Jan. 15, 1963

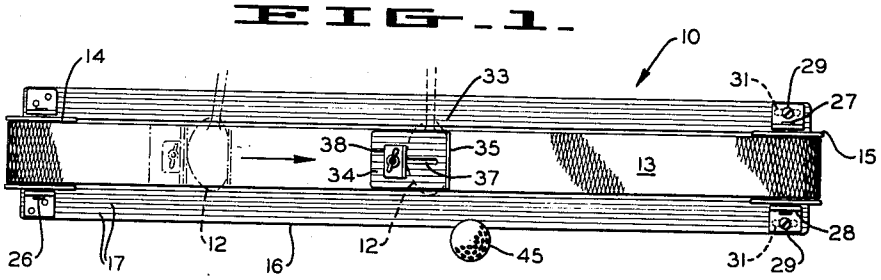
J. BELL

3,073,602

TRAINING DEVICE

Filed May 1, 1961

FIG. 1.



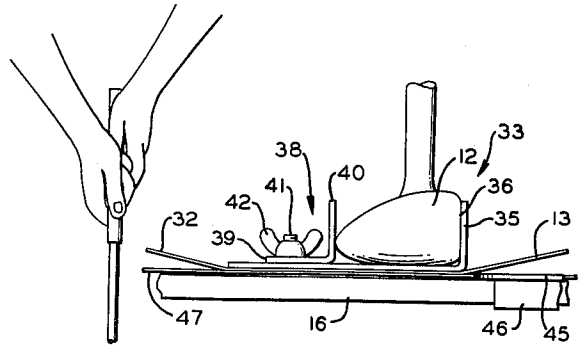


FIG. 3.

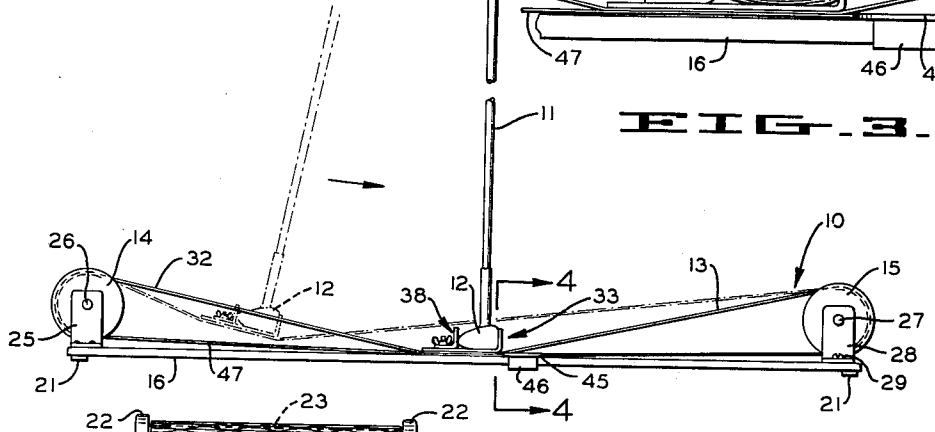


FIG. 2.

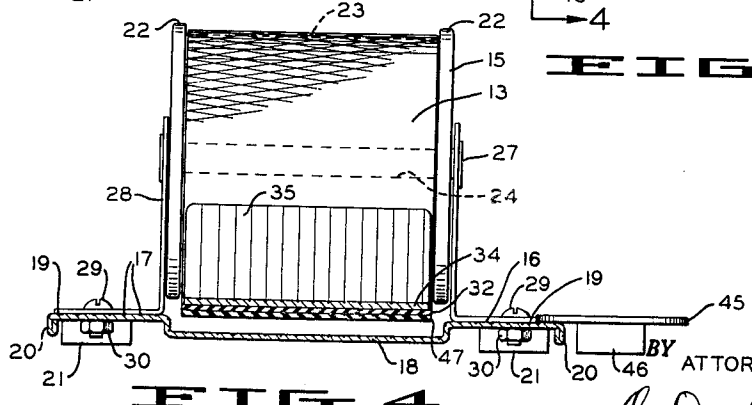


FIG. 4.

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TRAINING DEVICE

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9 Claims. (Cl. 273—186)

This invention relates to training devices for golfers, and more particularly, it relates to a device for assisting the golfer in developing the correct putting stroke.

