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(71) Applicant
Maruman Golf Kabushiki Kaisha

(Incorporated in Japan)

21-2 Nishishinbashi 2-chome, Minato-ku, Tokyo 105, Japan

(72) Inventor
Masanobu Minami

(74) Agent and/or Address for Service
Barker, Brettell & Duncan
138 Hagley Road, Edgbaston, Birmingham, B16 9PW, United Kingdom

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(54) Set of golf clubs, golf club, and grip therefor

(57) A golf club comprises a shaft (2) a head (3) secured to the front end of the shaft, a grip (4) secured to the rear end of the shaft, and a grip section (14) constituted by the grip (4) and a shaft portion (12) at which the grip secured to the shaft. The grip section has a weight of 100 to 260 g. The centre of gravity (g) of the grip section is located substantially at the center thereof in the longitudinal direction thereof. A grip for use in a golf club has a weight of 60 to 100 g. The center of gravity of the grip is located substantially at the center thereof in the longitudinal direction thereof. A weight 5 may be fitted into the grip 4 at substantially the center thereof.

FIG. 2

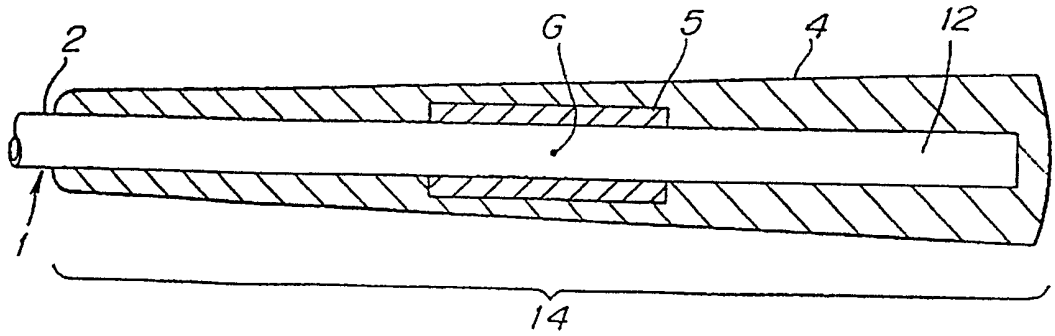

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FIG.1

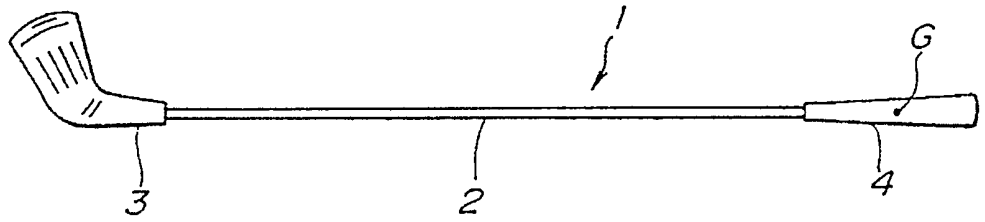


FIG.2

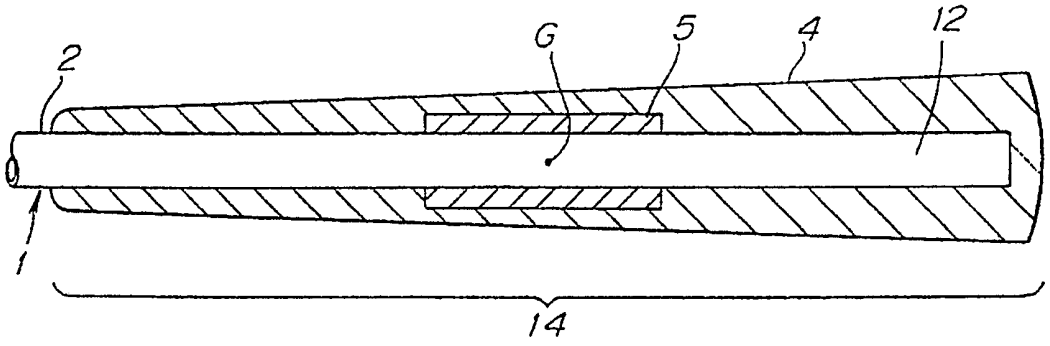


FIG. 3

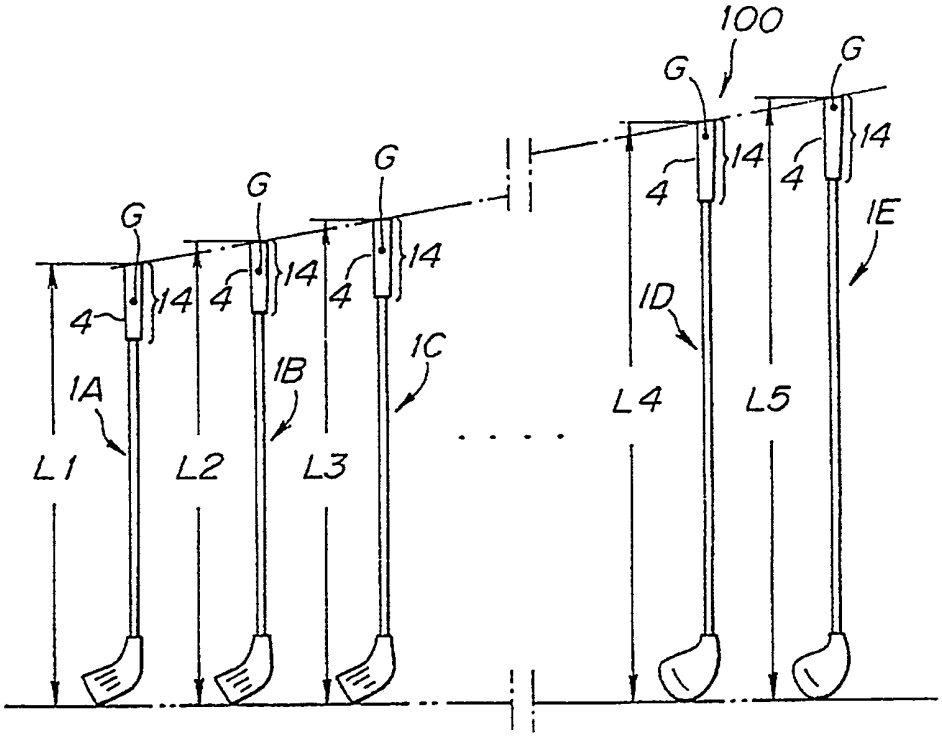


FIG. 4

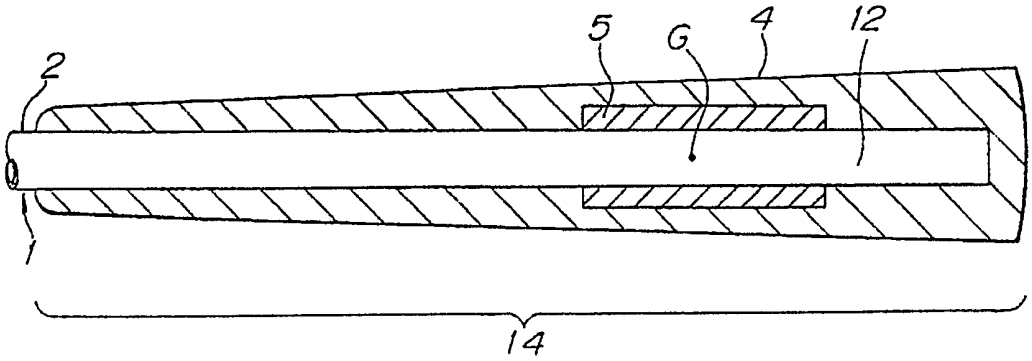
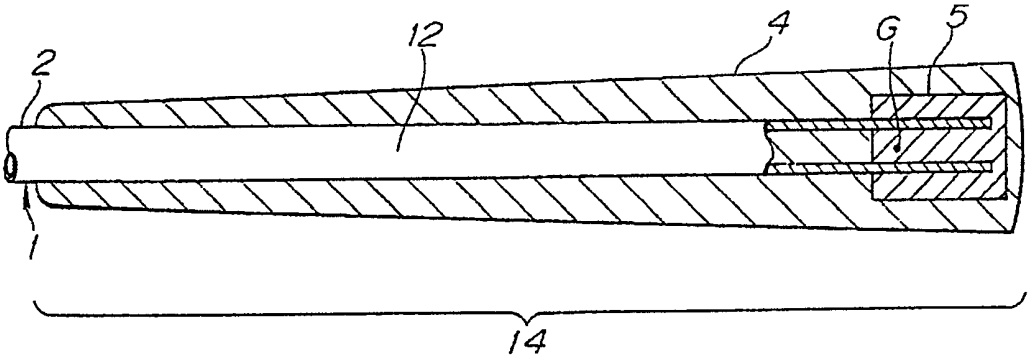


FIG. 5



TITLE OF THE INVENTION

Set of Golf Clubs, Golf Club and Grip therefor

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to a golf club, a set of golf clubs and a grip for each of golf clubs. It should be noted that the golf club according to the invention includes any type of golf clubs such as iron clubs, wood clubs or the like, which are mainly used for flying or carrying a golf ball, and does not include a patter which is used mainly for rolling a golf ball over the green.

