A mounting device for the end of a flag pole that generally cleans a golf cup hole as the flag pole is removed from the golf cup. In one form, the mounting device includes an annular flange at one end that has a diameter and configuration to permit the mounting device to retain and remove debris from the cup as the flag pole is removed from the cup.
MOUNTING DEVICE FOR FLAG POLE

FIELD

[0001] The application relates to a mounting device for a flag pole, and in particular, to a ferrule for mounting a golf flag pole in a golf cup.

BACKGROUND

[0002] In order to support a golf flag pole within a golf cup, the flag pole is typically attached to a metal ferrule, which is usually zinc or a zinc alloy, at a lower end of the flagpole. The metal ferrule facilitates insertion of the flag pole into a receiving hole positioned in the center of the golf cup. In this manner, the flag pole is positioned to display the pin flag and hole location to an approaching golfer.

[0003] The flag pole is often fabricated out of fiberglass or wood and must be secured to the metal ferrule, usually by insertion through a hollow cylindrical hole in the center of the ferrule. To insure attachment of the pole to the ferrule, adhesive is usually employed to form a bond between the pole and ferrule. However, if the proper type or amount of adhesive is not used, or if curing conditions are not optimal, then the pin and ferrule may separate when golfers grasp and lift the flag stick out of the cup. On the other hand, attempting to employ an adhesive-less or friction-type fit between the fiberglass or wood pole and metal ferrule has also been unsatisfactory. Over time, the differences in surfaces between the fiberglass or wood and the metal ferrule combined with the repeated removal from the golf cup can result in a separation between the pole and ferrule, such as when the metal cuts into the fiberglass or wood and thereby decrease the tightness of the friction-type fit.

[0004] When the ferrule is received in the golf cup hole, there can be a tendency for the two components to stick together. When this occurs, golfers can pull a portion of or the entire golf cup out of the ground when they attempt to remove the pin. This problem is even more pronounced in a desert or high humidity environment where sand or moisture can be trapped between the cup and ferrule, causing the ferrule and cup to stick together.

[0005] In an effort to reduce sticking between the ferrule and cup, various modifications to the ferrule have been employed. For instance, ribs have been provided along the sides of the ferrule body so as to reduce the contact area between the ferrule and cup. In addition, the side walls of the ferrule have been tapered inwardly to further minimize contact area and permit easier pole removal. However, these solutions have the shortcomings that the ribs often provide insufficient contact area to form a stable coupling, and the tapered side walls may result in excessive leasing of the flag pole or render the flag susceptible to movement even in moderate breezes.

[0006] As golf is a sport primarily undertaken outdoors, under normal weather conditions, different types of debris or other material may blow into the golf cup. Leaves, sand, small rocks, grass clippings, dirt and the like may regularly fall into and accumulate in a golf cup. When a golfer removes the flag as he or she begins to put, the debris often remains in the cup. When the flag is replaced after the golfer is finished putting, the metal ferrule at the end of the golf flag pole may trap the debris or other material between the ferrule and the golf cup hole. As a result, the next time the pin is removed from the cup, the debris jammed between ferrule and cup can cause them to stick together, and can result in the golfer at least partially removing the cup from the ground.

[0007] Debris accumulated in the cup hole may also result in a flag pole and attached ferrule that cannot be properly inserted into the hole because the debris interferes with the proper insertion of the ferrule into the hole. This situation can leave the pin insufficiently supported in the cup and may cause the pin to tilt or even fall over in a breeze. A downed or tilted pin is not useful to an approaching golfer because it provides misleading information about the exact pin location.

