

[54] **GOLF PRACTICE APPARATUS**

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[51] Int. Cl. **A63b 69/36**

[58] Field of Search 273/176, 184, 185, 200;
73/379 TB, 380 A, 381 G, 13

[56] **References Cited**

UNITED STATES PATENTS

1,636,234	7/1927	Klopsteg	73/13 X
1,991,252	2/1935	Kane	273/185 D X
3,292,436	12/1966	Bahnsen	273/184 R
3,324,726	6/1967	Turczynski	273/184 B X

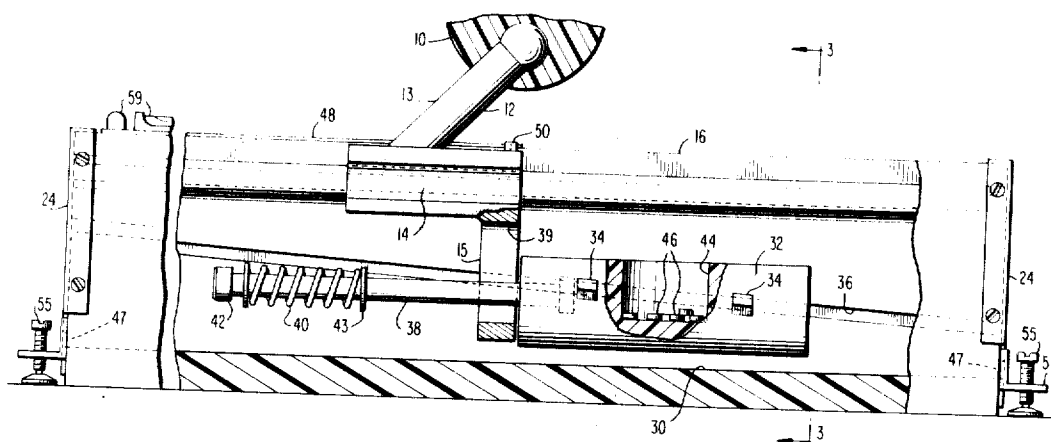
3,348,416 10/1967 Warsen 273/184 R X

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[57] **ABSTRACT**

Apparatus permitting the playing within a small area of a simulated game of golf. A golf ball is connected by a tee assembly to a torpedo within an elongated housing. In one embodiment, the torpedo carries weights, and when the golf ball is struck the torpedo moves up a uniform grade within the housing to slow the torpedo. In a second embodiment, the torpedo carries magnets and the housing includes oppositely-poled magnets so that as the torpedo carries its magnets over those of the housing, the magnetic attraction slows the torpedo. The distance the ball and torpedo move is scaled to indicate the distance which would have been achieved by a freely hit ball on a golf course. A calibration unit includes a weight for striking the ball a fixed blow to move it a fixed distance.

