April 18, 1967 N. A. KOLLN 3,314,679

GOLF DRIVING RANGE

Filed March 27, 1964 2 Sheets-Sheet 1

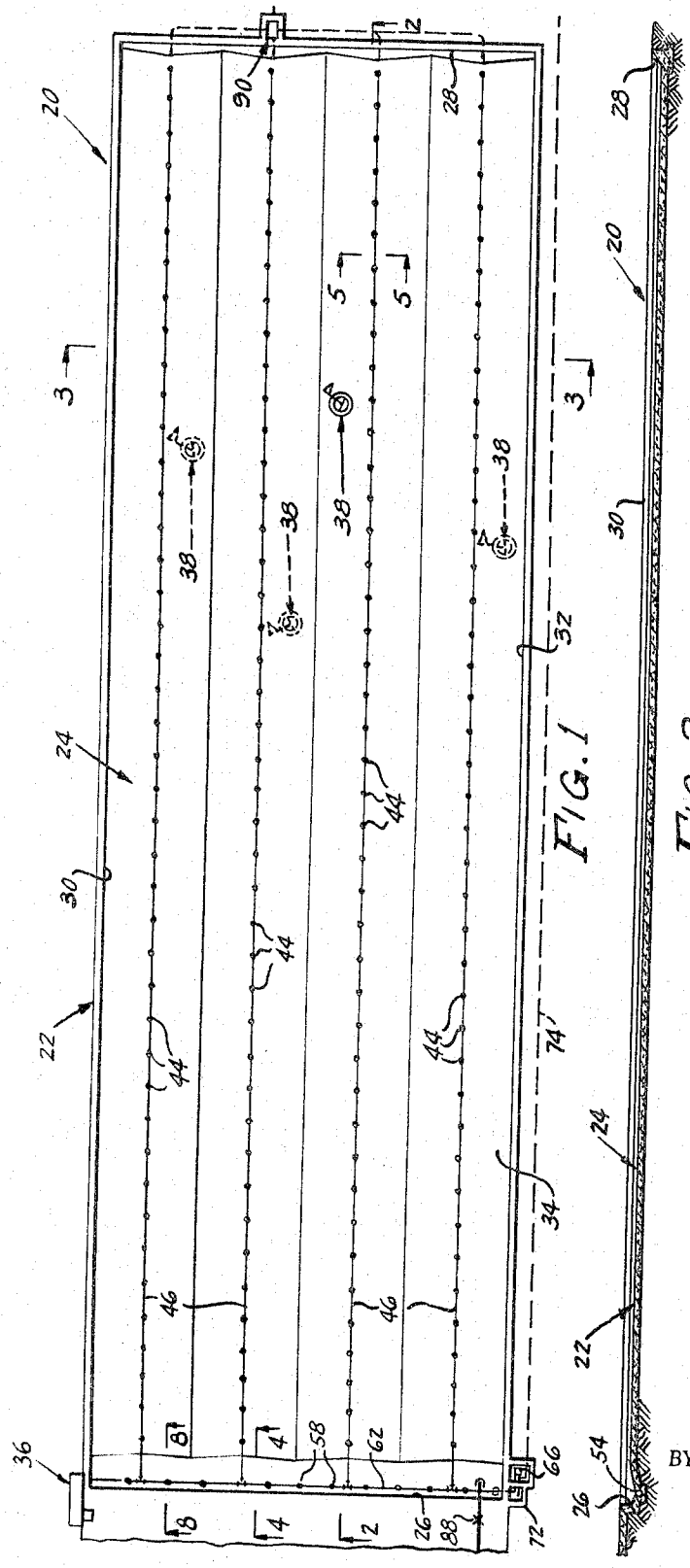


FIG. 1

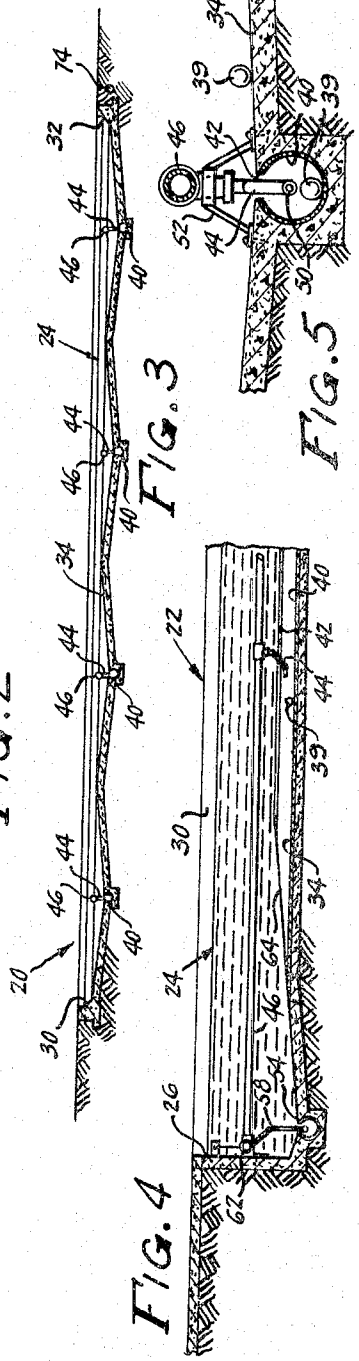


FIG. 2

FIG. 5

FIG. 3

FIG. 4

INVENTOR.
NORMAN A. KOLLN
BY Kimmel & Crowell
ATTORNEYS.

April 18, 1967 N. A. KOLLN 3,314,679

