United States Patent

Honnef

[15] **3,666,271**

[45] **May 30, 1972**

[54] GOLF PRACTICE DEVICE

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[22] Filed: **Jan. 31, 1971**

[21] Appl. No.: **106,005**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 752,226, Aug. 13, 1968.

[52] **U.S. Cl.** .....**273/185 C**
[51] **Int. Cl.** **A63b 69/36**
[58] **Field of Search** 273/184, 185, 200, 176; 73/379, 380, 381

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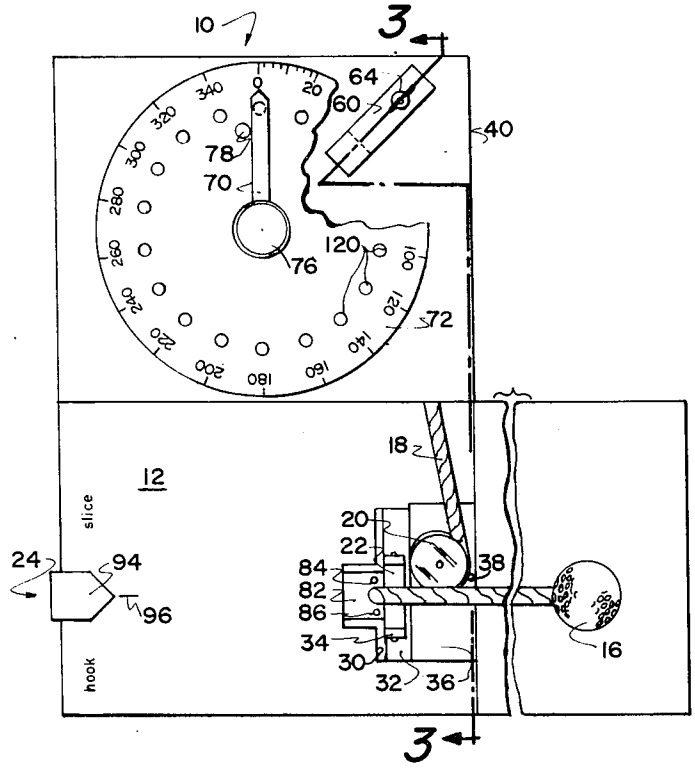
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Primary Examiner—George J. Marlo
Attorney—McCormick, Paulding & Huber

[57] **ABSTRACT**

The golf practice device disclosed utilizes a tethered golf ball for practicing or playing a simulated game of golf. A rotatable drum is mounted on a base and a tether secured to the golf ball is guided from the golf ball over a roller and pulley on the base to the rotatable drum where the tether is attached so it can be wound onto the drum and subsequently paid out from the drum when the golf ball is hit with a conventional golf club from a tee on the base. An adjustable brake is coupled to the rotatable drum to impose braking forces on the drum and a distance indicator coupled to the drum for rotation with the drum is used to measure the force with which the golf ball is hit. A hook and slice indicator having tether position sensing members located adjacent the roller and straddling the tether is actuated by the tether when the ball is hit to indicate the direction of flight of the ball. Both the distance indicator and the hook and slice indicator may be connected to an electrical display arrangement.