[0008] Accordingly, there is a desire to minimize the amount of debris within a golf cup that would affect the proper mounting of a flag pole within the golf cup.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a perspective view of a first embodiment of a mounting device for a flag pole shown in an exemplary environment;

[0010] FIG. 2 is an exploded view of the mounting device of FIG. 1 shown with a golf cup and flag pole end;

[0011] FIG. 3 is a perspective view of the mounting device of FIG. 2;

[0012] FIG. 4 is a top plan view of the mounting device of FIG. 3;

[0013] FIG. 5 is an elevation view of the mounting device of FIG. 3;

[0014] FIG. 6 is a cross-sectional view of the mounting device of FIG. 3;

[0015] FIG. 7 is a bottom plan view of the mounting device of FIG. 3;

[0016] FIG. 8 is a partial plan view of the mounting device of FIG. 3 showing a bore formed therein;

[0017] FIG. 9 is a cross sectional view of the mounting device in an exemplary golf cup;

[0018] FIG. 10 is a cross-sectional view of the mounting device generally cleaning an exemplary golf cup;

[0019] FIG. 11 is a side elevation view of an alternative mounting device for use with a flag pole;

[0020] FIG. 12 is a bottom plan view of the alternative mounting device of FIG. 11; and

[0021] FIG. 13 is a perspective view of the alternative mounting device of FIG. 11.

DETAILED DESCRIPTION

[0022] A first embodiment of a flag pole mounting device 10, which is designed to generally clean a golf cup 12 upon removal, is illustrated in FIGS. 1-10 in the form of a ferrule 14 that is securable to an end of a flag pole 16. The ferrule 14 includes a generally cylindrical body 18 having an outer wall 20, a first end 22, and a second end 24. An inner wall 26 of the body 18 defines a bore 28 that extends at least partially inwardly to the body 18 from the first end 22. The bore 28 is sized and configured to receive the flag pole 14 in a frictionally-tight fit without the use of adhesive or other secondary securing aids, such as screws, bolts, or other secondary fasteners. Preferably, the mounting device 10 includes an annular flange 30 that is sized and configured to prevent debris from falling into a flag-receiving cup hole 13 in the golf cup 12, as exemplified in FIG. 9. Any debris that falls into the cup 12 will collect on the annular flange 30 instead of on the bottom of the cup 12 as shown in FIG. 10. When the flag pole 16 is withdrawn from the cup 12, the attached device 10 will
also be withdrawn from the cup 12 and debris in the flange 30 will be removed from the cup 12, as exemplified in FIG. 10.

[0023] Referring to FIGS. 2-6 and FIG. 9, the first end 22 of the cylindrical body 18 includes the annular flange 30 that extends radially outward beyond the outer wall 20 of the body 18. That is, the annular flange 30 has a diameter D1 that is larger than a diameter D2 of the cylindrical body 18 (FIG. 6). The annular flange 30 also preferably extends beyond a diameter D3 of the cup hole 13 when the device 10 is inserted into the golf cup 12 (FIG. 9). In use, such configuration permits the annular flange 30 to substantially cover or enclose the hole 13 in order to minimize, and preferably prevent, any debris (i.e., sand, dirt, leaves, pebbles, water, moisture, etc.) from falling into a space 34 between the ferrule body 18 and a side wall 36 of the cup hole 13 that is typically open to the environment in prior art ferrules. As discussed in the background, such debris between the device 10 and the hole side wall 36 can increase the force needed to remove the flag pole 14. Therefore, the annular flange 30 helps to aid in the reduction of any sticking force between the device 10 and cup 12 by covering the hole 13 and reducing debris from falling therein.

[0024] Preferably, the annular flange 30 is in the form of a dish so that the mounting device 10 will retain debris that has fallen into the golf cup 12 when a golfer removes the flag pole 16 from the cup 12 in preparation to put. In one form, the dish 38 has an upper surface 40 that includes a generally concave portion 41 that curves or tapers toward an outer edge 42 of the dish 38. At the bottom of the dish 38, there is a domed portion 43 that curves upwardly from a lower portion 44 of the dish 38 inwardly into the bore 28. Transitioning between the generally concave portion 41 and the domed portion 43 is a flat, annular ring 45 that is concentric with the bore 28. The domed portion 43 is beneficial because it provides enhanced support to the annular flange 30 at an intersection 31 with the body 18 by providing additional material for enhanced strength.