GOLF DRIVING RANGE

Filed March 27, 1964 2 Sheets-Sheet 2

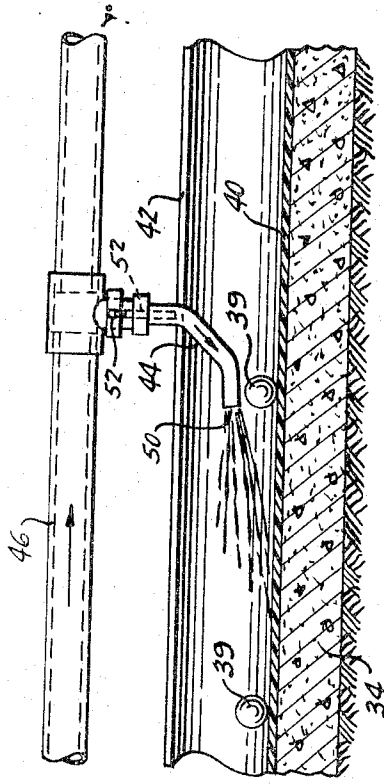


FIG. 7

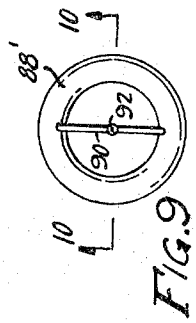


FIG. 9

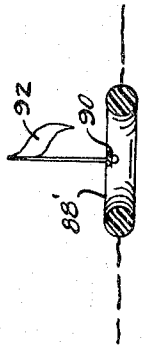


FIG. 10

FIG. 8

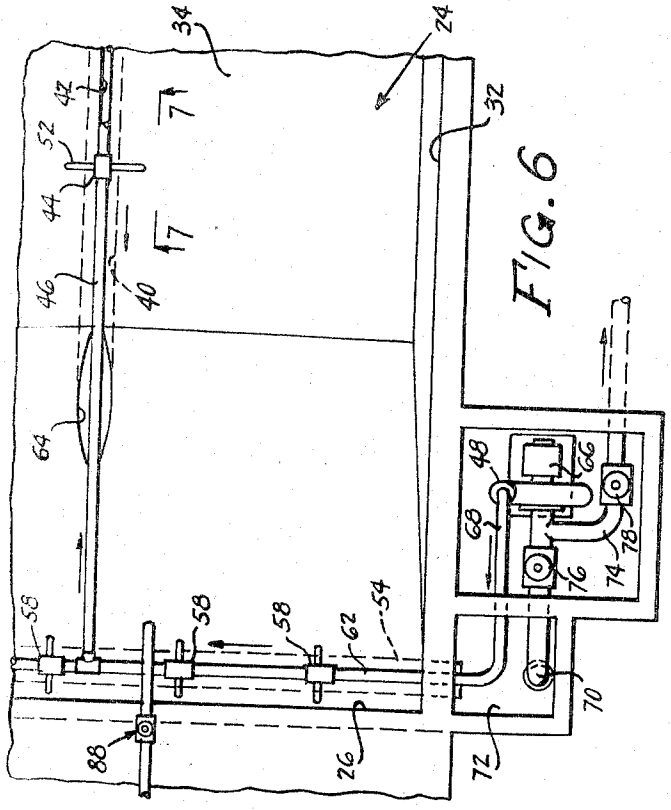


FIG. 6

INVENTOR.
NORMAN A. KOLLN
BY
Kimmel & Crowell
ATTORNEYS.

