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 [22] Filed **Sept. 15, 1967**
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[54] **GOLF CLUB FACE PLATE**
9 Claims, 14 Drawing Figs.

[52] U.S. Cl. **273/173**
 [51] Int. Cl. **A63b 53/04**
 [50] Field of Search **273/173,**
172, 167(i), (G.F. Digest)

[56] **References Cited**
UNITED STATES PATENTS

1,546,612	7/1925	Barnes.....	273/173X
3,140,094	7/1964	Hings	273/80.3
3,172,667	3/1965	Baker et al.....	273/173
1,253,700	1/1918	McLaughlin	273/173
3,218,072	11/1965	Burr	273/173X

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 Assistant Examiner—Thomas Zack

ABSTRACT: A plastic golf club head is formed in two major parts, a body member and a faceplate. Complementary dovetail members are provided on the body member and faceplate so that the faceplate may be founded by sliding it onto the body member. To prevent movement therebetween when in position, a plastic insert plug is inserted in channels provided in both the body member and faceplate in mutual registry. One or more plugs and complementary channels may be utilized. The plugs may be of any desired cross section. However, when only one plug is utilized, it should preferably have a noncircular cross section such as rectangular to prevent rotational movement of the faceplate. Where two or more plugs are utilized, they may be of any cross section. A screw is inserted either through the faceplate and engaged by a threaded insert in the body member, or alternatively inserted through the body member and engaged in a threaded means provided either in the insert plug or in the body member. The structure permits ready changing of the faceplate to provide the club head with various striking contours and angles. The insert plugs are preferably of the same cross section as the entry ducts of the mold used for molding of the plastic heads, so that the "trees" from molding of the heads may be used for insert plugs. The plastic body for the golf club head and the plastic insert plug (or plugs) may both have glass fibers dispersed therein.

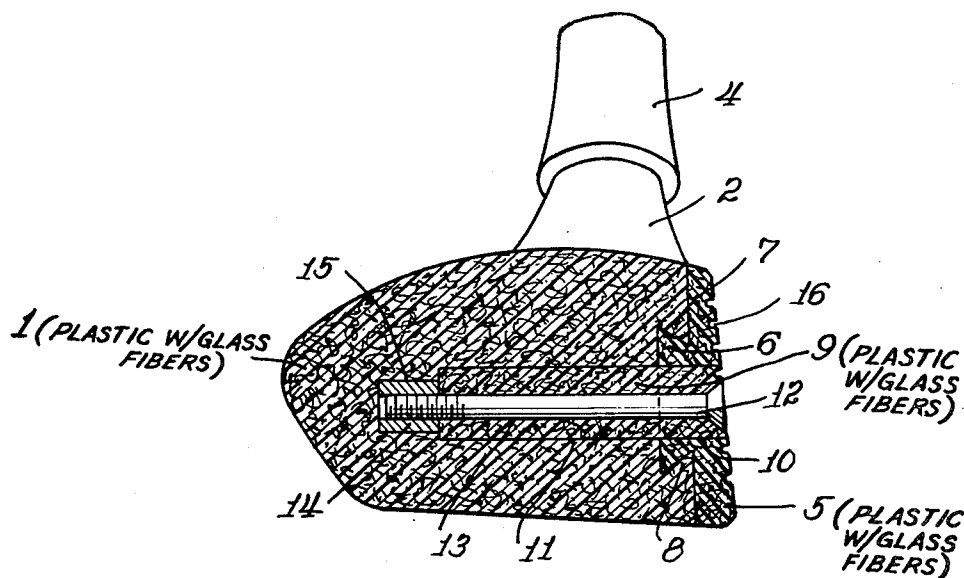


Fig. 1.

