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L. G. SIMJIAN
GOLF PRACTICE DEVICE

2,778,645

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FIG. 1

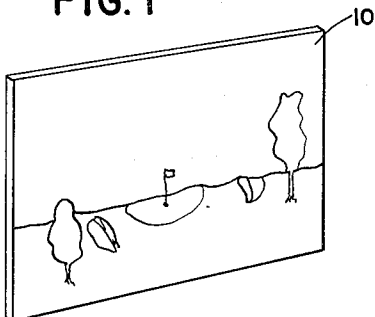


FIG. 2

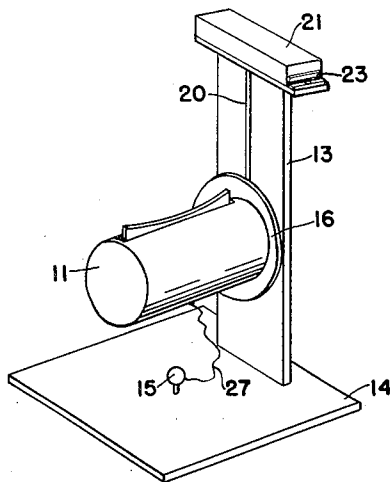


FIG. 3

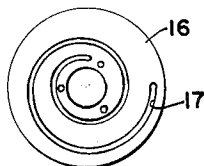


FIG. 5

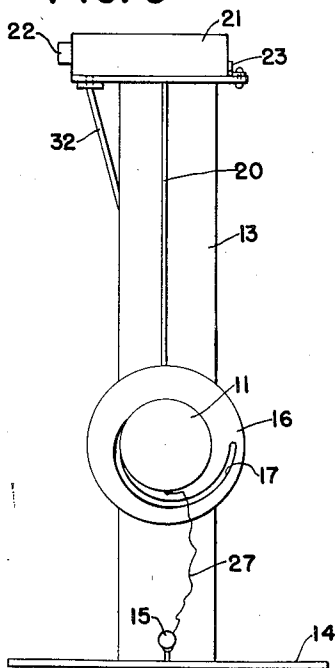
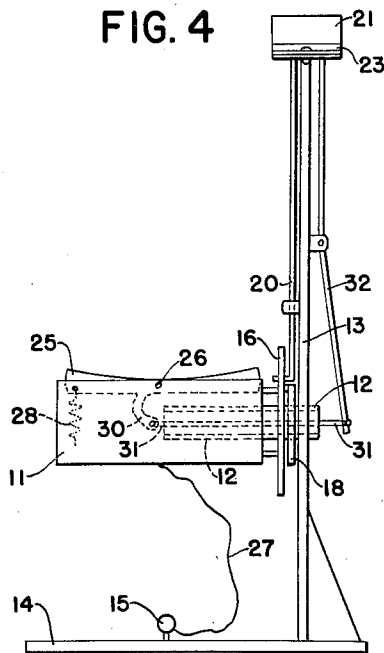


FIG. 4



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1

2,778,645

GOLF PRACTICE DEVICE

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This invention relates to a game apparatus for practicing driving strokes by a player. As described herein, the invention has particular reference to the game of golf but it will be obvious that by suitable changes in the dimensions of the apparatus the apparatus can be used as a practice device for baseball and other games which involve striking a ball by a club. The invention has particular reference to measuring and display means which give visual indication of the velocity of the ball and the direction given to the ball.

The use of a captive ball on a flexible cord combined with a cylindrical means for absorbing the force given to the ball is old and well known in the art. The present invention is an improvement on the prior art and comprises a rotatable cylinder which is resiliently constrained by a spiral spring and which gives a visual indication of the movement of the cylinder by projecting a spot on a viewing screen which simulates the trajectory of a golf ball in flight. The invention also gives a visual indication of the horizontal direction given to the ball by the shifting of the projected spot to the right or left on the viewing screen.

One of the objects of this invention is to provide an improved game apparatus which avoids one or more of the disadvantages and limitations of prior art arrangements.

Another object of the invention is to show the approximate trajectory of the struck ball in free flight out of doors.

Another object of the invention is to give a visual indication on a viewing screen of the approximate speed given to the golf ball.

Another object of the invention is to provide a visual indication of the horizontal direction given to the ball.

Another object of the invention is to provide a game apparatus which is reduced in cost, easily portable, and which takes up little space yet provides many of the pleasures and thrills of out door competition.

The invention includes a game apparatus having a rotatable body movable about a horizontal axis. A captive ball is secured by flexible cord to the body and is positioned on a tee for contact with a club. The rotation of the body about its axis moves a light projector in a vertical direction in proportion to the rotary movement of the body.

Another feature of the invention includes a lever which is pivotally mounted adjacent to the surface of the rotatable body for contact by the flexible cord. A coupling means is provided between the lever and the light projector for moving the projector about a vertical axis to move the projected spot in a horizontal direction on the screen.