8 Claims, 8 Drawing Figures



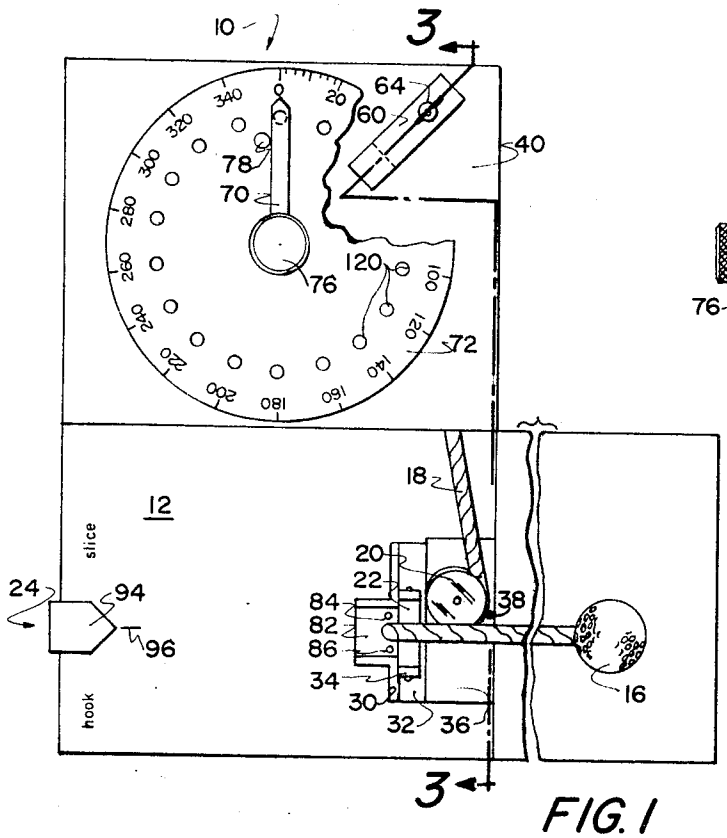


FIG. 1

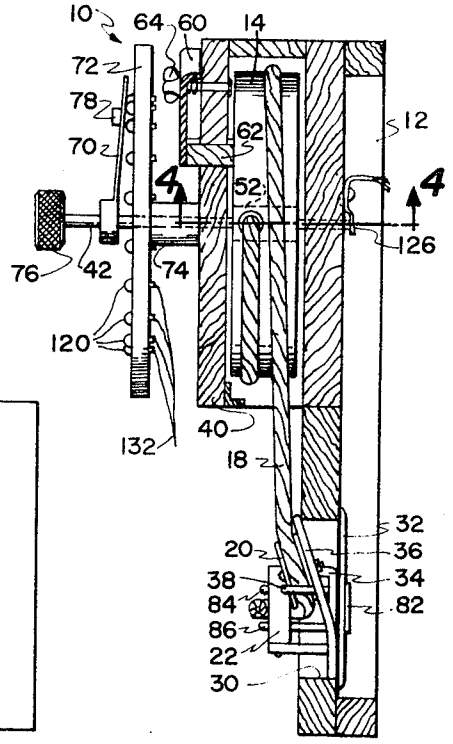


FIG. 3

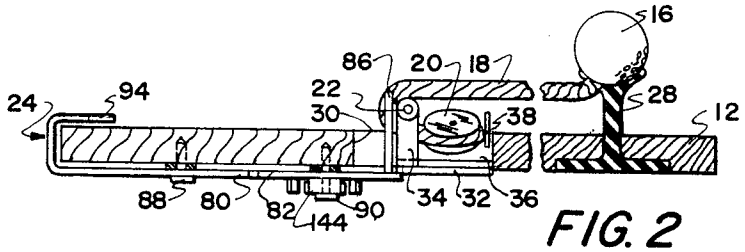


FIG. 2

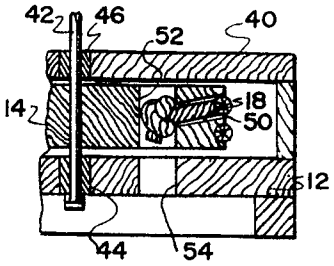


