United States Patent

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[73] Assignee **Brunswick Corporation**
Continuation of application Ser. No. 545,411, Apr. 26, 1966, now abandoned. This application July 6, 1970, Ser. No. 52,758

[54] **GOLF TEE**
16 Claims, 11 Drawing Figs.

[52] **U.S. Cl.** ..... **273/195 A,** 273/195 B, 273/176 H, 273/203
[51] **Int. Cl.** **A63b 69/36,** A63b 67/02
[50] **Field of Search** 273/195, 196, 197, 198, 176, 33, 203, 211, 87; 35/53, 55, 77; 40/33, 55; 15/106

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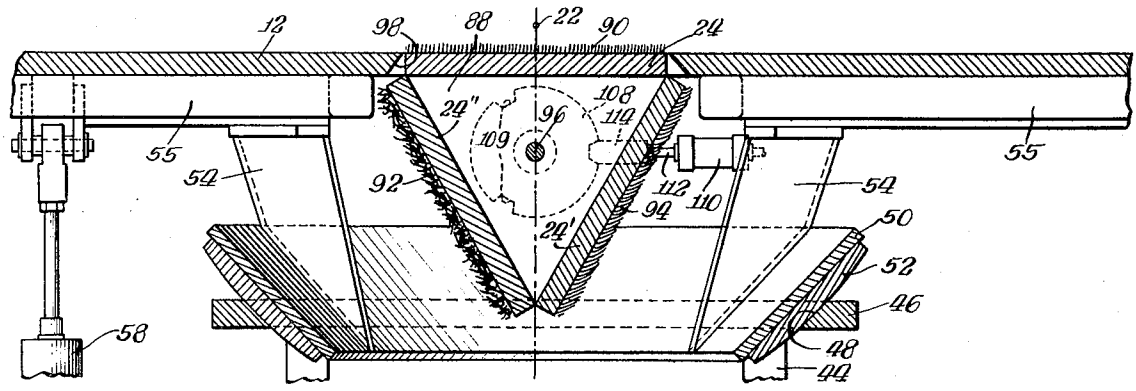
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ABSTRACT: A golf ball teeing area includes a platform on which a golfer may stand, mats from which golf balls may be driven and a flexible apron connecting the platform to an adjacent rigid floor member. A pair of hydraulic jacks are located in a pit below the platform and permit the platform to be tilted to various sloped positions. A rotatable turret is mounted within a central opening in the platform. The periphery of the turret includes three angularly related faces provided with grasslike mats which simulate the different driving conditions found in a fairway, the rough and a sand trap. The supporting structure for the tiltable platform includes mating concave and convex spherical surfaces having a common center of curvature at a point where the ball is teed on the grasslike mats.



