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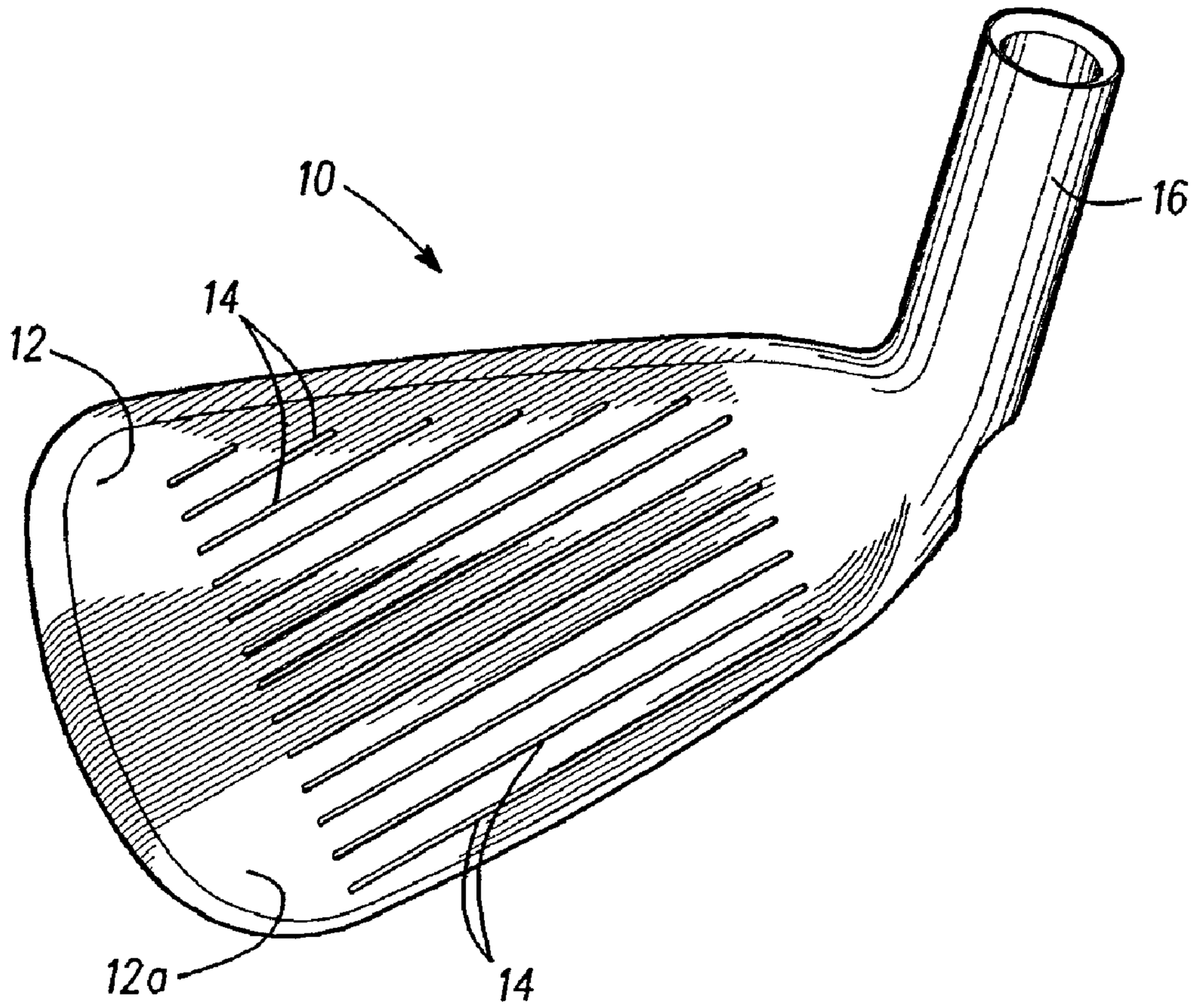
(54) Titre : TETES DE BATONS DE GOLF EN FER AVEC DIMENSIONS D'EPAISSEUR DE PAROI VERS L'AVANT VARIABLES

(54) Title: IRON-TYPE GOLF CLUB HEADS WITH VARIABLE FORWARD WALL THICKNESS DIMENSIONS



(57) Abrégé/Abstract:
A set of at least three iron-type golf club heads where each golf club head includes a forward wall having a front surface arranged for impacting a golf ball, a back surface disposed generally parallel to the front surface and a thickness dimension measured

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(57) Abrégé(suite)/Abstract(continued):
between the front and back surfaces. A rearward wall is spaced from the forward wall, and a pocket is defined between the back surface of the forward wall and an inner surface of the rearward wall. A weight member is disposed in the pocket. The forward wall thickness dimension of a first golf club head with a medium loft angle such as a six iron is greater than the forward wall thickness dimension of a second golf club head with a low loft angle such as a three iron but less than the forward wall thickness dimension of a third golf club head with a high loft angle such as a nine iron.

