Feb. 28, 1933. L. F. FLOWER 1,899,860

GAME APPARATUS

Filed Dec. 16, 1930 4 Sheets-Sheet 1

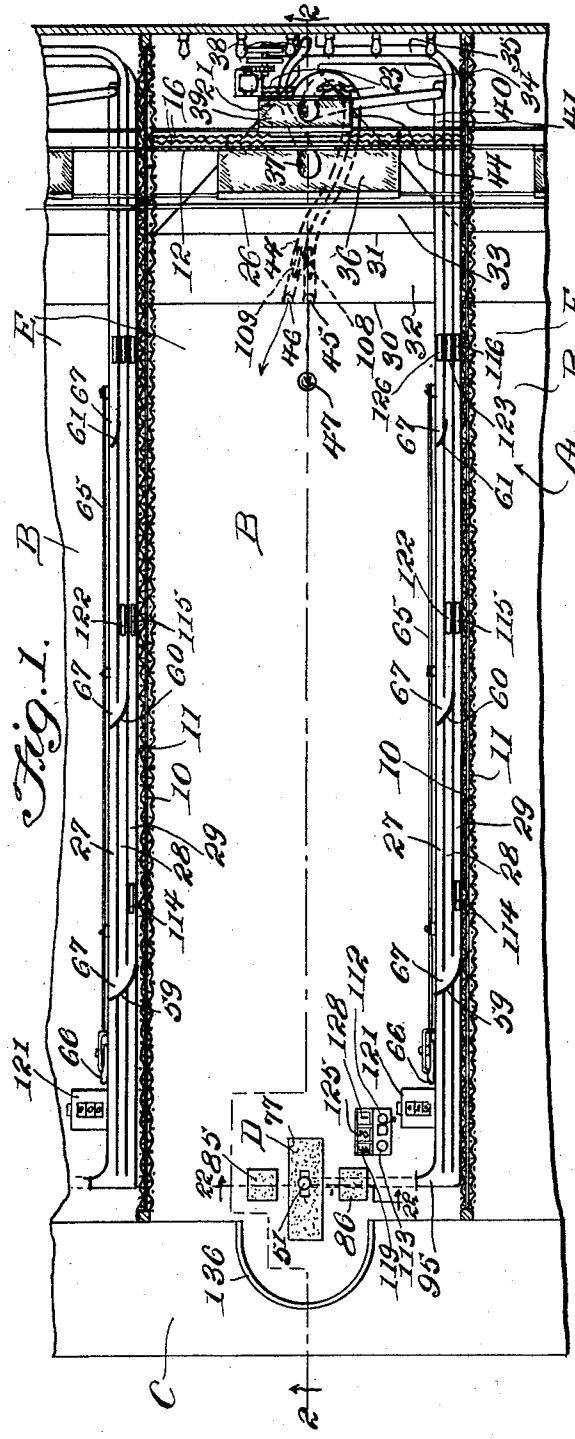


Fig. 1.

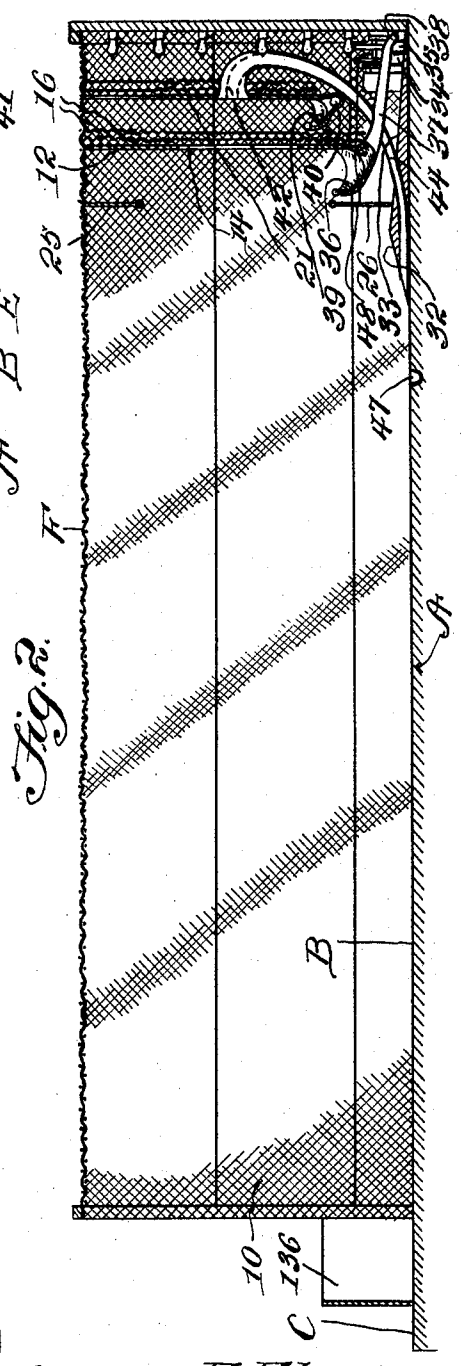


Fig. 2.

