A device for preventing tipping over of a chair that includes individual legs, in general four. The device comprises a leg member, a support foot attached at an angle to the leg member, and clamps to secure the device on the back legs of the chair with individual legs. The support foot includes a flat bottom, which will be slightly higher than the bottom of the chair's legs and also maintains an angle sloping downward towards the chair when the device is secured on the chair's back leg. After two of these devices are secured to the two back legs and when the chair is tilted back, the entire bottom portion of the support foot will be firmly on the ground, thereby preventing the chair from tipping over.
CHAIR STABILIZING DEVICE

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BACKGROUND

[0002] The present invention relates in general to chairs with individual legs, and more particularly, to a device that prevents a chair with individual legs from tipping over. The device can be easily installed, secured to, and removed from the back legs of the chair.

[0003] The stability of chairs with individual legs is of concern especially since users have a tendency, where possible, to lean backwards while sitting on it. This leaning can cause the chair to easily tip over and may result in a potential injury to an occupant. In addition, when an occupied chair is slid backward, the back legs have a tendency to catch on an uneven surface and cause the chair to tip over. Even though new chair designs have been developed in the recent years, for instance including office chairs with rotating seat and height-adjustable features, chairs with individual legs are still suitable and used more often in many situations. For example: dining room chairs, kitchen chairs, and patio chairs still include vertical individual legs.

[0004] Several devices to improve stability of chairs or the like are known in the art. For example, U.S. Pat. No. 4,002,417 to Hunt discloses a chair that includes a seat connected to legs, which extend upwardly through the seat and are flush on their top surfaces with adjacent areas of the seat. To prevent the legs from being driven upwardly through the seat due to excessive wear or forces, support stretchers are connected between pairs of the legs and the underside of the seat. Additionally, the stretchers provide mutual, lateral support between the front and rear legs and provide horizontal support to the seat for greater weight bearing ability. However, the supporting features of this chair are substantially different from the present invention.

[0005] U.S. Pub. No. 20050131037 to Oxley discloses a self-stabilizing support for a structure, for example, a chair. The structure includes a first and a second pair of legs and a bearing acting between the first and the second pair of legs. The bearing allows the second pair of legs to pivot with respect to the first pair of legs about an axis such that the four legs of the first and second pair can be firmly planted on an uneven surface to support the structure. This can be achieved by suitably pivoting the second pair of legs with respect to the first pair. The bearing is damped so that it does resist sudden movement between the first and the second legs about the bearing, but a sustained force causes pivoting movement of the second pair of legs about the bearing. However, the operation, structure, and mechanism involved in this device are different from the present invention.

[0006] In U.S. Pub. No. 20050073182 to Brown a stool with leg supports, which may be used as a footrest, a table, or a chair is disclosed. The stool has a flat wooden platform, a cushion that is disposed upon the platform, and either three or four legs depending from the platform. Each leg includes a post and padding is wrapped around the post. A second end of each leg is affixed to a shoe to provide a broader base for the stool, and thereby increase the stool’s stability. Although this device provides additional stability, the means used to provide this additional stability by using a shoe is different from the present invention.

[0007] Although devices such as the above have been developed for increasing the stability of the chairs, the problem of tipping over of existing chairs with individual leg members still needs to be addressed.

[0008] Therefore, it is an object of the present invention to provide a device that facilitates in stabilizing a chair with individual leg members, thereby making the chair less likely to tip over when leaning backwards or moving it.

[0009] A further object is to provide a chair-stabilizing device, which can be removably retrofitted to any existing type of chairs with individual legs, such as kitchen chairs, dining room chairs, high chairs, patio chairs, or the like.

[0010] A further object is to provide a chair-stabilizing device, which provides firm grip while stabilizing or supporting the tilted chair.

[0011] Finally, it is an object of the present invention to provide a chair-stabilizing device, which can be retrofitted to any type of chair’s legs that have different cross-sections, such as cylindrical, quadrilateral, triangular, or the like. These and other objects of the present invention will become better understood with reference to the appended Summary, Description, and Claims.

