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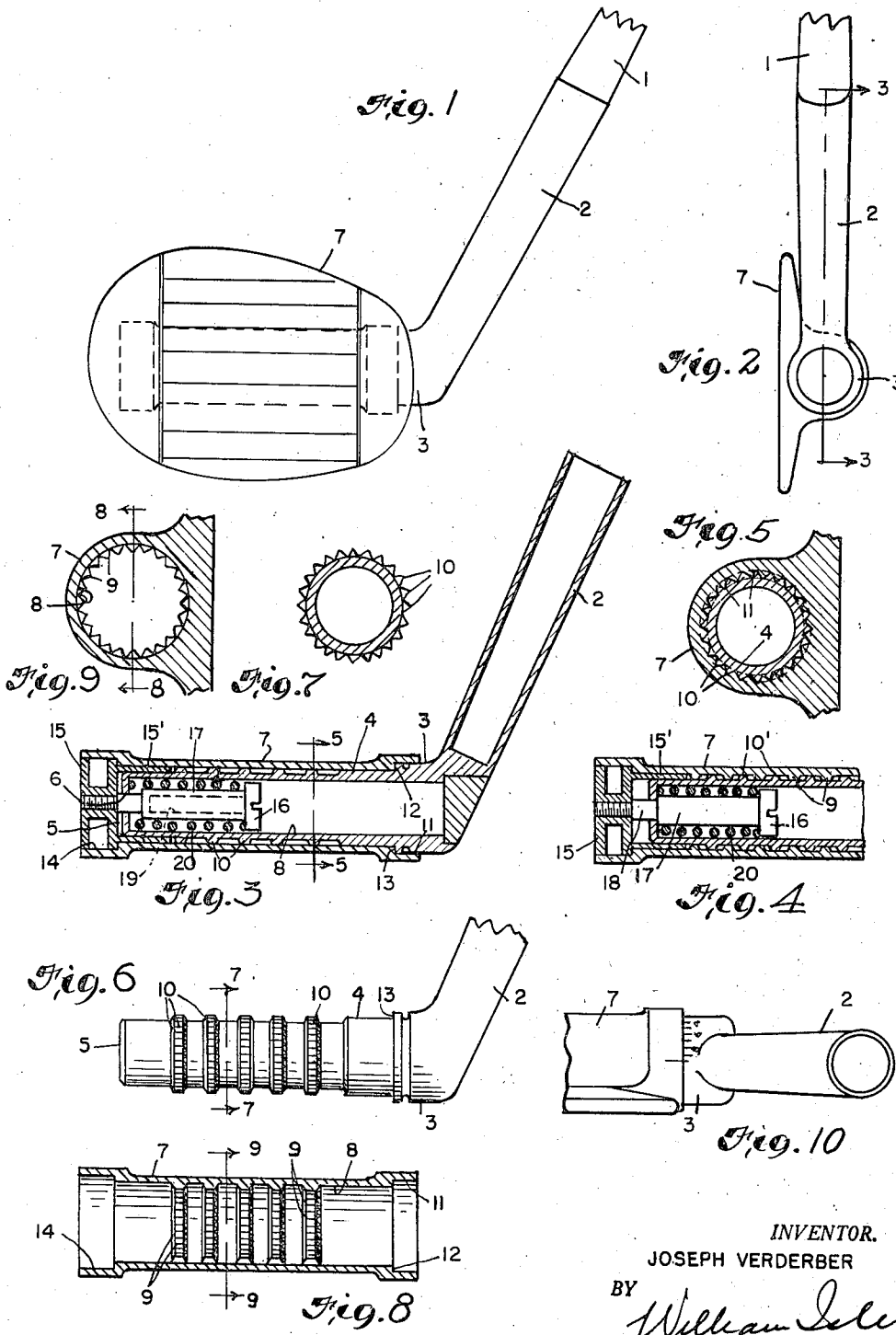
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2,455,150