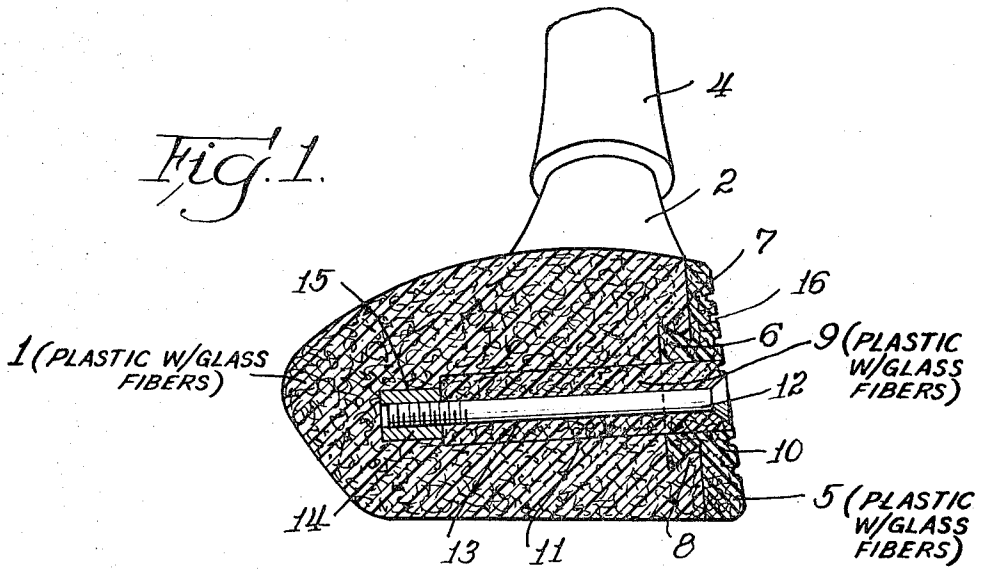


Fig. 2.

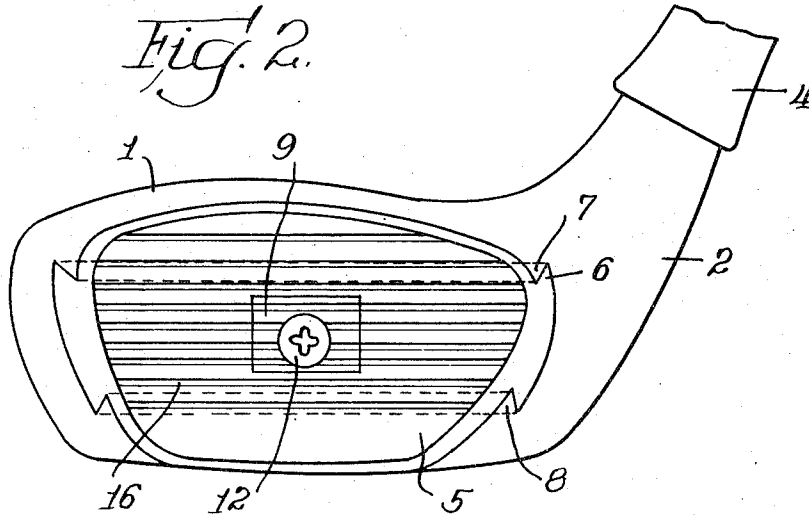
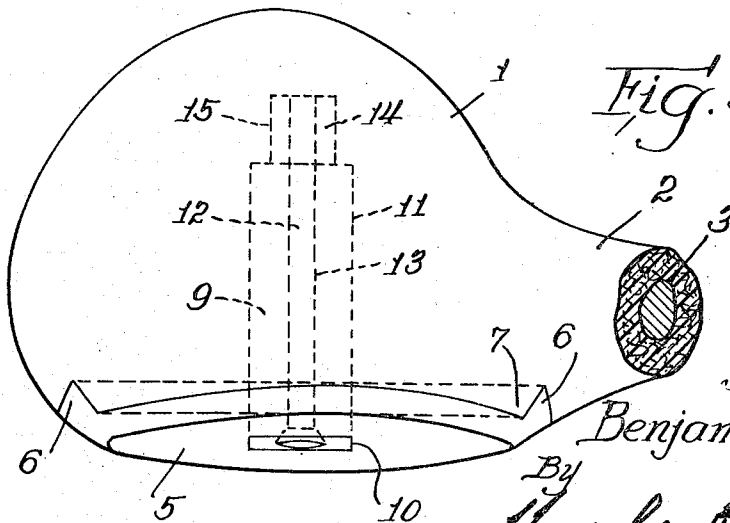


Fig. 3.



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Fig. 4.