United States Patent Office 3,314,679 Patented Apr. 18, 1967

3,314,679

GOLF DRIVING RANGE

Norman A. Kolin, 740 E. 15th St., Eugene, Oreg. 97401

Filed Mar. 27, 1964, Ser. No. 355,362
9 Claims. (Cl. 273—182)

This invention relates to a golf driving range and more particularly to a driving range including an elongated water containing pool with an automatic gold ball return means.

As background for the instant invention, it is well known that the game of golf has been increasing in popularity in recent years. With the greater interest in golf has come more miniature golf courses and golf driving ranges. One of the most attractive and challenging tests of a golfer's skill is a water trap. Heretofore, the cup or target for the golf ball has been disposed across the water trap from the position of the tee. It would be even more interesting to have the target in the water itself, but this has not been done in the past because of the difficulty of recovering the golf balls after they have been played.

It is, therefore, a primary object of this invention to provide a golf driving range consisting essentially of a water trap with a floating target or the like and having means to automatically return the golf balls to the player.

Another object of this invention is the provision of a golf driving range of the type described utilizing a minimum amount of water and yet providing a maximum challenge to the golfer.

A further object of the instant invention is the provision of hydraulic golf ball return means for receiving balls driven by a golfer into a pool containing water, which means are effective to quickly and efficiently return the balls from any point of the pool to a dispensing means adjacent the tee.

A still further object of this invention is to provide a golf driving range having a pool with a specially designed bottom sloped toward openings in tubular members carried thereby with jet members disposed in the tubular members for urging the golf balls toward a conveyor means adapted to carry them back to the golfer.

Yet another object of this invention is the provision of a hydraulic golf ball return means of the type described which utilizes the water in the pool thereby precluding the necessity of an additional source of water.

Other and further objects reside in the combination of elements, arrangement of parts, and features of construction.

Still other objects will in part be obvious and in part be pointed out as the description of the invention proceeds and as shown in the accompanying drawings wherein:

FIGURE 1 is a schematic top plan view of a golf driving range in accordance with the instant inventive concept;

FIGURE 2 is a longitudinal cross-sectional view taken substantially on line 2—2 of FIGURE 1;

FIGURE 3 is a transverse cross-sectional view taken substantially on line 3—3 of FIGURE 1;

FIGURE 4 is an enlarged fragmentary cross-sectional view taken substantially on line 4—4 of FIGURE 1;

FIGURE 5 is an enlarged fragmentary cross-sectional view taken substantially on line 5—5 of FIGURE 1;

FIGURE 6 is an enlarged fragmentary top plan view of the portion of the golf driving range having a pump means for withdrawing water from the pool and utilizing the same to return the golf ball;

FIGURE 7 is an enlarged fragmentary cross-sectional view taken substantially on line 7—7 of FIGURE 6;

FIGURE 8 is an enlarged fragmentary cross-sectional view taken substantially on line 8—8 of FIGURE 1 and schematically showing a conveyor means for returning golf balls from the pool to a dispensing means;

FIGURE 9 is an enlarged top plan view of a preferred form of floating target in accordance with the instant inventive concept; and

FIGURE 10 is a transvesre cross-sectional view taken substantially on line 10—10 of FIGURE 9.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings in general, a golf driving range in accordance with the instant inventive concept is designated generally by the reference numeral 20 and comprises basically an elongated pool 22 containing a quantity of water 24 and having two ends 26, 28, two sides 30, 32, and a bottom 34. A golf ball dispensing means is shown schematically at 36 adjacent the end 26 of the pool 22, this being the end carrying a tee member (not shown) from which a player will drive the ball toward a floating target 38 carried by the water 24 adjacent the opposite end 28 of the pool 22.

