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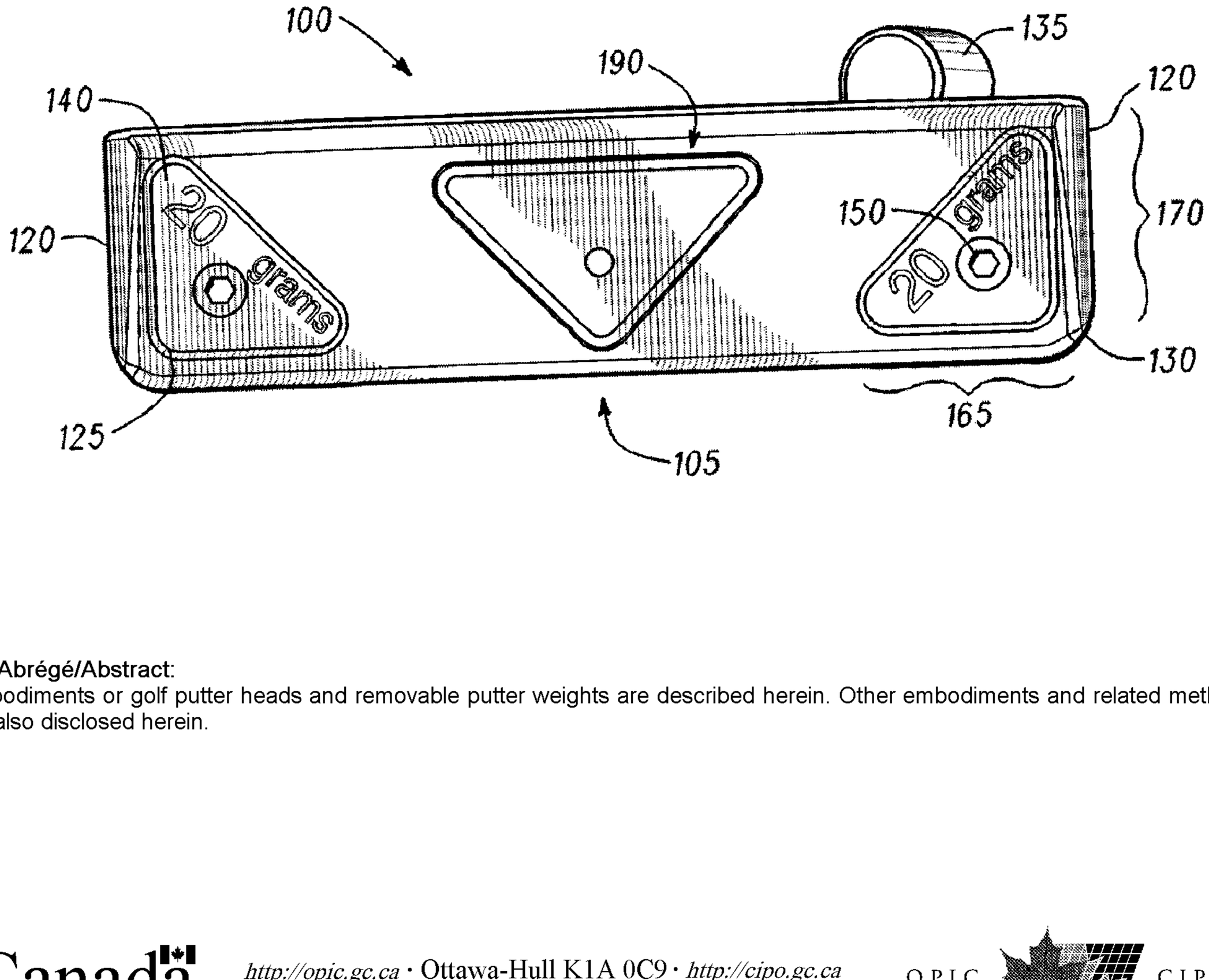

(57) Abrégé/Abstract:
Embodiments or golf putter heads and removable putter weights are described herein. Other embodiments and related methods are also disclosed herein.

GOLF PUTTER HEADS AND REMOVABLE PUTTER WEIGHTS

ABSTRACT

Embodiments or golf putter heads and removable putter weights are described herein.

Other embodiments and related methods are also disclosed herein.

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GOLF PUTTER HEADS AND REMOVABLE PUTTER WEIGHTS

TECHNICAL FIELD

[002] The present disclosure relates generally to golf equipment, and more particularly, to golf putters heads, methods for manufacturing golf putter heads and removable weights used in connection therewith.

BACKGROUND

[003] The moment of inertia (MOI) generated by a golf club head is affected by the amount and distribution of weight located in the club head, including putter heads. The performance of an individual using a gold club head may be influenced by the MOI, insofar as an increase in the MOI of the golf club head may increase resistance to unwanted twisting of the golf club head during off-center hits. As a result, increasing the MOI of golf club heads may provide greater forgiveness during off-center hits. Therefore, it is generally desired to increase the MOI of a golf club head, in a manner (and to an extent) that is desired by a particular individual.

According to the present invention, there is provided a club head comprising: two or more removable weights located within a sole portion of the club head, wherein each weight exhibits approximately the same volume and is disposed in a separate cavity located within the sole portion, wherein: each cavity is configured to receive no more than a single removable weight; a first removable weight of the two or more removable weights is disposed in a heel portion of the club head, and a second removable weight of the two or more removable weights is disposed in a toe portion of the club head; and the first removable weight and the second removable weight each exhibit a triangular shape having a first side portion and a second side portion forming an angle of approximately 90-degrees, wherein the first side portion of the first and second removable weight is disposed proximate to a side portion of the club head and the second side portion of the first and second removable weight is disposed towards a rear portion of the club head and away from a strike face of the club head; and a non-metallic vibration

damping composition disposed between each of the two or more removable weights and a surface of the club head.

According to another aspect of the present invention, there is provided a method for manufacturing a golf putter head, which comprises: (a) forming a golf putter head, wherein the golf putter head comprises a sole portion that comprises two or more cavities, wherein each cavity is adapted to receive no more than a single removable weight, wherein (i) each weight exhibits approximately the same volume, (ii) a first removable weight is configured to be disposed in a cavity located in a heel portion of the putter head, and a second removable weight is configured to be disposed in a toe portion of the putter head, and (iii) the first removable weight and the second removable weight each exhibit a triangular shape having a first side portion and a second side portion forming an angle of approximately 90-degrees, wherein the first side portion of the first and second removable weight is disposed proximate to a side portion of the putter head and the second side portion of the first and second removable weight is disposed towards a rear portion of the putter head and away from a strike face of the putter head; and (b) disposing the first and second removable weights in the two or more cavities of the sole portion, wherein a non-metallic vibration damping composition is disposed between the first and second removable weights and a surface of the golf putter head.

According to yet another aspect of the present invention, there is provided a club head comprising: two or more removable weights located within a sole portion of the club head, wherein: each weight exhibits approximately the same volume, and is disposed in a separate cavity located within the sole portion; each cavity is configured to receive no more than a single removable weight; a first removable weight of the two or more removable weights is disposed in a heel portion of the club head, and a second removable weight of the two or more removable weights is disposed in a toe portion of the club head; the first removable weight and the second removable weight exhibit a triangular shape, each having a portion that comprises an angle of approximately 90-degrees which is disposed in a side portion of the sole portion and away from a strike face of the club head; each weight comprises a weight height; the club head comprises a club

head height; and each of the weight heights are less than half of the club head height.

According to a further aspect of the present invention, there is provided a method for manufacturing a golf putter head, which comprises: (a) forming a golf putter head, wherein (i) the golf putter head comprises a sole portion that comprises two or more cavities; (ii) each cavity is adapted to receive no more than a single removable weight, and the golf putter head comprises a putter head height; (iii) each weight exhibits approximately the same volume; (iv) a first removable weight comprising a weight height is configured to be disposed in a cavity located in a heel portion of the putter head, and a second removable weight comprising the weight height is configured to be disposed in a toe portion of the putter head; and (v) the first and second removable weights exhibit a triangular shape having a portion that comprises an angle of approximately 90-degrees which is configured to be disposed in a side portion of the sole portion and away from a strike face of the putter head; and (b) disposing the first and second removable weights in the two or more cavities of the sole portion such that the weight height is less than half of the putter head height.

DESCRIPTION OF THE FIGURES

[004] FIG. 1 is a bottom view of an example golf club head according to an embodiment of the apparatus and articles described herein.

[005] FIG. 2 depicts a front view of an example set of removable weights according to an embodiment of the articles described herein.

[006] FIG. 3 depicts a back view of an example golf club head that comprises an example set of removable weights described herein.

[007] FIG. 4 depicts a back, cross-sectional view of the example golf club head of FIG. 3.

[008] FIG. 5 depicts a side view of the example golf club head of FIG. 3.

