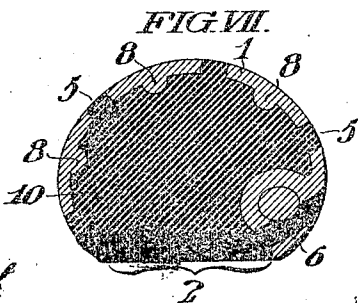
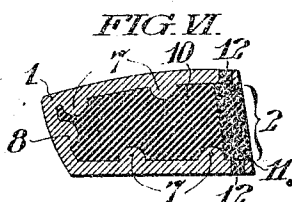
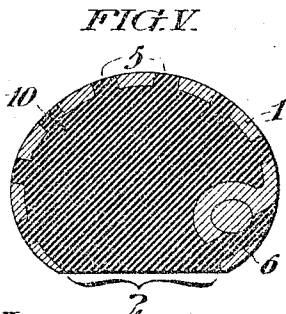
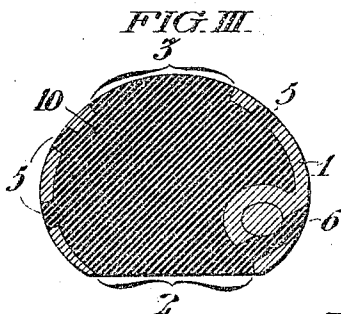
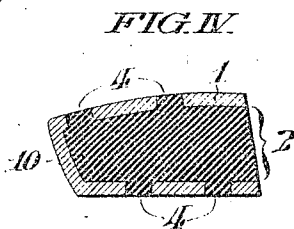
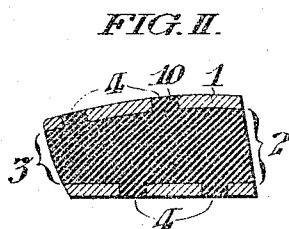
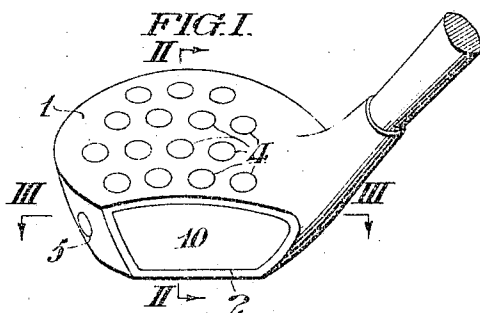


No. 838,284.

PATENTED DEC. 11, 1906.

C. T. THOMPSON & F. P. MITCHELL.
GOLF CLUB.

APPLICATION FILED JAN. 25, 1906.



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GOLF-CLUB.

No. 838,284.

Specification of Letters Patent.

Patented Dec. 11, 1906.

Application filed January 25, 1906. Serial No. 297,799.

To all whom it may concern:

Be it known that we, CHARLES T. THOMPSON, residing at The Rittenhouse, Twenty-Second and Chestnut streets, in the city of Philadelphia and State of Pennsylvania, and FRANK P. MITCHELL, residing at Laurel Springs, in the county of Camden and State of New Jersey, citizens of the United States, have invented certain new and useful Improvements in Golf-Clubs, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to an improved golf-club by which the construction is simplified, the resiliency of the driving-face increased, the elastic force of the blow strengthened, and the durability of the club improved.

According to our invention the head of the golf-club is made of a shell of metal, preferably aluminium, which is filled with a resilient substance or substances molded within it while in a plastic state, with exposure of the face of the resilient material to form the driving or impact surface of the club and with provision of irregularities or apertures in the shell, whereby yielding or dislodgment of its resilient interior or any part of it is prevented.

Our invention is capable of many variations of detail in its application; but we have illustrated in the drawings and will describe three preferred forms in which we embody the invention, with the understanding that although subject to the limitations expressed in the claims our invention is not limited to the precise embodiments shown.

In the accompanying drawings, Figure I represents the head of a golf-club constructed so as to embody a preferred form of our invention. Figs. II and III are respectively vertical and horizontal sections of the same along the lines II II, III III in Fig. I. Figs. IV and V are similar sections taken along the same lines, but embodying a variation in the construction of our club. Figs. VI and VII are similar sections taken along the same lines and embodying another variation in the construction of our club.

We will first describe our invention as embodied in the form shown in Figs. I, II, and III.

