Oct. 21, 1941. C. W. WHEELER ET AL 2,259,916

GOLF PRACTICE PUTTING DEVICE

Filed April 19, 1938 3 Sheets-Sheet 1

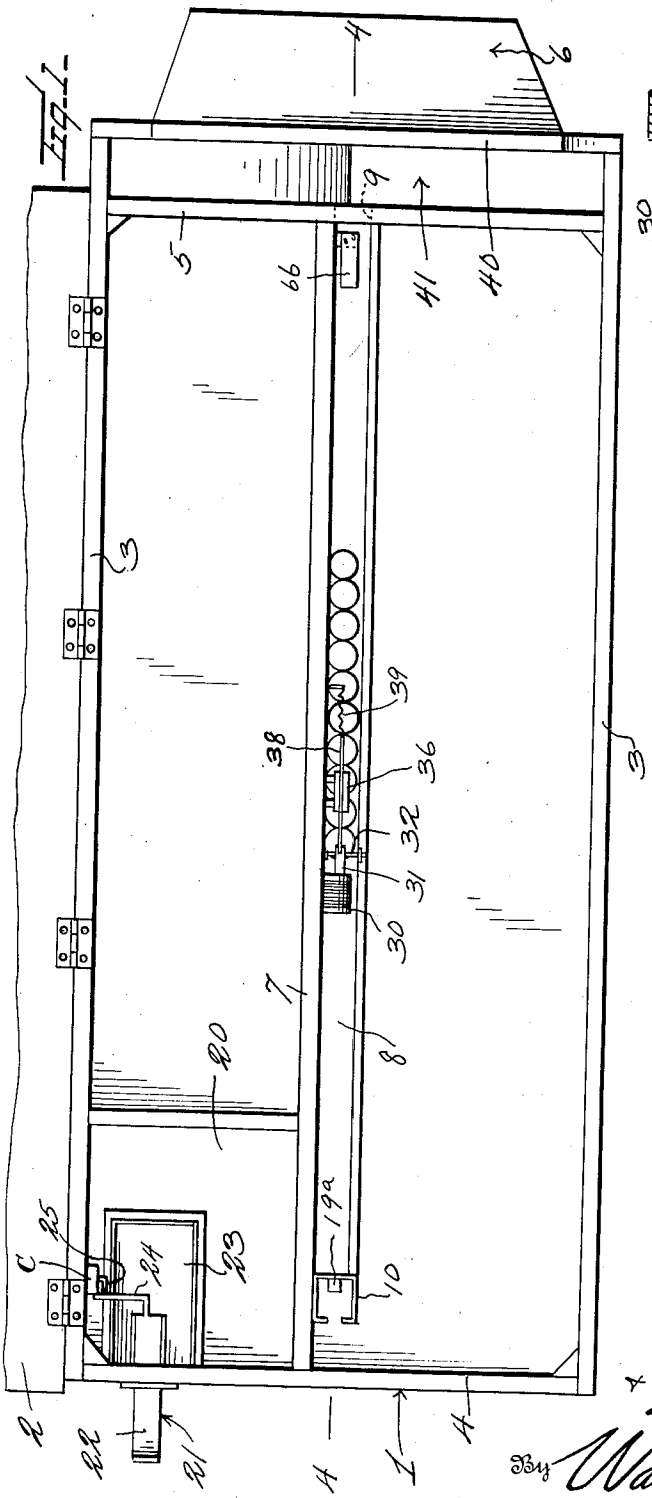


Fig. 1

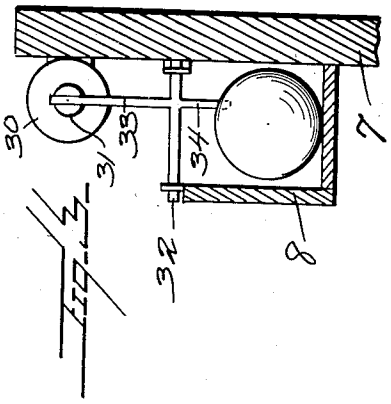


Fig. 2

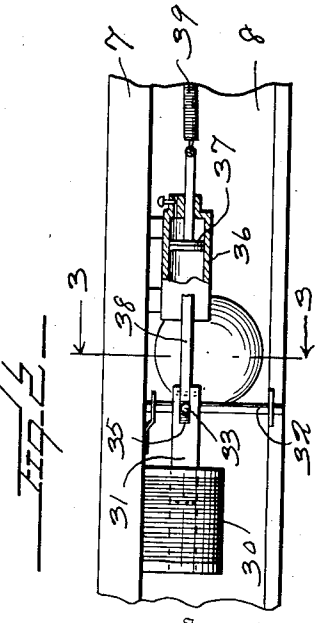