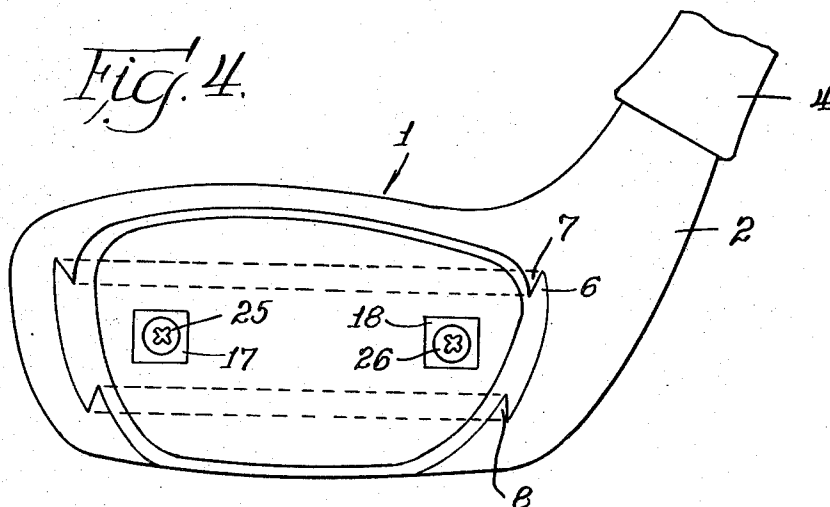


Fig. 5.

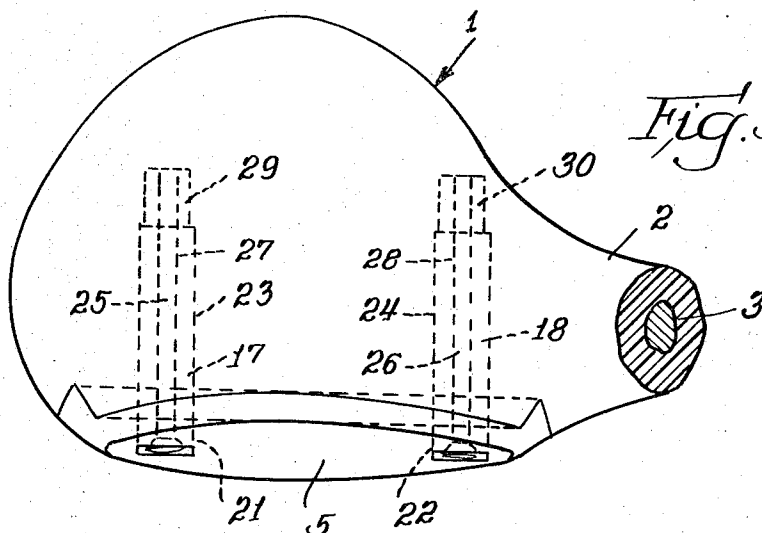
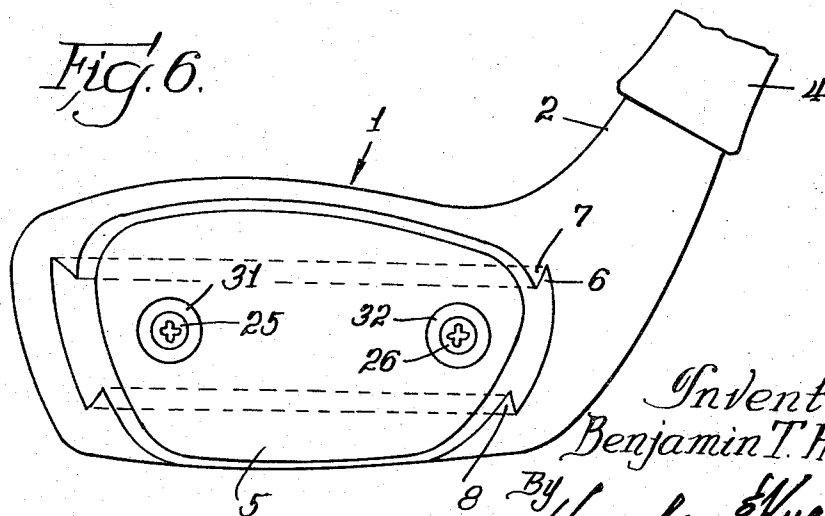


Fig. 6.



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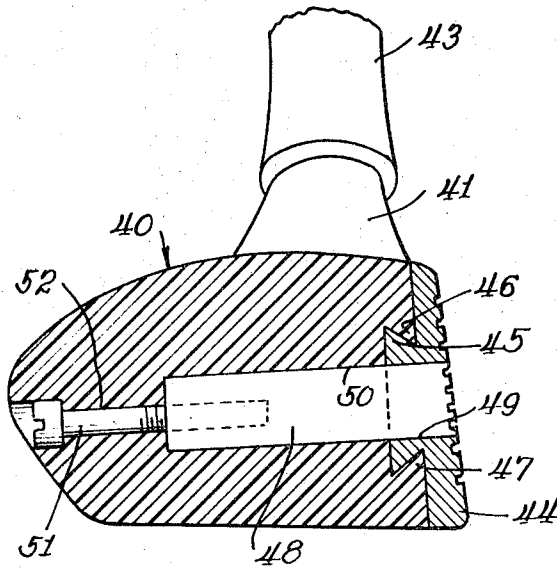