ABSTRACT OF THE DISCLOSURE

A set of at least three iron-type golf club heads where each golf club head includes a forward wall having a front surface arranged for impacting a golf ball, a back surface disposed generally parallel to the front surface and a thickness dimension measured between the front and back surfaces. A rearward wall is spaced from the forward wall, and a pocket is defined between the back surface of the forward wall and an inner surface of the rearward wall. A weight member is disposed in the pocket. The forward wall thickness dimension of a first golf club head with a medium loft angle such as a six iron is greater than the forward wall thickness dimension of a second golf club head with a low loft angle such as a three iron but less than the forward wall thickness dimension of a third golf club head with a high loft angle such as a nine iron.

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Inventors: *Michael R. Nicolette*
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Bradley D. Schweigert

IRON-TYPE GOLF CLUB HEADS WITH VARIABLE FORWARD WALL THICKNESS DIMENSIONS

BACKGROUND OF THE INVENTION

This invention relates generally to golf equipment and, in particular, to a set of iron-type golf club heads with variable forward wall thickness dimensions.

U.S. Patent No. 6,206,790 to Kubica et al discloses a golf club head having a perimeter weighting element that defines a primary cavity in a back face of the club head. An interior wall extends through the primary cavity and defines a secondary cavity within the primary cavity. A weight member is disposed in the secondary cavity.

U.S. Patent No. 6,921,344 to Gilbert et al discloses a golf club head having a back flange connected to a strike face. A light weight insert is disposed between the back flange and the strike face and contacts both of them. The light weight insert includes a protrusion or nub that fits in a notch in the back flange.

U.S. Patent No. 5,413,336 to Iwanaga discloses a set of iron golf clubs where the golf clubs have faces that vary in thickness. As the loft angles of the faces increase from the lower numbered clubs to the higher numbered clubs, the face thicknesses increase. For example, the face thickness of a three iron is less than the face thickness of a six iron, and the six iron face thickness is less than the face thickness of a nine iron.

U.S. Patent No. 5,643,103 to Aizawa discloses a golf club set including iron golf clubs with face plates that vary in thickness. The face plate thicknesses increase from the short irons to the middle and long irons. For example, the face plate thickness of a short iron such as a nine iron will be less than the face plate thickness of a middle iron such as a six iron, and the face plate thickness of the six iron will be less than the face plate thickness of a long iron such as a three iron.

SUMMARY OF THE INVENTION

The present invention provides a set of at least two iron-type golf club heads. Each golf club head includes a forward wall having a front surface arranged for impacting a golf ball, a back surface disposed generally parallel to the front surface and a thickness dimension measured between the front and back surfaces. A rearward wall is spaced from the forward wall. The rearward wall has an inner surface and an outer surface. A pocket is defined between the back surface of the forward wall and the inner surface of the rearward wall. The forward wall thickness dimension of one of the golf club heads is greater than the forward wall thickness dimension of the other golf club head.

Each golf club head has a weight member disposed in its pocket. These weight members each have a first side surface adjacent the back surface of the front wall and a second side surface adjacent the inner surface of the rear wall. The first side surface of the weight member is a first distance away from the front surface of the front wall in one of the golf club head. The first side surface of the weight member is a second distance away from the front surface of the front wall in the other golf club head. The first distance is greater than the second distance.

The present invention also provides a set of at least first, second and third iron-type golf club heads. Each golf club head includes a forward wall having a front surface arranged for impacting a golf ball, a back surface disposed generally parallel to the front surface and a thickness dimension measured between the front and back surfaces. A rearward wall is spaced from the forward wall. The rearward wall has an inner surface and an outer surface. A pocket is defined between the back surface of the forward wall and the inner surface of the rearward wall. The forward wall thickness dimension of the first golf club head is greater than the forward wall thickness dimension of the second golf club head but less than the forward wall thickness dimension of the third golf club head.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of an iron-type golf club head such as a six iron according to the present invention;

FIG. 2 is a rear perspective view of the iron-type golf club head shown in FIG. 1;

FIG. 3 is an exploded view of the iron-type golf club head shown in FIG. 1;

FIG. 4A is a sectional view taken along the lines 4-4 in FIG. 3;

FIG. 4B is a sectional view, similar to FIG. 4A, of another iron-type golf club head such as a three iron;

FIG. 4C is a sectional view, similar to FIG. 4A, of a further iron-type golf club head such as a nine iron;

FIG. 5 is a top perspective view of a weight member in the iron-type golf club head of FIG. 1; and

FIG. 6 is an end view of the weight member shown in FIG. 5.

DESCRIPTION OF THE INVENTION

Referring to FIGS. 1-3, an iron-type golf club head 10 with a medium loft angle such as a six iron is preferably made of a suitable metal such as stainless steel. The golf club head 10 includes a forward wall 12 having a front surface 12a and a back surface 12b. The front surface 12a is arranged for impacting a golf ball, and the back surface 12b is disposed generally parallel to the front surface 12a. A plurality of grooves 14 are formed in the front surface 12a. A hosel 16 is provided for receiving one end of a golf club shaft (not shown).

The golf club head 10 also includes a rearward wall 18 spaced from and generally parallel to the forward wall 12. The rearward wall 18 has an inner surface 18a and an outer surface 18b. A pocket 20 is defined between the back surface 12b of the forward wall 12 and the inner surface 18a of the rearward wall 18. A weight member 22, preferably made of a plastic material such as polyurethane, is disposed in the pocket 20. The weight member 22 has a first side surface 22a adjacent the back surface 12b of the forward wall 12 and a second side surface 22b adjacent the inner surface 18a of the rearward wall 18. Double-sided adhesive tape or a liquid adhesive is applied to the first and second side surfaces 22a, 22b of the weight member 22 to secure the weight member 22 in the pocket 20. The weight member 22 includes a lip 23 that partially overhangs the rearward wall 18.

