ABSTRACT

A golf tee (1) for use preferably on a mat comprise a base (4) providing locking (4a, 4b) and pivotal elements in the mat. The locking and pivotal elements may be provided by an inverted T-shaped base (4) that easily may be inserted into a slit (57) in the mat and there after the tee may be turned so as to slide the protruding legs (4a, 4b) of the inverted T-shaped base (4) in under the mat structure and thus locking and pivotal elements are provided. An adapter (60, 80) for mounting of the golf tee in mats with a hole instead of a slit is provided and an adapter for mounting in grass is also provided wherein the adapter is arranged to be pressed into place from above.
GOLF TEE AND ADAPTER

FIELD OF THE INVENTION

The present invention relates to a golf tee and in particular to a golf tee positioned on a mat or tee box and an adapter for receiving the golf tee.

BACKGROUND OF THE INVENTION

A golf tee is used for raising the golf ball above the ground or mat in order to get a cleaner hit and thus more powerful stroke, reaching a longer distance. The tee is mainly used for the so-called "wood" clubs or drivers but may be used also for the so-called "iron" clubs. The tee is only allowed during the initial drive at each hole, but is also used during practice at the driving range. A conventional tee is made as a pointy stick with a small platform at the top where the golf ball may be located and securely put onto. The pointy end is forced into the ground prior to striking the ball or the tee is mounted in a suitable hole or slit in a mat.

Especially at the driving range, one problem with conventional tees is that they tend to be catapulited out onto the driving range, and there is a potential hazard when the golfer goes out onto the driving range to fetch the tees. There is an imminent danger that the golfer is hit by other golfer's golf balls.

During practice, the problem with the tee being catapulited away from the striking position, may be troublesome since the golfer is forced to change the stance when fetching the lost tee or fetching a new tee; the important repetition moment may thus disturbed.

When the tee is catapulited away from the driving area, the tee is often lost or it may be time consuming to find the tee again.

Solutions trying to overcome some of these problems have been demonstrated in for instance US 2004/0132554A1 wherein a base is pre mounted in the ground or in the mat wherein a golf tee may be placed in the base, in U.S. Pat. No. 6,024,654 wherein a base is pre mounted in the ground and a cord is fastened on the tee in order to prevent it from being thrown too far from the driving area, or in U.S. Pat. No. 5,301,890 wherein a base is pre mounted in the ground or in the mat. All these has the common feature that they need some base portion pre mounted in the driving area that can accept normal tees or specially designed tees for this purpose. This limits the applicability since the golfer is then restricted to stand at the location of these pre mounted tee accepting devices. These pre mounted bases are difficult to mount since it involves lifting of the mat in order to mount the bases from the underside of the mat. Therefore, these types of bases are mounted by personal at the golf club and not by individual golfers. Also these pre mounted structures has a tendency to break or wear during usage and therefore need to be replaced, with considerable effort and cost for the golf club.

Another example of such a system is described in U.S. Pat. No. 6,086,486 wherein an adapter for pre mounting in a golf mat is shown with a golf tee with protruding elements for fitting the golf tee at an desired height with respect to the base of the adapter.

Also many of these solutions known previously do not behave as normal golf tees and may in fact provide the practicing golfer with a faulty impression or training situation and thus actually reduce the skill of the golfer.

It is the objective of this invention to remedy these and other problems and provide a flexible and low cost solution for the golfer.

SUMMARY OF THE INVENTION

The present invention provides a golf tee that is securely mounted on a mat, which behaves as a normal tee, which will last for long before breaking, being of low cost type, and still be mounted on any suitable position on a mat according to the need and desires of the golfer.

This is provided by a golf tee according to the present invention, wherein the tee comprise of a normal golf ball platform, a stem, and a T-shaped base that is mounted in the mat in a slit or opening in the mat structure. The tee may also comprise guiding tracks or ridges in order to position the tee correct in the mat.

The present invention relates generally to practice golf tees; however it may be used for initial driving out at the golf course.

In one aspect of the present invention, a golf tee (1) is provided comprising:
- a golf ball receiving platform;
- a stem; and
- a base,
wherein the platform is connected to the stem which in turn is connected to the base, wherein the base comprises at least one protruding element providing locking of the golf tee in an upward direction and providing pivotal movement of the golf tee when mounted in a receiving structure of a golf mat, and the protruding element each having an inclined surface for providing means for sliding under the golf mat.