18 Claims, 9 Drawing Figures



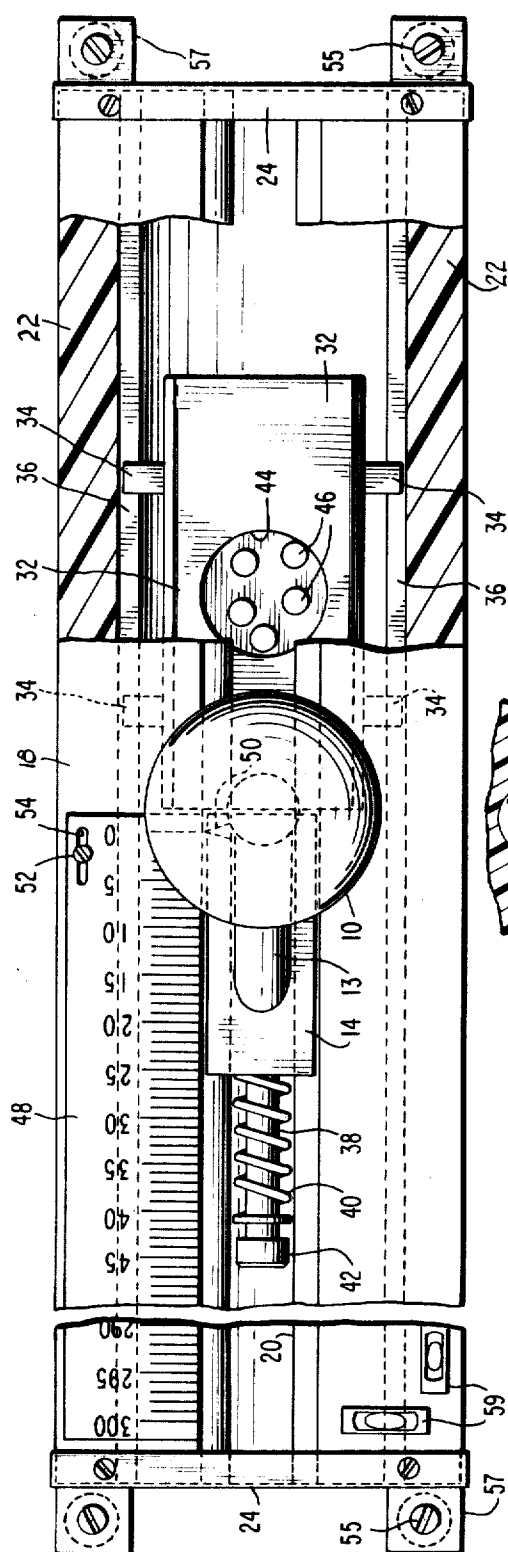


FIG. 1

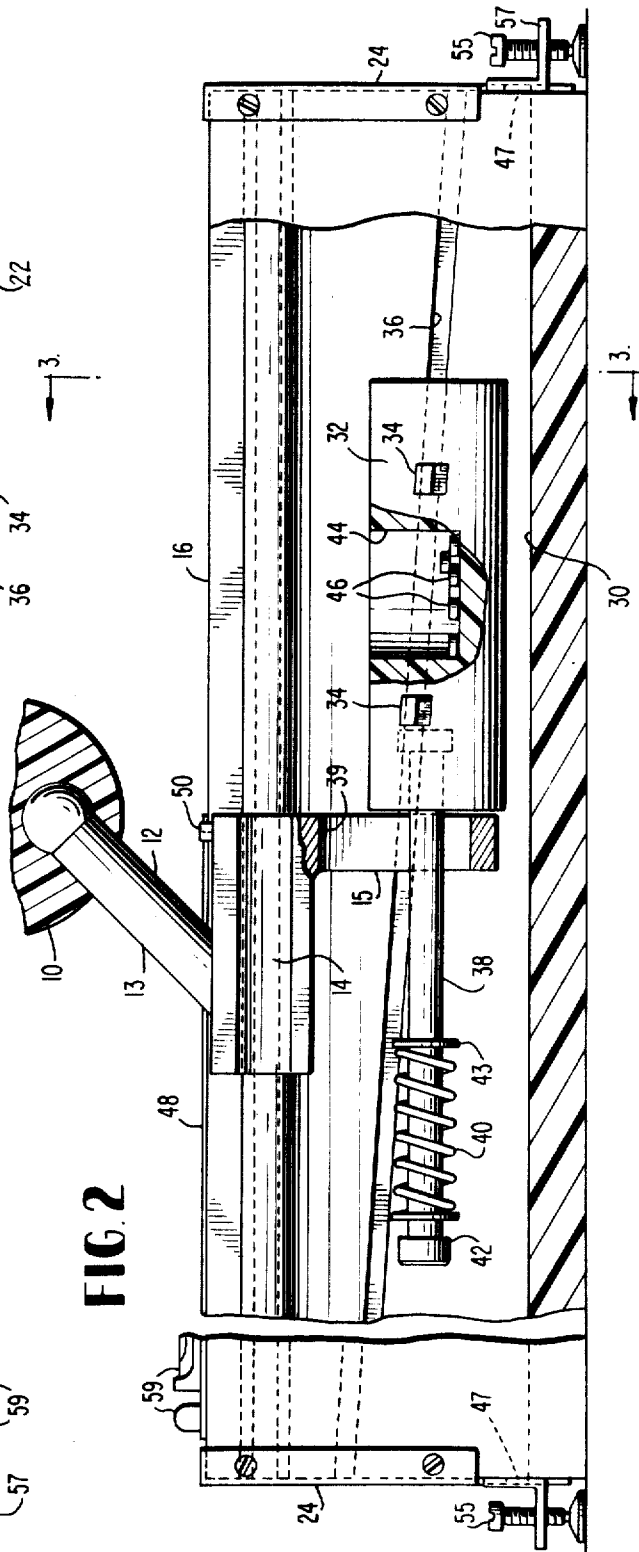


FIG. 2

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FIG. 3

