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(54) **GOLF TEE AND METHOD FOR MAKING THE SAME**

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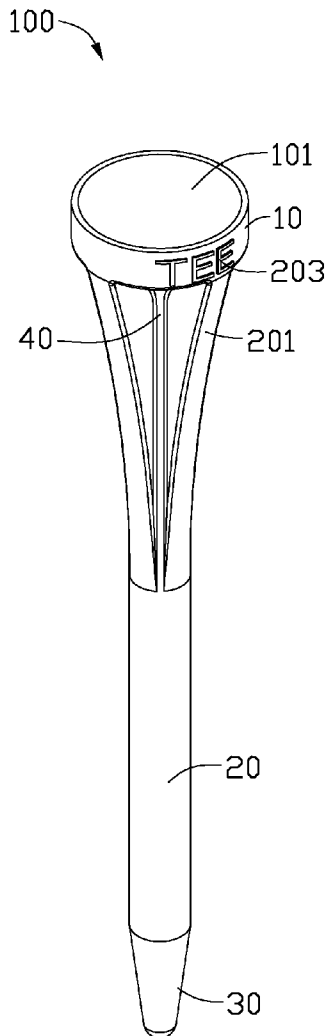
(57) **ABSTRACT**

An exemplary golf tee (100) includes a substrate (100a) and a coating film (100b). The substrate is made of metal or metal alloy. The coating film is formed on an outside surface of the substrate. The present invention also provides a method for making the exemplary golf tee. The method includes providing a roughcast made of metallic or metallic alloy material; forming the substrate by a method of die-casting with the roughcast; and forming the coating film on an outside surface of the substrate by a method of surface treating.

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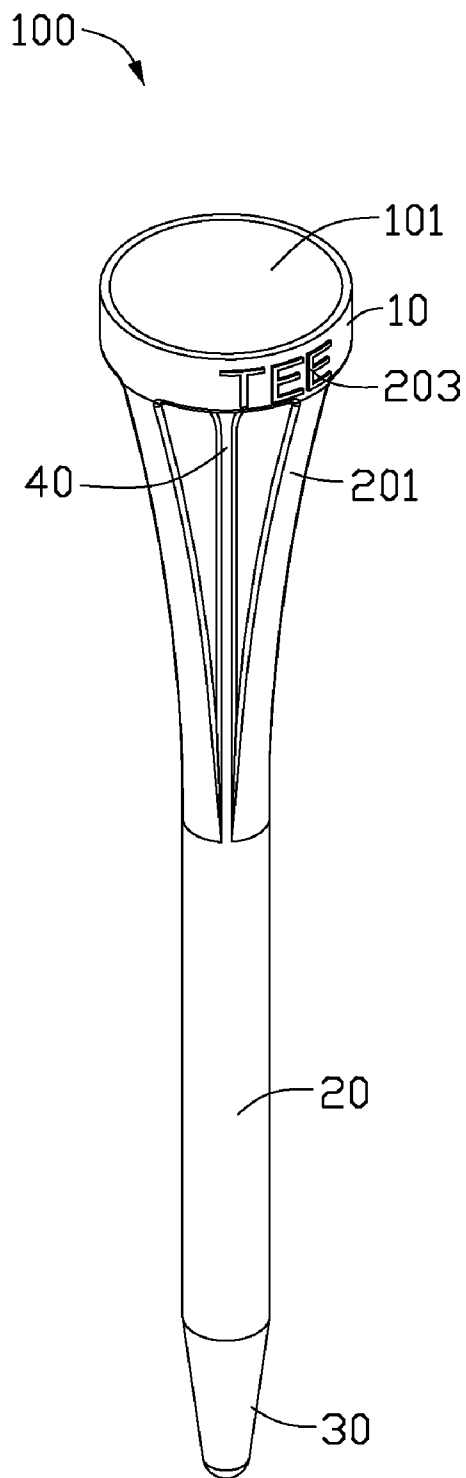