Fig. 3

Inventors
C. W. Wheeler
& Z. S. Daniels
By Watson E. Coleman
Attorney

Oct. 21, 1941. C. W. WHEELER ET AL 2,259,916

GOLF PRACTICE PUTTING DEVICE

Filed April 19, 1938 3 Sheets-Sheet 2

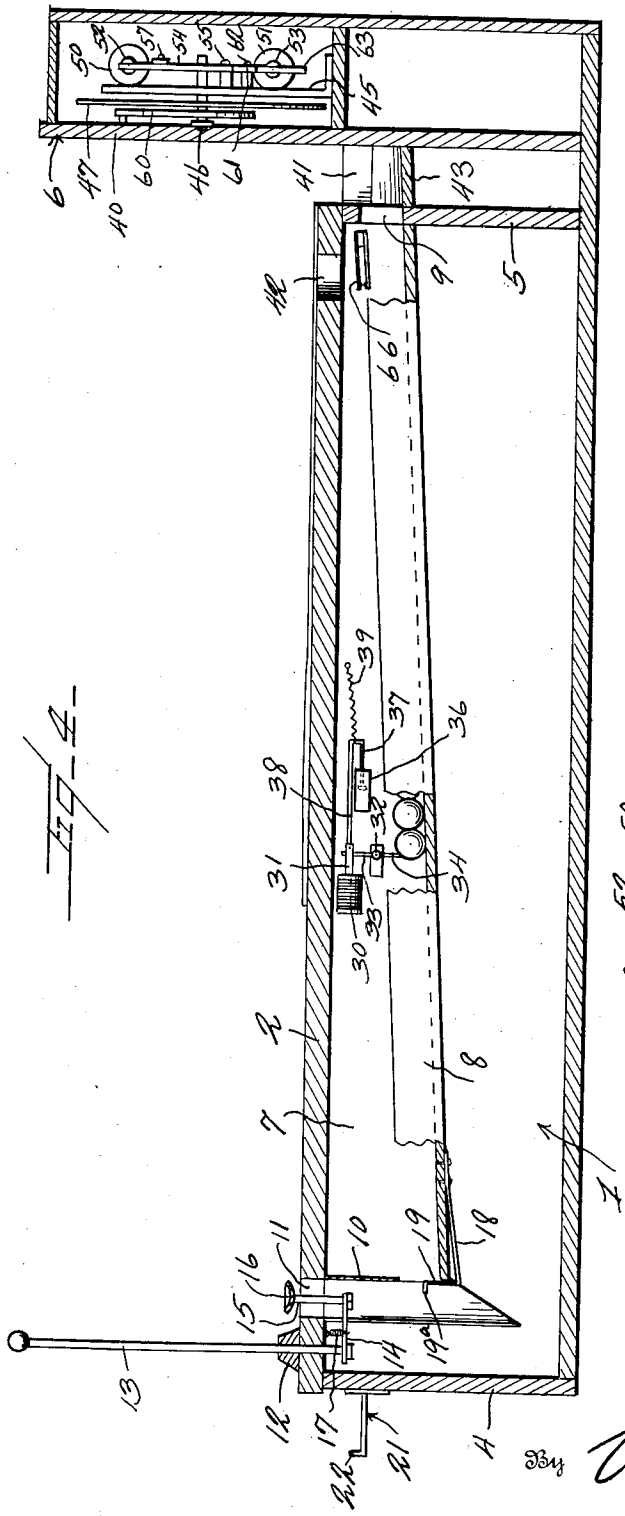


Fig. 4.

