April 26, 1949. J. A. KARNS 2,468,202

GRIP FOR GOLF CLUBS AND THE LIKE

Filed Dec. 18, 1947

Fig. 1

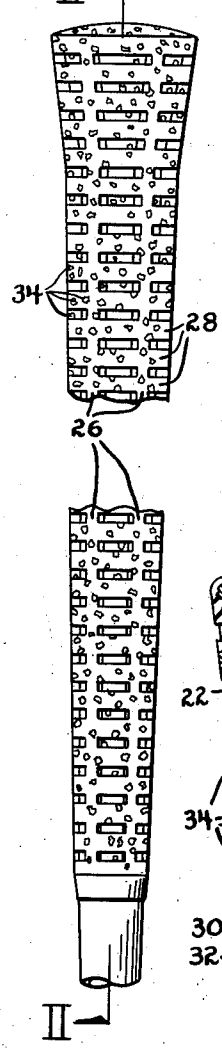
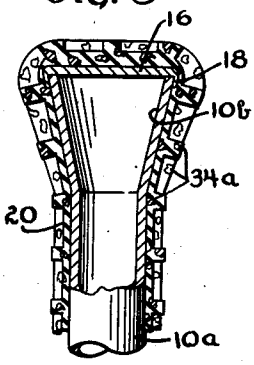


Fig. 5



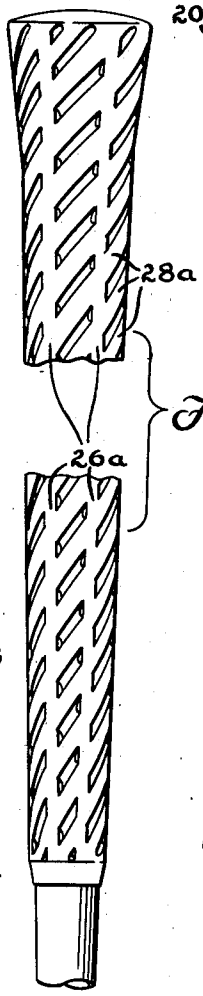


Fig. 3

Fig. 6

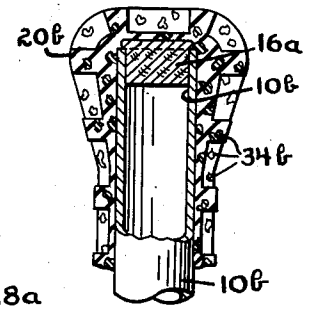


Fig. 2

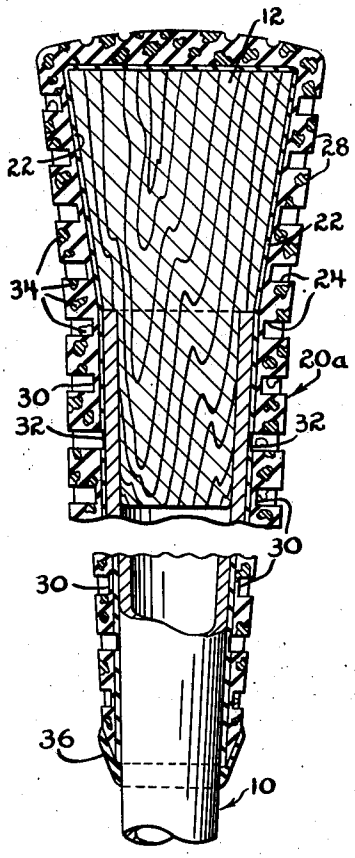
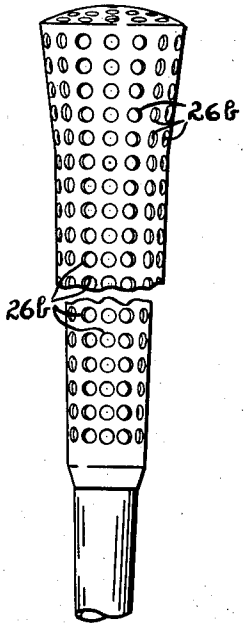


Fig. 4



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GRIP FOR GOLF CLUBS AND THE LIKE

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2 Claims. (Cl. 273—81)

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This invention relates to grips for golf clubs and the like, and, more particularly, is concerned with fully molded rubber-like or rubber grips vulcanized to a golf shaft.

Heretofore, it has been the practice for many years to build up a grip on a golf club by wrapping cloth or paper spirally around the handle end of the golf club shaft to increase its diameter, followed by wrapping the lashing or base thus provided with a cover of leather, also usually wrapped in a spiral manner, the ends of the leather being secured to the shaft by tacks or a cord wrap. A grip of this type is laborious to construct, often comes unwrapped or is displaced in use, and, in general, is not very satisfactory although over the years it seems to have been the most practical grip.

There have been some efforts in recent years to simplify and better grips for golf clubs. For example, a fully molded, rubber grip has been provided which is slipped over the lashing, this action being facilitated by rubber cement which lubricates the movement of the rubber grip over the lashing and which serves to cement the grip in place. It has also been proposed to cover the lashing with a long, narrow piece of leather which is folded around the lashing and the edges are trimmed to provide a single longitudinal seam. Moreover, it has been proposed to provide an all-rubber grip which mounts directly on the shaft and which will take the place of the lashing, but such rubber grips completely unbalance the club and are quite impractical.