FIG. 1

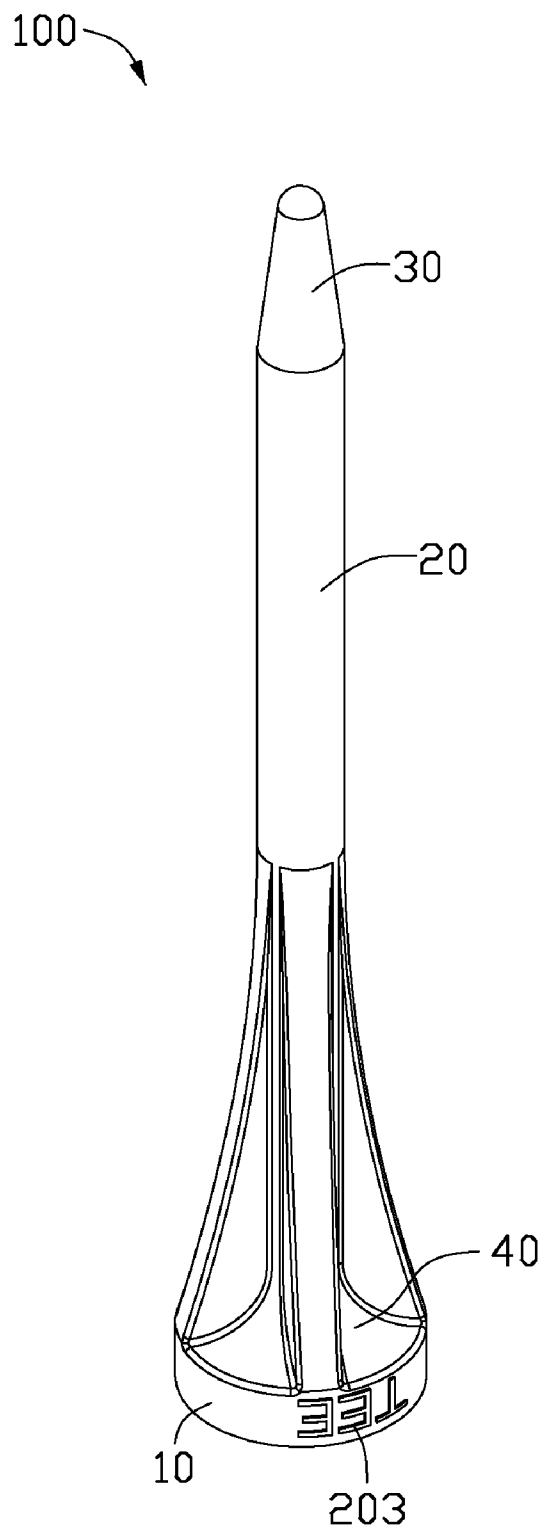


FIG. 2

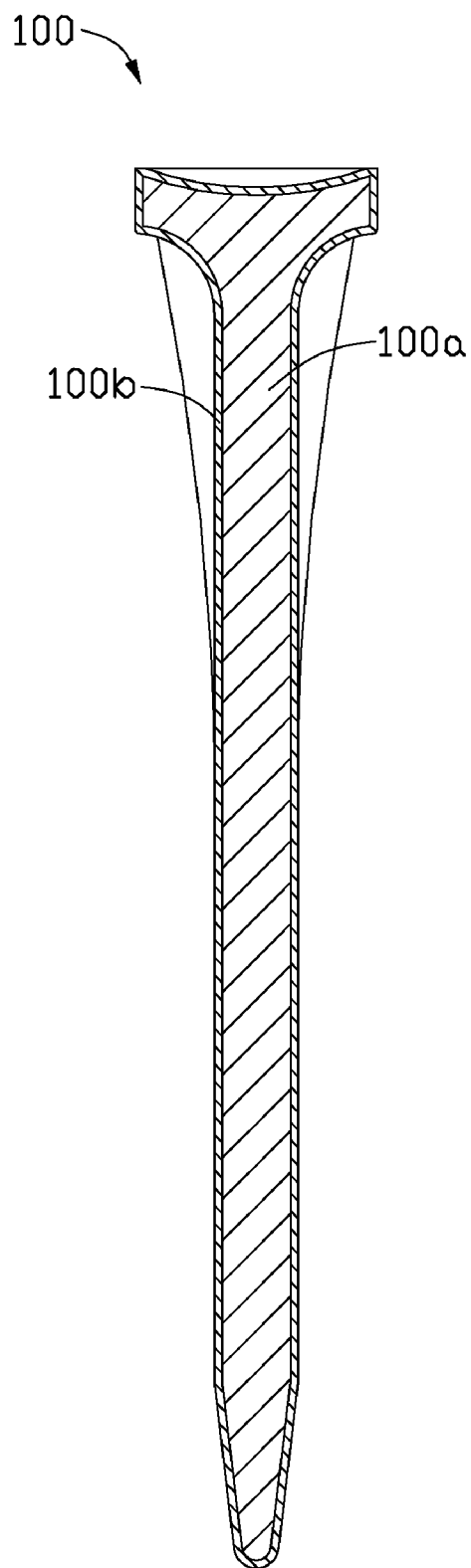


FIG. 3

GOLF TEE AND METHOD FOR MAKING THE SAME

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to golf tees and methods for making the same.

