June 8, 1965 P. T. FERRANTI 3,187,578

AUTOMATIC GOLF MACHINE

Filed Aug. 15, 1961 3 Sheets-Sheet 1

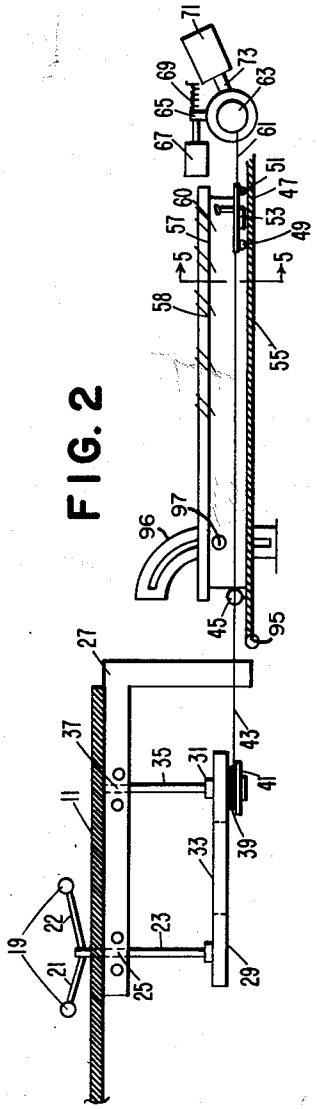


FIG. 2

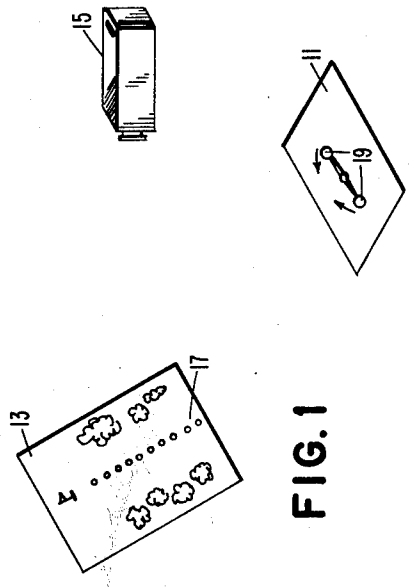


FIG. 1

INVENTOR
PHILIP T. FERRANTI

BY Lina P. Sebellin

ATTORNEY

AUTOMATIC GOLF MACHINE

Filed Aug. 15, 1961 3 Sheets-Sheet 2

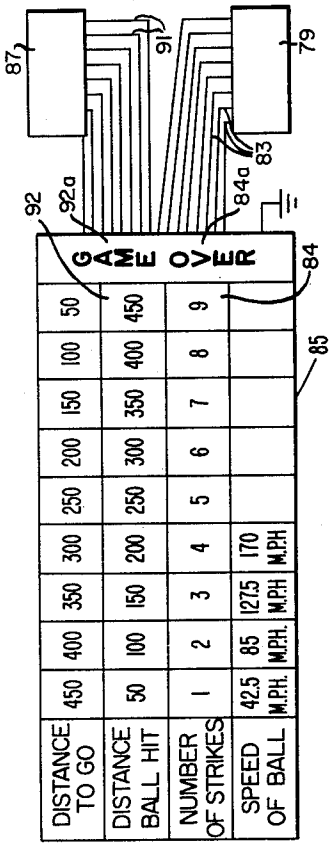


FIG. 3

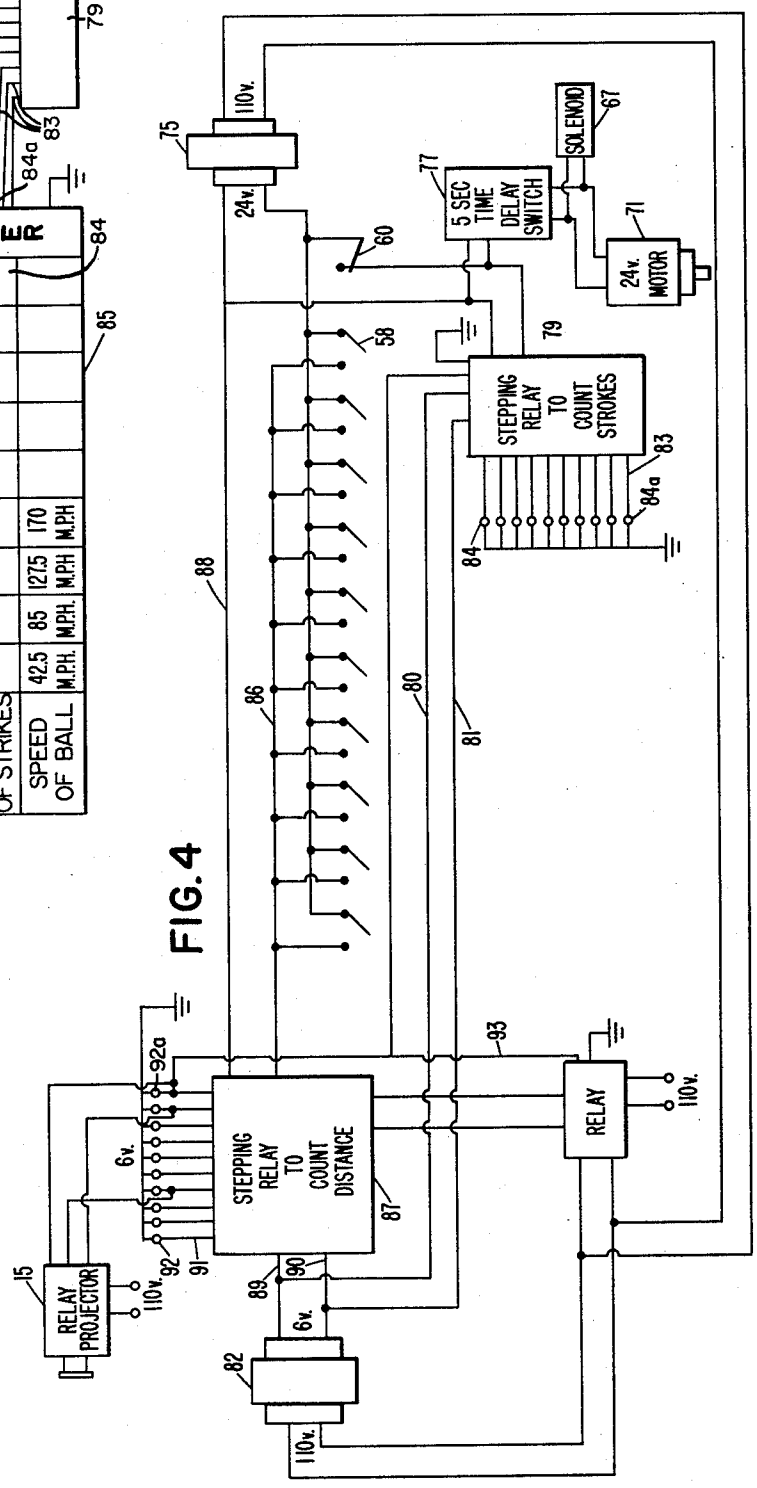


FIG. 4

June 8, 1965 P. T. FERRANTI 3,187,578

AUTOMATIC GOLF MACHINE

Filed Aug. 15, 1961 3 Sheets-Sheet 3

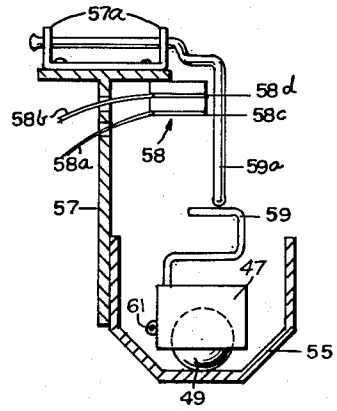


FIG. 5

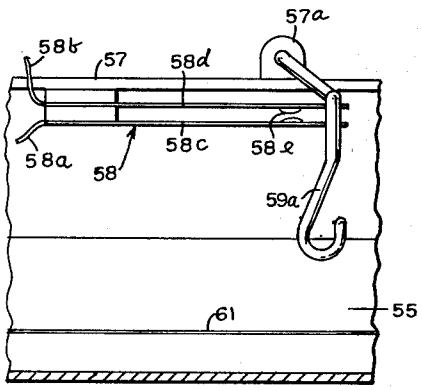


FIG. 5A

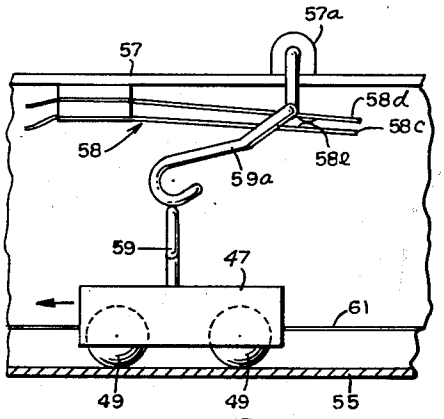


FIG. 5B

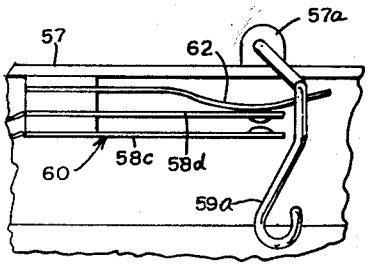


FIG. 5C

INVENTOR
PHILIP T. FERRANTI
BY Eric P. Schellin
ATTORNEY

United States Patent Office

3,187,578

Patented June 8, 1965

3,187,578

AUTOMATIC GOLF MACHINE

Philip T. Ferranti, Pima County, Ariz.
(129 N. Jacobus Ave., Tucson, Ariz.)

Filed Aug. 15, 1961, Ser. No. 131,517
4 Claims. (Cl. 73—379)

This invention relates to an automatic golf machine. More particularly, this invention relates to an automatic golf machine by which a game of golf may be played from a single position either outdoors or indoors.

