

[54] **GOLF TRAINING DEVICE**

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[51] Int. Cl. **A63b 69/36**

[58] Field of Search 273/183, 188, 189, 190, 273/187, 186; 272/DIG. 5, DIG. 6; 340/277, 279

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[57] **ABSTRACT**

A training device useable for the development of physical skills in various sporting activities which includes a signalling device adapted for signalling the occurrence of a predetermined movement between a portion of the user's body and a reference member other than the portion of the user's body and which is moveable relative thereto. The signalling device is connected with one of the portion of the user's body and the reference member and includes a longitudinally stretchable elastic member which extends from an activation member of the signalling device to the other of the portion of the user's body and the reference member and is connectible thereto such that occurrence of the predetermined movement between the portion of the user's body and the reference member causes activation of the signalling device.

7 Claims, 7 Drawing Figures

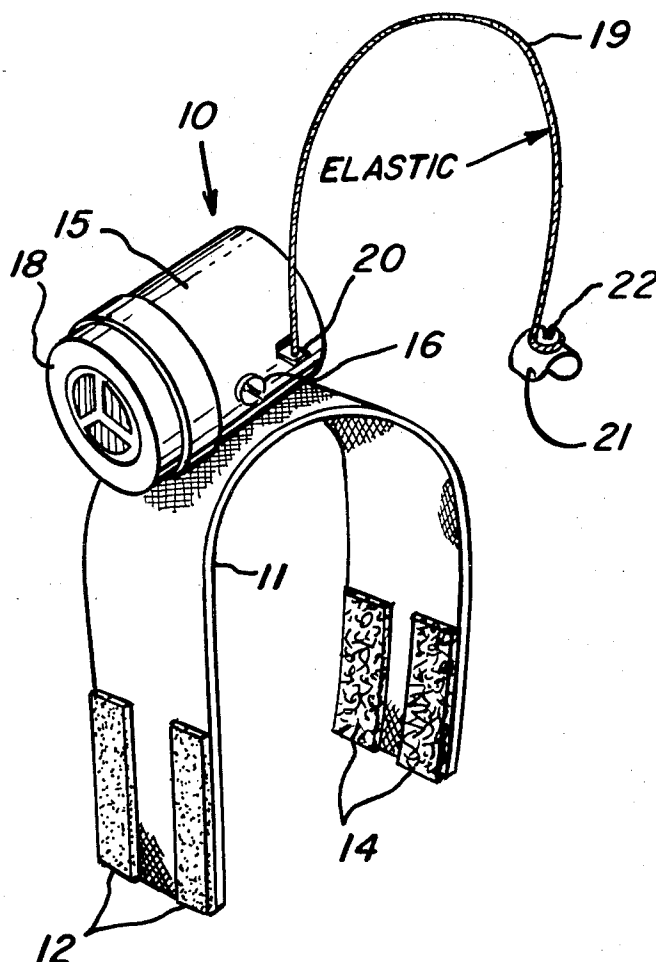


FIG. 1

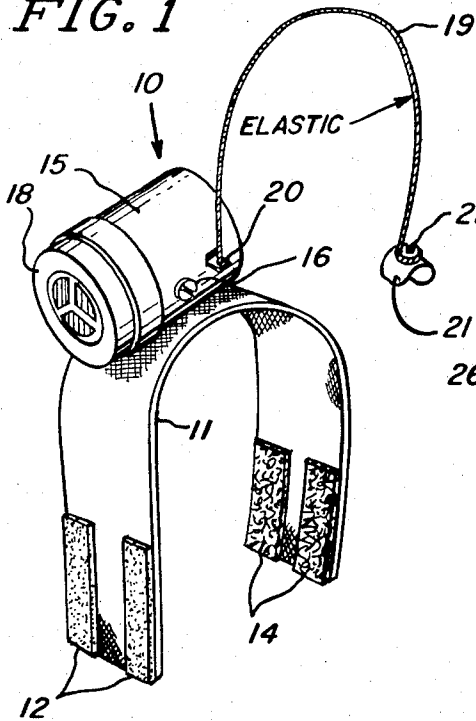


FIG. 2

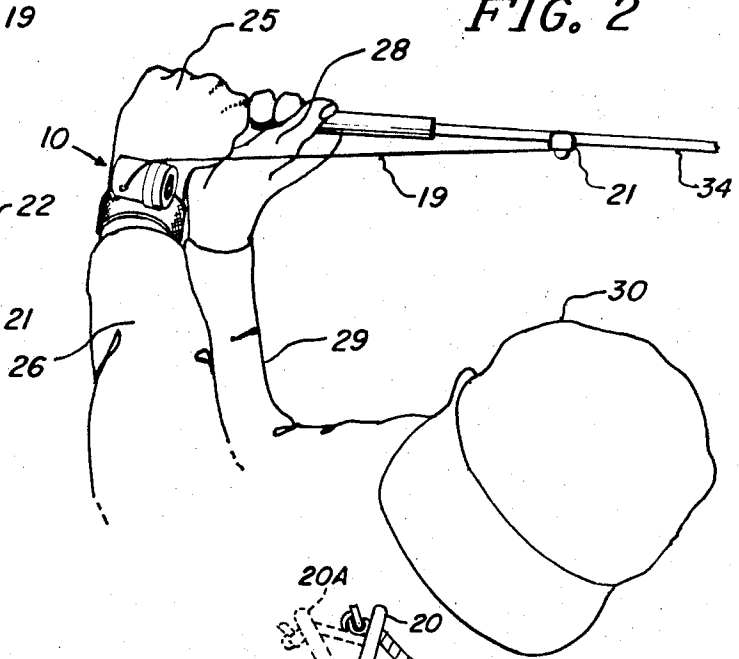


FIG. 3

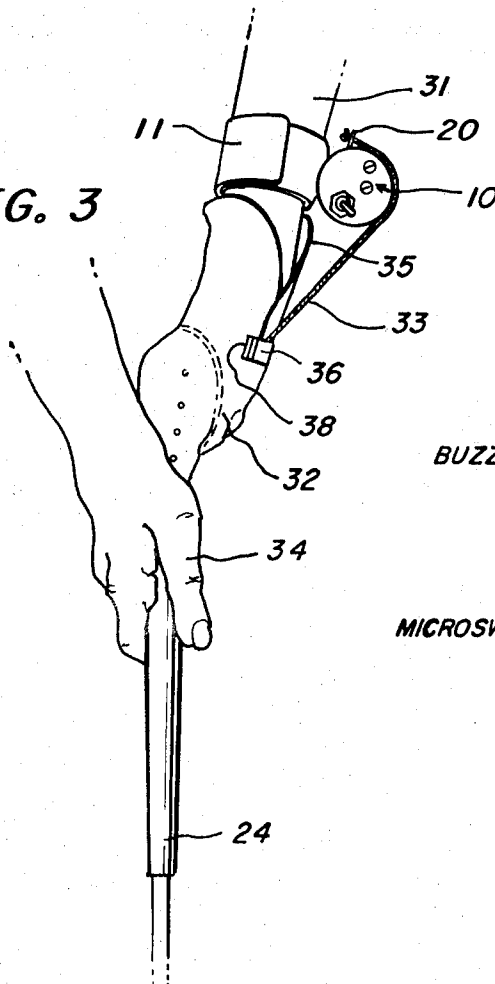


FIG. 3A

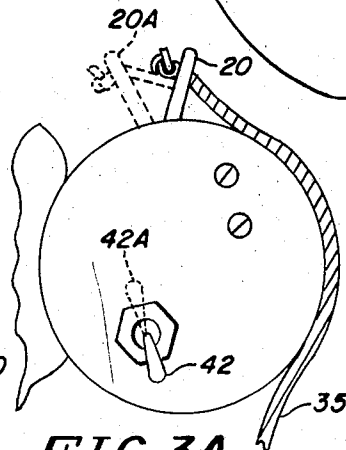


FIG. 4

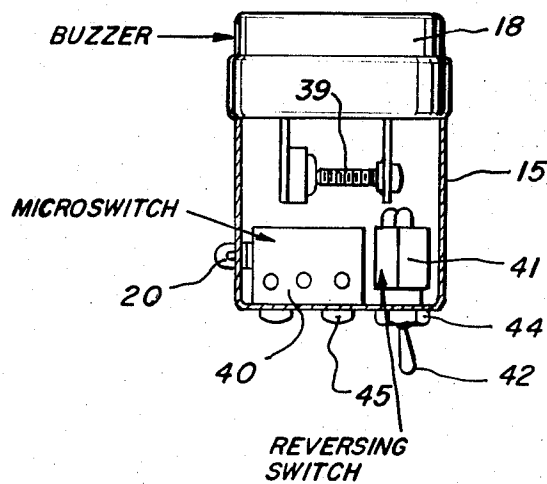


FIG. 5

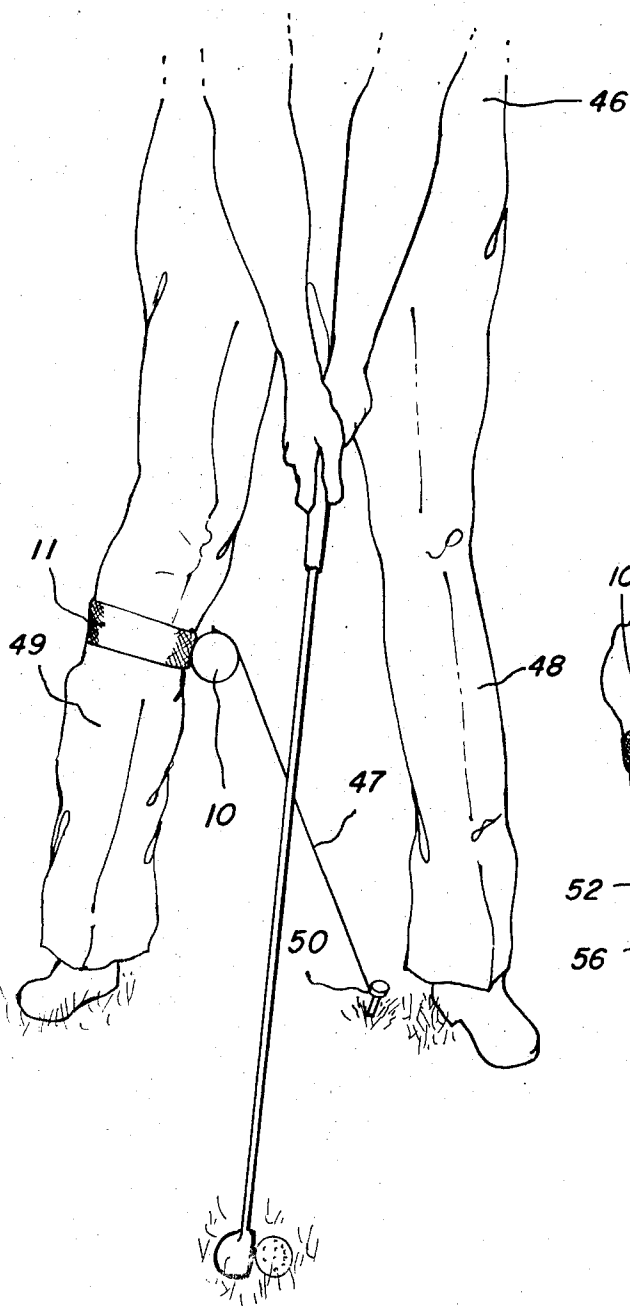
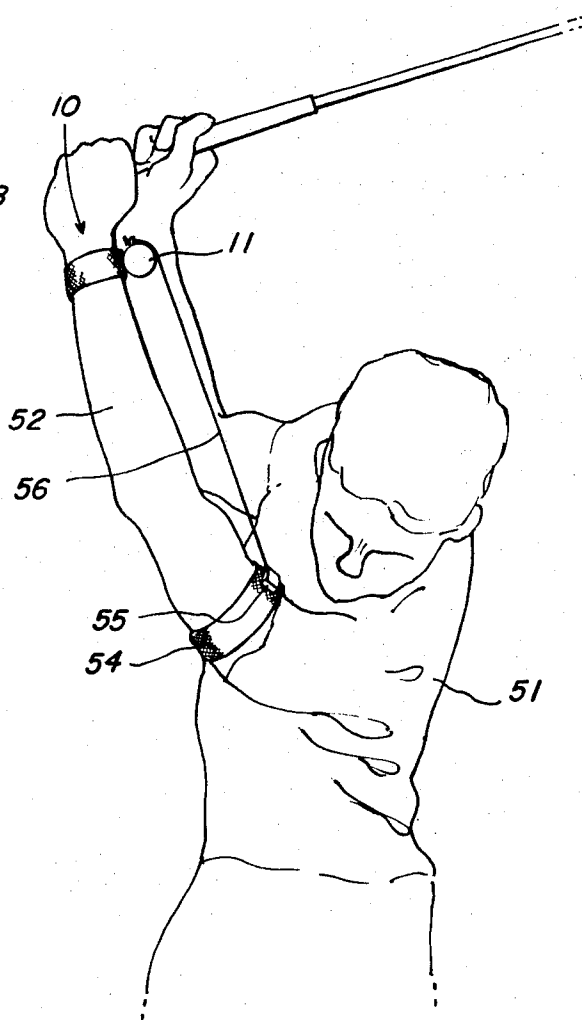


