May 21, 1940. A. K. THEIBAULT, SR 2,201,638

GOLF CLUB

Filed Dec. 7, 1938

Fig. 1.

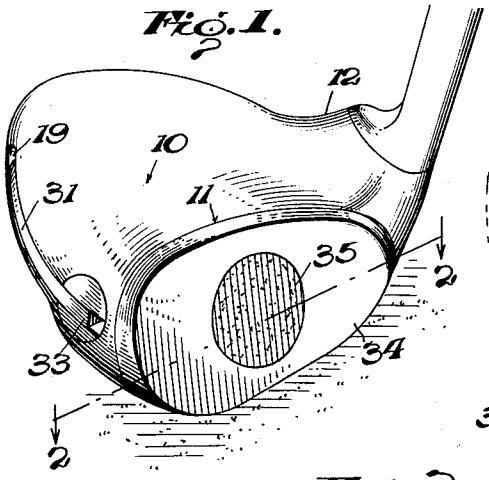


Fig. 2.

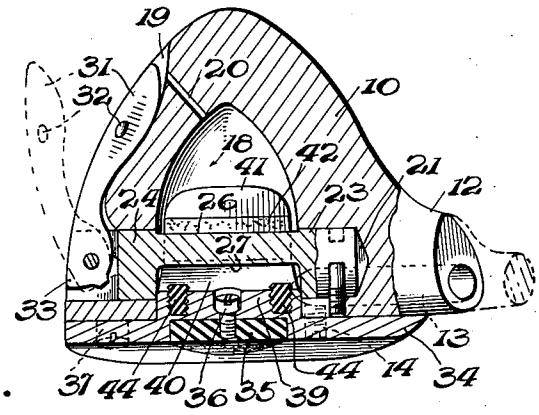


Fig. 3.

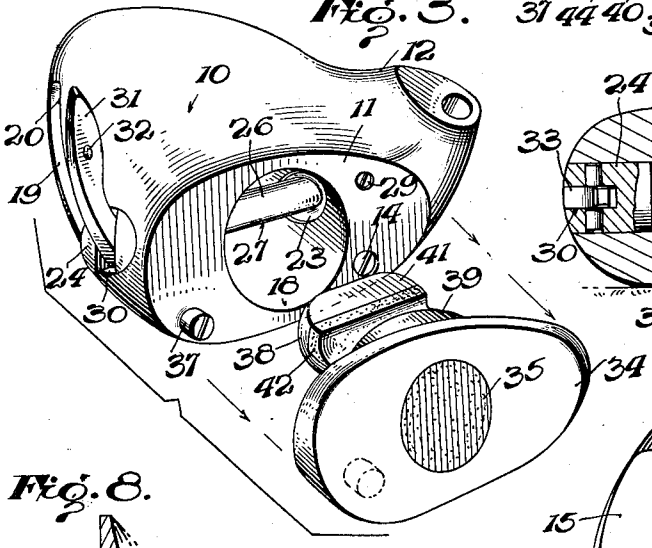


Fig. 4.

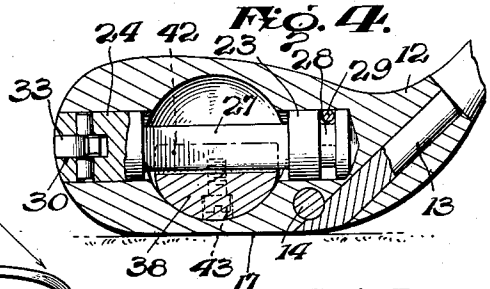


Fig. 5.

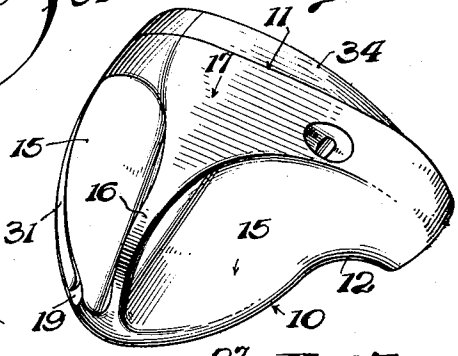


Fig. 8.

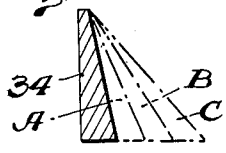


Fig. 6.

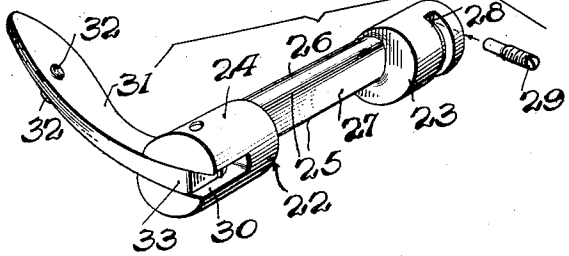
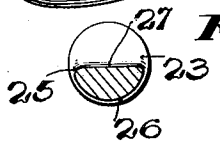


Fig. 7.