Fig. 7

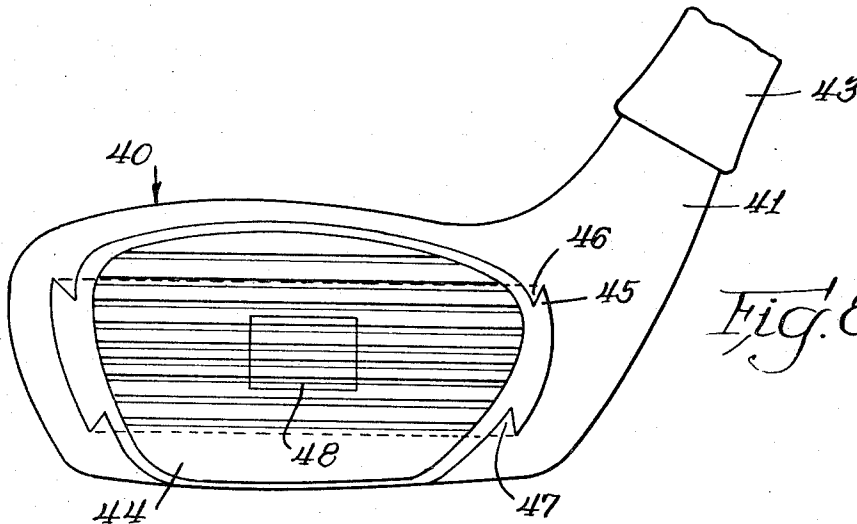


Fig. 8

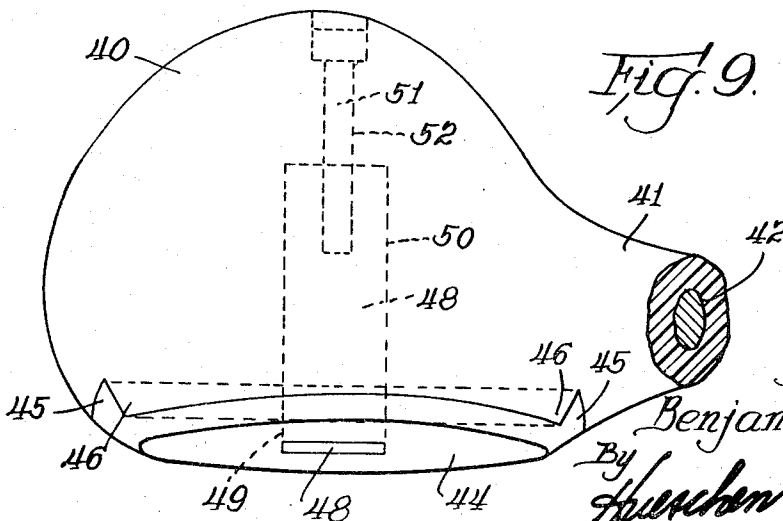
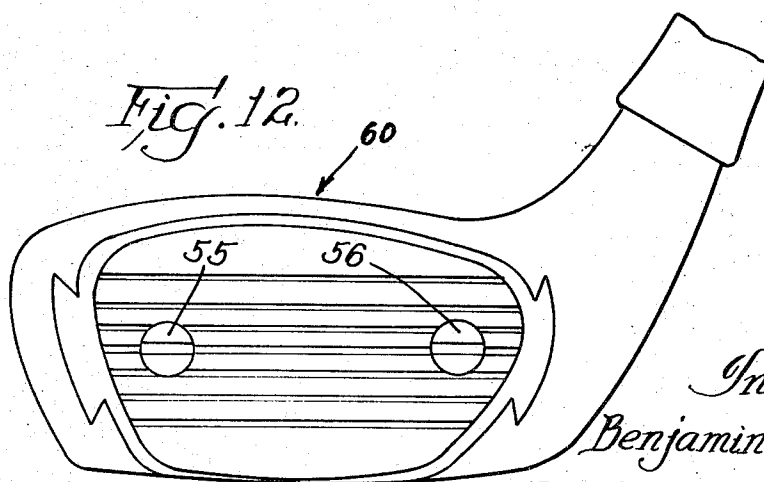