For a better understanding of the present invention, together with other and further objects thereof, reference is made to the following description taken in connection with the accompanying drawings.

Fig. 1 is a perspective view of a viewing screen showing the picture of a golf course, a green, and a cup.

Fig. 2 is a perspective view of the game apparatus showing the golf ball, the rotatable cylinder, and a light projector.

Fig. 3 is a side view of a cam which is secured to the rotatable body.

Fig. 4 is a side view of the game apparatus showing

2

some of the details of the coupling arrangements between the cylinder and the projector.

Fig. 5 is a front view of the apparatus shown in Fig. 4.

Referring now to the figures a screen 10 is mounted in a vertical position so as to be easily viewed by the player with the cup in line with the center of a cylindrical body 11 and at right angles to the axis of the cylinder. The cylinder 11 is rotatably mounted on a hollow shaft 12 which is secured to a vertical bracket 13. The bracket is mounted on a base 14 on which the ball 15 is positioned for driving. A slotted cam 16 is secured to the cylinder 11 and revolves with it. The cam 16 has a spiral slot 17 which may extend for several revolutions. In order to provide a return force a spiral spring 18 is mounted parallel to the cam 16, one end of which is secured either to the cam or the rotatable cylinder 11, with its other end secured to hollow shaft 12.

Co-operating with the cam slot 17 is a cam follower 20, one portion of which makes contact with the slot edges and another portion of which extends upwardly along bracket 13 to a light projector 21. The light projector contains the usual electric lamp and condensing system (not shown) and a small diaphragm which enables a lens system 22 to project a small spot of light on screen 10. The projector 21 is hinged at its rear extremity by hinge 23 which permits the projector to be moved in a vertical direction and also in a horizontal direction. Vertical movement is accomplished by means of cam follower 20 which pushes the projector 21 upwardly when the cam 16 is turned.

In order to show direction a pivoted lever 25 is mounted in a slot in the surface of cylinder 11 and is pivoted at its central point 26. Lever 25 has curved upper edges which extend above the surface of the cylinder and which are arranged for contact with a flexible cord 27, one end of which is secured to the ball 15 and the other end of which is secured to the surface of the cylinder at a point mid-way between the two ends. Lever 25 is resiliently positioned as shown in Fig. 4 by a spring 28, so mounted that the lever may be rocked in either direction. The bottom part of the lever within the volume of the cylinder is formed with a hooked extremity 30 which makes a pivotal contact with a rod 31. The other end of rod 31 is joined to a lever 32 which is pivoted to the brace 13 and makes contact with the front end of projector 21. It will be obvious that a motion of lever 25 will in turn move rod 31 to the right or left, thereby turning lever 32 and moving the front end of the projector to the right or left.

During the operation of this device the player places the golf ball on the tee and then strikes the ball with a club in the usual manner. The flexible cord 27 restrains the ball so that the force of the blow winds the cord around the cylinder 11 thereby exerting considerable rotary force to the cylinder periphery. If the ball is propelled in a direction which is at right angles to the cylinder axis the cord will wind around the central part of the cylinder and the position of lever 25 will not be changed. The rotary force of the ball and cord however, turns the cylinder against the force of spiral spring 18 thereby turning cam 16, elevating cam follower 20, and raising the front end of projector 21, moving a spot of light upwardly on screen 10. As soon as the force of the ball and cord are spent the cylinder 11 is returned to its normal position by spring 18 and the spot of light on the screen is moved downwardly to its original position.

If the player strikes the ball 15 to the right of the desired direction it will wind around the cylinder at a point which is to the right of the center portion and lever 25 will be moved an amount which is in propor-

3

tion to the degree of departure from the central position. Movement of lever 25 is communicated to the projector 21 by means of rod 31 and lever 32 and will indicate by the spot on the screen 10 the approximate direction of the ball to the right or left of the cup. By making the cord 27 of sufficient length the position of lever 25 can be maintained after the finish of the cylindrical motion and the position of the ball on the screen will remain until the cord is unwrapped from the cylinder and lever 25 is normalized.

The above described game apparatus simulates to a certain degree actual driving conditions on a golf course showing the approximate speed and direction that the ball would have taken if played out of doors. It should be noted that the device is entirely mechanical and with the exception of the electrical power for lighting the lamp in the projector the apparatus needs no external source of power.

While there have been described and illustrated specific embodiments of the game apparatus, it will be obvious that various changes and modifications may be made to adapt the apparatus to other forms of sport without departing from the field of the invention which should be limited only by the scope of the appended claims.