[009] FIG. 6 depicts a side, cross-sectional view of the example golf club head of FIG. 3.

[010] FIG. 7 is a back, cross-sectional view of an example golf club head that comprises an example set of removable magnetic weights described herein.

[011] FIG. 8 depicts a side, cross-sectional view of the example golf club head of FIG. 7.

[012] FIG. 9 is a flow diagram that outlines a non-limiting example of the methods for manufacturing a golf putter head described herein.

[013] FIG. 10 is a diagram showing the removable weights described herein, disposed in the sole portion of a golf putter head in different orientations and locations thereof.

DESCRIPTION OF EXAMPLES OF EMBODIMENTS

[014] In general, methods, apparatus, and articles of manufacture associated with golf club heads are described herein. The methods, apparatus, and articles of manufacture described herein are not limited in this regard.

[015] In the examples of FIGs. 1-8, a golf putter head **100** may include a sole portion **105**, a face portion **110** used to impact a golf ball (not shown), which is also referred to herein as the striking face, a back portion **115**, and two side portions **120**. The golf putter head **100** may also include a toe portion **125** and a heel portion **130**. The golf putter head **100** may further include a hosel portion **135**, which is adapted to receive one end of a shaft (not shown). In one example, the golf putter head **100** may be manufactured from steel material or steel-based material by a casting process, a forging process, a combination thereof, or other suitable manufacturing processes.

[016] Referring to FIGs. 1 and 2, for example, the golf putter head **100** may be provided with a plurality of removable weights **140**, which may be disposed within at least one cavity that houses the removable weights **140**. For example, the golf putter head **100** may be provided with one or more of the plurality of removable weights **140** at the toe portion **125** and heel portion **130** thereof, each of which may, optionally, be disposed in the same or separate cavities formed within the golf putter head. By positioning one or more of the removable weights **140** at the toe portion **125** and the heel portion **130** of the golf putter head **100**, the MOI of the golf putter head **100** may be increased, or otherwise altered relative to the MOI of the golf putter head **100** without the removable weights **140**.

[017] According to certain embodiments, the golf putter head **100** may further comprise

a third removable weight disposed near a center portion **190** of the golf putter head **100**. The third removable weight disposed near the center portion **190** of the golf putter head **100** may, optionally, be used by an individual to increase the total mass, and momentum generated by, the golf putter head **100**.

[018] Referring to FIGs. 3-6, a vibration damping composition **145** may be disposed between the removable weights **140** and the golf putter head **100**. The vibration damping composition **145** may be comprised of any material capable of reducing unwanted noises and vibrations that would otherwise be caused by metal-to-metal contact (e.g., between one of the removable weights **140** and the body of the golf putter head **100**), such as urethane, rubber, foam, plastics, elastomers, or combinations thereof.

[019] The removable weights **140** may be disposed in the sole portion **105** (as shown in FIG. 1) and/or back portion **115** of the golf putter head **100**. The removable weights **140** may be reversibly secured to the golf putter head **100** using any suitable means. For example, the removable weights **140** may be disposed in the sole portion **105** (as shown in FIG. 1) by reversibly attaching the removable weights **140** to the sole portion **105** using a threaded screw **150** (FIGs. 1 and 3-6) which is disposed through a hole **155** (FIG. 2) located within the removable weights **140**. According to such embodiments, the threaded screw **150** may be received by a threaded hole **160** located within the body of the golf putter head **100**, such as in the sole portion **105** of the golf putter head **100**. As shown in FIG. 6, for example, the golf putter head **100** may comprise one or more cavities **175**, which are adapted to receive the removable weights **140** described herein, and the vibration damping composition **145** may be disposed between the

removable weights **140** and the interior surface of such cavities **175**.

[020] Referring to FIGs. 7 and 8, the removable weights **140** may also be secured to the golf putter head **100** through a magnetic force. For example, the removable weights **140** may be disposed within a cavity **175** formed within the golf putter head **100**, such as in the sole portion **105** thereof. A magnet **180** may be attached to and disposed within the cavity **175**. Similar to the other embodiments described herein, a layer of vibration damping composition **145** may be disposed between the removable weights **140** and the interior surface of the cavity **175**. The golf putter head **100** may further comprise an open pocket **185**, which may be used to lift the removable weights **140** from the cavity **175** and break the magnetic force holding the removable weights **140** therein. According to such embodiments, the removable weights **140** may be at least partially, or completely, comprised of a material that will be magnetically attracted to the magnet **180**.

[021] The removable weights **140** may exhibit any suitable shape and configuration, such as square, oval, elliptical, circular, rectangular, or other configurations. In the case of a circular removable weight **140**, the sides thereof may be threaded, such that the circular removable weight **140** may be disposed and screwed into at least one cavity formed within the golf putter head which exhibits corresponding threads. When using removable weights **140** of other shapes, such as square, oval, elliptical, rectangular, or other configurations, the removable weights **140** may comprise, for example, a separate circular threaded protrusion on the bottom side thereof, which may be screwed into a corresponding cavity formed within the golf putter head. Alternatively, as shown in FIGs. 5 and 6, the removable weights **140** may be reversibly attached to the golf putter

head using a separate threaded screw **150**.

[022] Referring to FIG. 2, according to certain embodiments, the removable weights **140** may exhibit a triangular configuration, such as a configuration that resembles a right triangle. Referring to FIG. 1, according to these embodiments, when the triangular removable weights **140** are disposed in, for example, the sole portion **105** of the golf putter head **100**, the legs of the triangular removable weights **140** may be approximately parallel with the backside wall **165** and side wall **170** of the golf putter head **100**, with its hypotenuse facing the face portion **110** of the golf putter head **100**. According to such embodiments, a significant portion of the weight provided by the removable weights **140** is positioned towards the back portion **105** and side portions **120**, which may serve to increase the MOI of the golf putter head **100**.

[023] In other words, referring to FIG. 10, the removable weights **140**, which may exhibit the shape of a right triangle (*i.e.*, a triangle having a portion that comprises an angle of approximately 90-degrees), are positioned at the back and side portion of the golf putter head, as shown in FIG. 10(A). In other words, the removable weights **140** having a triangular shape may have a portion that comprises an angle of approximately 90-degrees, which is disposed in a side portion **120** of the sole and away from the striking face of the club head, as shown in FIG. 10(A). This orientation positions more of the weight of the removable weights **140** towards the back portion **105** (and side portions **120**) of the golf putter head, which serves to provide the golf putter head with a greater MOI, compared to a golf putter head comprising the removable weights **140** disposed in other orientations, such as those shown in FIG.10(B)-(D).

[024] The plurality of removable weights **140** may selected from a group of removable

weights **140**, such as 2, 3, 4, 5, 6, 7, 8, or more removable weights **140**. In addition, the plurality of removable weights **140** may selected from multiple pairs of removable weights **140**, such as 2, 3, 4, or more pairs of removable weights **140**. The removable weights **140** may be manufactured to exhibit different specific gravities, such that an individual may select the removable weights **140** that exhibit the desired specific gravity to be installed into the golf putter head **100**.

[025] The plurality of removable weights **140** may exhibit approximately the same volume. In addition, the plurality of removable weights **140** may exhibit approximately the same volume and geometric configuration. More particularly, according to such embodiments, each of the removable weights **140** may exhibit a unique specific gravity, while exhibiting approximately the same volume and geometric configuration. The removable weights **140** may exhibit different specific gravities, while retaining approximately the same volume and geometric configuration, by using different materials or combinations thereof to manufacture the removable weights **140**.

[026] Any of various methods and compositions may be employed to impart a different specific gravity to each of the removable weights **140**, or pair of removable weights **140**, which may be used in connection with the golf putter heads **100** described herein. For example, the removable weights **140** may be manufactured using varying amounts of a tungsten powder in connection with a suitable material, such as other types of metals, polymers, plastics, elastomers, or combinations thereof. According to such embodiments, since the plurality of removable weights **140** described herein may be designed to exhibit approximately the same volume, the amount of tungsten powder used to manufacture a particular removable weight **140** may be increased to increase

the specific gravity of such removable weight **140**. Conversely, the amount of tungsten powder used to manufacture a particular removable weight **140** may be decreased to decrease the specific gravity of such removable weight **140**. This way, a plurality of removable weights **140** may be manufactured using varying amounts of a tungsten powder, in order to produce a group of removable weights **140** that span a range of specific gravities.