The head of the club is formed of a metal casting 1 of the shape shown in Fig. I, which

is of the usual configuration of the head of a golf-driver, and is provided with a pierced neck for attachment of the stick to form the handle of the club. The casting is preferably of aluminium or other light metal. It is hollow, the preferred thickness of the incasing shell of metal being indicated in the drawings. The casting is entirely cut away to form the striking-face of the head, as shown at 2, exposing at this point the resilient material with which the metallic shell is filled. At the back of the head of the club another large opening 3 is provided, of the shape indicated upon the sectional drawings. The shell is further provided with holes or apertures 4, preferably circular, of which there are a number piercing the top and bottom surfaces of the head of the club. Other similar apertures 5 pierce that portion of the sides of the club not occupied by the large openings 2 and 3. A larger inclined aperture 6 pierces the casting from near the edge of the face next the stick and passes beneath the stick. These openings serve important functions, which will be hereinafter referred to. Within the hollow shell thus constructed there is inserted a mass of plastic material 10. This may consist of gutta-percha or of hard or vulcanized rubber or of rubber mingled with feathers (a material described in a preceding patent of the applicant Thompson as a material for golf-balls) or other similar resilient material. This material is rendered plastic by heating or other means and while in its plastic condition is run or molded into the hollow casting, sufficient pressure being applied to cause the material to enter the apertures 4, 5, and 6, as well as to completely fill the head. The material is then closely trimmed to the outer surface of the casting both to form a front and back face 2 and 3 and wherever it protrudes through the apertures. The club is thus completed and ready for use.

In the variety of our invention disclosed in Figs. IV and V the details of construction are the same as so far specified, with the exception that the large opening 3 upon the back of the club is omitted and two or three smaller apertures 4 are provided in place thereof.

In the variety of our invention disclosed in Figs. VI and VII the more difference occurs

that all of the apertures 4 are omitted and in place thereof the interior surfaces of the shell above and below are provided with projections or corrugations 7. The apertures 5 around the sides are reduced in number, some of them being replaced by internal projections 8. The aperture or channel 6 is employed as before. In this instance when the resilient material is introduced into the casting under pressure in its plastic condition it reaches into the spaces between the projections or corrugations and is similarly held in place or bound to the shell as when it enters the apertures which are provided in the construction previously described. A further variation of our invention is disclosed in Figs. VI and VII, (but may also be employed in the other forms,) in that the resilient material put into the casting is not all of the same character, but consists of two different parts. The main portion of the casting is filled with a mass 10 of material which is preferably either vulcanized rubber or vulcanized rubber mixed with feathers. In front of this a separate facing or layer 11 is formed, which should be harder than the other material and is preferably gutta-percha. Both materials are put in while in a plastic condition and conform themselves to the irregularities of the interior. To further attach the facing 11, a series of small apertures 12 are formed around the edge of the face of the casting.

In all of the forms of construction thus far specified it will be observed that a common principle occurs and is utilized—namely, that the hollow metallic shell which contains the resilient material is provided with spaces, (either in the form of apertures or of interstices between projections,) within which the resilient material, when in its plastic form, is packed, and by this means this resilient material is not merely held in place by the containing-walls of the shell, but is immovably and continuously interlocked therewith by the projecting of the resilient material between the apertures or projections especially provided for that purpose. It will also be understood that the apertures are important in that they allow the air to be expelled from the casting as the plastic material is introduced. If it were not for this provision, no satisfactory or permanent packing

of the interior of the casting could be obtained.

It will of course be understood that, if necessary, there may be embedded within the resilient material a block of some other solid substance the specific gravity of which is either greater or less than a similar mass of the resilient material for the purpose of either increasing or decreasing the total weight of the head.

Having thus described our invention, we claim—

1. A golf-club having a head formed of a hollow metal casting, packed with resilient substance which is exposed to form the impact-surface of the club, and with provision of apertures in the casting by entering which the resilient substance is caused to adhere to the casting.

2. A head for a golf-club combining a hollow metallic shell with a large opening on the impact-surface, smaller openings at other parts of the shell, and a resilient substance molded within the same and fully occupying the shell and the openings.

3. A head for a golf-club formed of a hollow metallic shell, packed with a resilient material, provided with a large opening in the shell for exposure of the resilient material to form an impact-surface, and a series of smaller openings performing the double function of releasing the air when the shell is packed with the resilient material in plastic shape, and of securing complete adhesion of the resilient material to its containing-shell.

4. A head for a golf-club comprising a hollow metallic shell with a large opening on the impact-surface; a resilient mass of vulcanized rubber and feathers packed within said shell and fully occupying all except the region near the impact-surface; and a layer of gutta-percha also packed within the shell and occupying the region near and forming the impact-surface of the club.

In testimony whereof we have hereunto signed our names, at Philadelphia, Pennsylvania, this 24th day of January, 1906

CHARLES T. THOMPSON.
FRANK P. MITCHELL.

Witnesses:

JAMES H. BELL,
E. L. FULLERTON.