FIG. 4

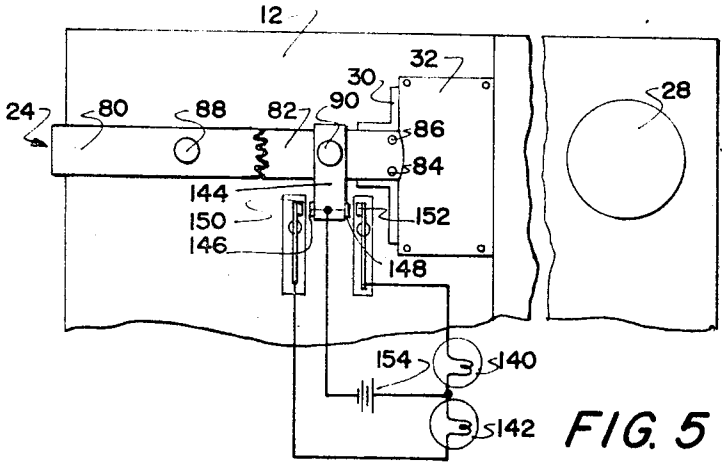


FIG. 5

FIG. 6

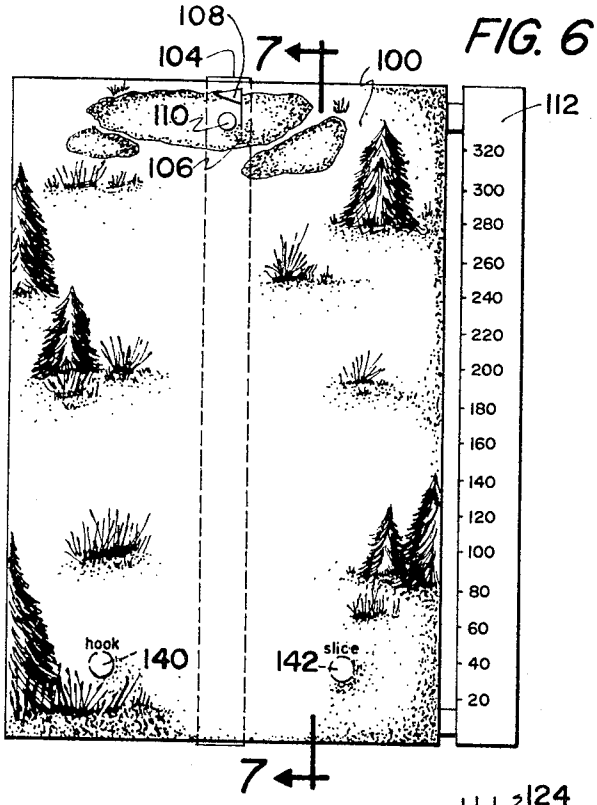


FIG. 7

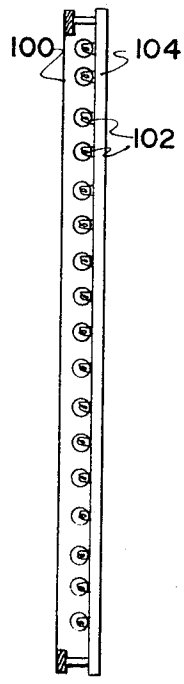
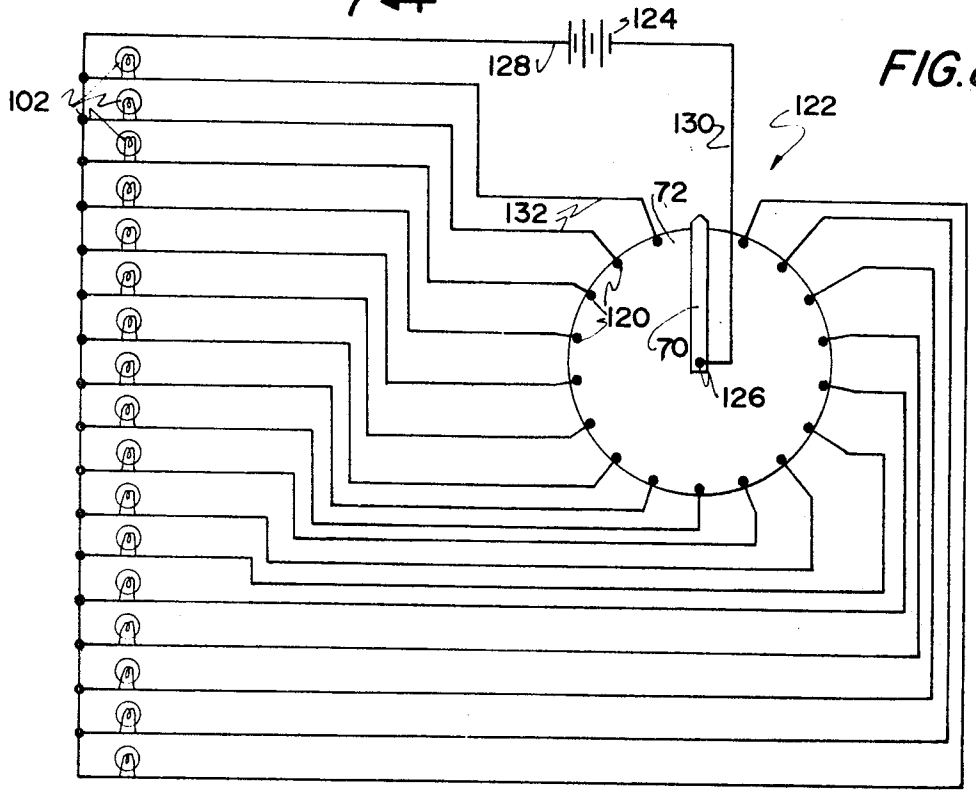


