Sept. 24, 1957 V. J. HATFIELD 2,807,472

GOLF SWING TRAINER

Filed Dec. 3, 1956 2 Sheets-Sheet 1

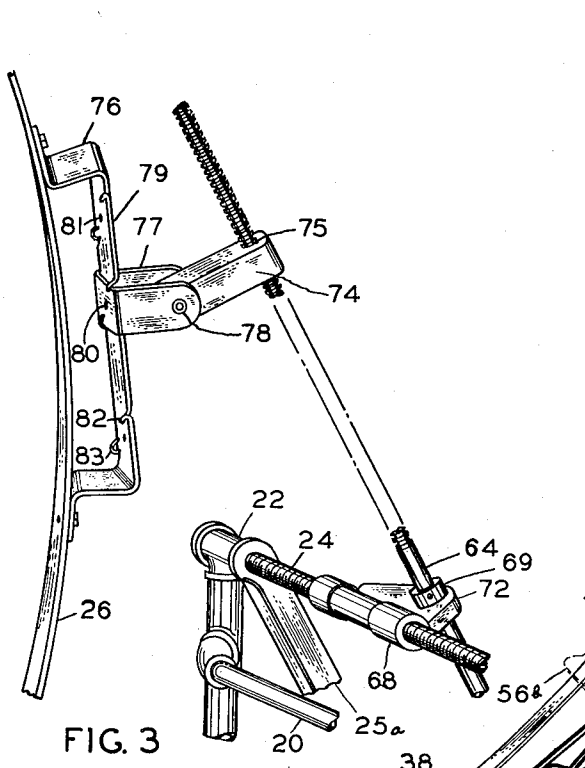


FIG. 3

FIG. 1

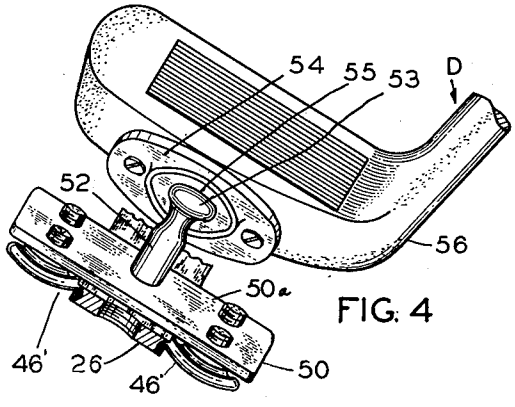


FIG. 4

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GOLF SWING TRAINER

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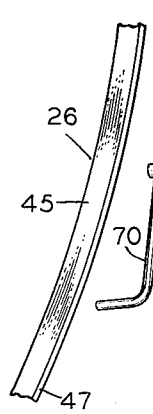


