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(54) **HYBRID GOLF CLUB HEAD**

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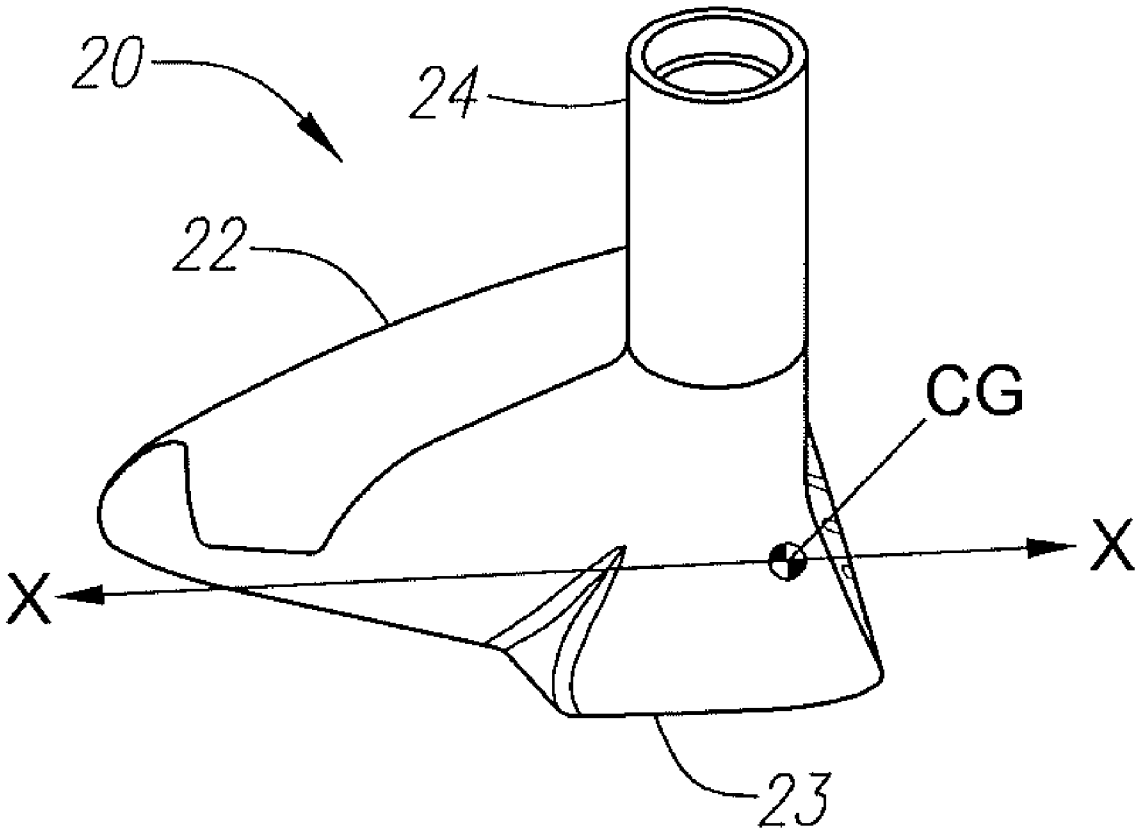
(52) **U.S. Cl.** **473/328**; 473/331; 473/349; 473/345

(57) **ABSTRACT**

A hybrid type golf club head is disclosed herein. The hybrid golf club head preferably has an increased heel/toe camber to minimize drag through rough when a golfer swings the hybrid golf club. A sole of the hybrid golf club head is relieved to allow for the face angle to open without the leading edge lifting too high.