The putting phase of the game of golf is extremely important, and yet the mastery of a consistently successful putting technique is a problem that constantly challenges even the most experienced golfers. The basic problem in putting is that of perfecting a stroke that will direct the club head against the ball along a straight line coincident with the intended direction of travel of the ball, while at the same time addressing the ball with the club head perpendicular to this straight line of approach to the ball by the club head. Though seemingly a simple requirement, this putting stroke must be precise and made within extremely narrow limits. The slightest deviation in the direction of travel of the club head in its approach to the ball or any deviation from the perpendicular position of the club head face to the line of travel during the impact on the ball, will cause the ball to travel in a direction other than the desired direction.

Most golfers are well aware of the fundamental precision required in putting and they attempt to achieve this by applying the various elements of form recommended by professionals in executing the stroke such as the proper club grip, the stance, the back-swing and follow-through. However, since each golfer is different, he must learn exactly to what degree his grip, stance, and swing must be altered slightly in order to maintain (1) straight line of travel of the club head during the down-swing or the approach to the ball; and (2) the face of the club head perpendicular or square to the line of travel of the down-swing during the impact of the club head with the ball. Prior to my invention, the golfer was unable to ascertain exactly how close his actual stroke was to fulfilling these essential requirements of the proper putting stroke. It is impossible for the human eye to detect the slight imperfections in the direction of travel of the club stroke and the position of the club head at the exact moment of impact with the ball. My invention solves this problem by providing a device which first detects the imperfections or tendencies for error in the golfer's putting stroke so that they can be readily corrected.

For example, during the back-swing there is a natural tendency to roll the wrists and the hands out clockwise. This opens the club face so that it does not remain square with the putting line. This tendency can be corrected by adjusting the positions of the hands on the shaft of the putter. However, without my invention the amount of adjustment and the exact proper position for the hands cannot be readily ascertained. Another aspect of the back-swing, especially with regard to short putts, is that the club head should be kept low so that it just clips the grass as it approaches the ball along a straight line. My invention provides a means to exercise the proper putting stroke in this regard by allowing a variation of the club head in a vertical degree of freedom while continuing to control it in the longitudinal direction.

Once the golfer learns the correct stroke, he can then develop the feel of the club and the body movement as the correct stroke is being made by exercising the stroke repetitively while being guided by my invention. Later he can then easily repeat the proper stroke when actually playing the game, since all of the tendencies to deviate from this proper stroke will have been eliminated.

It is therefore one important object of my invention

to provide a novel training device for developing the proper putting stroke that will assure a straight line approach to the ball by the putter club with the face of the club square to this putting line. This objective is carried out by my novel device which first provides a means for indicating errors in the golfer's form or deviations from the proper putting stroke. Once the golfer has made form corrections to correct his stroke, the invention then provides a means for exercising this stroke until perfection is reached and the proper stroke can be made under normal playing conditions.

Another object of the invention is to provide a device for controlling the stroke of a putter through its proper ideal movements while simulating the impact of the club on the ball.

Another object of the invention is to provide a putting stroke exercising device that will provide a means for defining the correct putting stroke with respect to both elevation and the direction of the club head during its approach to the ball.

Another object of my invention is to provide a device for analyzing and exercising a golf putting stroke which affords freedom of movement for the golf club head along the correct putting stroke path but which gives an immediate indication to the golfer of: (1) any deviation from the straight line approach to the point of impact; and (2) any twisting from a position of the club head face that is square to the putting line.

Still another object of the invention is to provide a putter exercising device that can be used for either right or left handed players.

Another object of the invention is to provide a training device for defining a proper putting stroke and for exercising the stroke wherein the golf club head is visible at all times.

Other objects and advantages of my invention will become apparent from the following description. The illustrative embodiment set out in the drawings and described in detail herein is not intended to limit the scope of the invention as described in the appended claims, but rather is intended to acomply with 35 USC 112.

In the drawings:

FIG. 1 is a plan view of the putting training device according to the present invention;

FIG. 2 is a view in elevation of the putting device according to the invention as shown in FIG. 1, the club head is also shown in phantom in the back-swing position;

FIG. 3 is an enlarged view in elevation showing the putter head retaining means in detail;

FIG. 4 is a view in end elevation and in section taken along the line 4—4 in FIG. 2.