As seen in FIGS. 4A, 4B and 4C, the forward wall 12 has a thickness dimension T measured between the front and back surfaces 12a, 12b at point P. The first side surface 22a of the weight member 22 is spaced a distance D away from the front surface 12a of the forward wall

12. When comparing the golf club heads 10 shown in FIGS. 4A, 4B and 4C, it will be understood that the forward wall thickness dimension T in the golf club head 10 with a medium loft angle shown FIG. 4A is greater than the forward wall thickness dimension T in the golf club head 10 with a low loft angle shown in FIG. 4B but less than the forward wall thickness dimension T in the golf club head 10 with a high loft angle shown in FIG. 4C. A comparison of the golf club heads 10 shown in FIGS. 4A, 4B and 4C also reveals that the distance D is greater in the golf club head 10 of FIG. 4A than in the golf club head 10 of FIG. 4B but less than the distance D in the golf club head 10 of FIG. 4C. It will also be understood that the center of gravity in the golf club head 10 shown in FIG. 4A is closer to the front surface 12a of the forward wall 12 than in the golf club head 10 shown in FIG. 4B but farther away from the front surface 12a of the forward wall 12 than in the golf club head 10 shown in FIG. 4C.

FIGS. 4A, 4B and 4C illustrate the differences in forward wall thickness dimensions T between golf club heads 10 in a set of iron-type golf club heads according to the present invention. Assuming that the golf club head 10 shown in FIG. 4A is a six iron, the forward wall thickness dimension T would be 0.153 inch. If the golf club head 10 shown in FIG. 4B is a three iron, the forward wall thickness dimension T would be 0.144 inch. Finally, if the golf club head 10 shown in FIG. 4C is a nine iron, the forward wall thickness dimension T would be 0.159 inch.

As seen in FIG. 2, it will be understood that the back surface 12b of the forward wall 12 includes two recesses 13 which are located above the weight member 22. The depths of the recesses 13 remains substantially constant as the thickness dimension T of the forward wall 12 varies in a set of iron-type golf club heads according to the present invention.

What is claimed is:

1. A set of at least two iron-type golf club heads, wherein:

each golf club head includes a forward wall having a front surface arranged for impacting a golf ball, a back surface disposed generally parallel to the front surface and a thickness dimension measured between the front and back surfaces, a rearward wall spaced from said forward wall, said rearward wall has an inner surface and an outer surface, a pocket defined between the back surface of said forward wall and the inner surface of said rearward wall; and

the forward wall thickness dimension of one of the golf club heads is greater than the forward wall thickness dimension of the other golf club head.

2. The set of at least two iron-type golf club heads of claim 1, wherein each golf club head has a weight member disposed in said pocket.

3. The set of at least two iron-type golf club heads of claim 2, wherein said weight member in each golf club head has a first side surface adjacent the back surface of said front wall and a second side surface adjacent the inner surface of said rear wall.

4. The set of at least two iron-type golf club heads of claim 3, wherein:

the first side surface of the weight member is a first distance away from the front surface of said front wall in said one golf club head;

the first side surface of the weight member is a second distance away from the front surface of said front wall in said other golf club head; and

said first distance is greater than said second distance.

5. The set of at least two iron-type golf club heads of claim 4, wherein:

each golf club head has a center of gravity; and

the center of gravity is closer to the front surface of said front wall in said one golf club head than in said other golf club head.

6. A set of at least first, second and third iron-type golf club heads, wherein:

each golf club head includes a forward wall having a front surface arranged for impacting a golf ball, a back surface disposed generally parallel to the front surface and a thickness dimension measured between the front and back surfaces, a rearward wall spaced from said forward wall, said rearward wall has an inner surface and an outer surface, a pocket defined between the back surface of said forward wall and the inner surface of said rearward wall; and

the forward wall thickness dimension of the first golf club head is greater than the forward wall thickness dimension of the second golf club head but less than the forward wall thickness dimension of the third golf club head.

7. The set of at least first, second and third iron-type golf club heads of claim 6, wherein each golf club head has a weight member disposed in said pocket.

8. The set of at least first, second and third iron-type golf club heads of claim 7, wherein said weight member in each golf club head has a first side surface adjacent the back surface of said front wall and a second side surface adjacent the inner surface of said rear wall.

9. The set of at least first, second and third iron-type golf club heads of claim 8, wherein:

the first side surface of the weight member is a first distance away from the front surface of said front wall in said first golf club head;

the first side surface of the weight member is a second distance away from the front surface of said front wall in said second golf club head;

the first side surface of the weight member is a third distance away from the front surface of said front wall in said third golf club head; and

said first distance is greater than said second distance but less than said third distance.

10. The set of at least first, second and third iron-type golf club heads of claim 9, wherein:

each golf club head has a center of gravity; and

the center of gravity is closer to the front surface of said front wall in said first golf club head than in said second golf club head but farther away from the front surface of said front wall than in said third golf club head.