2. Related Art

For accurately controlling the flying direction of a ball when playing the golf, it is important to swing the golf club such that the club head follows along the ball-hitting line or target line immediately after hitting the ball. This is commonly termed follow-through. Such follow-through is important particularly when swinging a golf club other than a patter. Thus, golf clubs other than patters are desirably constructed such as to permit satisfactory follow-through.

From the above-mentioned view point, the inventor conducted extensive researches and investigations concerning the structure of the golf club and found that for permitting satisfactory follow-through it is important to adequately determine the weight, as well as the position of the center of

gravity, of a grip or a grip section of the golf club, which the grip section is constituted by the grip and a shaft portion at which the grip is secured to the shaft of the golf club.

The grip of a conventional golf club other than a patter usually has a weight of about 50 g. With such light weight grip, however, it is difficult to expect satisfactory follow-through. In addition, with any conventional golf club there is no consideration about the setting of the center of gravity position in the grip for permitting satisfactory follow-through.

A set of a plurality of golf clubs having different lengths includes ones which are required to permit accurate control of the flying direction of a ball, and others which are required to permit increased flying distance rather than accurate control of the flying direction. Generally, short golf clubs have to meet the former requirement, while long golf clubs have to meet the latter requirement. More specifically, short golf clubs other than a patter have to be constructed such as to permit satisfactory follow-through for enhanced accuracy of the flying direction of a ball, while long golf clubs have to be constructed to permit increased flying distance rather than the accuracy of the flying direction. As a result of investigation by the inventor, it has been found that the weight of and center of gravity

position in the grip or grip section of a golf club gravely influences the accuracy of flying direction and flying distance.

The above considerations have heretofore been never paid in a golf club set.

SUMMARY OF THE INVENTION

Therefore it is a first object of the present invention to provide a golf club or a grip therefor, which makes it possible to execute satisfactory follow-through of the club and thereby to enhance the accuracy of the flying direction of a ball.

A second object of the invention is to provide a set of a plurality of golf clubs or grips therefor, which can reliably satisfy the requirements for the individual golf clubs.

In order to achieve the first object of the invention, there is provided a golf club comprising a shaft, a head secured to the front end of said shaft, a grip secured to the rear end of said shaft, and a grip section constituted by said grip and a shaft portion at which said grip secured to said shaft, said grip section having a weight of 100 to 260 g, the center of gravity of said grip section being located substantially at the center thereof in the longitudinal direction thereof.

In order to achieve the same object of the invention,

there is also provided a grip for use in a golf club having a weight of 60 to 100 g, the center of gravity of said grip being located substantially at the center thereof in the longitudinal direction thereof.

The above-mentioned construction of the golf club or the grip therefor makes it possible to obtain a satisfactory follow-through of the club while obtaining accurate control of the flying direction of the ball.

In order to achieve the second object of the invention, there is provided a set of a plurality of golf clubs having different club lengths, each of said golf clubs comprising a shaft, a head secured to the front end of the said shaft, a grip secured to the rear end of said shaft, and a grip section constituted by said grip and a shaft portion at which said grip secured to said shaft, said grip section of each of said golf clubs having a weight of 100 to 260 g, the center of gravity of said grip section of the shortest golf club among said golf clubs being located substantially at the center of said grip section in the longitudinal direction thereof, the positions of the center of gravity of the other grip sections being shifted gradually from that of said shortest club in the longitudinal direction thereof toward the rear end thereof with increase of the club length.

In order to achieve the same object of the invention, there is also provided grips for a set of a plurality of golf

clubs having different lengths, each of said grips having a weight of 60 to 100 g, the center of gravity of said grip for the shortest club among the golf clubs being set substantially at the center of said grip in the longitudinal direction thereof, the positions of the center of gravity of the other grips being shifted gradually from that of said grip for the shortest club in the longitudinal direction thereof toward the rear end thereof with increase of the club length.

