United States Patent

Fitch

[15] **3,703,294**

[45] **Nov. 21, 1972**

[54] GOLF SWING TRAINING APPARATUS

[72] Inventor: **Robert E. Fitch,** R.R. 1, P.O. Box 39, Bloomington, Ind. 47401

[22] Filed: **Sept. 20, 1971**

[21] Appl. No.: **181,694**

[52] **U.S. Cl.** .....**273/191 R,** 272/82
[51] **Int. Cl.** **A63b 21/04,** A63b 69/36
[58] **Field of Search** 273/191, 192, 186; 272/82, 272/83

[56] **References Cited**

UNITED STATES PATENTS

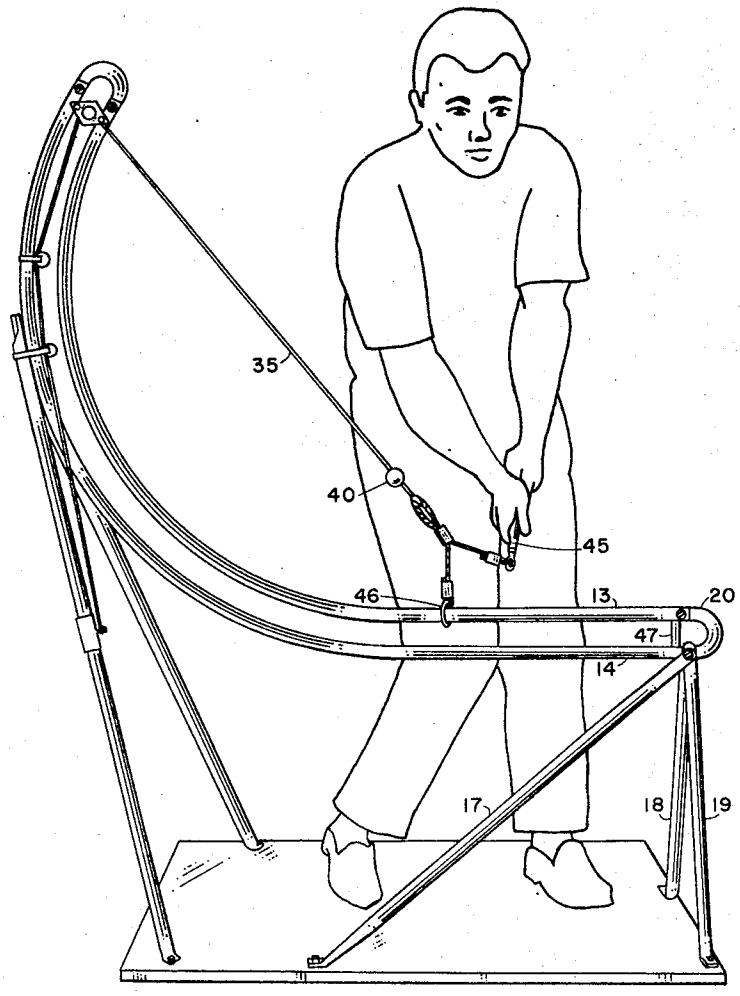
2,848,234	8/1958	Brandon	272/83 R X
3,595,583	7/1971	Oppenheimer	273/191 R
3,618,942	11/1971	Bates	272/82

Primary Examiner—George J. Marlo
Attorney—Woodard, Weikart, Emhardt & Naughton

[57] **ABSTRACT**

An apparatus for training and perfecting a golfer's swing. An arcuate shaped rod is mounted atop members which extend upwardly from a flat base. A handle configured in a manner similar to the top end of a golf club shaft is connected by means of a flexible cord to a ring which is slidably mounted to the rod. An elastic line is connected to the cord between the ring and handle and extends upwardly therefrom passing through a plurality of guiding pulleys with the opposite end of the line being secured to a connector adjustably mounted to one of the members. The connector is adjustably movable along the length of one of the members, so as to control the tension in the line. A golfer by standing on the base may grasp the handle which is normally urged at the top end of the rod by the elastic line. The golfer may then swing the handle downwardly along the path of the arcuate shaped rod which is configured and positioned in an empirical relationship with respect to the base.