FIG. 6



GOLF TRAINING DEVICE

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates generally to a training device useable for the development of skills in various sporting activities and more specifically, to a golf training device useable to detect and correct certain faults in an improper golf swing.

In golf, as in many other sports, proper technique of the physical skills is extremely important in playing the game correctly and successfully. For example, in golf, the swing of the golf club is the most important part of a person's golf game and is the physical skill which has the most bearing on that person's golfing ability. Although there are many theories as to how to achieve, or what is, a correct golf swing, there is general agreement with respect to many parts of the golf swing, particularly the relative position of certain body parts to others or the relative movement of certain body parts with respect to some reference member other than the golfer's body. For example it is fairly well accepted by golfing pros and instructors that the left arm in a right handed golfer's swing should remain relatively straight during the swing. Further, it is well known that the back of the left hand and the left forearm of a right handed golfer should form a straight line throughout the swing in order to avoid striking the ball with an open or closed clubface. It is also well accepted that the right leg of a right handed golfer should remain relatively straight and immobile during the swing to prevent swaying of the leg and body and resulting loss of control over the point of contact between the clubface and the ball. Finally, although the exact angle between the left forearm of a right handed golfer and the club, at the top of the backswing, may vary for each golfer, it is well accepted that there is an optimum angle which should be achieved to prevent overswinging or underswinging the club.

Usually, the only manner in which a golfer can tell whether he is committing one or more of the above faults is to be observed by a golf instructor. Even then, it is extremely difficult for the instructor to pick out the exact cause of the improper swing or to detect when the proper relationship between certain body parts or between certain body parts and the club is achieved. Further, being observed by a golf instructor is not only very expensive and time consuming, but the golfer is unable to get any feedback relative to the correctness of his stroke unless the instructor is observing him. Consequently, there is a real need for a golf training device which is capable of detecting an improper golf swing without the presence of another person or instructor.