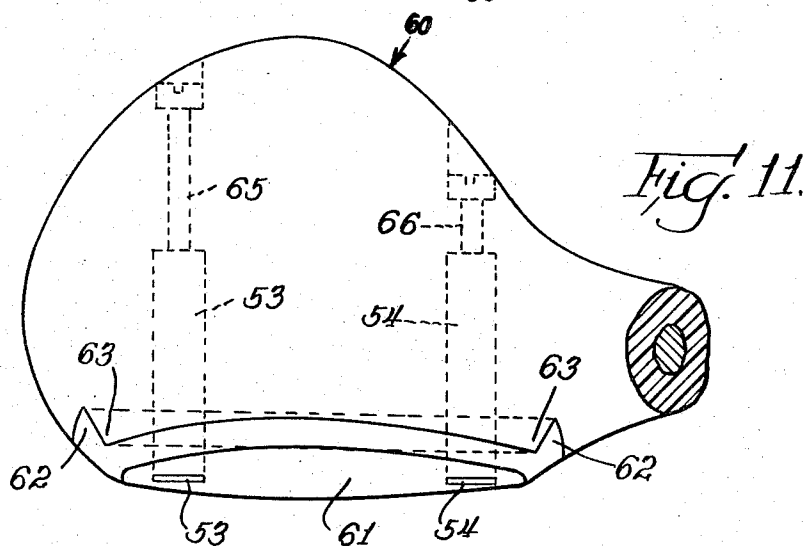
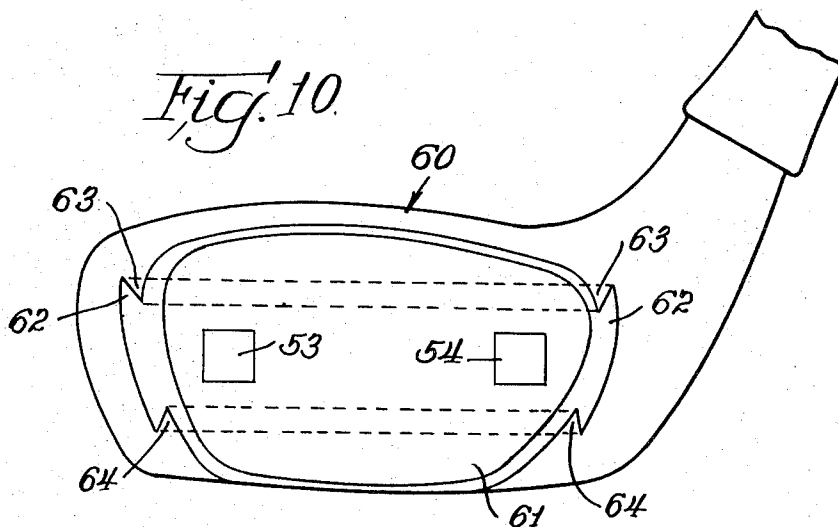
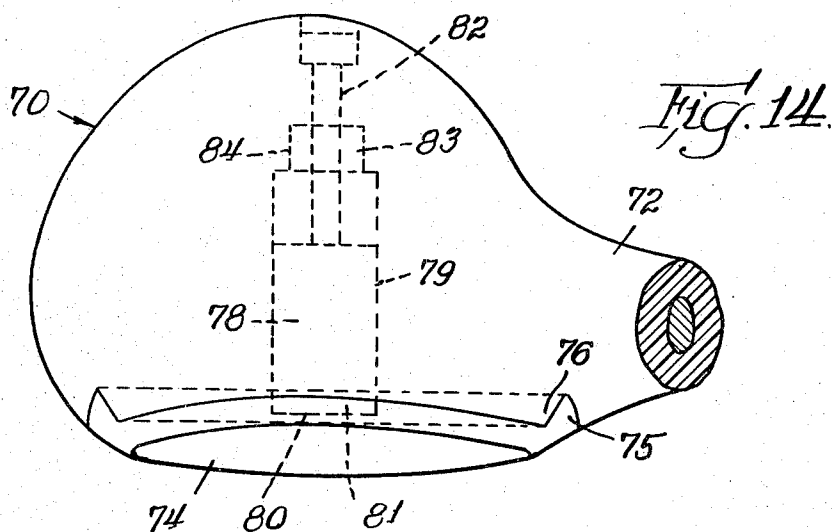
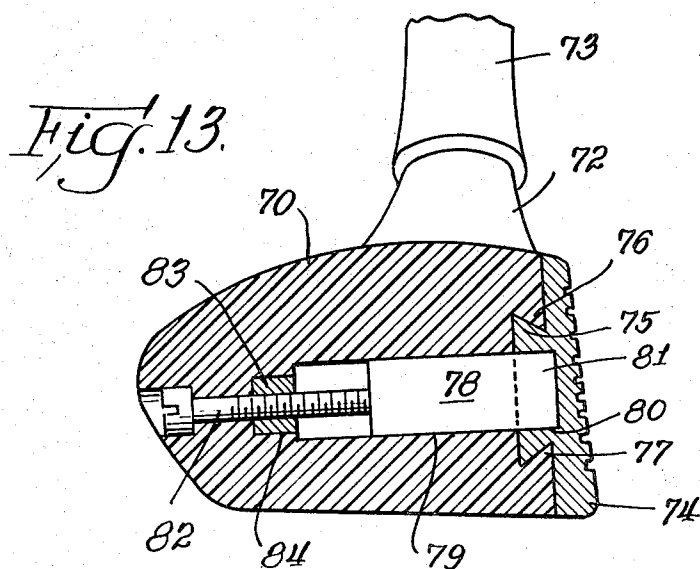