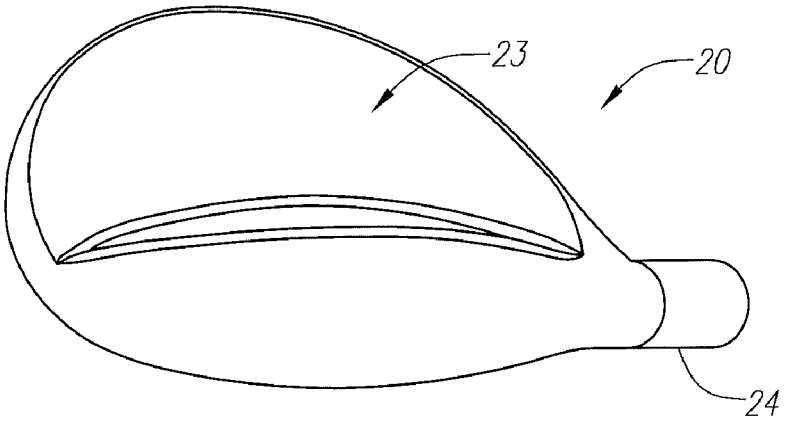


FIG. 1

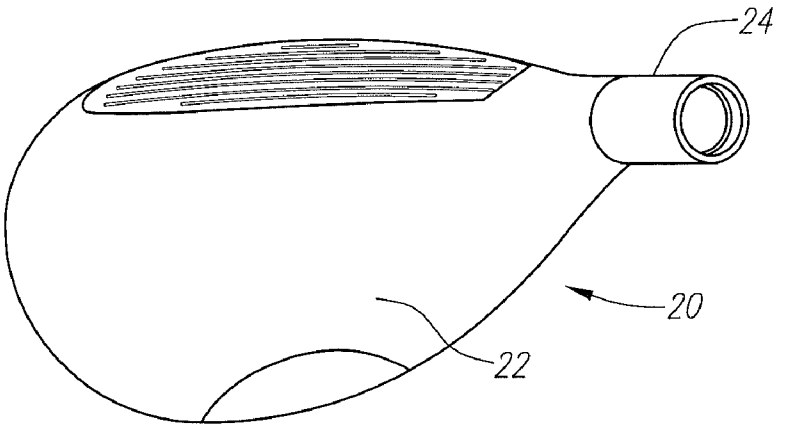


FIG. 2

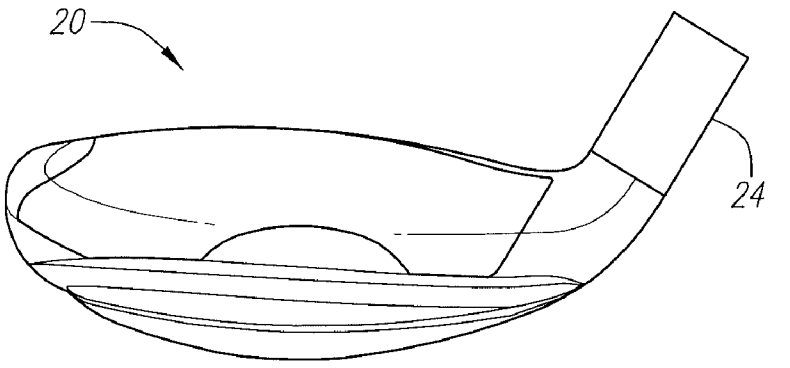
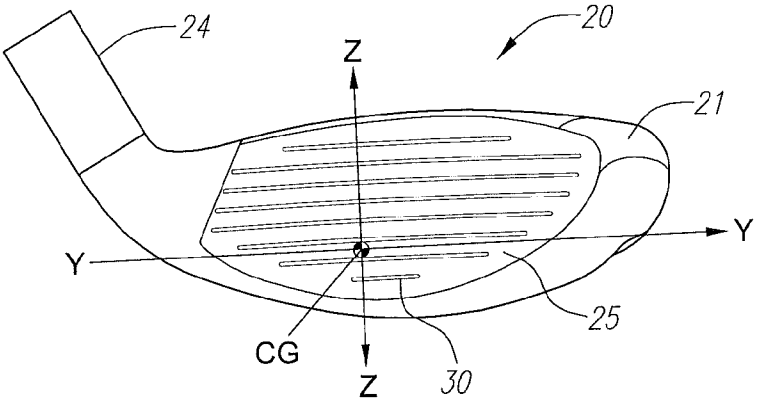