The base may comprise two substantially opposing protruding elements providing locking of the golf tee in an upward direction and providing pivotal movement of the golf tee, when mounted in the receiving structure.

The base may comprise two protruding elements forming an inverted T-shaped form or an L-shaped form. The golf tee may further comprise at least one guiding structure (5), such as a dot, track, or ridge.

The golf tee may be made of a biodegradable material.

The golf tee may be manufactured as a continuous structure.

The receiving structure may be a slit in a golf mat.

Another aspect of the present invention, a system for holding a golf ball is provided, comprising:
- a golf tee comprising:
- a golf ball receiving platform;
- a stem; and
- a base,
wherein the platform is connected to the stem which in turn is connected to the base, wherein the base comprises at least one protruding element providing locking of the golf tee in an upward direction and providing pivotal movement of the golf tee, when mounted in a receiving adapter.

A receiving adapter arranged to be pressed into ground or into a hole in a mat from above, comprising a golf tee receiving structure for holding at least one protruding element of the golf tee, a stem arranged to be mounted in a mat or in ground and securing means for securing the adapter in the mat or ground,

wherein the golf tee receiving structure comprise a holding structure where the protruding ele-
ment fit, at least one locking structure for holding the golf tee protruding element in an upward position, and an indentation for allowing the golf tee to rotate around an axis along the protruding element.

[0027] Yet another aspect of the present invention, an adapter for receiving a golf tee is provided, wherein the adapter comprise a golf tee receiving structure for holding at least one protruding base element of the golf tee, a stem arranged to be mounted in a mat or in ground and securing means for securing the adapter in the mat or ground when pressed into ground or into a hole in the mat from above, wherein the golf tee receiving structure comprise a holding structure where the protruding element fit, at least one locking structure for holding the golf tee protruding element in an upward position, and an indentation for allowing the golf tee to rotate around an axis along the protruding element.

[0028] The securing means may comprise a plurality of protruding flanges, arranged on an outer surface of the stem, allowing for mounting of the adapter in a mounting hole in the golf tee mat.

[0029] The flanges may be at least partly flexible to allow for mounting in holes with different diameters. The diameter of the hole may be in the range from 17 to 20 mm.

[0030] Each of the protruding flanges may be arranged with an angle away from a radial line out from the stem.

[0031] The stem may have a sharp lower end point for facilitating pressing into ground.

[0032] The locking structure may comprise a first locking portion covering the holding structure and a second locking portion divided into two parts by an opening wherein the second locking portion only partly covers the holding structure.

[0033] These and other aspects of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0034] In the following the invention will be described in a non-limiting way and in more detail with reference to exemplary embodiments illustrated in the enclosed drawings, in which:

[0035] FIG. 1a is a schematically front view of a golf tee according to the present invention mounted in a mat;

[0036] FIG. 1b is a schematically side view of a golf tee according to the present invention mounted in a mat;

[0037] FIG. 2 is a schematically illustration of the movement of the tee during a strike of a golf club;

[0038] FIG. 3 is a similar illustration as in FIG. 1 of another embodiment of the present invention;

[0039] FIG. 4 is a similar illustration as in FIG. 1 of another embodiment of the present invention;

[0040] FIG. 5 is a schematically top view of the golf tee according to the present invention placed on a mat;

[0041] FIG. 6 is a schematically illustration of an adapter for hole placement of the golf tee according to FIG. 1a, where FIG. 6a is a side view, FIG. 6b is a front view, and FIG. 6c is a top view;

[0042] FIG. 7 is a schematically side view of the adapter of FIG. 6 placed in a hole in a tee mat with a golf tee;

[0043] FIG. 8 is a schematically side view of another adapter for placement in ground for receiving a golf tee according to FIG. 1a;

[0044] FIG. 9 is a schematically side view of the adapter according to FIG. 8 with a golf tee; and

[0045] FIG. 10 is a top view of another embodiment of the adapter from FIG. 6.

