CLUB-HEAD

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a head for a golf club, particularly to an improvement of a club-head, made of fiber-reinforced plastic, for an iron golf club.

2. Description of the Related Arts

Recently, an iron club-head has been widely used comprising a metal core body moulded together with a sole exposed on the underside of the club-head and an outer shell enveloping the core body and made of plastics reinforced by fibers such as carbon fiber or glass fiber. Generally speaking, the hitting characteristics tend to delicately vary in a club-head of this type, depending on the position of the center of gravity of the club-head in either the height direction or in the thickness direction. Therefore, it has long been desired to provide a wide selection of golf clubs, by which the golfer is provided with a club with a head in which the position of the center of gravity thereof can be made suitable for the respective golfer. In the known club-head, however, variations of the position of the center of gravity in the height and thickness direction are limited to a certain extent, since the core body is integral with a sole moulded of the same material as the core body.

SUMMARY OF THE INVENTION

According to the present invention a club-head is provided for a golf club, having a hitting portion

comprising a main body made of fiber-reinforced plastic and a metal sole member fixed to the main body along the underside of the main body, wherein a plate-like back member is fixed to the hitting portion substantially parallel to a back side surface of the main body, the back member being of a material having a specific weight greater than that of the main body and formed separately from the sole member, characterised in that the back member is attached on the back surface of the main body so as to be exposed outside the main body.

Therefore in the present invention it is possible to eliminate the abovesaid drawbacks of the prior art and provide a wide selection to golfers through a club having a head made mainly of fiber reinforced plastic.

Preferably, the sole member may be formed integrally with a neck member of the club-head.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be further described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a partially broken perspective view of a club-head according to a first embodiment of the present invention;

Figure 2 is an exploded perspective view of the first embodiment illustrating a relationship between a sole member and a back member;

Figure 3 is a perspective view of the club-head according to the first embodiment, illustrating an appearance thereof;

Figures 4 and 5 are sections taken along lines IV-IV and V-V of Figure 3, respectively; and

Figures 6 and 7 are sections of a club-head according to a second embodiment, corresponding to Figures 4 and 5, respectively.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figures 1 through 5 illustrate a first embodiment according to the present invention applied to a club-head 10 for an iron golf club. As is apparent from the drawings, the club-head 10 comprises a main body 11 made of a fiber reinforced plastics, such as a plastics reinforced by carbon fibers or glass fibers, and constituting a hitting portion of the club-head. The plastic composing the main body 11 may be mixed with whiskers and/or an amorphous alloy to further improve the strength thereof.

A sole member 12 extending from a heel to a toe of the club-head is fixed to the main body 11 along the underside thereof. The sole member 12 is made of a metal such as stainless steel, iron, brass, aluminium alloy or titanium alloy.

In this embodiment, the sole member 12 is formed integrally with a neck member 13 which, in turn, is enveloped by a cover 14 of the same fiber-reinforced plastics as that of the main body 11. A rib 15 is provided in the lengthwise direction on the upperside

of the sole member 12 to ensure a tight connection between the main body 11 and the sole member 12.

A plate-like back member 16 is fixed to the backside surface of the main body 11. The back member 16 is prepared separately from the sole member 12, and is a heavy material, such as stainless steel, iron, brass, lead, or plastic mixed with a metal powder, having a specific weight greater than that of the main body.

In a club-head thus described, the position of the center of gravity can be defined in any place in the club-head, even in the height direction and in the thickness direction, by a selection of combinations of the material composing the sole member 12 and back member 16, having various specific weight. The back member 16 also has another function of protecting the main body 11 of fiber-reinforced plastics from breakage upon impact with a golf ball, since the back member 16 of the heavy weight can absorb the momentum of the ball.

In figures 4 and 5 the back member 16 is secured in a recess 11a provided on the back surface of the main body 11 by a suitable means such as an adhesive. Thus, the back member 16 is exposed outside the main body 11.

Figures 6 and 7 illustrate a second embodiment of the present invention, in which the same reference numerals are again used as in the preceding drawings.

The difference between this embodiment and the second embodiment lies in the elimination of the recess 11a for securing the back member 16. Instead, the back member 16 is directly fixed to the backside surface of the main body 11. In the second embodiment, the center of gravity of the club-head 10 can be most deviated to the backside of the main body 11.

As is apparent from the above description, the club-head in accordance with the present invention can adopt any combination of a sole member and a back member made of materials having a different specific weight, and the position of the back member can be easily adjusted during the design and manufacture of the club-head, whereby the position of the center of gravity thereof can be largely variable, which provides a wide selection of golf clubs to golfers.

While particular embodiments and applications of the present invention have been shown, it will be understood, of course, that the present invention is not limited thereto, since modifications can be made by those skilled in the art in the light of the foregoing teachings. For example, more than one rib 15 of the sole member 12 may be provided, or, instead of a rib, a groove or grooves may be provided. Further, the present invention may be applied to not only a club-head for an "iron" golf club, as in the foregoing embodiment, but also to other golf clubs, such as a putter.

CLAIMS

1. A club-head for a golf club having a hitting portion comprising a main body made of fiber-reinforced plastics and a metal sole member fixed to the main body along an underside of the main body, wherein a plate-like back member is fixed to the hitting portion substantially in parallel to a back side surface of the main body, the back member being made of a material having a specific weight greater than that of the main body, and formed separately from the sole member, characterised in that the back member is attached to the back surface of the main body so as to be exposed outside the main body.

2. A club-head as defined by claim 1, wherein said sole member is integrally formed with a neck member of the club-head.

3. A club-head for a golf club substantially as described herein with reference to and as illustrated in Figures 1 to 5 of the accompanying drawings.

4. A club-head for a golf club substantially as described herein with reference to and as illustrated in Figures 6 and 7 of the accompanying drawings.