11. The set of at least first, second and third iron-type golf club heads of claim 10, wherein said first golf club head has a medium loft angle, wherein said second golf club head has a low loft angle, and wherein said third golf club head has a high loft angle.

12. The set of at least first, second and third iron-type golf club heads of claim 10, wherein said first golf club head is a six iron, wherein said second golf club head is a three iron, and wherein said third golf club head is a nine iron.

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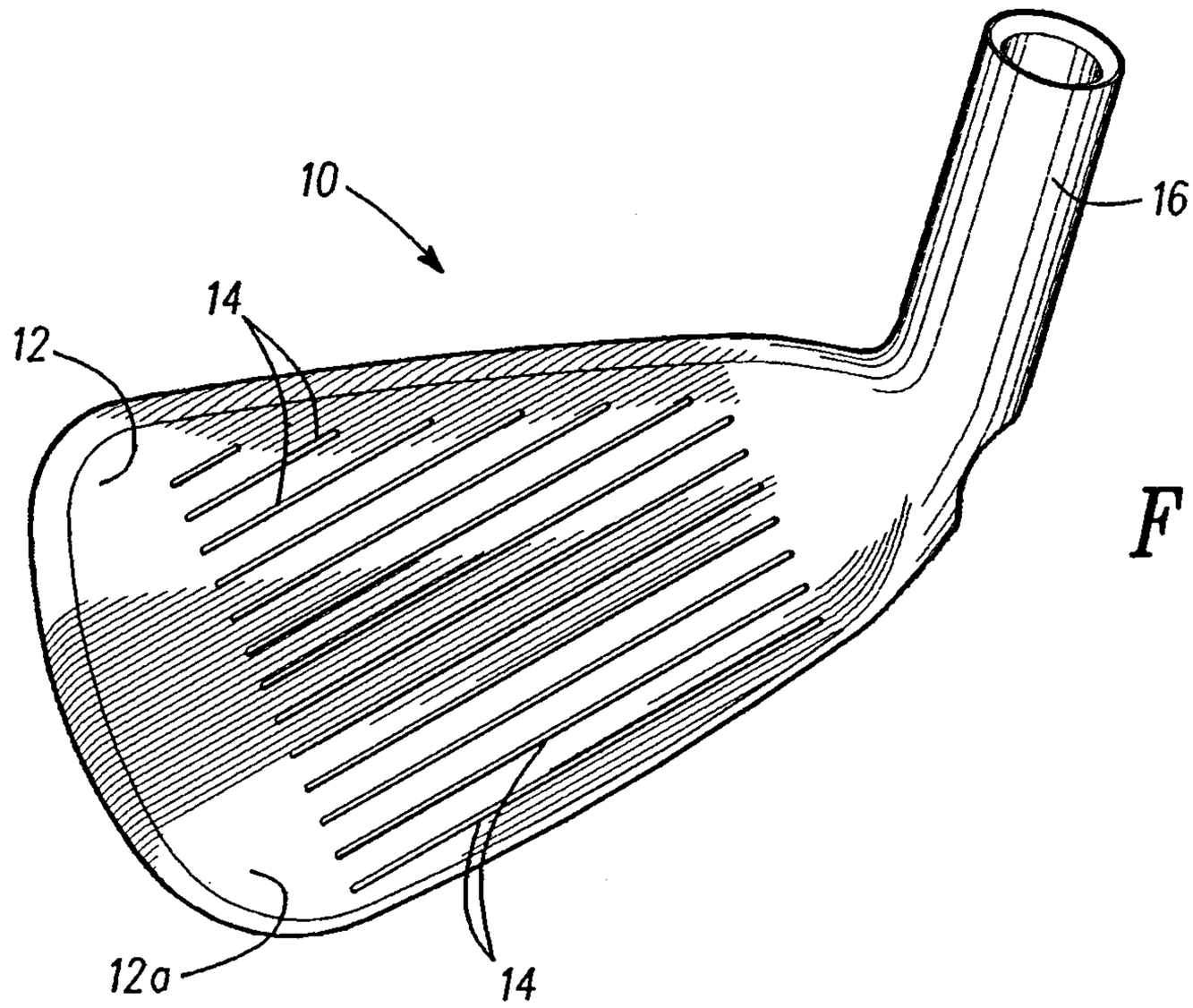