In contrast to the prior art, the present invention relates to a golf training device which can be used by a golfer to detect and correct certain faults in his swing. Further, the device of the present invention can be used by the golfer while he is practicing alone without observance by a golf instructor. Further, the device of the present invention recognizes that in a correct golf swing, correct relationships exist between certain body parts and a reference member which may be another part of the golfer's body, the club or a stationary member such as the ground. Thus, the device of the present invention is designed to detect when these certain rela-

tionships are not achieved and to indicate when they are. More specifically, the golf training device of the present invention includes a signalling means secured to a certain portion of the golfer's body and a connecting means connected with and extending between the signal means and a reference member which may be another portion of the golfer's body, the golf club itself, or a stationary object such as the ground. With such device, the golfer is able to detect and correct various faults in his swing. For example, appropriate connection of the device of the present invention to the left arm of a right handed golfer will detect a bending of the left arm during the swing. Further, appropriate connection of the device between the left forearm and the back of the left hand will detect when improper movement of the left wrist occurs. Additionally, appropriate connection of the device between the left forearm and the club shaft will enable the golfer to determine whether he is overswinging or underswinging his club and will enable him to determine the angle between the club shaft and his left arm at the top of his back swing. Finally, the device of the present invention, when appropriately connected between the right leg of a right handed golfer and the ground, will enable the golfer to detect if his right leg is swaying from side to side during the swing.

By using the device of the present invention in the manner described above, as well as in other ways, the golfer will not only be able to develop and perfect his swing, but more importantly, will be able to obtain further distance in his shots, hit straighter shots, and maximize the use of his body during the swing. Further, by properly developing his swing, the golfer will be able to attain better accuracy and will enable him to "feel" when he has achieved such a proper swing.

Accordingly, it is an object of the present invention to provide a golf training device capable of detecting and correcting certain faults in a golfer's swing without being observed by a golfing pro or instructor.

Another object of the present invention is to provide a golf training device which is capable of detecting and signalling when certain relationships between parts of a golfer's body and a reference member such as another part of the golfer's body, the golf club, or the ground, are not achieved.

A further object of the present invention is to provide a training device useable for the development of skills in various sporting activities, including golf, without the presence of an instructor to detect an improper performance or accomplishment of such skill.

A further object of the present invention is to provide a golf training device for use by a golf professional or instructor for aiding him in the instruction of and the detection of faults in the golf swing of his students.

These and other objects of the present invention will become apparent with reference to the drawings, the description of the preferred embodiment, and the appended claims.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the training device of the present invention.

FIG. 2 is a view showing the training device of the present invention in use as a golf training device.

FIG. 3 is a second view of the training device of the present invention being used as a golf training device

to monitor the relative movement between the left backhand and the left forearm.

FIG. 3A is an enlarged plan view of the signaling device depicted in FIG. 3.

FIG. 4 is a plan view, partially in section, of the signalling means used in the training device of the present invention.

FIG. 5 is a third view showing the training device of the present invention in use as a golf training device.

FIG. 6 is a fourth view showing the training device of the present invention in use as a golf training device.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference first to FIG. 1, the training device illustrated in the preferred embodiment is a golf training device which includes a signalling means 10 and a means 11 for selectively attaching the signalling means 10 to a portion of the golfer's body. The attachment means includes an elongated, relatively rectangular leather strap member 11 which is secured, near its center, to the signalling means 10 by appropriate means such as a pair of screws extending through the strap 11 and through one side of the shell 15. Connected with each end of the member 11 is a means for securing the strap 11 to a portion of the golfer's body. This means includes two pair of mating strips 12 and 14 which are appropriately positioned on the strap member 11 as illustrated. In the preferred embodiment, these strips 12 and 14 are made from the material identified by the trademark "Velcro" manufactured by American Velcro, Inc. of Manchester, New Hampshire. To secure the strap 11, and thus the signalling means 10, to a portion of the golfer's body as shown in FIGS. 2, 3, 5 and 6, the strap 11 is wrapped around the desired portion of the body so that the strips 14 engage the strips 12.