WITNESS: J. L. Wright

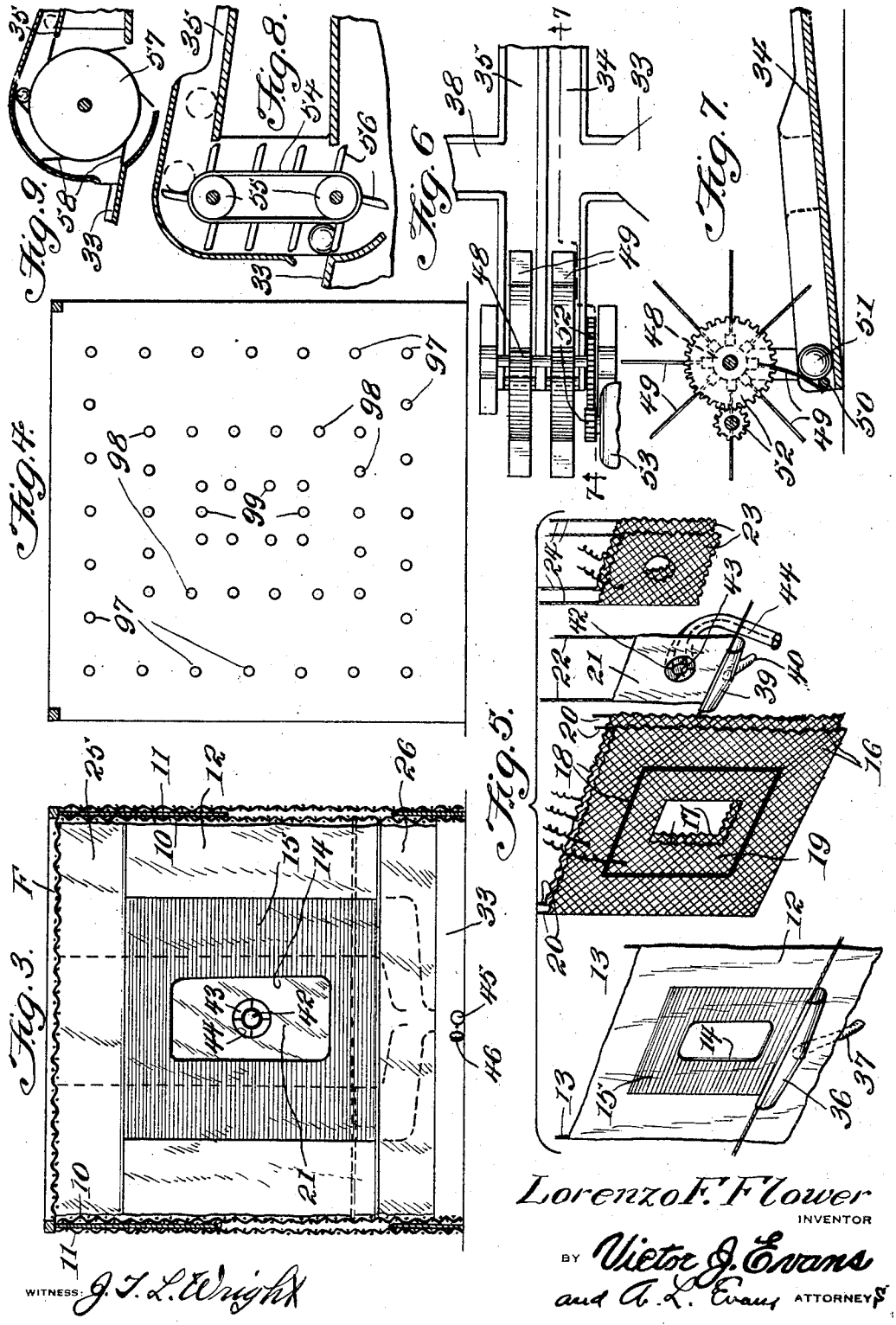
Lorenzo F. Flower
INVENTOR

BY Victor J. Evans
and A. L. Evans ATTORNEYS

Feb. 28, 1933. L. F. FLOWER 1,899,860

GAME APPARATUS

Filed Dec. 16, 1930 4 Sheets-Sheet 2



WITNESS: J. L. Wright

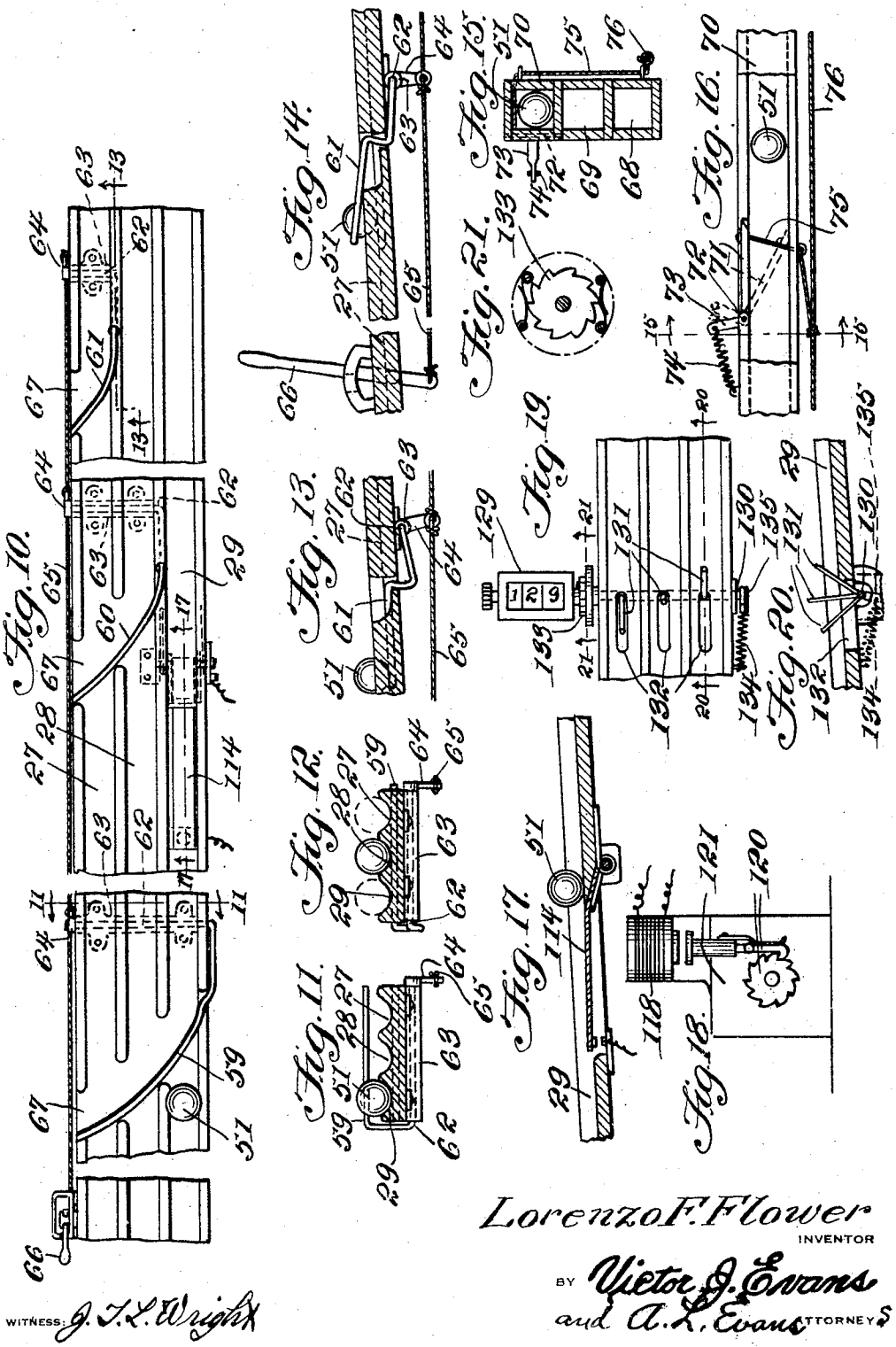
Lorenzo F. Flower
INVENTOR

BY Victor J. Evans
and A. L. Evans ATTORNEYS

Feb. 28, 1933. L. F. FLOWER 1,899,860

GAME APPARATUS

Filed Dec. 16, 1930 4 Sheets-Sheet 3



WITNESS: J. L. Wright

Lorenzo F. Flower
INVENTOR

BY Victor J. Evans
and A. L. Evans ATTORNEYS

Feb. 28, 1933. L. F. FLOWER 1,899,860

GAME APPARATUS

Filed Dec. 16, 1930 4 Sheets-Sheet 4

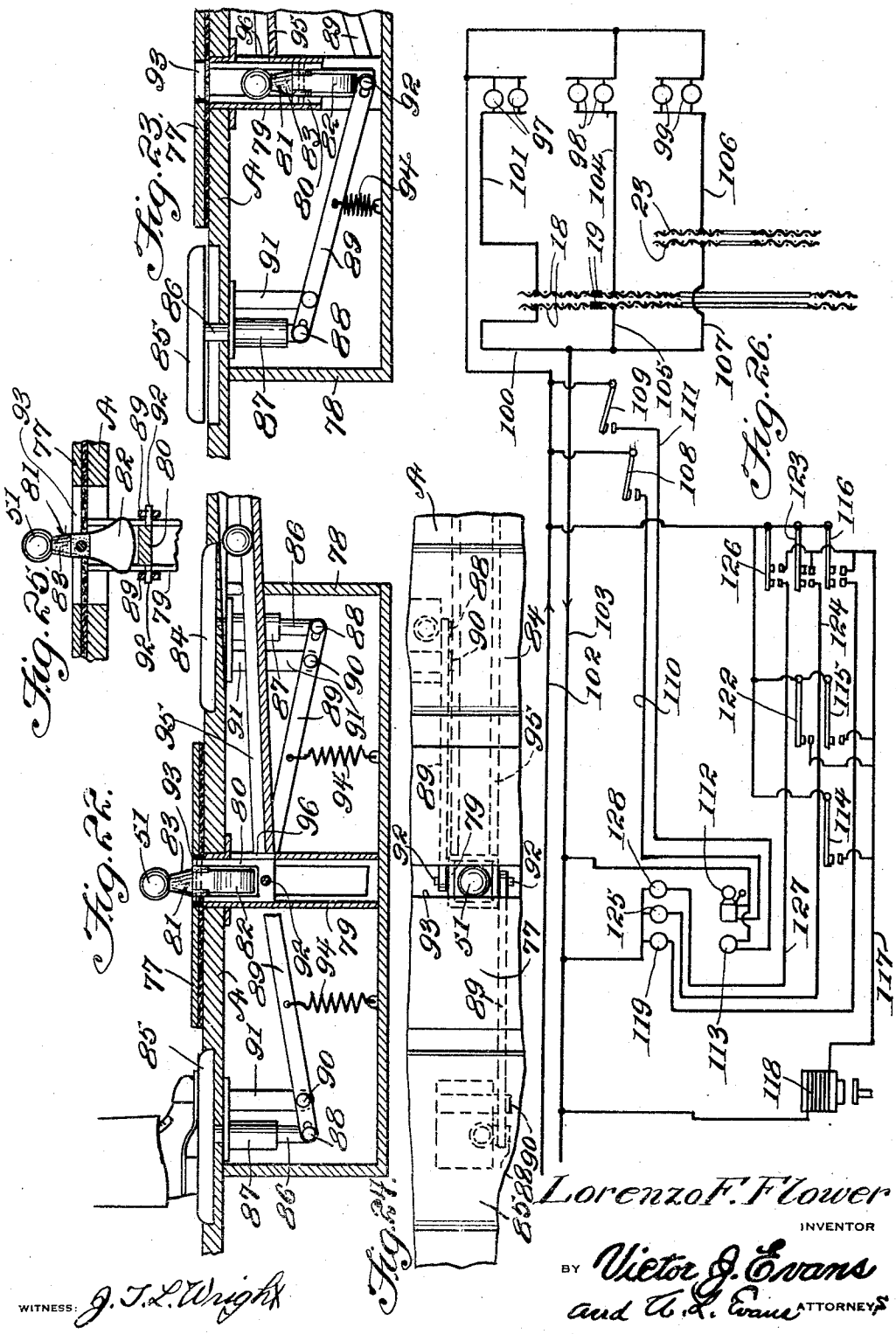


Fig. 23.

Fig. 25.

Fig. 22.

Fig. 24.

Fig. 26.

Lorenzo F. Flower
INVENTOR

BY Victor J. Evans
and C. L. Evans ATTORNEYS

WITNESS: J. T. L. Wright

Patented Feb. 28, 1933 1,899,860

UNITED STATES PATENT OFFICE

LORENZO F. FLOWER, OF BOULDER, COLORADO

GAME APPARATUS

Application filed December 16, 1930. Serial No. 502,841.