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GOLF CLUB

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Application December 7, 1938, Serial No. 244,451

8 Claims. (Cl. 273—77)

This invention relates to an improved golf club.

As is recognized, golfers, when playing golf, seem to carry, either personally, or by the proxy of a caddy, a great number of clubs. The matter is dictated for the most part by actual necessity, for the reason that each club is fashioned for a particular purpose and its choice for use determined by the lie of the ball, with the result that no other club of slightly different angle of face will exactly do for a given shot. This practice of endeavoring to provide a special club for a special shot has, of course, led into a great variety of clubs, with the result that most golfers carry what may appear to the uninitiated as a very large number of excess clubs. Reason would dictate fewer clubs with correspondingly less outlay as well as less weight to carry, without sacrificing the advantage of exact striking face for exact shot.

An object of the present invention, therefore, is to provide a golf club wherein a single shaft and special club-head embodying a removable face plate, will be adapted, through an interchange of face plates, to serve the exigencies of a variety of shots while, at the same time fulfilling, in adequate degree, the matter of choice or theory of special club for special lie and shot.

A further object of the invention is to provide a club wherein the face plate may be changed easily and quickly, wherein said plate will normally be retained firmly in position without looseness or chattering, and wherein locking means will be provided for the retaining shaft for the plate so that the plate cannot be accidently dislodged during play with the club.

Still another object of the invention is to provide a club wherein movement of the retaining shaft to release the face plate will serve to shift the plate away from the body of the head into spaced relation thereto so that the plate may be readily grasped and removed.

The invention has, as a further object, to provide a club wherein the balance thereof when, for instance, the club is used as a driver, will be such that the club head will tend to tilt rearwardly while for each face plate substituted of progressively greater angle of striking face, the balance of the club will be shifted forwardly so that when the club is used as a mashie or niblick, for instance, the club head will tend to tilt forwardly, this shifting in the balance of the club serving to better adapt the club to the particular character of the shot to be made.

And a still further object of the invention is to provide a club wherein the head will be streamlined to offer a minimum of resistance to the travel of the head through the air, as the club is swung, and wherein the under side of the head will be provided with airfoil faces adapted to act against the air for exerting a lifting action on the head such as will tend to obviate gouging of the turf behind the ball.

Other and incidental objects of the invention will appear during the course of the following description and in the accompanying drawing;

Figure 1 is a perspective view particularly showing the club-head and a portion of the shaft.

Figure 2 is a horizontal section on the line 2—2 of Figure 1.

Figure 3 is a perspective view showing the striking plate removed but in proper operative position.

Figure 4 is a vertical sectional view through the club-head.

Figure 5 is a bottom perspective view showing the airfoil faces at the bottom side of the head.

Figure 6 is a detail perspective view of the retaining shaft for the striking plate.

Figure 7 is a detail section through the cam of the retaining shaft.

Figure 8 is a detail diagrammatic section showing the manner in which the striking plate may be modified to provide steeper striking faces.

Referring now more particularly to the drawing, I employ a club-head including a body 10 which is semi-elliptical in general shape and elliptical in cross section in the direction from heel to toe, the body being thickened somewhat toward the toe. The upper surface of the body is convex as is also, on the whole, the lower surface thereof while the meeting contours at the edges of the body are rounded to merge each into the other. At the forward end of the body is a flat elliptical face 11 lying at a right angle to the longitudinal axis of the body while at the heel is provided a short angular neck 12 elliptical in cross section to provide a streamlined surface. The neck is bored to removably receive a shaft 13 and screwed into the body at the face 11 thereof to engage a depression in said shaft is a locking pin 14 securing the body upon the shaft.

Formed on the body at the lower side thereof, as seen in Figure 5, are laterally flared angular airfoil faces 15 between which is defined a rudder rib 16 the lower edge of which gradually widens toward the forward end of the rib, and lying at the forward terminus of said rib is a flat sole 17. As will be appreciated, the body, as a whole, is of streamlined contour so as to offer a minimum of resistance to the travel of the club through the

air and, in this connection, it will be noted that the faces 15 will, due to their angularity, act against the air, as the club-head swings downwardly, to exert an upward lift to the head and guide the head into solid contact with the ball. Should the head be brought into contact with the ground, however, the rudder rib 16 will offer a minimum drag while also obviating the serious gouging of the turf behind the ball.