10 Claims, 6 Drawing Figures



PATENTED NOV 21 1972

3,703,294

SHEET 1 OF 5

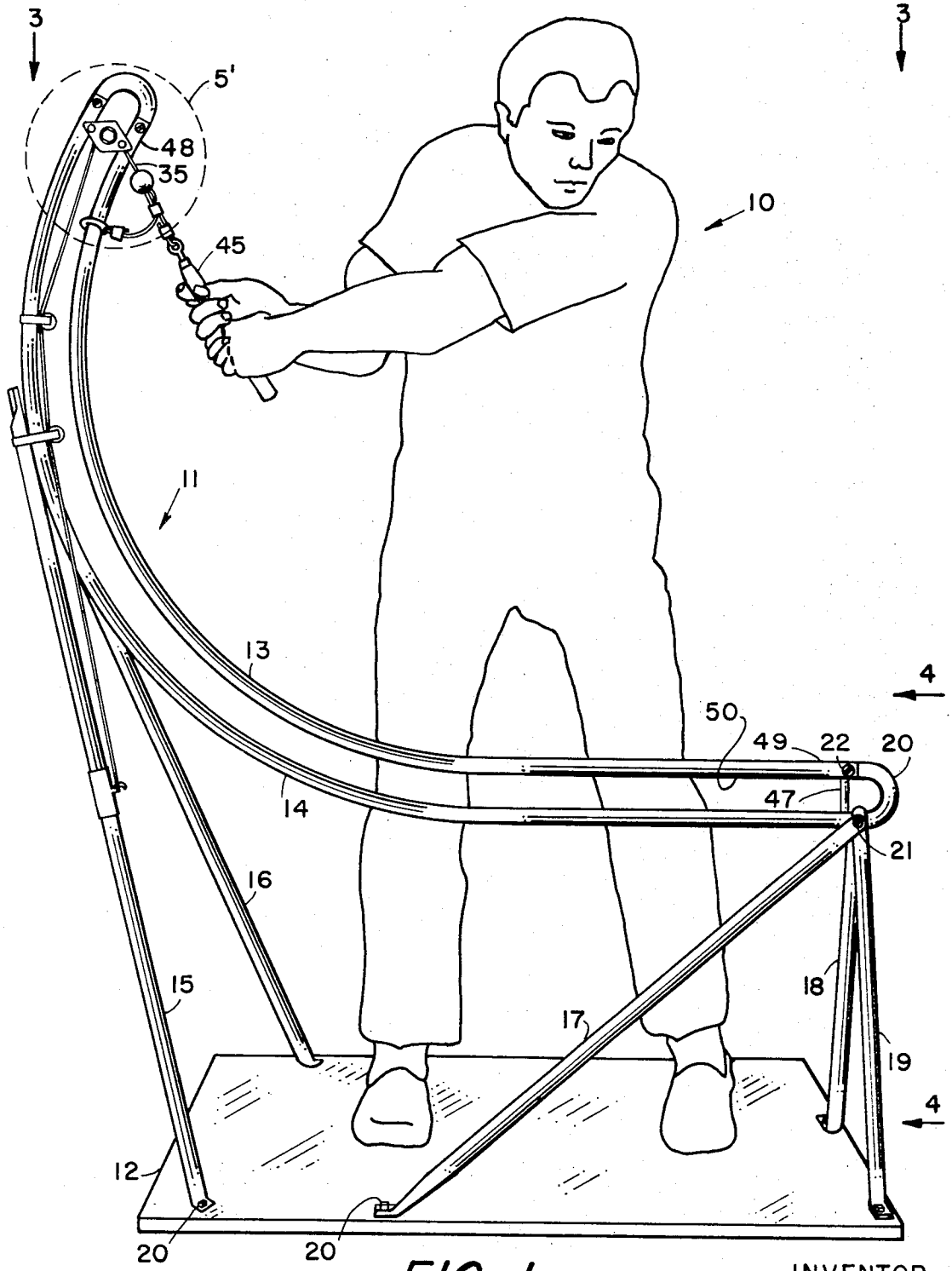


FIG. 1

INVENTOR.
ROBERT E. FITCH
BY
Woodard, Weikart, Emhardt & Naughton
ATTORNEYS

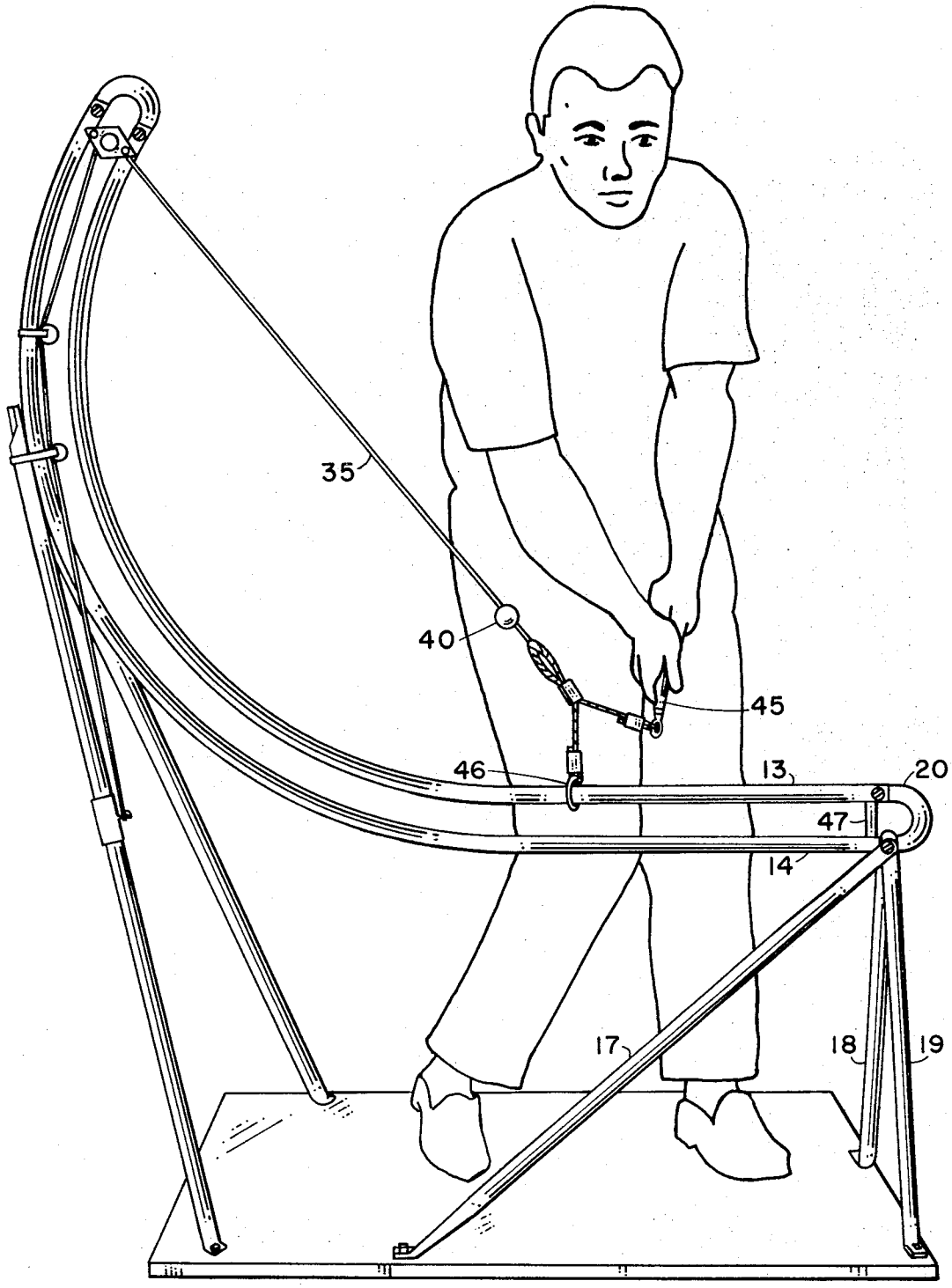


