

(12) UK Patent Application (19) GB (11) 2 361 874 (13) A

(43) Date of A Publication 07.11.2001

(21) Application No 0010555.1

(22) Date of Filing 03.05.2000

(71) Applicant(s)  
Douglas Boyd Buchanan  
43 Lower Broad Street, LUDLOW, Shropshire,  
SY8 1PH, United Kingdom

(72) Inventor(s)  
Douglas Boyd Buchanan

(74) Agent and/or Address for Service  
Douglas Hussey  
140 Sandylands Park, Wistaston, CREWE, Cheshire,  
CW2 8HE, United Kingdom

(51) INT CL<sup>7</sup>  
A63B 53/14

(52) UK CL (Edition S )  
A6D DHA

(56) Documents Cited  
GB 1259543 B GB 0465270 B US 5575473 A  
US 5131652 A US 4979743 A US 2133696 A

(58) Field of Search  
UK CL (Edition R ) A6D DHA  
INT CL<sup>7</sup> A63B 53/14  
ONLINE: WPI, EPODOC, PAJ

(54) Abstract Title  
**Grips for sporting implements**

(57) A sporting implement such as golf club, cricket bats and tennis racquets, comprises a head, a grip 12 and a shaft 13 connecting the head and the grip 12 and first and second support members 18, 19 supporting the shaft 13 within the grip member 15 wherein the properties of the support members 18, 19 are selected on the basis of the player's ability. The support members 18, 19 may be in the form of inserts made from either resilient material such as synthetic rubber or polyurethane or the like, or made from shock absorbing material such as synthetic rubber or Neoprene, or be made from shock transmitting material such as Nylon or Aluminium. The shaft 13, the grip member 15 and the support members 18, 19 all may define a void 23 within the grip 12 and the support members 18, 19 act to seal the void 23 from the entry of dirt and moisture. The properties of the support members 18, 19 may be selected on the basis of the player's ability as defined by their swing speed, a soft rubber chosen for a player with less ability whereas a hard rubber chosen for a player with more ability. The grip member 15 may be made from hard materials such as high density polyurethane carbon fibre or metal alloys, although it is most preferable for the grip member 15 to be made of carbon fibre. The grip member 15 may be provided with a non-slip gripping surface 31. One of the supports 18, 19 may be in the form of an insert adapted to be retro-fitted to an existing sports implement.