I claim:

1. A game apparatus comprising, a rotatable cylinder movable about a horizontal axis and resiliently stressed to return to a normal position, a captive ball secured by a flexible cord to the surface of the cylinder, a lever pivotally mounted on the surface of the cylinder for contact by the flexible cord when the ball is propelled by an external force from a start position, a light projector mounted adjacent to said cylinder for projecting a spot of light on a viewing screen to simulate a ball, coupling means between the cylinder and the projector for moving the projector about a horizontal axis when the cylinder is rotated by the force of the propelled ball, and coupling means between the lever and the projector for moving the projector about a vertical axis when the lever is moved by the force of the propelled ball acting through the flexible cord.

2. A game apparatus comprising, a rotatable cylinder movable about a horizontal axis and resiliently stressed to return to a normal position, a captive ball secured by a flexible cord to the surface of the cylinder, a lever pivotally mounted on the surface of the cylinder for contact by the flexible cord when the ball is propelled from a start position, said lever rotatable in one direction when the ball is propelled to the right of a desired direction and rotatable in an opposite direction when the ball is propelled to the left of the desired direction, a light projector mounted adjacent to said cylinder for projecting a spot of light on a viewing screen to simulate a ball, coupling means between the cylinder and the projector for moving the projector about a horizontal axis when the cylinder is rotated by the force of the propelled ball, and coupling means between the lever and the projector for moving the projector about a vertical axis when the lever is moved by the force of the propelled ball acting through the flexible cord.

3. A golf practice device comprising; a rotatable cylinder movable about a horizontal axis; a captive ball secured by a flexible cord to the surface of the cylinder; pressure actuated means carried by the cylinder and rotating in unison therewith for contact by said cord when the ball is propelled from a start position causing the cylinder to rotate and the pressure actuated means to become actuated by the cord; image projecting means for showing a spot on a viewing screen; and means connected between the projecting means, the cylinder, and the pressure actuated means for moving the projecting means responsive to the motion of said cylinder and said pressure actuated means, thereby causing the spot on the viewing screen to show a path which approximates the path of the ball in free flight.

4

4. A golf practice device comprising; a rotatable cylinder movable about a horizontal axis; a captive ball secured by a flexible cord to the surface of the cylinder; pressure responsive means disposed on the cylinder to be actuated by the cord as the cord wraps itself on the surface of the cylinder responsive to the application of a propelling force upon said ball; image projecting means for showing a spot on a viewing screen; means connected between the projecting means, the cylinder, and the pressure actuated means for moving the projecting means responsive to the motion of said cylinder and said pressure actuated means thereby causing the spot on the viewing screen to show a path which approximates the path of the ball in free flight.

5. A golf practice device comprising; a rotatable cylinder movable about a horizontal axis; a captive ball secured by a flexible cord to the surface of the cylinder; pressure actuated means mounted on the cylinder and rotating in unison therewith for contact by said cord when the ball is propelled from a start position causing the cylinder to rotate and the pressure actuated means to become actuated by the cord, said means sensing the displacement of the cord along the longitudinal axis of the cylinder from a central position; image projecting means for showing a spot on a viewing screen; and means connected between the projecting means, the cylinder, and the pressure actuated means for moving the spot responsive to the motion of said cylinder and said pressure actuated means, thereby causing the spot on the viewing screen to show a path which approximates the path of the ball in free flight.

6. A golf practice device comprising; a rotatable cylinder movable about a horizontal axis; a captive ball secured by a flexible cord to the surface of the cylinder; a pivoted lever extending from the cylinder for contact by the flexible cord when the ball is propelled from a start position causing the cylinder to rotate and the lever to become engaged by the cord; image projecting means for showing a spot on a viewing screen; and means connected between the projecting means, the cylinder, and the pivoted lever for moving the projecting means responsive to the motion of said cylinder and said lever, thereby causing the spot on the viewing screen to show a path which approximates the path of the ball in free flight.

7. A golf practice device comprising; a rotatable cylinder movable about a horizontal axis; a captive ball secured by a flexible cord to the surface of the cylinder; a pivoted lever extending from the cylinder for contact by the flexible cord when the ball is propelled from a start position causing the cylinder to rotate and the lever to become engaged by the cord; said lever rotatable in one direction when the ball is propelled to the right of a desired direction and rotatable in an opposite direction when the ball is propelled to the left of the desired direction; image projecting means for showing a spot on a viewing screen; and means connected between the projecting means, the cylinder, and the pivoted lever for moving the projecting means responsive to the motion of said cylinder and said lever, thereby causing the spot on the viewing screen to show a path which approximates the path of the ball in free flight.

8. A golf practice device as set forth in claim 7 wherein said cylinder is resiliently stressed to return to a normal position.

9. A golf practice device as set forth in claim 7 wherein said cylinder and said lever are both rotatable about a common axis.

10. A golf practice device as set forth in claim 7 wherein said projecting means is movable about a horizontal and a vertical axis.

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