[027] In addition to the golf putter heads described herein, further embodiments include golf putters. More particularly, golf putters are provided which comprise a golf putter head described herein, which is provided with a golf club shaft and a grip. To form a golf putter with the golf putter head **100**, the hosel **135** thereof may receive a first end of a shaft (not shown). The shaft and the hosel **135** may be secured to each other by an adhesive bonding process (*e.g.*, epoxy) and/or other suitable bonding processes (*e.g.*, mechanical bonding, soldering, welding, and/or brazing). To complete the golf putter, a grip (not shown) may receive a second end of the shaft. The shaft and the grip may be secured to each other by an adhesive bonding process and/or other suitable bonding processes. The methods, apparatus, and articles of manufacture are not limited in this regard. By manufacturing the golf putter head **100** described herein using a casting process, it may be easier to vary the shape and size of the golf putter head **100** and create the cavities **175** for receiving the removable weights **140** described herein.

[028] According to additional embodiments, sets of removable weights for use with the golf putter heads described herein are provided. The sets comprise a plurality of removable weights adapted to be reversibly attached to a golf putter head. As described herein, the set may comprise at least two weights that exhibit a different

specific gravity. More particularly, in certain embodiments, the set of removable weights may contain 1, 2, 3, 4, 5, or more pairs of removable weights, with each pair having a different specific gravity. According to such embodiments, an individual may select the desired pair, or combination of removable weights, based on the specific gravity of such weights for application to his or her golf putter head. The sets of removable weights may allow an individual to add a desired amount of weight to the heel, toe, and/or middle portion of a golf putter head, in order to affect the total weight of the putter, its MOI, its distribution of weight, or combinations thereof.

[029] As in the other embodiments described herein, the weights contained within any given set of weights may exhibit approximately the same volume, such that the weights look the same and will fit into a similarly-dimensioned cavity on the golf putter head, while still exhibiting a different specific gravity from other removable weights. In addition, the set of removable weights may comprise certain vibration damping compositions, which are adapted to be placed between a removable weight and a golf putter head. Non-limiting examples of such vibration damping compositions include urethane, rubber, foam, plastics, elastomers, and combinations thereof. The vibration damping compositions may be configured as, for example, a layer of vibration damping material that an individual may insert into a cavity within a golf putter head, such that a removable weight may then be disposed in the cavity such that the layer of vibration damping material resides between the body of the golf putter head and the removable weight. More specifically, for example, referring to FIGs. 3 and 6, the vibration damping composition **145** may be configured as a washer, which contains a hole in the center portion thereof (not shown), through which a threaded screw **150** may be inserted to

secure the removable weights **140** and vibration damping composition **145** to a cavity **175** located within the golf putter head **100**. Still further, the vibration damping composition **145** may be securely attached to the surface of the removable weights that would otherwise contact a surface of the golf putter head when disposed therein. The vibration damping composition **145** may be securely attached to the surface of the removable weights using, for example, adhesives or other chemical or mechanical bonding methods.

[030] As described above relative to other embodiments, the removable weights contained within a set of weights may exhibit any size, shape, or configuration that is suitable for reversible attachment to a golf putter head. In certain embodiments, the removable weights exhibit a triangular configuration, and are adapted to be reversibly attached to the sole portion **105** of a golf putter head. The removable weights that are contained within a set of weights may be adapted to be secured to a golf putter head with, for example, a threaded screw, a Velcro® material, or other mechanical engagement means, provided that the golf putter head comprises a threaded hole, cavity, recess, and/or other means or dimensions that are capable of securely receiving the removable weight. In still further embodiments, removable weights that are contained within a set of weights may be adapted to be secured to a golf putter head through a magnetic force. For example, the removable weights of the golf putter head may comprise a magnet. In addition, either the removable weights or the golf putter head (whichever component does not comprise the magnet) would at least partially comprise a material that would be attracted to the magnet, such as 17-4 stainless steel. For example, the golf putter head may be provided with the magnet, with the removable

weights being comprised, at least partially, of 17-4 stainless steel.

[031] The removable weights may be manufactured using any of a variety of materials and combinations thereof to create a set of weights exhibiting a range of specific gravities, while maintaining the volume of the removable weights approximately constant. For example, a first pair of weights may be constructed with stainless steel with a specific gravity of approximately 7.7. A second pair of weights may be constructed with a combination of tungsten powder and stainless steel, with a final specific gravity of approximately 12.4. A third pair of weights may be constructed with a combination of tungsten powder and stainless steel, such that each weight of the third pair comprises more tungsten powder than a weight of the second pair, and providing a final specific gravity of approximately 17. The removable weights may be constructed of any material, or combination of materials, which allow the resulting specific gravity to be desirably adjusted. Non-limiting examples of other materials include brass, injection molded urethane parts comprising specified amounts of tungsten powder, and similar compositions.

[032] According to such embodiments, an individual may select the desired pair of weights for application to a golf putter head. In addition, if an individual desires to have more or less weight applied to the toe portion **125** compared to the heel portion **130** of the golf putter head **100**, the individual may select and apply removable weights, which originate from different pairs of weights, to the golf putter head.

[033] According to these embodiments, the set of removable weights may be offered for sale to consumers along with a golf putter head, or may also be offered for sale to consumers apart from a golf putter head. Still further, the pairs of different removable

weights contained in a set of removable weights may be selected by a consumer, such as through a website in which a consumer may identify 1, 2, 3, 4; or more pairs of removable weights (or single removable weights), which he or she desires to purchase for use with a particular golf putter head. The sets of removable weights may further comprise an attachment means used to reversibly secure the removable weights to a golf putter head, such as a wrench that is appropriately configured to facilitate the attachment and tightening of, for example, a threaded screw **150** to a golf putter head **100**, in order to attach a removable weight thereto.

[034] According to yet further embodiments, methods for manufacturing golf putter heads are provided. According to these embodiments, a golf putter head is formed using, for example, metal casting methods, forging methods, or a combination thereof. The golf putter head is formed to include an area that is adapted to receive the removable weights **140** described herein, and may comprise one or more separate areas located on the backside or sole of the golf putter head, such as one or more cavities **175** located in the sole portion thereof. More specifically, the separate areas could be located on the heel portion, the middle portion, the toe portion, or a portion between the heel, middle, or toe portion of the golf putter head, and may either be located on the sole and/or backside of the golf putter head. As shown in FIGs. 1, 5 and 6, for example, the golf putter head may comprise an area located within each side portion **120** of the golf putter heads **100**, such as the cavities **175**, for receiving the removable weight member **140** and screw **150**.

[035] Next, one or more removable weight members **140** are installed into the golf putter heads. The installation process may employ the use of a screw (such as the

screw **150** shown FIG. 5), magnetic forces (FIG. 7 and 8), or other methods. The removable weight members **140** that are installed into the golf putter heads in accordance with these methods may be selected from a set of removable weight members **140**, which includes a plurality of different removable weight members **140** having different specific gravities. Similar to the other embodiments described herein, each removable weight member **140** included within the set of removable weight members may exhibit substantially the same volume. Accordingly, the appropriate removable weight members **140** may be selected from the set of removable weight members and installed into the golf putter head.

[036] The methods of manufacturing golf club heads may further comprise attaching a shaft to the hosel **135**. The shaft and the hosel **135** may be secured to each other by an adhesive bonding process (*e.g.*, epoxy) and/or other suitable bonding processes (*e.g.*, mechanical bonding, soldering, welding, and/or brazing). To complete the golf club, a grip (not shown) may receive a second end of the shaft. The shaft and the grip may be secured to each other by an adhesive bonding process and/or other suitable bonding processes. The methods, apparatus, and articles of manufacture are not limited in this regard.

[037] Referring to FIG. 9, in certain additional embodiments, the methods for manufacturing golf putter heads further comprise receiving a purchase order from a buyer **195**, which identifies an amount of weight that the buyer desires to be added to the golf putter head – and the desired locations in which such weight should be added. The purchase order may be submitted, directly or indirectly, to a golf putter manufacturer using an on-line form, facsimile, conventional mail, telephone, or other

communication means. Next, the golf putter head is manufactured **200**. It should be appreciated that the golf putter head may be manufactured before or after receiving the purchase order from the buyer **195**. The golf putter head may comprise an area that is adapted to receive an additional weight member, such as the cavities **175** located in the side portions **120** of the golf putter heads **100** described herein. Next, one or more weight members are installed in the designated areas **205** of the golf putter head. The one or more weight members may exhibit a weight that is approximately the same as the amount of weight that the buyer desires to be added to the golf putter head, in accordance with the purchase order received **195**.

[038] While FIGs. 1 and 3-8 may depict an Anser® golf putter head (PING, Inc., Phoenix, Arizona), the methods, apparatus, and articles of manufacture described herein may be readily applicable to other suitable types of golf putter heads. For example, the methods, apparatus, and articles of manufacture described herein may be applicable to mallet putters, blade putters, and other types of putters. The methods, apparatus, and articles of manufacture described herein are not limited this regard.

[039] Although certain example methods, apparatus, and/or articles of manufacture have been described herein, the scope of coverage of this disclosure is not limited thereto. On the contrary, this disclosure covers all methods, apparatus, and/or articles of manufacture fairly falling within the scope of the appended claims either literally or under the doctrine of equivalents.

