Storage Device for a Golf Bunker Rake

FIELD OF INVENTION

The present invention broadly relates to a storage device capable of being embedded into a peripheral structure of a golf bunker for receiving and storing a rake, and to a golf bunker structure.

BACKGROUND

Golf is a sport associated by many with the beautiful golf courses designed in the backdrop of pleasant sceneries. The game of golf may seem to many to be a sport of low risk and hazards; however, in reality hazards and risks in the sport do exist.

For example, rakes typically lying in or near bunkers are a potential risk factor. Rakes are used to smooth out the marks left on the sand in the bunkers after the golfers have made a bunker shot. This is done so that the bunker characteristics are maintained for the next golfer who has his shot landing in the bunker, and also to generally keep the sand in the bunker smooth and neat.

The rakes that are used to rake the sand in the bunkers are typically left lying exposed within reaching distance from the bunkers. Such acts may cause injuries and harm to the golfers and caddies moving through the course to the respective holes or greens to make their next shot and to the staff of the golf club. Also, rakes left lying around will not just be a potential hazard but also affect the image of the game itself, as the rakes are a potential eye sore against the backdrop of the pleasant sceneries of the golf club.

A need therefore exist to provide for a storage device for the rakes that seeks to address the above problem.

SUMMARY

In accordance with a first aspect of the present invention there is provided a golf bunker structure comprising a sand pit; a peripheral structure along or around the sand pit; and a storage device embedded into the peripheral structure or the sand pit for receiving and storing a rake.

The peripheral structure may comprise a bunker wall, and the storage device is embedded in the bunker wall.

The storage device may be located towards a side of the bunker wall for facilitating storing the rake without leaving marks on the sand pit.

The storage device may comprise a rake head receptacle portion for accommodating a head of the rake; a longitudinal receptacle portion connected to the rake head receptacle portion for accommodating a handle of the rake, such that one end of the connected rake head and longitudinal receptacle portions is open; and a cover for said one open end.

The rake head and longitudinal receptacle portions may have substantially the same circumferential dimensions.

The rake head receptacle portion may have larger circumferential dimensions than the longitudinal receptacle portion, and wherein the cover is disposed at the rake head receptacle portion.

The storage device may comprise means for aiding locating the storage device.

The storage device may comprise means for camouflaging the storage device.

The storage device may comprise a brand name or advertisement.

The storage device may further comprise a mechanism for facilitating removal of the rake from the storage device.

The storage device may comprise a conditioning unit for minimizing dampness and moisture inside the storage device.

The storage device further may comprise an electronic device unit for added functionality of the storage device.

The electronic device unit may comprise one or more of a group consisting of a communication device, a video camera device, a monitor device, and an actuator device for opening and closing the storage device.

The storage device may have drainage holes formed therein.

In accordance with a second aspect of the present invention there is provided a storage device capable of being incorporated into a bunker structure, the storage device comprising a rake head receptacle portion for accommodating a head of the rake; a longitudinal receptacle portion connected to the rake head receptacle portion for accommodating a handle of the rake, such that one end of the connected rake head and longitudinal receptacle portions is open; and a cover for said one open end.

The rake head and longitudinal receptacle portions may have substantially the same circumferential dimensions.

The rake head receptacle portion may have larger circumferential dimensions than the longitudinal receptacle portion, and wherein the cover is disposed at the rake head receptacle portion.

The cover may comprise means for aiding locating the storage device.

The cover may comprise means for camouflaging the storage device.

The cover may comprise a brand name or advertisement.

The storage device may further comprise a mechanism for facilitating removal of the rake from the storage device.

The storage device may comprise a conditioning unit for minimizing dampness and moisture inside the storage device.

The storage device may further comprise an electronic device unit for added functionality of the storage device.

The electronic device unit may comprise one or more of a group consisting of a communication device, a video camera device, a monitor device, and an actuator device for opening and closing the storage device.

The storage device may have drainage holes formed therein.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

Figure 1a shows a schematic drawing illustrating a bunker structure with a storage device for a rake, closed and embedded into a bunker wall;

Figure 1b shows a schematic drawing illustrating the bunker structure with the storage device open, exposing a rake;

Figure 2 shows a schematic drawing illustrating an exploded view of the storage device;

Figure 3 shows a schematic drawing illustrating a cover of a storage device with an identification mark imprinted on it;

Figure 4a shows a schematic drawing illustrating a top view of a storage device with a manual push button mechanism;

Figure 4b shows a schematic drawing illustrating an exploded side view of the mechanism of the storage device of Figure 4a to facilitate the removal of the rake;

Figure 4c shows a schematic drawing illustrating the manual push button being depressed by the handle of a golf club; and

Figure 5 shows a schematic drawing illustrating the attachment of a ribbon or rope at the head of a rake disposed in the storage device of Figure 4a.