While in the last few years a number of golf playing devices have been developed, most of them do not function adequately as they do not present the palyer with an accurate feel for the game. In other words, the prior art devices were not built in a manner which sufficiently and accurately compared the power of a golfer's stroke with the same stroke on a course.

Accordingly, it is a primary object of the present invention to disclose a golf game which when played presents a correct simulation of a golfer's ability to hit a golf ball for a distance which he would have driven the balls on a regular golf course.

It is another object of the present invention to disclose a golf game which presents the golfer with an accurate picture of a simulated course.

It is yet another object of the present invention to disclose a golf game which accurately measures the force with which a tethered golf ball is hit.

It is still another object of the present invention to disclose a simulated golf game which is capable of maintaining and computing a score as to the strokes required by a golfer to sink a ball.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a general view of the game as seen by a player;

FIGURE 2 is a vertical longitudinal diagrammatical section of the operating mechanism;

FIGURE 3 is a view of the score board;

FIGURE 4 shows more or less diagrammatically a wiring diagram showing the connections to the lamps depicting paths and various switches for controlling the illumination of the lamps and controlling the motive means supplied;

FIGURE 5 is a cross sectional view taken along lines 5—5 of FIGURE 2;

FIGURE 5A is a side view of a switch utilized in the present invention;

FIGURE 5B is a side view of the switch shown by FIGURE 5A but showing the switch in use;

FIGURE 5C is a side view of another switch utilized in the present invention.

Referring more particularly to the drawings, attention is directed to FIGURE 1 which depicts the golf game of the present invention. The golfer stands on floor portion **11**. By looking towards screen **13**, the participating golfer will observe a projected real image thrown on the screen by automatic sequence relay projector **15**. Additionally, the golfer will observe a vertical row of ten lights **17** culminating at the pinnacle with the flag positioned in the hole on a golf green. The real image is a series of actual photographs taken from the tee and along the fairway of an actual golf course for a single hole.

Additionally, floor portion **11** represents a golf tee upon which are rotatably mounted two golf balls **19**. Golf balls

19 are mounted on the ends of steel rods **21** and **22** which are at an oblique angle with respect to floor portion **11**.