Formed in the body 10 of the head axially thereof is a socket 18 while at the toe side of the body, medially thereof, is provided a longitudinally extending slot 19, and leading from said slot to the socket is a vent passage 20. The socket may be varied in size, as desired, to determine the weight of the body and, after the head has been formed, may be enlarged to control the weight of the body to a nicety, it being noted, in this connection, that preferably, the body is of some suitable metal.

Intersecting the socket 18 from the toe side of the body 10 is a transverse bore 21, the axis of which is located closely in the rear of the inclined axis of the neck 12, and rotatable in said bore is a retaining shaft 22, seen in detail in Figure 6 of the drawing. This shaft is provided at its ends with cylindrical trunnions 23 and 24 which are journaled in the ends of the bore 21 and connecting said trunnions is a reduced eccentrically disposed cam 25 more or less ovate in cross section, as seen in Figure 7, and provided with a curved face 26 and a relatively flat face 27. Formed in the trunion 23 of the shaft is a slot 28 and screwed into the body 10 from the face 11 thereof is a stop pin 29 fitting in said slot. This pin will thus not only limit the shaft 22 against endwise displacement but is also adapted to engage the ends of the slot 28 for limiting the shaft in its turning movement, the shaft being permitted about three quarters of a turn.

Formed in the trunnion 24 of the shaft 22 is a slot 30 disposed at substantially a right angle to the long axis of the cam 25, and pivoted in said slot is a lever 31 normally resting snugly in the slot 19 flush with the adjacent side of the body. Preferably, the lever is provided near its free end with slight side-knobs 32 adapted to bind against the side walls of the slot 19 and frictionally secure the lever closed. However, by inserting a finger or, for instance, a tee, in the rear end of the slot 19 beneath the free end of the lever, said lever may be readily swung outwardly and, as will be noted in Figure 2, the lever is provided with a square head 33 adapted to impinge the bottom of the slot 30 for limiting the lever in its outward movement to open position.

In conjunction with the body 10 I provide a removable face plate 34 which in shape conforms closely to the shape of the face 11 so that said plate, when applied, blends with the streamlined contour of the body, and set into the front face of the plate, medially thereof, is a plug 35 which is preferably of hard rubber and adapted to provide a friction surface to contact the ball, the plug being, as seen in Figure 2, secured by a cap screw 36. Screwed into the body 10 at the face 11 is a projecting centering stud 37 located near the lower edge of the body at the toe thereof. This stud is more or less snugly received in a suitable socket in the rear face of the plate 34 and serves to guide the plate to its seat as well as lock the plate against any tendency to twist relative to the body.

The rear face of the plate 34 is flat to seat flat against the face 11 of the body while the front face of said plate is inclined, the plate being thickened toward its lower edge, and integrally formed on or otherwise fixed to the plate at its rear side is a tongue 38, the plate and tongue being preferably formed, like the body 10, of suitable metal. The tongue 38 is provided with a cylindrical base 39 which snugly fits within the mouth of the socket 18 of the body while the free end portion of the tongue is narrowed to extend rearwardly within said socket and is cut away at its upper side to provide a transverse channel 40. As will be observed, the lower side of the tongue is curved to rest flat against the bottom of the socket while at its free end, the tongue is provided at its upper side with a flat face 41. Mounted in the angle of the rear wall of the channel 40 is a bushing 42 of fiber or the like having a concave front face to coact with the cam 25 of the shaft 22 and removably securing said bushing in position is a cap screw 43. Screwed into the base 39 of the tongue in position to also coact with said cam are spaced bushing-studs 44, the studs and the bushing being intended to obviate wear of the cam and being renewable to eliminate any play which may develop.

It is now to be observed that in the normal closed position of the lever 31, the cam 25 of the shaft 22 stands vertically within the channel 40 of the tongue 38 so that the curved face 26 of said cam is thus presented to the concave face of the bushing 42 to coact therewith for binding the face plate 34 tightly against the face 11 of the body 10 and locking said plate in position. Furthermore, as will be seen, the lever 31 will coact with the walls of the slot 19 for locking the shaft against rotation and consequently locking the plate assembled while, as the lever is frictionally secured in said slot, displacement of the lever, incident to impact of the club with a ball, will be prevented so that accidental freeing of the face plate 34 will be effectually prevented.