DETAILED DESCRIPTION

Figure 1a shows a schematic drawing illustrating a bunker structure 102 with a storage device 104 closed and embedded into the bunker wall 106. Figure 1b shows a schematic drawing illustrating the bunker structure 102 with the storage device 104 open exposing a rake 108. The storage device 104 allows for the rake to be stored safely away after use thus preventing a potential safety hazard as well as a potential eye sore.

In a preferred implementation, the storage device 104 is positioned towards one end of the bunker wall 106. This can allow for the golfer to finish raking the sand in the sand pit area 110, dispose of the rake in the storage device 104 and leave the bunker structure 102 without creating any fresh marks on the sand in the sand pit area 110 bunker structure 102, thus maintaining the characteristics of the bunker structure 102 and keeping the sand in the sand pit area 110 smooth and neat.

The storage device 104 can be incorporated into the bunker wall 106 either during the original built-up or creation of the bunker structure 102 during the golf course design. Alternatively the storage device 104 can be incorporated into any existing bunker e.g. with minor excavation-type work to embed the storage device within the bunker wall 106. Similarly, the location of the storage device 104 may be changed due to e.g. changes in the design or layout of the bunker structure 102. Furthermore, while in

the example implementation shown the storage device 104 is embedded into the bunker wall 106, it will be appreciated that the storage device may alternatively be embedded at other portions or sections within a periperhy 112 of the bunker structure 102, including e.g. embedding into the level ground at the periphery 112 of the sand pit area 110. Depending on the specific bunker structure design, e.g. in terms of shape of the sand pit and location with respect to surrounding landscape, the storage device may be incorporated within e.g. about 3 meters around the sand pit. Furthermore, it will be appreciated that the storage device may also be embedded into the actual sand pit area, preferably in proximity to the edge of the sand pit, so as to minimize or avoid creating fresh marks after disposing the rake in the storage device.

Figure 2 shows a schematic drawing illustrating an exploded view of the storage device 104 in one example implementation. A cover 202 is hinged 204 to an adaptive rake head attachment 206 with a coupling 208. A pipe 210 is provided to house the handle of the rake. The cover 202 is hinged 204 to the rake head attachment 206 as shown in Figure 2 such that it can be flipped open and close for accessing the rake. The cover 202, the adaptive rake head attachment 206 and the pipe 210 have holes 212 drilled into them to facilitate drainage of water that might get into the storage device 104. A sleeve 214 is provided for the pipe 210 and may be filled with pebbles or stones around the periphery of the pipe 210 to facilitate drainage and also to prevent the pipe 210 from being directly exposed to the surroundings earth etc. An insert 216 is provided inside the pipe 210 to lift the rake handle and center it in the pipe 210.

The material(s) for the cover 202, the adaptive rake attachment 206, the pipe 210, and the sleeve 214 are chosen to be suitable for embedding into the earth in terms of avoiding or minimizing deterioration of the integrity of the storage device. In one example implementation, a plastic material such as Polyvinyl Chloride (PVC) may be used. However, it will be appreciated that a large variety of other suitable materials may be chosen in different implementations, including, but not limited to, metals such as aluminium, fiberglass, recycled plastics and concrete poured castings. The hinges 204 may be implemented as loops of sheet material, inserted through corresponding openings formed in the cover 202 and the rake head attachment 206 respectively. However, it will be appreciated that the connection between the cover 200 and the rake head attachment 206 may be implemented in a variety of different ways, including, but

not limited to using plate hinge structures, biased or spring loaded connectors. The connection between the coupling 208 and the pipe 210 may be provided through a press-fit between the respective components. However, it will be appreciated that the connection between the pipe 210 and the rake head attachment 206 may be affected in a variety of different ways, including, but not limited to, utilizing a fixture element to fasten the components together, and using a separate slide-over or slide-in coupling member.

Figure 3a) shows a schematic drawing illustrating a cover 301 for another storage device, with an identification mark 302 imprinted thereon. Such identification marks 302 can serve as an indication for the golfers as to the location of the storage device and the rake. It will be appreciated that the cover 301 may include other means for aiding in the locating of the storage device, such as a light source coupled to a power source such as a battery, solar cell power source, or a mains power supply.

Alternatively or additionally, Figure 3b) shows a schematic drawing illustrating a cover 304 for another storage device with a brand name or Trademark 306 imprinted thereon. Accordingly, the cover 304 can advantageously be used for marketing purposes, such as for increasing a brand awareness, or other promotional activities. It will be appreciated that in different implementations, the cover space may be utilized for carrying advertisements of various companies, which may be available for purchase or hire by sponsors or the like. Given that during a game of golf inevitably some players will have to play bunker shots, media coverage may be favorable in terms of the location of the cover 302 within the wall of the bunker (compare Figure 1), i.e. it may provide a prominent platform for advertising or other promotional activities.