FIG. 3



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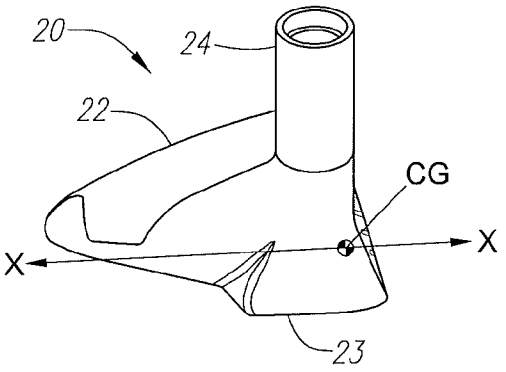

FIG. 5

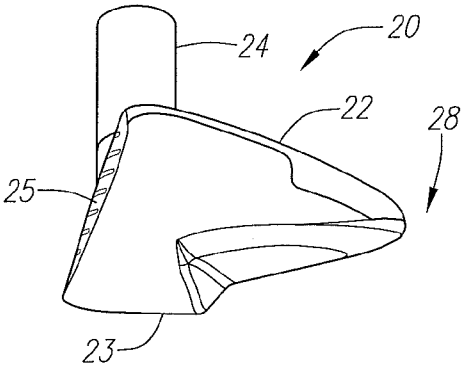

FIG. 6

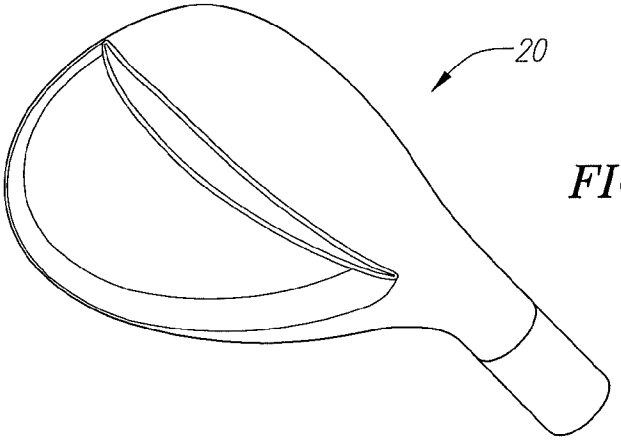

FIG. 7

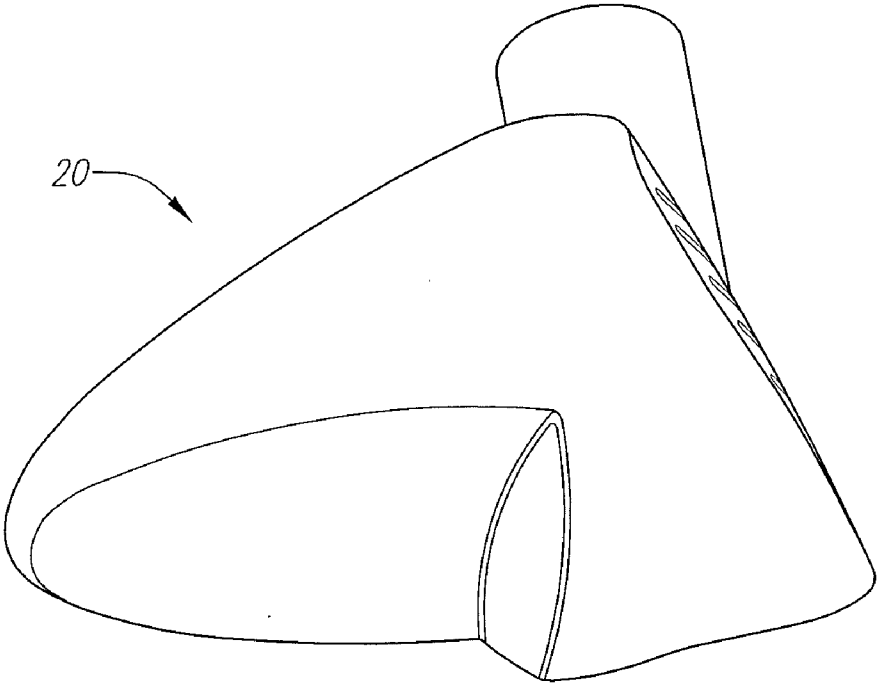

FIG. 8

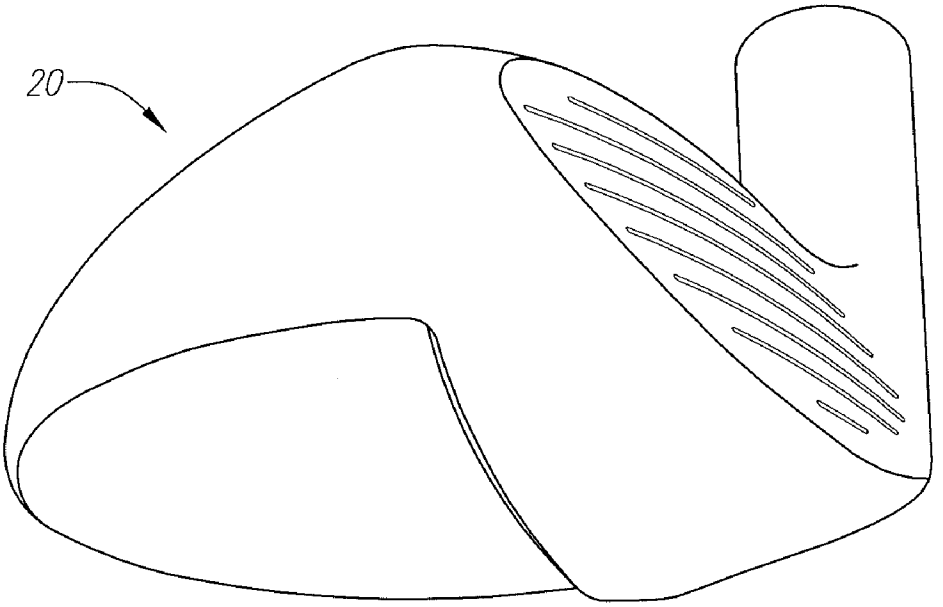

FIG. 9

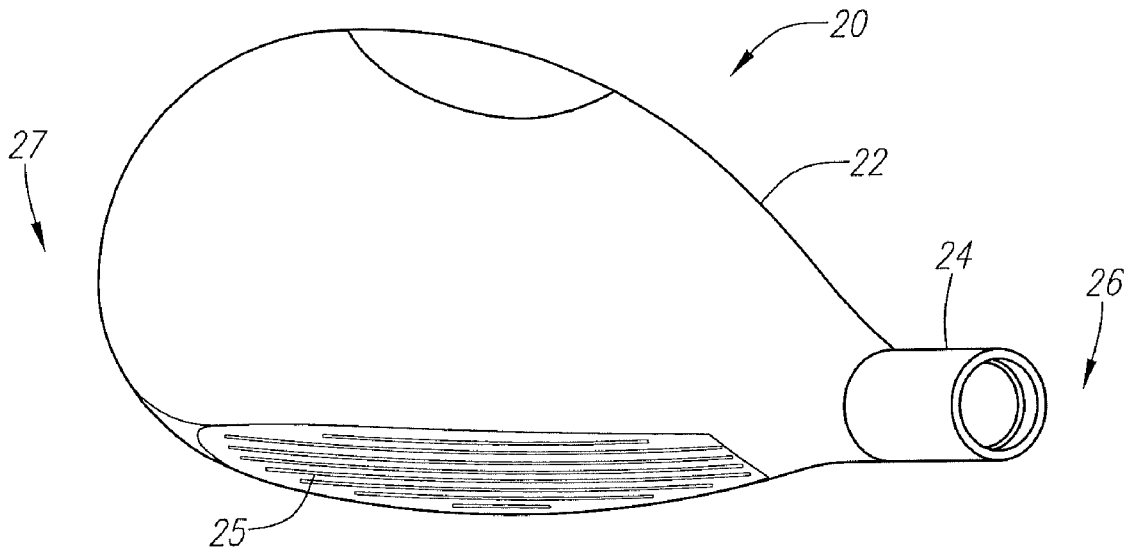

FIG. 10

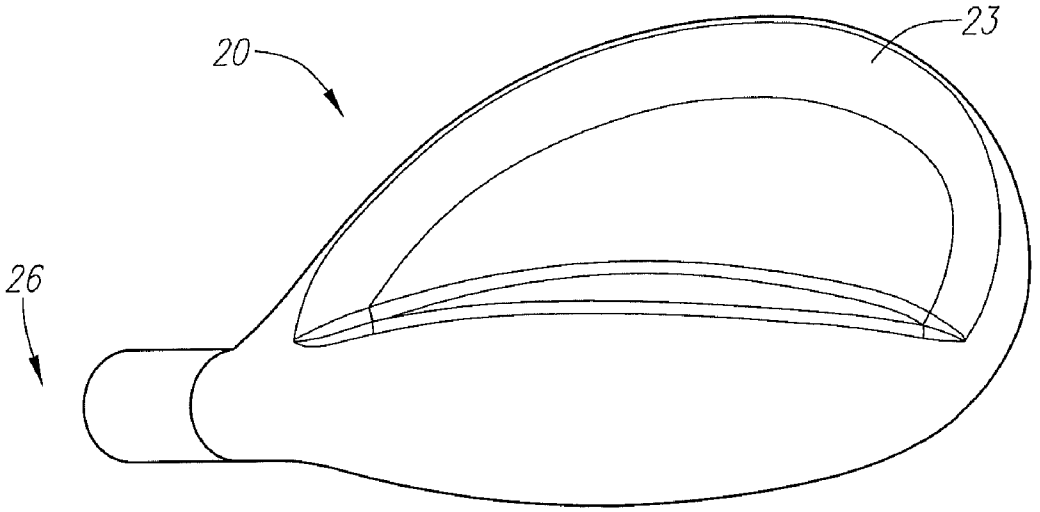

FIG. 11

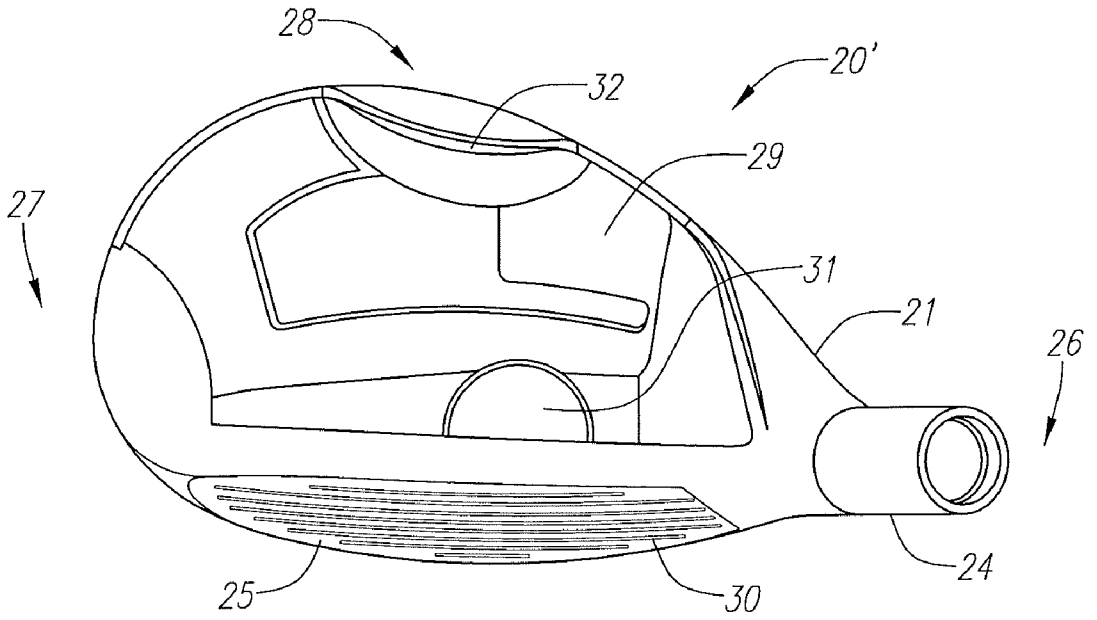

FIG. 12

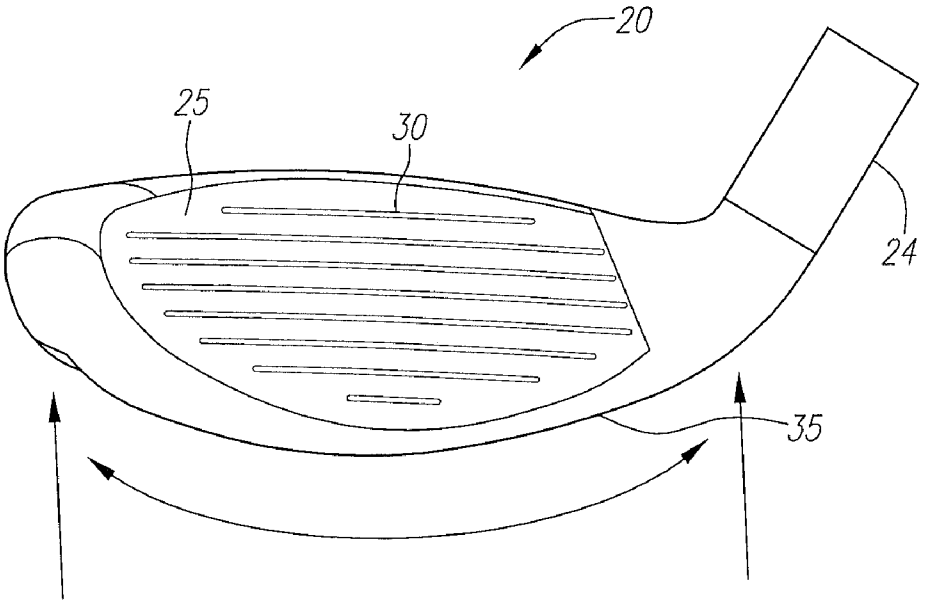

FIG. 13

HYBRID GOLF CLUB HEAD

CROSS REFERENCES TO RELATED APPLICATIONS

[0001] The present application claims priority to U.S. Provisional Patent Application No. 61/218,167, filed on Jun. 17, 2009, which is hereby incorporated by reference in its entirety.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

BACKGROUND OF THE INVENTION