FIG. 10

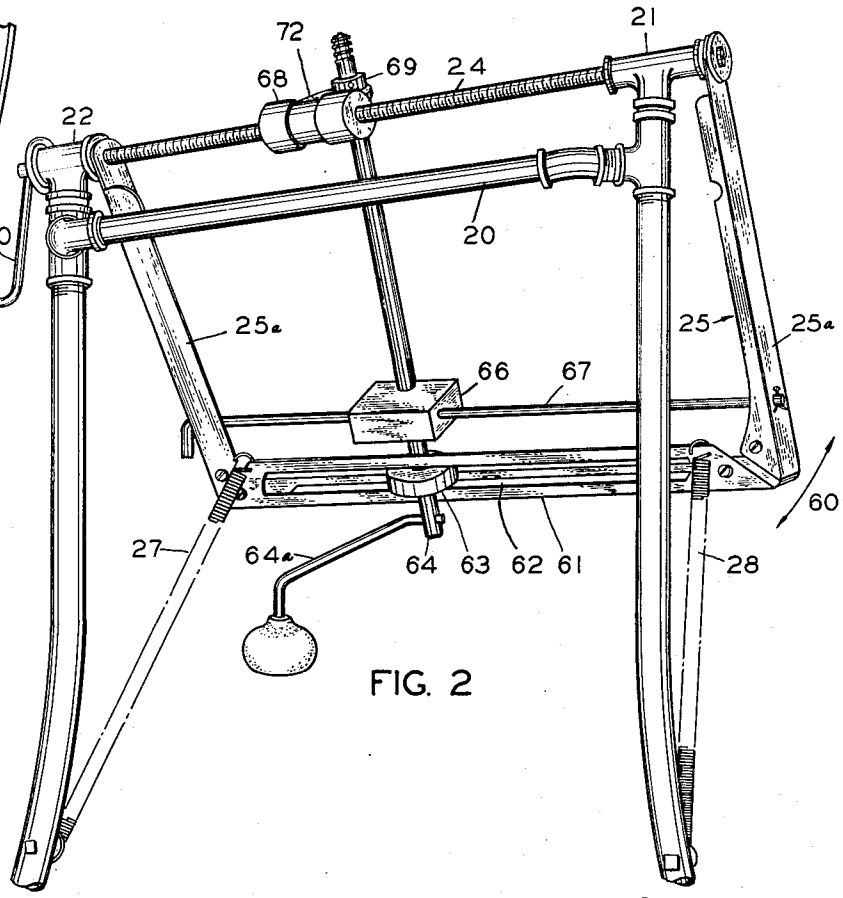


FIG. 2

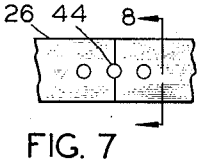


FIG. 7

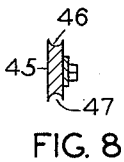


FIG. 8

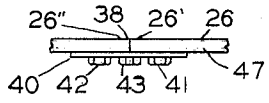


FIG. 9

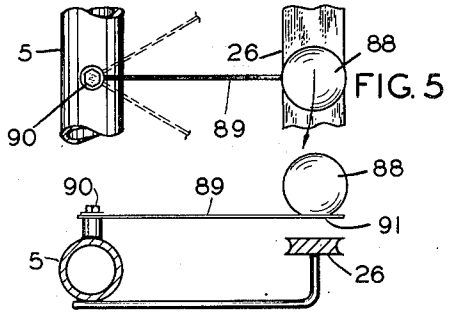


FIG. 5

FIG. 6

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GOLF SWING TRAINER

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2 Claims. (Cl. 273—191)

This invention concerns a golf swing trainer.

Heretofore various types of mechanisms have been devised to guide the golf club, the club head portion, and to steady the body of the player so that the correct swing is acquired.

These devices however, have been found to be impractical for one or more of several reasons and have largely fallen into disuse. It is realized that to be practical and to be efficient the golf club swing training device must be light, movable, and readily adapted to various sizes of persons and to persons having different physical structure which affects their adaptability to the correct golf club swing.

In view of the foregoing one of the objects of my device is to provide a golf club swing trainer having a light and sufficiently strong frame, which may be dismounted, taken apart and composed of easily movable sections.

Another object of the device is to provide a golf club swing trainer which will guide the club in a correct and realistic manner so that the user or person being trained will be urged to swing the club in the correct manner so as to acquire the knack of correctly hitting the ball.

A third object is to provide a golf club swing trainer which has a guide rail that is light and flexible and easily adapted to different swings as required by persons of different stature and physical build.

Another object is to provide a device above mentioned in which the size of the rail and its degree of curvature may be easily and quickly varied and adjusted to suit persons of different stature.

Still another object is to provide the rail of the trainer with a carriage which may be easily applied to the head of a standard golf club and which will guide the club in the correct swing without cramping or disturbing the normal correct movements of the club head during the swing.

Other objects will appear hereinafter.

I attain the foregoing objects by means of the devices, parts, and combinations of parts shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a preferred form of trainer embodying my improvements;

Figure 2 is a perspective view of the adjusting mechanism which is incorporated in the frame and used to change the curvature of the swing guide rail and the angle of its plane, drawn on an enlarged scale;

Figure 3 is a perspective view of the details of the rail curvature adjusting mechanism, also drawn on an enlarged scale;

Figure 4 is a perspective view, drawn on an enlarged scale, of the club head carrier which runs on the swing guide rail;

Figure 5 is a plan view of a ball holding device which attaches to the bottom portion of the frame;

Figure 6 is an elevational view thereof;

Figure 7 is a plan view of a fragment of the guide rail showing one of the joints used in disassembling;

Figure 8 is a section of the guide rail taken substantially on line 8—8 of Figure 7; and

Figure 9 is a side elevation of a fragment of the guide rail as shown in Figure 7; and Figure 10 is a perspective view of a fragment of the guide rail.

Similar numerals refer to similar parts in the several views.