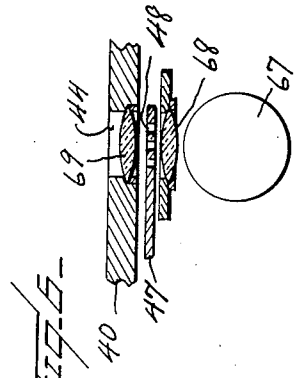


Fig. 3.

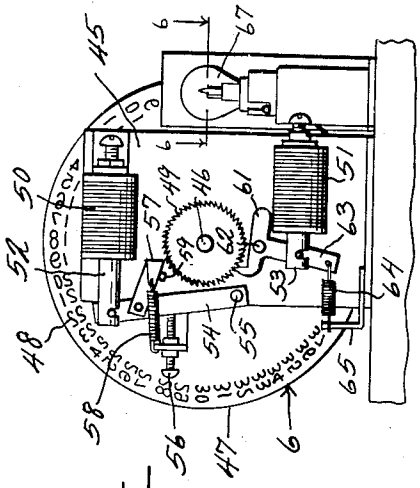


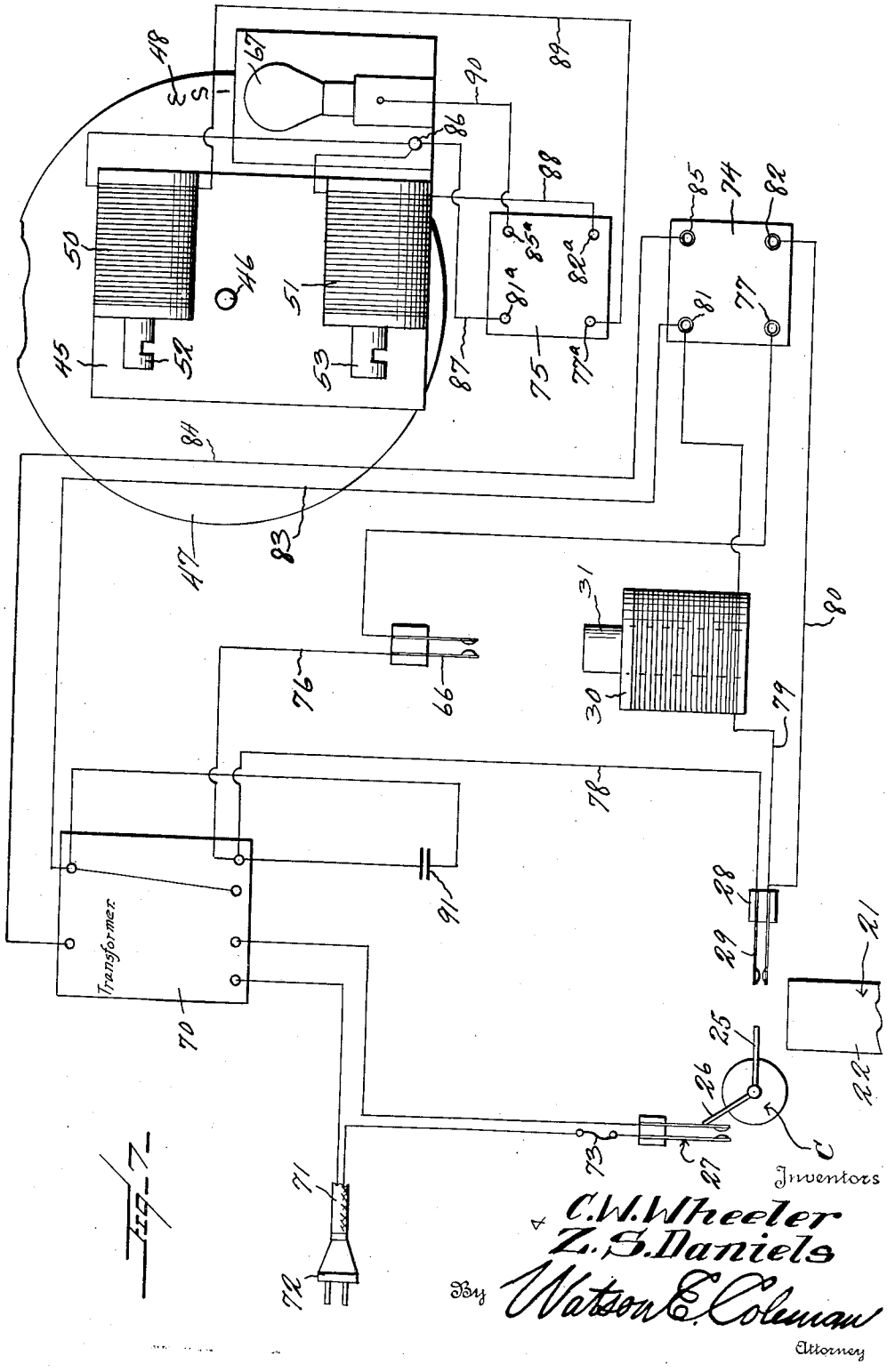
Fig. 5.