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CLAIMS:

1. A club head comprising:

two or more removable weights located within a sole portion of the club head, wherein each weight exhibits approximately the same volume and is disposed in a separate cavity located within the sole portion, wherein:

each cavity is configured to receive no more than a single removable weight;

a first removable weight of the two or more removable weights is disposed in a heel portion of the club head, and a second removable weight of the two or more removable weights is disposed in a toe portion of the club head; and

the first removable weight and the second removable weight each exhibit a triangular shape having a first side portion and a second side portion forming an angle of approximately 90-degrees, wherein the first side portion of the first and second removable weight is disposed proximate to a side portion of the club head and the second side portion of the first and second removable weight is disposed towards a rear portion of the club head and away from a strike face of the club head; and

a non-metallic vibration damping composition disposed between each of the two or more removable weights and a surface of the club head.

2. The club head of claim 1, wherein the two or more removable weights are selected from a group of removable weights that comprises weights of different specific gravity.

3. The club head of any one of claims 1–2, wherein at least one of the two or more removable weights are secured to the club head with a threaded screw.

4. The club head of any one of claims 1 to 3, wherein at least one of the two or more removable weights are secured to the club head through a magnetic force.

5. The club head of any one of claims 1 to 4, wherein the vibration damping composition comprises at least one of urethane, rubber, foam, plastics or elastomers.

6. The club head of claim 1, which further comprises a third one of the two or more removable weights disposed in a center portion of the club head.

7. The club head of any one of claims 1 to 6 wherein a layer of the vibration damping composition is disposed between each of the two or more removable weights and a surface of the cavity, and wherein the surface of the club head comprises the surface of the cavity.

8. The club head of any one of claims 1 to 7, wherein at least a portion of the two or more removable weights comprises tungsten.

9. A method for manufacturing a golf putter head, which comprises:

(a) forming a golf putter head, wherein the golf putter head comprises a sole portion that comprises two or more cavities, wherein each cavity is adapted to receive no more than a single removable weight, wherein (i) each weight exhibits approximately the same volume, (ii) a first removable weight is configured to be disposed in a cavity located in a heel portion of the putter head, and a second removable weight is configured to be disposed in a toe portion of the putter head, and (iii) the first removable weight and the second removable weight each exhibit a triangular shape having a first side portion and a second side portion forming an angle of approximately 90-degrees, wherein the first side portion of the first and second removable weight is disposed proximate to a side portion of the putter head and the second side portion of the first and second removable weight is disposed towards a rear portion of the putter head and away from a strike face of the putter head; and

(b) disposing the first and second removable weights in the two or more cavities of the sole portion, wherein a non-metallic vibration damping composition is disposed between the first and second removable weights and a surface of the golf putter head.

10. The method of claim 9, which further comprises selecting the two or more removable weights from a set of removable weights.

11. The method of claim 10, wherein the set of removable weights comprises removable weights that exhibit a plurality of different specific gravities.

12. A club head comprising:

two or more removable weights located within a sole portion of the club head, wherein:

each weight exhibits approximately the same volume, and is disposed in a separate cavity located within the sole portion;

each cavity is configured to receive no more than a single removable weight;

a first removable weight of the two or more removable weights is disposed in a heel portion of the club head, and a second removable weight of the two or more removable weights is disposed in a toe portion of the club head;

the first removable weight and the second removable weight exhibit a triangular shape, each having a portion that comprises an angle of approximately 90-degrees which is disposed in a side portion of the sole portion and away from a strike face of the club head;

each weight comprises a weight height;

the club head comprises a club head height; and

each of the weight heights are less than half of the club head height.

13. The club head of claim 12, wherein the two or more removable weights comprise weights of different specific gravity.

14. The club head of any one of claims 12 to 13, wherein at least one of the two or more removable weights is secured to the club head with a threaded screw.

15. The club head of any one of claims 12 to 14, wherein at least one of the two or more removable weights is secured to the club head through a magnetic force.

16. The club head of claim 15, wherein each cavity comprises an open pocket adjacent to the cavity, the open pocket configured such that the at least one of the two or more removable weights can be lifted from the cavity to break the magnetic force.

17. The club head of any one of claims 12 to 16, which further comprises a third removable weight of the two or more removable weights disposed in a center portion of the club head.

18. The club head of any one of claims 12 to 17, wherein at least a portion of the two or more removable weights comprises a tungsten powder.

19. The club head of any one of claims 12 to 18, wherein:

the club head comprises a club head volume; and

a sum of each volume of each weight is less than half of the club head volume.

20. A method for manufacturing a golf putter head, which comprises:

(a) forming a golf putter head, wherein (i) the golf putter head comprises a sole portion that comprises two or more cavities; (ii) each cavity is adapted to receive no more than a single removable weight, and the golf putter head comprises a putter head height; (iii) each weight exhibits approximately the

same volume; (iv) a first removable weight comprising a weight height is configured to be disposed in a cavity located in a heel portion of the putter head, and a second removable weight comprising the weight height is configured to be disposed in a toe portion of the putter head; and (v) the first and second removable weights exhibit a triangular shape having a portion that comprises an angle of approximately 90-degrees which is configured to be disposed in a side portion of the sole portion and away from a strike face of the putter head; and

(b) disposing the first and second removable weights in the two or more cavities of the sole portion such that the weight height is less than half of the putter head height.

21. The method of claim 20, which further comprises selecting the two or more removable weights from a set of removable weights.

22. The method of claim 21, wherein the set of removable weights comprises removable weights that exhibit a plurality of different specific gravities.

23. The method of any one of claims 20 to 22, which further comprises securing the two or more removable weights to the golf putter head with a threaded screw.

24. The method of any one of claims 20 to 23, which further comprises securing the two or more removable weights to the golf putter head with a magnetic force.

25. The method of any one of claims 20 to 24, which further comprises selecting a third removable weight from the set of removable weights and securing the third removable weight to the golf putter head.

26. The method of any one of claims 20 to 25, which further comprises securing the third removable weight to a center portion of the golf putter head.

27. The method of any one of claims 20 to 26, wherein at least a portion of the two or more removable weights comprises a tungsten powder.

28. The method of any one of claims 20 to 27, wherein:

the golf putter head comprises a golf putter head volume; and

the golf putter head volume is greater than twice a sum of each volume of each weight.

