June 16, 1936. A. J. DADAY 2,044,567

GOLF CLUB

Filed June 29, 1934

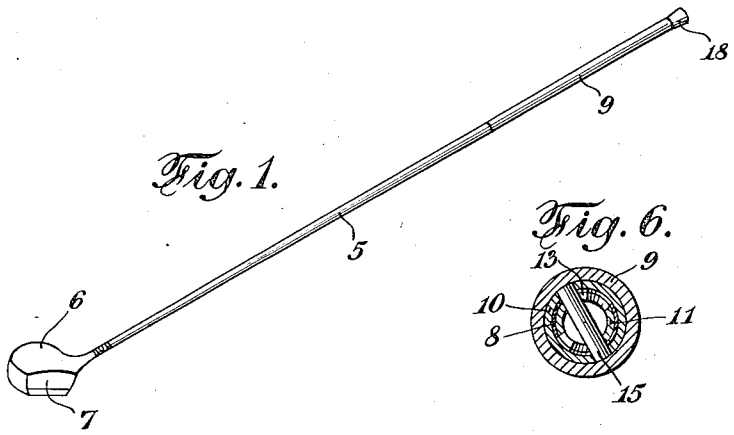

Fig. 1.

Fig. 6.

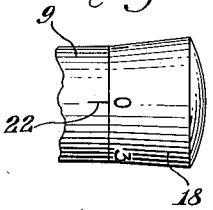

Fig. 5.

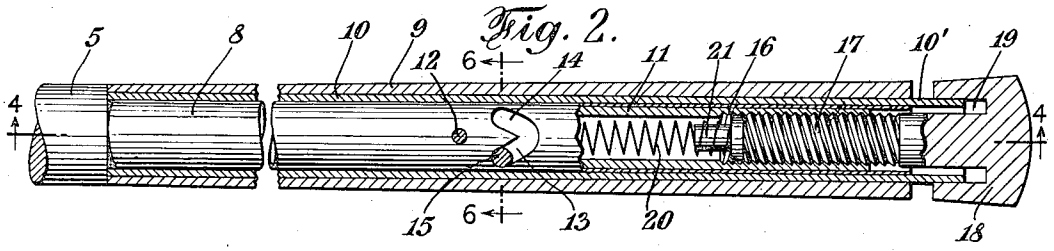

Fig. 2.

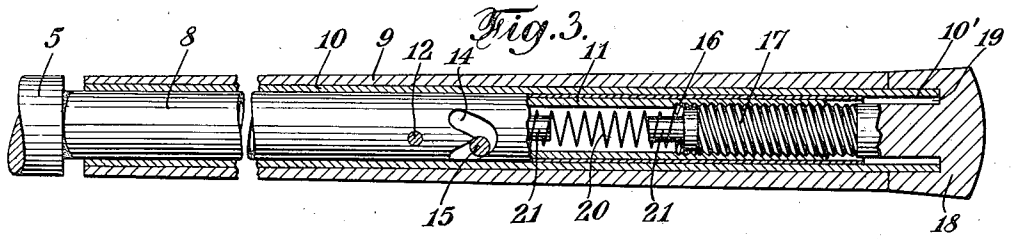

Fig. 3.

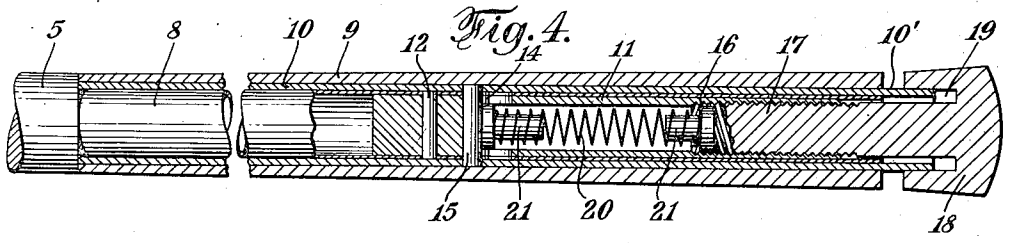

Fig. 4.

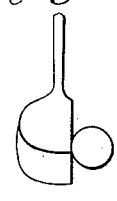

Fig. 7.

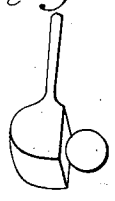

Fig. 8.

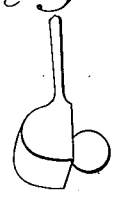

Fig. 9.

