

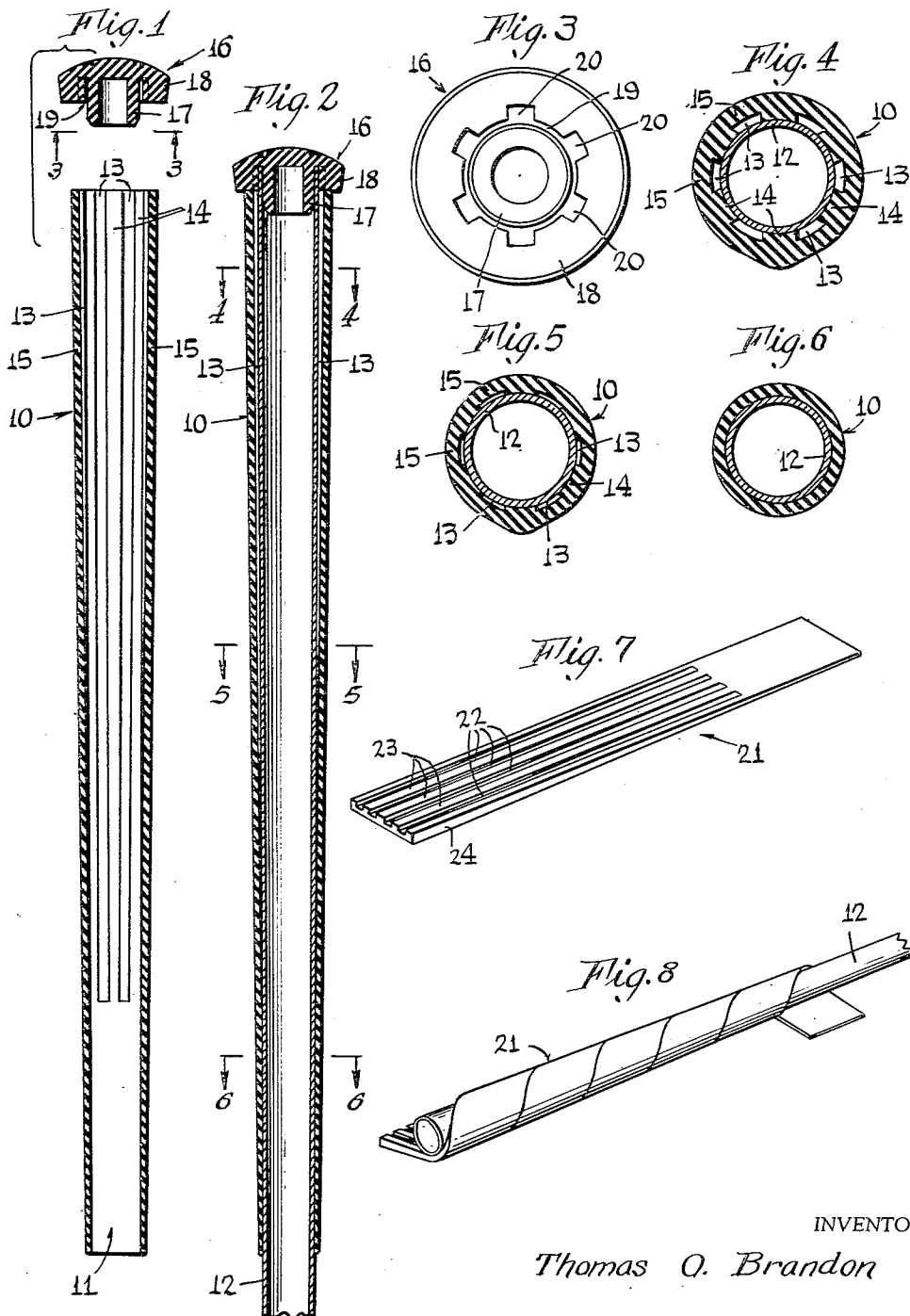
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LIGHTWEIGHT GRIP

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LIGHTWEIGHT GRIP

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The present invention relates to hand grips for athletic implements and more particularly to lightweight molded grips.