[0003] 2. Discussion of the Related Art

[0004] Golf tees are commonly used at driving ranges and golf courses to position the golf ball above the ground. Recently, more and more golf tees are required with golf game being more and more popular.

[0005] Typical golf tees are generally wooden tees, plastic tees, or bamboo tees. Such golf tees have many shortcomings. For example, for wooden tees and bamboo tees, the following shortcomings exist. (1) Wooden tees and bamboo tees are weak in strength and toughness. Such golf tees, particularly connecting portions of heads and bodies of golf tees, are easily worn out by hitting with golf club. Thus, wooden tees and bamboo tees have short service lives. In addition, wooden tees and bamboo tees can be only inserted into the ground with a small length because of the low strength thereof. (2) Wooden tees and bamboo tees are affected by moisture and expand on rainy days or when the ground is damp. As such, the strength of the golf tees reduces. In addition, damped, wooden, or bamboo golf tees with rough surfaces are difficult to clean. (3) Wooden tees and bamboo tees are manufactured one by one, thus a manufacturing efficiency is very low. Furthermore, each golf tee is generally different from others. That is, it is quite difficult to make golf tees with the same size and shape. (4) It is difficult to form patterns such as letterings, inscriptions, pictorial images on wooden tees and bamboo tees. Even if figures are formed on such golf tees, the figures are easily worn off. (5) Wooden tees and bamboo tees have low hardness. Thus, the golf tees usually have rough surfaces after being abraded because of the low hardness. The golf tees have awful property in aesthetics.

[0006] For plastic tees, the following shortcomings exist. (1) Plastic tees have low hardness. Thus, depressions and projections are formed on the golf tees when hit by golf club. The golf tees have awful property in aesthetics. (2) Plastic tees are easily deformed in use. (3) Plastic tees are difficult to be decomposed. Disused plastic tees would become pollutions.

[0007] Therefore, a golf tee and a method for making the same which overcomes the above-described shortcomings is desired.

SUMMARY

[0008] An exemplary golf tee includes a substrate and a coating film. The substrate is made of metal or metal alloy. The coating film is formed on an outside surface of the substrate.

[0009] An exemplary method for making a golf tee includes: providing a roughcast made of metallic or metallic alloy material; forming a substrate by a method of die-casting with the roughcast; and forming a coating film on an outside surface of the substrate by a method of surface treating.

[0010] Other advantages and novel features will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The components in the drawings are not necessarily drawn to scale, the emphasis instead being placed upon clearly illustrating the principles of the golf tee and the method for making the same. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

[0012] FIG. 1 is an isometric view of a golf tee in accordance with a preferred embodiment of the present invention.

[0013] FIG. 2 is an isometric view of the golf tee of FIG. 1 viewed from another aspect.

[0014] FIG. 3 is a cross-sectional view of the golf tee of FIG. 1.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0015] Referring to FIG. 1 and FIG. 2, a golf tee 100 in accordance with a preferred embodiment of the present invention includes a head 10, a body 20, and a neck 40 for connecting the head 10 and the body 20. A tip 30 is formed at an end of the body 20 and is opposite to the head 10. The head 10, the body 20, the neck 40 and the tip 30 are integrally formed.

[0016] The head 10 is a cylinder having a depression 101 defined at a top of the head 10. The depression 101 is configured for positioning golf balls. Four stiffening ribs 201 are formed at an outer surface of the golf tee 100. The stiffening ribs 201 extend from a bottom of the head 10 to a middle portion of the body 20. The stiffening ribs 201 are configured for enhancing strength of the golf tee 100. The tip 30 is substantially conical and configured for inserting into the ground. Further, a FIG. 203 is defined in the golf tee 100.

[0017] Referring to FIG. 3, the golf tee 100 includes a substrate 100a and a coating film 100b coated on an outside surface of the substrate 100a. The substrate 100a is made of metal or metallic alloy such as iron, magnesium alloy, and zincum alloy. The material of the substrate 100a is preferred to magnesium alloy and aluminium alloy that have small density. Thus, the golf tee 100 may be light and handy. The coating film 100b is formed on the substrate 100a by a method of surface treating. The coating film 100b is preferably made of chrome, gold, nickel, copper, or silver.

[0018] A method for making the golf tee 100 includes the following steps: (1) providing a roughcast made of metallic or metallic alloy material; (2) forming the substrate 100a by a method of die-casting with the roughcast; and (3) forming the coating film 100b on an outside surface of the substrate 100a by a method of surface treating.