FIG. 2

INVENTOR.
ROBERT E. FITCH
BY

Woodard, Weikart, Emhardt & Naughton
ATTORNEYS

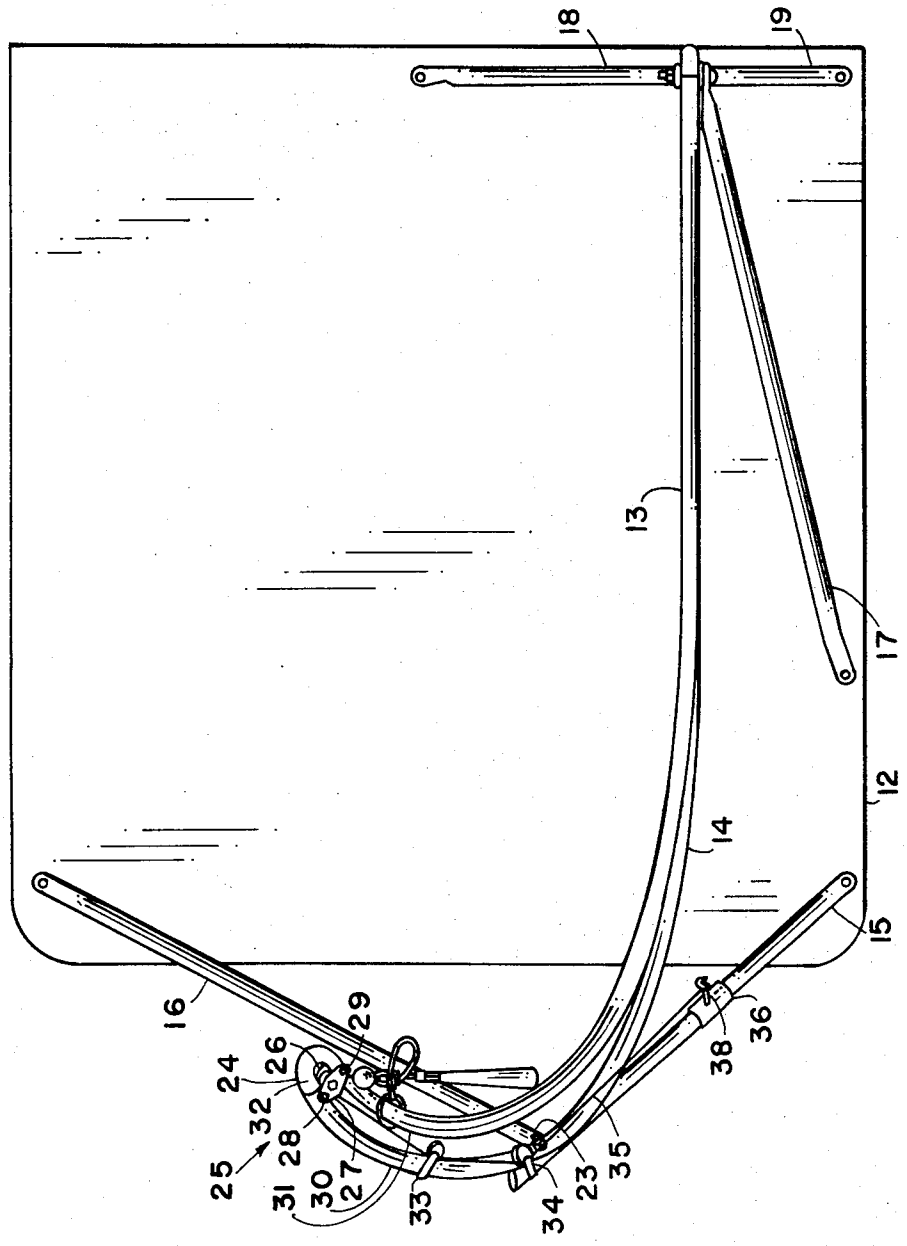


FIG. 3

INVENTOR.
ROBERT E. FITCH
BY

Woodard, Weikart, Emhardt & Naughton
ATTORNEYS