DETAILED DESCRIPTION OF THE INVENTION

[0046] A golf tee 1 according to the present invention is shown in FIG. 1 and comprises a integrally formed unit 1 including a ball positioning platform 2, a stem 3, and a base 4 formed to lock in a structure and provide pivotal movement. The tee may further comprise at least one guiding structure 5 formed on either the platform 2 or on the stem 3 used for confirming the position of the base 4 with respect to a golf mat 6.

[0047] The base may comprise different solutions providing locking and pivotal means, such as an inverted T-shaped base (hereinafter the T-shaped base), an L-shaped base, or several elements protruding perpendicularly away from the stem 3. Below a description of a variant with a T-shaped base 4 will be given.

[0048] The T-shaped base 4 comprises two opposing protruding elements 4a, 4b mounted on the lower end of the stem 3. The ends 8 of the protruding elements 4a, 4b may or may not be inclined as will be described later. The protruding elements 4a, 4b may comprise a cylindrical structure, a tubular structure, a triangular structure, an oval tubular structure, or some other structure enabling a rotational movement around an axis A along the protruding element or elements 4a, 4b.

[0049] The operation of the tee 1 is as follows. The tee 1 is placed on the mat 6 by sliding the T-shaped base 4 into a slit 7 in the mat 6 and then turning the golf tee 90 degrees around an axis along said stem 3 so as to position the T-shaped base 4 in a substantially perpendicular relation to the mat slit or opening. The tee 1 is thus securely positioned on the mat 6 and will stay mounted in the mat 6 in place upon a strike from a golf club (not shown). However, the tee 1 is pivotable around an axis along the T-shaped base 4 as indicated in FIG. 1 by the symbol A. When the tee 1 is struck, it moves in the direction as indicated by the arrow 20 in FIG. 2. The pivoting operation provides the possibility for the tee 1 to absorb the force from the striking golf club by moving in the direction of the strike, but at the same time staying securely mounted in the mat 6. No pre mounted receiving base is necessary for receiving the tee according to the present invention since the mat itself is the receiving structure.

[0050] The ends of the T-shaped base 4 may comprise inclined surfaces 8 so as to facilitate the positioning of the tee 1. The inclined end surfaces 8 face an upward direction toward the bottom side of the mat structure 6 away from the ground when in operation. This inclination may be with any suitable angle allowing for easier turning of the tee toward the locking position as the inclined surface 8 edges (slides) in under the mat 6 and steer the tee 1 into position. The inclined surface 8 is needed for gaining access in under the mat since the mat usually is positioned substantially close to the ground or a structure where upon the mat lies.

[0051] The guiding structure or structures 5 may be of different types, such as, but not limited to, a raised or lowered dot, a ridge, or a ridge. The guiding structure 5 synchronizes with the T-shaped base 4 so the user may confirm the correct mounting of the tee with respect to the mat and/or striking direction. This is done by holding the tee with one hand and forcing the T-shaped end into a slit in the mat and turning the tee until the T-shaped base has made a 90 degree angle towards the slit longitudinal axis. The structures
5 are used for sensing when this 90 degree mounting is accomplished. This ensures that optimal striking resistance is obtained and the golfer may feel confident of the positioning leading to a more optimal training situation.

[0052] The stem 3 may be of different lengths depending on desired function.

[0053] FIG. 3 illustrates an embodiment of the present invention without the guiding tracks or ridges. It is of course possible to use the tee without the guiding structures 5 since it is possible to remember the position of the T-shaped base 4 with respect to the mat slit when positioning the tee 1.

[0054] FIG. 4 illustrates another embodiment of the present invention with the guiding tracks but without the inclined surface. It is possible to use the invention without the inclined surface of the T-shaped base 4 if the mat has a suitable distance below the mat to easily accommodate the T-shaped base 4 of the tee.

[0055] FIG. 5 shows a top view of a tee 1 according to the present invention placed on a mat 56. The tee 1 is placed on the mat anywhere suitable for the golfer according to preferred stance and golf club selection. A mat 56 may comprise either one slit 57 providing mounting means for normal tees or several slits spread over the mat in its entirety or over a part of the mat 56. In FIG. 5 the stance 59 of a golfer is schematically illustrated.

