Oct. 13, 1959 C. G. AUSTIN ET AL 2,908,503

GOLF PUTTING PRACTICE DEVICE

Filed Sept. 30, 1957

Fig 1.

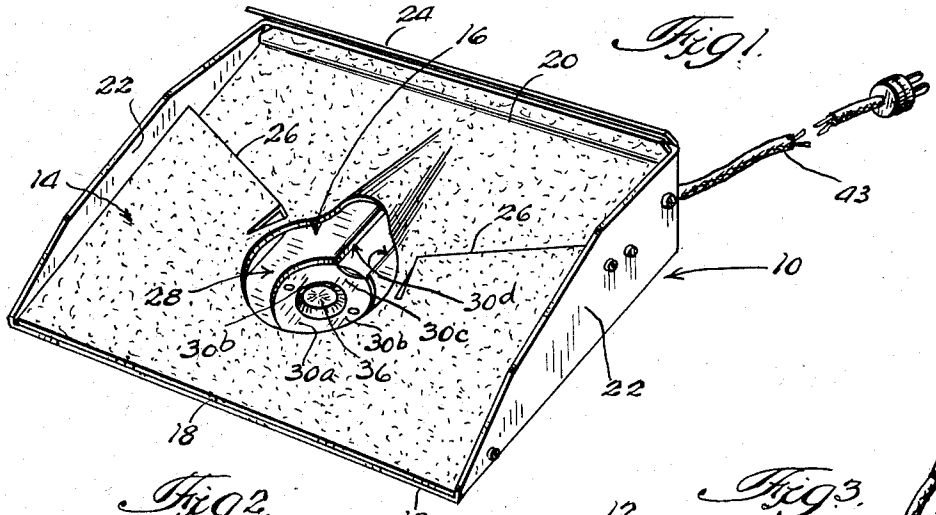


Fig 2.

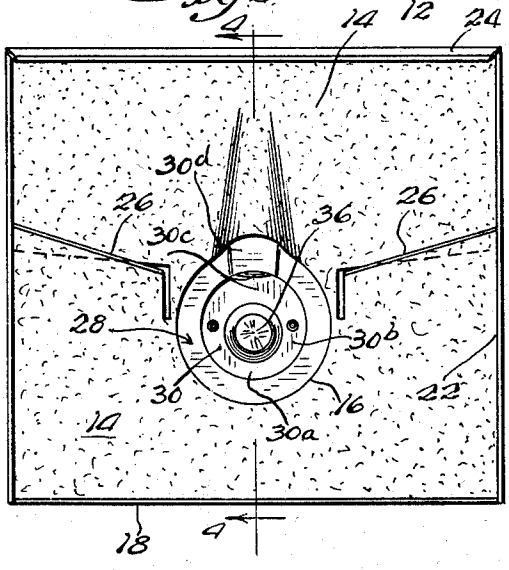


Fig 3.

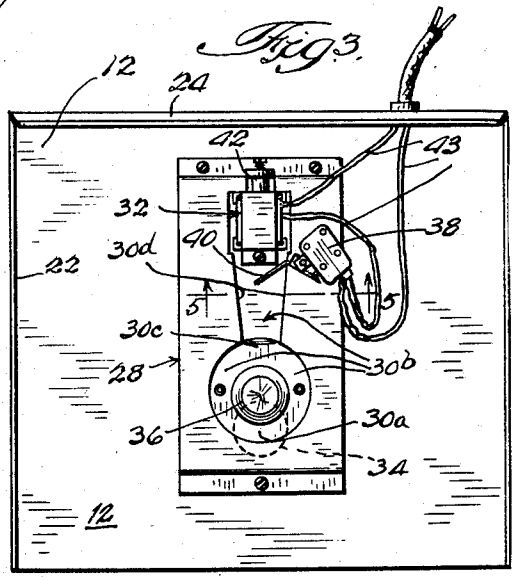


Fig 4.