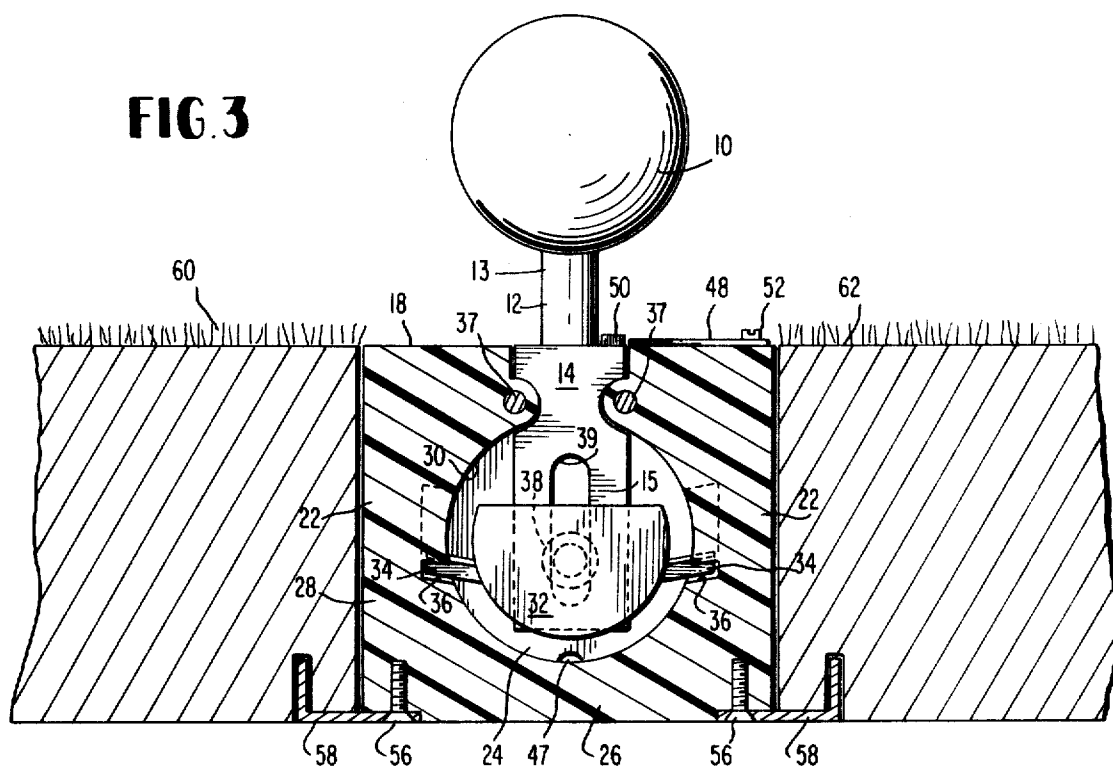


FIG. 4

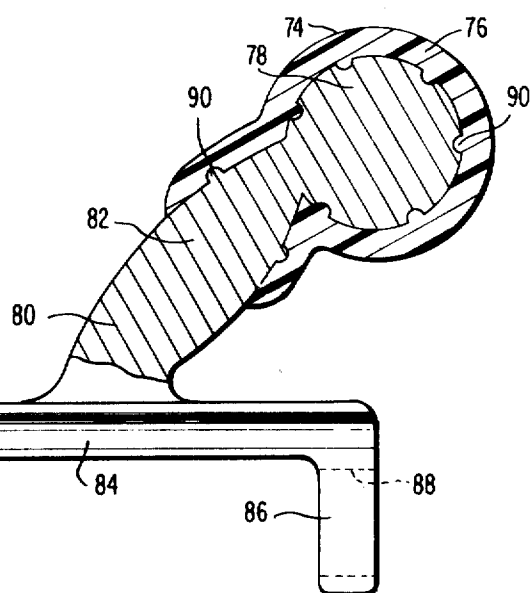


FIG. 6

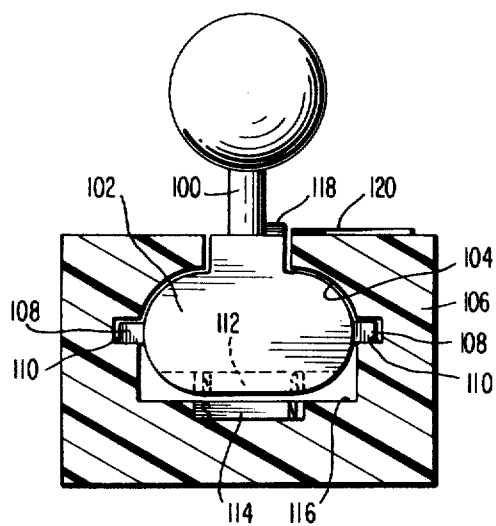


FIG. 5

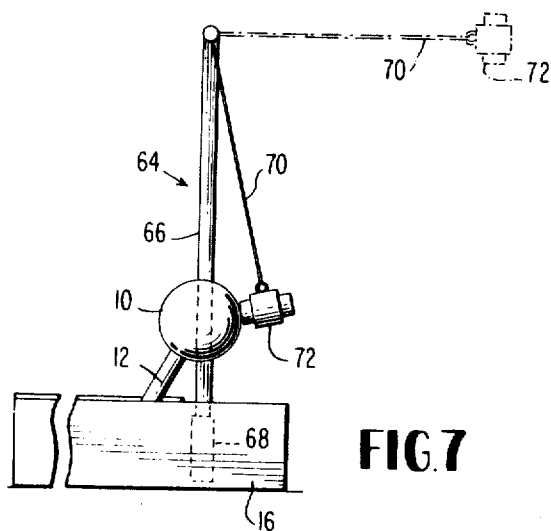
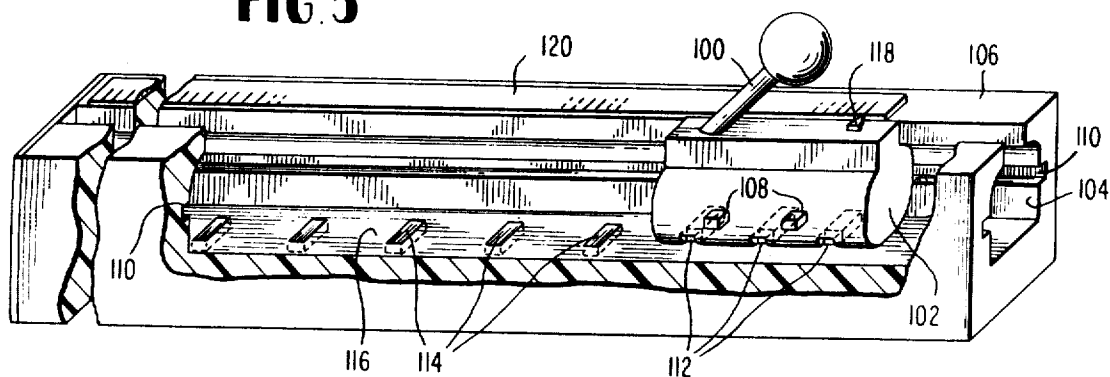