Referring now to the drawings, FIGS. 1 and 2 illustrate one preferred form of my novel putting analyzer and exerciser **10** as it appears when being used. A typical putting club **11** having a head **12** is shown being held by a golfer's hands in a standard grip and in a position for practicing the proper putting stroke on the exerciser **10**. The club head is shown at the point of impact with the ball and also in a back-stroke position by the dotted lines. The club head **12** is rigidly attached to a flexible guiding means which is shown in the form of a belt **13** connected between two spaced apart rollers **14** and **15**. With this novel arrangement, the club head **12** can be moved easily back and forth through the back-stroke, the down-stroke, forward stroke, or the follow-through portion of the putting stroke, and yet it is fixed to the belt **13** in such a manner that the reaction of the belt **13** on the club head **12** will immediately indicate visually or by feel of the putting club **11** in the golfer's hands, any deviation from the proper putting stroke.

The spaced apart rollers **14** and **15** are preferably mounted on a supporting base **16** which rests on the

ground level and simulates the smooth putting green. The base **16** may be made from any suitable material such as sheet metal or plastic, but I prefer to use a light sheet metal such as an aluminum alloy. I also prefer to provide the supporting base **16** with surface marking lines **17** which are spaced apart all across and run longitudinally along the top side of the base **16**. These surface markings **17** may be actual fluted indentations in the top side of the supporting base **16** or they can be painted stripes, and they provide an important function of giving the golfer a constant longitudinal reference in the direction in which the proper straight putting stroke should be made. I have discovered that this is a definite factor in helping the golfer to concentrate on this essential straight line characteristic of the putting stroke.

In cross-section as shown in FIG. 4, the supporting base **16** has a central recessed portion **18** of uniform width along its length which is bordered by raised portions **19** having turned down edges **20**. The edges **20** may be doubled back for added strength and they preferably extend downward to the level of the recessed portion **18** to provide support for the base **16** when it is placed on a flat surface. In the form shown, the support base **16** can be readily fabricated in a single member with a simple forming operation. To assure a more stable mounting for the base member **16** I may attach some suitable rubber mountings **21** at each of its corners which serve to retain it in a fixed position on the floor or a rug when in use.

Mounted at opposite ends of the base member **16** are the rollers **14** and **15**. Each of the rollers may be made from some suitable material such as plastic or wood, and each is preferably solid with circular flange portion **22** on both of their sides which form a uniform circular roller area **23** between said flange **22**. Each roller **14** and **15** also is provided with a central axle bore **24**. As shown in FIGS. 1 and 2 the roller **14** at one end of the base member **16** is permanently mounted thereon by L-shaped brackets **25** that may be fixed by riveting or welding to the base member **16**. A shaft or bolt **26** is mounted in the brackets **25** and through the bore **24** of the roller **14** with enough clearance so that the roller **14** will turn easily on the shaft **26**. The roller **15** is similarly mounted at the opposite end of the base member **16** by a bolt **27** through the roller bore **24** and a pair of L-shaped brackets **28**. The bolts **26** and **27** may be retained in position by any suitable, well known means such as a cotton key or a nut or bolt arrangement (not shown). On the roller **15**, I prefer to mount the brackets **28** by means of bolts **29** attached to nuts **30** which pass through the brackets **28** and slots **31** in the base member **16**. The slots **31** extend longitudinally along the base member **16** so that the roller **15** can be moved to adjust the tension in the flexible belt **13** which passes around the rollers **14** and **15**.

The flexible belt **13** is an important component of my invention because as combined with the rollers **14** and **15** it serves to control the actual path and position of the club head **12** during the putting stroke. The belt **13** is preferably made from some flexible but inelastic material such as a rubber impregnated or coated fabric. In addition, I prefer to provide both sides of the belt **13** with a slightly roughened texture or tread-like surface so that when one portion of the belt **13** engages with and slides against another portion, a small but positive friction force accompanied by characteristic sound will take place. The importance of this feature in the operation of my invention will be explained shortly. As shown in FIGS. 1 and 2, the belt **13** is continuous and is placed around each of the rollers **14** and **15**. Fixed to the upper surface of the top strand **32** of the belt **13** is a putter head holder **33**.