The above-mentioned construction of the set of the golf clubs or the grips therefore makes ti possible to enhance the functions required for the individual clubs in the golf club set.

Further objects, features and advantages of the present invention will become apparent from the following description of the preferred embodiments of the present invention as illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a front view showing one embodiment of a golf club according to the present invention;

Figure 2 is an enlarged sectional view showing a grip section of the golf club shown in Fig. 1;

Figure 3 is a front view showing one embodiment of a set of golf clubs according to the invention; and

Figures 4 and 5 are respectively enlarged sectional views of the grip section of the different golf clubs in the

golf club set shown in Fig. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figures 1 and 2 show one embodiment of a golf club according to the present invention. The club 1 comprises a shaft 2, a head 3 secured to the front end of the shaft 2, a grip 4 secured to the rear end of the shaft 2, and a grip section 14 which is constituted by the grip 4 and a shaft portion 12 at which the grip 4 is secured to the shaft 12.

The golf club 1 should be constructed so as to permit satisfactory follow-through immediately after hitting a golf ball. To meet this demand, with the golf club 1 according to the invention, the weight of the grip section 14 is set to 100 to 260 g, and the position of the center of gravity G of the grip section 14 is set substantially at the center thereof in the longitudinal direction.

Such grip section 14 is considerably heavy compared to the prior art grip section, and its center of gravity is found substantially at the center in the longitudinal direction. With the golf club 1 having this grip section 14, an enhanced moment of inertia about the axis of swing can be obtained when swinging it, and immediately after hitting a ball the head 3 follows the hitting line or target line. Therefore, satisfactory follow-through can be obtained. The theoretical reason why such a function can be obtained is not given here for its explanation is cumbersome. However, it has

been confirmed by various experiments that the golf club 1 satisfying the above requirements can reliably provide the function noted above and permits accurate control of the flying direction of a ball.

In order to set the weight of the grip section 14 as noted above and set the position of the center of gravity G at the center of the grip section 14 in the longitudinal direction thereof, a weight 5 may be fitted into the grip 4 at substantially the center of the grip 4 in the longitudinal direction thereof, as shown in Fig. 2.

In the above explanation, the weight of the grip section 14 including the grip 4 and the shaft portion 12 is considered. Considering the weight of the sole grip 4, the grip 4 has a weight of 60 to 100 g, and its center of gravity is found at its center in the longitudinal direction.

Figure 3 shows a set of golf clubs 100 consisting of a plurality golf clubs 1A, 1B, ..., 1D, and 1E including the golf club 1 shown in Fig. 1. These golf clubs have respective different lengths L1, L2, ..., L4, and L5. In each club in the golf club set 100, the weight of the grip 4 is set to 60 to 100 g as described before with reference to Fig. 2. In addition, the weight of the grip section 14 of each of the golf clubs, which comprises the grip 4 and the shaft portion 12 (see Figure 2), is 100 to 260 g. These requirements permit satisfactory follow-through of the club to be obtained as

described before. To the same end, the center of gravity of the grip 4 or the grip section 14 of each club can be set substantially at the center in the longitudinal direction as in the previous embodiment. In the embodiment shown in Fig. 3, however, the position of the center of gravity G of the grip 4 or the grip section 14 is set as follows.

As in the previous embodiment, the center of gravity G of the grip section 14 or the grip 4 of the shortest club 1A among the plurality of clubs 1A, 1B, ..., 1D, and 1E except for patters, is located substantially at the center in the longitudinal direction. However, with increase the club length, the center of gravity G of the grip section 14 or the grip 4 is progressively shifted from substantially the center toward the rear end of the grip 4 or the grip section 14 in the longitudinal direction thereof. That is, while the center of gravity G of the grip section 14 or the grip 4 is located substantially at the center in the longitudinal direction with the shortest club 1A, it is shifted to the rear end from the longitudinal center with the next shortest club 1B, and shifted further to the rear end with the following short club 1C, and it is closest to the rear end with the longest club 1E. The reason for adopting this constitution is as follows.

With a golf club, in which the center of gravity G of the grip section 14 or the grip 4 is located at the center thereof in the longitudinal direction, satisfactory

follow-through of the club can be obtained, and the direction of flying of the ball can be controlled accurately. However, with the center of gravity G located at the center of the grip in the longitudinal direction thereof, it is difficult to obtain a long distance of flying of the ball. In order to increase the flying distance of the ball, the center of gravity G of the grip section 13 or the grip 4 may be shifted toward the rear end. By so doing, however, it is now difficult to permit accurate control of the direction of flying of the ball. That is, with the center of gravity G at the center of the grip section 14 in the longitudinal direction thereof it is difficult to obtain a long flying distance of the ball although the direction of flying of the ball can be accurately controlled, whereas with the center of gravity G shifted toward the rear end of the grip section 14 it is difficult to permit accurate control of the flying direction although the flying direction can be increased.