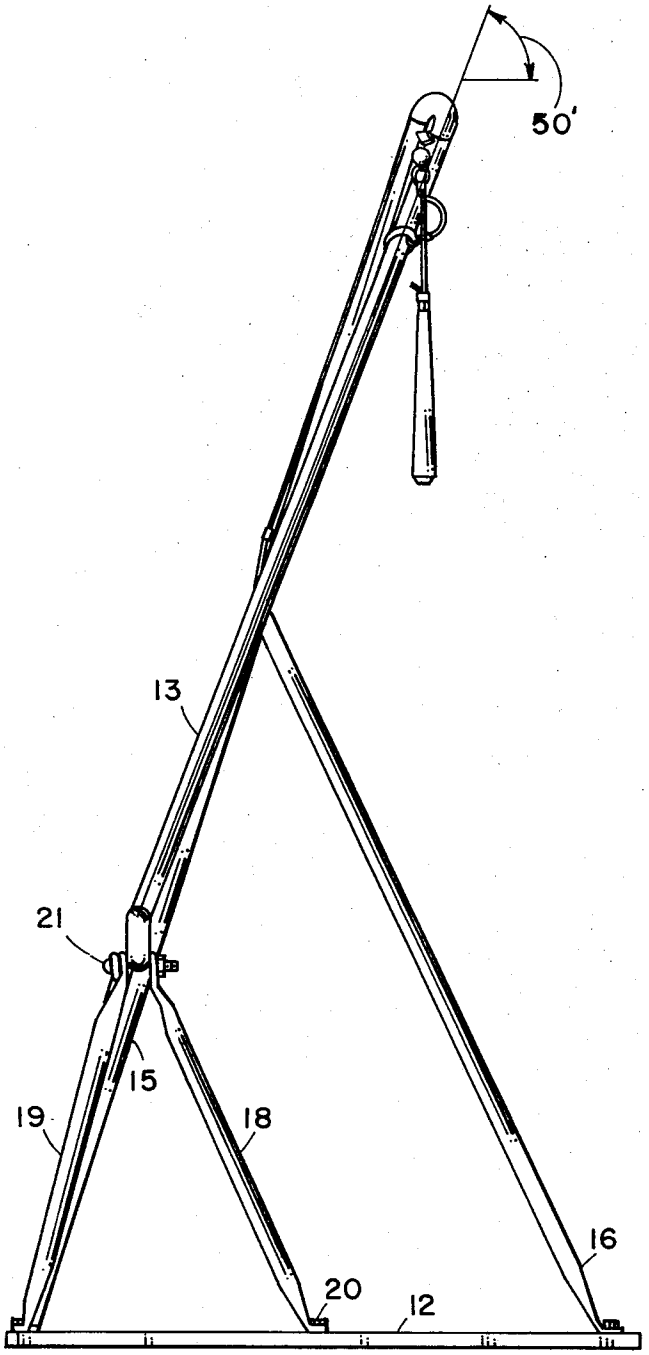


FIG. 4

INVENTOR.
ROBERT E. FITCH
BY
Woodard, Weikart, Emhardt & Naughton
ATTORNEYS

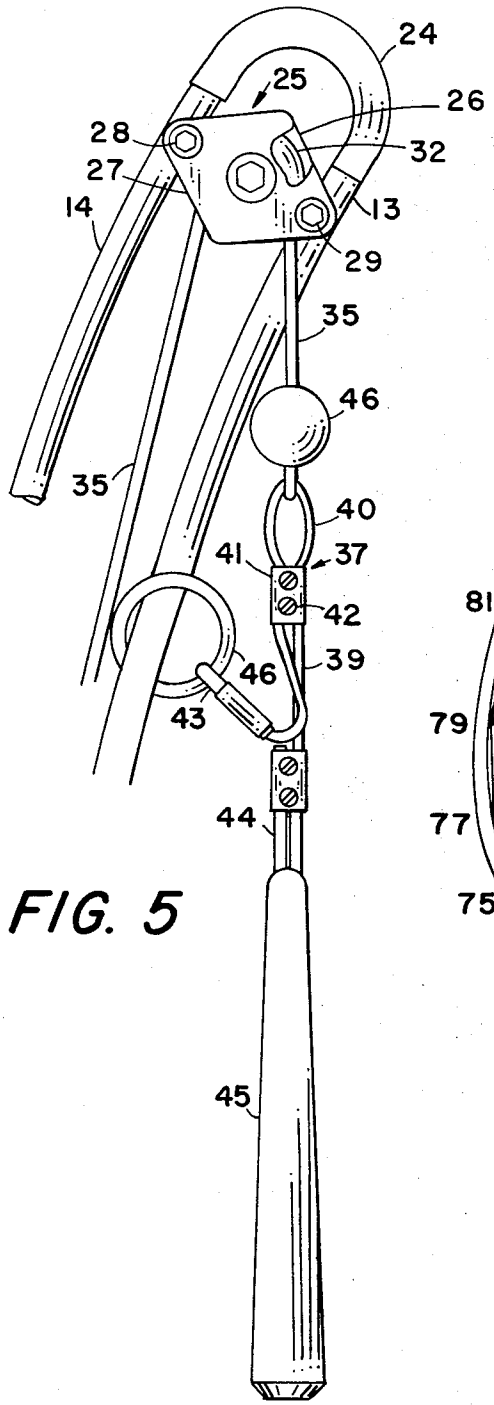


FIG. 5

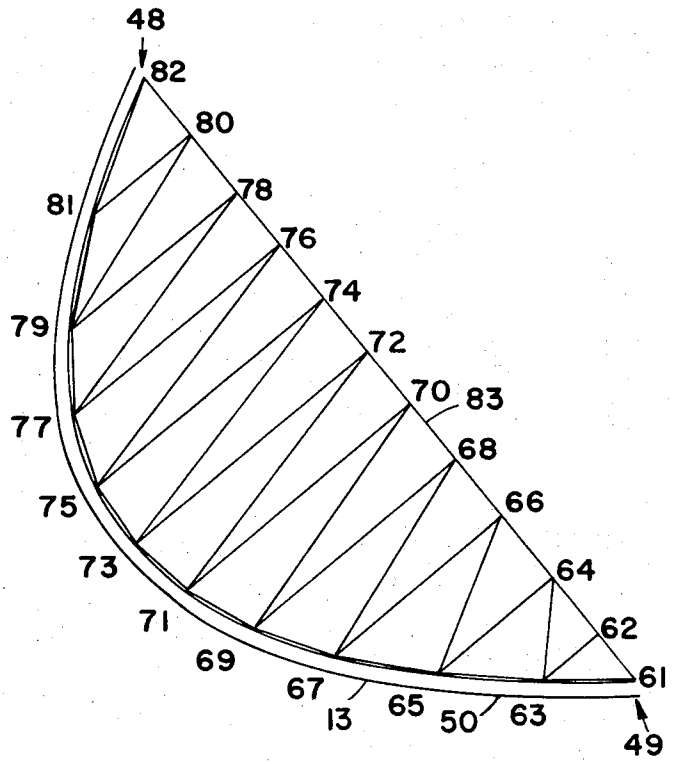


FIG. 6

INVENTOR.
ROBERT E. FITCH
BY
Woodard, Weikart, Emhardt & Naughton
ATTORNEYS

GOLF SWING TRAINING APPARATUS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention is in the fields of exercising devices and golf swing training devices.