GOLF CLUB

Filed Sept. 5, 1945

2 Sheets-Sheet 1



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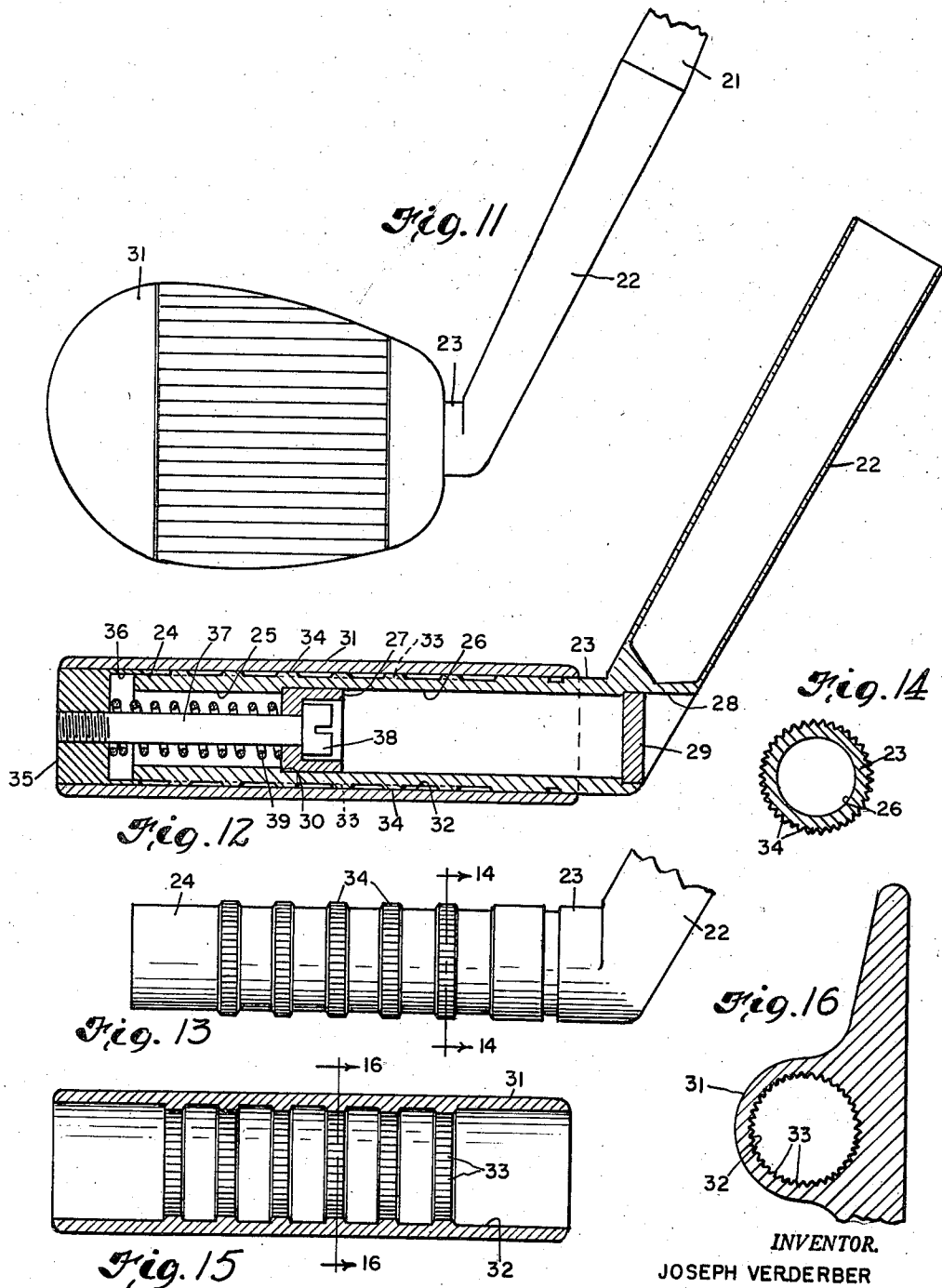
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GOLF CLUB

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6 Claims. (Cl. 273-79)

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This invention relates generally to golf clubs, but has reference more particularly to golf clubs having angularly adjustable heads and to means for adjusting said heads.