The putter head holder **33** shown in detail in FIG. 3, may be made from the same material as the base member **16** and is bent in a right angular shape having a flat base portion **34** that is bonded to the belt **13** and an upwardly extending flange **35** which is adapted to engage the face **36** of the club head **12**. A slot **37** is formed in the base portion **34** and through the belt **13**. Slidable along the slot **37** is an adjustable retaining bracket **38** which is also generally L-shaped with a base flange portion **39** adapted to lie parallel to the base portion **34** of the putter holder **33** and an upwardly extending flange **40**. A bolt **41** extends upward through the base flange portion of the bracket **38** and the slot **37** of the base portion **34** and is threaded to a wing nut **42**. Thus by loosening the wing nut **42**, the flange **40** of the movable bracket **38** can be moved tightly against the rear surface of the putter head **12** whose face **36** is pressed against the upright flange **35** of the putter holder **33**. The wing nut **42** is then tightened and the putter head **12** is held in a fixed position relative to the belt **13**. The putter holder **33** will accommodate various types of putters such as blade putters or mallet head putters by the proper adjustment of the retaining bracket **38**. Other modified forms of putter head holders may be used as long as they grip the club head **12** tightly to prevent twisting in a position square to the putting line and as long as they are securely attached to the belt **13**.

I will now discuss the operation of my novel putting exerciser and analyzer and it will be readily apparent how the elements of my device function in a new and unobvious manner to provide a novel and highly effective putting training device. My invention not only affords a means to provide for constant repetitive stroking in precisely the proper manner but it also provides a means whereby any deviation from the proper stroke either by improperly curving the putting line on the back stroke or by twisting the putting head **12** is immediately indicated to the golfer holding the putter either by the feel transmitted through the golf club due to a reactive force of the belt **13** on the putter head **12** or by the wrinkling or twisting of the belt **13** which is visually apparent.

When using my novel putting exerciser **10**, it is useful to have a means for indicating to the golfer the point at which a simulated impact is to occur. This point should generally be mid-way between the rollers **14** and **15** and to locate it, I use a simulated golf ball target **45** which may be merely a round piece of sheet metal painted white to resemble a golf ball and mounted on a suitable support **46**. The support **46** preferably has a height, as shown in FIGS. 2 and 4 which is just sufficient to allow the target **45** to overlap and lay partially on a raised side portion **19**. Thus the target is free to be moved easily to any desired position along the base member **16** and yet it will remain in whatever position it is placed.

It is essential for best results with my invention that the rollers **14** and **15** be spaced at the proper distance apart so that the sag in the belt **13** is a predetermined amount. One reason for this is that on the back-swing of the putting stroke, according to the accepted recommended technique, the club head **12** does not sweep upward a very large amount but rather is only raised only slightly from the level at the point of impact with the ball as the club head is drawn straight back along the putting line. As shown in FIG. 2, the belt length is adjusted so that during this back-swing the club head **12** will be kept slightly above the level of impact by the tension in the belt **13**. As the club head **12** moves forward during the putting stroke, with the same amount of tension being applied to the belt **13** by the club head **12** the head **12** will follow the path of a normal putting stroke, and just at the point where the club head would normally engage a ball (as indicated by the simulated ball target **45**), the upper strand **32** of the belt **13** will engage and rub against the lower strand **47** of the belt **13** which is riding in the recessed area **18** of the base member **16**. The rubbing together of the two belt strands **32** and **47** creates an amount of friction which simulates the inertia effect of actually striking a ball. When the

stroke is being made properly, just the proper amount of tension is being applied to the belt 13 which indicates the proper position of the club head 12 relative to the ground surface, and as the point of "impact" is reached, the rubbing together of the upper and lower belt strands 32 and 47 also produces an audible singing noise. Thus, the golfer when exercising the proper putting stroke can not only check his stroke visually and by the feel of the club, but also by the noise of the belt strands when they properly engage at just the point of simulated impact.