[0019] In the first step, the material is metal or metallic alloy such as iron, magnesium alloy, zincum alloy and aluminium alloy. In this preferred embodiment, the material is magnesium alloy.

[0020] In the second step, melted liquid of the roughcast is poured into a mold cavity, compressed under pressure and cooled, thus forming the substrate 100a. A mold may define a plurality of mold cavities, thereby improving a manufacturing efficiency. In addition, patterns with various shapes are formed on the substrate 100a by die-casting. The patterns can be customized and also can make the golf tees 100 more aesthetically pleasing.

[0021] In the third step, the substrate 100a is machined, for example sheared to remove burr of the substrate 100a formed in die-casting, before surface treating. The coating film 100b

with a material of chrome, gold, nickel, copper, or silver is plated on the outside surface of the substrate 100a by galvanization, thereby forming the golf tee 100. Alternatively, the coating film 100b may be formed by micro-arc oxidation, PVD (physical vapor deposition), or anode oxidation technology to make the surface of the golf tee 100 smooth, hard and steady in chemistry.

[0022] It should be pointed out that, figures may also be formed on the golf tee 100 by laser carving after surface treating.

[0023] The golf tee 100 at least has the following advantages: (1) The golf tee 100 made of metal or metal alloy has high strength and toughness. Therefore, the golf tee 100 is difficult to be broken or deformed, thus having a long service life. In addition, the golf tee 100 can be inserted into the ground with a long length because of the high strength thereof. Therefore, an exposed length of the golf tee 100 can be adjusted when the golf tee 100 is inserted in the ground. (2) The golf tee 100 has high surface hardness, so the surface of the golf tee 100 is difficult to be damaged. Further, the surface of the golf tee 100 is smooth and glossy, thus having a relatively beautiful appearance. (3) Golf tees 100 made of metal or metal alloy can be recycled. Therefore, worn out golf tees 100 could be recycled and would not contribute to the pollution of the environment. (4) The golf tees 100 manufactured by die-casting have a high manufacturing efficiency. Also, all golf tees 100 have the same shapes and sizes. (5) Figures can be formed on the golf tees 100 easily and conveniently. (6) Particles, water vapor and other impurities cannot penetrate the golf tees 100. Furthermore, mud and other contaminants on the surface of the golf tees 100 can be easily cleaned.

[0024] It is believed that the present embodiments and their advantages will be understood from the foregoing description, and it will be apparent that various changes may be made thereto without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the examples hereinbefore described merely being preferred or exemplary embodiments of the invention.

What is claimed is:

- 1. A golf tee, comprising:
a substrate made of metal or metal alloy; and
a coating film formed on an outside surface of the substrate.
- 2. The golf tee as claimed in claim 1, wherein the substrate is formed by die-casting.
- 3. The golf tee as claimed in claim 1, wherein the coating film is formed by a method of surface treating.

4. The golf tee as claimed in claim 3, wherein the surfacing treating is one of a group of galvanization, microarc oxidation, physical vapor deposition, and anode oxidation technology.

5. The golf tee as claimed in claim 1, wherein the substrate of the golf tee is made of magnesium alloy.

6. The golf tee as claimed in claim 1, wherein the substrate of the golf tee is made of zincum alloy or aluminium alloy.

7. The golf tee as claimed in claim 1, wherein the golf tee comprises at least one figure formed on a surface of the golf tee.

8. The golf tee as claimed in claim 1, wherein the coating film is made of chrome, gold, nickel, copper, or silver.

- 9. A method for making golf tees, comprising:
providing a roughcast made of metallic or metallic alloy material;
forming a substrate by a method of die-casting with the roughcast; and
forming a coating film on an outside surface of the substrate by a method of surface treating.

10. The method of making golf tees as claimed in claim 9, wherein melted liquid of the roughcast is poured into a mold cavity, compressed under pressure and cooled, thus forming the substrate.

11. The method of making golf tees as claimed in claim 9, wherein the coating film with material of chrome, gold, nickel, copper, or silver is plated on the outside surface of the substrate by galvanization.

12. The method of making golf tees as claimed in claim 9, wherein the coating film is formed by microarc oxidation, physical vapor deposition, or anode oxidation technology.

13. The method of making golf tees as claimed in claim 9, wherein the substrate of the golf tee is made of magnesium alloy.

14. The method of making golf tees as claimed in claim 9, wherein the substrate of the golf tee is made of zincum alloy or aluminium alloy.

15. The method of making golf tees as claimed in claim 14, wherein at least one figure is formed on the golf tee during forming the substrate by die-casting.

16. The method of making golf tees as claimed in claim 9, wherein the coating film is made of chrome, gold, nickel, copper, or silver.

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