FIG. 7

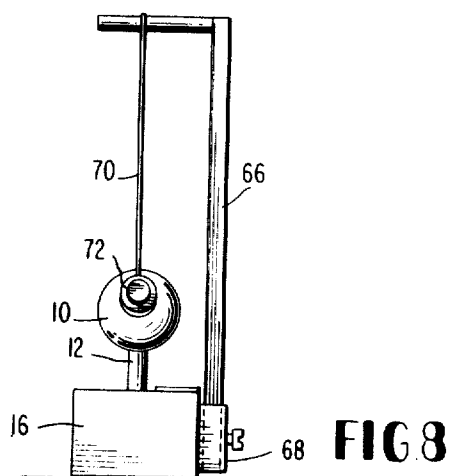
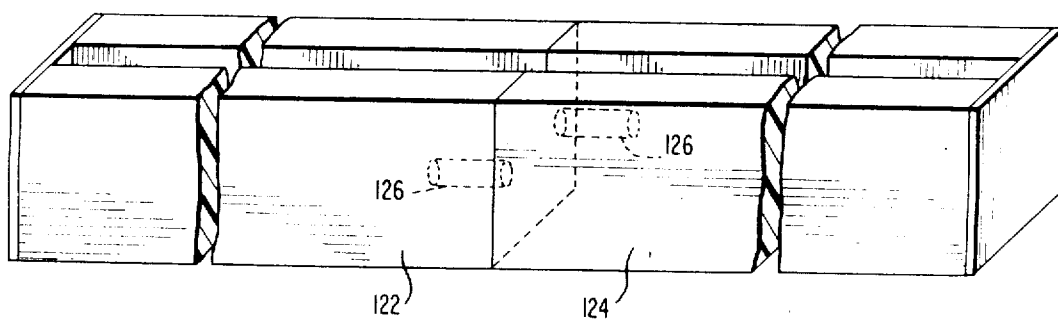


FIG. 8

FIG. 9



GOLF PRACTICE APPARATUS

The present invention pertains to a golfing apparatus. More particularly, the present invention pertains to apparatus for use in practicing the game of golf within a relatively small area and providing the user with exercise.

Many people who are interested in playing the game of golf are able to do so only on weekends or even less frequently due to a lack of available time, the expense involved, or a shortage of facilities. To obtain a high degree of proficiency in golf and to retain that proficiency requires frequent practice. In addition, playing golf regularly provides beneficial exercise and thus promotes good health.

The present invention is an apparatus for practicing golf within a small area, thus permitting those who are unable to play regularly on a golf course nevertheless to be frequently able to enjoy the game. In accordance with the present invention, a pseudo golf ball is connected by a tee assembly to a torpedo within an elongated housing. When the golf ball is struck, the torpedo is caused to move within the housing. The distance which the ball and torpedo move is scaled to indicate the distance which would have been achieved had an actual golf ball been freely hit, as on a golf course. Accordingly, the playing of golf on a golf course is simulated. In one embodiment of the present invention, the torpedo is weighted within the housing. Preferably in this embodiment, the ball and tee assembly are mounted to the torpedo by means of an elongated rod or shaft extending from the torpedo, and are spring biased so that when the ball is struck, the feel of a freely hit ball is obtained with the spring bias reducing the shock on the torpedo. Weights can be added to and removed from the torpedo to permit calibration of the device in terms of simulated yardage. In a second embodiment, the torpedo includes magnets which coact with magnets attached to the housing to slow the torpedo. A calibrating unit is provided consisting of a hammer of known weight which can be caused to impact on the ball with a fixed force to simulate a golf shot of a given yardage. A distance scale is mounted adjacent the path of torpedo travel so that the simulated distance can be readily determined after each shot.