2. Description of the Prior Art

Various devices have been provided for assisting a golfer in developing a correct stance and swing. Most of these devices restrain different portions of the golfer's body by attaching various items to the golfer's legs, hips and/or arms. All of the prior art devices provide an artificial environment thereby reducing the capability of the device. In addition, the prior art devices are not based upon proven movements. The apparatus disclosed herein does not require attachment of anything to the golfer. The golf swing path of the apparatus is based upon movements which have been proven by professional golfers. The apparatus disclosed herein is relatively less complex and is inexpensive to manufacture as compared with the prior art devices. Some prior art devices allow the golfer to freely swing the club through an arc. These arcs have not been designed in accordance with a proven standard golf swing arc and as a result, may develop an undesirable golf swing. In addition, means are not provided in any of the prior art devices for controlling the amount of force required to swing the club through the arc.

SUMMARY OF THE INVENTION

One embodiment of the present invention is golf swing training apparatus comprising: a support; an arcuate shaped rod with a top end portion and a bottom end portion mounted to said support, the rod extending from the bottom end portion rearwardly and upwardly to the top end portion and lying in a plan obliquely intersecting horizontal; a connector mounted to and slidable along the rod; a grip handle connected to the connector and having sufficient length to be grasped by both of a person's hands; and, elastic resistance means mounted to the support and connected to the connector and to the handle normally urging the handle to the top end position but yieldable for allowing a quick swinging movement of the handle along the rod from the top end portion to the bottom end portion.

It is the object of the present invention to provide a new and improved exercising device.

It is a further object to the present invention to provide a new and improved golf swing training apparatus.

Yet another object of the present invention is to provide a golf swing training apparatus which provides a golf swing path empirically derived from proven golf swings.

Related objects and advantages of the present invention will be apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side view of the apparatus incorporating the present invention shown in use by a golfer.

FIG. 2 is the same view as FIG. 1 only showing the grip handle located at a lower position.

FIG. 3 is a top view of the apparatus of FIG. 1 looking in the direction of the arrows 3—3 of FIG. 1.

FIG. 4 is an end view of the apparatus of FIG. 1 looking in the direction of arrows 4—4.

FIG. 5 is a fragmentary enlarged view of the portion of the apparatus enclosed in circle 5' of FIG. 1.

FIG. 6 is a schematic representation of the golf swing path of the apparatus of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawing and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring now more particularly to FIG. 1, there is shown a golfer **10** practicing or developing his golf swing using apparatus **11** incorporating the present invention. Apparatus **11** has a flat base **12** which may be made from a material such as three-quarter inch thick plywood. While a variety of different sized and configured bases may be utilized, excellent results have been obtained by using a base approximately **42** inches in length and **36** inches in width. Two arcuate shaped rods **13** and **14** are mounted atop a plurality of upwardly extending members **15, 16, 17, 18** and **19**. Members **15** through **19** may be made from three-quarter inch diametered conduit with the bottom ends of the members being bent so as to be parallel with the top surface of base **12**. Fastening devices **20** secure the bottom ends of the members to base **12**. Members **18** and **19** (FIG. **4**) are arranged in an inverted V-shape. Member **18** has a length slightly greater than member **19** although the present invention contemplates and includes members having a variety of lengths. Member **17** extends upwardly having a top end positioned outwardly of and adjacent the top end of member **19**. A standard bolt **21** and nut combination is used to secure members **17, 18** and **19** to rod **14**. The bolt extends through the top end of members **17** through **19** and also through pipe **14**.

Rod **14** has an outside diameter of approximately one-half inches and may be produced from a material such as metal. Rod **13** has an outside diameter of approximately three-quarters of an inch and is made from a material such as plastic. Rod **13** is hollow so as to receive the end of a U-shaped rod **20**. The opposite end of rod **20** fits around pipe **14**. Bolt **21** extends through rods **14** and **20** as well as members **17** through **19**. In addition, bolt **22** extends through rods **13** and **20** and is secured thereto by a conventional hexagonally shaped nut. In the preferred embodiment, the length of member **17** is approximately 34 ½ inches.

Members **15** and **16** (FIG. **3**) also form an inverted V-shape each having top ends connected to rod **14**. A conventional bolt **23** extends through the top end of member **16** and through member **15** and rod **14** being secured thereto by a conventional hexagonally shaped nut. In the preferred embodiment, member **15** has a length from base **12** to bolt **23** of approximately 48 ⅜ inches whereas member **16** has a length of 46 ¾ inches.

A second U-shaped rod **24** identical to rod **20** extends into rod **13** on one end while receiving rod **14** in its other end. A pulley assembly **25** is mounted to the top ends **30** and **31** of rods **14** and **13**. Pulley assembly **25** (FIG. **5**) has a pair of spaced apart plates **26** and **27** positioned on the opposite sides of rods **13** and **14** with a pulley wheel **32** rotatably mounted therebetween. Bolt **28** extends through plates **26** and **27** and also through rods **14** and **24** and is secured thereto by a conventional hexagonally shaped nut. A second bolt **29** extends through plate **26** and **27** and rods **13** and **24** also being secured thereto by a conventional hexagonally shaped nut. Two other pulleys **33** and **34** are rotatably mounted respectively to rod **14** and the top end of member **15**.

