A device for attaching an item to a railing using: a) a first coupling adapted to be attached to a railing; and b) a second coupling adapted to be attached to an item. The first coupling engages the second coupling and once engaged, the first coupling and the second coupling cannot be separated unless they are disengaged from each other.
RAILING ATTACHMENT DEVICE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims priority from U.S. Provisional Application No. 60/496,609, filed on Aug. 20, 2003, which is incorporated by reference as if fully set forth.

BACKGROUND

[0002] The field of the invention is railing attachments, and more specifically railing attachments that make balancing or placing an item on a railing easier.

[0003] Hand-railings are made to assist in balancing. It is, in fact, their primary function. Unfortunately, railings are made to balance and offset the leaning weight of a person. They are not, as anyone who has seen a drink crash to the ground knows, made for balancing all objects.

[0004] Recognizing this problem, U.S. Pat. No. 5,240,214 to Birmbaum shows a railing attachment 10 that has long straight dove-tail channels formed therein for receiving similarly shaped rails attached to a tray. Once the tray’s rails are engaged in the attachment’s dove-tail channels, the tray is securely fastened to the rail and should not tip over. The problem with this device is that it is difficult to engage the long rails, especially with a loaded tray, and the channels and rails must align precisely.

[0005] Unrelated fields have adopted similar devices to prevent things from falling from precarious surfaces. For example, U.S. Pat. Nos. 949,025 and 2,684,110 are directed to the timeless task of preventing children from emancipating their food or trays or dishes from high chairs, etc.

[0006] Other problems of balancing items on rails are unique to outdoor rails. Anything balanced on an outdoor rail should be secure enough to not blow away in a wind or accidental bumping, and yet be easily and conveniently releasable with a minimum of gyrations. Additionally, it would be beneficial if the items were relatively permanently attached to a railing, and also weatherproof.

SUMMARY

[0007] The present invention overcomes the shortcomings of the prior known devices and addresses these other needs for a variety of products that might be attached to a rail. Briefly stated, the invention provides a device for attaching an item to a railing comprising: a) a first coupling adapted to be attached to a railing; and b) a second coupling adapted to be attached to or formed on an item. The first coupling engages the second coupling with a minimum of movement and once engaged, the first coupling and the second coupling cannot be easily or accidentally separated and must be intentionally disengaged from each other.

BRIEF DESCRIPTION OF THE DRAWING(S)

[0008] FIG. 1 is a perspective view of a first coupling of the attachment device.

[0009] FIG. 2 is a side elevation of the first coupling shown in FIG. 1.

[0010] FIG. 3 is a perspective view of a second coupling of the attachment device.

[0011] FIG. 4 is a side elevation of the first coupling and the second coupling aligned prior to engagement with each other.

[0012] FIG. 5 is a cutaway side elevation of the first coupling and second coupling engaged with each other.

[0013] FIG. 6 is a perspective view of a second coupling attached to a tray.

[0014] FIG. 7 is a perspective view of the tray of FIG. 6.

[0015] FIG. 8 is a first embodiment of the engaged clips.

[0016] FIG. 9 is an alternate embodiment of the engaged clips.

[0017] FIG. 10 is a perspective view of a second coupling attached to a planter.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

[0018] In the Figures, the same numerals are used to indicate the same or similar parts. FIGS. 1 and 2 show a first coupling 10 with clips 12 that are meant to engage complementary clips. Since the goal of the invention is to mount an item that is subject to tipping or falling on a stable surface, the coupling 10 is mounted on such a surface 16. Mounting is achieved using known fasteners such as nails, screws, or adhesive to secure the coupling 10 to the stable surface 16. In the embodiment shown in FIGS. 1 and 2, the coupling 10 is mounted onto the surface 16 by driving fasteners through openings in the fastening blocks 14 and into the stable surface.

[0019] As shown in FIGS. 6 and 7, a second coupling 20 is attached to an item 30 such as a tray that might be subject to tipping or spilling when set on a railing or placed outdoors. The second coupling 20 is mounted to the item through holes 24, shown in FIG. 3 (although fastening blocks similar to 14 can be used). Once mounted, the first and second part can engage each other so that the item 30 is secure from tipping. Alternatively, the item 30 could be formed integrally with the coupling 20 thereon.

[0020] Details of the second coupling 20, as well as the engagement of the first coupling 10 and the second coupling 20, are shown in FIGS. 3-5. FIG. 3 shows the second coupling 20, which is similar to the first coupling 10 except that the clips 22 are mounted to the second coupling’s exterior surface. The inside diameter of the first coupling 10 is preferably greater than the outside diameter of the second coupling 20, and provides a sliding clearance fit.