The present invention has as its primary object the provision of improved means for locking the head of the club in adjusted position, such means including coacting serrations or teeth on the shank and head, which extend over a substantial area of the shank and head.

Another object of the invention is to provide means for locking the head and shank together, which means is characterized by a minimum of easily manufactured parts, and which is devoid of sliding or loose parts or elements which are likely to become lost or create noise or vibration.

A further object of the invention is to provide a golf club of the character described, in which the locking means or elements become automatically aligned with or parallel with the axis of the shank, thereby insuring full surface contact of the coacting serrations on the head and locking elements.

A still further object of the invention is to provide a golf club of the character described, in which the locking means or elements become automatically aligned with or parallel with the axis of the shank, when released from locking engagement with the head, thereby insuring free rotation of the head, when it is desired to adjust the head.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a fragmentary front elevational view of the lower portion of a golf club embodying a preferred form of the invention;

Fig. 2 is a view of the parts shown in Fig. 1, as viewed from the right of Fig. 1;

Fig. 3 is a cross-sectional view, taken on the line 3-3 of Fig. 2, with the head in locked position;

Fig. 4 is a view similar to Fig. 3, but with the head in unlocked or released position, preparatory to rotating or adjusting the same angularly about the shank;

Fig. 5 is a cross-sectional view, taken on the line 5-5 of Fig. 3;

Fig. 6 is an elevational view of the shank of the club;

Fig. 7 is a cross-sectional view, taken on the line 7-7 of Fig. 6;

Fig. 8 is a longitudinal cross-sectional view of the club head, taken on the line 8-8 of Fig. 9;

Fig. 9 is a cross-sectional view, taken on the line 9-9 of Fig. 8;

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Fig. 10 is a fragmentary top plan view of the parts shown in Fig. 1, and showing means for visually indicating the angularity of the head, relatively to the shaft of the club;

Fig. 11 is a view similar to Fig. 1, but of a somewhat modified form of the invention;

Fig. 12 is a view similar to Fig. 3, but of the modified form of the invention;

Fig. 13 is a view similar to Fig. 6, but of the modified form of the invention;

Fig. 14 is a cross-sectional view, taken on the line 14-14 of Fig. 13;

Fig. 15 is a view similar to Fig. 8, but of the modified form of the invention;

Fig. 16 is a cross-sectional view taken on the line 16-16 of Fig. 15.

Referring more particularly to Figs. 1 to 10 inclusive of the drawings, it will be seen that the golf club comprises a shaft 1, to which is secured a member consisting of a hosel 2 and a shank 3 extending at an obtuse angle to the hosel and terminating in an extension 4 of slightly reduced diameter, which is provided with an end closure 5 having a central aperture 6.

The club further includes a head 7, the face of which is ribbed in a conventional manner, as shown in Fig. 1, the head being mounted on the shank in such a manner as to be rotatable about the shank when released from locked engagement with the latter. For this purpose, the head is provided with a longitudinally extending bore 8 having a series of longitudinally-spaced annular rows of serrations or teeth 9 which extend radially-inwardly from the wall of said bore, and which are designed to coact with similarly-spaced annular rows of serrations or teeth 10, which are formed by removing portions of the extension 4 of the shank.

The head 7 is counterbored, as at 11, to provide a shoulder 12, which is adapted to abut a shoulder 13 at the junction of the extension 4 with the shank 3, to thereby determine the relative axial position of the head to the shank, when the head is locked to the shank.

The head 7 is also counterbored, as at 14, for the reception of a nut 15, having a sleeve-like extension 15', of reduced external diameter, the external surface of said sleeve-like extension coinciding in diameter with the diameter of the extension 4 of the shank, so as to constitute, in effect, a continuation of the outer surface of the extension 4 and form with the latter a bearing surface for the head 7.

