

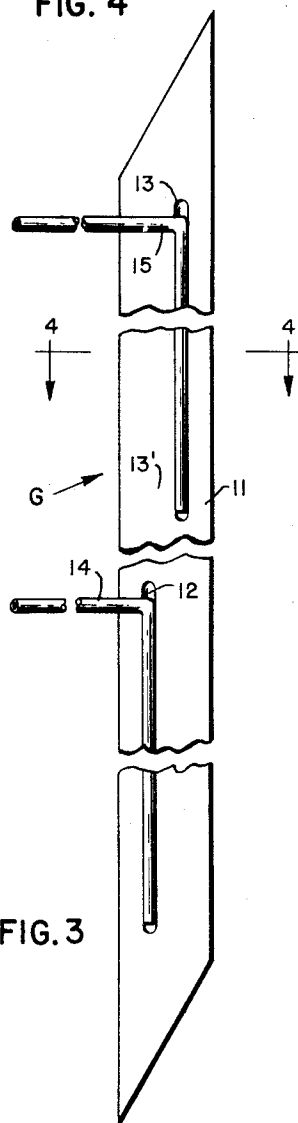
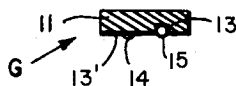
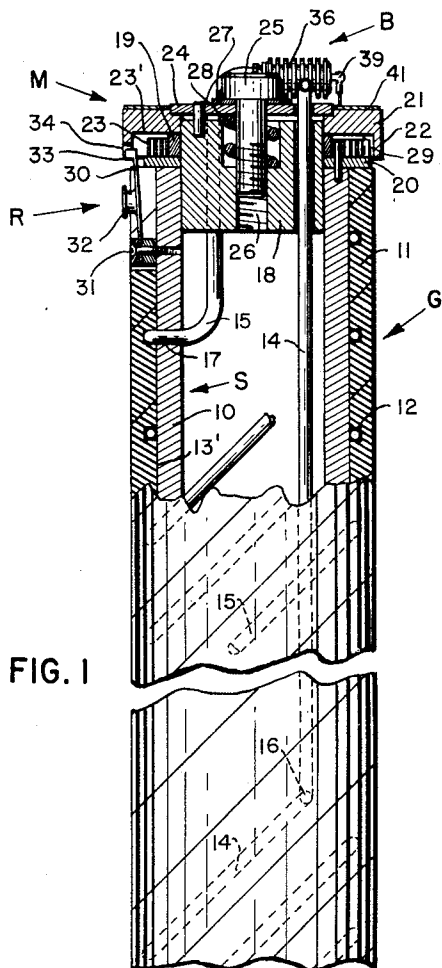
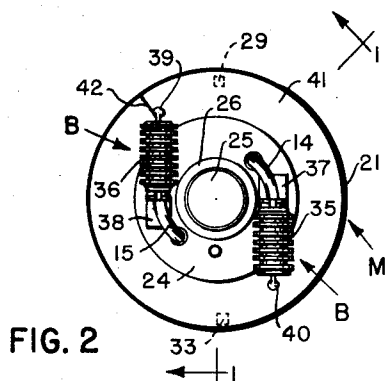
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GOLF CLUB HANDLE

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GOLF CLUB HANDLE

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The present invention relates to sporting goods, and particularly to a new and improved hand-grip for clubs and the like.

The ability to hit a golf ball correctly is one of the most aggravating problems encountered by the average amateur. Many books have been written on the subject. They invariably attempt to teach the proper grip, the proper swing, and the proper stance to assume preparatory to hitting a golf ball. In spite of such literature, great difficulty is experienced by the average amateur in attaining any degree of perfection in hitting a golf ball.

It is believed that a very important consideration in the proper hitting of a golf ball resides in the pressure exerted throughout the swinging action by the hands in gripping the golf club. Most of the books refer to the grip as being firm but relaxed. These two words are contradictory, since that which is firm is not relaxed, and that which is relaxed is not firm. Furthermore, the books refer to the fact that a good golf swing can only be effected if the body is relaxed, and that the body can be relaxed only when the hands are relaxed.

The principal object of the present invention is to provide a grip for a club that is responsive to the pressure applied to the grip by the hands of the user during the swinging action thereof.

Other objects of the invention include the provision of a golf grip that embodies pressure-sensitive means in combination with pressure-indicating means; the provision of such a golf grip in which the golf grip embodies pressure-sensitive means in combination with pressure-recording means; the provision of such a golf grip embodying pressure-sensitive means for each hand in combination with separate pressure-indicating means for each hand; and the provision of such a golf club grip embodying pressure-sensitive means in combination with separate pressure-recording means for each hand whereby individual pressure-graphs can be made of each of the golfer's hands during the swinging of the golf club.