[0025] In the configuration described above, the dish 38 defines a generally bowl-shaped upper profile. This profile permits debris that may have fallen into the golf cup 12 to be retained in the dish 38 and be removed from the cup 12 along with the mounting device 10 when a golfer removes the flag pole 16 from the cup 12 as exemplified in FIG. 10. In this manner, the mounting device 10 and the dish 38 generally clean the cup 12 during the course of pin removal. Device 10 is advantageous, therefore, because it provides a convenient method of cleaning the cup 12 and removing any debris therein, which may later interfere with the proper reinsertion of the flag pole 16 in the golf cup hole 13 as discussed previously.

[0026] To further help retain any debris within the dish upper surface 40, the dish 38 also includes an upwardly extending lip 46 that surrounds the dish outer edge 42. The lip 46 helps prevent debris from falling out of the dish 38 as the mounting device 10 is removed from the golf cup 12 by providing an annular wall to generally block the debris from falling out of the dish 38.

[0027] To sufficiently clean the golf cup 12 as the flag pole 16 is removed therefrom, the diameter D1 of the dish 38 is preferably of a predetermined size such that the dish 38 substantially covers the entire cross-sectional area of the cylinder formed by the golf cup 12 while still permitting easy removal and reinsertion of the dish 38 into the golf cup 12. For example, referring to FIGS. 9 and 10, when inserted into the golf cup 12, the dish 38 extends close to a side wall 52 of the golf cup 12. That is, the dish outer edge 42 forms a small space with the golf cup side wall 52, and in one example, an annular space 50 with a radial length of about 1/4 inch to 10 percent of an inch from the golf cup side wall 52. If debris falls into the golf cup 12 with the mounting device therein, the dish 38 preferably picks up and retains substantially all of such debris therein because the surface area of the dish 38 substantially covers the entire cross-sectional area of the cup 12 and because insufficient space exists between the dish 38 and the cup side wall 52 for most debris to fall back into the cup 12.

[0028] As illustrated in FIG. 10, as the golfer removes the flag pole 16 from the golf cup 12, the dish 38 substantially retains and removes debris 53 that is within the golf cup 12. To this end, it is also preferred that the small space 50 is maintained between the dish edge 42 and the cup side wall 52 as the mounting device 10 is being removed. As a result, there is generally insufficient room between the dish edge 42 and side wall 52 along the entire path for any debris to fall from the dish 38 back into the cup 12. Once removed from the cup, the golfer can place the flag pole 16 on the ground and the debris will preferably fall onto the green rather than directly back into the cup 12.

[0029] The small space 50 between the dish 38 and the golf cup side wall 52 is also advantageous because it also helps to stabilize the flag pole 14 within the cup 12. For instance, the generally small space between the dish edge 42 and the cup side wall 52 can limit the degree of tilting of the flag pole 16. If the flag pole 16 starts to tilt or sway, the dish edge 42 will contact the cup side wall 52 and can limit or hinder further tilting of the flag pole 16.

[0030] Referring to FIGS. 5-7, a lower surface 54 of the dish 38 preferably tapers inwardly from the dish outer edge 42 to the body side wall 20. This configuration is advantageous because the dish lower surface 54 generally conforms to the bottom wall 15 of a common golf cup 12 (e.g., FIGS. 9 and 10). In this manner, the mounting device 10 and dish 38 can be received in the golf cup 12 in a generally stable manner because of the similar profiles between the dish lower surface 54 and the cup bottom wall 15.

[0031] To provide support for the dish 38, the device 10 may also include one or more supports 56 that extend from the dish lower surface 54 to the outer wall 20 of the body 18. In one form, the supports 56 are triangular-shaped ribs that are generally equally spaced around the circumference of the outer wall 20.