To remove the face plate 34, the body 10 of the club-head is grasped preferably in the left hand, when the lever 31 is rocked out of the slot 19, pushed downwardly and swung counterclockwise until, as shown in Figure 3, the lever stands approximately in a vertical position at the end of the throw of the shaft 22. The shaft will thus be turned to initially ride the curved face 26 of the cam 25 out of engagement with the bushing 42 when, as the rotation of the shaft continues, the cam will, due to the eccentric mounting thereof, be shifted forwardly as the curved face 26 of the cam moves into engagement with the studs 44. Thus, upon the upward swing of the lever 31 during the latter portion of the counter-clockwise movement thereof, the curved face 26 of the cam will, as the cam is shifted forwardly, coact with the studs 44 for partially ejecting the tongue 38 from the socket 18 and thus spacing the face plate 34 from the face 11 of the body 10. Continued movement of the lever 31 to the end of the throw of the shaft 22 will thus serve to dispose the flat face 27 of the cam downwardly, in which position of the cam the face 27 thereof will clear the flat face 41 of the tongue 38. Accordingly, as the face plate 34 has been moved by the cam to stand away from the face 11 of the body, said plate may, upon the release of the lever 31, be readily grasped by the fingers of the right hand for withdrawing the tongue 38 from the socket 18 and removing the face plate. By reversing the procedure just described, the face plate may, of course, be as easily and quickly installed and

locked upon the body 10, so that, as will be perceived, the structure is eminently suited to a convenient interchange of different face plates during play with the club.

The inclination of the front face of the plate 34 is such that when said plate is employed, the club may be used as a driver, for instance, and in Figure 8 I have shown, in dotted lines, the manner in which the plate 34 may be modified to provide other typical clubs. For instance, by increasing the thickness of the plate towards its lower margin, as indicated at A, the front face of the plate will be made steeper to provide a mid-iron plate for use like the plate 34, with the body 10. Similarly, by further increasing the downward thickening of the plate 34, as indicated at B, a mashie plate may be provided while by still further increasing the downward thickening of the plate 34, as indicated at C, a niblick plate may be provided. It will, of course, be understood that each of the plates mentioned will be constructed as a separate unit like the plate 34 and attached parts, the several units being adapted for interchangeable use with the body 10, and it is now to be noted that each plate of progressive thickness will serve to add weight to the assembled plate and body 10 forwardly of the inclined axis of the shaft 13 and toward the sole 17. The balance of the club will accordingly be shifted forwardly and downwardly in relation to the steepness of the striking face of the face plate used so that as increased difficulty of a shot is presented and it is desired to impart correspondingly greater loft to the ball, the clubhead will be properly weighted forwardly to impart a tendency to the head, at the instant of contact with the ball, to carry the force of impact under the ball and thus raise the ball for a proper loft of flight.

Having thus described my invention, I claim:

1. A golf club head including a body, a removable face plate carried thereby, a retaining shaft on the body locking said plate in position and rotatable to release said plate, and a pivoted lever carried by the shaft and movable to one position operable for rotating the shaft and to another position coacting with the body for locking the shaft stationary.

2. A golf club head including a body, a removable face plate carried thereby, and a rotatable retaining shaft on the body having a cam binding the plate in position and movable as the shaft is rotated to free said plate and operatively coacting therewith for shifting the plate into spaced relation to the body.

3. A golf club head including a body, a removable face plate carried thereby, and a rotatable retaining shaft mounted on the body to extend longitudinally of said plate and having an eccentrically disposed portion to operatively coact with the plate and movable to lock the plate in position.

4. A golf club head including a body, a removable face plate carried thereby, and a rotatable retaining shaft on the body having an eccentrically disposed portion to operatively coact with the plate and movable to lock the plate in position as the shaft is rotated in one direction and to shift the plate into spaced relation to the body as the shaft is rotated in the opposite direction.

5. A golf club head including a body having a socked therein, a removable face plate overlying said socket and provided with a tongue received within the socket, and a rotatable retaining shaft on the body having an eccentrically disposed portion extending within said socket and movable to engage the tongue and bind the plate in position as the shaft is rotated.

6. A golf club head including a body having a socket therein, a removable face plate overlying said socket and provided with a tongue extending within the socket, and a rotatable retaining shaft on the body having an eccentrically disposed portion extending within said socket to coact with the tongue and movable to bind the plate in position as the shaft is rotated in one direction and to partially eject said tongue from the socket as the shaft is rotated in the opposite direction to free the plate.

7. A golf club head including a body having a socket therein, a removable face plate overlying said socket and provided with a tongue extending within the socket, a rotatable retaining shaft on the body having an eccentrically disposed portion extending within said socket to coact with the tongue and movable to bind the plate in position as the shaft is rotated in one direction and to partially eject said tongue from the socket as the shaft is rotated in the opposite direction to free the plate, means limiting the shaft in its rotary throw, and a lever pivoted to the shaft and movable to engage the body for locking the shaft against rotation securing the face plate seated upon the body.

8. A golf club head including a body having a socket recessed through the forward face of the body, a removable face plate overlying said socket and provided with a tongue extending within the socket, and means coacting with said tongue binding the plate in position.

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