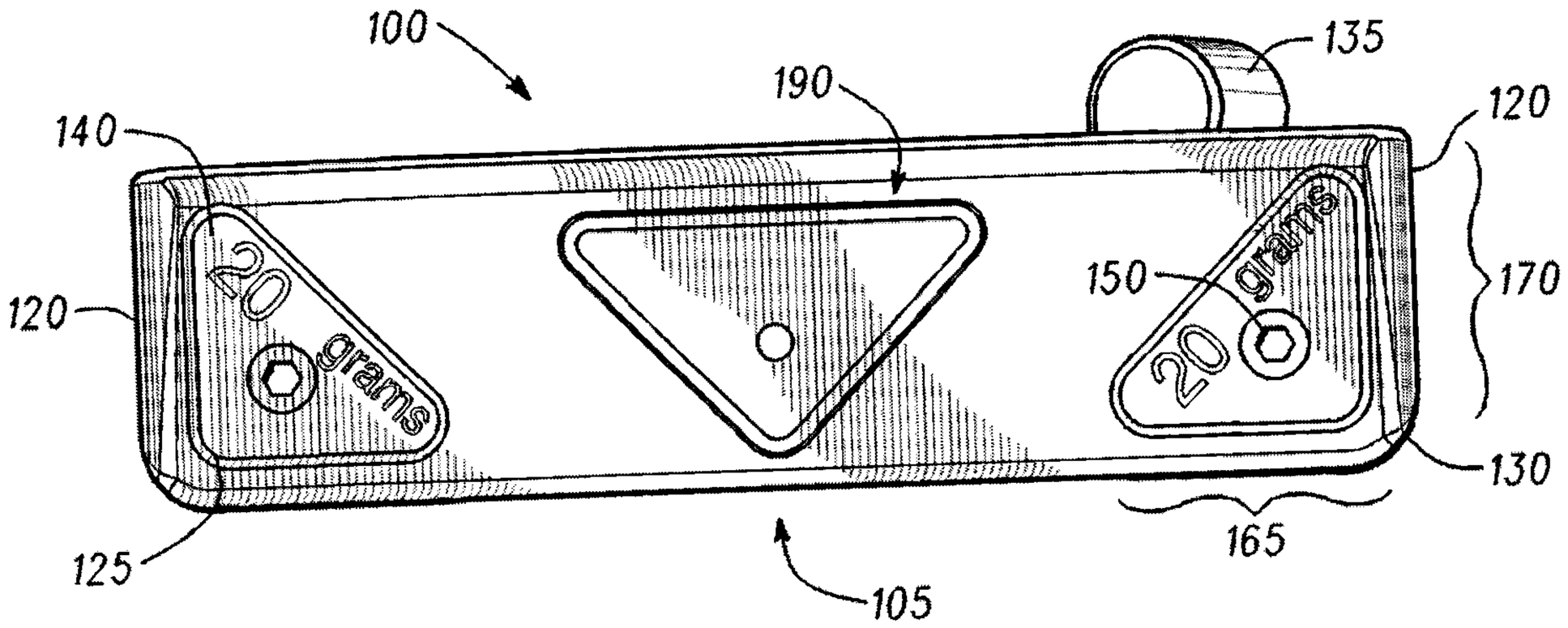

100
190
135
120
140
120
150
170
130
125
165
105
20 grams
20 grams

Fig. 1

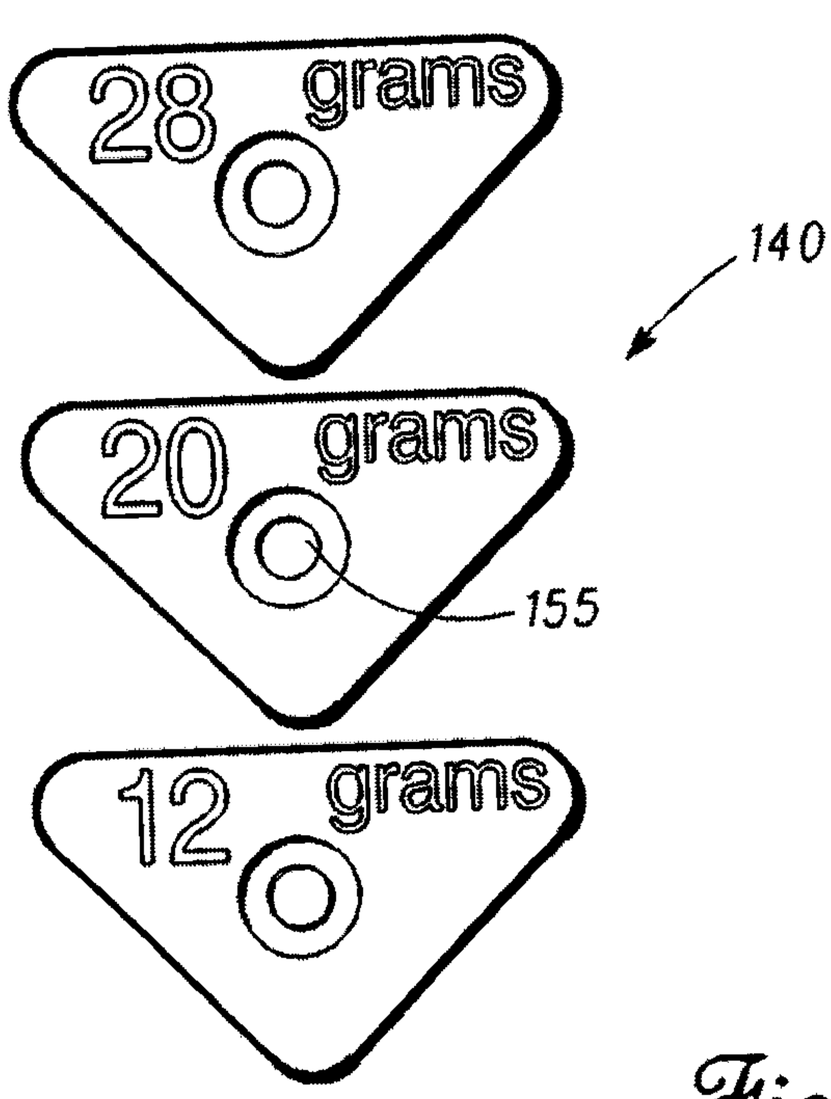

28 grams
140
20 grams
155
12 grams

Fig. 2

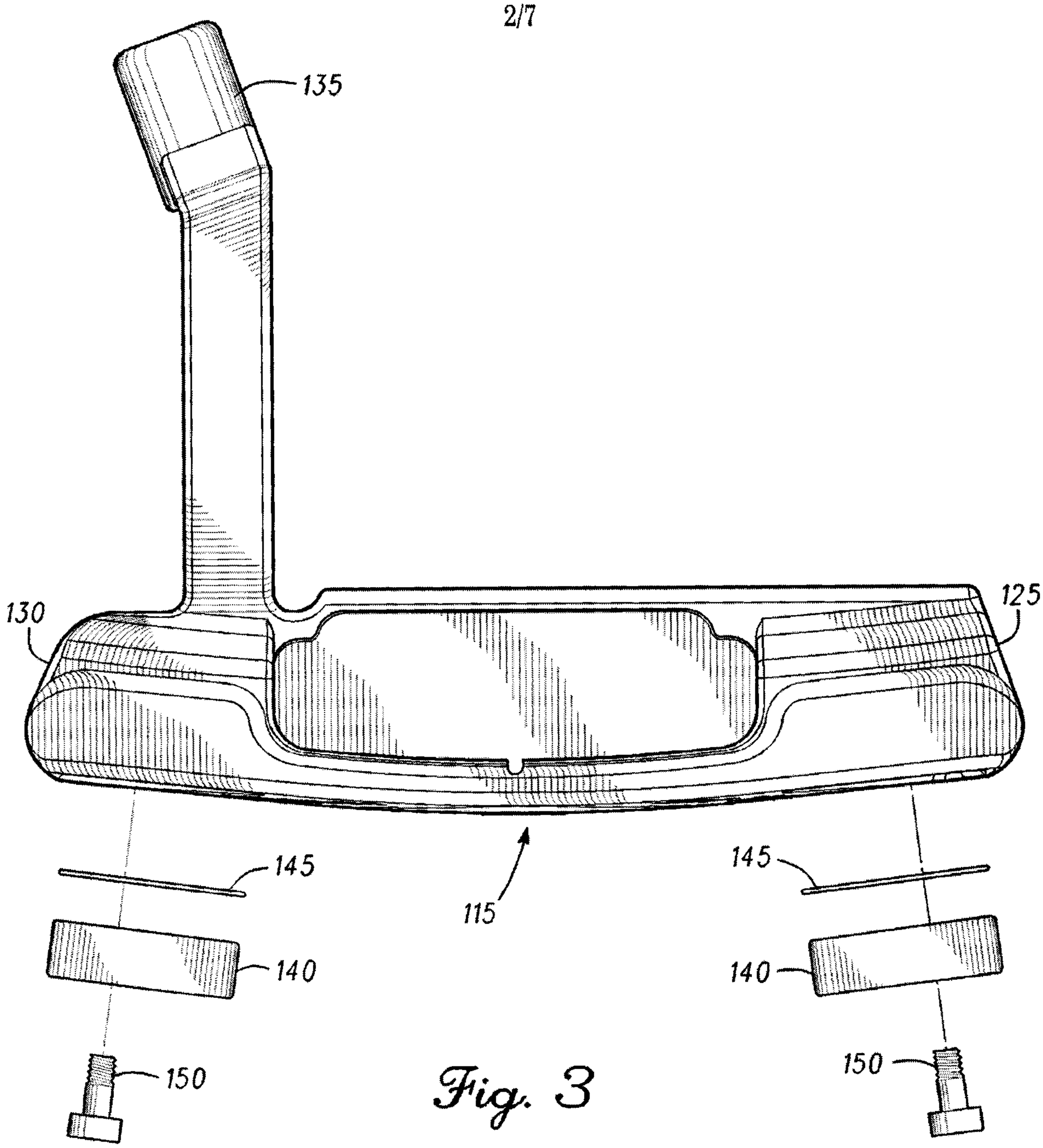