FIG. 8



GOLF PRACTICE DEVICE

This application is a continuation-in-part application of my prior application, Ser. No. 752,226, filed Aug. 13, 1968, now abandoned.

The present invention relates to a golf practice device and is more particularly directed to a golf game simulating apparatus which may be played safely in a limited or restricted space. The basic apparatus can be constructed in a form small enough to fit within a briefcase and strong enough to withstand the shock of a golf ball driven with a force that would result in a 300-yard drive.

A primary object of the invention is to provide apparatus for the golf enthusiast to play a simulated game of golf at any time of year, either indoors or outdoors, as long as there is sufficient room for an individual to swing a golf club.

Another important object of the invention is to provide a golf simulating apparatus which can withstand the full force of a lofted, driven golf ball and which safely produces visual indications of the trajectory of the driven ball, such indications including the distance of the drive and whether the drive hooked or sliced.

Still another object of the present invention is to provide a golf game simulator which can be connected with a display screen for presenting a visual representation of a drive shot.

The apparatus is composed principally of a base to which a rotatable drum is mounted, a simulated golf ball, a flexible tether which at one end is connected to the golf ball and at the other end is wrapped around and secured to the rotatable drum, a pulley and roller mounted to the base for guiding the tether and a hook and slice or direction indicator which is operated by the tether. A brake mounted on the base operates on the rotatable drum to retard drum rotation as the golf ball, when driven, unwinds the tether from the drum. A pointer is coupled with the rotatable drum and cooperates with a disc to produce a visual indication of the force or distance of a player's shot.

FIG. 1 is a top plan view showing one embodiment of the golf practice device.

FIG. 2 is an abbreviated front elevation view of the golf practice device in FIG. 1 partially in section and shows the golf ball tee and the direction indicator.

FIG. 3 is a sectional view of the golf practice device taken along the sectioning line 3—3 in FIG. 1.

FIG. 4 is a fragmentary sectional view of the golf practice device taken along the sectioning line 4—4 of FIG. 3.

FIG. 5 is a fragmentary bottom plan view of the golf practice device in FIG. 1 and shows a portion of the direction indicator.

FIG. 6 is a frontal view of a display screen which may be utilized with the golf practice device.

FIG. 7 is a sectional view of the display screen as seen along the sectioning line 7—7 of FIG. 6.

FIG. 8 is an electrical circuit diagram showing the interconnections of the distance indicator and the display screen.

FIGS. 1–5 disclose the golf practice device in a preferred embodiment. The device, generally designated **10**, has a base **12** on which a drum **14** is mounted for rotation. A simulated golf ball **16** is connected to one end of a flexible tether **18** and the other end of the tether is wrapped around and secured to the rotatable drum **14**. A pulley **20** and a roller **22** guide the tether **18** between the drum **14** and the ball **16**, and a direction indicator **24** cooperates with the tether to produce a visual indication of the direction of flight of the golf ball **16**.