The above, as well as other objects and novel features of the invention will become apparent from the following specification and accompanying drawings, in which:

Figure 1 is an enlarged partial sectional elevational view of a golf club grip embodying the principle of the present invention and taken substantially along line 1—1 of Fig. 2;

Fig. 2 is a top plan view of the golf club grip of Fig. 1;

Fig. 3 is a developed view of a grip element adapted to be spirally wound about the golf club shaft of Fig. 1; and

Fig. 4 is a section taken substantially along line 4—4 of Fig. 3.

Referring to the drawings, and particularly to Fig. 1, the invention is shown as applied to the grip end of a golf club shaft S and comprises a spirally-wound, pressure-sensitive frictional grip member G. A spring motor device M is mounted at the upper end of the shaft S and is adapted, during operation, to turn through 180° in the usual time required to make a golf stroke. This time

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element varies, but is in the neighborhood of three to five seconds. A pair of bellows B including stylus means is stationarily mounted at the end of the golf club grip for cooperation with a chart adapted removably to be attached to the spring motor device M. A spring-pressed releasing mechanism R is provided at the top of the shaft S adjacent the spring motor device M and is adapted to be employed to release the spring motor device M when the user is about to swing the golf club to hit a golf ball.

Referring to Fig. 3, the grip G comprises a section of friction material 11, preferably of rubber, and having a relatively rough frictional outer surface. In order to provide a pressure-sensitive means embodied within the grip G, elongated grooves 12 and 13 are provided in the back or inner surface 13' thereof (Fig. 4), and in which are laid tubular elements 14 and 15 that are preferably made of a plastic material so that they will transmit forces through liquid confined within them, without sustaining any substantial distortion of the tubular members themselves.

The longitudinal spacing of the tubular members 14 and 15 relatively to each other is such that when the member 11 is spirally wound about the shaft 10, a space exists along the shaft 10 wherein neither of the tubular members 14 and 15 is effective. This non-pressure-responsive space is located at the point along the shaft S where the hands normally overlap, and is necessary in order that the pressure exerted by the right hand does not influence the recording of the pressure exerted by the left hand and vice versa. The member 11 is spirally wound about the shaft 10 to the point where the groove 12 stops, and the free end of the tube 14 is passed inwardly of the hollow shaft 10 through a hole 16 within the shaft side wall. It then extends upwardly through the center of the tubular shaft 10 to the top thereof. Likewise, when the member 11 is completely wound about the shaft 10, the free end of the tubular element 15 passes through another hole 17 in the side wall of the shaft S and extends upwardly through the center thereof, all for a purpose to be described later. While the tubular elements 14 and 15 have been shown as applied to the inner surface of the strip 11, they could with equal facility be spiraled about the outer surface of the grip G after it has been applied to the shaft S. In fact, such grips usually provide a spiral channel between adjacent convolutions which would serve to receive and locate the tubular elements 14 and 15. The spring motor device M may comprise any one of a number of such devices that are commercially available. In the present disclosure, it will be shown and described as mounted on a plug element 18 that is frictionally pressed into the end of the tubular shaft 10. The plug 18 includes an annular ring member 19 that abuts against a washer 20 fixed to the top of the shaft 10.

A drum member 21 is journaled on the outer periphery of the plug 18 and includes a skirt portion 22 that extends downwardly, and is provided with an inside diameter slightly greater than the outside diameter of the grip G. A torsion spring 23 is mounted within a space 23' formed between the washer 20 and the skirted drum 21. The outer peripheral end of the torsion spring 23 is brazed to the skirt 22, while the inner end thereof is fixed to the shaft 10 or the plug 18. A plate member 24 is fixed against rotation relatively to the top of the plug 18, and a screw 25 is threaded into a threaded hole 26 that extends centrally through the plug 18. A washer 27 is located between the head of the screw 25 and the plate 24. Accordingly, an adjustable frictional force is developed between the rotatable drum 21 and the top of the annular member 19, as well as between the drum 21 and the lower surface of the plate 24. This adjust-

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able frictional force controls the rate at which the drum 21 can rotate under the influence of the torsion spring 23. By turning the screw 25, this frictional force may be adjusted one way or the other due to the action of a compression spring 28 that is located within a recess centrally of the plug 18 and acting on the plug 18 and the lower surface of the plate 24. If desired, a non-metallic washer may be located between the frictional surfaces in order to ensure smooth action of the drum 21. Furthermore, a pinion gear assembly controlled by the torsion spring 23, may be employed in place of the adjustable friction-providing means.