As illustrated best in FIG. 4, the signal means 10 includes a relatively cylindrical shell portion 15 constructed of a relatively light weight material such as aluminum or plastic and a buzzer 18 connected at one end of the cylindrical shell 15 by an appropriate connecting means such as the screw 16 (FIG. 1). In the preferred embodiment, the buzzer 18 is a buzzer which is known as a "Mallory Mini-sonalert", No. SC 1.5 which is manufactured by P. R. Mallory Company of Indianapolis, Indiana. Connected with the buzzer 18 is a battery 39 for providing electrical energy thereto. Also disposed within the shell 15 is a microswitch 40 which is secured to one end of the shell 15 by the screws 45 and a reversing switch 41 connected with one end of the shell 15 by the lock nut 44. A suitable microswitch 40 is a No. A1-S1-115-4 microswitch manufactured by Potter and Brumfield of Gainesville, Georgia which includes a switch member 20 extending through a hole formed in the shell 15 whose movement actuates the microswitch 40. The reversing switch 41 is a panel switch No. MST-105D manufactured by Raytheon Corporation of Burlington, Massachusetts and includes a switching knob 42 extending outside of the shell 15 to permit manual switching. Although not specifically illustrated, each of the buzzer 18, the microswitch 40 and the reversing switch 41 is electrically connected with the others to enable the signalling device to function in the desired manner. In this respect, the elements 18, 40 and 41 are connected such that when the reversing switch 41 is in the first or two positions (hereinafter referred to as the first position), the switching member 20 of the micro-

switch 40 is biased in an "off" position. However, when switch 20 is moved, activation of the buzzer 18 occurs. If the switch 42 is then reversed or switched to the second of two positions (hereinafter referred to as the second position), the switching member 20 will be biased in an "on" position causing activation of the buzzer 18 and requiring movement of the switch 20 to stop the buzzer.

Specifically, when the reversing switch 41 is in the first of two positions, which position is indicated in FIG. 3A by the broken line 42A, the switching member 20 of the microswitch 40 is biased in an "off position" or that position indicated by the broken line 20A. However, when the switch 20 is moved toward the right as viewed in FIG. 3A to the position indicated by the solid lines, activation of the buzzer 18 occurs. If the switch 42 is then reversed or switched to the second of two positions, which position is indicated in FIG. 3A by the solid line 42, the switching member 20 of the microswitch 40 will be biased in an "on" position indicated by the broken line 20A, causing activation of the buzzer 18. Under these circumstances, movement of the element 20 to the right as viewed in FIG. 3A is required to deactivate the buzzer 18.

With reference again to FIG. 1, the buzzer 18 is secured to the shell 15 by appropriate means such as the screw 16. Connected with the switching member 20 of the microswitch 40 (FIG. 4) is an elastic connecting cord 19 which is connected at one end to the switch 20 by means of a knot in the end of the cord 19. The other end of the cord 19 is secured to a connecting member adapted for connection with a reference member such as another portion of the golfer's body, the shaft of the golf club, or to the ground. It should be noted that for proper functioning of the device 10, the elasticity of the cord 19 must be such that initial tensioning of the cord 19 will cause actuation of the switch 20 but additional stretching or tensioning will not significantly affect the golfer's swing. In FIG. 1, the cord 19 is connected with a clasp 21 by an appropriate screw member 22. The clasp 21, in turn, is intended to be connected to the shaft of a golf club in the manner illustrated in FIG. 2.

As illustrated in FIGS. 2, 3, 5 and 6, the cord 33 extends from the switch 20 over a portion of the container 15 and connects with a reference member. In the present drawings, the travel of the cord 33 is guided, in part, by the surface of the container. Although not specifically illustrated, it is contemplated that a guide means could be connected with the container 15 in the form of an eyelet or loop to guide the travel of the cord 33 during operation of the device.

Having now described the training device of the present invention in detail, several examples of how the device may be used as a golf training device will be described. With reference first to FIG. 2, it can be seen that the training device of the present invention can be used to detect when the proper angle between the left forearm of a right handed golfer and the club shaft is attained during the backswing. In FIG. 2, the golfer 30 is shown with the club, his right and left arms, and his right and left hands (reference numerals 24, 29, 26, 28 and 25 respectively) in their proper position at the top of the back swing. It should be noted that in this position, a critical relationship exists between the golfer's left arm 26 and the shaft of the golf club 24. Although the optimum angle between the left arm 26 and the shaft 24 may vary depending upon the golfer, it is im-

portant for each golfer to attain a certain angle which is best suited for his swing. Through the use of the training device as illustrated in FIG. 2, the golfer 30 can determine if he takes the club too far back (overswings) or whether he does not take the club back far enough (underswings).