The base **12** serves as the structural component for holding the different elements of the golf practice device in given positional relationships with one another. The base may be composed of wood or any other suitable material and has an L-shaped configuration. At one extremity, the base forms a tee platform containing a golf ball tee **28** on which the golf ball **16** connected to the tether **18** can be mounted. The base **12** also defines a cutout or aperture **30** adjacent the tee platform and a mounting plate **32** passes under the aperture **30** and is secured to the base **12** at the peripheral regions of the cutout. The roller **22** is supported from the mounting plate **32** by means of

a U-shaped bracket **34**, best seen in FIG. **3**. The roller **22** rotates within the bracket **34** and is positioned in a horizontal plane when the base **12** is positioned horizontally on a floor or other horizontal platform. Another mounting plate **36** having an inclined portion is positioned within the cutout and the pulley **20** is rotatably mounted on the inclined portion of the plate **36**. The pulley **20** and the roller **22** are so positioned within the cutout **30** that the tether **18** may extend from the golf ball **16** positioned on the tee **28** over the roller at an axially centered position on the roller, and around and under the roller in a 180° bend to the pulley **20** where a 90° bend of the tether redirects the tether generally to the rotatable drum **14**. The redirected end portion of the tether is wrapped around and secured to the rotatable pulley. A guide pin **38** is mounted in the plate **36** at a peripheral region of the pulley **20** to prevent the tether **18** from jumping out of the groove in the pulley. It will be understood that the tether **18** can be pulled from the drum **14** by the ball **16** or wound onto the drum without substantial frictional forces due to the guiding function performed by the rotatable roller **22** and pulley **20**.

As seen in FIGS. **3** and **4**, the drum **14** is mounted between the base **12** and an upper plate **40** which is secured to and overlies a portion of the base **12**. The drum **14** is secured to a shaft **42** which is rotatably mounted in the base **12** and the plate **40** by means of journal bearings **44** and **46**, respectively. The tether **18** is wrapped around the circumferential periphery of the drum **14** and an end portion of the tether passes through a generally radially directed hole **50** into a vertical hole **52** within the drum where a knot in the end of the tether securely anchors the tether to the drum. The tether is initially attached to the drum **14** by aligning the hole **52** with an access hole **54** in the base **12** and feeding the unknotted tether **18** radially through the hole **50** and downwardly through the holes **52** and **54** at which point a knot can be tied in the end of the tether. The knot is then pulled upwardly into the hole **52** so that the drum **14** can rotate freely with respect to the base **12**.

A friction brake which operates on the drum **14** is mounted in the upper plate **40**. The brake includes an adjustable caliper **60** and a friction block **62**. The caliper **60** presses the friction block **62** against the drum **14** and is adjusted by means of a wing nut **64** to increase or decrease the frictional braking force on the drum **14**.

A distance indicator formed by a pointer **70** and a disc **72** is mounted adjacent the upper plate **40**. The pointer is secured to the shaft **42** for rotation with the shaft and the disc **72** is supported fixedly to the plate **40** by means of a sleeve **74** which surrounds the shaft **42**. Around the periphery of the disc **72** are graduations or indicia representing distances which the golf ball **16** would theoretically have been driven but for the tether **18** coupling the ball **16** with the rotable drum **14**. The pointer can be rotated to the zero position adjacent the stop **78** by means of the knob **76** on the end of shaft **42**.

It will, therefore, be understood that the golf practice device **10** is utilized by positioning the base **12** on the floor or other level platform and striking the ball **16** with a golf club as if one were executing a drive shot on a golf course. The ball **16** is hit to the left as seen in FIG. **1** and the force or magnitude of the shot is registered on the distance indicator by means of the tether **18**, drum **14** and shaft **42** which rotate the pointer **70** over the disc **72** by an amount which is related to the force of the shot. The brake formed by caliper **60** and friction block **62** operates on the axial face of the drum **14** to limit the displacement of the pointer **70** and is adjustable to calibrate the readings from the disc to the average drive distance of any given player or participant using the golf practice device **10**.

