June 16, 1953 E. VAN KINKLE 2,641,933

GOLF GAME AND PRACTICE DEVICE

Filed Dec. 21, 1950 2 Sheets-Sheet 1

Fig. 1.

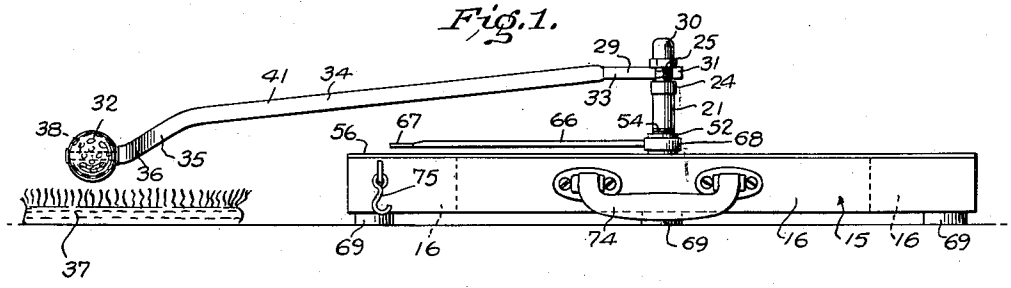


Fig. 2.

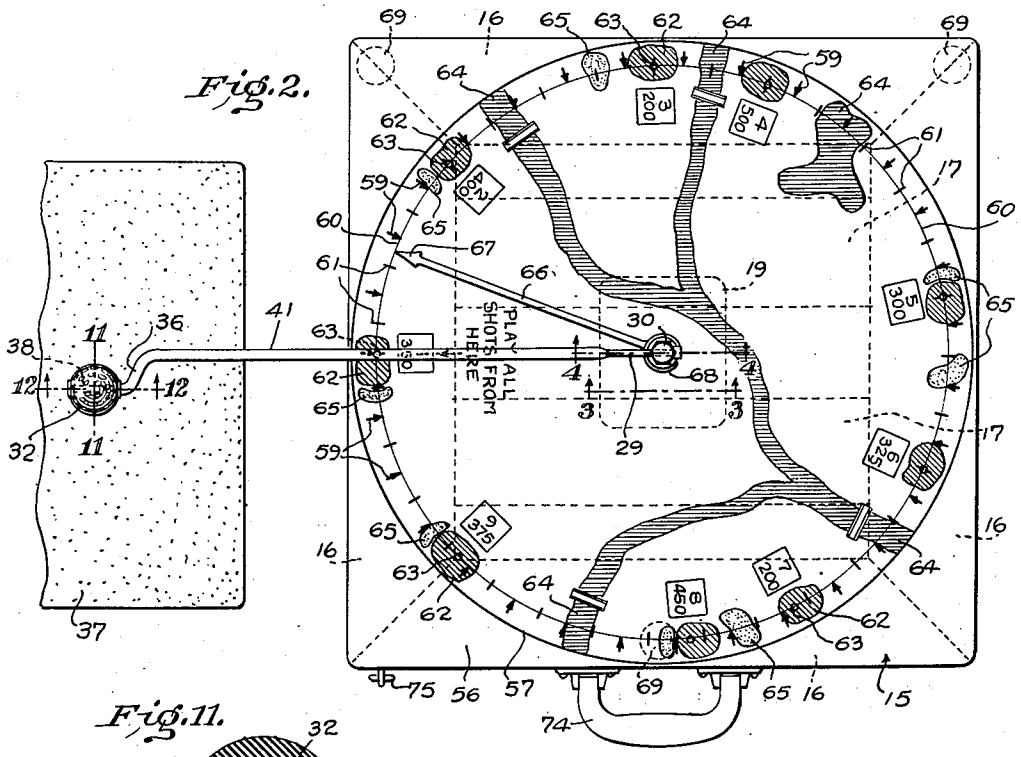


Fig. 11.

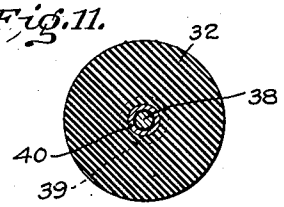


Fig. 9.