FIG. 1

FIG. 2

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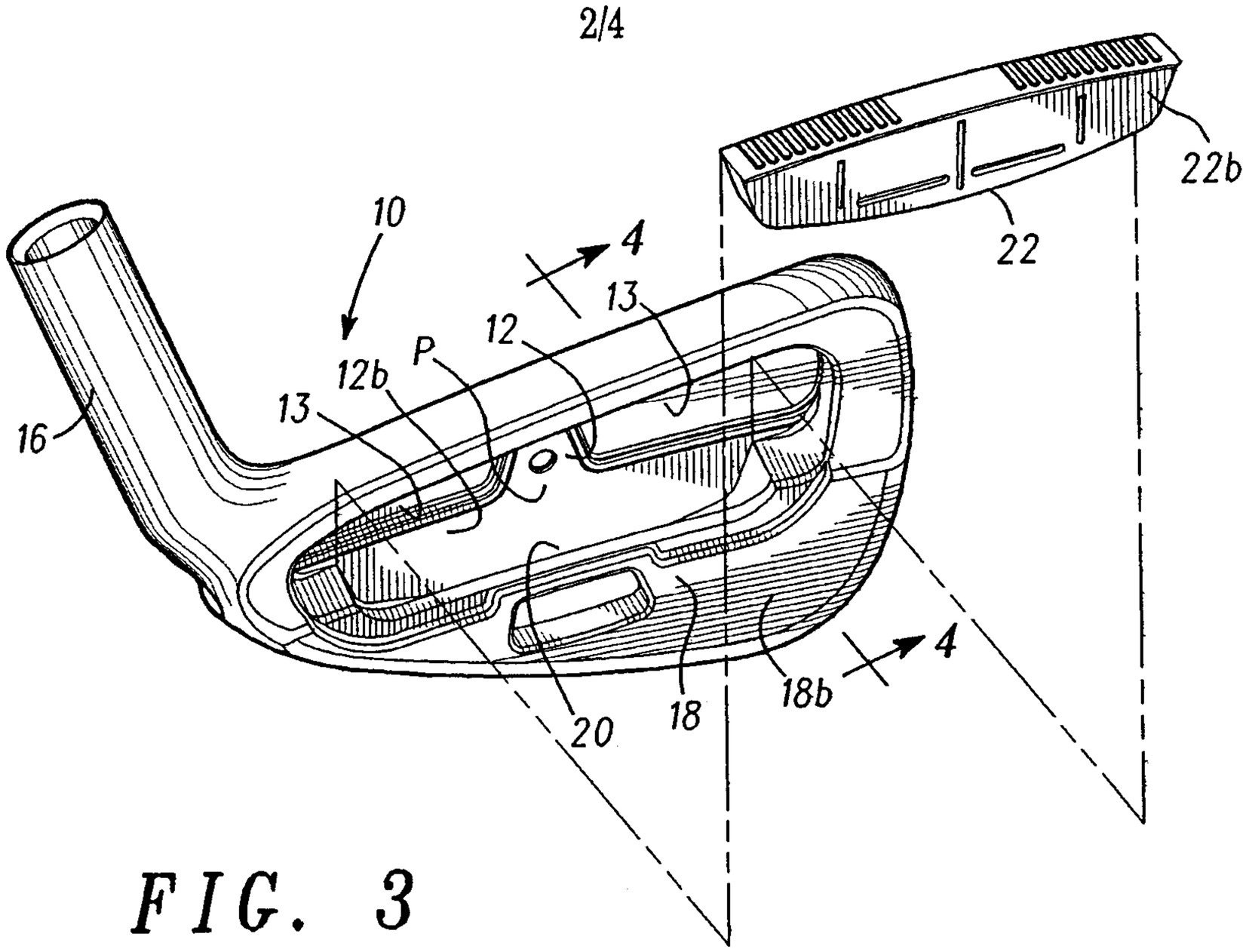