Inventors
C. W. Wheeler
Z. S. Daniels
By Watson E. Coleman
Attorney

Oct. 21, 1941. C. W. WHEELER ET AL 2,259,916

GOLF PRACTICE PUTTING DEVICE

Filed April 19, 1938 3 Sheets-Sheet 3



Patented Oct. 21, 1941

2,259,916

UNITED STATES PATENT OFFICE

2,259,916

GOLF PRACTICE PUTTING DEVICE

Clarence W. Wheeler and Zinn S. Daniels,
Vancouver, Wash.

Application April 19, 1938, Serial No. 202,941

2 Claims. (Cl. 273—35)

This invention relates generally to amusement devices and pertains particularly to a practice putting device.

The present invention has for its primary object to provide a novel mechanism upon which may be practiced the art of putting as it is performed in connection with the playing of golf, with means for indicating automatically each time the player "drops his putt."

Another object of the invention is to provide an improved and novel putting practice mechanism which is constructed to be under the control of a coin operated time mechanism so that a player will be given a predetermined time period within which to play and a definite number of playing balls with which to play in return for the presentation of a coin of a certain value.

Still another object of the invention is to provide a novel putting practicing mechanism in association with which a novel means is employed for delivering balls one at a time to the playing surface.

Still another object of the invention is to provide a novel putting practicing mechanism in which a novel means is provided for operating an indicating register each time the player accurately delivers the play ball to the receiving cup.

Still another object of the invention is to provide in association with a mechanism of the above described character, a novel means for resetting the register mechanism each time the coin controlled mechanism is operated.

Still another object of the invention is to provide in association with a mechanism of the above described character, a novel means for releasing a predetermined number of play balls to be delivered to an area from which they may be withdrawn, one by one, for play each time the coin controlled mechanism is operated.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not to be confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a view in top plan of the device embodying the present invention with the top or playing surface forming portion raised.

Figure 2 is a view in top plan on an enlarged scale of the ball release mechanism.

Figure 3 is a section taken on the line 3—3 of Figure 2.

Figure 4 is a longitudinal section taken on the line 4—4 of Figure 1, showing the cover or top in closed position.

Figure 5 is a view in elevation of the rear aspect of the register mechanism.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a wiring diagram for the device.

Referring now more particularly to the drawings, it will be seen that the mechanism embodying the present invention is contained in a housing or casing, which is generally designated by the numeral 1, so that the device may be moved about as may be desired. It will be understood, however, that the invention is not to be limited to a movable housing enclosed structure as it will be readily obvious that the invention may be set up in a permanent floor or other type of construction. However, for the purpose of convenience and description, reference will be made to the mechanism as contained in the housing or casing 1 which is provided with the removable and preferably hinged top or floor 2. The housing 1, aside from the floor portion 2 which forms a top therefor, consists of the long parallel side walls 3, the rear wall 4, front wall 5 and register mechanism unit, which is indicated as a whole by the numeral 6.

Extending longitudinally of the center of the housing is a partition wall 7 at one side of which is a ball trough 8, which extends the full length of the housing, the rear end of the trough communicating with an opening 9 in the front wall 5, while the forward end terminates short of the rear wall 4 and adjacent the open lower end of a vertical tubular guide 10 which abuts the underside of the floor 2 when the latter is closed over the top of the housing and is alined with the ball ejection opening 11 which is formed through the floor 2.