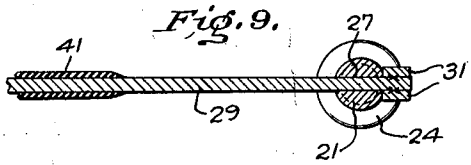


Fig. 12.

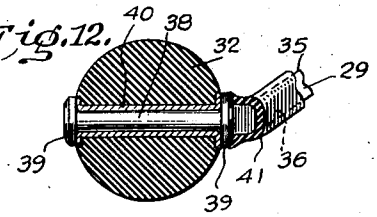
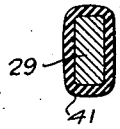


Fig. 10.



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GOLF GAME AND PRACTICE DEVICE

Filed Dec. 21, 1950 2 Sheets-Sheet 2

Fig. 3.

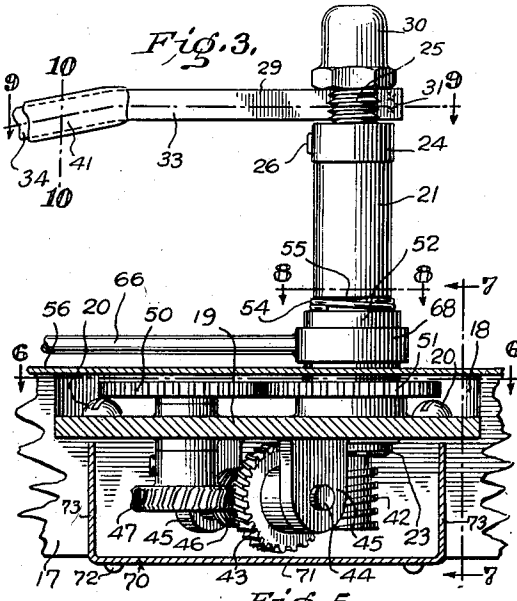


Fig. 4

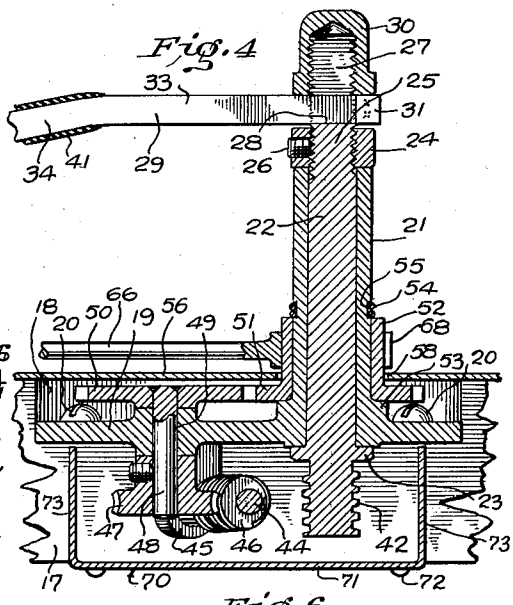


Fig. 5.

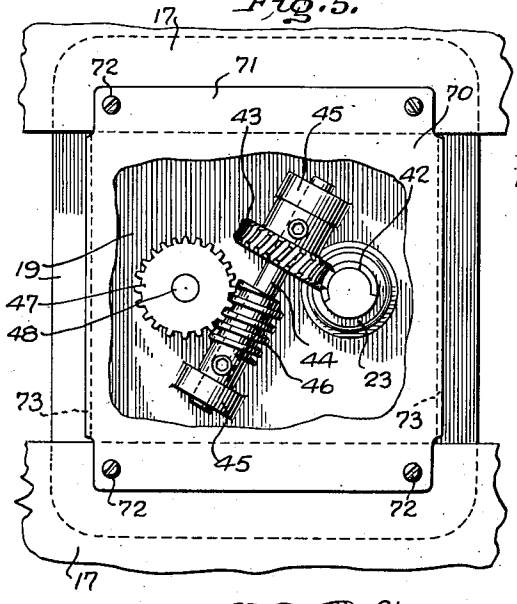


Fig. 6.

