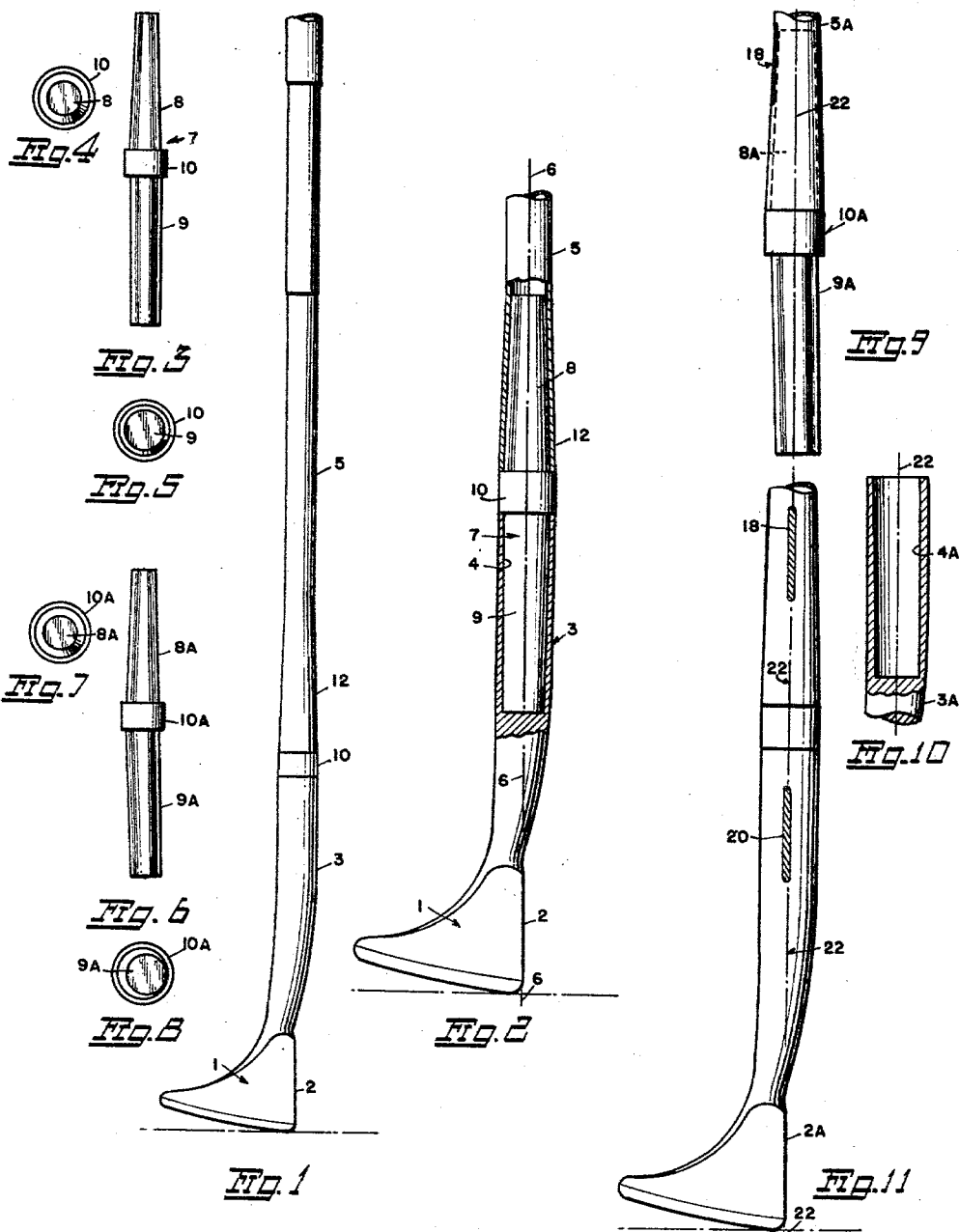


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GOLF CLUB INCLUDING MEANS FOR ALIGNING
THE SHAFT, HOSE AND STRIKING FACE
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GOLF CLUB INCLUDING MEANS FOR ALIGNING THE SHAFT, HOSEL AND STRIKING FACE

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This invention relates generally to improvements in golf clubs of the type having metal shafts and metal hosels.

More particularly, the invention relates to means for effecting an integrated assembly of a putter head and its shaft in such a manner that the center line of the putter shaft will assume co-axial alignment with that of the hosel and hence with the face of the putter head, and so secured in a rigid assembly of maximum strength and durability.

Another object of the invention is the provision of adapter means for effecting such aligned integration with a minimum of time expenditure and effort on the part of the manufacturer and wherein the finished club will impart to the user a better feel and balance.

A further object is the provision of an adapter of the character described which will also during sequential assembly operations, compensate for any inaccuracies or misalignment of the shaft-receiving bore in the hosel relative to the center line thereof and to the shaft secured to the hosel by the adapter.

The foregoing and other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof and in which:

FIGURE 1 is a front elevational view of a putter head and a fragmentary view of its shaft assembled in accordance with my invention.

FIGURE 2 is a similar view, on an enlarged scale and partly in section, showing one form of adapter of this invention secured to the hosel of a putter head and to the shaft.

FIGURE 3 is a detail view, drawn to the scale of FIGURE 1, of the adapter shown in FIGURE 2.

FIGURES 4 and 5 are top and bottom end views, respectively, of FIGURE 3, on an enlarged scale.

FIGURE 6 is a detailed view of a modified form of adapter.

FIGURES 7 and 8 are top and bottom end views, respectively, of FIGURE 6, on an enlarged scale.