In order to limit the rotary motion of the drum 21 to 180°, a stop 29 is fixed to the inner periphery of the skirt 22. The stop 29 is adapted to cooperate with the releasing mechanism R which latter comprises a spring finger 30 that is pivoted to the shaft 10 by a screw 31. The finger 30 is provided with an engaging button 32. The construction and arrangement of the parts are such that when the golf club is normally gripped by a user, the button 32 rests beneath the little finger of the left hand for a right-hand golfer. This spring 30 is provided with a stop 33 located 180° from the stop 29 so that upon release of the drum 21, the stop 29 will be aligned with the stop 33.

The drum skirt 22 is provided with a notch 34 180° from the abutment 29, and into which the stop 33 is adapted resiliently to be held when the drum 21 is in cocked or wound position. In order to adjust the spring motor device M so that the spring 23 will be at the proper torsion, the button 32 is adapted to be pulled leftwardly (Fig. 1) so that the stop 33 will clear the notch 34 whereupon any number of revolutions of the drum 21 may be effected to provide the degree of torsion necessary in the spring 23. Release of button 32 causes stop 33 to cooperate with notch 34 to hold the drum 21 cocked. Pressing the button 32 inwardly merely causes the drum 21 to rotate 180° until the abutment 29 engages the abutment 33 whereupon the drum 21 can be rotated in a reverse direction to re-cock the spring motor device M.

In order to record the pressure variations exerted by the user during the swinging of the club, separate pressure-responsive bellows 35 and 36 are rigidly mounted on the top of the plate 24 by L-shaped bracket members 37 and 38. The one end of each of the bellows 35 and 36 is connected to the pressure tubes 14 and 15, and the opposite end of each bellows is provided with a stylus 39 and 40, respectively. An annular-shaped graph paper 41 having a split 42 is adapted to encircle the top of the drum 21 and to be held thereon by any simple frictional means.

The tubes 14 and 15, as well as the bellows 35 and 36, are filled with liquid prior to the assembly of the device, and it is quite evident that the squeezing of the grip G will cause the pressure of each hand to be transmitted through the pressure liquid within the tubes 14 and 15 to cause the bellows 35 and 36 to be extended or contracted while the chart 41 is being rotated through 180°. In this way, a pressure-graph of each hand of the golfer will be recorded in hitting the golf ball. Accordingly, it will be possible to analyze the pressure applied to the golf club grip by either hand at any point during the swinging thereof.

Although the various features of the improved grip for a golf club and the like have been shown and described in detail to fully disclose one embodiment of the invention, it will be evident that numerous changes may be made in such details, and certain features may be used without others without departing from the principles of the invention.

What is claimed is:

1. An athletic club or the like for use in playing a game requiring the application of controlled force to a hand grip thereof as the club is swung, comprising a

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shaft; a pressure-responsive grip attached to said shaft and having a configuration substantially identical to the normal grip of said club; means for indicating pressure variations applied to said grip by a user throughout the normal swinging of said club; and pressure transmitting means connecting said pressure responsive grip to said indicating means.

2. An athletic club or the like, comprising a shaft; a grip attached to said shaft and having a configuration substantially identical to the normal grip of said club; means in said grip responsive to a pressure applied thereto by a user during a normal swinging of the club; and means mounted on said shaft and connected to said pressure responsive means for indicating the pressure applied to said grip.

3. An athletic club or the like, comprising a shaft; a grip attached to said shaft and having a configuration substantially identical to the normal grip of said club; separate means in said grip responsive to the pressure applied by each hand of a user during a normal swinging of the club; and means connected by pressure transmitting means to said separate means for indicating pressure variations applied to said grip by each hand of a user.

4. A golf club or the like, comprising a shaft; a grip attached to said shaft and having a configuration substantially identical to the normal grip of said club; separate means in said grip responsive to the pressure applied by the separate hands of a user during a normal swinging of the club; and separate means mounted on said shaft and connected by pressure transmitting means to said separate means in said grip for indicating pressure variations applied to said grip by the separate hands of a user.

5. A golf club or the like, comprising a shaft; a grip attached to said shaft and having a configuration substantially identical to the normal grip of said club; separate means in said grip responsive to the pressure applied thereto by the separate hands of a user during a normal swinging of the club; and separate means mounted on said shaft and connected to said corresponding separate pressure responsive means for recording the individual pressures of each hand applied to said grip.