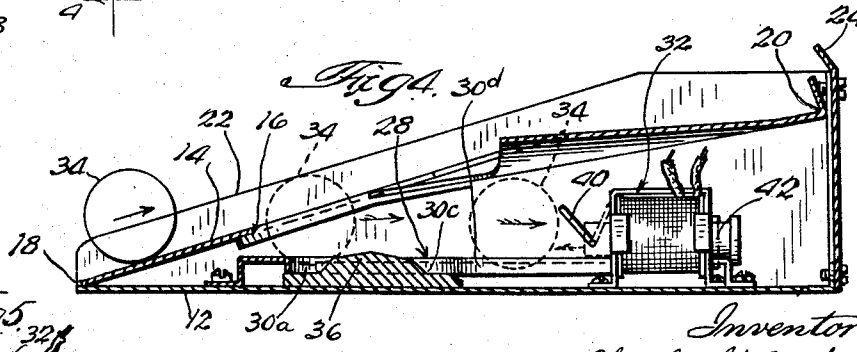
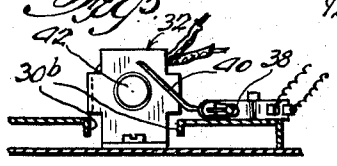


Fig 5.



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GOLF PUTTING PRACTICE DEVICE

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6 Claims. (Cl. 273—179)

This invention relates to a golf putting practice device and game, and more particularly to a golf putting practice device which is characterized by simplicity of construction and convenience of operation.

Generally prior art golf putting practice devices have been utilized in which the ball was driven toward a device containing a hole approximately the size and shape of the conventional golf course cup. In many such devices each play required removal of the ball from the cup before resuming practice. Other devices have been proposed which comprise a golf ball receiving cavity disposed within the target area which upon receiving a golf ball directed therein would eject the same by a variety of mechanical means in the general direction of the player. One of the characteristic difficulties with this latter type of golf practice device is that the golf balls, which are inaccurately directed toward the target cup and pass a short distance to either side thereof or are driven too rapidly and therefore over the target area, requires the player to retrieve such balls manually before resuming play.

Similarly, the mechanisms for conveying and ejecting golf balls from the cavity of a practice device have heretofore been complex, inaccurate, prone to mechanical difficulties, and interfered with the realistic simulation of actual golf putting conditions.

Accordingly, one of the objects of the present invention is the provision of a golf putting practice device which will automatically return golf balls driven into the target area to the player.

A further object is the provision of an apparatus for golf putting practice in which golf balls driven to an area closely adjacent the target cup are retrieved and returned to the player.

A still further object is the provision of a golf putting practice apparatus in which golf balls driven at speeds to pass over the golf cup are retrieved by the apparatus and returned to the player.

A still further object is the provision of a golf putting practice apparatus which closely simulates actual golf putting conditions.

A still further object is the provision of a golf putting practice device which is simple in construction and fool proof in operation.

These and other objects of the present invention will appear from the description, accompanying drawings and appended claims.

In carrying out this invention in one form, there is provided a golf putting practice device comprising a base and an inclined ramp forming a putting surface angularly disposed and sloping rearwardly above the base, said ramp having a generally circular ball-receiving hole intermediate the front and rear ends and spaced from the sides thereof. Means are provided for confining the golf balls on the sloping surface of the ramp and a golf ball conveying device is disposed beneath the hole having a rearwardly diverging track for urging golf balls disposed thereon rearwardly to a solenoid ejection device at the

rearward portion of the track. Trip means are provided cooperating with a golf ball rolling rearwardly on said track for energizing the solenoid ejection device. Deflecting means are also provided cooperating with the forward portion of the track spaced from and substantially under the hole in the ramp for deflecting a golf ball driven forward on the track by the solenoid outwardly and upwardly through said hole.

For a more complete understanding of this invention reference should now be had to the drawings wherein:

Fig. 1 is a perspective view of the golf putting practice device of the present invention on a reduced scale;

Fig. 2 is a top plan view of the golf practice device of Fig. 1;

Fig. 3 is a top plan view of the golf practice device of Figs. 1 and 2, with the ramp portion removed showing the golf ball conveying device disposed upon the base of the apparatus;

Fig. 4 is an enlarged section of the golf putting practice device of Fig. 2, taken along the line 4—4;

Fig. 5 is an enlarged partial section of the golf ball conveying mechanism and ejection device taken along the line 5—5 of Fig. 3.