Heretofore the hand grips on athletic implements such as tennis rackets, badminton rackets and golf clubs were made by wrapping a strip of leather or fabric about the shaft and securing it in place. When efforts were made to make the grips of plastic material such as rubber, vinyl or the like material by molding or the like, they tended to increase the weight in the handle and unbalance the implement so as to change its action and feel in play. Because of this disadvantage the adoption of grips of such material has been greatly hampered.

In attempting to overcome this weight problem the molded grips were reduced in weight by cutting holes or grooves in the outer surface of the grip but this has resulted in an extremely rough, harsh or unstable surface with the attendant objection to the feel of the grip.

The present invention overcomes these difficulties by providing a grip of molded plastic material, which grip is light in weight, provides a smooth desirable gripping surface and is resistant to torsional deformation.

This is accomplished according to the present invention by providing the inner surface of the grip with spaced shallow weight reducing grooves, with the wall of the grip overlying the grooves being of substantial thickness and the texture of the material of the grip being sufficiently firm to prevent the grip from depressing or sinking into the grooves and forming objectionable depressions in the gripping surface. The portions of the grip between the spaced grooves provides broad shaft engaging portions which, together with the firmness of the material, tend to resist any torsional distortion in the grip as might be set up by the grooves so that a steady and reliable action may be had during use of the grip.

In the preferred form of the invention the grip is tapered in thickness from the outer end thereof adjacent the end of the shaft and the grooves formed therein are tapered and extend for a major portion of the grip.

The grip according to the present invention may be molded as a unitary grip having a bore to be slipped over the end of the shaft or may be formed as a strip adapted to be wrapped on the shaft.

The grips according to the present invention are provided with a lightweight cap which has weight reducing recesses therein and when used in conjunction with a lightweight grip member greatly reduces the weight of the grip so that the athletic implement is no longer handle heavy and the desired action is obtained.

The present invention not only reduces the weight of the grip but also the amount of material in the grip and hence the cost of making the grips is reduced.

Other features and advantages of the invention will be apparent from the specification and claims when considered in connection with the drawings in which:

Figure 1 shows an exploded view of a unitary grip member and cap.

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Fig. 2 shows an assembled view of a unitary grip member and cap on a golf club shaft.

Fig. 3 is a bottom view of the cap taken along line 3—3 of Fig. 1.

Figs. 4, 5 and 6 are sectional views of the grip taken along lines 4—4, 5—5 and 6—6 respectively of Fig. 2.

Fig. 7 shows a perspective view of a molded strip for a wrapped grip.

Fig. 8 shows the strip of Fig. 7 applied to the shaft of a golf club.

While the grip of the present invention may be applied to various types of athletic implements, such as tennis rackets, squash rackets and the like, it is herein illustrated as applied to the shaft of a golf club.

In the form of the invention shown in Figs. 1 to 6, the grip member comprises a unitary molded sleeve 10 having a bore 11 adapted to be slipped over the end of a shaft 12 of a golf club. The sleeve may have any exterior shape desired and is herein illustrated as being tapered inwardly from the outer end thereof adjacent the end of the shaft.

In order to reduce the weight of the grip a plurality of longitudinally extending shallow weight reducing grooves 13 are formed on the inner surface of the sleeve and spaced from one another and separated by broad shaft engaging bands or ribs 14. It is at present preferred, as will be noted in Fig. 2, that the grooves decrease in depth as they extend downwardly along the shaft and extend for substantially three-quarters of the length of the grip. The grooves are so formed, as shown in Figs. 4 to 6, that the wall 15 of the grip overlying the grooves is of substantial thickness, preferably equal to the thickness of the grip at the end of the grooves.