The golf balls 39 are returned from the pool to the dispensing means 36 by a hydraulic jet system including at least one, and preferably a plurality of laterally spaced tubular members 40 each carried substantially centrally of a portion of the bottom 34 of the pool 22 and each having a longitudinal opening 42 at its respective top of a dimension in excess of the diameter of the golf balls 39. Each of the portions of the bottom 34 of the pool 22 are sloped downwardly toward the opening 42 in its associated tubular member 40 as particularly shown in FIGURE 3, this opening being substantially flush with the bottom surface as will be seen in FIGURE 5, and is disposed substantially at the apex of each adjacent pair of downwardly converging portions of the bottom 34.

A plurality of jet members 44 are operatively connected by conduits 46 to a hydraulic pump 48, the jet members 44 having open ends 50 disposed in longitudinally spaced relationship in each tubular member 40, the open ends 50 being spaced above the bottom of the associated tubular member 40 a distance in excess of the diameter of the golf balls 39 and being directed toward the end 26 of the pool 22. Any conventional supporting structure such as the A-frames 52 may be utilized to carry the conduits 46.

An additional tubular member 54 is carried by the bottom 34 of the pool 22 extending transversely across the end 26 of the same and having an opening 56 at its top of a dimension in excess of the diameter of the golf balls 39. Additional jet members 58 are provided having their open ends disposed in spaced relationship in the additional tubular member 54, the open ends being spaced above the bottom of the additional tubular member 54 a distance in excess of the diameter of the golf balls 39 and being directed toward the side 30 of the pool 22 where the golf balls 39 are fed to a conveyor means schematically shown at 60 in FIGURE 8. The additional jet members 58 are fed from the pump means 48 through an additional conduit 62 interconnected with the conduits 46 to define a complete manifold system. The longitudinally extending tubular members 40 have open ends 64 spaced from the additional tubular member 54 and the bottom 34 of the pool 22 slopes downwardly from the open ends 64 toward the opening 56 in the additional tubular member 54. Note particularly FIGURES 4 and 8.

The pump means 48 is driven by a conventional motor means 66 and has an outlet conduit 68 communicating with the conduit 62 and thereby with the conduits 46 to feed each of the jet members 44 and 58. A feeding conduit 70 may communicate with a sump 72 as will be

seen particularly in FIGURE 6, the sump receiving water 24 from the pool 22 in any conventional manner whereby the water may be circulated from the pool through the sump means 48 and the conduit system to the jet members 44 and 58 back into the pool to cause the return of the golf balls 39. Alternately, a feeding conduit 74 may be provided for receiving water or other such fluid material from a remote source, valve means 76 and 78 allowing selectivity of the source of the fluid material utilized to urge the golf balls 39 through the tubular members 40 and the additional tubular member 54.

The conveyor means 60 may be of any conventional form adapted to receive the golf balls 39 from the end of the additional conduit 54 and carry them upwardly to the dispensing means 36, a motor being shown schematically at 80 for driving the conveyor means 60 and an opening being shown at 82 for feeding the golf balls 39 into the dispensing means 36.

The construction of the dispensing means may be of any conventional form and may include a coin operated means shown schematically at 84 for selectively dispensing a predetermined number of golf balls 39 through the opening 86 on insertion of a given fee.

The targets 38 are preferably formed as shown in FIGURES 9 and 10 of a ring of boyant material 88' having a cross bar 90' carrying a flag 92 to facilitate identification by a player. If desired, a plurality of additional targets can be provided as shown in dotted lines in FIGURE 1, each target having a different value. The targets 38 may be free floating so that they will move across the surface of the water 24 under the influence of wind or the like or they may be retained in a relatively stationary position by any conventional means.

A feeding means 88 may be provided for filling the pool 22 and a drain means 90 may be provided for emptying the pool.

The use and operation of the golf driving range of the instant invention will now be apparent. A player may insert a selected fee into the coin operated means 84 to receive a predetermined number of golf balls 39 from the dispensing means 36. The balls are then driven by the player toward a selected target 38. The accuracy of the drive will be readily visible to the player from the splash of the ball as it enters the water 24. The golf balls 39 will sink under the influence of gravity to the bottom 34 of the pool 22 and will be directed by the slope thereof toward the opening 42 in one of the longitudinally extending tubular members 40. Jets of water or the like emanating from the open ends 50 of the jet members 44 will urge the golf balls 39 toward the open end 64 of the tubular member from which they will roll down the sloped bottom 34 to the opening 56 in the additional tubular member 54. Jets of fluid from the additional jet members 58 will urge the golf balls along the additional tubular member 54 toward the conveyor means 60 which will return them to the dispensing means 36. The motor 80 on the conveyor means 60 may be selectively actuated by the coin operated means 84 in any conventional manner.