Referring to the drawings, the device here concerned consists of a golf club guiding mechanism, generally indicated by the letter A. It is intended that the player or the person who is to be trained in the proper swing of a golf club shall stand on the platform **12** and face the rail **26** and apply the golf club D to the rail by means of the mechanism hereinafter described. Thereafter the player, or trainee grasps the club in the usual manner and swings the head so that it travels along the rail **26** in an arc which has been calculated to be the correct arc or "groove" to correctly hit the ball, which is placed on a tee, hereinafter described, at position F, in front of the stance area of the player on the platform **12**.

The frame **2** includes the longitudinal base members **3**, **4** and **5**. Members **3** and **4** are joined together by transverse frame base members **6** and **7**, whereas the angularly extending outer longitudinal frame member **5** is joined to the rest of the frame base by transverse members **9**, **10** and **11**. A platform **12**, on which the user of the device stands, is located at the stance position and is disposed between the transverse member **7** at the forward edge of the main or rectangular frame base and the forward longitudinal extension **14**, which defines its lateral edge and is a forward continuation of longitudinal base member **4**. Upright frame members **16** and **17** extend from longitudinal base members **3** and **4** respectively. These upright members are held in place by angular braces **18**. The tops of the upright members are joined by transverse member **20**, and are provided with bearing fittings **21** and **22** which journal transverse threaded shaft **24**.

Shaft **24** forms a support for a floating yoke **25** which is part of the adjustable supporting mechanism for the rear portion of curved track **26**.

From the foregoing, it will be understood that the base members of the frame form a support for the upright members and these in turn support yoke **25** on a transverse shaft so that it hinges on arms **25***a* and is resiliently held at the lowered position as shown particularly in Figure 2 by springs **27** and **28**.

The members of the frame, as shown, are composed of metal pipe, or its equivalent, and are held together by screwing the ends of the pieces into fittings, such as the elbows **33** at the corners of the frame, and T fittings, such as **34**, at points where the frame members join. This structure makes it possible to take the frame apart by unscrewing the several members from the several fittings. Since demountability is one of the desirable characteristics of the device, unions **37** may be installed at various positions in the frame. Guide rail **26** is also made in sections fastened together at joints **38**. The details of one of these joints are shown in Figures 7, 8 and 9. Here it is noted that there is a plate **40** on the under side of rail **26**, which overlaps the joint **38**. Cap screws **41** and **42** are threaded upward through plate **40** into the adjacent abutting ends of the rail, such as **26'** and **26''**. To prevent transverse misalignment of the abutting ends a third cap screw **43** is threaded into plate **42** and extends upward through a threaded hole **44** formed between the abutting ends of the rail parts.

Preferably, the rail is made of a strip of resilient spring-like steel or similar material and has a flat upper face **45** and edges provided with milled grooves **46** and **47**.

These grooves provide a runway for the rollers **46** of the clubhead runner **50**. The edges of rollers **46** and **46'** are formed so that they fit into and engage in the

grooves **46** and **47**, and they are disposed on the body of the runner **50** so that they will run smoothly along the curved rail **26**. There are four rollers on the body plate **50***a* of the runner and these are arranged so that there are two rollers in tandem engaging each side of the rail.

In the center of the runner body plate **50***a*, there is an upwardly extending post **52**, which terminates in a ball **53**. This ball is adapted to be retained on a plate **54** by socket **55**. This type of attachment between the runner **50** and the glof clubhead **56**, onto which the plate **54** is attached, allows the clubhead to rotate axially on post **52** and to tilt thereon universally, in any direction.

The runner being adapted to travel along the length of rail **26**, is guided by it and the clubhead **56** attached to the runner is guided according to the position and curvature of rail **26**. Consequently, if the user assumes a stance on the platform **12** and places the runner on the rail by sliding it over the outer end **26***a*, he may grasp the clubhead and, facing outwardly toward the rail at F, assume the usual stance of a person playing golf, and may then move the clubhead along the rail from the position F, immediately in front of the platform, to a position near the top end of the rail marked **26***b*. This motion will guide the clubhead from position **56***a* to positions **56***b* and **56***c* in a proper arc for a correct golf stroke. The repeated swinging of the clubhead through this arc will cause the user to become accustomed to the correct swing and his muscles will adjust themselves accordingly in what is termed the proper "groove."