Referring now to the drawings, and more particularly to Figs. 1 and 3, there is shown a golf putting practice device **10** having a base **12** and rearwardly sloping ramp **14**. A golf ball receiving cavity or hole **16** is centrally located in the surface of the ramp **14** intermediate the front **18** and rear **20** ends and spaced from the sides thereof. Side walls **22** and rear wall **24** form means for confining a golf ball driven on the ramp surface, preventing the ball from rolling off to either side or at the rear thereof.

As shown in Figs. 1 and 2 the ramp **14** is disposed to slope upwardly and rearwardly from the base plane at the front edge **18** to the elevated rearward edge **20**. There is also provided upon the surface of the ramp **14** deflecting means or wings **26** disposed along the sides of the hole **16** extending rearwardly and angled away from the sides of the hole. The deflecting wings **26** have an inclined forward surface contiguous with that of the ramp **14** and a rearward facing surface or edge elevated from the plane of the ramp **14**, so as to provide an abutment surface capable of deflecting and guiding a golf ball along the deflecting wing to gravitate toward the hole **16**, in the central portion of the ramp. The side walls **22** and rear wall **24** provide means for confining golf balls driven into the general vicinity of the device but not directly into the hole whereby they may be directed into the golf ball cavity from the rear portions in the ramp behind the wings **26** by virtue of the forward and downward slope of the ramp **14**.

Referring to Figs. 2 and 3, there is illustrated a golf ball conveying device **28** comprising a track or channel **30** extending and diverging rearwardly to a solenoid ejection device **32**. It should be understood, of course, that the term "diverging track" is intended to describe a track of two complementary rails or ball supporting elements which are spaced in a predetermined manner and progressively diverge or separate throughout the length thereof. The track or channel **30** progressively diverges bilaterally from the most forward point **30***a* in an arcuate and symmetrical manner through channels **30***b* which join at the rear point **30***c* and connect with a rearwardly and progressively diverging track **30***d*. The arcuate portions of track **30** are spaced from and in substantial opposing relation to hole **16**. A golf ball falling through hole **16** drops onto the conveying device **28** and into the forward and arcuate portion of track **30***b* and thence passes over or through track **30***d* to the ejection device **32**.

In the forward, arcuate or circular portion of track

30*b* there is provided a deflecting device or island **36** located forward of center of the circular confines defined by the outer edge of track **30** extending rearwardly from **30***a* to **30***c*. The deflector **36** serves several functions including forming the inner edge of track **30** in the forward portions thereof extending from **30***a* to **30***c*, and also to deflect golf balls dropping by gravity through hole **16** to the circular channel or track **30***b* surrounding the deflector **36**. The island **36** also serves as a deflection device in cooperation with the ejection mechanism **32** and track **30***d* as hereinafter more fully described. The deflecting means or island as shown is generally circular in shape and partially spherical in cross section having tapered side portions. In Fig. 3 is illustrated a switch or similar means **38** having a tripping arm **40** extending across the track **30***d* and spaced from and adjacent the solenoid **32**. A plunger **42** in solenoid **32** is adapted to drive a golf ball forwardly upon energizing the solenoid. Electrical connections **43** are provided leading to a source of power which may be supplied to the solenoid **32** through switch **38** by a golf ball tripping switch arm **40**. Upon energization of the solenoid the plunger **42** is driven forwardly contacting the golf ball adjacent to the forward portion thereof, driving said golf ball forwardly on the track **30***d* against the island or deflecting means **36**. The golf ball on striking the deflecting means **36** changes its path so as to be driven upwardly and outwardly through hole **16** in a direction generally in forward relation to the sloping surface of the ramp **14** in the golf putting practice device **10**.

Fig. 4 illustrates the construction of the golf putting practice device and specifically the golf ball conveying means disposed under the hole **16** of the ramp **14**. The general path of a golf ball **34** is also illustrated by arrows passing from the ramp **14** through hole **16** and on the divergent track **30** rearwardly toward the solenoid ejection device **32**. It should be noted that while the ramp is inclined with relation to the base **12**, the golf ball conveying device **28** has no such inclined surfaces, the principal source of movement being the golf ball dropping down into the progressively diverging track extending rearwardly from **30***a*. Specifically the track **30** is so designed that the forward portion **30***a* is the narrowest and the track extends bilaterally at **30***b* to diverge progressively about island **36** joining at **30***c* with rearwardly diverging track **30***d*.