[0056] The golf tee may be manufactured in any suitable material as understood by the person skilled in the art, for instance, but not limited to, any type of plastic, wood, rubber, composite, or metal. Other material used may be ceramics or cellulose based materials. By producing the tee in a biodegradable material the tee may be environmentally friendly. Another advantage would be by providing a tee made of a suitable soft material so as to not destroy the cutting or clipping parts of a lawnmower. The constitution of the golf mat 6 has generally not any significance on the operation of the tee according to the present invention as long as some slit means 7 are provided in order to mount the tee securely as described above; however, as will be shown below, an adapter may be used in order to use the tee 1 where no slit is provided in the mat.

[0057] The production of the golf tee is not limited to any special production method, including but not limited to, molding, sintering, grinding, turning, or cutting.

[0058] The present invention relates generally to practice golf tees; however it may be used during normal golf play out on the golf course, e.g. for initial driving at each hole of the golf course.

[0059] It should be noted that it is not necessary to turn the tee 90 degrees exactly to provide a securing position, as long as part of the legs of the T-shaped base is secured under the mat or grass in a tee box it will provide functionality. However, the better mounted the golf tee is, the better it will rotate around its rotation axis through the T-shaped base 4.

[0060] FIGS. 6 and 7 illustrate schematically an adapter 60 for mounting of the golf tee 1 in a mat 70 with a hole 71 instead of a slit 7 as earlier described. The adapter 60 is forced into the hole 71 in the mat 70. The golf tee 1 fits into an elongated structure 63 where the T-shaped base 4 rests. A restriction 65 is provided for holding the golf tee 1 in place while at the same time allowing for easy mounting of the golf tee 1. This restriction 65 is somewhat flexible and the golf tee 1 can be pressed down into the elongated receiving structure 63. The golf tee 1 can also be mounted by pressing the tee 1 into the elongated receiving structure 63 from the side instead of from the top. An indentation 66 in a perpendicular direction to the elongated structure 63 is provided in which the golf tee 1 fits when pressed down flat towards a support portion 62 of the tee. This indentation is provided along the top base portion of the adapter 60. The restriction 65 may form two essentially parallel structures on each side of the indentation 66 as seen from a top view. As seen in FIG. 6, each of the restrictions 65 is divided into two pieces by an opening into the elongated receiving structure 63 in order for the user to press the golf tee down into the receiving structure 63; however, it is also possible to slide the golf tee into the elongated receiving structure 63 from the side and therefore it is not necessary to have openings above the elongated receiving structure 63 at each of the restrictions 65 but only in one of the restrictions 65. This is illustrated in FIG. 10 which is a top view of the adapter from FIG. 6 with the alternation of sliding the golf tee in from the side of the adapter, where the restriction 101 covers the elongated structure at on side and the restriction 103 has an opening 102 above the elongated restriction at the other side.

[0061] The golf tee 1 can, just as for the earlier example with the golf tee 1 mounted in the mat 6 with a slit 7, rotate around the axis through the T-shaped base 4. This way of mounting will give a realistic feeling to the strike since the golf tee 1 will rotate away from the club striking it much the same as for a golf tee mounted in grass would do. Numerals I and I in FIG. 7 show two positions of the golf tee 1 in order to illustrate the rotational movement of the tee 1. The golf tee 1 adapter 60 has a core stem 64 which is pressed from above into the hole 71 in the mat 70 until the support portion 62 rests on the mat 70, and a plurality of side protruding flanges 61 provides means for adjusting for different diameters of the hole. Holes in different mats 70 have different diameters due to e.g. different wear, manufacturer of the mat 70 or environmental conditions. Often such a hole in a mat has a diameter in the range of 17 to 20 mm. However, the invention is not limited to these diameters, it is easy to provide adapters for other hole diameters by manufacturing the adapter with other dimensions. Flanges 61 are somewhat flexible and can be pressed inwards towards the core stem 64 and they are formed with a slight angle in the radial direction, i.e. do not point straight out in the radial direction from the core stem 64. Preferably, the flanges 61 all have the same angle away from the radial direction. When the adapter 60 is to be released from its position in the mat 70 it is rotated around an axis from the bottom part (as seen in FIGS. 6 and 7) to the top part, and it is rotated in a direction of least resistance depending on the angular orientation of the flanges 61.