It is the general object of my invention to avoid and overcome the foregoing and other difficulties of and objections to known golf grips by the provision of a less expensive and better grip of fully molded character vulcanized directly to the golf shaft. More specifically, my chief object is to provide a handle-and-grip combination having accuracy of dimensions throughout all of its parts in conjunction with strong adhesion of the grip to the handle and having the advantages of facility and economy of manufacture.

Another object of my invention is to provide a fully molded grip for a golf club made from a substance such as a thermo-setting rubber-like or rubber material with recesses being formed in the grip to displace between about one-third and about two-thirds of the normal volume of the grip whereby proper weight and balance is insured in the club.

Another object of the invention is to provide a golf grip of the character described including particles of low density material distributed

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through the grip and comprising between about twenty and about forty per cent of the molded volume of the grip.

Another object of my invention is the provision of a golf grip of the type described wherein the grip is molded completely around the handle end of the shaft, and with the grip having certain recesses which extend substantially into contact with the shaft adjacent the handle end, except that in the manufacture of the grip as herein described at least a mold fin is present as a floor of the recess, and the remainder of the recesses terminating farther from the shaft, to have a continuous layer of rubber around the shaft on the inside of the molded grip.

Another object of my invention is to reduce the weight of the handle end of a golf club by eliminating the wooden plug usually associated therewith.

The foregoing objects of the invention, and other objects which will become apparent as the description proceeds, are achieved by the provision of a golf club having a fully molded rubber-like grip vulcanized to its handle end, the grip including a plurality of recesses which comprise between about one-third and about two-thirds of the volume of the grip, the recesses usually being defined by relatively narrow ribs which extend from one end to the other of the grip, together with a plurality of ribs extending at angles to and joining the first named ribs. Usually, particles of relatively low specific gravity material are distributed throughout the body of the grip in an amount to provide between about twenty and about forty per cent of the volume of the molded grip.

For a better understanding of the invention, reference should be had to the accompanying drawing wherein

Fig. 1 is a side elevation, partly broken away, of a golf grip incorporating the principles of my invention;

Fig. 2 is an enlarged, fragmentary cross-sectional view taken substantially on line II—II of Fig. 1;

Figs. 3 and 4 are views similar to Fig. 1 but illustrating modified forms of grip, likewise incorporating the inventive principle;

Fig. 5 is a view similar to Fig. 2, but on a smaller scale, and illustrating an improved closure for the handle end of a club shaft; and

Fig. 6 is a view similar to Fig. 5 but shows a modification of the handle end of the grip.

In the drawings, the numeral 10 indicates generally a hollow metal golf shaft, usually of high

grade steel, the shaft ordinarily being made tapered in the manner illustrated and closed at its handle or larger end by a wooden plug 12 having a round boss which has a snug press-fit down into the end of the shaft, and with the remainder of the plug flaring outwardly to provide an enlarged portion in known manner. The round boss of the plug 12 may be additionally secured in the end of the shaft 10 by dimpling in portions of the end of the shaft at several points with a pointed punch struck by a hammer in a manner which will be understood.

Fig. 5 of the drawing illustrates a modification of the invention wherein the weight of the wooden plug 12 is eliminated from the grip by flaring out, as at 10b, the handle end of the golf shaft 10a and capping the open end of the flared shaft with a metal cap 16 which has a circumferential flange 18 spun or crimped around the shaft. The modification of the invention illustrated in Fig. 5 includes a rubber grip portion 20 of full molded character vulcanized to the shaft and cap all in the form and manner hereinafter to be particularly described in conjunction with the larger cross-sectional view shown in Fig. 2 of the drawings.

Fig. 6 shows a modification of the invention wherein the wooden plug 12 is eliminated from the grip. This is done by plugging or capping the end of the shaft 10b with a short wooden, cork, rubber or composition plug 16a. A good tough but light cork has been found satisfactory. The end of the grip 20b is molded in a flared shape as shown. Weight in the grip is thus saved as the weight of the increased amount of rubber in the flare and the plug 16a is less than the weight of the solid wooden plug.

Returning to Fig. 2 of the drawings, the shaft 10 is usually sand blasted, pickled or otherwise roughened and one or more coats of cement 22 are applied over the portion of the shaft covered by the grip, and the cement is also applied to the plug 12 (or cap 16 or plug 16a) in the manner illustrated. By a molding process, a fully molded grip indicated generally by the numeral 20a is then vulcanized to the shaft completely closing and surrounding the plug 12 (or cap 16 or plug 16a) as shown.

Molded in the grip 20a are a plurality of recesses 24, and an important feature of the invention is that the recesses 24 displace or comprise between about one-third and about two-thirds of the volume of rubber or rubber-like material from which the grip is molded. This is important for the reason that the grip is thereby lightened to the point that it does not unbalance the shaft and golf club.