Adjacent the guide 10 and in the floor 2 is a rod guide 12 through which extends the vertically reciprocable rod 13, the lower end of which is beneath the floor 2 and carries the lateral arm 14 which extends into the ball guide 10 to move longitudinally thereof through a suitable wall slot and the free end of the arm 14 carries the upstanding post 15 which terminates in a shallow cup 16. A spring 17 normally keeps the rod 13 in raised position when the floor is in operative position so that the cup 16 will be disposed just above the top plane of the floor.

At the rear end of the trough 8 there is secured a spring arm 18 which extends rearwardly and has the upturned portion 19 which projects across the open end of the trough and terminates at its upper end in the rearwardly directed tongue 19a, which lies in the lower end of the ball guide 10. The vertical portion 19 of this spring serves as a stop for the balls in the trough 8 and when the rod 13 is depressed, the ball receiver 16 thereof will engage the tongue 19 and press the spring down so that when the receiver 16 has moved to a sufficiently low position, a ball will roll thereinto from the trough so that when the rod is pulled up by the spring 17, the ball will be lifted through the opening 11 to the playing surface and the ball stop portion 19 of the spring will return to position to prevent the other balls from leaving the trough.

At one side of the trough 8 in the rear part of the housing, an enclosed area 20 is formed and extending through the wall 4 into this area is a standard type of coin control mechanism 21 which has the usual reciprocable bar 22 which, when no coin is placed in the mechanism, can only be moved inwardly a predetermined distance but when a coin has been inserted may be moved inwardly to the point where the coin is permitted to drop into a receiver 23 and the inner end of the arm will operate to release some mechanism which will permit the device, in association with which the coin control mechanism is used, to be operated. In the present case, the inner end of the arm 22 of the coin control mechanism carries a lateral extension 24 which, when moved to the proper distance inwardly, engages an arm 25 of a standard type of time clock, which is indicated generally by the reference character C, and which has the second arm, indicated at 26, for closing the contact of an electric switch 27. No detailed illustration has been made of the time clock C as the mechanism of such clock forms no part of the present invention and these clocks are well known as they form standard equipment for many electrical devices, such as toasters, or the like. As shown, this time clock C is mounted within the area 20 so that it may be engaged by the extension arm 24 of the coin control mechanism when the latter is moved inwardly after a coin has been placed therein.

Also mounted within the area 20 is a convenient location for engagement by the inner end of the coin control mechanism arm 22 when the latter is moved inwardly after the deposit of a coin, is a switch unit 28 which has the two normally separated contact fingers 29 which, when brought together, close an electric circuit, as hereinafter more specifically described, to energize a solenoid 30 for the purpose of retracting the movable core 31 thereof and thus effecting the opening of a ball holding means, hereinafter described, to permit a group of balls contained in the trough 8 to gravitate to the rear end thereof.

The said ball retaining means is located substantially midway of the ends of the trough 8 and comprises a rock shaft 32 which is mounted to extend across the trough and which carries the upwardly and downwardly extending fingers 33 and 34 respectively. The upper end of the upwardly extending finger 33 positions in a slot 35 in the end of the solenoid core 31, while the downwardly extending finger projects into the trough just far enough to engage, when the finger is vertical, the top of a ball therein so as to prevent the ball from gravitating to the rear of the trough.

Mounted within the trough 8 upon the opposite side of the shaft 32 from the solenoid 30, is a dashpot 36 in which is the usual piston and piston rod, generally designated as 37, the rod being connected with the outer end of the solenoid core 31 by the link 38 so that when the solenoid 30 is energized and the core 31 is drawn into the solenoid, the piston and piston rod 37 of the dashpot will be moved into the dashpot against the tension of the light holding spring 39 and when the solenoid is de-energized this spring will draw the core outwardly but very slowly due to the action of the dashpot which is so designed that air will be forced slowly out of it when the spring 39 is returning the parts to normal position.