[0003] 1. Field of the Invention

[0004] The present invention relates to a hybrid golf club head.

[0005] 2. Description of the Related Art

[0006] The prior art discloses many hybrid golf club heads.

[0007] The inventors wanted a hybrid that could play like an iron in the fairway and perform better from the rough. The inventors didn't like how the current hybrids would tend to hit "fliers" from the rough and lose backspin.

[0008] The inventors also wanted the golf club to slide easily through the grass and play from a variety of lies and face angles.

[0009] These features were not available in current hybrid golf clubs.

BRIEF SUMMARY OF THE INVENTION

[0010] In order to provide a hybrid with the desired qualities, the inventors moved the center of gravity forward and higher to give a trajectory more like an iron. The inventors also added iron grooves to help with grass & debris removal.

[0011] The inventors also designed the sole such that the leading edge wouldn't lift up when the face angle was very open.

[0012] One aspect of the present invention is a hybrid golf club head. The hybrid golf club head includes a body comprising a crown section, a sole section and a face section. The sole section is relieved to allow for a face angle to open without a leading edge lifting too high.

[0013] Another aspect of the present invention is a hybrid golf club head comprising a body comprising a crown section, a sole section and a face section with at least one of a plurality of scorelines placed high on the face section.

[0014] Yet another aspect of the present invention is a hybrid golf club head comprising a body comprising a crown section, a sole section and a face section with the body having an increased heel/toe camber to minimize drag through rough during a golf swing.

[0015] Yet another aspect of the present invention is a hybrid golf club head comprising a body comprising a crown section, a sole section and a face section with the body having a forward center of gravity.

[0016] Yet another aspect of the present invention is a hybrid golf club head comprising a body comprising a crown section, a sole section and a face section with a mass placed rearward on an interior of the sole section to increase the moment of inertia of the body.

[0017] The body is preferably composed of a stainless steel material. The body is alternatively composed of a titanium alloy material.

[0018] The hybrid golf club head preferably has a loft angle ranging from 18 degrees to 28 degrees. The hybrid golf club head preferably has a volume less than 200 cubic centimeters.