Fig. 9

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GOLF CLUB FACE PLATE

BACKGROUND OF THE INVENTION

Golf club heads of the wood-type, i.e., drivers, brassies and spoons, have in the past been manufactured of wood. Golfers of the so-called duffer-type generally purchase such clubs with preformed faces of standard slant or pitch and utilize them without modification. However, golfers of the expert, professional or semiprofessional classes are not satisfied with the standard pitches provided by the manufacturer and invariably require that the pitch or curvature of the club be tailored to suit their tastes and style of play. In the case of clubs actually made of wood, the striking face may be altered by grinding or sanding to the proper pitch, and the finish of the face subsequently restored without difficulty. More recently, golf clubs of the wood-type have been formed of moldable plastic materials. Such clubs have the advantage that they are more economical, stronger and more readily shaped since they may be formed automatically according to predetermined dimensions and forms. These clubs are suitable for use by those golfers who do not require reworking of the club face to their specifications. However, it has been found that club heads molded of plastic materials and particularly those containing glass fibers disposed through the plastic cannot be readily altered in pitch or shape of the striking face by simple processes as described above, since it is extremely difficult to restore a suitable finish to the altered surface in the plastic material after grinding or sanding. Moreover, to provide premolded clubs in all the various ranges of pitch and shape required by expert golfers would be prohibitively expensive.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a golf club head of the wood type which may be molded from suitable plastic materials. It is a further object to provide a golf club head of the type described comprised of a body member and a faceplate, which faceplate may be inexpensively molded in a large number of various pitches and contours and which faceplate may be readily affixed to the body member or detached therefrom. It is a further object to provide a golf club of the structure described wherein the faceplate may be securely affixed to the body portion by means of plastic plugs. It is an additional object to provide such a structure which is relatively inexpensive to produce. Additional objects will be apparent to one skilled in the art and still others will become apparent hereinafter.

According to the invention, a mold is provided having a mold cavity in which a body member for a golf club head of the wood type may be molded. A channel is provided in the body member into which a plug may be inserted. The inlet duct leading to the cavity mold is so dimensioned that the "tree" resulting from the molding process has a cross-sectional dimension adapted to serve as the plug and to be inserted in the channel provided in the body member. A faceplate is also molded from a suitable plastic. During the molding processes, the faceplate and the body member are provided with complementary dovetail members horizontally disposed. The club head is assembled by sliding the faceplate laterally onto the body member while engaging the dovetail members. The plastic insert plug formed from the mold "tree" and cut to proper length is inserted through complementary channels provided in both the faceplate and body member. The plug is affixed to the body member by suitable screw means. The resulting structure is a golf club head having a removable faceplate which may be molded to the proper pitch and contour, and which may be readily affixed in place and securely held, and readily removed and replaced by faceplates of other pitches and contours.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention in its preferred embodiment is illustrated by the accompanying drawings in which:

FIG. 1 is a cross-sectional view of a golf club head according to the present invention.

FIG. 2 is a side elevational view of the structure of FIG. 1.

FIG. 3 is a top view of the golf club head.

FIG. 4 is a side elevation of a golf club head of the invention having a modified fastening means.

FIG. 5 is a top view of the golf club head shown in FIG. 4.

FIG. 6 is a side elevational view of a golf club of the invention having a somewhat modified means for affixing the faceplate.

FIG. 7 is a cross-sectional view of another embodiment of the invention.

FIG. 8 is a side elevational view of the golf club head of FIG. 7.

FIG. 9 is a top view of the golf club head of FIG. 7.