Fig. 3

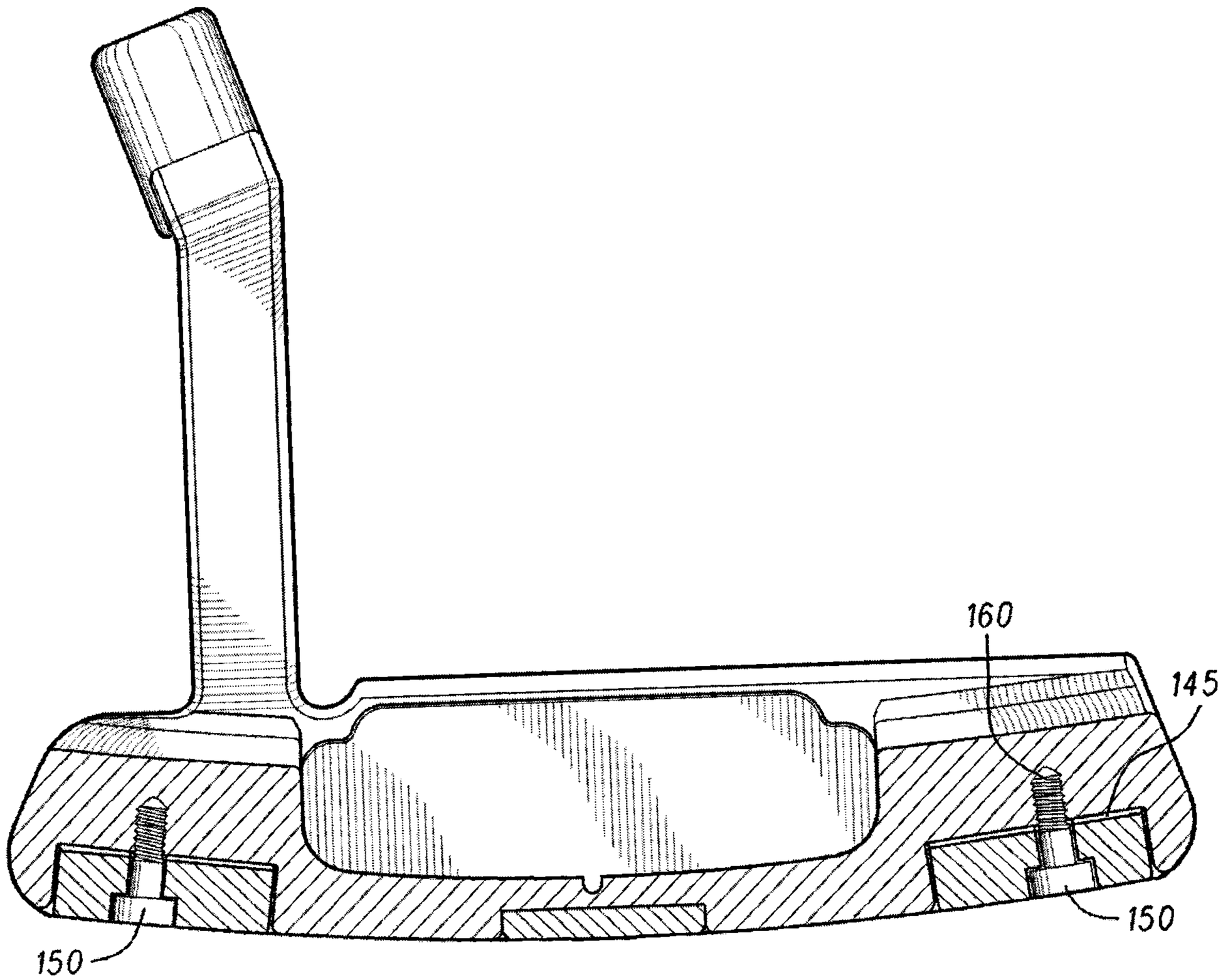


Fig. 4

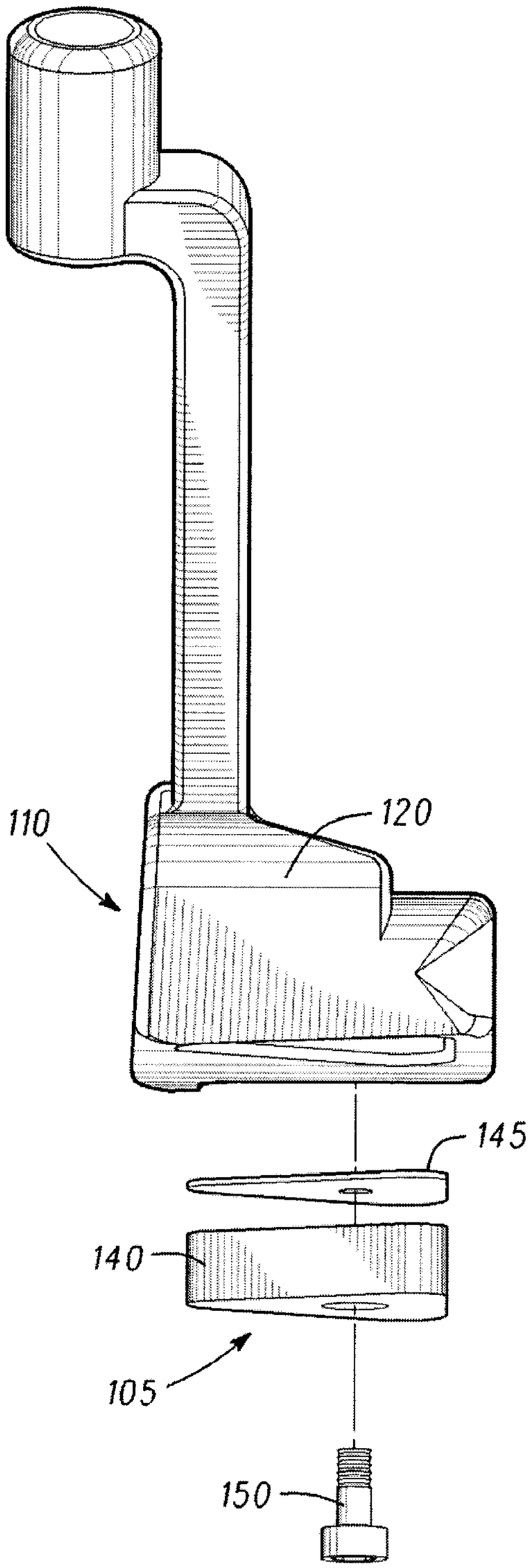


Fig. 5

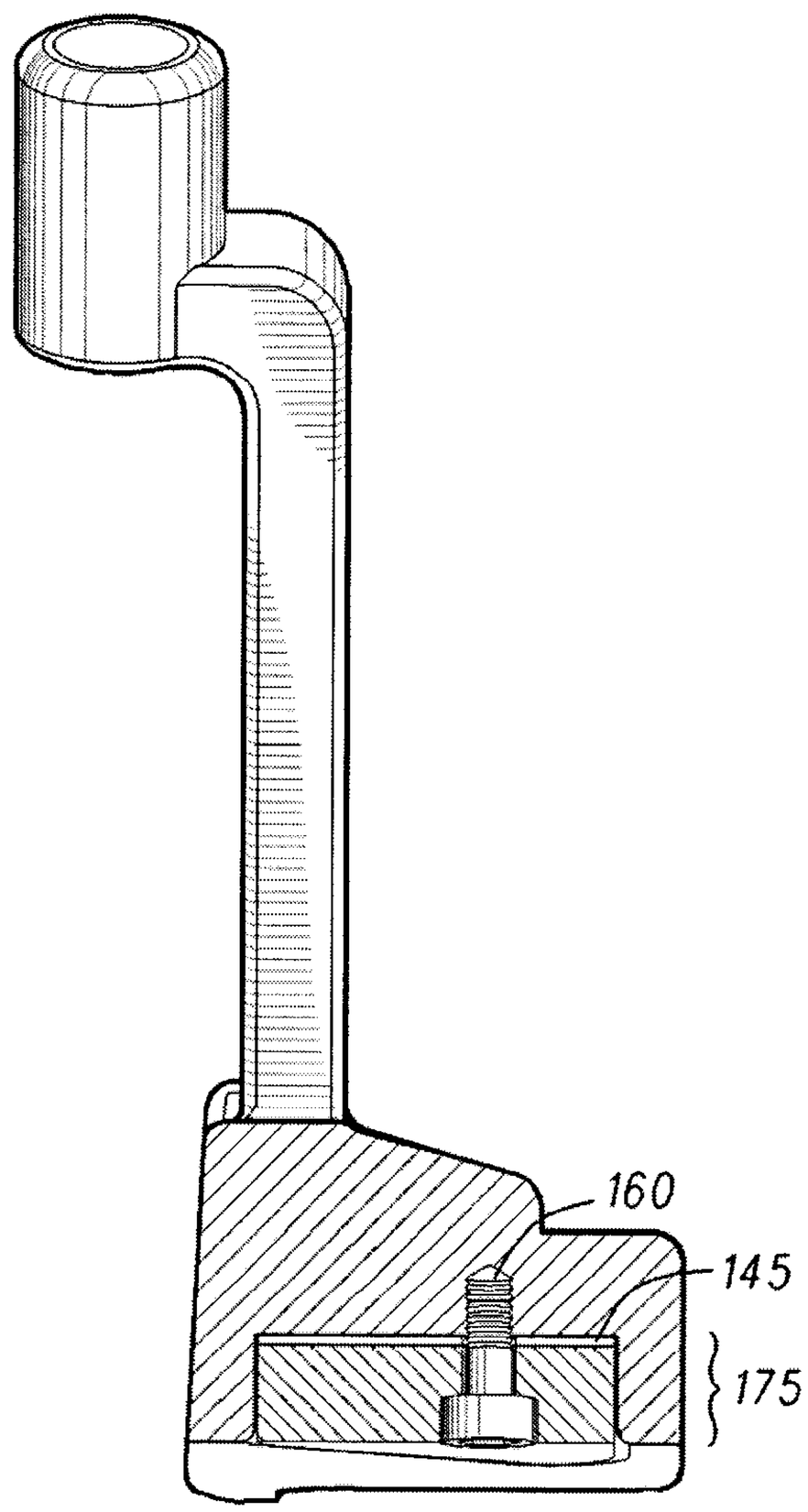


Fig. 6

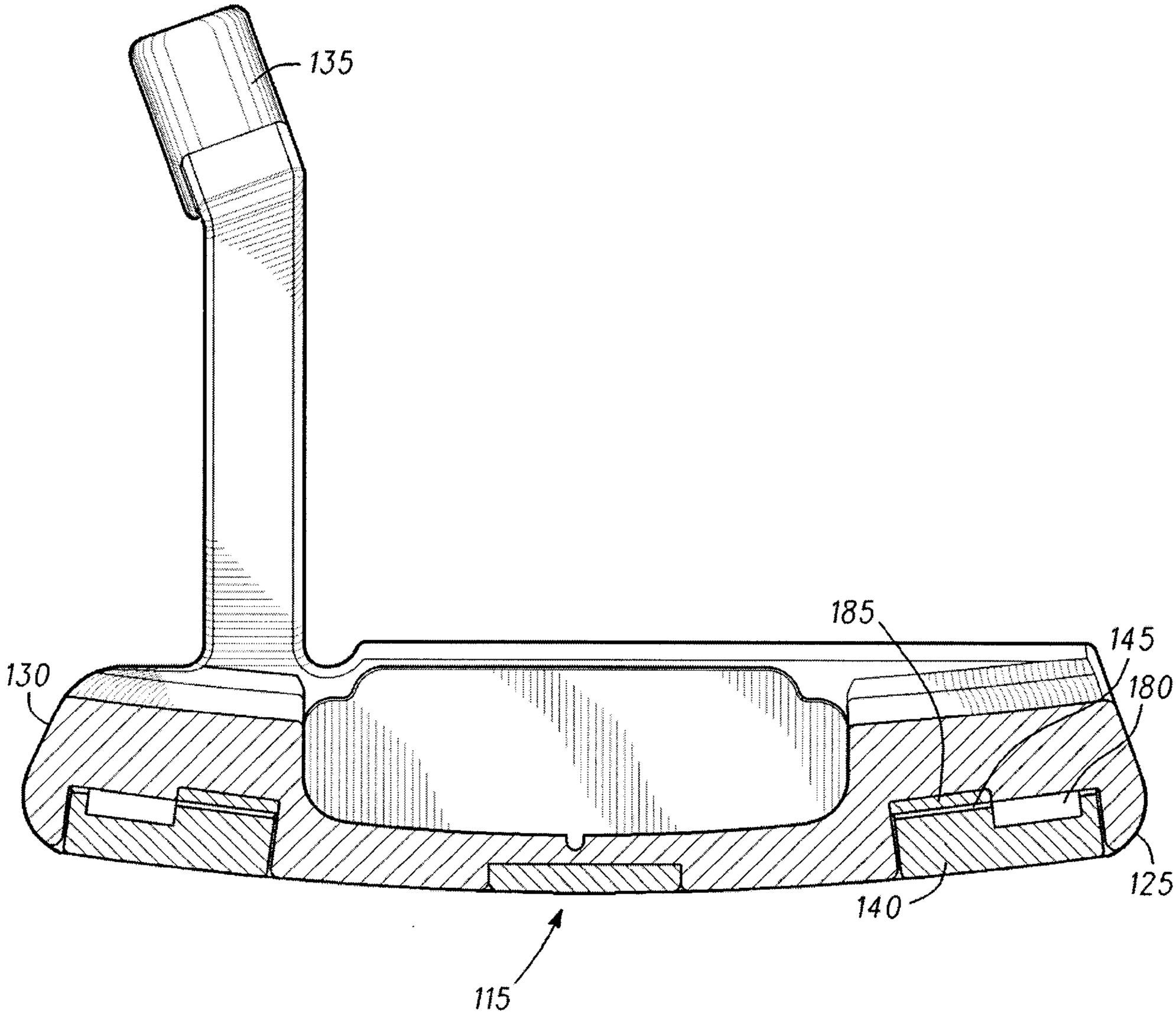