[0032] Turning to the second end 24 of the body 18, an inner wall 60 preferably defines a bore 62 at least partially extending into the body 18, as illustrated in FIG. 6. The bore 62 is illustrated as only partially extending into the body 18 and separated from the bore 28 by a wall or stop 64; however, the bore 28 and the bore 62 may be connected such that the mounting device 10 includes a single bore that extends through the entire body 18. Preferably, the wall 64 functions as a stop such that the flag pole 16 is inserted into the device 10 a predetermined distance. In one example, the stop wall 64 permits the flag pole 16 to be inserted about 1 to about 1.5 inches into the bore 28.

[0033] After the mounting device 10 is removed from the cup 12, if any debris happens to fall into the cup prior to the flag's reinsertion, the second bore 64 is advantageous because it can trap such debris therein as the mounting device is being reinserted back into the cup 12. To this end, the second end 24 of the body 18 also preferably includes an annular, inwardly
inclined chamfer 66 that surrounds an opening 68 of the bore 62 to facilitate directing such debris into the bore 62. For instance, if debris has fallen into the golf cup 12 or hole 13 prior to, or as the golfer is replacing the flag 16, the bore 62 can capture and trap such debris within the bore 62 as the mounting device is being put back into the cup 12. In this manner, rather than the debris being wedged between the mounting device side wall 20 and the golf cup hole inner wall 36 where it can cause sticking of the mounting device within the hole 13, it can be conveniently trapped within the bore 62 where it will not interfere with removal of the flag pole 16 from the cup 12.

[0034] To facilitate insertion of the mounting device 10 into the golf cup hole 13, the second end 24 of the body 18 also curves inwardly towards the second bore 62 to form a generally domed end of the body 18. That is, the side wall 20 curves radially inward towards the annular chamfer 66. The curvature of the domed end generally guides the body 18 of the mounting device 10 into the hole 13 and permits less precise initial alignment of the mounting device 10 into the cup hole 13 during flag pole insertion. Furthermore, the domed end 24 also can help fit the device 10 into the hole 13.

[0035] As best illustrate in FIGS. 2 and 3, the mounting device 10 preferably includes a generally smooth surface texture on the outer wall 20 in order to provide an increased contact area with the golf cup hole 13. This increased contact area may further enhance the stability between the device 10 and the golf cup hole 13 because more circumferential contact between the device 10 and the side wall 36 of the cup hole 13 is achieved to provide additional stability in more circumferential directions. On the other hand, even with this increased contact area, easy removal of the device 10 from the cup 12 can be further facilitated due to the material selected to form the device 10. Preferably, the mounting device 10 is formed from a plastic material, such as nylon, or other suitable plastics. Alternatively, the mounting device can be made from a ceramic composite material, such as that provided by CerCo (Ohio). Nylon provides a natural lubricity to the mounting device such that a lower coefficient of friction between the device side wall 20 and golf cup side wall 36 can be achieved over traditional zinc or zinc alloy ferrules. In this manner, even with the increased contact area with the golf cup 12, the mounting device 10 formed from the preferred nylon minimizes sticking between the flag pole 16 and golf cup 12 experienced by many traditional flag poles.

[0036] Referring to FIGS. 6 and 8, one example of an adhesive-less securing device 70 within the bore 28 is illustrated. The securing device 70 permits attachment of the mounting device 10 to the flag pole 16 through a friction-tight fit without the use of adhesives or other secondary fasteners, such as screws, bolts, pins, and the like. In one form, the securing device 70 includes a plurality of rib members 72 that are circumferentially spaced about the inner wall 26 of the bore 28 and preferably extend the entire axial length of the bore 28 as shown in FIG. 6. The rib members 72 may each include a pair of closely spaced elongate projections 72a and 72b that also extend the axial length of the bore 28. Each projection 72a and 72b extends radially inward by a predetermined amount so that the bore 28 has an effective diameter D4 (FIG. 8) between facing rib members 72 on opposite sides of the bore 28 that is slightly less than the diameter D5 (FIG. 2) of the flag pole 16. In this manner, the flag pole 16 may be frictionally received within the bore 28 in a friction-tight fit without the use of adhesive or other fasteners. While the ribs 72 are illustrated and described in a preferred configuration; other configurations are also possible, such as those described in co-pending application Ser. No. 11/622,639, which is hereby incorporated herein by reference in its entirety.