Attention is now directed to FIGURE 2, where it can be seen that the rods **21** and **22** are mounted on shaft **23** as by welding or forging. Shaft **23** passes through the floor portion **11** to the underside thereof and is suitably journalled at **25** in support means **27** which may be L-shaped or constructed to form a box-like housing. Conventional construction material may be employed such as angle iron or the like. A small sprocket gear **29** is suitably keyed to the other end of shaft **23**. Gear **29** is linked to a larger sprocket gear **31** by means of chain **33**. Gear **31** is suitably keyed to shaft **35** which is suitably journalled at **37** to the support means **27**. It will be appreciated at this point that as shaft **23** is rotated due to a force exerted on either of golf balls **19** gears **29** and **31** will rotate.

In conjunction with gear **31** is a drum-like portion **39** which may be part of the gear or may be a separate part affixed thereto. An annular ring member **41** is in juxtaposition with the opposite surface of drum portion **39**. Annular ring member **41** has a nylon string **43** attached thereto near the peripheral edge thereof which may be a hole through which the nylon thread is tied. The nylon string extends horizontally towards guide **45** and the end thereof is attached to a carriage designated, generally as **47**. Carriage **47** is constructed of two roller wheels **49** and **51** having a weight **53** therebetween. The carriage **47** is permitted to operate back and forth in trackway **55** which is constructed of U-shaped steel material. The trackway **55** may be inclined from the horizontal or it is pivoted at **95**. Arcuate bracket **96** holds the trackway **55** along a selected angle by means of retaining means **97**. Overhead longitudinally and equidistant throughout with respect to the trackway **55** is a support means **57** along the underside of which are ten spring switches **58** which are normally open. Only a representative number of the switches are shown. A first switch **60**, however, remains closed until reopened after being closed. An arm **59** is mounted on carriage **47** and contacts the switches **58** sequentially and momentarily as the carriage moves from right to left as exemplified by the drawing.

From FIGURE 5 the U-shaped structure of the channelled trackway **55** and in particular the mounting of a leaf spring switch **58** along the underside of support means **57** can be seen.

The switch **58** as can be seen from FIGURES 5A and 5B consists of two leaves **58***d* and **58***c* having contact points **58***e* in confrontation. Leads **58***b* and **58***a* make contact with the leaves **58***d* and **58***c* respectively. Suitable insulation blocks present contact of the leaves. Mounted on the top of support **57** are bearing ears **57***a*. A suitably bent rod **59***a* is journalled in ears **57***a*. A bend in rod **59***a* acts as a cam in depressing leaves **58***d* and **58***c* when arm **59** of trolley **47** turns rod **59***a* through an arc as can be seen from FIGURE 5B. When trolley **47** passes the rod **59***a* resumes the position shown in FIGURE 5A since gravity and the natural resiliency of the leaves accomplish this.

In FIGURE 5C one can see switch **60** which retains the closed position when the trolley **47** moves from right to left. This is achieved by providing a snap action blade **62**. The rod **59***a* at the point in contact with the blade **62** is in sliding connection to pull the blade to its at rest position after the arm **59** of the trolley moves the rod **59***a* back to the position shown in FIGURE 5C.

Another nylon string **61** is secured to the other end of carriage **47**. The other end of string **61** is wound on drum **63** of a fishing reel type arrangement provided with free wheeling and engagement clutch operated by lever **65** which is actuated by solenoid **67**. Lever **65** is spring loaded as at **69** to effect a normal free wheeling position.

The drum wheel is driven by a 24 volt motor 71 through reduction gearing box 73.

In operation carriage 47 moves to the left when string 43 is wound on drum 39 as the golf balls are given a driving force and drum reel 63 is in a free wheeling condition. The carriage moves to the right as motor 71 is energized and solenoid 67 is energized so there is clutch engagement permitting the reel 63 to wind up string 51 and unwind drum 39.