Fig. 7

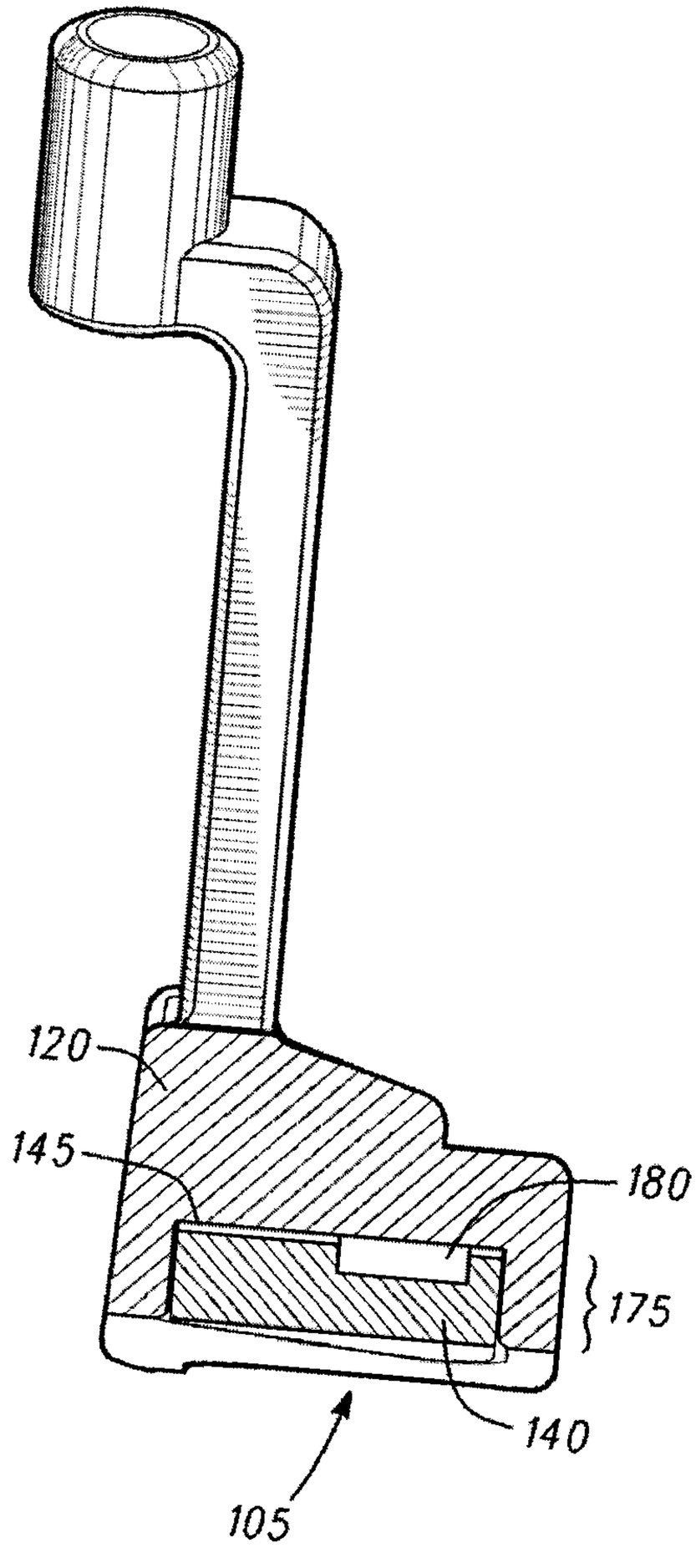


Fig. 8

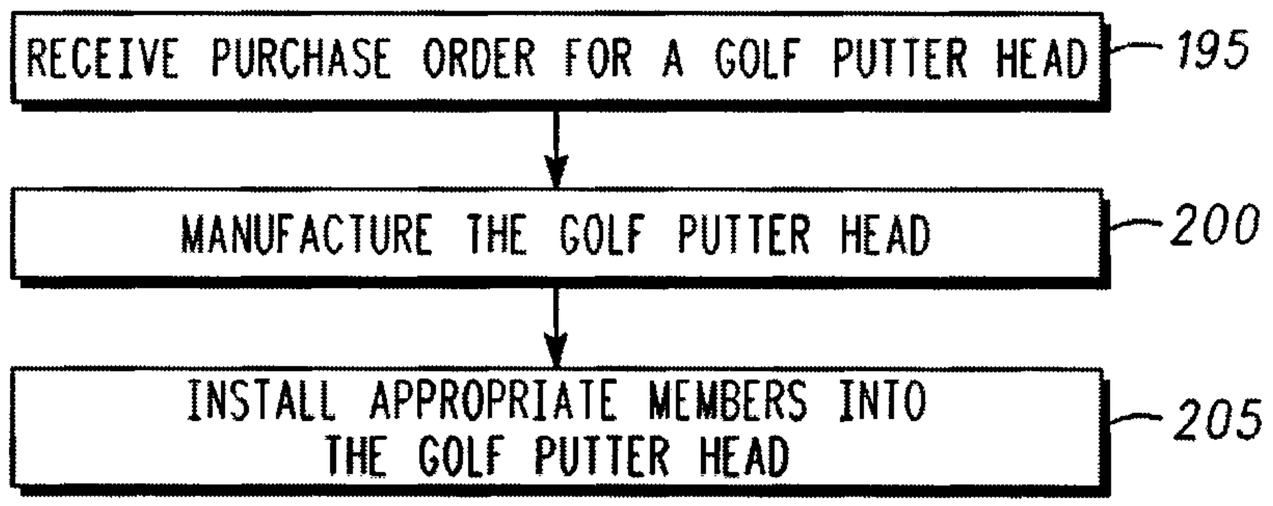

RECEIVE PURCHASE ORDER FOR A GOLF PUTTER HEAD
195
MANUFACTURE THE GOLF PUTTER HEAD
200
INSTALL APPROPRIATE MEMBERS INTO THE GOLF PUTTER HEAD