It is noted that in different implementations, the cover space may alternatively or additionally, be covered so as to blend-in with the environment of the bunker. For example, camouflage material such as synthetic grass may be provided on the cover space, to blend-in with grass surroundings of a particular bunker.

A mechanism may be provided to facilitate the removal of the rake from the storage device. One such implementation is shown in Figure 4a and Figure 4b. Figure 4a shows a schematic drawing illustrating a front view of a storage device 404 with a manual push button 402. Figure 4b shows a schematic drawing illustrating an exploded bottom view of a mechanism of the storage device 404 to facilitate the removal of the rake (not shown). The mechanism comprises of an arm 406 hingedly co-operating with a pivoting lever arm 408. In this implementation, the pivoting point is provided by disposing the pivoting lever arm 408 through a correspondingly sized hole 412 in the pipe 414 of the storage device 400.

Attached at the end of a lever arm 408 is a clamp 410. The clamp 410 provides frictional contact to the handle of the rake (not shown). When the push button 402 is depressed, the arm 404 moves as indicated by arrow 416 causing the clamp 410 connected to the lever arm 408 to move in the opposite direction as indicated by arrow 418, thus pushing the rake (not shown), out of the storage device 404. This facilitates removal of the rake from the storage device 404.

The push button 402 in this example implementation is designed such that the handle 420 of a typical golf club can be used to depress the push button 402, as illustrated in Figure 4c. As will be appreciated, this implementation combines facilitating removal of the rake from the storage device 404, with the convenience of using the handle 420 of the golf club for easy operation of the mechanism.

An attachment at the head of the rake may be provided to facilitate the removal of the rake. One such implementation is shown in Figure 5. Figure 5 shows a schematic drawing illustrating the attachment of a ribbon or rope 502 at the head 500 of the rake 504. It will be appreciated by a person skilled in the art that such an implementation would facilitate the removal of the rake 504 from the storage device 404, as well as avoiding the golfer or person removing the rake 504 having to touch the head 500 of the rake 504. This can reduce a potential risk of injury or discomfort from inadvertent contact with the spikes 506 of the head 500 of the rake 502.

Different example embodiments of the storage device will now be briefly described.

Figure 6 shows a schematic drawing of a storage device 600 according to one example embodiment. The storage device 600 comprises a main body 602 dimensioned so as to accommodate the rake head 604 of a rake 606 along the entire length of the main body 602. A cover 608 is provided at a top of the main body 602, with the opposing end 610 of the main body 602 being enclosed. As will be appreciated by a person skilled in the art, the storage device 600 enables insertion of the rake 606 with the rake head 604 first, which can facilitate easy and safe retrieval and storage of the rake 606 by grabbing the handle 612 of the rake 606. In this implementation, the rake head receptacle portion 614 and the longitudinal receptacle portion 616 integrally form the main body 602 of the storage device 600.

Figure 7 shows a schematic drawing illustrating a storage device 700 according to another example embodiment. In the storage device 700, a main body 702 is dimensioned so as to accommodate a rake 704 having a pivoting rake head 706, where the rake head 706 is folded to be substantially parallel with a handle 708 of the rake 704. The pivoting rake head 706 may be pivotally connected to the handle 708 using mechanisms understood in the art, including e.g. a spring loaded snap mechanism, for releasably arresting the rake head 706 in a position substantially perpendicular to the handle 708 during use of the rake 704. A cover 710 is provided at a top end of the main body 702, with the opposite end 712 being enclosed. In this implementation, the rake head receptacle portion 713 and the longitudinal receptacle portion 715 integrally form the main body 702 of the storage device 700.

In addition to drainage holes (not shown), the storage device 700 in this example embodiment includes a conditioning unit in the form of electrical wire strip 714 coupled to a power source 716 for resistive heating of the storage device 700 to minimize dampness and moisture inside the storage device 700. This can advantageously minimize deterioration of the rake 704 during storage, which may be caused by environmental influences, such as rusting or rotting. In this example implementation, the power source 716 comprises one or more batteries, but it will be appreciated that other power sources may be used in different implementations, including solar cell power sources, or a mains power supply unit.

The storage device 700 further comprises an electronic device unit 718 coupled to the power supply 716. In the example implementation, the electronic device unit 718 is incorporated in the cover 710 as a separate device. However, it will be appreciated that in different embodiments, the cover itself may be provided integrally with, or as providing the functionality of, the electronic device unit 718. The electronic device unit 718 can take a number of forms depending on desired application features. For example, the electronic device unit 718 may be in the form of one or more of a group consisting of a communication device such as a mobile radio device or a telephone device, a monitor to indicate scores, a video camera device for recording shots and sounds, and an actuator for facilitating opening and closing of the cover 710.