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Patented June 16, 1936 2,044,567

UNITED STATES PATENT OFFICE

2,044,567

GOLF CLUB

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Application June 29, 1934, Serial No. 732,964

22 Claims. (Cl. 273—81)

This invention relates to golf clubs and has for its general object and purpose to provide means embodied in the club construction which is operable to control the angular relation between the face of the club head and the ball at the moment of impact, and thereby compensate for the tendency of the average player to "slice" or "hook" the ball, due to faulty playing technique or failure to properly coordinate the movements of the body, arms and wrists in stroking the ball.

It is generally known that in playing golf, and especially in driving from the tee, the initial position or stance of the player and the movements of the body, arms and wrists of the player, in the act of stroking the ball, are all important factors in determining the line of flight of the ball, which is governed by the angle of the club head face with respect to the vertical axis of the ball at the moment of impact. In "addressing" the ball, the player positions the face of the club head behind and adjacent to the ball, in the position it should assume at the moment of impact. The player then swings the club head upwardly and backwardly, at the same time pivoting the body and turning the wrists. From the top of the back swing there is a rapid, uninterrupted, downward and forward swing during which there simultaneously occurs a reverse pivoting motion of the body with relative movement of the arms, wrists and hands, which, at the moment of impact, should be in approximately the same position as when "addressing" the ball. This desideratum is seldom attained, except by the most expert player. It is, however, essential in order to direct the ball on a true line of flight over the fairway.

The average player is unable to achieve this proper coordination of body, arm and wrist movements, or, due to faulty stance brings the club head face to the ball at an oblique angle at the moment of impact, with the result that the ball is either "sliced" or "hooked".

It is, therefore, an important object of my invention to provide means, rendered effective by the force resulting from the downward and forward swing of the club, for changing the normal angle of the striking face of the club head with respect to the axis of the hand grip, so that, notwithstanding a faulty stance or stroke, at the moment of impact, the face of the club head is in proper position to insure a true line of flight of the ball in the desired predetermined direction.

Another object of the invention is to provide means for controlling and adjusting the extent or degree of change in the angular relation of the club face to the hand grip axis, which occurs in stroking the ball, in accordance with the requirements of the individual player.

In one practical embodiment of the invention, I provide a hand grip loosely receiving the club shaft, adjustable means limiting the axial movement of the shaft in one direction from the hand grip, and means fixed to the hand grip, coacting with means on the shaft, to cause a rotative movement of the shaft and club head in such axial extension of the shaft from the grip, induced by the centrifugal force resulting from the swing or stroke of the club.

My invention, therefore, enables the golfer to compensate for his lack of expert ability or faulty technique and also to obtain greater driving distance.

It is another object of the invention to accomplish the above noted object or result without materially complicating the construction of the ordinary golf club or greatly increasing manufacturing costs.

With the above and other objects in view, the invention consists in the improved golf club and in the form, construction and relative arrangement of the several parts thereof, as will hereinafter be more fully described, illustrated in the accompanying drawing and subsequently incorporated in the subjoined claims.

In the drawing wherein I have illustrated one simple and practical embodiment of the invention, and in which similar reference characters designate corresponding parts throughout the several views:

Figure 1 is a perspective view illustrating one well known form of golf club provided with the present invention.

Fig. 2 is a fragmentary longitudinal section, showing the club adjusted to correct the tendency to "slice" the ball.

Fig. 3 is a similar view showing the shaft extended from the hand grip in the act of stroking the ball.

Fig. 4 is a longitudinal sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a detail side elevation.

Fig. 6 is a transverse sectional view taken on the line 6—6 of Fig. 2.

Figs. 7, 8 and 9 are semi-diagrammatic views showing different positions of the club head face with respect to the ball.

Referring in detail to the drawing, 5 designates the club shaft having the head 6, provided with a striking face 7, rigidly fixed to one end thereof. For purposes of illustration, I have shown a driver of conventional form, having a club head of wood, though, it will be understood as this description proceeds, that the invention is applicable as well to the metal or iron clubs of various types.

The shaft 5 gradually increases in diameter towards its opposite end which is formed with a reduced tubular section 8 of uniform diameter, to receive the hand grip having an outer part 9 of

hard rubber, fiber, or other material offering high frictional resistance to slipping of the hands thereon. This part 9 is securely and permanently fastened upon a tubular metal core 10, which is loosely and rotatably engaged upon the shaft section 8 and projects beyond the upper end thereof, as shown at 10'. The wall of the outer part 9 of the hand grip gradually increases in thickness to its upper end so that its outer surface normally forms a smooth continuation of the peripheral surface of the shaft 5.