205

Fig. 9

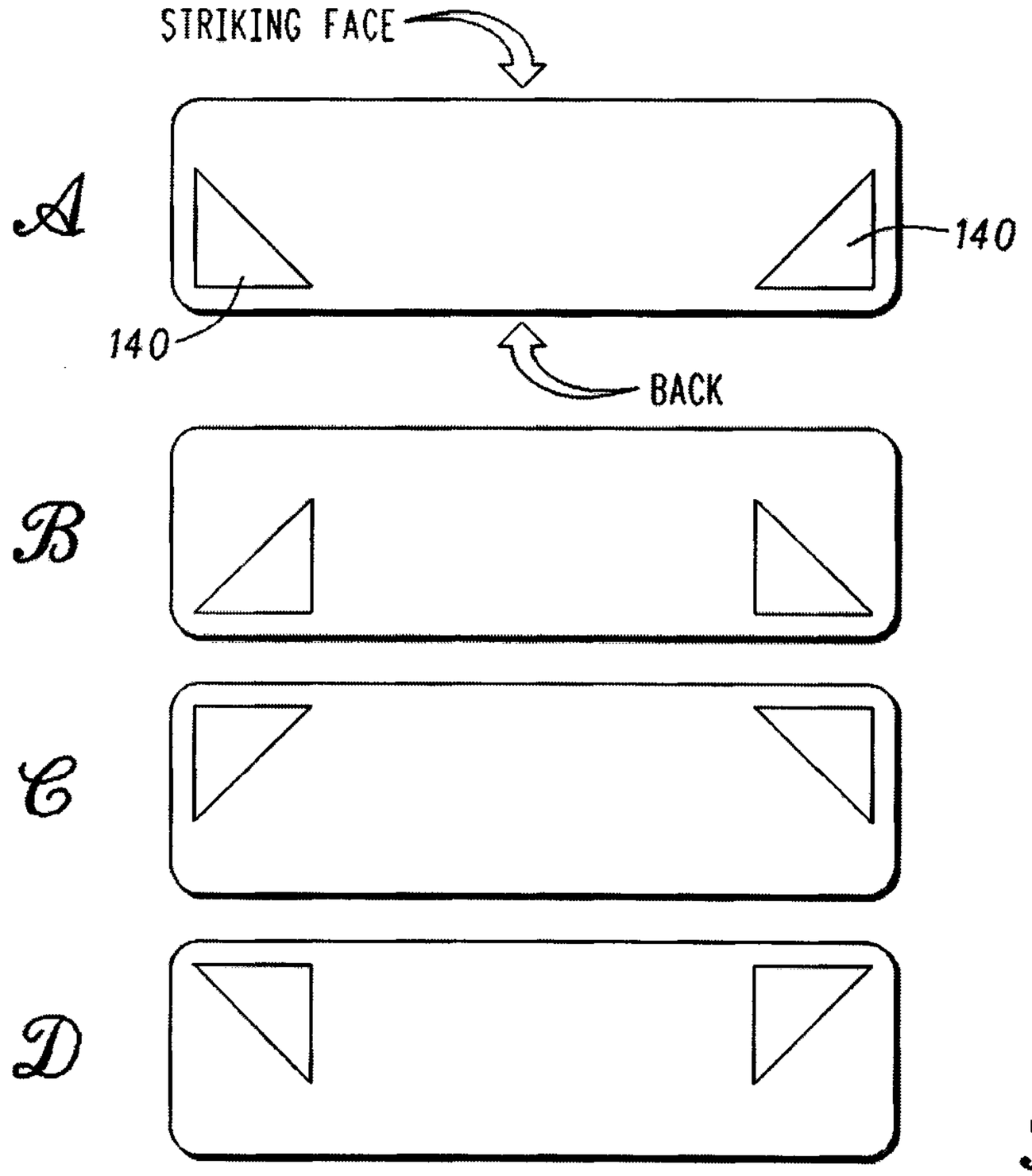
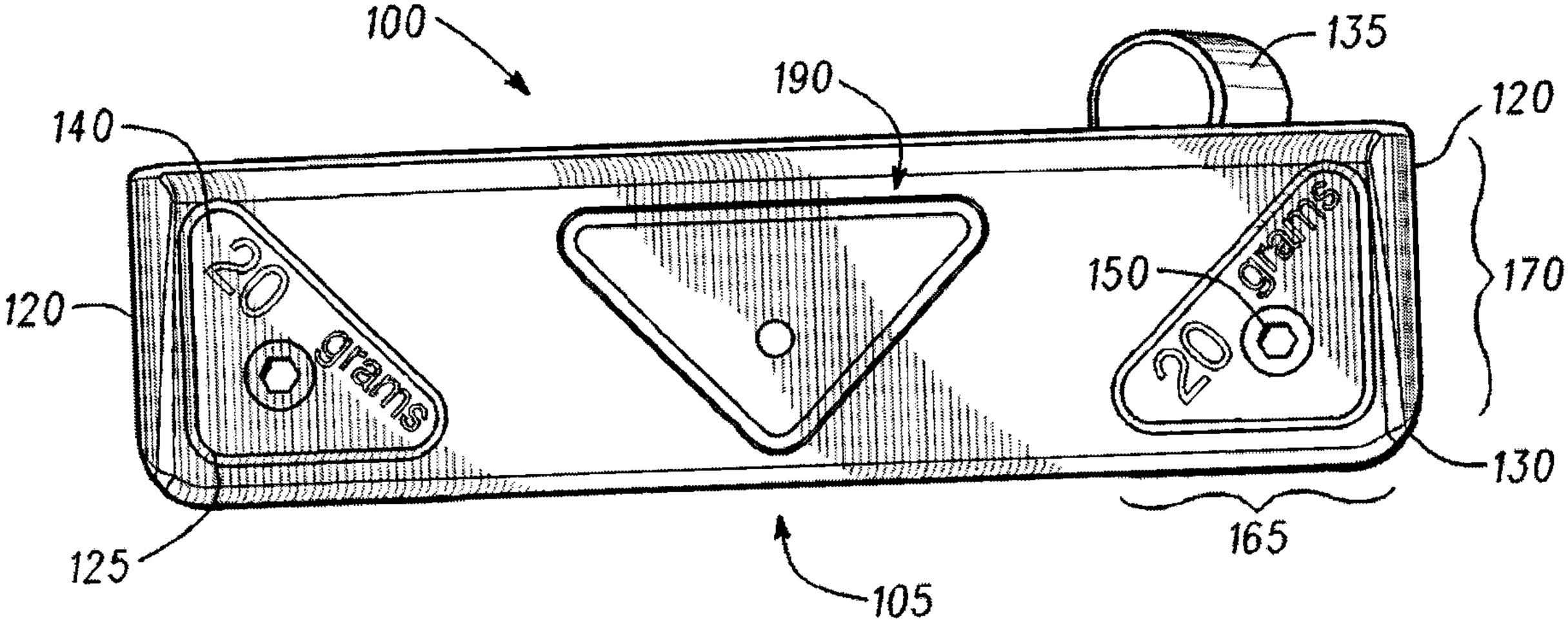

STRIKING FACE
A
140
140
BACK
B
C
D

Fig. 10


100
135
190
140
120
120
20 grams
150
20 grams
170
130
165
125
105