While the grip may be formed of any firm resilient moldable composition such as vinyl or the like material, it is herein disclosed as being made of a firm rubber composition. When made of this material the walls of the grip overlying the grooves will not sink or be depressed into the groove during the normal gripping of the club so that a smooth outer surface is provided. Furthermore, the material of the grip being firm, it will resist any tendency toward torsional distortion when the grip is in use as may be caused by the groove formation.

The grip is completed by a cap 16, shown in Figs. 1 to 3, which is made of a plastic composition and comprises a center plug 17 adapted to be inserted into the end of the hollow shaft and a flange 18 connected thereto to overlie the end of the shaft and the sleeve 10. The flange is provided with a circular recess 19 surrounding the plug and into which the end of the shaft 12 passes so that the undersurface of the flange is positioned in engagement with the end of the sleeve 10. Surrounding the shaft receiving recess 19 and formed in that portion engaging the end of the sleeve are a plurality of weight reducing recesses 20 which intersect with recess 19. Any number of recesses 20 may be provided. In the illustrated form of the invention the same number as the grooves in the grip member are shown.

In the event that a wrapped grip is desired in lieu of a unitary molded grip, an elongate strip 21, such as shown in Fig. 7, is formed from a firm rubber composition as in the case of the sleeve 10. It will be noted that this strip decreases in thickness from one end to the other and is provided on one surface, which is to form the inner surface of the grip, with a plurality of weight reducing grooves 22 extending longitudinally of the strip for a major portion thereof and which are separated by ribs 23 having broad shaft engaging faces.

The grip member is formed by wrapping the strip helically around the shaft with the grooved side inwardly as shown in Fig. 8.

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While the edges of the strip may be skived and/or overlapped to provide a helical groove on the surface, they are herein illustrated as being flat surfaces 24 wound in abutting relation, as shown in Fig. 8, so as to provide a smooth gripping surface.

The strip so wound on the shaft will provide a lightweight grip which will function similarly to the unitary molded grip of Figs. 1 to 6 in that it will reduce the weight of the grip, withstand any tendency for the surface of the grip to substantially depress into the grooves and will resist any torsional deformation of the grip in use.

By providing the weight reducing grooves in the grip and cap I have been able to reduce by 8% the weight of the grip and 22% the weight of the cap over similar grips without the weight reducing grooves, thus overcoming the weight objection to molded grips heretofore made and without the disadvantages of the prior attempts to reduce the weight in the grip. Not only does this produce a reduction in the weight of the grip but it also produces substantial savings in the material necessary to mold the grips.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. A lightweight grip for a golf club shaft comprising a grip member of molded rubber composition adapted to surround the end of said shaft and being of decreasing thickness from the end of the shaft and having spaced, broad, integral, shaft-engaging ribs on the inner surface forming shallow grooves therebetween and extending longitudinally of the shaft from the end of the shaft for a major part of the length of the grip and decreasing in depth from said end, the walls of the grip member overlying the grooves being substantially uniform and sufficiently thick and the rubber composition being suf-

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ficiently firm as to prevent depression thereof into the grooves and to resist torsional distortion in use whereby a satisfactory uniform gripping surface is provided.

2. A lightweight grip for a golf club shaft comprising a grip member of molded rubber composition adapted to surround the end of said shaft and being of decreasing thickness from the end of the shaft and having spaced, broad, integral, shaft-engaging ribs on the inner surface forming shallow grooves therebetween and extending longitudinally of the shaft from the end of the shaft for a major part of the length of the grip and decreasing in depth from said end, the walls of the grip member overlying the grooves being substantially uniform and sufficiently thick and the rubber composition being sufficiently firm as to prevent depression thereof into the grooves and to resist torsional distortion in use whereby a satisfactory uniform gripping surface is provided, and a cap provided with a plug to be inserted in the end of the shaft and having a flange overlying the end of the shaft and grip member, the undersurface of said flange overlying the grip member being provided with spaced, radially extending weight reducing recesses.

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