The invention relates to a game apparatus, and more especially to an apparatus for carrying out the varying strokes of golf, namely, driving, approach and putting.

The primary object of the invention is the provision of an apparatus of this character, wherein by the arrangement of an alley course, either in the open or within an enclosure, the game of golf can be effectually carried forth, as the player will be required to execute the strokes, namely, driving, approach and putting, and these strokes will be registered in a particular manner so that the result of the game with a low or high score, according to the skill of the player, attained.

Another object of the invention is the provision of an apparatus of this character, wherein the golf balls employed are properly teed automatically and when driven in the execution of shots in the game of golf, will operate certain visible and audible registering or signalling mechanism indicative of the accuracy of the shots and these balls will be automatically returned to the point of play, the mechanism in its entirety being novel in form and automatic in its workings, while the arrangement permits of the display of certain advertising matter along the line of the course and also the view of the plays by spectators.

A further object of the invention is the provision of an apparatus of this character, wherein the construction and arrangement thereof enables players to perfect or become more proficient in the playing of golf for the execution of driving shots, approach shots and green shots or putting.

A still further object of the invention is the provision of an apparatus of this character, wherein the arrangement of the stroke registering mechanism is in the nature of targets and these being included in mechanism which will operate both signals and registering mechanism which tally the perfection of the strokes either by light flashes or by a readable register or both or in conjunction with an audible signal, and also accordingly to the lay of the ball in the course, the mechanism being assured in its automatic operation of accuracy during the working of said apparatus.