Obviously, the proper curve for the swing is controlled by the shape and size and curve of rail **26**, and the angle of the plane of the curve relative to the stane position on platform **12**. Since this is of importance, I provide the mechanism generally indicated by letter B for adjusting the curve and vertical position of the rail **26**. A description of the adjusting mechanism follows.

The yoke **25** being supported on the transverse threaded shaft **24** is free to move hingewise according to the arc indicated by arrows **60**. The side arms **25***a* of the yoke are connected at the bottom by a transverse member **61**. This member is made of an angle shaped metal bar and the vertical portion of the angle bar is provided with a slot **62**. This slot serves as a guide for a sliding disc **63** which is attached to the lower portion of shaft **64**. The disc **63**, engaging the edges of slot **62**, tends to hold shaft **64** upright. Above disc **63** and on shaft **64** there is a transversely sliding bearing block **66** which journals shaft **64** and at the same time slides along a transverse guide bar **67**, in frame **24** which supports block **66**. Above block **66**, there is a thrust bearing block **68**, which gains its support from the threaded shaft **24**. Block **68** has a threaded hole **69** in which the threaded mid portion of shaft **24** is screwed. Rotation of shaft **24** by crank **70** will move the block **68** along shaft **24** transversely relative to the frame **2**. A radially extending lug **72** extends from the main body of the block **68** and this is drilled to receive shaft **64** so that it is journaled therein. A thrust collar **69** on shaft **64** prevents axial displacement of shaft **64** in lug **72**.

Near the top or outer end of shaft **64** there is a threaded block **74** which has a threaded hole **75** which screws onto the threads on shaft **64**. When shaft **64** is turned by handle **64***a* this block travels axially on the shaft. The fore end of block **74** is attached to a rail yoke **76** by a clevis **77** and a pin **78** which passes through the clevis and the block. It is to be noted that the web **79** of yoke **76** is long enough to provide for three different positions of clevis **77**. As shown in Figure 3, the clevis is positioned in the middle location. The base of the clevis is held in this position by a pin **80** which extends through a hole, such as **81**, in the yoke web and is then removably positioned by a twisting motion so that it engages the hooks **82** and **83** formed by upturned portions of the edges of the yoke. This structure permits

the clevis **77** to be removably and adjustably positioned at any one of three locations along the length of the yoke. The clevis **77** is therefore adjustably secured to rail **26**.

With the above structure in mind, it is to be noted that the transverse position of block **74**, which is attached by clevis **77** to yoke **76** on rail **26**, is determined by the position of block **68** on transverse screw **24**. The transverse position of block **68** is easily adjusted by rotating shaft **24** by handle **70**. In this way the position of the rail **26** relative to the frame A can be adjusted transversely. The curvature of the rail is affected by and can be varied by the vertical position of block **74**. This position is adjusted by the rotation of shaft **64** by handle **64***a*. In order to maintain shaft **64** in correct position, and to maintain its stability, the guide block **66** in cooperation with the disc **63** are provided. As shaft **64** is rotated the position of block **74** is varied vertically. This vertical adjustment either opens or closes the arc designated by the letter C which curves rail **26** and which is generally incorporated into the rail by rolling when it is manufactured. As block **74** is raised on shaft **64**, due to the resilience of rail **26** and the tightening of the curve of arc C, the rail tends to move forward relative to the frame and consequently tilts the bottom of yoke frame **25** outward. This movement is resisted by springs **27** and **28**, which urge the lower portion of the frame and of shaft **64** inward. Consequently, the upper portion of this shaft is urged outward and block **74** being urged outward tends to open the arc of rail **26** throughout the portion designated C.

At the upper end of the rail **26** there is a stop or buffer spring **83** which resiliently stops the movement of the rider **50**. In Figure 1, the rail is shown broken away and the upper end is shown in a slightly offset position to indicate a further extent of the rail. To show the rail entirely would move the figure beyond the limits of the drawing space available.

As shown, the rail is intended for developing a swing for the iron golf clubs known as a "short swing," i. e., the head of the club on the back swing does not extend greatly above the position of the head of the player. Therefore, an extensive length of the rail is not needed because a long back swing is not used and is not necessary.

In use, the person who is to be trained by the machine herein described, elsewhere called the user, takes a stance on the platform **12** and faces the portion of the rail marked F, where the ball **88** to be struck by the clubhead is positioned on a strip tee **89**. This tee is made of light flexible material, pivotally supported on the outer frame member **5** by a bolt **90**. The ball supporting cup **91** of this tee is positioned directly over rail **26** as shown in Figure 5, so as to be struck correctly by the clubhead as it passes over this position on the rail.