The tendency to twist the putter head from the desired position, that is, precisely square with the putting line, is immediately noticeable on my novel training device. The belt 13 having a width only slightly less than the width of the rollers 14 and 15 between the flanges 22, is therefore restricted to travel in one predetermined direction, that is along the putting line which is perpendicular to the axes of the roller shafts 26 and 27 and parallel to the longitudinal markings 17 on the base member 16. The lower stand 47 of the belt 13 also rides in the longitudinal recession 18 which further helps to confine the belt movement in the direction of the putting line. Thus during the back-swing, any tendency of the golfer to back-swing in an arc away from the straight putting line is immediately noticeable because the belt 13 will resist the side force component exerted by the club head 12. Equally important is the common tendency to twist the club head 12 from the correct position of being square with the putting line during the back-swing. Since there is a certain amount of flexibility and freedom of movement with the belt 13, any such twisting of the attached club head 12 is immediately noticeable by a wrinkling or twisting of the belt 13.

With the indications provided by the visual check with and the reactive forces of the belt, the golfer can quickly ascertain the correct putting stroke along a straight line approaching the point of impact with the club head constantly square with this putting line. An important factor with my invention is that it is equally effective for golfers with various putting forms, such as the wrist putter, the arm putter or the arm and wrist putter. Once the correct putting stroke has been established, it can be practiced over and over again on my device until the indications are that it is being performed correctly. Later, during actual play the golfer will be able to know by the feel of the club and his stance, grip, etc., when the stroke is being made properly.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

I claim:

1. A training device for indicating and exercising the proper putting stroke for golfers comprising: a pair of rollers fixed at a predetermined fixed distance apart; means for mounting said rollers in a freely rotatable position above ground level; a continuous flexible belt extending around both of said rollers, said belt having a total length greater than twice the distance between the centers of said rollers plus one-half the circumferences of said rollers, the upper strand of said belt thus having sufficient slack to deflect downward toward its lower strand; a single golf club head gripping adjustable means fixed to said belt for retaining the putting head of a golf club on the upper strand of said belt; whereby said golf club head is movable between said rollers on said belt and is guided thereby through a normal putting stroke.

2. A training device for indicating and exercising the proper putting stroke for golfers comprising: a base member; a pair of rollers mounted at opposite ends of said base member; a continuous belt attached around said rollers; a golf club having a head portion; a single adjustable clamp member attached to said belt for retaining the head portion of said golf club in a fixed rigid position on the upper strand of said belt; whereby when said golf club is moved through a normal stroke the club head is biased along a predetermined straight line pathway.

3. A training device for indicating and exercising the proper putting stroke for golfers comprising: a base member; a pair of freely rotatable rollers mounted at opposite ends of said base member; a continuous belt around said rollers, thereby forming an upper and a lower belt portion, said belt having a length sufficient to allow the engagement of the upper belt portion with the lower belt portion at only the approximate midway position between said rollers; means for retaining the head of a golf club on said upper portion of said belt; whereby when the golf club is moved through a normal stroke the club head is biased along a predetermined straight line pathway and any tendency to twist the club head or to deviate from said pathway is resisted by and causes wrinkling of the belt.

4. The device as described in claim 3 wherein said means for retaining said golf club head includes a base portion fixed to said belt having an upright flange, and adjustable means for engaging the rear of said club head and fixing said club head in position with its face against said upright flange.

5. A training device for indicating and exercising the proper putting stroke for golfers comprising: a base member; a pair of freely rotatable rollers mounted at opposite ends of said base member, each said roller having flanged edges defining a central roller area; a continuous belt having a width slightly less than said central roller area and adapted to pass around said rollers, thereby forming an upper and a lower belt portion, said belt having a length sufficient to allow said upper belt portion to be pressed downward to engage the lower belt portion at only the approximate midway position between said rollers; means for retaining the head of a golf club in a predetermined fixed position on said upper portion of said belt; whereby when the golf club is moved through a normal stroke the club head is biased along a predetermined straight line pathway and any tendency to deviate from said pathway is resisted by and causes wrinkling of the belt.

6. The device as described in claim 5 wherein said belt is made from flexible material having a rough surface for producing a characteristic sound during the engagement of said upper and lower belt portions when said golf club head reaches a simulated impact point near said midway position between said rollers.

7. The device described in claim 6 including a simulated golf ball target supported by said base member adjacent said impact point near said midway positions between said rollers.

8. The device described in claim 5 including means for adjusting the longitudinal position of at least one of said rollers on said base member to thereby control the tension of said belt.

9. The device described in claim 5 including spaced apart visual reference lines extending longitudinally along the top surface of said base member.

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