[0019] The hybrid golf club head preferably has a volume ranging from 50 to 150 cubic centimeters. The hybrid golf club head more preferably has a volume ranging from 60 to 100 cubic centimeters. The hybrid golf club head most preferably has a volume ranging from 70 to 90 cubic centimeters.

[0020] The hybrid golf club head preferably has a mass ranging from 210 grams to 240 grams.

[0021] The hybrid golf club head preferably has a moment of inertia Izz about a center of gravity ranging from 2000 to 3000 grams-centimeters squared. The hybrid golf club head more preferably has a moment of inertia Izz about a center of gravity ranging from 2300 to 2700 grams-centimeters squared.

[0022] The hybrid golf club head preferably has a moment of inertia Ixx about a center of gravity ranging from 1900 to 2500 grams-centimeters squared. The hybrid golf club head more preferably has a moment of inertia Ixx about a center of gravity ranging from 2100 to 2300 grams-centimeters squared.

[0023] Having briefly described the present invention, the above and further objects, features and advantages thereof will be recognized by those skilled in the pertinent art from the following detailed description of the invention when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0024] FIG. **1** is a bottom plan view of a hybrid golf club head.

[0025] FIG. **2** is a top plan view of the hybrid golf club head of FIG. **1**.

[0026] FIG. **3** is a rear elevational view of the hybrid golf club head of FIG. **1**.

[0027] FIG. **4** is a front elevational view of the hybrid golf club head of FIG. **1**.

[0028] FIG. **5** is a heel side view of the hybrid golf club head of FIG. **1**.

[0029] FIG. **6** is toe side view of the hybrid golf club head of FIG. **1**.

[0030] FIG. **7** is a bottom perspective view of a hybrid golf club head.

[0031] FIG. **8** is a side perspective view of the hybrid golf club head of FIG. **7**.

[0032] FIG. **9** is a side perspective view of the hybrid golf club head of FIG. **7**.

[0033] FIG. **10** is a top plan view of the hybrid golf club head of FIG. **7**.

[0034] FIG. **11** is a bottom plan view of the hybrid golf club head of FIG. **7**.

[0035] FIG. **12** is a top plan view of a hybrid golf club head with a crown section removed to illustrate a hollow interior of the hybrid golf club head.

[0036] FIG. **13** is a front plan view of the hybrid golf club head of FIG. **7**.

DETAILED DESCRIPTION OF THE INVENTION

[0037] As shown in FIGS. **1-12**, the hybrid golf club head **20** has a body **21**, a crown section **22**, a sole section **23**, a hosel **24** and a face **25**. A heel end **26** of the hybrid golf club head **20**

is located on the side with the hosel **24** and a toe end **27** of the hybrid golf club head **20** opposes the heel end **26**.

[0038] The body **21** is preferably composed of a stainless steel material. Alternatively, the body **21** is composed of another iron alloy material, a titanium alloy, an aluminum alloy material or the like.

[0039] The hybrid golf club head **20** preferably has a hollow interior **29** as shown in FIG. **12**. A first mass **31** is placed forward near the face **25** to position the CG forward. A second mass **32** is placed on a rear end **28** of the interior of the sole section **23** to increase the moment of inertia.

[0040] The hybrid golf club head **20** has scorelines **30** placed high on the face to help with debris removal. The hybrid golf club head **20** also preferably has an iron scoreline profile, which is most preferably machined V grooves.

[0041] As shown in FIG. **13**, the hybrid golf club head **20** preferably has an increased heel/toe camber **35** to minimize drag through rough when a golfer swings the hybrid golf club.

[0042] The shape of sole section **23** has C-grind for relief in the heel and toe. This provides a narrower sole in the fairway so the club takes divots more like an iron. The C-grind also allows for more versatility with a wide range of face angles.

[0043] As shown in FIGS. **8** and **9**, the sole section **23** was relieved to allow for the face angle to open without the leading edge lifting too high. In prior art hybrid golf club heads, the back end would normally hit and quickly lift the leading edge as a golfer tried to open the face. The hybrid golf club head **20** overcomes this problem by providing a relieved sole section **23**. The dimension from a face **25** to a rear end **29** of the hybrid golf club head **20** was reduced to also allow for the face angle to open without the leading edge lifting too high.