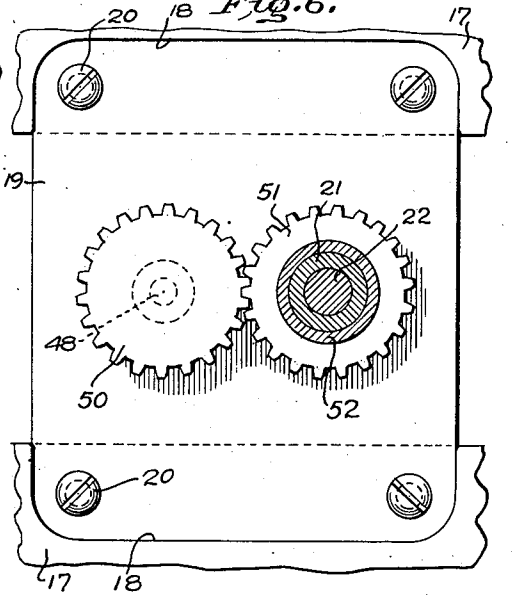


Fig. 7.

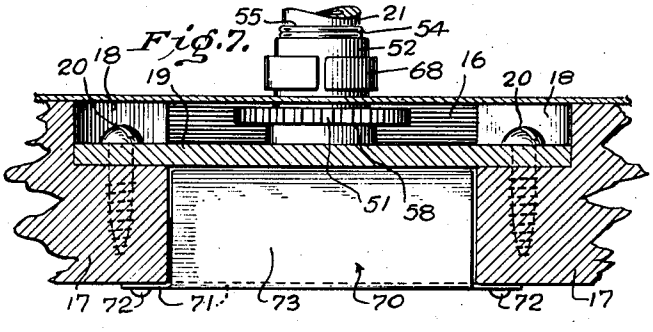
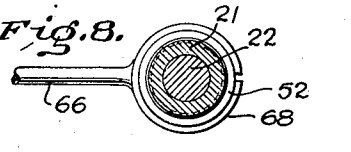


Fig. 8.



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2,641,933

GOLF GAME AND PRACTICE DEVICE

Edward Van Kinkle, Flint, Mich.

Application December 21, 1950, Serial No. 201,929

6 Claims. (Cl. 73—379)

1

The present invention relates to new and useful improvements in golf game and practice devices and is a continuation-in-part application of my United States patent application, Serial No. 186,587, filed September 25, 1950.

The principal object of the invention is to provide a golf game and practice device of a compact and portable nature, usable both indoors and outdoors, of a construction and arrangement for permitting the striking of a captive ball thereon with an ordinary golf club in the same manner as striking a golf ball on a golf course, and one that can be used either by one or a number of players and played according to the rules of the game of golf or used equally as well as a practice device with a recording of the distance a normal golf ball would have traveled had it been hit on an ordinary golf course.

Another object of the invention is to provide an apparatus as outlined above wherein a relatively large dial with the layout of golf holes and distance graduations of an imaginary golf course thereon is stationarily arranged on a supporting base of substantially the same size, which rotatably supports in the center of the dial both a laterally extending arm with a ball thereon and an indicator arm for turning movement of both at different speeds around said dial on the same axis, thereby permitting the use of a large, easily readable dial on a compact apparatus.

A further object of the invention is to provide a golf game and practice device in accordance with the preceding objects wherein a worm gear drive mechanism is arranged in a novel manner for turning the indicator arm a short distance on the dial upon rotation of the ball-supporting arm a number of times around the dial, for providing a simple, compact, and accurate speed reduction mechanism, and for performing the function of permitting substantially free pickup from a standstill to rotary motion of the ball-carrying arm upon the impact of striking the ball and thereby eliminate to a great extent backwhip of a flexible arm carrying the ball.

A further object of the invention is to provide a golf game and practice apparatus as set forth above which has a laterally extending arm to which the ball is attached of a construction for limiting up and down flexing movement of the ball end of the arm while permitting to a certain degree a flexing thereof sidewise for partially absorbing the shock upon striking of the ball, and to detachably fix one end of the

2

arm to a driving member of the speed reduction mechanism against turning movement with respect to the driving member while rotatably mounting the ball on its opposite end which is laterally offset providing a gooseneck to prevent striking of the arm with the head of a golf club.