SUMMARY

[0012] The present invention is directed to a device to prevent chairs with individual legs from tipping over, especially when the chair leans in a backward direction while sitting on it. The device includes a leg member, a support foot attached at an angle to a first end of the leg member, and two clamps for removably securing the device to the back leg of the chair. Four bolts and nuts can be used with the clamps to secure the device. Two of these devices are secured to the two back legs of the chair that includes four individual legs. A bottom portion of the support foot will be slightly higher than the bottom of the chair’s legs when the device is secured. The bottom portion of the support foot also maintains an angle sloping downward towards the chair such that the entire bottom portion of the support foot will be firmly on the ground when the chair is tilted back, thereby providing support and preventing the chair from tipping over.

BRIEF DESCRIPTION OF THE FIGURES

[0013] Figs. 1 is an illustration of the top view of the clamps portion of the chair-stabilizing device in accordance with the present invention.

[0014] Fig. 2 is an illustration of a side view of the chair-stabilizing device secured to a back leg of a chair with four individual legs.

[0015] Fig. 3 is an illustration of a top view of the chair-stabilizing device.
FIG. 4 is an illustration of a side view of the chair-stabilizing device being secured to the back leg of the chair with four individual legs.

FIG. 5 is an illustration of a side view of the chair in its tilted position with the chair-stabilizing device secured to its back leg.

FIGURES—REFERENCE NUMERALS

10 . . . . Chair-stabilizing Device
11 . . . . Leg Member
12 . . . . Support Foot
13A . . . . Back Leg of the Chair
13B . . . . Front Leg of the Chair
14A . . . . Clamp
14B . . . . Clamp
15 . . . . Rubber Insert
16 . . . . Bolt
17 . . . . Nut
18 . . . . Chair
19 . . . . Bottom Surface of the Support Foot
20 . . . . Rubber Coating or Base
21 . . . . Seat of the Chair
22 . . . . Hole
23 . . . . Ground

DETAILED DESCRIPTION

Referring to the drawings, the preferred embodiment of a chair-stabilizing device 10 that prevents tipping over of a chair with four individual legs is illustrated in FIGS. 1 through 5. The device 10 comprises a leg member 11, a support foot 12 permanently attached to a first end of the leg member 11, and means to secure the device to a back leg 13A of the chair 18. The device 10 can be made of tempered metal product to provide strength and durability.

Referring to FIGS. 1 and 2, two clamps 14 can be used as the means to secure the device 10. A first clamp 14A is permanently attached to a second end of the leg member 11 and a second clamp 14B is a separate piece. The inner surfaces of the clamps 14 are provided with rubber inserts 15 to prevent slipping of the device 10. The rubber inserts 15 also prevent damage to the legs of the chair, such as loss of color and finish. Four bolts 16 and nuts 17 are used to tightly secure the clamps 14 on the chair’s back legs 13A. Alternatively, suitable number of clamps 14, bolts 16, and nuts 17 can be chosen depending on structural necessities.

Referring to FIG. 2, a side view of the device 10 according to the present invention secured to one of the back legs 13A of the chair 18 is illustrated. The support foot 12 is connected at an angle to the first end of the leg member 11. The angle can be chosen anywhere between ten to fifteen degrees. The bottom surface 19 of the support foot is preferably flat and includes a rubber coating or base 20. One of the preferred shapes of the support foot 12 is illustrated in FIG. 3. The chair-stabilizing device 10 is secured such that the support foot 12 is positioned away from rear end of the chair 18 and the bottom surface 19 of the support foot will be slightly higher than the bottom of the individual legs 13A and 13B of the chair 18. Also, the bottom surface 19 is attached to the leg member 11 such that when the device 10 is secured on the back leg 13A, the bottom surface 19 maintains an angle sloping downward towards the chair 18. Preferably, any angle between one to ten degrees can be selected.

Referring to FIG. 4, the device 10 is brought near the back leg 13A of the chair 18 and the inner surface of the first clamp 14A is made to abut the back leg 13A. Following which, the inner surface of the second clamp 14B is also made to abut the back leg 13A and is secured to the first clamp 14A with bolts 16 and nuts 17. The distal ends of the clamps 14 are provided with holes 22 to receive the bolts 16. In this position, the bottom surface 19 will be at an angle with respect to the ground 23 as described previously. Two of the chair-stabilizing devices 10 are secured to the two back legs 13A in the same way.