FIG. 10 is a side elevational view showing modified means for affixing the faceplate.

FIG. 11 is a top view of the golf club head of FIG. 10.

FIG. 12 is a side elevational view of a club head similar to that of FIGS. 10 and 11, but having plugs of modified cross section.

FIG. 13 is a cross-sectional view of still another embodiment of the invention; and

FIG. 14 is a top view of the golf club head of FIG. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference is now made to the accompanying drawings for a better understanding of the invention, wherein all the parts are numbered and wherein the same numbers are used to refer to the same parts throughout.

Referring to FIGS. 1—3, a golf club is shown comprising a body member 1, a shank 2 having a bore 3 provided therein into which a shaft, not shown, is inserted and affixed by means of a binding 4. A faceplate 5 is mounted on the body member 1 by means of complementary dovetail members 6, 7, and 8, horizontally oriented. An insert plug 9 of rectangular cross section is positioned within channels 10 and 11 provided in the faceplate and body member, respectively. A screw 12 is positioned within a channel 13 provided in the plug 9 and threadedly engaged by a screw insert 14 affixed in a channel 15 provided in the body member 1. Conventional grooves 16 are provided in the striking surface of the faceplate 5 and the plug 9.

In the embodiment shown in FIGS. 1—3 the plug 9 has a rectangular cross section to prevent rotational movement of the faceplate. However, in a modified form shown in FIGS. 4—6, two separate plugs 17 and 18 are inserted in suitable channels 21, 22, 23, and 24 provided in the faceplate 5 and body member 1, respectively. The plugs 17 and 18 are affixed in place by means of screws 25 and 26 positioned in channels 27 and 28 provided in the plugs 17 and 18. The screws are threadedly engaged in screw inserts 29 and 30 imbedded within the body member 1. The plugs 17 and 18 may have rectangular cross sections as shown in FIGS. 4 and 5. Alternatively, plugs 31 and 32 of round cross section, shown in FIG. 6, may be utilized, the presence of the two spaced-apart plugs being effective in preventing rotation of the faceplate 5.

FIGS. 7—9 illustrate an alternative embodiment of the invention. In this embodiment, the club comprises a body member 40 having a shank 41, a shaft channel 42 and a binding 43. A faceplate 44 is mounted on the body member by means of complementary dovetail members 45, 46, and 47. A rectangular plug 48 is inserted in complementary channels 49 and 50 provided in the faceplate 44 and body member 40, respectively. In this embodiment the plug is maintained in place by means of a screw 51 disposed in channel 52 provided in the rear of the body member 40 and engaged in either threads or a threaded insert provided in the end of the plug 48.

FIGS. 10—12 illustrate forms of the embodiment of FIGS. 7—9 but using modified plug means. In FIGS. 10 and 11 two rectangular plugs 53 and 54 are utilized in spaced-apart relationship. Alternatively, plugs 55 and 56 of circular cross section as shown in FIG. 12 may be used, as can plugs of any of a large number of cross-sectional forms such as oval, triangular, etc. The remainder of the structure of FIGS. 10—12 is sub-

stantially the same and comprises a body member 60, faceplate 61, complementary dovetail members 62, 63 and 64 and screws 65 and 66 retaining the plugs 53 and 54, or 55 and 56, respectively.

Still another embodiment is shown in FIGS. 13 and 14. This embodiment is similar to that of FIGS. 7-9. In the embodiment of FIGS. 13 and 14, the club head comprises a body member 70, a shank 72, and a binding 73. A faceplate 74 is mounted on the body member 70 by means of complementary dovetail members 75, 76, and 77. An insert plug 78 is slidably positioned within a channel 79 provided in the body member 70 and a partial channel 80 provided in the faceplate 74. The channel 79 should be at least as long as the insert plug 78 so that, prior to assembling the faceplate, the plug may be entirely contained within the channel to a sufficient depth so that the end 81 of the plug is recessed below or flush with the end of the body member 70. This permits the faceplate to be mounted on the body member by means of the dovetail members without being impeded by the plug. In order to position the plug in place to engage the faceplate, a screw 82 is provided which is positioned in a suitable channel in the body member and engaging a screw insert 83 mounted in an enlarged channel 84 provided in the body member 70.

To mount the faceplate, the screw is retracted until the end 81 of the plug 78 has receded into the channel 79 so that said end no longer protrudes. The faceplate is then mounted in a manner similar to that described with respect to the other embodiments. The screw 82 is then turned inwardly until it forces the plug 78 into the channel 80 provided in the face plate, thereby affixing the faceplate in place. It is of course understood that plugs modified in form or number, as described above with regard to the previous embodiments, may also be utilized with respect to the embodiment of FIGS. 13 and 14.