These and other aspects and advantages of the present invention are more apparent in the following detailed description and claims, particularly when considered in conjunction with the accompanying drawings in which like parts bear like reference numerals. In the drawings:

FIG. 1 is a broken plan view of a first embodiment of apparatus in accordance with the present invention;

FIG. 2 is a broken side elevational view of the apparatus of FIG. 1;

FIG. 3 is a view taken along line 3—3 of FIG. 2;

FIG. 4 depicts a modified golf ball and tee assembly in accordance with the present invention;

FIGS. 5 and 6 depict a second embodiment of apparatus in accordance with the present invention;

FIGS. 7 and 8 illustrate calibration apparatus in accordance with the present invention; and

FIG. 9 illustrates one technique usable in manufacturing apparatus in accordance with the present invention.

As seen in FIGS. 1, 2 and 3, the golfing apparatus of the first embodiment of the present invention includes a pseudo golf ball 10 fixedly attached to tee assembly 12 which includes a tee portion 13, a body portion 14 and a lower portion 15. Body portion 14 and lower portion 15 are within housing 16. The housing 16 includes an upper surface 18 having a longitudinal slot 20 extending the length thereof to permit tee portion 13 to pass therethrough, sides 22, ends 24 and bottom 26. As seen in FIG. 3, housing 16 has an internal assembly 28 of, for example, plastic which defines a longitudinal opening 30 within which is positioned torpedo 32. Torpedo 32 includes a plurality of support guides 34 on each side thereof which ride within grooves 36 to support torpedo 32 within housing 16 and to guide the torpedo as it moves within the housing. As seen in FIG. 2, grooves 36 are uniformly inclined upwardly over the length of housing 16 so that as torpedo 32 moves forward within housing 16, the torpedo rises, absorbing kinetic

energy and slowing the torpedo. Preferably, metal reinforcing rods 37 are positioned within internal assembly 28 on each side of body portion 14 and extend the length of housing 16. Shaft 38 extends from the forward end of torpedo 32 and passes through an opening 39 in body portion 15 of tee assembly 12 so that the tee assembly is slidably connected to torpedo 32. As can be seen in FIG. 3, opening 39 extends vertically to allow shaft 38 to move upward within lower portion 15 as torpedo 32 rises during forward movement within housing 16. Bias spring 40 encircles the forward end of shaft 38 and is retained thereon by bolt 42 which engages within a threaded opening in the forward end of shaft 38. The rearward end of spring 40 is connected to ring 43 which encircles shaft 38. A weight reservoir 44 is provided in torpedo 32 with a plurality of removable weights 46, such as lead strips, therein. A drainage opening 47 is provided in end 24.

A distance scale 48 is provided along one side of upper surface 18, and a pointer 50 extends from tee portion 13. Scale 48 is marked to indicate the distance simulated by movement of ball 10. Thus, for example, distance scale 48 might have a length in the order of 5 feet and might be marked for simulated distances up to 300 yards, thus indicating 5 yards of simulated distance for each inch of length of the distance scale 48. Distance scale 48 is held in position by bolt 52 which passes through elongated slot 54 in distance scale 48 and mates with a threaded opening in upper surface 18. Slot 54 permits minor calibrating adjustment of the distance scale.

If desired, each of the yardage marks on distance scale 48 can include an electrical contact, which is actuated by pointer 50 so that an indicator such as a lamp is energized to indicate the simulated yardage of each golf shot.

The golfing apparatus of the present invention can be installed in a suitable opening below ground level or it can be provided as a portable unit including a platform adjacent housing 16 on which the player stands when addressing the ball. As seen in FIG. 3, housing 16 is connected by bolts 56 to angles 58 which secure housing 16 either within the adjacent ground or to the portable platform. Leveling bolts 55 can be adjusted within brackets 57 as required to level the apparatus, with the level adjustment indicated by levels 59. Driving station 60 is adjacent one side of housing 16 for right-handed golfers, while driving station 62 is adjacent the opposite side of the housing for left-handed golfers. Driving stations 60 and 62 can either be covered with real grass or with synthetic grass.

In use, the golfer stands on driving station 60 or 62 and addresses ball 10 with a suitable golf club, with ball 10 and torpedo 32 in a starting rest position as depicted in FIGS. 1 and 2 so that pointer 50 is adjacent the zero yard mark of distance scale 48. Upon initial contact of the golf club with ball 10, only ball 10 and tee assembly 12 move, and so the feel of a freely hit ball is transmitted to the golfer and a normal follow-through results. Tee assembly 12 moves forward on shaft 38, contacting ring 43 and compressing spring 40. By way of illustration, shaft 38 might have a length in the order of 9 inches and spring 40 a quiescent length in the order of 2 inches. As tee assembly 12 compresses spring 40, torpedo 32 gradually commences to move, and when spring 40 is fully compressed, torpedo 32 moves with tee assembly 12. Since grooves 36 are inclined, torpedo 32 rises as it travels, thereby expending the kinetic energy imparted by the golf club and braking the travel of torpedo 32 and tee assembly 12. Shaft 38 rises in opening 39 of bottom portion 15 of tee assembly 12, and so tee assembly 12 and golf ball 10 do not rise as they move along housing 16. When ball 10, tee assembly 12 and torpedo 32 come to rest, pointer 50 indicates on distance scale 48 the simulated yardage of the shot. The golfer can then use his club to pull ball 10, together with tee assembly 12 and torpedo 32, back to the starting rest position, or they might return due to gravity.