FIGURE 9 is an elevational view, drawn to the scale of FIGURE 2, of the adapter of FIGURE 6 permanently secured to a fragment of the bottom end of the hollow steel putter shaft.

FIGURE 10 is a fragmentary detail view of the hosel of a putter head showing a defect in the longitudinal boring thereof and which if assembled with the adapter of FIGURE 3, would cause misalignment of putter shaft with the center line of the hosel and hence with the face of the putter, and

FIGURE 11 is an assembly view of the putter shaft of FIGURE 9 and the putter head hosel of FIGURE 10 wherein the defective boring thereof has been overcome by the adapter of FIGURES 6 and 9.

With continuing reference to the drawing wherein like references of character designate like parts, and particularly FIGURES 1 and 2 thereof, reference numeral 1 indicates generally a conventional type of putter head having a face 2 and integrated with a partially curved hosel 3 bored concentrically inwardly from its straight top end as at 4 for a portion of its length. The top end of the hosel is secured concentrically to the bottom

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end of a hollow steel tubular putter shaft 5 with the center line 6 thereof in alignment with the face 2 of the putter head. Such precise assembly of the parts, just described, is accomplished by means of an adapter indicated generally at 7 in FIGURES 2-5 and which comprises a top section 8 and a bottom section 9 concentric with each other and separated by a central concentric enlarged annular section 10 to provide an abutment for a purpose to be hereinafter described. The top section 8 is tapered as shown for secure engagement by means of a driven or friction fit within the bottom end portion 12 of the hollow putter shaft 5. This end of the putter shaft may be slightly flared or pre-formed into what might be termed a bell tip to facilitate such fitting, or so formed by the driven insertion of the corresponding section 8 of the adapter into the shaft.

The bottom end 9 of the adapter is also tapered, but to a lesser degree than the top section 8 for secure engagement also by a driven or friction fit within the bore 4 of the hosel 3.

In the finished assembly it is of great importance that the top portion of the hosel containing the bore 4, be concentric with the bottom end of the shaft 5, the abutment 10, and that the center line of the shaft 5 be in alignment with the face 2 of the putter head. Such precise relationship of the parts is readily accomplished with the adapter of FIGURE 3 because of the concentricity of its three parts 8, 9, and 10, and the concentricity of the bore 4 in the hosel 3.

In the modified form of adapter shown in FIGURES 6-8, the tapered top section 8A is concentric with the abutment 10A and the bottom section 9A is tapered in the same manner as section 9 or FIGURE 3, but is offset at its bottom end from the center line of the top section 8A and that of the abutment 10A.

An attempt to unite the club shaft 5 with a misaligned bore or drilled hole in the hosel, such as indicated at 4A in FIG. 10, would result in an assembly wherein the club shaft would be out of alignment with the straight top portion of the hosel and the center line of the shaft out of line with the face 2 of the putter. To compensate for such inaccuracies in drilling or boring of the hosel, which sometimes occurs during the manufacture of the club head, I utilize the adapter of FIGURE 6 by first driving its top section 8A into firm engagement with the interior of the bottom end of the club shaft 5A then after initial entry of the bottom section 9A into the top end of the misaligned bore 4A, I manually rotate the shaft and adapter to the right or left as necessary until a removable or erasable mark or guide line 18 near the bottom end of the club shaft 5A is brought into alignment with a similar guide line or mark 20 on the straight top portion of the hosel 3A. Such alignment of the guide lines 18 and 20 assures concentricity of the club shaft 5A, abutment 10A, and top straight portion of the hosel 3A relative to each other with the center line 22 in alignment with the face 2A of the putter head.

In the final steps of assembly either form of adapter is first driven into secure engagement with the hollow bottom end of its respective shaft until the bottom end of the shaft squarely and firmly bears against the abutment 10 or 10A. Following this the bottom section of the adapter is driven into the bore of the hosel until the abutment similarly bears against the top rim thereof.

While I have shown particular forms of embodiment of my invention, I am aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention. Having thus described my invention

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what I claim as new and desire to protect by Letters Patent is:

1. In a golf club and in combination,
a head having a metallic hosel,
said hosel having a downwardly extending bore there-
in misaligned relative to the longitudinal axis of
the hosel,
a metal shaft hollow at least at its bottom end por-
tion,
an adapter for uniting said head with said shaft com-
prising a top section tapered upwardly and firmly
engaged with the interior of the bottom end of
said shaft by a friction fit, and
a bottom section tapered downwardly and misaligned
relative to the longitudinal axis of said top section,
whereby rotation of said shaft and said adapter rela-
tive to said hosel will bring the longitudinal axis
of the hosel into axial alignment with the longitu-
dinal axis of said shaft.
2. In a golf putter and in combination,
a metal shaft hollow at least at its bottom end,
a head having a hosel and a vertically disposed strik-
ing face aligned with the longitudinal axis of said
hosel,
said hosel having a downwardly extending bore therein
misaligned relative to the longitudinal axis of the
hosel,

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an adapter for uniting said head with said shaft com-
prising a top section tapered upwardly and thereat
firmly engaged within the hollow bottom end of
said shaft,

- 5 said adapter having a downwardly tapering bottom
section misaligned relative to the longitudinal axis
of said top section,
whereby said shaft and adapter when united and
rotated relative to the hosel will bring the longitu-
dinal axis of the hosel into axial alignment with the
shaft and said striking face into alignment with the
axis of the shaft.

3. A golf putter as claimed in claim 2, including in-
dices on said shaft and on said hosel for alignment with
each other to indicate said alignment of the shaft, hosel
and said striking face thereof.

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