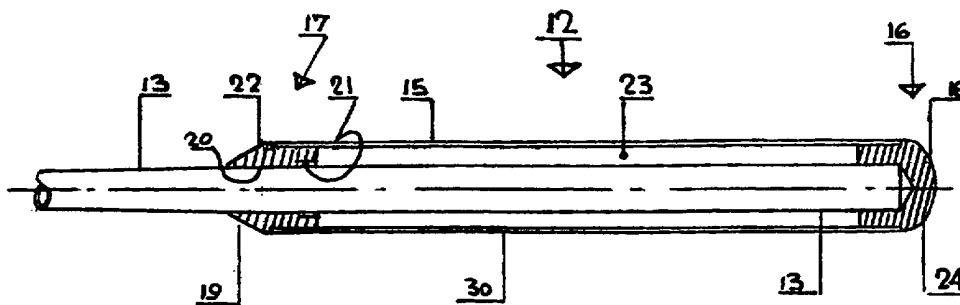


FIGURE 2

GB 2 361 874 A

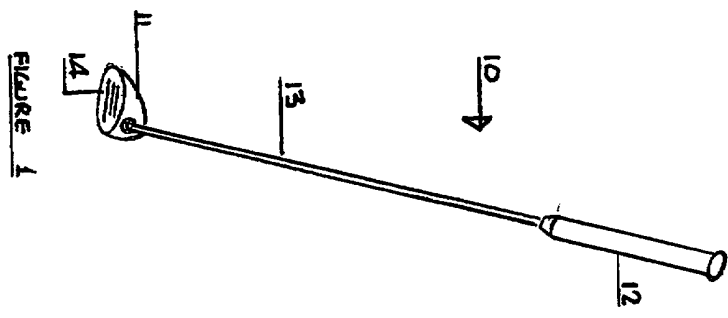


FIGURE 1

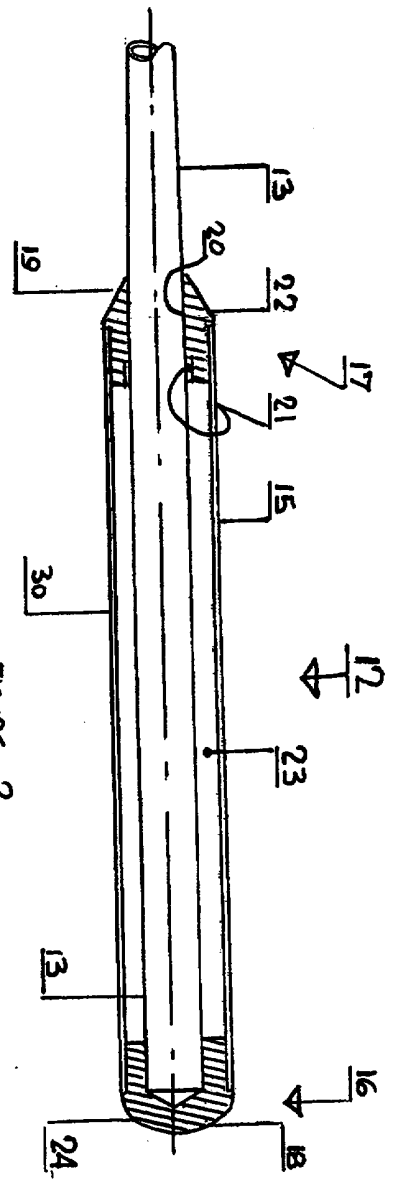


FIGURE 2

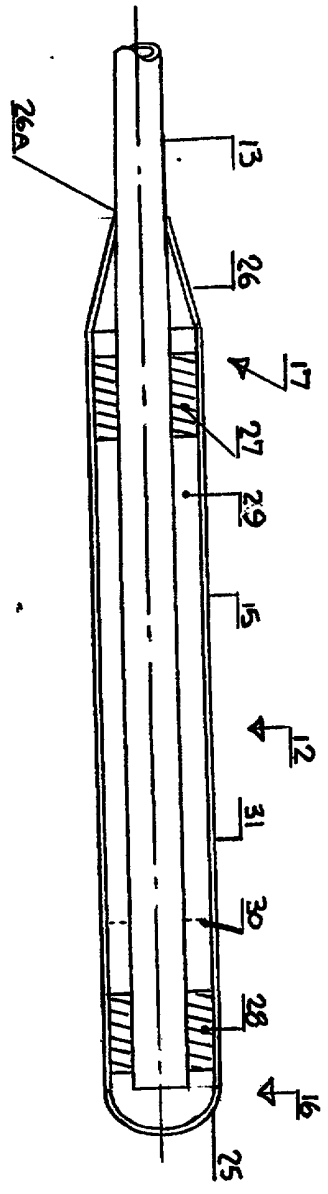


FIGURE 3

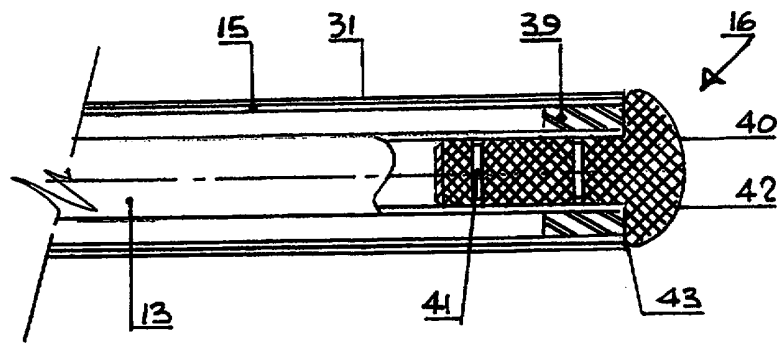


FIGURE 5

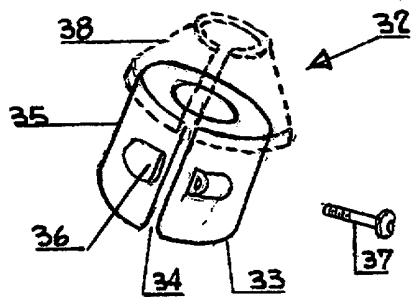


FIGURE 4

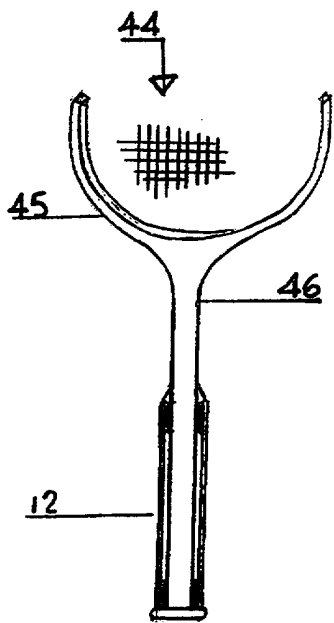


FIGURE 6

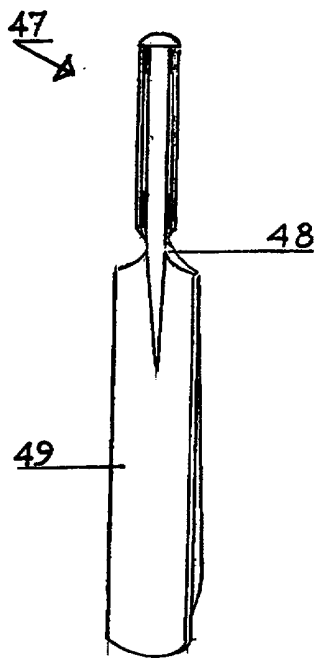


FIGURE 7

GRIPS FOR SPORTING IMPLEMENTS

This invention relates to grips for sporting implements. More particularly the invention is concerned with grips for sporting implements in which a shaft or the like is supported within a grip by means of resilient inserts. Whilst the invention is applicable generally to sporting implements such as golf clubs, cricket bats and racquet games such as tennis, squash and badminton the invention will be described in more detail in its application to the manufacture of golf clubs. The article "Mix and Match", Golf World, April 1991 is about choosing the correct golf shaft for a particular player. The article explains how the shaft bends on the backswing and is thus "loaded" and as the hands pass through the hitting area the shaft resumes its original shape and thus "unloads". The article further explains that many golf centres have swing analysers available so that it is possible to measure the player's speed of swing and thus arrive at the correct choice of shaft flexibility for a particular player. The article concludes by providing a chart headed "Matching Shafts for Swing Speed" which correlates swing speed with player's ability. For example juniors, ladies, seniors and slow swinging beginners are reported to swing below 75 mph ; competent single figure golfers are reported to swing at around 85 mph whilst at the top end of the scale professional golfers are reported to swing at 105 mph plus. Essentially the point being made is that the players ability determines the swing speed that can be attained and hence the flexibility of the shaft that should be chosen for that swing speed. It is believed that this teaching generally should be applicable to other sports. For example, a top class tennis player should generate a speed of service much greater than the average club tennis player. Likewise a test cricketer should generate impact forces much greater than the average cricketer on the village green. Accordingly in its broadest aspect the invention provides a sporting implement wherein the sporting implement comprises a striking face or

the like, a grip member and a shaft or the like connecting the grip member and the striking face, the shaft being supported within the grip member by means of support members wherein the properties of the support members are selected on the basis of the players ability.

5 According to a further aspect of the invention there is provided a golf club comprising a head, a grip and a shaft connecting the head and the grip wherein the grip comprises an elongate, thin-walled tubular hollow grip member having a cross-sectional dimension greater than the shaft, first and second support members supporting the shaft within the grip  
10 wherein the properties of the support members are selected on the basis of the players ability. The invention will now be described by way of example only with reference to the undernoted drawings wherein:

Figure 1 shows a golf club in the form of a driver in accordance with the invention.