The wall of the tubular section 8 of the shaft is quite thin, and I, therefore, preferably arrange within said shaft section an elongated tubular bushing 11. This bushing may be rigidly fixed to the shaft section 8 in various ways, but, as herein shown, the inner end thereof is formed solid and secured to the wall of the tubular shaft section 8 by the pin 12 extending diametrically therethrough.

In spaced relation to the pin 12 the walls of the tubular bushing and shaft section 8 are provided in diametrically opposite sides thereof with substantially V-shaped slots, having the diverging branches 13 and 14, respectively. A pin 15 extends through these slots and at its opposite ends is rigidly fixed in the wall of the metal lining or core 10 of the hand grip.

The bushing 11 at its other or upper end is interiorly threaded, as at 16, to receive the adjustable screw 17. The outer end of this screw is formed with the head 18 and an annular recess 19 therein receives the projecting end portion 10' of the tubular metal core of the hand grip.

A coiled expansion spring 20 is arranged in the bushing 11 and headed pins 21 are fitted into the opposite ends of said spring, one of said pins bearing against the pin 15, while the other bears against the adjustable screw 17.

Preferably, the outer face of the grip member 9 is provided with an index mark, indicated at 22, at the upper end thereof, and the adjacent end of the screw head 18 is provided on its outer surface with the circumferentially spaced digits 0 to 3 respectively.

Having now described the several structural features of my new golf club, its use and practical operation may be explained as follows:

When the screw 17 is adjusted so that the zero designation on the screw head is aligned with the index 22, as shown in Fig. 5 of the drawing, the inner end of said screw head abuts tightly against the end of the grip member 9, and the above described mechanism is rendered inoperative. The club will then function in the same manner as the ordinary golf club in which the club shaft and hand grip are a rigid unit, results being wholly dependent on the playing skill of the individual golfer. Thus, in order to prevent "slicing" or "hooking" of the ball, at the moment of impact the club face 7 must be in a perpendicular plane with respect to the ground surface, as shown in Fig. 7 of the drawing. In the effort to secure length or distance in the drive, this desideratum is attainable only by the most experienced golfers.

The average golfer, due to incorrect stance, failure to properly coordinate the movements of body, arms and wrists in stroking the ball, or other playing faults, usually brings the club face to the ball at a vertically oblique angle. Thus, the golfer has a tendency either to get both hands "through" or in advance of the club head on the down swing, which results in "slicing" the ball, as seen in Fig. 8 of the drawing, or, on the other hand, to get the right hand "through" first, which causes "hooking" of the ball, as seen in Fig. 9 of the drawing.

Notwithstanding such faulty stroking of the ball or other lack of proper playing technique on the part of the player, my invention enables the face of the club head to assume the correct position in a true perpendicular plane at the moment of impact with the ball. Thus, if the player tends to "slice" the ball, with the pin 15 positioned in the branches 13 of the slots in the shaft section 8, the screw 17 is adjusted outwardly to space its head 18 from the end of the hand grip. If this tendency to "slice" is but slight, only a quarter turn of the screw is made to align the digit 1 on the screw head with the index 22, and if more pronounced, a half or three-quarter turn of the screw is made to increase the spacing of the screw head from the hand grip.

The player now "addresses" to ball, placing the club head as shown in Fig. 7, with its striking face 7 substantially perpendicular to the ground. The club is then swung upwardly and backwardly and poised for a moment over the right shoulder. Aiming to drive the ball the greatest possible distance, the player then, exerting the utmost physical force, brings the club downwardly and forwardly in a rapid, uninterrupted stroke, while securely gripping the hand grip member 9 with both hands. The resultant centrifugal force causes the club shaft to be longitudinally extended from the hand grip to the extent permitted by the setting of the screw head 18 and against the resistance of the spring 20. At the same time the camming action of the edges of the slot section 13 against the pin 15 causes the club shaft and head to turn or rotate in a clockwise direction relative to the hand grip. Thus, at the moment of impact with the ball, the club head face 7 instead of being in a vertically oblique plane, as in Fig. 8, will be in a true perpendicular plane, as in Fig. 7. As a result thereof, the ball is directed on a straight line of flight over the fairway. At the end of the forward, sweeping upward stroke, or "follow through" of the club head, the spring 20 returns the shaft and hand grip to their former normal positions.