It is also an object of the invention to provide a golf game and practice apparatus in conformity with the above-mentioned objects which is simple and substantial in construction, economical to manufacture, and thoroughly efficient and practical in use.

With the foregoing and other objects in view, the invention consists of the novel construction, combination, and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like characters denote corresponding parts throughout the several views:

Figure 1 is a side elevation showing the ball in the position to be struck;

Figure 2 is a top plan view thereof;

Figures 3 and 4 are vertical fragmentary sections taken on lines 3—3 and 4—4, respectively, of Figure 2;

Figure 5 is a fragmentary bottom plan view with a part of the cover plate broken away;

Figure 6 is a fragmentary horizontal section taken on line 6—6 of Figure 3;

Figure 7 is also a fragmentary vertical section, but is taken on line 7—7 of Figure 3;

Figures 8 and 9 are horizontal cross sections taken on lines 8—8 and 9—9, respectively, of Figure 3;

Figure 10 is a vertical cross section through the flexible arm taken on line 10—10 of Figure 3; and

Figures 11 and 12 are sectional views taken on lines 11—11 and 12—12, respectively, of Figure 2.

Referring now more in detail to the accompanying drawings, the apparatus illustrated therein comprises a rectangular base member 15 made up of a relatively heavy construction, preferably of a number of wood sections 16 mitered at their ends and joined to form a square frame, with other sections 17 spaced parallel to one another extending between a pair of opposite side sections 16 of the square

frame and all of said sections having both their upper and lower surfaces arranged on the same horizontal planes.

Centrally of the frame 15 and seated in opposed notches 16 in the wood sections 17 on a horizontal plane below the upper surfaces of all sections are the opposite ends of a plate 19, which is secured in place by wood screws 20 engaging into the sections 17. On the plate 19 projecting in a vertical upward direction is a tubular post 21 which may be formed as a part of the plate or rigidly secured to the same in any approved manner. Mounted in the tubular post 21 for rotary movement is a vertical drive shaft 22 which is held against upward end movement by a collar 23 formed thereon in engagement with the plate 19 and against downward end movement by a collar 24 adjustably threaded on the upper threaded end 25 of the shaft 22 and engaging the upper end of the tubular post 21. A set screw 26 threaded into the collar 24 and engaging the shaft 22 locks said collar in adjusted position on the shaft.

The threaded upper end of the shaft 22 is vertically slotted downwardly, as at 27, to a location slightly above the normal adjusted position of the collar 24 and terminates in a horizontal bearing surface 28 against which is clamped the lower edge of one end of a laterally extending resilient arm 29. The resilient arm 29 is rectangular in cross section with a width substantially twice its thickness, as shown in Figure 3, said thickness being the same as the distance between spaced parallel surfaces of the slot 27 for engaging opposite side walls of the slot at the location through which it extends. For clamping the lower edge of the arm 29 against the end 28 of the slot 27, a cap nut 30 is threaded on the end of the shaft 22 above the arm 29 and has a flat undersurface that engages the upper edge of said arm at spaced locations. To serve as a safety measure and also to aid in holding the arm 29 securely and detachably fixed to the shaft 22, a pair of blocks 31 are welded on the extreme end of the arm, one on each side and opposite one another, for engaging the shaft should the same tend to slide endwise in a lateral direction from its clamped position in the slot.

As previously set forth and illustrated in the accompanying drawings, the resilient arm 29 extends laterally from the rotatable shaft 22 in the upstanding post 21 with the width thereof arranged vertically. The arm 29 is of a length whereby it extends a distance beyond the side of the base 15 and has rotatably supported on a horizontal axis on its free end a ball 32 of rubber or similar material. The arm as shown in Figure 1 extends at right angles from the vertical shaft for a short distance, as at 33, and then extends at a slight angle downwardly as it extends outwardly throughout the major portion of its length, as indicated at 34, until a short distance from the ball 32 where it dips at a greater angle, as at 35, where it is offset to one side as shown at 36 in Figure 2. The horizontal portion 33 and the angled portions 34 and 35 provide an arangement whereby there is sufficient clearance of the arm away from the base 15, and at the same time lower the ball 32 to an elevation slightly above a coco doormat 37 or any other object with a surface from which the ball may be struck without harm to the golf club or floor surface beneath the ball, while the offset 36 eliminates to a great extent likelihood of the arm 29 being struck by the head of the golf club.