In example applications, the electronic device unit 718 advantageously facilitates applications such as being able to contact golf course staff, police, ambulance, etc. directly from near the bunker, or monitor progress scores during a tournament.

Industrial Applicability

It will be appreciated that the present invention does have industrial application in providing a modified man-made bunker structure for golf courses. In seeking to reduce a potential safety hazard associated with rakes used for golf bunkers, and in addressing a potential eye sore in the prestigious game of golf, embodiments of the present invention can contribute to the commercial value of golf course designs. Furthermore, embodiments of the present invention can be retro-fitted onto existing man-made golf bunker structures, and may thereby increase the commercial value of existing golf course designs for the same reasons.

It will be appreciated by a person skilled in the art that numerous variations and/or modifications may be made to the present invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects to be illustrative and not restrictive.

For example, it will be appreciated that there are many design possibilities for implementing the cover of the storage device, in addition to the specific examples described. Other implementations may include, but are not limited to, connecting

the cover to the rake handle, implementations where the rake head functions as the cover, covers that slight open and close from side to side within rails provided on the storage device, or a design in which the cover is retractable into the body of the storage device, e.g. a roll cover. Furthermore, in different implementations the cover may lift off the body of the storage device for temporary disposition in the vicinity of the storage device. Alternatively, a removable cover may be connected to the rake by a chain, rope, plastic extender etc.

CLAIMS

1. A golf bunker structure comprising:

a sand pit;

a peripheral structure along or around the sand pit; and

a storage device embedded into the peripheral structure or the sand pit for receiving and storing a rake.

2. The golf bunker structure as claimed in claim 1, wherein the peripheral structure comprises a bunker wall, and the storage device is embedded in the bunker wall.

3. The golf bunker structure as claimed in claim 2, wherein the storage device is located towards a side of the bunker wall for facilitating storing the rake without leaving marks on the sand pit.

4. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device comprises;

a rake head receptacle portion for accommodating a head of the rake;

a longitudinal receptacle portion connected to the rake head receptacle portion for accommodating a handle of the rake, such that one end of the connected rake head and longitudinal receptacle portions is open; and

a cover for said one open end.

5. The golf bunker structure as claimed in claim 4, wherein the rake head and longitudinal receptacle portions have substantially the same circumferential dimensions.

6. The golf bunker structure as claimed in claim 4, wherein the rake head receptacle portion has larger circumferential dimensions than the longitudinal receptacle portion, and wherein the cover is disposed at the rake head receptacle portion.

7. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device comprises means for aiding locating the storage device.

8. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device comprises means for camouflaging the storage device.

9. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device comprises a brand name or advertisement.

10. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device further comprises a mechanism for facilitating removal of the rake from the storage device.

11. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device comprises a conditioning unit for minimizing dampness and moisture inside the storage device.

12. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device further comprises an electronic device unit for added functionality of the storage device.

13. The golf bunker structure as claimed in claim 12, wherein the electronic device unit comprises one or more of a group consisting of a communication device, a video camera device, a monitor device, and an actuator device for opening and closing the storage device.

14. The golf bunker structure as claimed in any one of the preceding claims, wherein the storage device has drainage holes formed therein.

15. A storage device capable of being incorporated into a bunker structure, the storage device comprising;

a rake head receptacle portion for accommodating a head of the rake;

a longitudinal receptacle portion connected to the rake head receptacle portion for accommodating a handle of the rake, such that one end of the connected rake head and longitudinal receptacle portions is open; and

a cover for said one open end.

16. The storage device as claimed in claim 15, wherein the rake head and longitudinal receptacle portions have substantially the same circumferential dimensions.

17. The storage device as claimed in claim 15, wherein the rake head receptacle portion has larger circumferential dimensions than the longitudinal receptacle portion, and wherein the cover is disposed at the rake head receptacle portion.

18. The storage device as claimed in any one of claims 15 to 17, wherein the cover comprises means for aiding locating the storage device.

19. The storage device as claimed in any one of claims 15 to 18, wherein the cover comprises means for camouflaging the storage device.

20. The storage device as claimed in any one of claims 15 to 19, wherein the cover comprises a brand name or advertisement.

21. The storage device as claimed in any one of claims 15 to 20, wherein the storage device further comprises a mechanism for facilitating removal of the rake from the storage device.

22. The storage device as claimed in any one of claims 15 to 21, wherein the storage device comprises a conditioning unit for minimizing dampness and moisture inside the storage device.

23. The storage device as claimed in any one of claims 15 to 22, wherein the storage device further comprises an electronic device unit for added functionality of the storage device.

24. The storage device as claimed in claim 23, wherein the electronic device unit comprises one or more of a group consisting of a communication device, a video camera device, a monitor device, and an actuator device for opening and closing the storage device.

25. The storage device as claimed in any one of the preceding claims, wherein the storage device has drainage holes formed therein.