The counter or register housing mechanism 6 is disposed, as shown, at the forward end of the main housing 1 and the register housing includes the face wall 40 which stands up above the floor 2 and in spaced relation with the forward wall 5, thus forming a ball receiving area 41 at the forward end of the floor 2 into which passes those balls which the player fails to put into the ball receiving cup, which is formed through the floor 2 at the forward end thereof over the forward end of the trough 8, as indicated at 42. The ball receiving area 41 has a bottom structure 43 which is formed to cause the balls entering this area to gravitate to the opening 9 at the forward end of the trough so that such balls will roll back into the trough to be retained until wanted by further use by the check or holding finger 34.

The face wall 40 is provided with a window opening 44 and mounted within the housing 6 at the rear of this wall 40 is a bracket plate 45 which supports a shaft 46 and disposed between the bracket plate 45 and the wall 40 is a disk 47 which has numerals cut therethrough adjacent its periphery, as indicated at 48, to be seen through the window 44.

Upon the shaft 46 is a ratchet wheel 49 and secured to the bracket plate 45 on opposite sides of this ratchet wheel, are solenoids 50 and 51, having respectively, the movable cores 52 and 53, and which operate, as hereinafter described, respectively to advance the disk to count putts dropped and to release the disk when a coin is inserted into the mechanism 21 so that the disk will be returned to the position where the zero shows through the window 44.

The disk advancing solenoid 50 has the free end of its core 52 pivotally attached to the free end of a rock bar 54, the other end of this bar being pivotally attached, as at 55, to the plate 45 and the outward movement of this rock bar and the core 52 is limited by the adjustable screw 56. Pivotally attached to the rock bar 54 adjacent the movable end thereof, is the pawl finger 57 which is connected by the spring 58 with the support for the screw 56, so that this spring will constantly tend to draw the free end of the pawl 57 toward the toothed edge of the wheel 49 and will, at the same time, pull the solenoid core 52 outwardly, as illustrated. The pawl 57 is prevented from engaging at its free end with the teeth of the wheel 49 when the solenoid 50 is de-energized by the pin 59 which is so located that it will perform this function only when the solenoid is inoperative but when electric current is passed through this solenoid so that the core 52 is drawn inwardly, the free end of the pawl will be advanced and because of the pull thereon by the spring 58, the pawl will ride in over the pin 59 so that the free end of the pawl can engage a

tooth of the wheel 49 and thus turn the wheel and the disk 47 to a desired degree.

Interposed between the disk 47 and the wall 40 is a coiled spring 60, one end of which is attached to the wall or to any other suitably fixed body, while the other end is attached to the shaft 46 so that as the solenoid 50 is operated and the disk 47 is rotated in the course of registering the passage of played balls through the aperture 42, this spring will be placed under tension.

Between the solenoid 51 and the ratchet wheel 49 is a latch dog 61, which is pivotally attached as at 62, to the plate 45 and which normally has its point in engagement with a tooth of the wheel 49 so as to prevent the reverse rotation of the wheel under the urge of the spring 60 except when the control solenoid 51 for the dog is energized. When this solenoid is energized, the core 53 will be drawn in and as this core is attached, in the manner shown, to the arm 63 which forms a part of the dog 61, it will be seen that the dog will be oscillated so as to release the gear and allow the spring 60 to rotate the disk back to its set position. When the solenoid 51 is de-energized, the spring 64, which is attached between the end of the arm 63 and a fixed member 65, will draw the arm back to its normal position and thus pull the core 53 out of the solenoid.

When a played ball passes through the aperture 42 which represents the putting green cup, it will drop onto one of a pair of spaced contact fingers forming a part of the switch unit 66 and effect the energization of the solenoid 50, so as to bring about the rotary movement of the disk 47 through one step to bring a number into view for the window 44. Simultaneously with the closing of this switch an electric light 67 will be energized. This light is placed behind the numbered portion of the disk 47 and in line with the window opening 44 and between the light and the disk there is a magnifying lens 68 and a similar lens 69 is located upon the opposite side of the disk and between the latter and the window opening 44 so that the number of the disk which appears before the window opening will not only be illuminated by the lamp 67 but will be magnified so that the person standing upon the playing surface or floor 2 can readily see how many putts have been placed in the cup.