An elastic flexible line or band **35** (FIG. **3**) has its bottom end fastened to connector **36** mounted to member **15**. Line **35** extends upwardly through pulleys **34, 33** and **25** and is tied or secured by other suitable means to a flexible non-elastic cord means **37** (FIG. **5**). The connector **36** which receives the lower proximal end of line **35** may take a variety of different configurations. For example, connector **36** may be a cylinder which is adjustably movable along the length of member **15** being provided with a small hook **38** for fixing line **35** thereto. Connector **36** may be fixed in place by means such as set screws or may be held in place by positioning line **35** between member **15** and the inside surface of the connector cylinder. Connector **36** must be slidable to different positions along the length of member **15** so as to control the tension in line **35**. Line **35** is slidably received and supported between its ends by pulleys **34, 33** and **25**. The line must be elastically flexible and should be relatively thick so as to prevent breakage of the line as it is stretched. Excellent results have been obtained by producing line **35** from a solid piece of rubber having a diameter of approximately one-quarter inch.

The flexible non-elastic cord means **37** (FIG. **5**) connects handle **45** and ring **46** together and also to the elastic line **35**. The cord means includes a pair of pivot plates **41** (only one shown in FIG. **5**) secured together by fastening devices **42** and a cord **39** received between the pivot plates forming a loop **40** receiving the top distal end of line **35**. The opposite ends of unstretchable cord **39** are secured respectively to ring connector **46** and handle **45**. Cord **39** may be a wire cable covered with a plastic insulation. The cord extends from ring **46** through plates **41** forming loop **40** and back through the plates to the handle. Only one plate **41** is shown in FIG. **5**; however, it is understood that a pair of plates sandwich the cord and are secured together by fastening devices **42**. Similar plates are utilized to form loops **43** and **44** in the opposite ends of the cord. Ring **46** has an inside diameter greater than rod **13** so as to allow the ring to slide freely on the rod. Handle **45** has a sufficient length so as to be grasped simultaneously by both of the golfer's hands. Handle **45** is shaped similar to the top end of a golf club shaft thereby allowing a golfer utilizing the apparatus to grip the handle in a manner identical to that used when gripping a standard golf club shaft. A ball shaped stop **46** is threaded on line **35** preventing the top distal end of the line from disengaging pulley **25** when the handle and ring are positioned at the top end of rod **13**. A second stop **47** (FIG. **1**) is provided at the lower end of rods **14** and **13**, so as to limit the movement of the ring connector to the right as viewed in FIG. **1**. Stop **47** is a plastic or rubber column which is fixedly attached to rods **13** and **14** by conventional fastening devices, such as screws.

The configuration and positioning of rod **13** has been empirically derived by filming 35 touring professional golfers and then by analyzing the films to determine the correct golf swing path. It has been determined that the golf swing paths of the different touring professional golfers are very similar. It will be noted that rod **13** and **14** are arcuate shaped with the top end portion **48** (FIG. **1**) and bottom end portion **49** of rod **13** being shown in FIG. **1**. Rod **13** dips slightly downward at its lowest portion (undistinguishable in FIG. **1**) **50** adjacent bottom end portion **49** and then rearwardly and upwardly to the top end portion **48**. As shown in FIG. **4**, rod **13** lies in a plane which obliquely intercepts the horizontal at angle **50'**. It has been determined from the previously mentioned empirical study, that the plane of rod **13** should be at an approximate angle **50'** of 68° with respect to the horizontal with the rod tilted towards the facing golfer. Rod **13** is generally horizontal at its lowest portion **50** (FIG. **1**) and extends in a continuous curve upwardly therefrom past the vertical. Rod **13** also extends forwardly and slightly upwardly from the lowest position **50** to the lower end portion **49**. Rod **13** is approximately **24** inches above the flat base **12** at its lowest position **50**, with the top end portion **48** being positioned approximately 72 inches above base **12**. FIG. **6** is a schematic representation of the golf swing path derived from the empirical study and to which rod **13** is configured. Rod **13** is shown in FIG. **6** with the lower portion designated by arrow **49** and the upper portion designated by arrow **48**. The lowest portion of rod **13** is designated by item number **50**. For purposes of analysis, various chords have been drawn along the length of rod **13**. A straight diagonal line **83** connecting lower end portion **49** with the upper end portion **48** is actually the chord of the rod and has approximate length of **67** inches. Following is a table of the various lengths and angles which describe the rod.