As noted before, among the golf clubs in the golf club set 100, the shortest club 1A is required to be capable of permitting accurate flying direction control rather than increasing the flying distance, and with increasing club length the requirement for increasing the flying distance is increased rather than accurate flying direction control. From this standpoint, in the embodiment shown in Fig. 3 the positions of the center of gravity G of the grip section 14 or

the grip 4 in the golf clubs other than the shortest club 1A are progressively shifted from the center thereof in the longitudinal direction toward the rear end thereof with the increase of the club length.

For the above-mentioned arrangement of the center of gravity G of the grip section 14 or the grip 4 for individual clubs, the weight 5 secured to the grip 4 or the shaft 2 may be shifted toward the rear end with increase of the club length, as shown in Figs. 2, 4 and 5.

While the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives and modifications will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to include all such alternatives and modifications as fall within the spirit and scope of the appended claims.

WHAT IS CLAIMED IS:

1. A golf club comprising a shaft, a head secured to the front end of said shaft, a grip secured to the rear end of said shaft, and a grip section constituted by said grip and a shaft portion at which said grip secured to said shaft, said grip section having a weight of 100 to 260 g, the center of gravity of said grip section being located substantially at the center thereof in the longitudinal direction thereof.

2. The golf club according to claim 1, wherein said head is formed as an iron club head.

3. The golf club according to claim 1, wherein said head is formed as a wood club head.

4. The golf club according to claim 1, wherein said grip has a weight of 60 to 100 g, the center of gravity of said grip being located substantially at the center thereof in the longitudinal direction thereof.

5. A grip for use in a golf club having a weight of 60 to 100 g, the center of gravity of said grip being located substantially at the center thereof in the longitudinal direction thereof.

6. A set of a plurality of golf clubs having different club lengths, each of said golf clubs comprising a shaft, a head secured to the front end of the said shaft, a grip secured to the rear end of said shaft, and a grip section constituted by said grip and a shaft portion at which said

grip secured to said shaft, said grip section of each of said golf clubs having a weight of 100 to 260 g, the center of gravity of said grip section of the shortest golf club among said golf clubs being located substantially at the center of said grip section in the longitudinal direction thereof, the positions of the center of gravity of the other grip sections being shifted gradually from that of said shortest club in the longitudinal direction thereof toward the rear end thereof with increase of the club length.

7. The set of golf clubs according to claim 6, wherein said head of each of said golf clubs is formed as an iron club head.

8. The set of golf clubs according to claim 6, wherein said head of each of said golf clubs is formed as a wood club head.

9. The set of golf clubs according to claim 6, wherein said grip of each of said golf clubs has a weight of 60 to 100 g.

10. Grips for a set of a plurality of golf clubs having different lengths, each of said grips having a weight of 60 to 100 g, the center of gravity of said grip for the shortest club among the golf clubs being set substantially at the center of said grip in the longitudinal direction thereof, the positions of the center of gravity of the other grips being shifted gradually from that of said grip for the

shortest club in the longitudinal direction thereof toward the rear end thereof with increase of the club length.

11. A golf club substantially as described herein with reference to and as illustrated in Figures 1 and 2 of the accompanying drawings.

12. A set of golf clubs substantially as described herein with reference to and as illustrated in Figure 3 of the accompanying drawings.

13. A grip for a golf club substantially as described herein with reference to and as illustrated in Figure 4 of the accompanying drawings.

14. A grip for a golf club substantially as described herein with reference to and as illustrated in Fiugre 5 of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17 (The Search Report)

-14-

Application number

9127486.0

Relevant Technical fields

(i) UK Cl (Edition K) A6D(D21A D21B D21C D23A D23B D23C

(ii) Int Cl (Edition 5) A63B 53/10 A63B 53/12 A63B 53/14

Search Examiner

D WHITFIELD

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

25 FEBRUARY 1992

Documents considered relevant following a search in respect of claims

1-4

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	US 4058312 (STUFF) whole document	1-4

SF2(p)

sf - c:\wp51\doc99\fil001957

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

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P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

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