The direction indicator **24** which reveals whether the shot hooked or sliced is shown in FIGS. **1, 2, 3** and **5**. The indicator is comprised basically of two levers or arms **80** and **82** and two tether position sensing pins **84** and **86** mounted on the end of arm **82**. The arm **80** is pivotally mounted to the bottom side of the base **12** by means of a pivot pin **88** and the arm **82** is

similarly mounted to the base 12 by means of a pivot pin 90. At the adjacent ends, the arms 80 and 82 define gear teeth which are inter-engaged when the arms are mounted on the pins 88 and 90 so that pivotal motion of arm 82 results in a corresponding pivotal motion of arm 80. The end of the arm 80 opposite the gear teeth bends around the base 12 and forms a marker 94 which at the aligned position of the arms 80 and 82 registers with an index mark 96 on the base 12. The tether position sensor pins 84 and 86 project perpendicularly from the end of the arm 82 opposite its engagement with the arm 80 through the aperture 30 to tether engaging positions immediately adjacent the roller 22 so that the tether 18 is engaged or straddled by the pins at the point at which the tether passes around the roller 22. With the tether 18 effectively captured between the two sensor pins 84 and 86, the pivotal motions of the arm 82 are controlled by the position of the tether 18 on the roller 22. When the golf ball 16 is struck and flies over the roller 22, the tether 18 is pulled from the drum 14 by the ball and if the trajectory of the ball is to one side or the other of the index mark 96, the tether contacts either the pin 84 or the pin 86 to cause arm 82 to rotate and produce a corresponding rotation of the arm 80. The rotations of arms 80 and 82 move the marker 94 to the side of the mark 96 over which the ball 16 has been hit and, thereby, produce a visual indication of the direction of flight. Labeling on the base 12 to one side or the other of the index mark 96 indicates whether the shot hooked or sliced.

The golf practice device 10 as disclosed above can, if desired, be utilized with a display screen which may be hung from a wall or ceiling for viewing by all of the participants. The screen 100, shown in FIGS. 6 and 7, is preferably a translucent screen and a row of lights 102 is mounted at a central location behind the screen by means of a fixture 104 so that the lights may shine through the screen. The front surface of the screen opposite the lights 102 may be painted with trees and grass to represent scenery found on a golf course including a green 106, the flag pin 108 and the cup 110. If desired, a distance scale 112 can be suspended from one side of the screen 100.

The lights 102 mounted on fixture 104 behind the screen 100 are illuminated sequentially to produce a visual representation of a golf ball in flight whenever the golf ball 16 (FIG. 1) is hit and rotates pointer 70 with respect to the disc 72. For this purpose, a plurality of electrical contacts 120 are mounted on the disc 72 and are connected by appropriate circuitry 122 shown in FIG. 8 to the lights 102. The circuitry 122 includes a battery 124 which is electrically connected between one terminal common to each of the lights 102 and the pointer 70 through conductors 128 and 130 and a contact 126 at one end of the shaft 42 (FIG. 3). It is assumed that the shaft 42 and pointer 70 are composed of electrically conductive material for the purposes of this description. The other terminals of the lights 102 are connected respectively to the contacts 120 on the disc 72 by means of conductors 132. When the pointer 70 is rotated by the golf ball 16 and tether 18, the pointer 70 slides over the contacts 120 consecutively and produces a consecutive illumination of the lights 102 starting from the lower light as shown in FIG. 8 and progressing upwardly until the pointer stops moving. On the screen 100, such illumination produces an image of a golf ball which moves vertically from the bottom of the screen toward the cup 110 at the top of the screen until the pointer 70 stops simulating the ball at rest at some point on the screen. If desired, a parallel circuit of lights can be utilized to illuminate the distance indicia on the scale 112.