Attention is now directed to FIGURE 4, which should be considered in connection with FIGURES 1, 2 and 3. A clearer understanding of the operation of the golf game can be obtained by considering the manner in which the game is played. The golfer while standing at floor portion 11 views on the screen a picture of the fairway as it appears from the tee to the green 500 yards away as such a picture is projected by projector 15. None of the lights 17 are lighted prior to striking one of the golf balls 19. The golfer employs any club desirable to hit one of the golf balls 19. By providing two golf balls the game may be played by either a left handed or right handed player. At the beginning of play the carriage 47 is in the position shown in FIGURE 2.

As the ball is struck by the golfer, shaft 23 is rotated for a period of time the length of which depends upon the force imparted to the ball. The greater the force the longer will the shaft rotate thereby through sprocket gears 29 and 31 and chain 33 wind up string 43 on drum 39. As the string is wound the carriage moves initially past switch 60 which remains closed as the carriage passes. Switch 60 is connected to a 24 volt line to a step down transformer 75, which is connected to a 110 volt source. Closing of switch 60 energizes a 5 second time delay switch 77 and a stepping relay 79. While the stepping relay is operated by 24 volt energy increments the relay output is at a 6 volt potential being connected by means of lead lines 80 and 81 to a 6 volt step down transformer 82 which in turn is connected to a 110 volt source. The 6 volt output from stepping relay 79 is divided into ten lead lines 83 each of which are connected to individual lamps 84.

A single lamp 84 is placed behind each of the figures 1 through 9 and one lamp behind the term "Game Over" on the scoreboard 85. The scoreboard, in other words, consists of a translucent screen having the indicia shown in FIGURE 3. Lamps are placed behind each of the numerical indicia and behind the term "Game Over." Therefore, as stepping relay 79 is initially energized as switch 60 is closed the lamp 84*a* is energized which is behind the digit "1" on the scoreboard 85. It will be seen that this operation informs the player that he has undertaken the first stroke.

As the carriage 47 moves further it closes the first of momentarily closed switches 58. As this is accomplished stepping relay 87 is energized through lead lines 86 and 88.

Again the output of stepping relay 87 is 6 volts being connected to a 6 volt transformer 82 through leads 89 and 90. The 6 volt output is divided into ten leads 91 which supply current to lamps 92 positioned behind the other indicia. For example as the first switch 58 is closed the two lamps behind indicia "450" and "50" are lighted as well as the lamp behind "42.5 M.P.H." Additionally, lamps 17 on screen 13 become sequentially illuminated. The significance is that this indicates that the golfer's driven ball has progressed 50 yards so that there is still remaining 450 yards as the initial distance from the tee to the flag was 500 yards. However, most golfers will be able to hit the ball, ordinarily, for a greater distance than 50 yards so that carriage 47 will move to momentarily close at least several additional switches 58 before coming to rest as the kinetic energy is utilized. As each of the additional switches are energized the lamps behind the other indicia become lighted in a sequential manner from left to right across the scoreboard and vertically up screen 13.

In FIGURE 3 it will be seen that stepping relay 79 is connected by leads 83 to the scoreboard in sequence with lamp 84*a* behind the panel indicating that the "Game (is) Over." Likewise relay 87 is connected to bulbs 91 positioned behind "Distance To Go" and "Distance Ball Hit," also in sequence with bulb 92*a* behind the panel indicating that the "Game (is) Over."

By adjusting the inclination of trackway 55 and weight 53 on the carriage 47 it is possible to exactly simulate the kinetic energy necessary for the ball to travel the same distance in relation to the game as it would have traversed on an actual golf course. In other words, a golfer striking the ball with an equivalent force which would make it go for a distance of 200 yards would impart sufficient kinetic energy to the golf ball to permit the carriage to be drawn past the initial switch 60 plus four switches 58 to operate the stepping relay four times thereby illuminating the indicia "300" yards to go, "200" yards distance ball hit and "170 M.P.H."

As the carriage quickly comes to rest due to the dissipation of the kinetic energy, the 5 second time delay switch 77 permits energization of solenoid 67 and motor 71. The operation of solenoid 67 is to clutch in the motor 71 so that reel 63 rewinds string 61 returning carriage 47 to its original position. As carriage 47 moves past switch 60, the switch is opened, thereby deenergizing the motor 71 and solenoid 67.