A still further object of the invention is the provision of an apparatus of this character, which is comparatively simple in construction, thoroughly reliable and efficient in operation, most entertaining, both to players and spectators, strong, durable, and inexpensive and economical in production and installation.

With the foregoing and other objects in view, the invention consists in the features of construction, combination and arrangement of parts, as will be hereinafter more fully described in detail, illustrated in the drawings which show the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawings:—

Figure 1 is a fragmentary top plan view of the apparatus, constructed in accordance with the invention, portions of the same being shown diagrammatically.

Figure 2 is a sectional view on the line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a vertical transverse sectional view looking from the front of the apparatus rearwardly in the direction of the target arrangement.

Figure 4 is an elevation of the rear end of the apparatus, showing a signal or light arrangement as an adjunct thereof.

Figure 5 is a fragmentary perspective view of the curtain arrangement of the targets, these being separated to illustrate clearly their make-up and association.

Figure 6 is a fragmentary plan view of the played ball return device of the apparatus.

Figure 7 is a sectional view on the line 7—7 of Figure 6.

Figure 8 is a fragmentary vertical sectional view of a modified ball returning device of the apparatus.

Figure 9 is a view similar to Figure 8, showing a still further modified form of ball returning device.

Figure 10 is a fragmentary top plan view of the ball runway of the apparatus, showing in detail the control device for the ball to

divert the same from the runway on to the course, and also the electric switches for the registering and signalling mechanism of said apparatus.

Figure 11 is a sectional view on the line 11—11 of Figure 10, looking in the direction of the arrows.

Figure 12 is a view similar to Figure 11, showing the control device in inactive position.

Figure 13 is a sectional view on the line 13—13 of Figure 10.

Figure 14 is a view similar to Figure 13, showing the control raised from the position in Figure 13.

Figure 15 is a vertical sectional view of a modified form of ball runway.

Figure 16 is a fragmentary top plan view thereof.

Figure 17 is a sectional view on the line 17—17 of Figure 10.

Figure 18 is an elevation of the register operating mechanism, including an electric magnet.

Figure 19 is a fragmentary top plan view of a modified form of registering mechanism of the mechanically operated type.

Figure 20 is a sectional view on the line 20—20 of Figure 19.

Figure 21 is a sectional view on the line 21—21 of Figure 19.

Figure 22 is a sectional view on the line 22—22 of Figure 1, showing the parts adjusted for the teeing of the ball.

Figure 23 is a fragmentary view similar to Figure 22, showing the parts in released position with a ball to be teed thereby.

Figure 24 is a fragmentary top plan view of the parts shown in Figure 22.

Figure 25 is a fragmentary sectional view, showing in detail the tee proper.

Figure 26 is a diagrammatic detail plan view of the electric circuit for controlling the signal and registering mechanism of the apparatus.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, A designates generally a foundation area either within or without an enclosure and presents a level surface from which rise spaced parallel vertical guards, these being of any desirable height and each includes inner and outer wire mesh stretches 10 and 11, it being understood, of course, that other materials than wire mesh may be employed, and these guards extend in a longitudinal direction any desired or required distance to present therebetween an area B constituting what might be known as a fairway of a golf course. It is, of course, understood that any number of these fairways B and the guards separating the same can be arranged in rows side by side, while crossing the course B at one end thereof is an entrance path C by which access or entrance may be had to the course.

Adapted to be arranged between the stretches 10 and 11 of the respective guards are strips of advertising matter or scenic effect indicative of the lay and scenery of any selected golf course to have the effect of the perspective of the same. This arrangement of advertising or scenic effect is optional with the user of the apparatus.

The end of the fairway B, adjacent to the path C, has provided a teeing area D, while at the other end portion of said fairway is arranged what might be termed the green area E and supported at determined locations of this last named area is a series of targets, the foremost of which is in the form of a flexible curtain 12 suspended by ropes or other suspension elements 13 and depending from a ceiling or top guard F overhanging the green area E, the curtain 12 being provided with a central window 14, while on the outer face of said curtain and surrounding the window is indicated, preferably by surface coloring, a striking zone 15. Arranged spaced rearwardly from the curtain 12, which is vertically disposed, is a pair of closely arranged wire mesh target curtains 16 which are of a like size to each other and contain matched center openings 17, while about the latter and spaced the required distance therefrom are insulating frames 18, the outline of the foremost frame establishing a striking zone 19. These curtains 16 are suspended by ropes or other devices 20 from the ceiling or top section F so that they will lie in a vertical plane in close proximity to the curtain 12 at the rear thereof.

Located rearwardly of the curtains 16 is a flexible sheet-like curtain 21 suspended by ropes or other suspension devices 22 and confronts the openings 17, while rearwardly of this curtain 21 is a pair of spaced wire mesh curtains 23, these being suspended by ropes or other suspension devices 24, and are located in juxta-position rearwardly of the curtain 21, these curtains 12, 16, 21 and 23 constituting the series of targets. Co-acting with these curtains of the series is an advanced forward vertically aligned upper and lower curtain 25 and 26, the said lower curtain being flexible to pass the ball, when struck thereby, rearwardly of the apparatus, during a low flight of the ball and likewise the curtain 25 is flexible to permit the rearward passing of the ball when in a high flight, the said upper and lower curtains 25 and 26 also functioning as a rebound shield for the curtain 12.