The user, having first started the runner **50** onto the rail, and having moved the clubhead toward the top position **56***a* on the rail, makes the back swing. At the correct moment he reverses this motion and strikes the ball with the clubhead as guided by the rail. The ball is struck by the face of the club as it passes over the tee, and the clubhead moves through position **56***c* and follows through this position and onward off the end of the rail **26** with a free club follow through. There is nothing at the end of the rail to impede the travel of the runner **50**. The correct contact with the ball may be judged by either the distance and direction of the flight of the ball, when a regular ball is used, or where a light mock-up ball is used, the direction can be adjudged by its spin and movement. In making this swing, the clubhead and shaft swivels freely on post **52** of runner **50**. The hands of the user, when correctly gripping the clubhead, causes the clubhead to turn on the back stroke and return to properly address the ball on the down stroke.

In order to secure maximum efficiency, the build, stature and height of the user is taken into consideration,

and the rail curved and adjusted laterally to suit his build. This is done by manipulation of cranks **64** and **70** which adjust the vertical and lateral position of the block **74**, as previously explained.

Thus, for a tall user the rail is given a more perpendicular position than for a short stocky user. The curvature of the arc of the rail at C is varied according to the length of the club shaft and the user's arms in a manner well-known to those familiar with the art.

The mechanism, above described, makes all necessary adjustments possible. These adjustments may be easily and quickly made by manipulating the cranks **64***a* and **70**, as above explained.

I claim:

1. A golf club swing trainer composed of a frame including a rectangular base with a forwardly extending portion laterally defining a stance position of the user, vertical frame members extending upward from the rectangular base portion of the frame, a club head guiding rail consisting of a flat strip of spring-like material having U-shaped grooves in its side edges and attached at its forward end to and extending over said forwardly extending portion of the frame base and extending rearwardly toward said vertical frame members and upwardly and forwardly from said frame members in a curve defining the course of the club head throughout a prescribed back swing, means on said vertical frame members for adjustably supporting the rear curved portion of said rail so that its position can be varied transversely relative to said base, and so that its rear and forwardly extending upper portion can be adjusted vertically and the arc of curvature can be varied to accommodate the swing of users of varied stature, consisting of a U-shaped frame having the ends of its arms pivotally supported on the upright frame members, a vertical shaft having screw threads at its upper end portion and a crank at its lower end journalled in and transversely slidable in said U frame and in a thrust bearing block having a transverse threaded hole, a transverse horizontal threaded screw threaded through said hole in said thrust bearing block, journalled in said vertical frame members and having a crank at one end, and a block threaded onto the upper end of said vertical screw and connected to the rear portion of said rail by a pivotally mounted clevis, a runner having wheels on its bottom adapted to engage and run in the grooves in said rail and ball and socket means for attachment to a golf club head on its top, a golf club having a head attached by said ball and socket means to said runner, and a ball tee pivotally attached to the forward extension of said frame base at a position laterally disposed from the lower portion of said rail adjacent the said stance position.

2. In a golf club swing trainer having a club head guiding rail consisting of a flat strip of spring-like material having U-shaped grooves in its side edges, curved to define the course of a golf club head throughout a prescribed back swing formed in said strip, and means adjustably supporting the rear curved portion of said rail so that its rear and forwardly extending upper portion can be adjusted vertically and laterally and the arc of curvature can be varied to accommodate the swing of users of varied stature, consisting of a U-shaped frame having the ends of its arms pivotally supported, a vertical shaft having screw threads at its upper end portion and a crank at its lower end journalled in and transversely slidable in said U frame and in a thrust bearing block having a transverse threaded hole, a transverse horizontal screw threaded through said hole in said thrust bearing block, journalled in said vertical frame and having a crank at one end, and a block threaded onto the upper end of said vertical screw and connected to the rear portion of said rail by a pivotally mounted clevis and a rail yoke on the back of said rail; said yoke having a web with a plurality of holes disposed longitudinally relative to said rail; each hole being adapted to removably receive and hold said clevis on said yoke.

References Cited in the file of this patent

UNITED STATES PATENTS

1,633,527	Hansen	June 21, 1927
1,960,787	MacStocker	May 29, 1934