An extension 38 in the form of an axle projects outwardly in a horizontal direction from the offset end 36 of the arm 29 and is headed at its opposite ends, as at 39, for rotatably supporting the ball between the heads 39. The ball, being of rubber or similar material, has a metallic sleeve 40 molded or otherwise constructed therein providing a cylindrical bearing surface engageable with and freely rotatable on the axle 38. To dampen the reflex of the arm 29, protect the golf club head against damage should it accidentally strike the arm 29, and provide a rustproof covering that is pleasing in appearance, a rubber compound or similar coating 41 is applied to the arm along its length from the ball 32 to the short horizontal portion 33.

Either formed on or secured to the lower extremity of the vertical rotatable shaft 22 beneath the plate 19 is a worm 42 that meshes with a worm gear 43 secured to a horizontal diagonal shaft 44 rotatably mounted in depending bearings 45 from the plate 19. Also secured to the shaft 44 is another worm 46 which meshes with another worm gear 47 that is secured to the lower end of a vertical stub shaft 48 projecting downwardly through the plate 19 and rotatably supported in a bearing 49. Fixed or otherwise secured to the upper end of the stub shaft 48 is a spur gear 50 located above the plate 19. The spur gear 50 meshes with another spur gear 51 provided with a relatively long upstanding hub portion 52 freely rotatable on the lower end of the tubular post 21, said hub being held against downward end movement on the tubular post by a shoulder 53 on the post and against upward end movement by a split wire ring 54 in an annular groove 55 in the post.

On the upper surface of the rectangular base 15 is attached a flat sheet of durable covering material 56 with a circular layout of a nine-hole golf course 57 thereon and provided with a central opening 58 therein through which the tubular post 21, drive shaft 22, and upstanding hub 52 of the spur gear 51 extend, as clearly shown in Figure 4. The golf course layout as previously stated and shown in Figure 2 is in the form of a dial with evenly spaced graduations 59 having arrowheads thereon pointing to a circular line 60 and having other graduations 61 intersecting the line 60 spaced equal distances between the graduations 59. The graduations 59 and 61 represent yardage along the various golf holes and are spaced for indicating one hundred yards between like graduations and, consequently, fifty yards between adjacent different types of graduations.

Along the circular line 60 are shown nine different golf holes of various lengths, each having a putting green 62 with a cup 63, water hazards 64, and sand traps or bunkers 65 intersected by the line 60. At a location on the dial, preferably where the ninth hole ends and the first hole starts, are an arrow and the words, "Play all shots from here." By aligning the resilient rod 25 with the arrow before striking the ball, the coco doormat 37, while remaining in the same position, will be under the ball for all shots, thereby obviating the moving of the mat between shots. This manner of use of the device requires less available room in which to swing a golf club when said device is used indoors. As the worms 42 and 46 drive the worm gears 43 and 47, respectively, of the speed reduction mechanism, the resilient arm 29 is easily moved by hand in either direction.

Mounted on the upstanding hub 52 of the spur gear 51 above and adjacent to the dial layout of the golf course is an indicator arm 66 extending from the center of the dial to the circular line 60, said arm 66 being provided with an arrowhead 67 on its outer extremity at the line 60 for indicating the yardage of a stroke according to the number of revolutions of the ball 32 and resilient arm 29 around the dial. The connection of the indicator arm 66 to the hub 52 is of a nature for permitting the indicator arm to be manually turned on the hub for setting the arm at desired locations on the dial and consists of a split spring steel band 68 on the arm embracing and in frictional engagement with the outer cylindrical surface of the hub 52.