In Figure 7, there is shown an electrical diagram for the several electrical units employed in the device. The numeral 70 represents a transformer to which the two wires of the current conductor 71 lead, this conductor being supplied at its end with suitable means 72 for establishing a connection with a source of current supply. One side of this two wire conductor 71 leads directly to the transformer, as shown, while the other side passes through a suitable fuse unit 73 and the switch 27. Thus, it will be seen that no current can be supplied to the several units of the device until the switch 27 is closed by the operation of the time clock 25 through the instrumentality of the coin operated device 21.

At a suitable location within the device is a terminal block which is generally designated by the numeral 74 and which is provided with terminal sockets into which prongs of a plug 75 may be engaged. This socket 74 has a wire 76 leading from one side of the transformer 70 to a socket 77 and the ball operated switch 66 is inserted in this line 76, as shown.

There is also connected from the transformer 70 at the point where the wire 76 is joined thereto, the wire 78 which runs to one side of the switch 28 by which the ball releasing solenoid 30 is controlled. From the other side of this switch 28 there extend the two current carrying lines 79 and 80 and the line 79 leads to the terminal 81 of the plug socket 74 and has the solenoid 30 interposed therein, while the line 80 leads to the terminal 82 of the plug socket, as shown. The terminal 81 of the socket 74 also has connected therewith one end of the current conductor 83 which leads from the opposite side of the transformer 70 from that upon which the line 71 is connected and a second parallel line 84 leads from the transformer 70 to the fourth terminal of the plug socket, which is indicated by the numeral 85.

The plug 75, which is detachably connected with the socket 74, has four corresponding contact prongs, which are indicated by the numerals 77*a*, 81*a*, 82*a* and 85*a*. The bracket plate 45 carries a terminal 86 with which one side of each of the solenoids 50 and 51 is connected and this terminal has the connecting wire 87 leading therefrom to the plug terminal 81*a*, as shown. The other side of the solenoid 51 which controls the resetting of the register disk is connected by the wire 88 with the terminal 82*a* of the plug so that when the plug is in the socket, this side of the resetting solenoid will be electrically coupled with the dead side of the switch 28 and thus, it will be seen that when this switch is closed, current will flow from the transformer through the line 78, through the points 29 and through the wires 80 and 88 to the solenoid to be returned by way of the wires 87 and 83 and simultaneously with the closing of the switch 28, current will flow through the wire 79 to the solenoid 30 to effect the opening of the ball releasing gate or restraining finger 34.

The other side of the solenoid 50 from that side which is connected with the terminal 86, is connected by the wire 89 with the point 77*a* of the plug so that when the plug is in the socket, this wire will be electrically coupled through the terminal 77 with the line 76 in which the ball operating switch is located so that when this switch is closed, current will flow from the transformer through the solenoid 50 to effect the turning of the register disk one step and will return by way of the ground or common terminal post 86 to the transformer through the line 83.

One side of the electric light 67 is connected by the wire 90 with the terminal 85*a* of the plug so that by means of this connection current may flow from the transformer through the line 84 to the light and back through the terminal post 86 and the lines 87 and 83 to the transformer, thus maintaining the incandescent light on at all times as there is no switch in this line and the light is directly coupled with the transformer.

The numeral 91 designates a standard type of condenser which is connected across the transformer between the terminal to which the switches 28 and 66 are connected on one side and the terminal at the opposite side to which the return wire 83 is connected so as to prevent sparking of the points of the two switches mentioned.

The top or playing surface of the top wall 2 of the housing 1 is preferably covered with a suitable material to resemble both in appearance and in its effect upon the golf ball which is rolled thereover, the closely cropped grass of a putting green.

In the operation of the present device, the player first sets the device for play by inserting a coin in the control mechanism 21 and forcing the reciprocating bar 22 inwardly. This action permits the rod 22 to move inwardly to its extreme inward position and, at the same time that the coin is allowed to drop into the receiver 23, the timing clock C will be actuated and will in turn effect the closing of the points of the switch 29. The time clock will then hold the switch 27 closed for the period of time to which it has been set and which has been allotted the player for the use of the apparatus and by maintaining this switch 27 closed the light 67 will be kept illuminated and current will be available for the operation of the register working solenoid 50 when the player puts a ball into the aperture or "cup" 42. As previously stated, this action of the solenoid is brought about by the dropping of the ball through the aperture 42 and onto the switch 66 which is located in the forward end of the trough 8.