Arranged at one side of the fairway B are the longitudinally disposed side by side runways 27, 28 and 29 for balls and are substantially the length of the apparatus, with their inner ends extended into the green area E, these being inclined or sloped from the green area E to the teeing area of the apparatus.

Provided in the fairway between the lines 30 and 31 crosswise of said fairway is a forwardly sloping riser 32, while from the line 31 rearwardly is provided a rearwardly inclined trough or chute 33 merging into the terminal bend 34 of the runway 29, which has annexed thereto the terminal bend 35 of the runway 28 and these bends 34 and 35 slope to a level with the discharge end of the chute 33, for a purpose presently described.

On the curtain 12, at the proper distance below the window 14, is formed a forwardly directed catch trough 36 which has leading from its center a spout 37, the latter opening at 38 into the bend 35 of the runway 28, while formed on the curtain 21 and extended forwardly thereof is a catch trough 39 from the center of which extends a spout 40, the latter being directed sidewise over the inner terminal 41 of the runway 27, which terminal is closed to the chute 33 so that a ball from the spout 40 will travel forwardly in the runway 27.

The curtain 21 is provided with a central bull's-eye in the form of a central spout 42 and a concentric multiple entrance 43 of an outside spout 44, these spouts 42 and 44 being extended downwardly and forwardly through the riser 32 to effect discharge openings 45 and 46. The opening 45 is in longitudinal alignment with a cup 47 which constitutes the green cup of a putting green and is disposed within the putting area E of the apparatus, while the discharge opening 46 is diverted from alignment with the cup 47 for the deposit of a ball in close range thereof.

Located at the termini of the bends 34 and 35 is a ball return device which comprises a rotatable wheel 48 having radially disposed striker spokes or arms 49 adapted to revolve vertically within the termini of said bends 34 and 35 and each designed to snap over a resisting pin 50 which tensions the spoke or arm 49 to effect a whip or drive thereto so that when it confronts a ball 51, the latter will be driven up the incline and sent on its way in the respective runways 28 or 29. The wheel 48 is positively driven by gearing 52 operated from a suitable motor 53, preferably of the electric type. The motor and the return device just described are illustrated in detail in Figures 1, 6 and 7 of the drawings.

In Figure 8 of the drawings, there is shown a slight modification of a ball return device, which in this instance includes an elevator in the form of an endless belt 54 trained over guide rolls 55, one being constituted a driver and operated by a motor and this belt is fitted with cleats or lifters 56 to receive singly the ball from the chute 33 or the opening 38 to the bend 35 and deliver the ball for return to the teeing area D of the apparatus.

In Figure 9 there is shown a further modified form of ball return device, which in lieu of the elevator belt type, is provided with a wheel 57 having peripheral buckets 58 for the reception of balls so that successively the said balls will be elevated by the wheel and returned to the teeing area.

Arranged at intervals in the runways 27, 28 and 29 are deflector devices 59, 60 and 61 respectively, each formed with a pivot pintle 62 in bearings 63 depending from the under side of the runways, the pivot pintle being disposed transversely and each carries a crank 64 connected with an operating cable 65, it being understood, of course, that the cranks 64 are in longitudinal alignment with each other at one side of the runways, preferably that next to the course B. The cable 65 is connected with an operating lever 66 pivotally supported and latched in shifted position in any suitable manner. On swinging the lever 66 in one direction, the deflector devices are raised to constitute an abutment for the balls within the runways and on reversely shifting the lever 66, the deflectors become lowered below the traveling surfaces of the runways for the balls and in this position, the balls within the runways will be returned directly to the teeing area D. At the points of location of the deflectors and cut from the walls of the runways, is a laterally directed discharge way 67 which delivers the balls from such runways on to the fairway B or the green area E of the apparatus. The deflector devices or diverting means 59, 60 and 61 respectively are so placed in relation to the channels 27, 28 and 29 that those balls striking the target in the most advantageous position are delivered to the surface B in close proximity to the cup 47 while those balls striking in less advantageous position are delivered further therefrom, the said balls subsequently being putted into the cup 47.

In Figures 15 and 16, there is shown a slight modification of runways 27, 28 and 29 respectively which are superposed relative to one another and in the side wall next to the course B of the apparatus at intervals corresponding to those deflectors 59, 60 and 61, shown in Figure 10, is a normally closed deflector gate 71, its pivots 72 having a crank 73 acted upon by a coiled retractile spring 74 for normally maintaining said gate closed, and connected with this gate is a pull cable 75, the same being also connected with the master cable 76 which is alike to the cable 65 and operable by the lever 66 so that when a ball is to be deflected from any of the runways in their superposed relation on to the course B, the lever 66 is operated therefor, it being understood, of course, that the gates 71 for these runways are actuated in unison by the cable 76 controlled from the lever 66.