15 Figure 2 shows a part sectional elevation of a grip for a golf club in accordance with the invention.

figure 3 shows a part sectional elevation of a grip for a golf club for a different aspect of the invention.

20 Figure 4 shows a perspective view of a split bush in accordance with a further aspect of the invention.

Figure 5 shows a modification to the club end 16 of grip member 15.

Figure 6 shows the grip of the invention applied to a tennis racquet.

Figure 7 shows the grip of the invention applied to a cricket bat.

25 In figure 1 there is shown a golf club in the form of a driver 10 in accordance with the present invention. Golf club 10 comprises a head

11, grip 12 and a shaft 13 connecting the head and the grip. Shaft 13 is a tubular hollow tapered shaft but may be of any configuration and material. Head 11 has a striking face 14. Grip 12 according to one aspect of the invention is shown in greater detail in figure 2. Grip 12 comprises a parallel sided, thin walled, circular, tubular, hollow, rigid grip member 15 having a first or club end 16 and a second or head end 17. From figure 2 it is clear that grip member 15 has a cross-sectional dimension, that is, a diameter, substantially greater than shaft 13. Grip member 15 is supported at the first or club end 16 by a first resilient support member or insert 18 and at the second or head end 17 by means of a second resilient support member or insert 19. Support member or insert 19 has an internal through bore 20 which has a relief portion 21 which acts as a reservoir for adhesive material used in the assembly of the components, for example, a one or a two part epoxy adhesive. Double sided adhesive tape may also be used in the assembly of the components. Support member 19 also has a tapered nose portion 22 which provides for a more gradual transition between the large diameter grip member 15 and the shaft 13. In addition to forming support members for the shaft 13 the support members 18,19 act as spacers, spacing the grip member 15 from shaft 13 thereby forming a void 23 between the shaft 13 and grip member 15. In some cases it may be desirable to fill the void 23 with a suitable foam to damp out unwanted vibration or noise. In addition to acting as spacers the support members 18, 19 act as sealing members preventing dirt and moisture from entering void 23. The resilient support member or insert 18 at the club end 16 may be in the form of an end plug 24 with a curved outer surface. In accordance with a broad aspect of the invention the resilience of the inserts 18,19 is selected on the basis of the players ability.

In figure 3 the numeral 15 depicts, as before, a parallel sided, thin-walled, circular, tubular, hollow, rigid grip member 15 with a diameter substantially greater than shaft 13 having a first or club end 16 and a second or head end 17. In this embodiment the club end 16 is

closed off by a simple curved end cap 25 connected to the end of grip member 15 in any suitable manner whilst the head end 17 is closed off by protective tapered sleeve member 26. A clearance gap 26A may be left between the shaft 13 and the sleeve 26 so that the only load bearing members between the shaft 13 and grip member 15 are resilient inserts 27, 28. Clearance gap 26A may be filled with a suitable sealant material. In accordance with the broadest aspect of the invention the resilience of the inserts 27, 28 will be selected on the basis of the golfer's ability. In broad terms it may be stated that less resilience will be used for a golfer who generates a slower impact speed, generally one with less ability, whereas more resilience will be used for a golfer who generates a fast impact speed who generally tends to be a golfer with more ability. In very general terms it could be stated that for a slow speed a soft rubber will be used whereas for a fast speed a harder rubber will be used. It should be noted that in addition to what might be described as intrinsic ability, in other words a natural ability, the ability of a golfer may be affected by a medical condition such as arthritis of the fingers or wrists which seriously affects the ability to play the game. In accordance with the invention the properties of the inserts and, indeed, the grip diameter, may be selected to assist with this problem for example by providing inserts giving greater or less shock absorption. Also it should be possible to "Mix and Match". For example, it is well known that some right handed golfers grip too tightly with the right hand and vice-versa for left handed golfers. In order to provide for an even grip pressure or to cater for differing grip pressures inserts of differing lengths as shown by dotted lines 29, 30 or differing resilience may be selected. Grip member 15 may be provided with a gripping surface 31. A further aspect of the invention is best explained with reference to figure 4. In figure 4 the reference numeral 32 denotes a support member or insert 33 in the form of a cylinder which is slotted at 34 to form a cylindrical split insert 35, Flanges at 36 and tightening screw 37 allow the split insert 35 to be fastened around shaft 13. Split insert 32 may be provided with a split