TABLE ONE

Property	Value
Loft	18 degrees
Lie	58.8 degrees
Bulge	12.5
Roll	12.0
Mass	228 grams
CG location X	0.386 inch
CG location Y	1.084 inches
CG location Z	0.723 inch
Moment of inertia about CG, Ixx	2255 g-cm2
Moment of inertia about CG, Izz	2490
Moment of inertia about CG, Iyy	639

[0044] Table One illustrates mass properties for a preferred embodiment of the hybrid golf club **20**. A more thorough explanation of the moment of inertia measurements is explained in Murphy et al., U.S. Pat. No. 7,387,577, which is hereby incorporated by reference in its entirety. As shown in FIGS. **4** and **5**, the Z axis lies in a crown section **22** to a sole section **23** direction, the X axis lies in a front to rear direction, and the Y axis lies in a heel to tow direction.

[0045] From the foregoing it is believed that those skilled in the pertinent art will recognize the meritorious advancement of this invention and will readily understand that while the present invention has been described in association with a preferred embodiment thereof, and other embodiments illustrated in the accompanying drawings, numerous changes, modifications and substitutions of equivalents may be made therein without departing from the spirit and scope of this invention which is intended to be unlimited by the foregoing except as may appear in the following appended claims. Therefore, the embodiments of the invention in which an exclusive property or privilege is claimed are defined in the following appended claims.

We claim as our invention the following:

1. A hybrid golf club head comprising:

a body comprising a crown section, a sole section and a face section;

wherein the sole section is relieved to allow for a face angle to open without a leading edge lifting too high.

2. The hybrid golf club head according to claim **1** wherein the face section has a plurality of scorelines, and at least one of the plurality of scorelines is placed high on the face section.

3. The hybrid golf club head according to claim **1** wherein the body has an increased heel/toe camber to minimize drag through rough during a golf swing.

4. The hybrid golf club head according to claim **1** wherein the body has a forward center of gravity.

5. The hybrid golf club head according to claim **1** wherein a mass is placed rearward on an interior of the sole section to increase a moment of inertia of the body.

6. The hybrid golf club head according to claim **1** wherein the body is composed of a stainless steel material.

7. The hybrid golf club head according to claim **1** wherein the body is composed of a titanium alloy material.

8. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a loft angle ranging from 18 degrees to 28 degrees.

9. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a volume less than 200 cubic centimeters.

10. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a volume ranging from 50 to 150 cubic centimeters.

11. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a volume ranging from 60 to 100 cubic centimeters.

12. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a volume ranging from 70 to 90 cubic centimeters.

13. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a mass ranging from 210 grams to 240 grams.

14. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a moment of inertia Izz about a center of gravity ranging from 2000 to 3000 grams-centimeters squared.

15. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a moment of inertia Izz about a center of gravity ranging from 2300 to 2700 grams-centimeters squared.

16. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a moment of inertia Ixx about a center of gravity ranging from 1900 to 2500 grams-centimeters squared.

17. The hybrid golf club head according to claim **1** wherein the hybrid golf club head has a moment of inertia Ixx about a center of gravity ranging from 2100 to 2300 grams-centimeters squared.

18. A hybrid golf club head comprising:

a body comprising a crown section, a sole section and a face section, the body composed of a stainless steel material;

wherein the hybrid golf club head has a volume ranging from 70 to 90 cubic centimeters;

wherein the hybrid golf club head has a mass ranging from 210 grams to 240 grams;

wherein the hybrid golf club head has a loft angle ranging from 18 degrees to 28 degrees;

wherein the hybrid golf club head has a moment of inertia Izz about a center of gravity ranging from 2300 to 2700 grams-centimeters squared and a moment of inertia Ixx about a center of gravity ranging from 1900 to 2500 grams-centimeters squared;

wherein a center of gravity of the hybrid golf club head is forward of a hosel of the hybrid golf club head.

19. The hybrid golf club head according to claim **1** wherein the face section comprises a plurality of scorelines having V-shaped grooves.

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