The recesses 24 can be formed in any desired geometric or other pattern, as long as they do displace the stated volume of the grip. In Fig. 1, I have shown a grip as including approximately six longitudinal ribs extending from end to end of the grip and spaced circumferentially of each other, the ribs 26 being joined by ribs 28 which extend at an angle thereto, for example, in a circumferential direction. In order to avoid confusion in illustration, the ribs 26 and 28 in Fig. 1 have been made slightly thicker, that is, wider, than they are on the actual grip.

In the form of the invention illustrated in Fig. 3, similar longitudinally extending ribs 26a are employed, but the angularly directed ribs 28a take a helical form.

In Fig. 4, the recesses take the form of a plurality of holes 26b of square, diamond or other

cross-sectional shape, such as the circular shape shown.

Returning now to Fig. 2, it will be noted that the recesses 24 terminate short of the cement or shaft to provide a thin layer 30 of the grip material between each recess and the shaft. This means that the entire grip surrounds and encloses the shaft as a continuous sheet which not only prevents moisture from getting into the shaft but which increases the strength and durability of the grip.

Only a selected few of the recesses, for example, at diametrically opposed points several inches from the handle end of the shaft, extend into closer proximity to the shaft, as at 32, and this is important for the reason that the shaft is thereby centered in the finally closed mold, and consequently in the grip, by the means which form the recesses, to insure a uniform thickness to the grip circumferentially of the shaft.

It is part of my invention to compound the rubber or rubber-like material from which the grip is molded with relatively small particles of low density material which comprise between about twenty and about forty per cent by volume of the compound from which the grip is molded. Such low density materials include cork, leather, sawdust, or floc, the name given to a feathery, cotton material available on the market. I have found, for example, that particles of cork used in the manner described, and illustrated by the numeral 34 in Fig. 2, (at 34a in Fig. 5 and at 34b in Fig. 6) are very permanently incorporated in the grip and not only give it an attractive appearance but lighten the grip to improve the balance of the club. The cork particles give a good feel to the grip and are extremely durable in use.

If desired, the smaller end of the grip may be completed by a plastic ferrule 36 or a plastic wrapping in the nature of a trim, although this is more for decorative purposes than for any other reason.

From the foregoing, it will be recognized that the various objects of my invention have been achieved by the provision of a less expensive and a better golf grip. As all hand labor of lashing is eliminated, the grip is considerably less expensive to manufacture than prior known types, and is much more durable and satisfactory in use. The grip can be made in any desired color compounded into the grip material, and this adds considerable sales appeal to the club. By reason of the expedients of recessing between one-third and two-thirds of the volume of the grip away, supplemented where necessary or desirable by compounding the molding material with between twenty and forty per cent by volume of low density materials, plus the elimination of the wooden plug when and if desired, an excellent balance is maintained in the club. Proportioning the recesses to extend almost to the surface of the shaft provides centering of the shaft in the grip, as above mentioned, and also permits the recesses to displace the relatively large volume of the grip specified, all without giving a mushy or over-soft feeling to the grip. In fact, the continuous ribs, particularly in a longitudinal direction, when the grip is compounded from stock approaching the resiliency of tire tread stock, gives a very firm and slip-proof grip having a good "feel." This is consciously and unconsciously appreciated by the golfer.

As will be understood by those skilled in the art, the progressive thinning of the floors of the

recesses in the closing of the mold is coincident with a correspondingly progressive increase in the floors' resistance to further thinning, with the result that if at any time in the closing of the mold the floors of the deepening recesses have become thinner on one side of the shaft than on the opposite side the thinner floors, by their greater resistance to further thinning, will cause the closing of the mold to speed up the thinning of the recess floors at the said opposite side of the shaft, and thus provide the centering effect above mentioned. This equalizing factor becomes highly pronounced as the floor thicknesses on the first mentioned side of the shaft approach zero, and, with the mold engravings symmetrical with relation to the axis of the shaft and suitably proportioned in relation to the diameter of the shaft, substantially perfect centering of the shaft is obtained even though the floors of all of the recesses have final thickness sufficient to give the metal shaft good protection against perspiration and other moisture.

Also, as will be understood by those skilled in the art, this centering effect is not dependent upon a large number of the deep recesses **32**, in a circumferentially spaced series, as it is essentially only that the pressures, the differential of which provides the centering effect, have a circumferential span of more than 180 degrees, for effective "three point support" of the shaft as it reaches its centered position.

While in accord with the patent statutes, certain best known embodiment of the invention have been illustrated and described in detail, it is to be particularly understood that the invention is not to be limited thereto or thereby,

but that its scope is defined by the appended claims.

I claim:

1. The combination of a handle shaft and a grip of molded-plastic on it and having mold-vulcanized adhesion to it, the outer face of the grip being formed with a circumferentially spaced set of recesses extending substantially equal distances inward to such proximity to the shaft that their floors of plastic material are of approximately zero thickness.

2. A combination as defined in claim 1 in which the grip is formed with an end wall integral with the rest of the grip and enclosing an end of the shaft.

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