To use the device in the manner illustrated in FIG. 2, the switch 42 (FIG. 4) is disposed in the second position so that tensioning of the cord 19 results in non-activation of the signal means 10, and the strap 11 is appropriately secured to the left wrist of the golfer. The club 24 and left arm 26 are then disposed at the desired angle and the clasp 21 is connected with the shaft of the club 24 and slid along the shaft 24 until it reaches a point when the cord 19 is tensioned just enough to prevent activation of the signal means 10. The golfer then takes several natural swings with the club. If the buzzer sounds as he nears the end of his backswing, it means that he is overswinging, or that the club shaft 24 has moved too far relative to his left arm 26. This generally means that the player is too wristy, a condition which often results in a late hit of the ball and/or loss of control of the club. The objective of the user when he realizes that he is overswinging, is to restrain the backswing movement of his club until he reaches the point at which the buzzer is not actuated.

If, when the golfer takes his several normal swings, the buzzer does not sound, he may conclude either that he has a proper backswing (in terms of the relationship between his left arm 26 and the club 24), or that he is underswinging. For one who underswings, the shaft of the club 24 does not reach the full angle with the left arm 26 that it should. In such a situation, the golfer's wrists are not fully cocked and his swing is too tight. To correct this, the golfer would practice swinging the club, continually increasing the amount of backswing, until the buzzer sounds. When this occurs, the golfer knows that he has achieved a sufficiently full backswing.

Referring next to FIG. 3, another illustration of the training device in use can be seen. In this illustration the device is used to detect improper movement of the back side of the left hand 32 relative to the left forearm 31. Preferably, the back of the left hand 32 and the left forearm 31 should form a straight line which should be maintained throughout the swing. If this is not done, a hooked or sliced ball will result. For example, if, during the swing, the left hand 32 is bent inwardly, the clubhead will strike the ball with a closed face, thus resulting in a hook. If, however, the left hand is pivoted outwardly relative to the left forearm, the clubhead will be open, thus resulting in a slice. To detect such movement of the lefthand 32 relative to the left forearm 31, the device of the present invention is connected as shown in FIG. 3.

As illustrated, the strap 11 is secured to the left forearm 31 such that the signal means 10 is in the position illustrated. Next, the elastic cord 33, which is shorter than the cord 19 of FIG. 2, is connected by an appropriate connecting means 36 to a mating connecting means 38 which is secured to the golfer's glove 35. It should be noted that the position of the connecting means 38 and the length of the cord 33 are such as to permit connection between the members 36 and 38 when the left hand 32 and left forearm 31 are in the proper position. Next, the switch 42 is moved to the first position so that tensioning of the cord 33 causes

activation of the buzzer and the member 36 is secured to the member 38 so that the cord 33 is slightly tensioned but not enough to activate the buzzer when the relationship between the left forearm 31 and left hand 32 is proper. The golfer now takes several practice swings. If the buzzer sounds, he can conclude that he is bending his left wrist inwardly, a condition which may result in a hooked ball. He should then attempt to correct his swing until the buzzer is not activated during this swing. If, however, during several normal swings, the buzzer does not sound, it means that the golfer is moving his left hand 32 outwardly with respect to his left forearm 31 or that he is maintaining his left hand 32 and left arm 31 in a proper relationship. In this case, he would switch the reversing switch 42 (FIG. 4) to the second position and secure the portion 36 to the portion 38 such that the cord 33 is tensioned just enough to actuate the switch 20. Then, if the buzzer sounds during several normal swings, the golfer can conclude that he is pivoting his left hand 32 outwardly relative to his left arm 31, a situation which most likely will result in an open club face or a sliced ball. If the buzzer does not sound, the golfer may conclude that the relative movement between his left hand and his left forearm is proper.