The track or channel **30** is of sufficient depth so that the golf ball may drop progressively lower between the expanding sides thereof and by seeking its lowest center of gravity the ball is automatically conveyed rearwardly toward the solenoid ejection device.

In Fig. 5 may be seen the front elevational view of the solenoid device along the track **30***b* illustrating the placement of the trip arm **40** in relation to the solenoid **32** and plunger **42**.

In operation a golf ball putted onto the ramp of the device illustrated in Fig. 1 passes over the forward portions of the ramp and if properly directed into cup or hole **16** it passes to the golf ball conveying mechanism **28**, thence rearwardly on track **30** to the solenoid ejection device **32**.

Balls which are not driven sufficiently accurately to drop directly into the cup **16** pass rearwardly on the ramp **14** on the forward surface of wings **26** to the rear portion of the ramp defined by the areas extending rearwardly from the deflecting means **26** to the rear wall **24** and the portions of the side walls **22** intersected by their projection. Since the ramp **14** is disposed at an angle to the base **12** and forwardly inclined with respect thereto, golf balls in this rearward portion roll forwardly and against the wings **26** and are thence directed to the hole **16** and onto the ball conveying mechanism **28**. This particular arrangement makes it possible for balls which are not only inaccurately driven and those which travel too fast and would ordinarily pass over the golf cup to be retrieved by the device and carried into the golf cup and thence to the ejection mechanism. A golf ball passing from the forward portion of the golf ball conveying apparatus **28** is conveyed on channel **30** and abuts against a trip means thereby energizing, through switch **38**, the solenoid **32** whereby the plunger **42** is forwardly driven against the golf ball which is then ejected forward on track **30***d* against deflecting island **36** and upwardly and outwardly through hole **16**.

Of course, as is conventional in many solenoids, the stroke of the plunger **42** may be adjusted so as to provide ejection and return to within any suitable putting range such as from 5 to 20 feet. It is to be noted with the apparatus and golf putting device of the present invention that golf balls are returned to the player notwithstanding the fact that they have not been driven toward the cup or hole **16** with sufficient accuracy and proper speed so as to drop in, as in conventional golf putting.

Accordingly, the necessity of retrieving golf balls by hand which would ordinarily pass by or over a golf putting apparatus of this type is eliminated. Furthermore it should be noted that it is preferred that the golf putting practice device have on the surface of ramp **14** a suitable material such as floccing so as to as closely as possible simulate actual golf putting green conditions. This device is well adapted for indoor use such as golf putting practice on carpets or the like or it may also be used in conjunction with natural outdoor putting greens to more closely simulate conditions found in golf play.

It should also be noted that the wings **26** are so positioned as not to interfere with balls which would ordinarily be expected to drop into the cup but are spaced at the sides and slightly to the rear of the widest diameter of the cup or hole **16**.

While the foregoing apparatus is believed to be useful as a golf putting practice device, it is also true that the apparatus of the present invention is well adapted for use as a children's game and may be adjusted with respect to the size of hole and the type of balls to be accommodated providing a variety of possibilities for amusement and entertainment of persons both young and old.

In this connection it might be stated that a plurality of such cavities might be assembled together to provide a game of skill directed toward rolling or driving a ball into holes of various diameters and/or placement, encouraging the development of skill and accuracy.

While a particular embodiment of this invention is shown above, it will be understood, of course, that the invention is not to be limited thereto, since many modifications may be made, and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

We claim:

1. A golf putting practice device comprising a base, an inclined ramp forming a putting surface disposed above said base, said ramp having a generally circular ball-receiving hole intermediate the front and rear ends and spaced from the sides thereof, means for confining a golf ball on the ramp, a golf ball conveying device disposed beneath said hole comprising a track having rearwardly diverging sides for supporting and urging a golf ball rearwardly thereon, a solenoid ejection device at the rearward portion of said track, means cooperating with a golf ball rearwardly driven on said track for energizing the solenoid, and means cooperating with the forward portion of the track for deflecting a golf ball driven forward by the solenoid outwardly and upwardly through said hole.