Simultaneously with the forcing inwardly of the reciprocable element of the coin control device, the switch points 29 of the switch 28 will be closed and as the mechanism is set so that the switch 27 will be closed first, electric current will flow from the source through the line 71 and the transformer to and through the line 78 to the solenoids 30 and 51, operating these simultaneously so that upon movement of the core 31 the number of balls allowed the player will be released to roll backwardly in the trough 8 to the lower end of the vertical ball chute 10 and by the inward movement of the core of the solenoid 51 the pawl 61 will be oscillated to release the toothed gear or wheel 49 and thus permit the disk control spring 60 to rotate the disk back to a position where zero will show through the window opening 44. The player may then push down upon the rod 13, pick up a ball from the discharge end of the trough 8, in the receiver or cup 16 and by releasing the rod the spring 17 will pull it upwardly and thus raise the ball through the opening 11 to the top surface of the playing board 2. Each time a ball is accurately directed by the player through the opening 42, the disk 47 will be turned to register the shot and if the ball misses the aperture 42, it will roll from the end of the playing surface into the receiving area 41 from which it will gravitate back into the forward end of the trough 8 and pass beneath the switch 66 and through the trough until it is stopped by the holding finger 34.

The transformer 70 may be of any type suitable for the operation of the solenoids and the lights 67. In the type of transformer here designed the secondary winding is in the form of two coils or, in other words, the transformer has two secondary windings, one of which furnishes an electric current of six volts to the light 67, while the other one furnishes approximately thirty-four volts to operate the solenoids. The jump wire shown in the diagrammatic illustration of the solenoid in Figure 7 connects the two terminals of the secondary windings to give a full transformer voltage of about forty volts. This transformer is of a standard type as are the other units, such as the coin control unit and the time clock unit, the details of construction of which units have not been illustrated or described because of this fact and the fact that they do not in themselves form a part of the invention.

We claim:

1. Registering mechanism for use in a game apparatus in which play balls are projected over a playing surface to a ball receiving means at one end of said surface, comprising a rotating numbered disk, an electrically operated means for imparting step by step rotation to the disk, resilient means which is placed under tension during the step by step rotation of the disk, an electrically releasable means for holding the disk against reverse rotation under the urge of the tensioning means, means whereby electric current may be supplied to said step by step actuating means for the disk, a normally open switch controlling the supply of current to the step by step actuating means, said switch being arranged to be momentarily closed by a ball passing through said receiving means, means for supplying electric current to said releasing means, a normally open switch controlling the flow of electric current to said releasing means, a control switch governing the passage of electric current from a source to the said means for supplying current to the step by step actuating means and the disk release means, and a single control means for effecting the successive closing of the control switch and the switch controlling the flow of current to said disk releasing means and the subsequent immediate opening of the last mentioned switch.

2. Register mechanism for use in a game apparatus in which the play balls are projected over a playing surface having a ball receiving aperture therethrough, comprising in association with a window, a rotatably mounted numbered disk arranged to have the numbers thereof individually viewed through said window, an electric solenoid actuated pawl and ratchet means for imparting a step by step rotation to the disk, resilient means connected with the disk which is placed under constantly increasing tension with rotation of the disk by said pawl and ratchet means, a latching pawl engaging said ratchet to normally prevent reverse rotation of the disk, electromagnetic means for disengaging said latching pawl from said ratchet, electric current conductors for carrying electric current from a source of supply to said solenoid and electromagnetic means, a main control switch in said current conductors, a normally open ball actuated switch interposed between said main switch and said solenoid, a normally open switch interposed between said main switch and said electro-magnetically operated means, said solenoid and electro-magnetically operated means being adapted for energization at any time by the closing of the switches associated therewith while the main switch is closed, said ball actuated switch being disposed to be engaged and closed by a ball passing through said apertures, a time controlled means which when set maintains said main switch closed for a predetermined period of time, and an actuator for effecting the setting of the time controlled means and the momentary closing of the switch interposed between the main switch and the electro-magnetically actuated means.

CLARENCE W. WHEELER.
ZINN S. DANIELS.