TABLE

	Angle Degree	Length (inches)
61	50	5 ¼
62	90	6 ⅝
63	42	9
64	48	13
65	25	14 ½
66	65	18 ½
67	18	19 2/2
68	72	22 ¼
69	15	23
70	75	24 ⅜
71	13	25
72	77	25
73	13	25 ¾
74	77	24 ¾
75	13	25 ½

76	77	22 ¾
77	14	23 ½
78	76	18 ½
79	18	19 ½
80	71	11 ¼
81	32	12 7/8
82	61	

As an example of the interpretation of the above table, the angle enclosed by sides **64–66** and **66–65** may be read from the table as **65** degrees; whereas, the angle enclosed by sides **66–65** and **65–64** is 25°. The length of line **64–65** is **13** inches whereas the length of line **65–66** is 14 ½ inches.

In order to operate the apparatus, the golfer stands on base **12** facing the tilted rods **13** and **14**. Rod **14** is fixedly mounted atop the members and extends along and beneath rod **13** which is mounted thereto. The golfer then grasps handle **45** as shown in FIG. **1** and pulls downwardly to the right as shown in FIG. **2** in a manner identical to that displayed when swinging a golf club. The elastic stretchable line will provide resistance so as to normally urge the handle and the ring to the top portion of rod **13** with the line being sufficiently yieldable for allowing a quick swinging movement of the handle to the bottom end of rod **13**. The flexible means connecting the handle and ring to the elastic line will compensate for golfers having varied heights. That is, the cord is sufficiently flexible so as to bend depending upon how handle **45** is gripped. As shown in FIG. **2**, the portion of the cord from the ring slidable on rod **13** to the pivot plate is perpendicular to the rod and retains this perpendicularity throughout the swinging stroke.

Rod **13** may be produced from a variety of materials; however, best results have been obtained by mounting a one-half inch diametered metal conduit within a three-quarter inch diametered plastic tube. Thus, as the ring slides the length of the plastic tube, the sliding action of the ring is noiseless. Many variations are contemplated and included in the present invention to control the tension of elastic band **35**. For example, the diameter of the band may be increased so as to increase the tension exerted by the band on the gripping handle. In one embodiment of the present invention, band **35** was produced from surgical hose.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come with the spirit of the invention are desired to be protected.

The invention claimed is:

1. A golf swing training apparatus comprising:
a support;
an arcuate shaped rod with a top end portion and a bottom end portion mounted to said support, said rod extending from said bottom end portion rearwardly and upwardly to said top portion and lying in a plane obliquely intersecting horizontal;
a connector mounted to and slidable along said rod;
a grip handle connected to said connector and having sufficient length to be grasped by both of a person's hands; and,
elastic resistance means mounted to said support and connected to said connector and said handle normally urging said handle to said top end portion but yieldable for allowing a quick swinging movement of said handle along a path of said rod from said top end portion to said bottom end portion.

2. The apparatus of claim **1** wherein:
said plane is at an approximate angle of 68° with respect to horizontal; and,
said rod is generally horizontal at its lowest position and extends rearwardly in a continuous curve upwardly therefrom past vertical.

3. The apparatus of claim **2** wherein:
said rod extends forwardly and slightly upwardly from said lowest position.

4. The apparatus of claim **1** wherein:
said arcuate shaped rod has an outside diameter; and,
said connector is a ring receiving said rod and having an inside diameter larger than said rod outside diameter.

5. The apparatus of claim **4** and further comprising:
flexible non-elastic cord means connecting said handle and said ring together and to said elastic means.

6. The apparatus of claim **5** wherein:
said cord means includes a pivot plate and a cord fixedly connected together, said cord extends through said plate forming a loop connected to said elastic means, said cord has an end portion connected to said ring and an opposite end portion connected to said handle.

7. The apparatus of claim **1** wherein:
said elastic means is an elastically stretchable thick line having a proximal end connected to said support and a distal end connected between said handle and said connector.

8. The apparatus of claim **7** and further comprising:
pulley means mounted on said support and slidably receiving and supporting said line between said proximal end and said distal end.

9. The apparatus of claim **8** wherein:
said support includes a flat base and a plurality of upwardly projecting members fixedly mounted thereon; and further comprising:
a second rod fixedly mounted atop said members and extending along and beneath said first rod, said first rod is mounted to said second rod;
connecting means mounted to one of said members and having said proximal end of said line connected thereto, said connecting means being adjustably positionable along the length of said member to control tension in said line;
first stop means mounted to said distal end of said line preventing passage of said distal end through said pulley means; and,
second stop means mounted to said support adjacent said bottom end portion of said first rod limiting movement of said connector.

10. The apparatus of claim **9** wherein:
said first rod is approximately 24 inches above said base at its lowest position with said top end portion positioned approximately 72 inches above said base, said first rod has an approximate chord length of 67 inches.

* * * * *