At the teeing area D of the apparatus and formed on the foundation A is a teeing zone in the form of a mat 77 made from any suitable material, while beneath the area D in the foundation A is formed a boxing or hous-

ing 78 from which rises a tubular vertical guide 79 in which is fitted a plunger 80, the upper end being provided with a weighted pivotally supported tee 81 and the weight 82 of this pivoted tee 81 serves to sustain the tee in a true perpendicular position, but permits it to swing should it be struck by a golf club head, the tee 81 at the resting tip 83 for the ball is preferably resiliently capped so as to avoid damage to the club head by impact and also assures firm resting of the ball on the tee.

Located on opposite sides of the mat 77 are foot actuated teeing tread plates 84 and 85 respectively, the positioning of these being for a right hand or left hand playing stance and have their depending stems 86 slidable in guides 87 mounted within the boxing or housing 78, the stems at their lower ends being pivoted at 88 to rocker arms 89 pivoted at 90 to hangers 91 and these arms are pivoted at 92 to the plunger 80, so that when the tread plate 84 or 85 is depressed, the plunger will be protruded or raised in the guide 79 for projecting the tee 81 through an opening 93 at the center of the mat 77, the levers being acted upon by coiled retractile springs 94 to cause the receding of the plunger 80 and the lifting of the tread plates 84 and 85 when the foot of a player is released or removed from either of said plates.

At the teeing area D of the apparatus and inclined inwardly of the box or housing 78, is a ball delivery chute or through 95, which is common to all of the runways 27, 28 and 29 which merge thereinto at their outer ends. This chute or trough 95 leads to an opening 96 in the tubular guide 79 for the plunger 80 and is designed to successively deliver a single ball on to the tee 81 when completely receded within the guide 79, the plunger in its upward movement serving as a check or valve for the opening 96 to retard more than a single ball reaching the tee from said chute or trough 95. The guide 79 is suitably cut away at diametrically opposite points for a clearance for the swinging tee 81, as will be apparent from Figure 25 of the drawings.

Supported in any suitable manner rearwardly of the series of targets 12, 19, 21 and 23 are series or groups of electric light bulbs 97, 98 and 99, and the bulbs of the groups are disposed in frame fashion vertically. The group of lights 97 have their electric circuit wires 100 and 101 tapped to the wire mesh curtains 18 outside of the insulating frames 19 and are arranged in a main circuit, including the current wires 102 and 103, the circuit to these bulbs 97 being normally open and closed by the contact of the curtains 18 about and outside of the frames 19, the contact being effected by a blow from a ball driven from the teeing area D, the impact of the ball being such as to deflect the curtain 12 against the forward curtain 18, which latter in turn flexes and contacts with the other curtain 18, whereby the circuit to the lamps or bulbs 97 is closed for the lighting thereof. The electric bulbs 98, through the circuit wires 104 and 105, can be illuminated or lighted, these wires being tapped to the curtains 18 within the insulating frame 19 so that on striking by a ball, the area of the forward curtain 18 within the frame 19 thereof, the circuit will be closed through the wires 104 and 105 and the bulbs lighted. The striking of the ball takes place in its flight from being driven from the teeing area D of the apparatus. The group of bulbs or lights 99 have their circuit wires 106 and 107 tapped to the curtains 23 and the circuit to these bulbs or lights is normally open, but closed on an impact from a ball striking the forward of these curtains 23, bringing such curtain into contact with the rearmost one of the pair, whereby such bulb of the group 99 will be lighted or illuminated. These groups of bulbs 97, 98 and 99 flash a visible indication to the player after delivering the ball at the teeing area D to the course B and the flashes from the respective groups are indicative of predetermined playing values to the player.

Arranged in the discharge openings 45 and 46 are normally open electric switches 108 and 109 which are located in independent circuits 110 and 111, the circuit 110 including an audible signal 112, while the circuit 111 includes a visible signal 113 and these switches 108 and 109 are actuated by the ball delivered from the discharge openings 45 and 46, so that they will close and thus, through their respective circuits, actuate the audible or visible signals 112 and 113.

Preferably arranged in the runway 29 are three normally open electric switches 114, 115 and 116 and located in advance of each other and control the closing of an electric circuit 117 including an electric magnet 118 and a visible electric signal 119, the switches before named being automatically closed by a ball traveling in the runway 29 and this magnet 118 operates an actuator 120 of a registering device 121 which is located in the course B close to the tee area D for inspection by a player whereby he can determine the effectiveness of his drive-off or stroke in the playing of the game of golf in the apparatus.

In the runway 28 is arranged a pair of normally open electric switches 122 and 123 respectively, these being in a circuit 124 common to the electric magnet 118 and to a visible signal 125, the switches being closed by a ball traveling in the runway 28 and in this manner the registering device will indicate the valuation of the stroke of the player of the apparatus.