The nut has threadedly secured thereto a screw 16, which is disposed within the extension 4 of the shank and is provided with a shank 17, having a portion 18 of reduced diameter which extends through the opening 6. The screw is preferably hollowed out, as indicated at 19, to reduce

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the weight thereof. A compression coil spring 20 is interposed between the head of the screw 16 and the end closure 5 of the extension 4 of the shank.

The spring 20 normally maintains the head in locked position, as shown in Fig. 3, and in this position, the shoulder 12 of the head abuts the shoulder 13 of the shank, and the serrations or teeth 9 are meshed or in interlocked engagement with the serrations or teeth 10.

Since there are approximately 40 teeth in each of the annular rows and 5 rows of teeth, about 200 teeth of the head are interlocked with a corresponding number of teeth on the shank. This insures a positive and strong interengagement of the head with the shank, which is effective to resist any and all blows encountered in the use of the club which might tend to rotate the club head.

When it is desired to change or adjust the angularity of the head relatively to the shaft of the club, it is only necessary to pull the club head to the left, from the position shown in Fig. 3 to that shown in Fig. 4. This causes the spring 20 to be compressed, and at the same time, the teeth 9 are moved from their interlocked engagement with the teeth 10 to the spaces between the rows 10, as shown in Fig. 4. Thereafter, the head may be rotated to any desired angular position, and released, permitting the spring 20 to return the head to its locked position.

It is thus seen that I have provided head locking means which is characterized by a minimum number of easily manufactured parts, and in which the locking elements or teeth extend over a substantial area of the shank and head.

Referring now to Figs. 11 to 16 inclusive of the drawings, it will be seen that the golf club comprises a shaft 21, to which is secured a member consisting of a hosel 22 and a shank 23 extending at an obtuse angle to the hosel and terminating in an extension 24 of slightly reduced diameter. The shank 23 and extension 24 have a bore 25 extending axially therethrough, which is counterbored as at 26 to receive a recessed plug 27, which is rigidly secured thereto, and is counterbored as at 28 to receive a closure plug 29. The juncture of the counterbore 26 with the bore 25 forms a shoulder 30, which provides a seat for the recessed plug 27.

The club further includes a head 31, the face of which is ribbed in a conventional manner, as shown in Fig. 11, the head being mounted on the shank 23 in such a manner as to be rotatable about the shank, when released from locked engagement with the latter. For this purpose, the head is provided with a longitudinally extending bore 32 having a series of longitudinally-spaced annular rows of serrations or teeth 33 which extend radially-inwardly from the wall of said bore, and which are designed to coact with similarly-spaced annular rows of serrations or teeth 34, which are formed by removing portions of the shank 23.

Disposed and rigidly secured within the outer end of the bore 32 of the head 31 is a nut 35 having a sleeve-like extension 36, the internal surface of which coincides in diameter with the external diameter of the extension 24 of the shank 23, so as to form a bearing surface for the extension 24.

The nut 35 has threadedly secured thereto a screw 37, which extends through the bore 25, and the head 38 of which bears on the bottom of the recess in the plug 27. A compression coil

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spring 39 is interposed between the nut 35 and plug 27.

The spring 39 normally maintains the head in locked position, as shown in Fig. 12, and in this position, the serrations or teeth 33 are meshed or in interlocked engagement with the serrations or teeth 34.

When it is desired to change or adjust the angularity of the head relatively to the shaft of the club, it is only necessary to push the club head to the right from the position shown in Fig. 12 until the nut 35 abuts the end of the extension 24 of the shank. This causes the spring 39 to be compressed, and at the same time, the teeth 33 are moved from their interlocked engagement with the teeth 34, to the spaces between the rows of teeth 34. Thereafter, the head may be rotated to any desired angular position, and released, permitting the spring 39 to return the head to its locked position.