After the chair-stabilizing devices 10 are secured and when the chair 18 is tilted back, the entire bottom surface 19 of the support foot 12 will be on the ground 23. The flat bottom surface 19 will prevent the chair 18 from tipping over. This maneuver can be seen in FIG. 5. The rubber coating or base 20 on the bottom surface 19 of the support foot 12 further facilitates in providing good grip and prevents slipping on the ground 23 or any surface on which the chair is placed. The device 10 can be retrofitted to any type of existing chair with individual legs, such as kitchen chairs, dining room chairs, high chairs, patio chairs, or the like.

Several structural variations and dimensions of the apparatus are possible. For example, suitable shapes can be employed for the two clamps to adjust to different shapes of the chair legs, such as cylindrical, quadrilateral, triangular, or the like. Several colors of the device are possible to match the existing color of the chair on which it is secured. The leg member and the support foot can also be made of different suitable shapes and sizes.

All features disclosed in this specification, including any accompanying claims, abstract, and drawings, may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

While specific apparatus has been disclosed in the preceding description, it should be understood that these specifics have been given for the purpose of disclosing the principles of the present invention and that many variations thereof will become apparent to those who are versed in the art. Therefore, the scope of the present invention is to be determined by the appended claims.

Any element in a claim that does not explicitly state “means for” performing a specified function, or “step for” performing a specific function, is not to be interpreted as a “means” or “step” clause as specified in 35 U.S.C. § 112, paragraph 6. In particular, the use of “step of” in the claims herein is not intended to invoke the provisions of 35 U.S.C. § 112, paragraph 6.
What is claimed is:

1. A device for preventing tipping over of a chair comprising four individual legs, said device comprising: a leg member; a support foot attached at an angle to a first end of said leg member; means to secure said device to a back leg of said chair such that said support foot is positioned away from rear end of said chair, said means is attached to a second end of said leg member, wherein a bottom portion of said support foot will be slightly higher than the bottom of said individual legs and also maintains an angle sloping downward towards said chair when said device is secured on said back leg.

2. The device of claim 1, wherein two of said devices when secured to the two back legs prevent tipping over of the chair.

3. The device of claim 1, wherein after two of said devices are secured to the two back legs, the entire bottom portion of the support foot will be firmly on the ground when the chair is tilted back, thereby preventing the chair from tipping over.

4. The device of claim 1, wherein the bottom portion of the support foot is substantially flat.

5. The device of claim 1, wherein the bottom portion of the support foot includes a rubber coating or base to prevent slipping and provide firm grip.

6. The device of claim 1, wherein a plurality of clamps along with a plurality of bolts and nuts can be used as the means to secure said device to the back leg of the chair.

7. The device of claim 6, wherein the inner surfaces of the clamps are provided with rubber inserts to prevent slipping and damage to the legs of the chair.

8. The device of claim 6, wherein suitable shapes can be employed for the clamps to fit to different shapes of the chair legs, such as cylindrical, quadrilateral, triangular, or the like.

9. The device of claim 1, wherein two clamps along with four bolts and nuts can be used as the means to secure said device to the back leg of the chair.

10. The device of claim 9, wherein one of the clamps is permanently attached to the second end of the leg member.

11. The device of claim 9, wherein the inner surfaces of the clamps are provided with rubber inserts to prevent slipping and damage to the legs of the chair.

12. The device of claim 9, wherein suitable shapes can be employed for the two clamps to adjust to different shapes of the chair legs, such as cylindrical, quadrilateral, triangular, or the like.

13. The device of claim 1, wherein the device can be made of tempered metal product to provide strength and durability.

14. The device of claim 1, wherein several colors of said device are possible to match the existing color of the chair on which it is mounted.

15. The device of claim 1, wherein said device can be retrofitted to any type of existing chair with individual legs, such as kitchen chairs, dining room chairs, high chairs, patio chairs, or the like.

16. A device for preventing tipping over of a chair comprising four individual legs, said device comprising: a leg member; a support foot with a flat bottom attached at an angle to a first end of said leg member; means to secure said device to a back leg of said chair such that said support foot is positioned away from rear end of said chair, said means is attached to a second end of said leg member, wherein the flat bottom of said support foot will be slightly higher than the bottom of said individual legs and also maintains an angle sloping downward towards said chair when said device is secured on said back leg; whereby after two of said devices secured to the two back legs, the entire bottom portion of the support foot will be firmly on the ground when the chair is tilted back, thereby preventing the chair from tipping over.

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