In the runway 27 is a single normally open electric switch 126 in a circuit 127 common to the electric magnet 118 and including a visible signal 128, the single switch 126 being controlled and closed by a ball traveling in

the runway 27. The registering device is adapted to be reset after the scoring thereof of a particular player has been had thereby.

In Figures 19, 20 and 21, there is shown a slight modification of register and is of the mechanically operated type, which includes registering meter 129, the operating shaft 130 thereof being located beneath the runways 27, 28 and 29 and extending from this shaft is a series of tripping arms 131, these being disposed at varying angles to each other and protrude upwardly through suitable slots 132 in the beds of the respective runways 27, 28 and 29 to be acted upon by balls traveling therein, the shaft 130 being coupled with the meter 129 through the medium of a ratchet device 133 so that the registering mechanism will be actuated in one direction, namely, the tripping direction of the arms 131, which arms are normally in set up position effected by a spring 134 connected to a crank 135 of the shaft 130 and to the under side of the runway. These arms 131 in their angular relation to each other are set corresponding to the tenth parts of a circle and control the counting mechanism of the meter 129 to record or register thereon the valuation of a given stroke or play in the apparatus. Of course, the arms 131 can be varied in their counting movements, that is, by changing the angular disposition thereof as to the fractions of a circle.

In the operation of the apparatus, a player takes his stance at the teeing area D of the course B and by treading one foot upon the tread plate 84 or 85 at this area, a ball will be automatically teed by the tee 81 at the teeing mat 77. On the execution of the stroke with the golf club, the ball 51 is sent in its flight over the course or fairway B and strikes any one of the series of targets 12, 19, 21 and 23, these responding to give an audible, visible and registering indicia to signify the valuation of the stroke as executed by the player. Of course, it will be apparent that the apparatus is materially useful for practice of a golf player and in its use enables such player to become proficient in driving, approaching and putting or any other playing strokes incident to the playing of the same of golf.

Rising from the pathway C and about the zone constituting the teeing area D of the course is a suitable guard or shield 136 which eliminates any possibility of injury to spectators resulting from being hit by the golf club while the player is executing the stroke at the tee.

From the foregoing it is thought that the construction and manner of operation of the device will be clearly understood and therefore a more extended explanation has been omitted.

It is to be understood that changes, variations and modifications may be made in the invention without departing from the spirit of the invention or sacrificing any of its advantages, as fall within the scope of the claims hereunto appended.

What is claimed is:—

1. In a game apparatus of the character described a base representative of a game course and teeing station, a series of targets of varying play valuations confronting the course, a series of ball runways at one side of the course and extending from the target to the teeing station, mechanism for delivering balls from the targets to the runways, and means located in the runways at determined intervals thereof and selectively movable for delivering balls from the runways to said course correspondingly to the target plays.

2. In a game apparatus of the character described, a base representative of a game course and teeing station, a series of targets of varying play valuations confronting the course, a series of ball runways at one side of the course and extending from the target to the teeing station, mechanism for delivering balls from the targets to the runways, means located in the runways at determined intervals thereof and selectively movable for delivering balls from the runways to said course correspondingly to the target plays, and a putting cup located in the course forwardly of the targets to receive a ball when manually putted in the direction of the targets.

3. In a game apparatus of the character described, a base representative of a game course and teeing station, a series of targets of varying play valuations confronting the course, a series of ball runways at one side of the course and extending from the target to the teeing station, mechanism for delivering balls from the targets to the runways, means located in the runways at determined intervals thereof and selectively movable for delivering balls from the runways to said course correspondingly to the target plays, a putting cup located in the course forwardly of the targets to receive a ball when manually putted in the direction of the targets, and means for lifting the balls from the runways to the surface of the teeing station.

4. In a game apparatus of the character described, a base respresentative of a game course and teeing station, a series of targets of varying play valuations confronting the course, a series of ball runways at one side of the course and extending from the target to the teeing station, mechanism for delivering balls from the targets to the runways, means located in the runways at determined intervals thereof and selectively movable for delivering balls from the runways to said course correspondingly to the target plays, a putting cup located in the course forwardly of the targets to receive a ball when manual-

ly putted in the direction of the targets, means for lifting the balls from the runways to the surface of the teeing station, and side guards following the course throughout the extent thereof.

5. In a game apparatus of the character described, a base representative of a game course and teeing station, a series of targets of varying play valuations confronting the course, a series of ball runways at one side of the course and extending from the target to the teeing station, mechanism for delivering balls from the targets to the runways, means located in the runways at determined intervals thereof and selectively movable for delivering balls from the runways to said course correspondingly to the target plays, a putting cup located in the course forwardly of the targets to receive a ball when manually putted in the direction of the targets, means for lifting the balls from the runways to the surface of the teeing station, side guards following the course throughout the extent thereof, and means for selectively controlling the first named means.

In testimony whereof I affix my signature.

LORENZO F. FLOWER.