[0062] No pre mounted structure is needed, since the adapter operating as the tee receiving structure may be mounted by the golfer in association with the use of the tee 1. This is of benefit for the golf club since no pre mounting of receiving structures are necessary, they need only provide mats with a slit or a hole, and are also relieved from the costly and time consuming replacing of damaged pre mounted receiving structures.

[0063] A tool may be supplied that makes a convenient mounting means in a grass tee box. Such a tool may produce a slit like structure in the grass and under this a perpendicular opening structure to accommodate the T-shaped base when turned 90 degrees from the slit, so as to mimic the mat structure receiving the tee according to the present invention. For instance the tool may be of similar design as the golf tee 1; a cutting or structure forming base with sharper edges that may be used to press into the grass and ground and with a handle
on top instead of the platform 2 that may be used for turning the tool when it has been driven into the ground and thus providing a receiving structure under the surface that may receive the golf tee 1. In order to facilitate the forming of the structure it may be necessary to move the tool back and forth a couple of times.

Another solution for using the golf tee according to the present invention in a grass tee box (or grass driving range) is to use a grass tee box adapter as seen in FIGS. 8 and 9. The adapter comprises a stem that is arranged to be put into the ground through the grass layer in the tee box or in any other suitable golfing area (e.g. the driving range). The stem is preferably arranged to be at least partly pointy (i.e. have a sharp end) in order to easily penetrate the ground surface and be pressed into the ground. The adapter comprises a support portion resting on the grass surface when the adapter is positioned to be used. The grass tee box adapter is arranged in a similar manner as for the mat adapter of FIGS. 6 and 7 with a receiving structure for receiving the golf tee 1. An indentation in a perpendicularly direction to the elongated structure is provided in which the golf tee 1 sits when pressed down flat towards the ground or mat. This indentation is provided along the top base portion of the adapter. FIG. 9 shows two different positions of the golf tee in order to illustrate the rotational movement of the tee 1 when hit by a golf club. As shown in FIG. 10 for the hole adapter the same type of locking feature may be used with one part covering the receiving structure and one providing an opening allowing for sliding the tee into position.

For both the mat and grass adapter respectively other variations of golf tee receiving structures may be used, e.g. a claw shaped (as seen from a side view) structure with an opening at one side close to a support portion which other end rests on the surface. The claw shaped structure can be forced upwards when mounting the tee in the structure and due to spring forces present in the claw shaped structure it will hold the tee during use. The claw seen from above will be seen as two fingers protruding with the golf tee secured between the fingers. Another variation may be a ball receiving structure similar to wherein a ball shaped structure of the golf tee may fit.

Both adapters described above can be produced in one continuous structure and in any suitable material such as wood, rubber, plastic, composite, or metal. Other material used may be ceramics, starch, or cellulose based materials. By producing the adapter in a biodegradable material the adapter may be environmentally friendly. Another advantage would be by providing an adapter made of a suitable soft material so as to not destroy the cutting or clipping parts of a lawnmower.

One advantage of the golf tee according to the present invention is if the frictional forces of the adapters and/or fitting in mat are adjusted properly that the golf tee will show if a hit has been done properly. It will be positioned after the strike in a position laying down on the surface of the mat or grass. A bad strike can result in an end position of the tee 1 somewhere in between upright and flat to the surface.

It should be understood by the person skilled in the art that the embodiments of the present invention may be used at both driving ranges and in tee boxes at the golf course depending on the available equipment at any particular golf course.

It should be understood that the term "golf mat" is meant a man made structure where golf balls are struck from, the surface may be at a driving range or a tee box.

It should be noted that the word "comprising" does not exclude the presence of other elements or steps than those listed and the words "a" or "an" preceding an element do not exclude the presence of a plurality of such elements. It should further be noted that any reference signs do not limit the scope of the claims, and that several "means" may be represented by the same item of hardware.

The above mentioned and described embodiments are only given as examples and should not be limiting to the present invention. Other solutions, uses, objectives, and functions within the scope of the invention as claimed in the below described patent claims should be apparent for the person skilled in the art.