Many variables affect the travel of a golf ball during the playing of regulation golf. Among these are the position of the club head upon impact with the ball, the arc of the club head during back swing and down swing, follow-through, the loft of

the particular club employed, whether the shot tops or undercuts the ball, and the speed with which the club is swung. These factors likewise influence the travel of ball 10 along housing 16. Ball 10 is limited to substantially horizontal movement, varied only by the clearance between the body portion of the tee 14 and the housing 16. Just as the forward movement of a golf ball during a regular game of golf is determined by the forward vector segment of the ball's actual travel, so too, in the present invention, the movement of ball 10 is determined by the vector segment of the force acting upon the ball from the club head. Consequently, a realistic result is achieved.

The uniform slope of grooves 36 results in ball 10, tee assembly 12 and torpedo 32 expending their kinetic energy over a relatively short distance in order to lift weights 46. Consequently, regular golf clubs can be utilized and a full natural golf swing employed, and yet the device can simulate a golf shot of 300 yards over a relatively short distance, for example a distance in the order of five feet. Consequently, the apparatus of the present invention can be utilized in a relatively small area, for example an area in the order of 8 feet by 8 feet. Longitudinal slot 20 preferably is slightly wider than tee portion 13 to provide an unobstructed, yet retaining, passageway for travel of tee assembly 12 together with ball 10 and torpedo 32. Slot 20 also precludes compression buildup within housing 16. Reinforcing rods 37 provide additional strength to housing 16 and prevent widening of slot 20, thereby assuring that the desired width of slot 20 is maintained.

Torpedo 32 contacts housing 16 only at support guides 34 within grooves 36, thus minimizing wear. Should the assembly of golf ball 10 and tee assembly 12 require replacement, end 24 is taken off, permitting withdrawal of golf ball 10, tee assembly 12 and torpedo 32 from housing 16. Bolt 42 is then removed, together with spring 40 and ring 43. Tee assembly 12, together with golf ball 10, then can be removed from shaft 38, and a replacement installed.

FIG. 4 depicts an alternative embodiment of ball and tee assembly. Golf ball 74 includes cover 76 molded about core 78 which is an integral unit with tee assembly 80, including tee portion 82, body portion 84 and lower portion 86 having opening 88 therethrough for shaft 38. Tee portion 82 has an enlarged cross-section to withstand blows from the golf club. Core 78 and tee portion 82 preferably include a plurality of dimples 90 to assure that cover 76 does not slip thereon.

FIGS. 5 and 6 depict a modified embodiment of apparatus in accordance with the present invention. Ball and tee assembly 100 is connected to torpedo 102 which is positioned within longitudinal opening 104 in housing 106. Support guides 108 on either side of torpedo 102 ride within grooves 110 of longitudinal opening 104 to support torpedo 102 within housing 106 and to guide the torpedo as it moves within the housing.

On its lower surface, torpedo 102 includes a plurality of magnets 112, for example three magnets, spaced longitudinally on torpedo 102. A plurality of magnets 114 are positioned on inner bottom surface 116 of longitudinal opening 104 of housing 106. Magnets 112 and 114 are oppositely poled; for example, every magnet 112 on torpedo 102 might have its magnetic north pole to the left side of torpedo 102 when viewed in FIG. 6, while every magnet 114 on bottom surface 116 has its magnetic north pole to the right. Accordingly, as torpedo 102 moves within longitudinal opening 104, the magnetic attraction between magnets 112 and magnets 114 slows or brakes the torpedo movement. Preferably, torpedo 102, longitudinal opening 104, support guides 108 and grooves 110 are dimensioned so that the clearance between magnets 112 and magnets 114 is in the order of 0.05 inch as torpedo 102 moves within longitudinal opening 104.

With ball and tee assembly 100 in the starting rest position, so that the tee assembly pointer 118 is adjacent the zero yard mark of the distance scale 120 on housing 104, the first magnet 114 is positioned in the order of from approximately five inches to approximately ten inches, and preferably approxi-

mately nine inches, from the front magnet 112 on torpedo 102 so that when the ball is struck, the feel of a freely hit golf ball is obtained. Magnets 114 are substantially equally spaced longitudinally on bottom surface 116, for example at intervals in the order of three inches. Magnets 112 are then preferably spaced longitudinally on torpedo 102 at intervals different from the intervals between magnets 114 on bottom 116, for example uniformly at two inch intervals. As a result, at least one magnet 112 is always over or nearly over a magnet 114 as torpedo 102 moves within longitudinal opening 104, with, of course, the exception of the first nine inches of movement. This results in there always being at least one magnet 112 under the influence of one of the magnets 114, and so relatively smooth braking of the torpedo occurs, rather than the pulsating braking action that would occur if both sets of magnets were spaced at the same intervals.