[0021] In another embodiment, the outside diameter of the second coupling could be greater than the inside diameter of the first coupling to achieve the same coupled engagement. In such an embodiment, the clips also would have to be reversed, that is, the first coupling’s clips would be mounted on its exterior and the second coupling’s clips would be mounted on its interior.

[0022] The edges of the first and second couplings 10, 20 can also be beveled to allow for easier alignment and the initial telescoping engagement.

[0023] With the second coupling 20 aligned above the first coupling 10 as shown in FIG. 4, the second coupling 20 is pushed in direction A and engages within the first coupling.
10. Once the second coupling 20 is contained within the first coupling 10, final engagement of the parts is achieved when the clips 12 and 22 are engaged by twisting the second coupling 20 in direction B as shown in FIG. 5. The cutaway portion of FIG. 5 shows the clips 12, 22 in their final engaged position. Once the clips are attached to the second coupling 20 should be difficult to tip. A person disengages the parts by turning the second part in the direction C.

[0024] Preferably, a plurality of generally equally spaced clips 12, 22 are located on the first and second couplings 10, 20. The clips 12, 22 preferably have ramp-shaped engaging surfaces so that the twisting movement draws the second coupling 20 down more firmly onto the first coupling (see FIGS. 8 and 9). In FIG. 8, the clips are ramp shaped and have engaging teeth. In FIG. 9, the clips are ramp shaped and have an engaging protrusion on their faces.

[0025] Additionally, the clips 12, 22 are preferably relatively short in length so that only a minimum amount of rotational movement of the second coupling 20 with the item 30 is required in order to engage the coupling 10. In a preferred embodiment, the first and second couplings are approximately 3° or less in diameter, and the clips 12, 22 are 3° inches long. This results in a twisting movement of 30° or less. If a smaller size clip or a bigger size coupling is used, a twisting movement of preferably 20° is needed to achieve full engagement. This allows a user to easily engage a fully loaded tray to a railing. Clips may include integral stops and/or also engageable teeth on their engaging surfaces. The clips may be attached to the couplings, or formed in the couplings themselves.

[0026] The items that could be prevented from tipping include trays (FIGS. 6 and 7), planters (FIG. 10), cups, bottle-holders, bird-feeders, flagpoles (with the parts engaged vertically on a vertical railing or post), dishes, grills (e.g., a hibachi-type small grill), and the like.

[0027] Although the stable surface is contemplated as a narrow railing that is often not an ideal place to rest items, the present invention could also be mounted to a rounded rail.

[0028] The part is shown as a generally hollow cylinder, although other shapes could be used, such as two rings, rectangles, and similar shapes without departing from the disclosed invention.

What is claimed is:
1. A device for attaching an item to an outdoor stable surface comprising:
   a) a first coupling adapted to be attached to the stable surface;
   b) a second coupling adapted to be attached to an item;

   wherein the first coupling engages the second coupling when the second coupling is rotated with respect to the first coupling and, as this rotation occurs, the second coupling moves axially as the second coupling is rotated;

   wherein once the first coupling and second coupling are engaged, the first coupling and the second coupling cannot be separated unless they are disengaged from each other.

2. The device of claim 1, wherein the first coupling has first teeth thereon and the second coupling has second teeth thereon and the couplings are engaged and disengaged when the teeth engage and disengage.

3. The device of claim 2, wherein the teeth are engaged when the second coupling is twisted in a direction about a common axis of rotation of the first coupling and the second coupling, and

   wherein the teeth are disengaged when the second coupling is twisted in a second direction about the axis of rotation.

4. The device of claim 1, wherein the first coupling and the second coupling have a circular cross-section.

5. The device of claim 1, wherein the first coupling and the second coupling are engaged via the use of ramp-shaped clips.

6. The device of claim 5, wherein the ramp-shaped clips have engaging teeth thereon.

7. The device of claim 5, wherein the ramp-shaped clips have engaging protrusions formed thereon.

8. The device of claim 1, wherein the surface is a railing.

9. The device of claim 1, wherein the item is a tray.

10. The device of claim 1, wherein the item is a plant-holder.

11. An item attached to a railing comprising:
   a) a first coupling adapted to be attached to the railing;
   b) a second coupling attached to the item;

   wherein the first coupling engages the second coupling when the second coupling is rotated with respect to the first coupling and, as this rotation occurs, the second coupling moves axially as it is rotated;

   wherein once the first coupling and second coupling are engaged, the first coupling and the second coupling cannot be separated unless they are disengaged from each other.

12. The device of claim 11, wherein the second coupling is formed integrally with the item.

13. The device of claim 11, wherein the item is a tray.

14. The device of claim 11, wherein the item is a planter.