[0037] Optionally, to further secure the flag pole 16 within the bore 28, each rib member 72 may also include a deformable portion 74 on a distal end thereof that deforms by flexing, bending, compressing, and, the like to provide an additional securing force to the flag pole 16. Because the effective bore diameter D4 is slightly less than the pole diameter D5, the ribs 72 may deform in order for the pole 16 to be received within the bore 28. The deforming of ribs 72 preferably provides opposing forces that are generally directed inwardly to the bore 28 as the ribs 72 attempt to resiliently move back towards their original, un-deformed configuration. In this manner, all the deformed ribs 72 surrounding the flag pole 16 and the resultant opposing forces from each deformed rib 72 further aid in the holding of the pole 16 within the bore 28 without adhesive or other fasteners. While the above description illustrates a preferred securing device 70, this description is only exemplary and not intended to limit how the pole 16 is secured within the bore 28. The adhesive-less and friction-type fit of the securing device 70 may also be achieved through other configurations of ribs and/or the bore.

[0038] Referring again to FIG. 6, the cylindrical body 18 of the mounting device 10 preferably has a consistent diameter along the axial length thereof. Specifically, the diameter D2 of the cylindrical body 18 is substantially constant from the dish lower wall 54 (or supports 56) to a transition point 82 where the inward curvature 83 at the second end 24 begins. In this manner, the outer wall 20 of the body 18 preferably forms a generally right circular cylinder along at least a portion thereof where a cross-section of the body 18 near the dish lower surface 54 is substantially the same as the cross-section of the body at the transition 82. It will be appreciated by one skilled in the art, however, that a slight draft angle may be present if the cylindrical body is made using injection molding techniques.

[0039] With such configuration of the body 18, opposite side portions 20a and 20b of the outer wall 20 are generally parallel with each other rather than the generally tapered outer walls of prior art ferrules. As shown in FIG. 9, the parallel outer wall portions 20a and 20b provides for a consistent relationship 84 between the outer wall 20 and the golf cup hole 36 along at least a portion of the body 18 because the diameter D2 is generally close to the diameter D3 of the cup hole 13. This substantially consistent relationship 84 provides for a more stable mounting between the device 10 and the golf cup hole 13 due to more contact area between the device 10 and the cup 12 along the axial length of the mounting device 10. As discussed above, even with this close relationship between the device 10 and cup hole 13, the natural lubricity of the preferred nylon used to construct the device 10 allows ease of separation with minimal, and preferably, no sticking of the device 10 to the cup 12.

[0040] Referring to FIGS. 11-13, there is illustrated a second embodiment of a mounting device 110 in the form of a modified ferrule 114. Device 110 is similar to the previously described mounting device 10 and includes a body 118 having a side wall 120, a first end 122, and a second end 124. The body 118 also includes an annular flange 130 in the form of a dish 138 at the first end 122 to clean the golf cup 12 in a manner similar to the previously described embodiment. The device 110 also includes an inner wall 126 that forms a bore.
similar to the previous embodiment to receive the flag pole. The description below of the device, therefore, focuses on the differences from the previously described device, which includes the use of a profiled side wall. In this embodiment, the side wall includes a contoured profile that reduces the surface area of the side wall that is adjacent the cup inner wall. In one form, the profile may be formed from a plurality of ribs that extend radially outward from the side wall. Preferably, the ribs extend the entire axial length of the cylindrically body and also curve inwardly at the end to form part of a domed end similar to the previous embodiment. The ribs generally provide less surface area on the outer surface of the body, which results in an even lower coefficient-of-friction between the device and the cup hole than the previous embodiment and prior art ferrules. While the ribs are illustrated as extending along the entire axial length of the body, it will be appreciated that the ribs may also extend less than the entire axial length of the outer wall. Furthermore, the device is shown with sixteen ribs, which is merely illustrative of an exemplary contoured profile. The device may include more or less ribs as desired to provide more or less contact between the device and the cup.

