cabinets for doors to be attached to the cabinets. A common cabinet door typically falls within the range of six hundred millimeters in length, three hundred millimeters in width, and eighteen to forty millimeters in thickness. The weight of said door seldom exceeds thirty
15 kilograms.

A typical cabinet hinge designed for said cabinets comprises a door mounting plate, a cabinet mounting plate, and a hinge arm connecting the two mounting plates. The hinge arm facilitates the opening of the cabinet door up to an angle of ninety degrees. Typically, the door mounting plate is to be mounted at the back of the door, and is
20 designed with a cup-shaped depression. This requires an indentation to be made at the back of said door, forming a groove for said cup-shaped depression to rest on. The cabinet mounting plate is attached to the cabinet and aligned at the same level as the door mounting plate. In general, two of said typical cabinet hinges positioned at the top and bottom regions of a door respectively are adequate to support the weight of
25 said door.

As the size of cabinet increases, the dimensions of the door(s) required for the cabinet correspondingly increase, resulting in an increase in weight. In these situations, two hinges may no longer be adequate to bear the load of the heavier and larger door(s).

Increasing the number of hinges to support the additional load resultant from the larger and heavier door(s) provides a simple way of overcoming the weight increase. However, this may significantly increase the cost and complexity of manufacturing the said cabinet(s) due to the requirement of additional indentations/grooves on the back of the door for the additional hinge(s). Additional mounting plates are also required. In addition the aestheticism and elegance of the overall appearance of said cabinet may be compromised due to a plurality of hinges attached to it.

It is thus the object of the present invention to strengthen the load bearing capabilities of hinges to support heavier door(s) types; thereby reducing the number of hinges required as well as reducing the complexity of mounting such hinge.

SUMMARY OF THE INVENTION

Throughout this document, unless otherwise indicated to the contrary, the phrase “comprising”, “consisting of”, and the like, are to be construed as inclusive and not exhaustive.

In accordance with a first aspect of the invention, there is provided a hinge comprising: a first mounting plate, a second mounting plate, and at least two hinge arms arranged substantially parallel and adjacent each other, each of the at least two hinge arms comprises a longer section and a shorter section connected therebetween by a hinge pin;

wherein the longer section of said hinge arm and the shorter section of said adjacent hinge arm are pivotably fastened to the first mounting plate; the shorter section of said hinge arm and the longer section of said adjacent hinge arm are pivotably fastened to the second mounting plate; and

the hinge pin connected between the longer section and the shorter section facilitates the movement of the hinge between a contracted position to an extended position.

Preferably, the length and width of the first and second mounting plates are more than sixty millimeters.

Preferably, the thickness of the first and second mounting plates is at least two millimeters.

Preferably, the thickness of each of the at least two hinge arms is at least two millimeters.

- 5 Preferably, the width of the hinge arm is at least thirty millimeters.

BRIEF DESCRIPTION OF THE DRAWINGS

An example of the method in this invention will be described with reference to the following drawings (not drawn to scale) of which:

Fig. 1 shows the drawing for a typical prior art cabinet hinge.

- 10 Fig. 2 presents the top view of the preferred embodiment of the invention with two hinge arms (hinge arms fully extended).

Fig. 3 presents the top view of how a plurality of three hinge arms may be used as the size and load of cabinet doors increases (hinge arms fully extended).

- 15 Fig. 4 presents the top view of how a plurality of four hinge arms may be used as the size and load of cabinet doors increases (hinge arms fully extended).

DETAILED DESCRIPTION

- Fig. 1 illustrates a prior art cabinet hinge 1. It comprises a door mounting plate 2 manufactured with a recessed cup 3. This may be mounted onto the door of the cabinet by means of a plurality of screws 6. The door mounting plate 2 and recessed cup 3 are connected to the cabinet mounting plate 7 by means of a hinge arm 4 facilitating the opening and closing of the cabinet door. The recessed cup 3 sits snugly in a pre-drilled groove of said cabinet door. A plurality of holes are drilled on the door mounting plate 2 and cabinet mounting plate 7 to facilitate the attachment of screws 6. The width of both the door mounting plate 2 and cabinet mounting plate 7 ranges from twenty three to thirty millimeters. The width of said hinge arm ranges from twenty five to twenty seven millimeters.
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In a preferred embodiment shown in Fig. 2, the hinge in accordance to a first aspect of the invention comprises two hinge arms 10 and 20; a door mounting plate 30 and a cabinet mounting plate 40.