To aid in supporting the base 15 against rocking motion on an uneven surface and shifting movement sidewise, three rubber pads 69 are secured to the underside of said base and engage the surface upon which the device rests, thereby elevating the base and a cover 70 for the worm gear mechanism slightly above the surface. The cover 70 consists of a flat bottom plate 71 with opposite ends extending slightly under the sections 17 of the base where it is attached by wood screws 72 and upstanding side flanges 73 extending between the sections 17.

Attached to the outer edge of one of the sections 16 of the rectangular base frame is a handle 74 for carrying the apparatus, while near one corner of the base on the same section as that to which the handle is attached is secured a hook 75 movable for engaging over the resilient arm 29 upon springing said arm towards the base for holding the arm against movement during such carrying.

In operation, the resilient arm 29 with the ball 32 thereon is first swung to a position in alignment with the arrow and the words, "Play all shots from here" which places the ball directly over the mat 37. The indicator arm is then manually turned on and against frictional engagement with the hub 52 to point to the cup 63 of the green 62 of the preceding hole. As the golf course layout 57 is continuous, when starting to play the first hole, the indicator arm would be placed pointing to the cup 63 of the ninth hole. The ball 32 is then struck with a golf club in a direction at right angles to the resilient arm 29 to which the ball is rotatably attached, causing the ball and arm to rotate around the dial 57. Because the arm is rigidly attached to the vertical drive shaft 22 which, in turn, is connected through the worm 42, worm gear 43, worm 46, worm gear 47, spur gear 50, and spur gear 51 to the hub 52 turning about the same axis as the drive shaft 22, the indicator arm will be turned on the dial a distance in direct proportion to the number of times the ball 32 travels around the dial. The dial is calibrated according to the gear reduction and impact of the golf club head against the ball to register with the indicator arm the distance a normal golf ball would have traveled had it been hit on an ordinary golf course. Should the indicator arm stop on a water hazard or a sand trap, or go by a cup 63 and still remain on the green 62, the player making the shot is penalized one stroke; however, should the indicator go by the cup 63 and off of the green 62, the player is penalized two strokes.

When a number of players are playing against one another, each player may complete a hole before the next player starts to play the same hole; or indicating devices, such as shown in my co-pending application referred to above, may be

placed on the dial to mark the location where the indicator arm stops after each shot of each player, and the indicator arm may then be moved to the location of the lie of the player entitled to make the next shot according to the rules of the game of golf.

The use of worms and worm gears not only provides a compact speed reduction mechanism and practically a free pickup of the resilient ball-carrying arm from a standstill to a rotary motion, but also provides a construction where the resilient ball-carrying arm 29 may be easily swung by hand to the starting location from where all shots are made. While the indicator arm 66 which frictionally engages the hub 52 may also be manually moved for resetting, it is not possible for the same to actuate the gear mechanism upon such manual movement and cause a movement of the ball-carrying arm.

The construction and attachment of the resilient arm 29 eliminates practically all up and down motion of the ball end of the arm independent of the inclination the ball would have traveled had it been free from the arm, and such construction in combination with the worm gearing permits a flexing of the arm sidewise upon impact of the golf club head with the ball for absorbing shock of the blow without any appreciable amount of reflex of the arm usually found when striking captive balls carried by resilient arms.

The constructional form above described and illustrated in the drawings is only to be regarded as an example, and its details may, of course, be modified in several ways without departing from the principle of the invention.

What is claimed is:

1. A golf game and practice apparatus comprising a base structure, a dial on said base with a layout of a golf course thereon, a vertically arranged rotatable shaft supported by said base structure in the center of said dial and having a downwardly extending vertical slot from its upper end, an indicator arm supported on a vertical axis above said dial and registrable with same, means connecting said rotatable shaft to said indicator arm for turning said indicator arm on its vertical axis at a slower rate of speed than said rotatable shaft, a resilient rod of rectangular cross section extending through said slot in said vertical shaft and engaging the bottom and side surfaces thereof, said resilient rod extending laterally from said shaft beyond said base and dial, a cap nut threaded on the upper end of said shaft engaging said rod at opposite sides of the slot and clamping said rod against the bottom surface of said slot, and a ball attached to the extended end of said resilient rod.