When the golfer has hit the ball so that it has gone 200 yards the 6 volt lead being also connected to the projector, which is a commercial type conventional projector which has been modified to change slides under 6 volt energization voltage, accomplishes a change in picture projection so that the picture is now of a fairway 300 yards from the flag.

Another picture change is made when the golf ball is only 50 yards from the flag and when the game is over the projector automatically assumes the original position, showing the 500 yard view from the tee to the flag for the next game.

It will be appreciated that the relay projector 15 makes three changes as a result of connections from the stepping relay 87 as indicated in FIGURE 4. It will be noted that there are three lead lines to the relay projector from the stepping relay 87. Consequently, the view presented by the projector corresponds to the position of the stepping relay 87.

Assuming the score stands at 200 yards hit at the end of the first stroke, the golfer may hit the ball again. As this is done switch 60 once again energizes stepping relay 79 to indicate a second stroke and a number of switches 58 are momentarily closed to effect additional lamps to indicate the further distance theoretically traversed by the ball.

The relay projector is such that the slides utilized are returned to their initial position. This may be accomplished by manual operation or by mounting the slide on an annular device so that the initial slide may be presented for projection.

When the stepping relay 87 reaches the last output indicating that the game is over the relay projector returns to the initial picture and lead 93 operates a relay to cut off the 110 volt source which may be reset in a suitable manner. Additionally, lead 93 supplies energy to return stepping relay 79 to a zero stroke position.

While the game of the present invention has been described as being operated at 500 yards from the tee to the flag, it will be appreciated that the 500 yard distance is merely an arbitrary choice depending upon the distance of an actual fairway. In view of the fact that distances between the tee and the flag usually vary from hole to hole in any given course, provision can be made in the game of the present invention by positioning the "500 yards to go" indicia on a revolving drum so that any con-

ventional distance might be employed with other indicia printed on the surfaces of the drum.

Furthermore, while the foregoing description of the invention has appeared to ignore the putting part of the golf game, i.e., that part when the ball reaches the green, such is not the intention. On the contrary, the present invention contemplates the inclusion of a putting arrangement in order to provide true authenticity to the game.

Additionally, it is within the purview of the present invention to modify the score board to indicate distances in less than 50 yard intervals. For instance it would be possible to set up a score board showing 5, 10, 15, 20 or 25 yard intervals.

Without further analysis it will be appreciated that the various objects of the present invention have been accomplished so that a golf game is presented which when played indicates a correct and accurate simulation of a golfer's ability to hit a golf ball for a distance which he would have driven the ball on a regular golf course and at the same time keeps score of the game as the golfer progresses.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modification and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What I claim is:

1. An automatic golf machine comprising a golf ball, an arm, said golf ball mounted at the end of said arm, a rotatable shaft, said arm being mounted on said rotatable shaft, a carriage, a trackway for said carriage, one end of a first line secured to one end of said carriage, a drum, the other end of said line secured to said drum, linkage means between said drum and said shaft for co-operation therebetween when said golf ball is driven whereby to windup said line thereby drawing said carriage in one direction, one end of a second line secured to the other end of said carriage, a reel, the other end of said second line secured to said reel, motive means to drive said reel to windup said second line thereby drawing said carriage in the other direction, a plurality of normally open electric switches, said switches being positioned in a row along said trackway, said carriage having means for momentarily closing said switches as the carriage is drawn by said first line, an electrical circuit, a scoreboard having indicia indicating lamps, each of said switches being in said electrical circuit to sequentially energize said indicia indicating electric lamps on said scoreboard whereby to indicate the progress of said carriage, means for energizing said motive means to windup the second line thereby returning the carriage to its original position.