conical end portion 38 (shown dotted) to provide a transition piece 22 as for figure 2. Split insert 35 allows inserts of the invention to be retro-fitted to existing golf clubs. Once the existing grip has been removed the split insert can be slid sideways onto shaft 13 and tightened in position by means of flanges 36 and screw 37. The "recovery" of the resilient inserts 27, 28 from deformation under impact forces may add some impetus to the impact speed thereby resulting in greater length of shot. Figure 5 shows a modification to the club end 16 of grip member 15. In figure 5, reference numeral 39 represents a cylindrical bush member or insert made of shock absorbent rubber which is fixed between shaft 13 and grip member 15 by means of suitable adhesive. An end stop member 40 made of hard light weight material for example, such as aluminium or Nylon is fixed within the end of shaft 13 by suitable adhesive. Stop member 40 is formed with peripheral recesses 41 to act as reservoirs for the adhesive. In addition to the adhesive stop member 40 may be mechanically fixed within shaft 13, for example, by pinning. The outer surface of stop member 40 is rounded off as at 42 to provide a smooth end to grip 12 whilst the end 43 of grip member 15 can itself be radiused to compliment the curved end 42. The outer diameter of stop member 40 is made to be flush with or slightly greater in diameter than the outer diameter of grip member 15 so that the stop member 40 will act as a retainer between the shaft 13 and grip member 15. Figure 6 shows the grip 12 of the invention applied to a tennis racquet 44 having a racquet head 45 and shaft 46. Figure 7 shows the grip 12 of the invention applied to a cricket bat 47 with handle portion 48 and blade 49. A wide variety of materials may be used in the practise of the invention. For example various hard materials can be used to provide grip member 15 with a hard outer gripping surface, for example, polypropylene, high density polyurethane, glass reinforced plastics material, light weight metals, for example, aluminium, or metal alloys. however, a preferred material is carbon fibre. A hard gripping surface is advantageous because there is no kinesthetic feed-back so that there is no tendency to grip and re-grip the club which leads to



tension as with conventional rubber grips. The hard surface of the carbon fibre tube may be provided with a gripping surface 31 by the spraying on and oven baking of a thin coating of soft touch paint. The thin coating of paint of the order of 5 to 50 microns thick provides a non-slip, non-shock absorbing gripping surface. A more conventional shock absorbing gripping surface 31 may be provided by coating the hard surface of the carbon fibre tube with rubberised material or leather wrapping. Various materials may be used for the inserts or support members depending on the properties desired. For example where resilience is required rubber ranging from soft to hard may be used, that is, rubbers ranging from Shore hardness of 30 on the A scale to 75 on the D scale. Other materials offering resilience include polyurethane, thermo-plastic elastomers, an example being the material Hytrel made by the Dupont company and a special PVC material, Volcrepe 1910 supplied by Volcrepe Ltd, Glossop, Derbyshire. Neoprene and other rubber materials may be selected for their shock absorption properties. In some cases it may be desirable to use materials which may transmit impact vibrations rather than absorb or dampen them. For example in the case of a putter it may be desirable to convey the sensations of impact to the users hands as efficiently as possible as this may enhance the "feel" of the putter. In that case shock transmitting materials such as Nylon or aluminium may be used. In a practical embodiment of the invention the grip member had a length of 9 inches ( 228.6mm) and the diameter of the carbon fibre tube ranged from 25 to 45 mm with a preferred diameter of 25.4mm, approx 1 inch diameter whilst the length of the inserts ranged from 10mm to 50mm.