The training device of the present invention may be used to detect improper leg movement during a swing. For example, as illustrated in FIG. 5, the device 10 may be attached to a right handed golfer's right leg 49 in the manner illustrated with an elastic cord 47 extending downwardly from the device and connected to the ground by an appropriate connecting means 50. To function properly for this purpose, the switch 42 (FIG. 4) should be placed in the first position such that tensioning of the cord 47 will activate the buzzer 10. The connecting means 50 should then be placed in the ground at a position such that when the golfer is in a normal stance, the cord 47 is slightly tensioned but not enough to actuate the buzzer. Next, the golfer 46 takes several practice swings. If the buzzer sounds during his swings, it means that the golfer's right leg 49 is swaying to the left as viewed in FIG. 5. Such movement of the right leg during a golf swing is undesirable since it leads to loss of control in striking the ball properly. Thus, the golfer should practice swinging until he achieves a swing which does not activate the buzzer.

As illustrated in FIG. 6, the training device of the present invention can also be used to detect when a right handed golfer's left arm 52 is not kept straight, as it should be, during a swing. To be used in this manner, the strap 11 is connected to the left wrist with the device 10 disposed as shown. The switch 42 (FIG. 4) is then moved to the second position so that the buzzer will not sound when the elastic cord 56 is sufficiently tensioned. The end of the cord 56 which is not connected with the device 10 is then connected by an appropriate means 55 to a band 54 connected with the upper left arm of the golfer 51. If the buzzer sounds during a normal swing, with the training device connected in this manner, the golfer can conclude that his left arm is bending during the swing. The result would most probably be loss of control of the club and non-uniformity in the swing.

Although the description of the preferred embodiment has been quite specific, it is contemplated that various changes could be made without deviating from the spirit of the present invention. Thus, the scope of

the present invention should be measured by the appended claims rather than by the description of the preferred embodiment.

I claim:

1. A training device usable for the development of physical skills in various sporting activities comprising:
 - a signaling device for signaling the occurrence of a predetermined relative movement between a first portion of a user's body and a reference member other than said first portion of the user's body and in which at least one of said first position and reference member is moveable relative to the other when the user practices such sporting activity, said signaling means having an activation member movable between first and second positions, one of said positions being an activating position at which said activation member activates the signaling device to produce a desired signal, and the other of said positions being a non-activating position at which said activation member prevents the signaling device from producing such a signal;
 - means for connecting said signaling device to one of said first portion of the user's body and said reference member; and
 - a longitudinally stretchable elastic member having one end connected to said activation member of said signaling device and having another end with connecting means for connection of said other end to the other said first portion of the user's body and said reference member, such that said activation member is moved to its signal activating position when said predetermined movement between said first portion of the user's body and said reference member occurs, the elasticity of said elastic member being such that initial stretching of said elastic member causes movement of said activation mem-

ber from said first to said second position, but such that further stretching of said elastic member permits relative movement between said first portion of the user's body and said reference member while the activation member is held in said second position, without significantly restraining the relative movement and performance of the user.

2. The device of claim 1 being a golf training device.

3. The golf training device of claim 2 wherein said signalling device is an audio signalling device.

4. The golf training device of claim 3 having a reversing switch with at least a first and second position such that when said reversing switch is in said first position, the first position of said activation member corresponds to said signal activating position and stretching of said elastic member moves said activation member to its non-activating position, and such that when said reversing switch is in said second position, the first position of said activation member corresponds to said non-activating position and stretching of said elastic member moves said activation member to its activating position.

5. The golf training device of claim 2 having means for connecting said signaling device to said first portion of the user's body and wherein said reference member is a second portion of the user's body.

6. The golf training device of claim 2 having means for connecting said signalling device to the wrist of the user and wherein said reference member is a golf club shaft.

7. The golf training device of claim 2 having means for connecting said signalling device to the leg of the user and wherein said reference member is a golfing surface.

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