2. An automatic golf machine comprising a golf ball, an arm, said golf ball mounted at the end of said arm, a rotatable shaft, said arm being mounted on said rotatable shaft, a carriage, a trackway for said carriage, one end of a first line secured to one end of said carriage, a drum, the other end of said line secured to said drum, linkage means between said drum and said shaft for co-operation therebetween when said golf ball is driven whereby to windup said line thereby drawing said carriage in one direction, one end of a second line secured to the other end of said carriage, a reel, the other end of said second line secured to said reel, motive means to drive said reel to windup said second line thereby drawing said carriage in the other direction, a plurality of normally open electric switches, said switches being positioned in a row along said trackway, said carriage having means for momentarily closing said switches as the carriage is drawn by said first line, an electrical circuit, a scoreboard having indicia indicating lamps, each of said switches being in said electrical circuit to sequentially energize said indicia indicating electric lamps on said scoreboard whereby to indicate the progress of said carriage, means for energizing said motive means to windup the second line thereby returning the carriage to its original position, a projection screen positioned forward from said golf ball, a projector, said projector adapted to project a real image of the fairway of a golf course, a plurality of lights, said screen having said plurality of lights mounted thereon to operate in conjunction with said score board to indicate the theoretical position of the ball on the fairway after it has been driven.

3. An automatic golf machine comprising a golf ball, an arm, said golf ball mounted at the end of said arm, a rotatable shaft, said arm being mounted on said rotatable shaft, a first sprocket gear keyed on said shaft, another shaft, a second sprocket gear having a larger diameter keyed to said other shaft, a drum, said drum keyed to the other shaft, a chain, said chain riding on said gears for driving said drum when said golf ball is driven, a carriage, a trackway for said carriage, one end of a first line secured to one end of said carriage, the other end of said line secured to said drum to windup said line thereby drawing said carriage in one direction, one end of a second line secured to the other end of said carriage, a reel, the other end of said second line secured to said reel, motive means to drive said reel to windup said second line thereby drawing said carriage in the other direction, a plurality of normally open electric switches, said switches being positioned in a row along said trackway, said carriage having means for momentarily closing said switches as the carriage is drawn by said first line, an electrical circuit, a scoreboard having indicia indicating lamps, each of said switches being in said electrical circuit to sequentially energize said indicia indicating electric lamps on said scoreboard whereby to indicate the progress of said carriage, means for energizing said motive means to windup the second line thereby returning the carriage to its original position, a projection screen positioned forward from said golf ball, a projector, said projector adapted to project a real image of the fairway of a golf course, a plurality of lights, said screen having said plurality of lights mounted thereon to operate in conjunction with said scoreboard to indicate the theoretical position of the ball on the fairway after it has been driven.

4. An automatic golf machine comprising a golf ball, an arm, said golf ball mounted at the end of said arm, a rotatable shaft, said arm being mounted on said rotatable shaft, a first sprocket gear keyed on said shaft, another shaft, a second sprocket gear having a larger diameter keyed to said shaft, a drum, said drum keyed to the other shaft, a chain, said chain riding on said gears for driving said drum when said golf ball is driven, a carriage, said carriage having means to vary the force necessary to move it, a trackway for said carriage, one end of a first line secured to one end of said carriage, the other end of said line secured to said drum to windup said line thereby drawing said carriage in one direction, one end of a second line secured to the other end of said carriage, a reel, the other end of said second line secured to said reel, motive means to drive said reel to windup said second line thereby drawing said carriage in the other direction, a plurality of normally open electric switches, said switches being positioned in a row along said trackway, said carriage having means for momentarily closing said switches as the carriage is drawn by said first line, an electrical circuit, a scoreboard having indicia indicating lamps, each of said switches being in said electrical circuit to sequentially energize said indicia indicating electric lamps on said scoreboard whereby to indicate the progress of said carriage, means for energizing said motive means to windup the second line thereby returning the carriage to its original position, a projection screen positioned forward from said golf ball, a projector, said projector adapted to project a real image of the fairway of a golf course, a plurality of lights, said screen having said plu-

rality of lights mounted thereon to operate in conjunction with said scoreboard to indicate the theoretical position of the ball on the fairway after it has been driven.

References Cited by the Examiner

UNITED STATES PATENTS

1,761,317	6/30	Strasser	273—185
2,051,751	8/36	Simon	273—185
2,179,891	11/39	Kaplan	273—185
2,528,616	11/50	Smith	273—185

RICHARD C. QUEISSER, *Primary Examiner.*

R. C. PINKHAM, DAVID SCHONBERG, ROBERT L. EVANS, *Examiners.*