The body member of the invention may be formed of any moldable plastic material, such as phenolic molding compounds, polypropylene, polycarbonate resins, epoxy resins, polyester resins, polyurethane resins, and many others known in the art. In order to enhance the strength of the body member, a molding compound containing randomly dispersed glass fibers may be utilized. Since, in the preferred method for forming the present golf club heads, the plugs are formed of the trees or flashing left over in the molding process, they will of course be of the same material as the body member. However, plugs may be formed separately and may then be of any suitable material, not necessarily the same as that of the body member.

The faceplate may be molded of the same material as the body member, or, alternatively, may be molded of a different compound. The material preferably but not necessarily contains glass fibers randomly disposed to increase the impact resistance of the material.

The golf club head of the present invention has many advantages over those known in the art. It has advantages over wooden heads in being stronger, less subject to cracking and chipping, and more readily prepared by molding. It has a number of advantages over even prior art club heads made of plastic materials in that an entire detachable faceplate is provided which is sufficiently inexpensive so that it may be molded by the manufacturer in a large variety of pitches and shapes. The correct preformed pitch may be chosen by the expert golfer, obviating the need for grinding the club head to the proper pitch. This is extremely important in the case of club heads made of plastic materials, since it is difficult to grind down such a club head and subsequently provide a

suitably finished surface. The invention provides a novel means for affixing the faceplate to the body member by a combination comprising complementary dovetail members and a plastic plug which is secured to the body member and disposed in a channel provided in the faceplate and prevents movement of the faceplate. Moreover, in the improved method for forming the body member, the mold for forming the body member is so arranged that the entry duct for the plastic material is contoured to the same cross-sectional dimensions as the channel which is provided in the body member for the plug, and the plug may then be formed from the tree as a byproduct of the molding process, thus reducing the cost of the plug.

The plug may be formed in any desirable shape. When a single plug is used it should preferably have a noncircular cross section, as for example rectangular, to prevent rotational movement of the faceplate. Where two plugs are used, they may be of any shape, including circular, since the presence of two spaced-apart plugs will in itself prevent rotational movement of the faceplate. The end of the plug should preferably complement the contour of the faceplate in the embodiments in which the plug end is exposed.

It is to be understood that the invention is not limited to the exact details of construction, operation, or exact materials or embodiments shown and described, as obvious modifications and equivalents will be apparent to one skilled in the art, and the invention is therefore to be limited only by the scope of the appended claims.

I claim:

1. A golf club head of the wood type having a body member and a faceplate each comprised of a plastic composition and contoured to provide complementary dovetail members slidably affixing said faceplate to said body member, said faceplate being provided with at least one opening transversely therethrough; a channel partially extending into said body member from the front thereof and situated so as to align with said opening in said faceplate; a screw insert means fixedly secured rearwardly of said channel; an insert plug provided with an axial aperture, adapted to be received by said channel slidably through said faceplate, and having an outer end flush with said faceplate; and screw means adapted to engage with said screw insert means, axially passing through said insert plug and through said faceplate substantially normal to the plane thereof.

2. A golf club head according to claim 1, wherein said complementary dovetail members are horizontally positioned.

3. A golf club head according to claim 2 wherein said screw means comprises a screw inserted through an aperture provided in said insert plug and engaged at its end by said screw insert means.

4. A golf club head according to claim 2 wherein said insert plug has a rectangular cross section.

5. A golf club head according to claim 2 having at least two insert plugs mounted in complementary channels provided in said faceplate and said body member.

6. A golf club head according to claim 5 where said insert plugs have a round cross section.

7. A golf club head according to claim 5 wherein said insert plugs have a rectangular cross section.

8. A golf club head according to claim 1 wherein both said body member and said insert plug are comprised of the same composition.

9. A golf club head according to claim 8 wherein said plastic composition has glass fibers dispersed therein.

SHK-6

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,547,445 Dated December 15, 1970

• Inventor(s) Benjamin T. Hardesty

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

[73] Assignee:

"Shakespeare Company
Kalamazoo, Michigan
a corporation of Michigan"

should read:

--Shakespeare Company
Kalamazoo, Michigan
a Delaware corporation--

(see Reel 2564, Frame 525, Certificate of Merger, recorded November 26, 1969)

Signed and sealed this 8th day of June 1971.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

WILLIAM E. SCHUYLER,
Commissioner of Paten