A "hook" light 140 and a "slice" light 142 are positioned behind the screen 100 to visually indicate the direction of flight taken by the golf ball 16. Lights 140 and 142 are operated by appropriate electrical circuitry in conjunction with the direction indicating mechanism. As shown in FIGS. 2 and 5, a cross bar 144 is secured in perpendicular relationship to the arm 82 and contacts 146 and 148 are mounted at the projecting end of the bar 144 in confronting relationship with resilient contacts 150 and 152, respectively, fixed to the base 12. The contacts 146 and 148 are connected serially through a battery 154 to a common junction of the hook light 140 and the slice light 142 and the contact 152 is connected to the hook light 140 so that a circuit through light 140 is completed when contacts 148 and 152 are closed and circuit through light 142 is completed when the contacts 146 and 150 are closed. When the tether 18 causes the arm 82 to rotate in the counterclockwise direction as viewed in FIG. 5, contacts 148 and 152 are closed to illuminate the hook light 140 which produces the visual indication of a hook shot on the screen 100 in FIG. 6. Correspondingly, when the tether 18 causes the arm 82 to rotate in the clockwise direction as viewed in FIG. 5, contacts 146 and 150 are closed to illuminate the slice light 142 and produce a corresponding indication on the screen 100 in FIG. 6.

While the golf playing device has been disclosed in a preferred embodiment, it will be understood that numerous modifications and substitutions can be made to the apparatus disclosed without departing from the spirit of the invention. For example, the tee 28 shown in the base 12 may be removed and a grass mat may be substituted in its place. Furthermore, the screen 100 may be a plain, translucent screen and the scenery can be projected onto the screen from a slide projector. If desired, the apparatus including the distance and direction indicators mounted on the base 12 can be utilized without the screen 100 and associated illuminating lights without destroying the enjoyment of a simulated golf game. Accordingly, the golf practice device has been disclosed in several embodiments merely by way of illustration rather than limitation.

I claim:

1. A golf practice device comprising: a base; a drum member rotatably mounted on said base; a simulated golf ball; a flexible tether having first and second ends, the first end of said tether being attached to said golf ball and the second end of said tether being wound around and attached to said drum; a pulley mounted on said base, said tether passing over said pulley intermediate the first and second ends of the tether; a roller mounted on said base, said tether extending from said golf ball to said roller and thence to said pulley and said drum member; and direction indicating means for presenting an indication of the direction of flight of said golf ball on said tether with respect to said roller, said direction indicating means including an arm pivotally mounted to said base and tether position sensor members mounted to the pivotally mounted arm and extending from said arm to tether engaging positions adjacent said roller whereby said tether is engaged by said sensor members, adjacent said roller and the pivotally mounted arm and said sensor members are rendered positionally responsive to the position of said tether, said direction indicating means further including visual indication means coupled to the arm and responsive to the position of the pivotally mounted arm for manifesting the tether position detected by said arm and said sensor members.

2. Apparatus as defined in claim 1 further comprising: a disc mounted on said base and having distance indicia defined thereon; and movable pointer means operatively coupled to said drum member and cooperating with said disc for identifying the individual distance indicia on said disc.

3. Apparatus as defined in claim 2 further comprising: adjustable braking means mounted to said base and coupled to said drum member for imposing an adjustable braking force on said drum member.

4. Apparatus as defined in claim 3 wherein said adjustable braking means comprises an adjustable friction brake mounted to said base and contacting said drum member.

5. Apparatus as defined in claim 1 further comprising means coupled with said drum member for indicating a driving force transmitted from said simulated golf ball through said tether to said drum.

6. Apparatus as defined in claim 5 further including braking means mounted to said base and coupled to said drum member for imposing a braking force on said drum member.

7. Apparatus as defined in claim 6 wherein said means coupled with said drum member for indicating a driving force includes movable pointer means coupled to said drum member for rotation with said drum member.

8. Apparatus as defined in claim 7 wherein means bearing distance indicia is mounted fixedly to said base adjacent to and cooperating with said movable pointer means to provide a scale for measuring the magnitude of the driving force.

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