FIG. 3

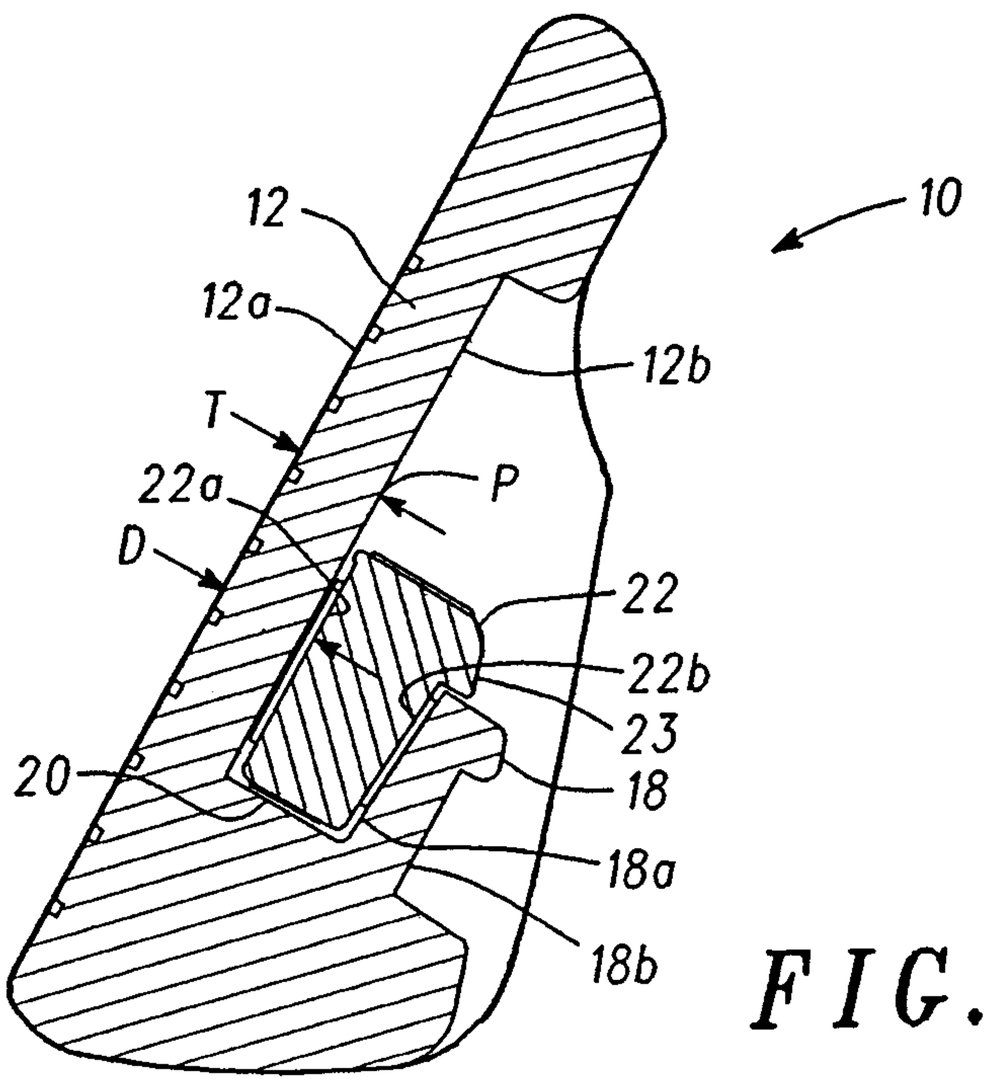
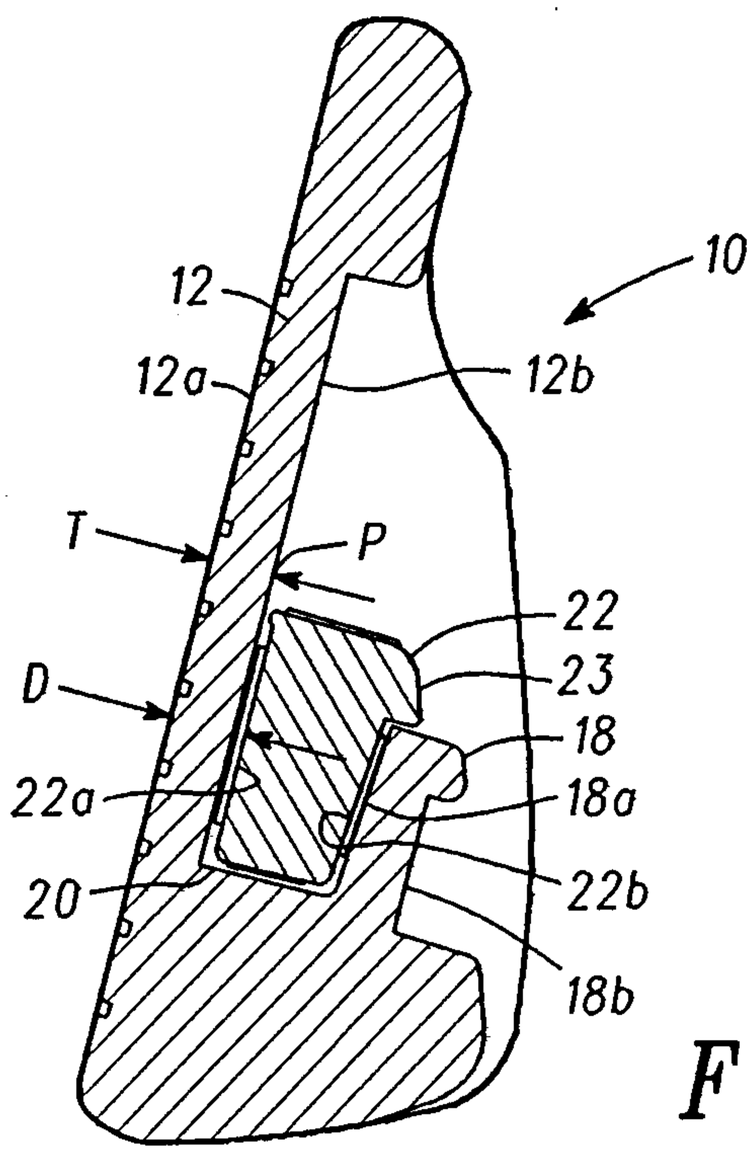


FIG. 4A


12
10
12a
12b
T
P
22
D
23
18
22a
18a
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22b
18b