It will be understood that various changes in the details, materials, and arrangements of parts and components which have been herein described and illustrated in order to explain the nature of the device may be made by those skilled in the art within the principle and scope of the device as expressed in the appended claims.

1. A device for mounting a flag pole in a golf cup hole, the device comprising:

A cylindrical body having a side wall and first and second ends;

an inner wall of the cylindrical body defining a bore extending at least partially into the body from the first end, the bore sized and configured to receive an end of a flag pole wherein;

an annular flange at the first end of the body that extends radially outward beyond the body side wall to a predetermined diameter to remove debris from a golf cup as the flag pole is withdrawn therefrom;

a second inner wall of the cylindrical body defining a second bore at least partially extending into the cylindrical body from the second end, the second bore defining an open cavity free of the flag pole so that the second bore can receive debris therein when the flag pole is inserted into the golf cup hole.

2. The device of claim, wherein the annular flange has a generally concave upper surface.

3. The device of claim 2, wherein the annular flange includes an upstanding annular lip at an outer edge thereof.

4. The device of claim 3, wherein the annular flange includes a plurality of supports extending from a lower surface of the annular flange to the body side wall.

5. (canceled)

6. The device of claim 1, wherein the side wall curves radially inward at the second end to facilitate insertion of the device into a golf cup hole.

7. The device of claim 1, wherein a plurality of axial ribs extend radially into the bore from the bore inner surface, the axial ribs adapted and configured to provide a friction fit between the body and the received flag pole.

8. The device of claim 7, wherein each rib includes a deformable portion positioned to deform upon insertion of a flag pole end in the bore to provide the friction fit between the body and the received flag pole.

9. The device of claim 8, wherein the device is nylon.

10. The device of claim 1, wherein the body has an outer diameter substantially constant along a length of the side wall such that a mounted device forms a substantially constant relationship between the side wall and an inner surface of a golf cup hole when the flag pole is mounted therein.

11. A golf cup, mounting device, and flag pole assembly, the assembly comprising:

a golf cup having a side wall and an end wall defining a hole having a first diameter;

a flag pole having a mounting device on an end thereof configured to be received in the golf cup hole, the mounting device having a cylindrical body having a second diameter such that the mounting device has a loose frictional arrangement with the golf cup hole, a first inner wall of the cylindrical body defining a first bore extending at least partially into the cylindrical body from a first end thereof, the flag pole secured in the first bore; a second inner wall of the cylindrical body defining a second bore extending at least partially into the cylindrical body from a second end thereof, the second bore configured to receive debris therein when the flag pole is inserted into the golf cup hole; and an annular extension disposed on the cylindrically body first end, the annular extension having a third diameter larger than both the first diameter and the second diameter such that the annular extension is configured to remove debris from the golf cup when withdrawn therefrom.

12. The assembly of claim 11, wherein an outer edge of the annular extension is spaced from the golf cup side wall about \( \frac{1}{8} \) inch when the mounting device is received in the golf cup.

13. The assembly of claim 11, wherein the mounting device is formed from nylon.

14. The assembly of claim 11, wherein the annular extension has a generally concave upper surface.

15. The assembly of claim 14, wherein the annular extension has an upstanding annular lip at an outer edge thereof.

16. The assembly of claim 15, wherein a plurality of supports extend from a lower surface of the annular extension to the body side wall.

17. (canceled)

18. The device of claim 17, wherein the side wall curves radially inward at the second end to facilitate initial insertion of the device into the golf cup hole.

19. The device of claim 11, wherein the inner surface of the bore has a plurality of ribs that extend radially inward to provide a friction fit between the body and the received flag pole.

20. The device of claim 11, wherein the second diameter of the body is substantially constant along a length of the side wall such that the mounting device forms a substantially constant relationship between the side wall and an inner surface of a golf cup hole when the flag pole is mounted therein.

21. The device of claim 1, wherein the bore includes a stop to permit insertion of the flag pole a predetermined axial distance into the bore.