1. A golf tee (1) comprising:
   a. a golf ball receiving platform (2);
   b. a stem (3); and
   c. a base (4), wherein said platform (2) is connected to said base through said stem (3), said base (4) comprising at least one protruding element (4a, 4b) arranged for fixing said golf tee (1) in an upward position in a receiving structure of a golf mat and providing a rotation axis substantially around said base, said protruding element (4a, 4b) having an inclined surface (8) for reducing enhancing sliding into a receiving section of said golf mat (6).

2. The golf tee according to claim 1, wherein said base (4) comprise two substantially opposing protruding elements (4a, 4b) providing locking of said golf tee (1) in an upward position and providing pivotal movement of said golf tee, when mounted in said receiving structure.

3. The golf tee according to claim 2, wherein said base comprise two protruding elements (4a, 4b) forming a substantially T-shaped form.

4. The golf tee according to claim 1, wherein said base comprise one protruding element forming a substantially L-shaped form.

5. The golf tee according to claim 1, further comprising at least one guiding structure (5), such as a dot, track, or ridge.

6. The golf tee according to claim 1, wherein said golf tee (1) is made of a biodegradable material.

7. The golf tee according to claim 1, wherein said golf tee (1) is manufactured as a continuous structure.

8. The golf tee according to claim 1, wherein said receiving structure (7, 57) is a slit in a golf mat and said receiving section is under said mat.

9. A system for holding a golf ball, comprising: a golf tee comprising:
   i. a golf ball receiving platform (2);
   ii. a stem (3); and
   iii. a base (4), wherein said platform (2) is connected to said base (4) through said stem (3), wherein said base (4) comprises at least one protruding element (4a, 4b) providing fixation of said golf tee (1) in an upward direction and providing pivotal movement of said golf tee (1) around said base, when mounted in a receiving adapter (60, 80), a receiving adapter (60, 80) receivable by a receiving area and comprising a golf tee receiving structure (63) for holding at least one protruding element (4a, 4b) of said golf tee, a body (64) arranged to be mounted in said receiving area and securing means (61) for securing said adapter in said area, wherein said golf tee receiv-
ing structure comprise a holding structure (63) where said protruding element (4a, 4b) fit, at least one locking structure (65) for holding said golf tee protruding element (4a, 4b) in an upward position, and an indentation (66) for allowing said golf tee to rotate around an axis along said protruding element (4a, 4b).

10. An adapter (60, 80) for receiving a golf tee (1), wherein said adapter comprise a golf tee receiving structure (63) for holding at least one protruding base element of said golf tee, a body (64, 84) arranged to be mounted in a mat or in ground and securing means (61) for securing said adapter in said mat or ground when pressed into ground or into a hole in said mat from above, wherein said golf tee receiving structure comprise a holding structure (63) where said protruding element (4a, 4b) fit, at least one locking structure (65) for holding said golf tee protruding element (4a, 4b) in an upward position, and an indentation (66) for allowing said golf tee to rotate around an axis along said protruding element (4a, 4b).

11. The adapter according to claim 10, wherein said securing means comprise a plurality of protruding flanges (61), arranged on an outer surface of said body (64), allowing for mounting of said adapter in a mounting hole in said golf tee mat.

12. The adapter according to claim 11, wherein said flanges (61) are at least partly flexible to allow for mounting in holes (71) with different diameters.

13. The adapter according to claim 12, wherein said adapter is arranged to fit holes with diameters in the in the range from 17 to 20 mm.

14. The adapter according to claim 11, wherein each of said protruding flanges (61) is arranged with an angle away from a radial line out from said body (64).

15. The adapter according to claim 10, wherein said body (84) has a sharp lower end point for facilitating pressing into ground.

16. The adapter according to claim 10, wherein said locking structure (65) comprise a first locking portion (101) covering said holding structure (63) and a second locking portion (103) divided into two parts by an opening (102) wherein said second locking portion (103) only partly covers said holding structure (63).

17. The golf tee according to claim 2, wherein said base comprise one protruding element forming a substantially L-shaped form.

18. The golf tee according to claim 2, further comprising at least one guiding structure (5), such as a dot, track, or ridge.

19. The golf tee according to claim 3, further comprising at least one guiding structure (5), such as a dot, track, or ridge.

20. The golf tee according to claim 4, further comprising at least one guiding structure (5), such as a dot, track, or ridge.