6. In a golf club or the like, a shaft; a pressure-responsive grip attached to said shaft; a rotary drum mounted on the top of said shaft; pressure-responsive recording means mounted on said shaft and connected to said pressure-responsive grip; and means for rotating said drum, whereby pressure applied to said pressure-responsive grip will cause said pressure-recording means to form a graph while said drum is rotated.

7. In a golf club or the like, a shaft; a pressure-responsive grip attached to said shaft; a rotary drum on the top of said shaft; pressure-responsive recording means mounted on said shaft and connected to said pressure-responsive grip; and a spring motor device for rotating said drum, whereby pressure applied to said pressure-responsive grip will cause said pressure-recording means to form a graph while said drum is rotated.

8. In a golf club or the like, a shaft; a pressure-responsive grip attached to said shaft; a rotary drum mounted on the top of said shaft; means for adjusting the rate of rotation of said drum; pressure-responsive recording means mounted on said shaft and connected to said pressure-responsive grip; and means for rotating said drum, whereby pressure applied to said pressure-responsive grip will cause said pressure-recording means to form a graph while said drum is rotated.

9. In a golf club or the like, a shaft; a pressure-responsive grip attached to said shaft; a rotary drum mounted on the top of said shaft; velocity limiting means adapted to cooperate with said rotatable drum; pressure-responsive recording means mounted on said shaft and connected to said pressure-responsive grip; and means for rotating said drum, the construction and arrangement of

the parts being such that said velocity limiting means is adapted to cause said drum to be rotated 180° during the normal time required to swing a golf club, whereby pressure applied to said pressure-responsive grip will cause said pressure-recording means to form a graph while said drum is rotated.

10. In a golf club or the like, a shaft; a pressure-responsive grip attached to said shaft; a rotatable means mounted on the top of said shaft and adapted to support a chart; pressure-responsive recording means mounted on said shaft and connected to said pressure-responsive grip; a spring motor device for rotating said drum; and velocity limiting means adapted to cooperate with said spring motor means to cause said rotatable means to rotate a predetermined amount during the normal time it takes to swing a golf club, whereby pressure applied to said pressure-responsive grip while said golf club is swung will cause said pressure-recording means to form a graph while said drum is rotated.

11. A golf club or the like, comprising in combination, a shaft; a grip for said club; tubular means containing a liquid arranged in intimate contact with said grip, extending over a substantial length thereof and arranged in a manner to preserve substantially the normal configuration of said grip; pressure-indicating means connected to said tubular means; and means for supporting said pressure-indicating means while said golf club is swung during the hitting of a golf ball.

12. A golf club or the like, comprising in combination, a hollow shaft; a grip attached to said shaft; tubular means adapted to contain liquid arranged in intimate contact with said grip and covering a substantial area thereof, said tubular means extending through the side wall to the interior of said hollow shaft and to the top thereof; and pressure-indicating means mounted on the top of said shaft and connected to said tubular means, whereby pressure applied to said grip during the normal use of said club will be indicated on said pressure-indicating means.

13. A golf club or the like, comprising in combination, a hollow shaft; a grip attached to said shaft; separate tubular means in intimate contact with said grip and spaced longitudinally thereof, each adapted to contain a

liquid and arranged in a manner to preserve substantially the normal configuration of said grip; and separate means connected to each of said tubular means for indicating the pressure applied by each hand of the user during the normal swinging of said club.

14. A golf club or the like, comprising in combination, a hollow shaft; a grip attached to said shaft; separate tubular means intimately associated with said grip and spaced longitudinally thereof; and separate means mounted on the top of said shaft and connected to said separate tubular means for indicating the pressure variations applied to said grip by the separate hands of a user during the normal swinging of said club.

15. A golf club or the like, comprising in combination, a tubular shaft; a grip attached to said shaft; separate tubular means intimately associated with said grip and spaced longitudinally thereof, each of said separate means being adapted to contain a liquid; and separate means mounted on the top of said shaft for recording the individual pressure of each hand of a user as applied to the grip during the normal swinging of said club.

16. In a golf club or the like, a tubular shaft; a grip attached to said shaft; tubular means in intimate association with said grip and covering a substantial area thereof; a rotary drum mounted on the top of said shaft; pressure-responsive recording means mounted on the top of said shaft and connected to said liquid-supporting tubular means; and means for rotating said drum, whereby pressure applied to said grip will cause said pressure-recording means to form a graph while said drum is rotated.

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