2. A golf putting practice device comprising a base, an inclined ramp forming a putting surface disposed above said base, said ramp having a generally circular ball receiving hole intermediate the front and rear ends and spaced from the sides thereof, a pair of deflecting wings on said ramp surface extending angularly and rearwardly from the sides of said hole having forwardly in-

clined surfaces and adapted to guide a golf ball from the rearward portion of said ramp to gravitate into said hole, a golf ball conveying device disposed beneath said hole having a rearwardly extending track having rearwardly diverging sides and extending under said ramp, a solenoid ball ejection device disposed at the rear portion of said track, means adjacent to the solenoid for energizing the latter by contact with a golf ball on the rear portion of said track, and means for deflecting a golf ball driven forwardly by said solenoid upwardly and outwardly of said hole.

3. A golf putting practice device comprising a base, a forwardly inclined ramp forming a putting surface disposed above said base, said ramp having a generally circular ball-receiving hole centrally located therein, a pair of deflecting wings at opposite sides of said hole at an outwardly and rearwardly projecting angle so as to deflect a golf ball at the rearward portion of the ramp into the hole, said wings having an inclined forward surface and a rear surface projecting above the plane of the ramp, means for confining a golf ball to the surface of the ramp disposed at the rear and side portions thereof, a golf ball conveying device disposed beneath and in substantially opposed relation to said hole, comprising a track with rearwardly diverging sides including a circular portion in substantially opposed and spaced ball-receiving relation to said hole and a connecting linear portion, a solenoid disposed at the rear portion of said track, trip means for energizing said solenoid by a golf ball passing down said track, and deflecting means centrally disposed in the forward and circular portion of said track and adapted to deflect a golf ball driven forwardly by said solenoid, upwardly and outwardly through said hole.

4. A golf putting practice device comprising a base, an inclined ramp forming a putting surface disposed above said base, said ramp having a ball receiving aperture centrally located therein, means for confining a golf ball to the surfaces of said ramp at the rear and side portions thereof, a golf ball conveying device disposed on said base beneath said hole and comprising a rearwardly extending track having rearwardly diverging sides including a circular portion disposed in substantially opposed, spaced and ball receiving relation to said aperture and a linear portion extending rearwardly on the base from the circular portion, a solenoid ejection device disposed adjacent the rearward terminus of the linear portion of the track, means adapted for cooperation with a golf ball driven rearwardly on the track adjacent the solenoid for energizing said solenoid and thereby driving a golf ball forwardly on said track and means for deflecting a golf ball driven by said solenoid upwardly and outwardly through said ball receiving aperture.

5. A golf putting practice device comprising a base, an inclined ramp forming a putting surface disposed above said base, said ramp having a generally circular ball receiving aperture substantially centrally located therein, means for confining a golf ball to the surface of said ramp at the rear and side portions thereof, a golf ball conveying device disposed on said base, said conveying device comprising a track with rearwardly diverging sides, said tracks having a circular portion spaced from and in substantially opposed ball-receiving relation to said aperture and a connecting linear portion extending rearwardly of the circular portion, a solenoid ejection device adjacent the rear terminus of said track, means adapted for cooperation with a golf ball rolling rearwardly along said track to a point adjacent the solenoid for energizing said solenoid and driving a golf ball forward, and means centrally disposed within the circular portion of said track for deflecting a golf ball driven forwardly on the linear portion of said track by the solenoid, upwardly and outwardly through said ball receiving aperture.

6. A golf putting practice device comprising a base, a forwardly inclined ramp forming a putting surface disposed above said base; said ramp having a circular aperture centrally located therein, means for confining a golf ball to the surface of the ramp at the rear and side portions thereof, a golf ball conveying device affixed to said base, said conveying device comprising a channel having rearwardly diverging golf ball supporting side members including a circular portion in substantially opposed and spaced ball-receiving relation to said ball aperture, and a connecting linear portion extending rearwardly thereof, a solenoid ejection device adjacent the rear terminus of the linear portion of said channel, means adapted for cooperation with a golf ball rolling rearwardly on the channel adjacent the solenoid for energizing the solenoid and driving a golf ball forwardly on said channel, and means centrally disposed in the circular portion of said channel for deflecting a golf ball driven forwardly by said solenoid, upwardly and outwardly through said ball receiving aperture.

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