The two hinge arms 10 and 20 are arranged parallel and adjacent to each other. Hinge arm 10 consists of a longer section 11, a shorter section 12 and a hinge pin 15 located between the longer section 11 and the shorter section 12. Hinge pin 15 connects the longer section 11 to the shorter section 12. Hinge pin 15 further acts as a pivot where the longer section 11 and shorter section 12 may be moved relative to each other about hinge pin 15. This provides the means where the hinge arm 10 is made foldable, thereby extending and contracting the whole hinge. Similar in structure and function to the hinge arm 10, hinge arm 20 consists of a longer section 21 and a shorter section 22. Likewise, the hinge arm 20 is made foldable about a hinge pin 25 joining the longer section 21 and the shorter section 22. To increase the load bearing capability of the hinge, the width A of the hinge arms 10 and 20 are set at a minimum of thirty millimeters. In addition, the thickness of the metal, typically steel, used for the hinge arms 10 and 20 are at least two millimeters thick. The longer section 11 of the hinge arm 10 is affixed to the door mounting plate 30 by means of a hinge pin 35, while the shorter section 12 of the hinge arm 10 is affixed to the cabinet mounting plate 40 by means of hinge pin 45. In contrast, the longer section 21 of the hinge arm 20 is affixed to the cabinet mounting plate by means of hinge pin 46, while the shorter section 22 is affixed to the door mounting plate by means of hinge pin 36. The four hinge pins 35, 36, 45 and 46 on the mounting plates 30 and 40 provide a limited degree of rotational motion where the hinge arms 10 and 20 may be rotated.

The door mounting plate 30 and cabinet mounting plate 40 replace the door mounting plate 2 and cabinet mounting plate 7 of the prior art hinge respectively. The prior art recessed cup 3 located in the door mounting plate 2 has also been removed, eliminating the need for an indentation to be made at the back of said door(s) before the hinge can be attached. To further increase the load bearing capability of the hinge, both the door mounting plate 30 and cabinet mounting plate 40 of the present invention should have a length D of more than sixty millimeters and a width C of more than sixty millimeters. The thickness of the metal, typically steel, used for the mounting plate is at least two millimeters thick.

The door mounting plate 30 may be mounted on the back of the door using a plurality of screws into pre-drilled holes 31, 32, 33 and 34. The cabinet mounting plate 40 may be mounted on said cabinet using a plurality of screws into pre-drilled holes 41, 42, 43 and 44. More holes may be drilled in each mounting plate to account for more screws if desired.

As the weight of door(s) increase further, the number of hinge arms may be further extended to three or four as presented in Fig. 3 and Fig. 4. Correspondingly, the minimum length for H is greater than D and minimum length K will be greater than both D and K. The minimum widths for G and J may remain the same as width C or may be increased. The minimum width A of hinge arms 10, 20, 50 and 60 may be kept at thirty millimeters.

While particular embodiments of the present invention have been herein described, it would be obvious to those skilled in the art that various changes and modifications can be made without departing from the spirit and scope of the invention.

CLAIMS

5 1. A hinge comprising:

(a) A first mounting plate,

(b) A second mounting plate, and

(c) At least two hinge arms arranged substantially parallel and adjacent each other, each of the at least two hinge arms comprises a longer section and a

10 shorter section connected therebetween by a hinge pin;

wherein the longer section of said hinge arm and the shorter section of said adjacent hinge arm are pivotably fastened to the first mounting plate; the shorter section of said hinge arm and the longer section of said adjacent hinge arm are pivotably fastened to the second mounting plate; and

15 the hinge pin connected between the longer section and the shorter section facilitates the movement of the hinge between a contracted position to an extended position.

2. A hinge according to any one of the preceding claims, wherein the length and width of the first and second mounting plates are more than sixty millimeters.

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3. A hinge according to any one of the preceding claims, wherein the thickness of the first and second mounting plates is at least two millimeters.

4. A hinge according to any one of the preceding claims, wherein the thickness of
25 each of the at least two hinge arms is at least two millimeters.

5. A hinge according to any one of the preceding claims, wherein the width of the hinge arm is at least 30 millimeters.

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