FIG. 4B

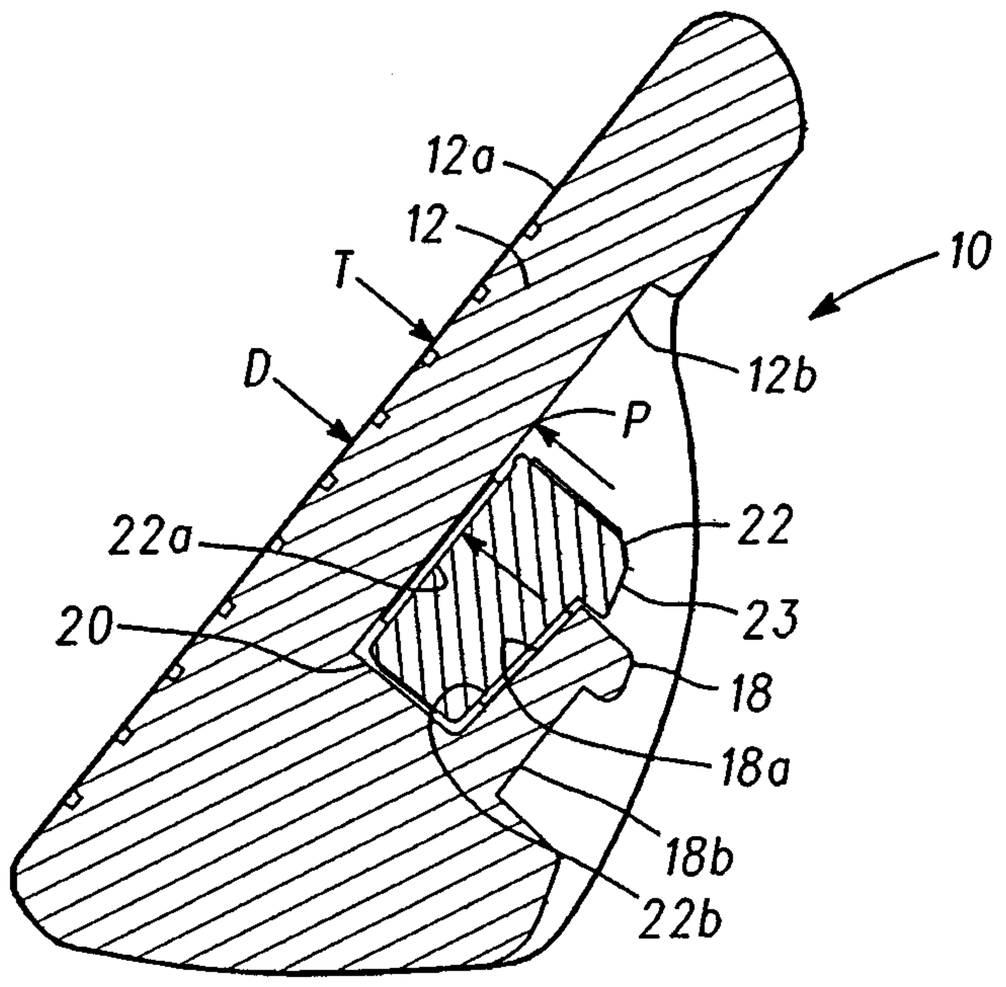
12a
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FIG. 4C