Magnets 112 and 114 are preferably of a material which loses little magnetism with age. Magnets of Alnico V or Indox IX are suitable. Consequently, major calibrating adjustments are not required, and minor adjustments can be made by adjusting distance scale 120. Magnets 112 and 114 can be held on the lower surface of torpedo 102 and on bottom surface 116 by means of non-magnetic bolts or by means of an adhesive, for example an epoxy resin adhesive.

Several means are available to ensure proper calibration of distance scale 48 and pointer 50 of FIGS. 1-3 and distance scale 120 and pointer 118 of FIGS. 5 and 6. FIGS. 7 and 8 depict a calibration unit 64 in conjunction with housing 16 to which it is attached by brace 66 which fits within bracket 68 on housing 16. Support 70 extends from brace 66 to hold weight 72 level with ball 10 in the solid-line position of FIG. 7. By way of example, support 70 might have a length in the order of three feet. Weight 72 is raised to the broken-line position of FIG. 7 in which support 70 is horizontal, and weight 72 is then released. The impact of fixed weight 72 travelling from a fixed starting position imparts a fixed amount of energy to the combination of ball 10, tee assembly 12 and torpedo 32, and so that combination should travel a fixed distance. For example, calibration unit 64 can be selected so that its operation should cause pointer 50 to come to rest adjacent the 200 yard marker of distance scale 48. Should that not occur, minor adjustments can be achieved by loosening bolt 52 and moving scale 48 as permitted by slot 54. Bolt 42 can be turned into or withdrawn slightly from the end of shaft 38 to make minor adjustment of the distance which ball 10 and tee assembly 12 travel before picking up torpedo 32. Larger adjustments can be made by adding or removing weights 46 from weight reservoir 44. Such calibration should only be required infrequently. Calibration unit 64 is used in a like manner in conjunction with the embodiment of apparatus of FIGS. 5 and 6.

Using the golfing apparatus of the present invention, the playing of an eighteen-hole round of golf, by one or more players, can be simulated. By way of example, the yardage of eighteen simulated holes can be set down, illustratively ranging from 190 yards to 595 yards. Each player then subtracts the yardage of each of his shots from the yardage of the hole being played, with, for example, under two yards being a conceded putt.

The apparatus can be constructed of any suitable materials. Thus, for example, golf balls 10 and 76 can be formed of a moldable, tough, non-rigid plastic such as polyurethane or linatex; tee assemblies 12, 80 and 100 can be a metal such as an aluminum-magnesium alloy, e.g., ASTM-G1 designation; housings 16 and 106 can be a cast acrylic polystyrene or other moldable rigid type plastic, or they can be metal such as aluminum or copper; torpedos 32 and 102 can be any of the above materials with shaft 38 molded in torpedo 32 and formed of aluminum-magnesium alloy.

If desired, housing 16 and housing 106 can each be made of two pieces and fastened together as depicted in FIG. 9. As there shown, the housing can be formed of two sections 122 and 124, each of a length substantially one-half the length of the complete housing. Sections 122 and 124 are positioned

end-to-end with internal pins 126 assuring proper positioning, and are held together by any suitable means such as bolts. Since groove 110 in housing 106 is substantially level, the two sections of that housing could be identical for ease of manufacture, with distance scale 120 attached after housing 106 is assembled from the sections.

It is thus seen that the present invention provides a golfing apparatus permitting the simulation of a regulation game of golf including golf shots of various lengths with various clubs. As a result, the user is provided with entertainment and exercise within a limited area. Although the present invention has been described with reference to preferred embodiments, numerous modifications and rearrangements could be made, and still the result would be within the scope of the invention.

What is claimed is:

1. A golf apparatus comprising:

a. an elongated housing with a first end and a second end and having:

- i. a central opening extending longitudinally the length thereof;
- ii. a slot passing through the top thereof and communicating with the central opening over the length thereof;
- iii. a groove on either side of the central opening and extending the length thereof and communicating therewith;

b. a torpedo within the elongated housing central opening and including at least one support member extending from each side thereof and positioned within the elongated housing grooves;

c. ball means including a golf-ball shaped ball member and a tee member, the tee member including:

- i. a tee portion connected to the ball member and extending through the elongated housing slot to position the ball member outside the elongated housing;
- ii. a lower portion within the elongated housing central opening and connected to the tee portion;

d. connecting means connecting the ball means tee member lower portion to the torpedo so that upon a force in the direction of the elongated housing longitudinal axis being imparted to the ball means ball member, the ball means and the torpedo move longitudinally with respect to the elongated housing;

the elongated housing and the torpedo including means for providing braking of the longitudinal movement of the ball means and the torpedo with respect to the elongated housing.