It is to be understood that the forms of my invention, herewith shown and described, are to be taken as preferred examples of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention, or the scope of the subjoined claims.

Having thus described by invention, I claim:

1. In an adjustable golf club, the combination of a hollow shank having a series of longitudinally-spaced annular locking surfaces thereon, a head slidably mounted on said shank, said head having a complementary series of longitudinally-spaced annular surfaces having longitudinal serrations thereon, a spring abutment rigidly secured within said hollow shank, a bolt seated on said abutment and slidably extending through said abutment and having one end thereof secured to said head, and a coil spring disposed within said shank between said abutment and said head and resiliently maintaining said head in the outermost position permitted by said bolt, said position being a position of interengagement of said annular surfaces whereby said head is locked against rotation, said head being manually retractable from the aforesaid position to disengage the head and shank to permit rotation of said head about said shank to selected positions of loft.

2. A combination, as defined in claim 1, in which said bolt is threadedly secured to said head, thereby permitting adjustment of the limit of outward movement of said head relatively to said shank.

3. A golf club comprising a shaft, a hollow shank extending angularly therefrom, said shank having a series of longitudinally-spaced annular surfaces having longitudinal serrations extending outwardly therefrom, a head slidably mounted on said shank, said head having a series of longitudinally-spaced annular surfaces having longitudinal serrations extending inwardly therefrom, means associated with said head and said shank whereby to resiliently urge relative longitudinal movement between said head and said shank, a threaded element slidably contained within said shank, and secured to said head, and an abutment provided in the bore of said shank in the path of movement of said element whereby said element is adapted to arrest the longitudinal movement of said head relatively to said shank at a position of interengagement of the aforesaid serrations and thereby cause said head to be locked against rotation about said shank.

4. A golf club comprising a shaft, a hollow

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shank extending angularly therefrom, said shank having a series of outwardly extending longitudinally-spaced annular surfaces having longitudinal serrations thereon, a head slidably mounted for longitudinal movement on said shank, said head having a series of longitudinally-spaced annular surfaces having longitudinal serrations extending radially inwardly therefrom and adapted to alternately engage and disengage said first-named serrations when said head moves longitudinally relative to said shank, spring means associated with said head and said shank whereby to resiliently urge relative longitudinal movement between said head and said shank, a threaded element slidably contained within said shank and secured to said head, and an abutment disposed within said shank in the path of movement of said element and adapted to limit said longitudinal movement, whereby said head is normally locked against rotation about said shank at the limit of its movement but may be manually withdrawn from its locked position for free rotation about said shank to selected positions of loft.

5. A golf club comprising a shaft, a hollow shank extending angularly therefrom, said shank having a series of longitudinally-spaced annular surfaces having longitudinal serrations extending outwardly therefrom, a head slidably mounted on said shank for longitudinal movement relative thereto, said head having a series of similarly spaced annular surfaces having longitudinal serrations extending inwardly therefrom, said head being freely rotatable about said shank when said first named and said second-named series of serrations are not in engagement, spring means associated with said head and said shank whereby to urge relative longitudinal movement between said head and said shank, and means for arresting the aforesaid movement at a position of interengagement of

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said series of serrations, said last-named means comprising an element slidably contained within said shank and an abutment provided within said shank in the path of movement of said element, said element having one end thereof secured to said head.

6. A golf club comprising a shaft, a hollow shank extending angularly therefrom, said shank having a series of longitudinally-spaced annular surfaces having longitudinal serrations extending outwardly therefrom, a head slidably mounted on said shank, said head having a series of longitudinally-spaced annular surfaces having longitudinal serrations extending inwardly therefrom, an element slidably contained within said shank and secured to said head, an abutment provided on said shank in the path of movement of said element whereby to limit relative longitudinal movement between said head and said shank, and spring means carried by said element in opposition to said abutment whereby to yieldably maintain the serrations on said head and said shank in interengagement and thereby lock said head against rotation about said shank.

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