By dividing the bottom 34 of the pool 22 into a plurality of portions each of which has a separate tubular member 40, the depth of the water 24 may be minimized since the sloped portions of the bottom 34 are shorter. Similarly, the hydraulic return means preclude the necessity of a sharply sloped bottom over the entire length of the pool 22 which would necessitate a great depth of water adjacent the end 26 of the pool.

Protective screens (not shown) may be provided along each side of the pool 22 and at the end 28 of the same and additional screens may be disposed transversely of the pool high above the same in longitudinally spaced relationship so that the golf balls 39 will be kept within the range 20.

The size of the pool and the materials utilized in the manufacture of the range may vary to provide the particular results desired.

It will now be seen that there is herein provided an improved golf driving range which satisfies all th objectives of the instant invention, and others, including many advantages of great practical utility and commercial importance.

Since many embodiments may be made of the instant inventive concept, and since many modifications may be made of the embodiments hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. A golf ball driving range comprising a receptacle to receive a liquid, said receptacle having a continuous side wall and a bottom, a tubular member carried by said bottom, said tubular member having a longitudinally extending opening throughout substantially the axial length thereof, said opening being disposed adjacent the top of said tubular member, said opening having a transverse dimension greater than the diameter of a golf ball, said bottom of said pool sloping downwardly toward said opening to gravity feed said golf ball to and through said opening and into said tubular member, and hydraulic pressure means connected with said tubular member to exert a force on said golf ball to urge it for movement in one axial direction of said tubular member towards an end thereof.

2. The structure of claim 1 further including, in combination, a floating target means carried by the liquid in said pool adjacent the other end of the same.

3. The structure of claim 2 wherein a plurality said tubular members are carried by said bottom of said pool in laterally spaced relation relative to one another, each of said tubular members extending substantially the length of said pool, said bottom of said pool being divided into a plurality of adjacent pairs of downwardly converging portions with the apex of each of said pair of portions terminating and being in open communication with the immediate adjacent one of a set of tubular members.

4. The structure of claim 3 wherein said hydraulic pressure means includes a plurality of jet members opening into each of said tubular members at longitudinally spaced intervals with respect thereto.

5. The structure of claim 4 wherein said jet members have open ends extending through said openings at said longitudinally spaced intervals, said open ends being spaced above the bottom of said tubular members a distance in excess of the diameter of a golf ball and being directed toward said one end of their associated tubular member.

6. The structure of claim 4 further including, in combination, an additional tubular member carried by said bottom of said pool and extending transversely across said one end thereof, an opening at the top of said additional tubular member of a dimension in excess of the diameter of a golf ball, each longitudinally extending tubular member having an open end spaced from said additional tubular member, said bottom of said pool sloping downwardly from said open ends of said longitudinally extending tubular members towards said opening in said additional tubular member, and means connecting said pump means with said additional tubular member to urge golf balls in said additional tubular member toward an end thereof.

7. The structure of claim 6 wherein said hydraulic means to urge said golf balls in said additional tubular member towards its said end includes a plurality of said jet members having open ends disposed in spaced relationship and opening into said additional tubular member, said open end of each said last-named jet members being directed toward said one end of said additional tubular member intermediate the ends thereof, and means

operatively connecting said pump means to said last-named jet members to pass said liquid therethrough.

8. The structure of claim 7 wherein said pump means includes a feeding conduit in communication with water from said pool, whereby said water is circulated from said pool through said pump means, said tubular members, additional tubular member, said jet members and back into said pool.

9. The structure of claim 7, and conveyor means operatively associated with said one end of said additional member to receive said golf balls and to deliver said golf balls at a point remote therefrom.

References Cited by the Examiner

UNITED STATES PATENTS

1,667,481	4/1928	Lange et al.	273—201 X
1,931,841	10/1933	Evans	273—182 X
2,455,806	12/1948	Reach	273—176
3,037,776	6/1962	Younce	273—182
3,104,879	9/1963	Jetton	273—176

RICHARD C. PINKHAM, *Primary Examiner.*

LOUIS J. BOVASSO, *Examiner.*