To adjust the club to correct the tendency to "hook" the ball, one complete turn of the screw head is made from the position shown in Fig. 5 of the drawing. By then shifting the hand grip outwardly into contact against the screw head the pin 15 is positioned in the juncture of the two branches 13 and 14 of the slots in the shaft. Upon a slight relative turning movement of the shaft and hand grip and shifting the latter inwardly, the pin 15 is seated in the end of the slot section 14.

Thus, after properly setting the screw 17 in accordance with the tendency of the player to "hook" the ball, the influence of centrifugal force in stroking the ball will cause the club head and shaft to turn or rotate in a counter-clockwise direction, by the camming action of slot sections 14 against the pin 15. Accordingly, instead of the club face 7 being positioned at the oblique angle seen in Fig. 9, at the moment of impact, it will be disposed in the correct perpendicular position of Fig. 7 of the drawing for a straight line of flight down the fairway.

After a short experimental period, the proper adjustment or setting of the screw 17 may be obtained, which is best suited to the requirements of the individual player.

From the foregoing description considered in connection with the accompanying drawing, the construction, manner of operation and several advantages of my invention will be clearly understood. It will be seen that I have provided a device, readily adaptable to the various different types of golf clubs, which will function in a reliable and efficient manner for the purpose in view. Practical tests of the new club have established the fact that by the use thereof, the score of the ordinary golf player, having little knowledge of the finer points of the game, may be markedly improved. The invention consists of relatively few parts of simple mechanical construction so that the cost of production of the new club will be but little more than that of the rigid golf club now in general use.

I have herein shown and described one satisfactory embodiment of my invention, but, it is to be understood, that the essential features thereof are also susceptible of exemplification in various other alternative structural forms. Accordingly, in further practical development of my invention, I reserve the privilege of resorting to all such legitimate changes in the form, construction and relative arrangement of the several elements as may be fairly considered within the spirit and scope of the appended claims.

What I claim is:

1. A golf club comprising a shaft having a club head at one end and a hand grip at its other end, and means responsive to the influence of centrifugal force upon the club head during the playing stroke to turn the club head around the axis of the hand grip and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, said means including relatively movable parts, one of which is carried by said shaft.

2. A golf club comprising a shaft having a club head at one end and a hand grip at its other end, means responsive to the influence of centrifugal force upon the club head during the playing stroke to turn the club head around the axis of the hand grip and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, said means including relatively movable parts, one of which is carried by said shaft, and means for variably regulating the degree of turning movement of the club head.

3. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip loosely engaged on the other end of the shaft, and means responsive to the influence of centrifugal force upon the club head during the playing stroke, to cause a relative rotation between the club shaft and hand grip, and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, said means including relatively movable parts on the hand grip and shaft.

4. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip loosely engaged on the other end of the shaft, means responsive to the influence of centrifugal force upon the club head during the playing stroke, to cause a relative rotation between the club shaft and hand grip, and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, said means including relatively movable parts on the hand grip and shaft, and means for variably regulating the degree of relative rotation between the club shaft and hand grip.

5. A golf club comprising a shaft having a club head at one end thereof and a hand grip at its other end, and means responsive to the influence of centrifugal force upon the club head during the playing stroke to turn the club head around the axis of the hand grip and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, said means including relatively movable parts on the hand grip and shaft, respectively, adjustable with respect to each other to predetermine the direction of turning movement of the club head.

6. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip loosely engaged on the other end of the shaft, and means responsive to the influence of centrifugal force upon the club head during the playing stroke, to cause a relative rotation between the club shaft and hand grip, and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, said means including relatively adjustable parts on the hand grip and shaft to predetermine the direction of turning movement of the club head.

7. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip rotatably connected with the other end of said shaft, and coacting means on the hand grip and shaft, responsive to the influence of centrifugal force upon the club head during the playing stroke, to cause a relative rotation between the club shaft and hand grip and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball.

8. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip rotatably connected with the other end of the shaft, coacting means on the hand grip and shaft, responsive to the influence of centrifugal force upon the club head during the playing stroke, to cause a relative rotation between the club shaft and hand grip and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, and means for variably regulating the degree of relative rotation between the club shaft and hand grip.

9. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip rotatably connected with the other end of the shaft, and coacting means on the hand grip and shaft, responsive to the influence of centrifugal force upon the club head during the playing stroke, to cause a relative rotation between the club shaft and hand grip and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, said means including relatively adjustable parts to predetermine the direction of turning movement of the club head.

10. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip within which the other end of the shaft is axially extensible in response to the influence of centrifugal force during the playing stroke, and means rendered operative by such axial extension of the shaft to impart a concurrent rotary movement thereto and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball.

11. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip within which the other end of the shaft is axially extensible in response to the influence of cen-

trifugal force during the playing stroke, and coacting means on the hand grip and shaft rendered operative by such axial extension of the shaft to impart a concurrent rotary movement thereto and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball.

12. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip within which the other end of the shaft is axially extensible in response to the influence of centrifugal force during the playing stroke, means rendered operative by such axial extension of the shaft to impart a concurrent rotary movement thereto and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, and means for variably limiting such axial and rotative movements of the shaft with respect to the hand grip.

13. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip within which the other end of the shaft is axially extensible in response to the influence of centrifugal force during the playing stroke, means rendered operative by such axial extension of the shaft to impart a concurrent rotary movement thereto and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, and means automatically acting to restore the shaft and hand grip to their normal positions relative to each other, upon completion of the stroke.

14. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip within which the other end of the shaft is axially extensible in response to the influence of centrifugal force during the playing stroke, means rendered effective by such axial extension of the shaft to impart a concurrent rotary movement thereto and position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, and adjustable means connected with the shaft and coacting with the hand grip to variably limit such axial and rotative movements of the shaft with respect to the hand grip.

15. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip within which the other end of the shaft is axially extensible in response to the influence of centrifugal force during the playing stroke, said end of the shaft having a double cam slot therein, a coacting pin extending diametrically through said slot and fixed at its ends to the hand grip and adjustable therewith to engage different parts of the slot to cause a concurrent rotation of the shaft in a predetermined direction, to thereby position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, and a spring acting to restore the hand grip and shaft to their normal relative positions upon completion of the stroke.

16. A golf club comprising a shaft having a club head rigid with one end thereof, a hand grip within which the other end of the shaft is axially extensible in response to the influence of centrifugal force during the playing stroke, said end of the shaft having a double cam slot therein, a coacting pin extending diametrically through said slot and fixed at its ends to the hand grip and adjustable therewith to engage different parts of the slot to cause a concurrent rotation of the shaft in a predetermined direction, to thereby position the striking face of the club head in a desired predetermined plane at the moment of impact with the ball, an adjustable screw connected with the shaft and coacting with the hand grip to variably limit the axial and rotative movements of the shaft with respect to the hand grip, and a spring acting to restore the hand grip and shaft to their normal relative positions upon completion of the stroke.

17. A golf club comprising a shaft, a hand grip at one end of the shaft, a club head at the other end of the shaft, movable axially of the hand grip in response to centrifugal force during the playing stroke, and means responsive to such axial movement of the club head to effect a rotational movement of the club head with respect to the hand grip.

18. A golf club comprising a shaft, a hand grip at one end of the shaft, a club head at the other end of the shaft, and means, including said shaft, for effecting rotational movement of the club head around the hand grip axis in response to the influence of centrifugal force upon the club head during the playing stroke.

19. A golf club comprising a shaft, a hand grip at one end of the shaft, a club head at the other end of the shaft, means, including said shaft, for effecting rotational movement of the club head around the hand grip axis in response to the influence of centrifugal force upon the club head during the playing stroke, and means mounted in the shaft for controlling such rotational movement of the club head.

20. A golf club comprising a shaft, a hand grip at one end of the shaft, a club head at the other end of the shaft, means, including said shaft, for effecting rotational movement of the club head around the hand grip axis in response to the influence of centrifugal force upon the club head during the playing stroke, means mounted in the shaft for controlling such rotational movement of the club head, and means automatically acting to restore the club head to normal position with respect to the hand grip axis, upon completion of the stroke.

21. A golf club comprising a hand grip, a shaft and a club head having a striking face, said head being rotatable relative to the hand grip; and coacting, parts rotatable relative to each other around the axis of the hand grip, one of said parts being connected to the club head through said shaft, the other of said parts being carried by and operatively controlled from said hand grip, for rotating the club head relative to the hand grip when the club is swung in striking a ball so as to cause the striking face to assume a desired predetermined plane at the moment of impact with the ball.

22. A golf club comprising a shaft having a club head on one end, a hand grip rotatably mounted on the other end of said shaft, and means carried by the hand grip coacting with means on said shaft to effect relative rotation of the shaft and hand grip and position the striking face of the club head at a desired angle with respect to the axis of the hand grip when the club is swung to cause the head to strike the ball.

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