CLAIMS

- 5 1. A sporting implement comprising a striking face or the like, a grip member and a shaft or the like connecting the grip member and the striking face , the shaft or the like being supported within the grip member by means of support members wherein the properties of the support members are selected on the basis of the player's ability.
- 10 2. A golf club comprising a head, a grip and a shaft connecting the head and the grip wherein the grip comprises an elongate, thin-walled, tubular, hollow, grip member having a cross-sectional dimension greater than the shaft, first and second support members supporting the shaft within the grip member wherein the properties of the support members are selected on the basis of the player's ability.
- 15 3. The invention according to claim 1 or claim 2 wherein the support members are in the form of inserts made from resilient material such as: rubber or synthetic rubber, polyurethane, thermo-plastic elastomers, Volcrepe 1910.
4. The invention according to claim 1 or claim 2 wherein the support members are in the form of inserts made from shock absorbing material such as: rubber and synthetic rubber, Neoprene.
- 20 5. The invention according to claim 1 or claim 2 wherein the support members are in the form of inserts made from shock transmitting material such as: Nylon, Aluminium.
6. A golf club according to claim 2 wherein the support members are in the form of inserts differing in length.
- 25 7. A golf club according to claim 2 wherein the support members are in the form of inserts having differing properties.

8. A golf club according to claim 7 wherein the inserts are made of differing resilient material.

9. A golf club according to claim 2 wherein one of the support members is in the form of a curved end plug.

5 10. A golf club according to claim 2 wherein one of the support members is in the form of a curved end cap.

11. A golf club according to claim 2 wherein one of the support members is in the form of a tapered sleeve.

10 12. A golf club according to claim 2 wherein the the shaft, the grip member and the support members define a void within the grip and the support members act to seal the void from the entry of dirt and moisture.

15 13. A golf club according to claim 2 wherein the properties of the support members are selected on the basis of the player's ability as defined by the swing speed developed by the player.

14. A golf club according to claim 2 wherein the grip member is made from hard materials such as: polypropylene, high density polyurethane, glass re-inforced plastics material, light weight metals, for example, aluminium or metal alloys, carbon fibre.

20 15. A golf club according to claim 14 wherein the grip member is made from carbon fibre.

16. A golf club according to claim 2 wherein the grip member is provided with a non-slip gripping surface.

17. A golf club according to claim 2 wherein one of the supports is in

the form of an insert adapted to be retro-fitted to an existing golf club.

18. A golf club according to claim 17 wherein the insert is in the form of a split bush with means to tighten the bush around an existing shaft.

5 19. A golf club according to claim 18 wherein the split bush has a tapered conical nose portion.

20. A golf club according to claim 2 including an end stop member fitted within the shaft abutting the grip member.

10 21. A sporting implement substantially as herein described with reference to any one of figures 1 to 7 of the accompanying drawings.

22. A golf club substantially as herein described with reference to any one of figures 1 to 5 of the accompanying drawings.



**Application No:** GB 0010555.1  
**Claims searched:** All

**Examiner:** Damien J Huxley  
**Date of search:** 31 July 2000

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): A6D: DHA

Int Cl (Ed.7): A63B: 53/14

Other: ONLINE: WPI, EPODOC, JAPIO

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 1 259 543 (SNAUWAERT EN DEPLA) see the figures especially	1
X	GB 465 270 (O'BRIAN) see figure 4 and lines 15 to 31 of the first page.	1 to 3, 6 to 9, 11, 12, 16 and 20
X	US 5 575 473 (TURNER) see especially lines 10 to 17 of column 1, lines 34 to 42 of column 4 and the figures	1, 2, 5, 12, 14 and 15
X	US 5 131 652 (PENG) see whole document	1, 2, 7, 12 and 20
X	US 4 979 743 (SEARS) see whole document	1, 2 and 12
X	US 2 133 696 (HALL) see particularly lines 1 to 23 of the first page and the figures	1, 2, 12, 17 and 20

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.