2. A golf apparatus as claimed in claim 1 in which the grooves on either side of the central opening are uniformly inclined from the elongated housing first end to the elongated housing second end so that the torpedo moves from the elongated housing first end to the elongated housing second end to provide braking of the longitudinal movement of the ball means and the torpedo with respect to the elongated housing.

3. A golf apparatus as claimed in claim 2 in which the torpedo has a weight reservoir, the golf apparatus further comprising removable weight means within the weight reservoir.

4. A golf apparatus as claimed in claim 2 in which the connecting means includes means permitting limited movement between the ball means and the torpedo, the limited movement being in the direction of the elongated housing longitudinal axis so that upon a force in the direction of the elongated housing longitudinal axis being imparted to the ball means ball member, the ball means moves longitudinally a limited distance with respect to both the torpedo and the elongated housing following which both the ball means and the torpedo move longitudinally with respect to the elongated housing.

5. A golf apparatus as claimed in claim 1 in which the torpedo includes a plurality of magnets on the lower surface thereof and the elongated housing central opening includes a plurality of magnets on the bottom surface thereof, the torpedo magnets being oppositely poled with respect to the central opening magnets so that the magnetic attraction between the torpedo magnets and the central opening magnets pro-

vides braking of the longitudinal movement of the ball means and the torpedo with respect to the elongated housing.

6. A golf apparatus as claimed in claim 5 in which the torpedo magnets are spaced with respect to the elongated housing longitudinal axis substantially uniformly at a first interval and the central opening magnets are spaced with respect to the elongated housing longitudinal axis at intervals other than the substantially uniform first interval so that upon the torpedo moving from an initial position adjacent the elongated housing first end toward the elongated housing second end, once a first one of the torpedo magnets moves adjacent one of the central opening magnets, during subsequent torpedo movement toward the elongated housing second end there is always at least one torpedo magnet within the influence of one of the central opening magnets.

7. A golf apparatus as claimed in claim 6 in which the central opening magnets are spaced with respect to the elongated housing longitudinal axis substantially uniformly at a second interval different from the first interval.

8. A golf apparatus as claimed in claim 5 in which, with the torpedo positioned at a rest position adjacent the elongated housing first end, a distance in the order of from approximately five inches to approximately ten inches is provided between any torpedo magnet and any central opening magnet.

9. A golf apparatus as claimed in claim 8 in which the distance is approximately 9 inches.

10. A golf apparatus as claimed in claim 1 in which the connecting means comprises:

a shaft extending from the torpedo in the direction of the elongated housing longitudinal axis and passing through an opening in the ball means tee member lower portion, the shaft having a head at the end of the shaft opposite the torpedo; and bias means for biasing the ball means tee member lower portion with respect to the shaft head.

11. A golf apparatus as claimed in claim 10 in which the bias means biases the ball means tee member lower portion away from the shaft head and in which the shaft head comprises a bolt threadedly connected to the shaft and adapted for threaded withdrawal movement and insertion movement within the shaft to permit adjustment of the bias of the bias means.

12. A golf apparatus as claimed in claim 1 further comprising:

- e. a pointer connected to the ball means tee member tee portion outside the elongated housing; and
- f. a distance scale on the elongated housing upper surface adjacent the pointer and having scaled distance markings thereon permitting interpretation of actual movement of the ball means as simulated distance of a golf shot.

13. A golf apparatus as claimed in claim 12 in which:

the distance scale includes at least one elongated slot therethrough with the elongated slot longitudinal axis substantially aligned with the elongated housing longitudinal axis; and

the golf apparatus further comprises a bolt passing through each distance scale elongated slot and mating with an opening in the elongated housing to fasten the distance scale to the elongated housing while permitting, upon loosening of the bolt, limited longitudinal movement therebetween.

14. A golf apparatus as claimed in claim 12 in which the distance scale has a zero distance marking at the end of the distance scale nearer the elongated housing first end.

15. A golf apparatus as claimed in claim 14 further comprising means defining a golf driving station above the elongated housing and adjacent the distance scale zero distance marking.

16. A golf apparatus as claimed in claim 14 further comprising calibrating means including a weighted hammer and means rotatably mounting the weighted hammer for rotational movement between a first position adjacent the ball means ball member when the pointer is adjacent the distance scale zero distance marking and a second position elevated with

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respect to the first position, whereby with the pointer adjacent the distance scale zero distance marking and the weighted hammer held in the second position, upon release of the weighted hammer, the weighted hammer rotates to the first position to strike the ball means ball member and impart a known force thereto, causing the ball means and torpedo to move with respect to the elongated housing.

17. A golf apparatus as claimed in claim 1 further comprising adjusting means connected to the elongated housing for

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leveling the positioning of the elongated housing.

18. A golf apparatus as claimed in claim 1 in which the ball means ball member comprises a substantially spherical core integrally formed with the ball means tee member tee portion and having a plurality of dimples in the outer surface thereof, and a molded cover over the spherical core and extending within the dimples to prevent slippage of the cover with respect to the core.

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