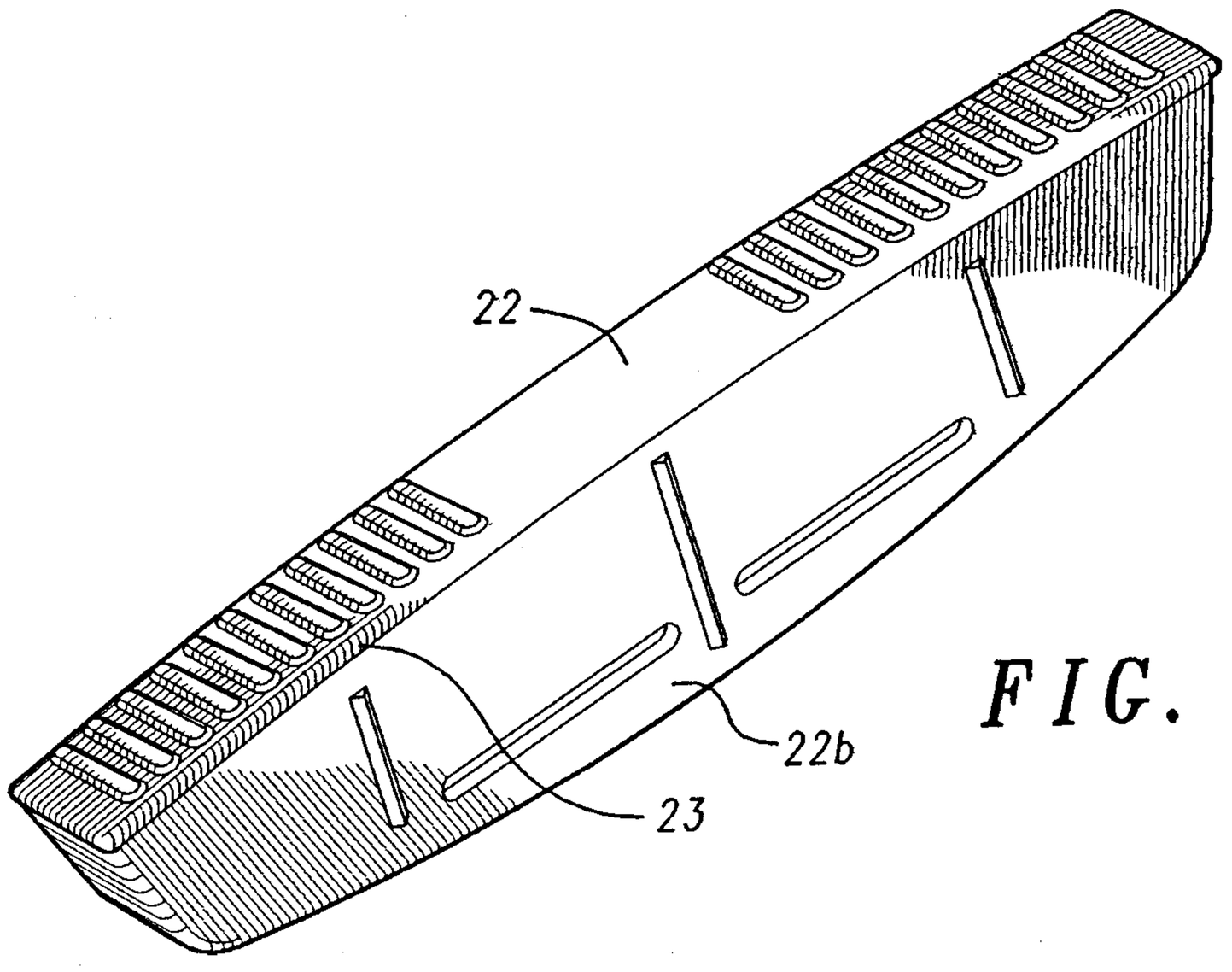


FIG. 5

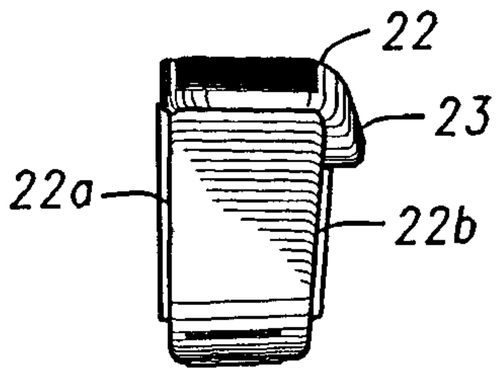
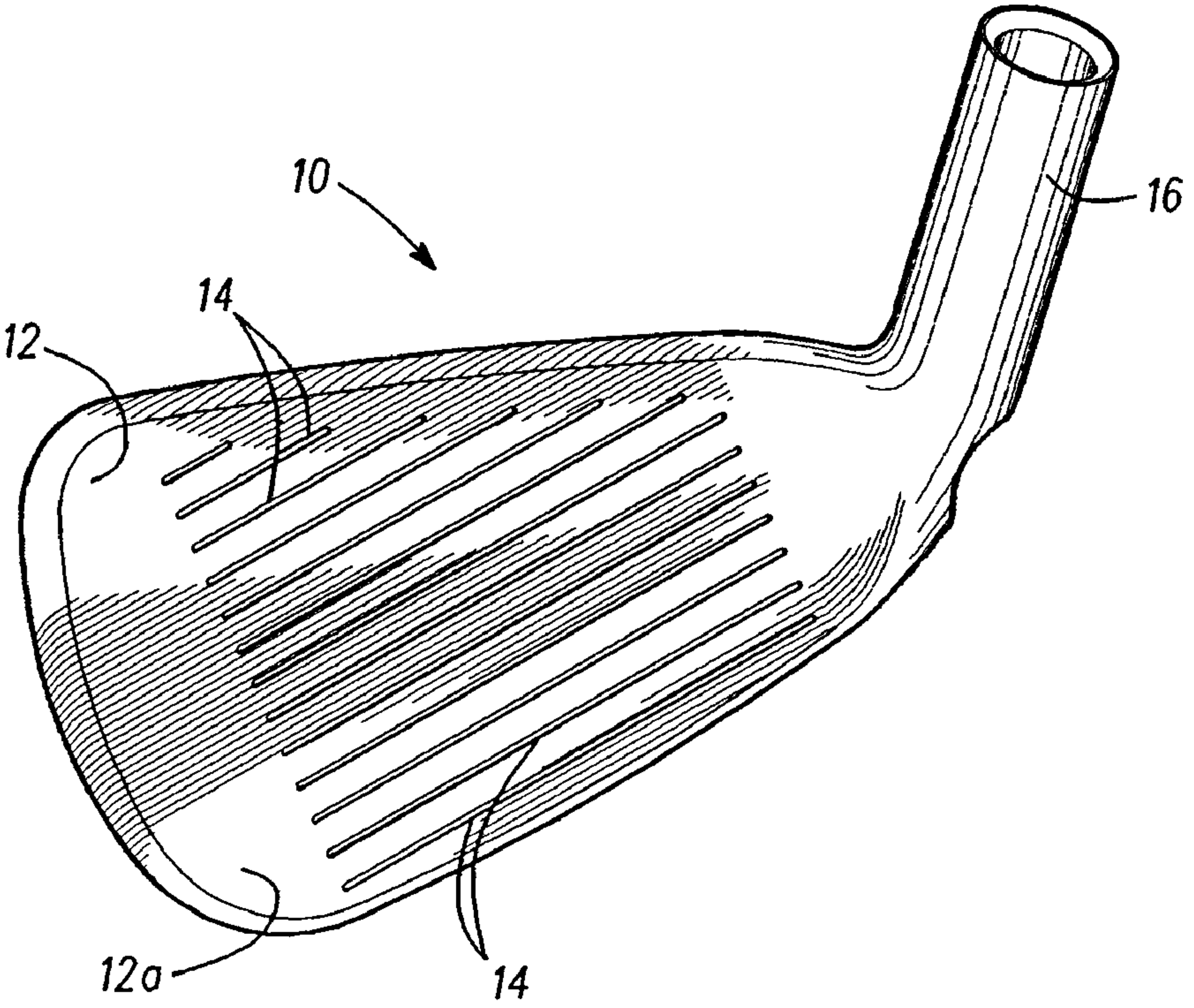


FIG. 6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12a
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