2. A golf game and practice apparatus comprising a base structure, a dial on said base with a layout of a golf course thereon, a vertically arranged rotatable shaft supported by said base structure in the center of said dial and having a downwardly extending vertical slot from its upper end, an indicator arm supported on a vertical axis above said dial and registrable with same, means connecting said rotatable shaft to said indicator arm for turning said indicator arm or its vertical axis at a slower rate of speed than said rotatable shaft, a resilient rod of rectangular cross section extending through said slot in said vertical shaft and engaging the bottom and side surfaces thereof, said resilient rod extending laterally from said shaft beyond said base and dial, a cap nut threaded on the upper end of said shaft engaging said rod at opposite

sides of the slot and clamping said rod against the bottom surface of said slot, a head on said rod in engagement with said shaft at said slot therein, and a ball attached to the extended end of said resilient rod.

3. A golf game and practice apparatus comprising a relatively large flat base member, a dial of a diameter covering substantially the entire top surface of said flat base member, a stationary tubular post secured to said base and projecting vertically in an upward direction through the center of said dial, a shaft rotatably mounted in said vertical post and extending beyond both upper and lower ends of said post, a resilient rod connected to the upper end of said rotatable shaft and extending laterally beyond said base and dial, a ball attached to the laterally extended end of said resilient rod, a speed reduction mechanism supported by said base beneath said dial and connected to the lower end of said rotatable shaft, a gear rotatably mounted on the lower end of said vertical tubular post beneath said dial and having a hub thereon projecting upwardly through said dial, a second gear connected to the speed reduction mechanism and meshing with said first-mentioned gear, and an indicator arm connected to the upwardly projecting hub of said first-mentioned gear and registrable with graduations on said dial.

4. A golf game and practice apparatus comprising a relatively large flat base member, a dial of a diameter covering substantially the top surface of said base, a plate secured to said base between the upper and lower surfaces thereof, a tubular post projecting vertically in an upward direction from said plate and through the center of said dial, a shaft rotatably mounted in said vertical post and extending both above the upper end of the post and below the plate, a resilient rod connected to the upper end of said rotatable shaft and extending laterally beyond said base and dial, a ball attached to the laterally extended end of said resilient rod, a speed reduction mechanism supported by said base beneath said dial and connected to the lower end of said rotatable shaft, a gear rotatably mounted on the lower end of said vertical tubular post between said dial and plate, said gear having a hub thereon projecting upwardly through said dial, a second gear also between said dial and plate connected to the speed reduction mechanism and meshing with said first-mentioned gear, and an indicator arm connected to the upwardly projecting hub of said first-mentioned gear and registrable with graduations on said dial.

5. A golf game and practice apparatus comprising a relatively large, flat base structure, a

dial on said base with a layout of a golf course thereon and covering substantially the entire top surface area of said flat base, a vertically arranged rotatable shaft supported by said base structure and extending upwardly through the center of said dial, a resilient rod connected to the upper end of said rotatable shaft above said dial and extended laterally beyond said base and dial, a ball attached to the laterally extended end of said resilient rod, a speed reduction mechanism connected to and driven by said rotatable shaft, an indicator arm rotatably supported on the same vertical axis as that of said rotatable shaft and connected to and driven by said speed reduction mechanism for registering said arm with markings on said dial, and a catch loosely carried by said base and adapted to be engaged over said resilient rod for holding the end of the rod with the ball thereon downward.

6. A golf and practice apparatus comprising a relatively large flat base member, a stationary dial on the top surface of said flat base member, a stationary tubular post secured to said base member and projecting vertically in an upward direction through the center of said dial, a shaft rotatably mounted in said vertical post and extending beyond both upper and lower ends of said post, a rod connected to the upper end of said rotatable shaft and extending laterally beyond said base and dial, a ball attached to the laterally extended end of said rod, a tubular member rotatably mounted on the lower end of said vertical tubular post and projecting upwardly through the center of said dial, an indicator arm connected to the upwardly projecting end of said rotatable tubular member and registrable with said dial, and a speed reduction mechanism supported beneath said dial and connected to the lower end of said rotatable shaft and to said rotatable tubular member for rotating said tubular member at a slower rate of speed than said rotatable shaft.

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