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SHEET 1 OF 4

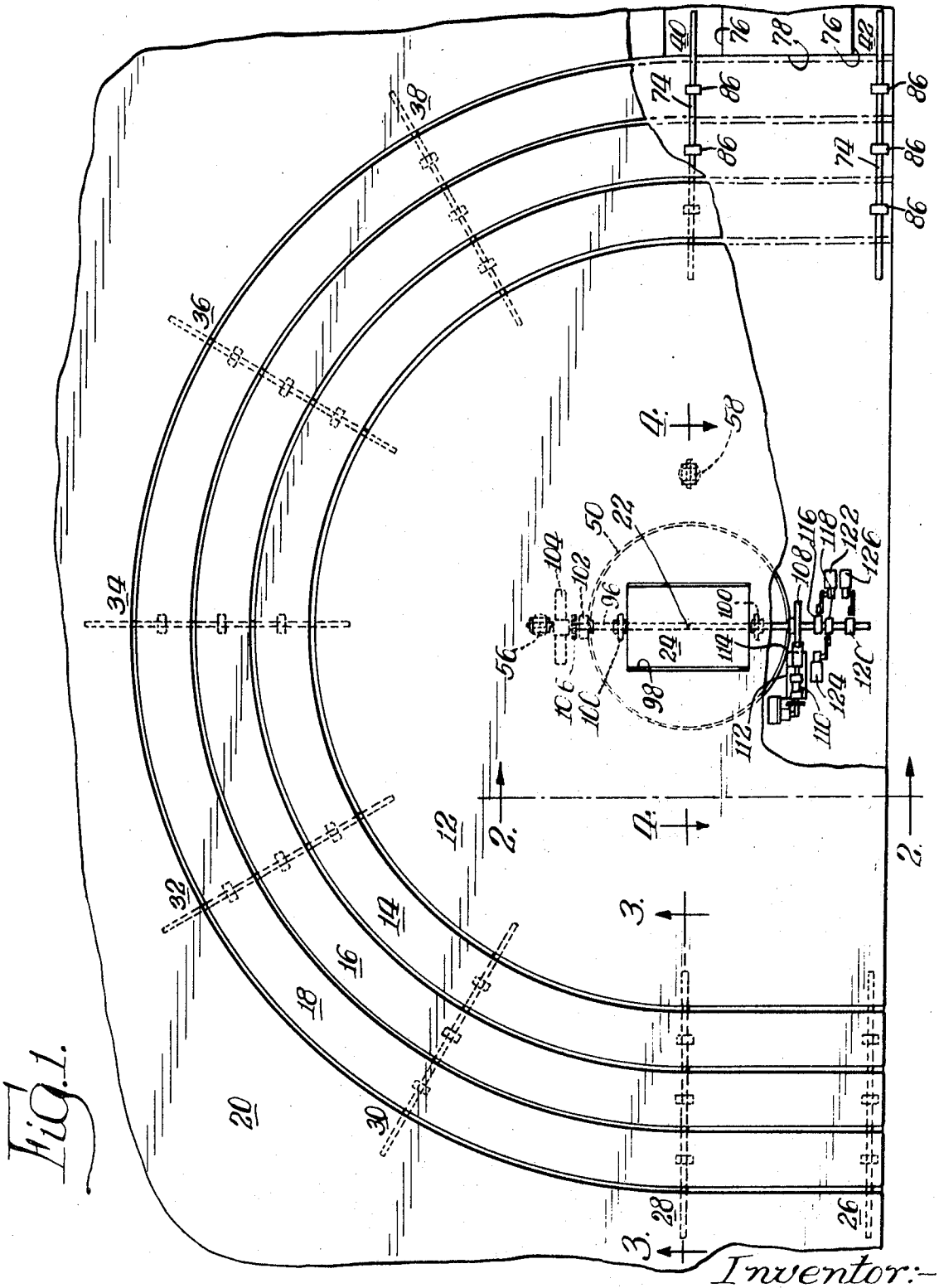


Fig. 1.

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Stellman & McCord Attys.

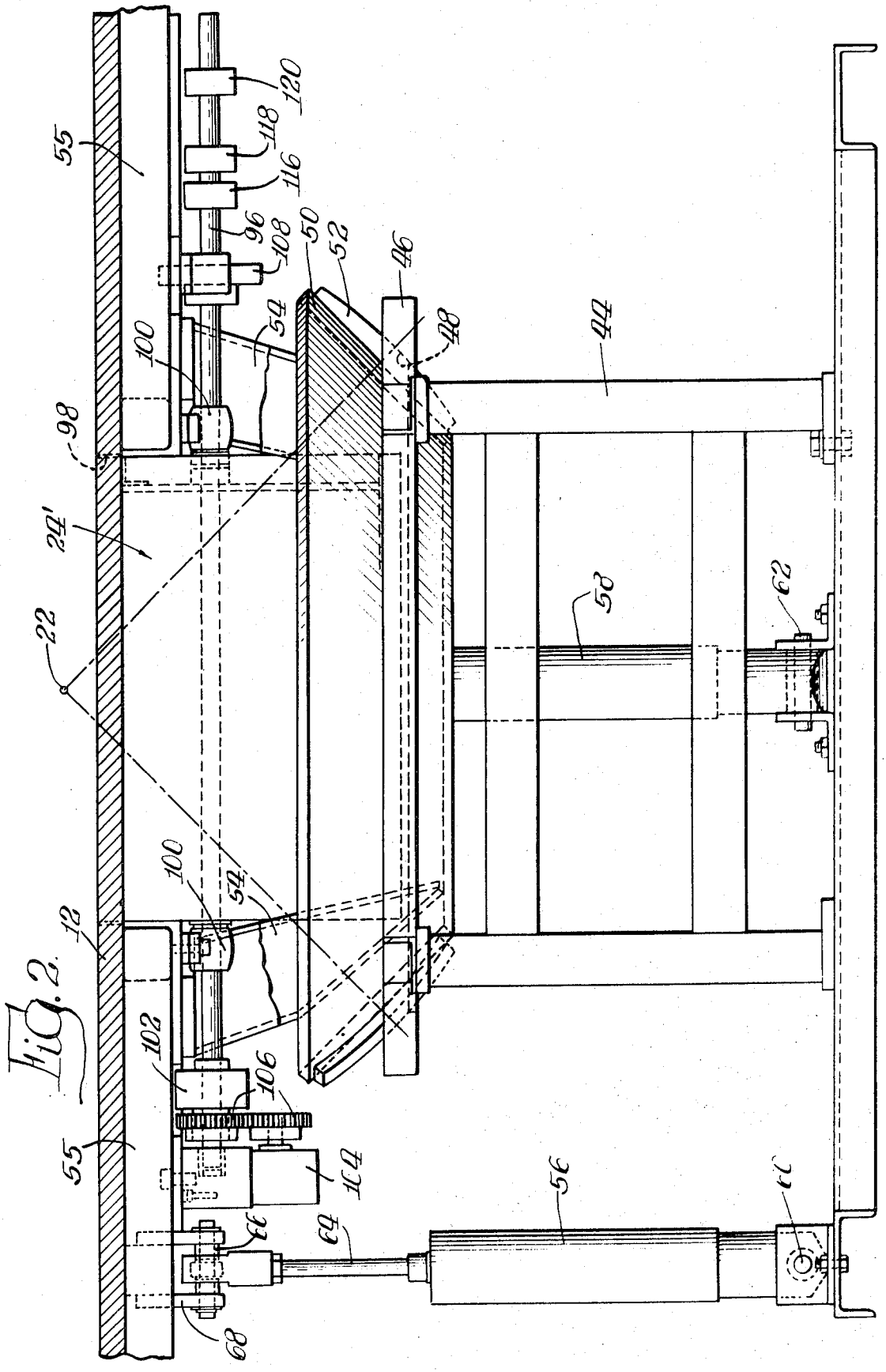

120
118
116
96
108
50
52
46
48
44
100
98
24'
22
58
62
100
54
12
102
106
55
74
56
64
66
68

Fig. 2.

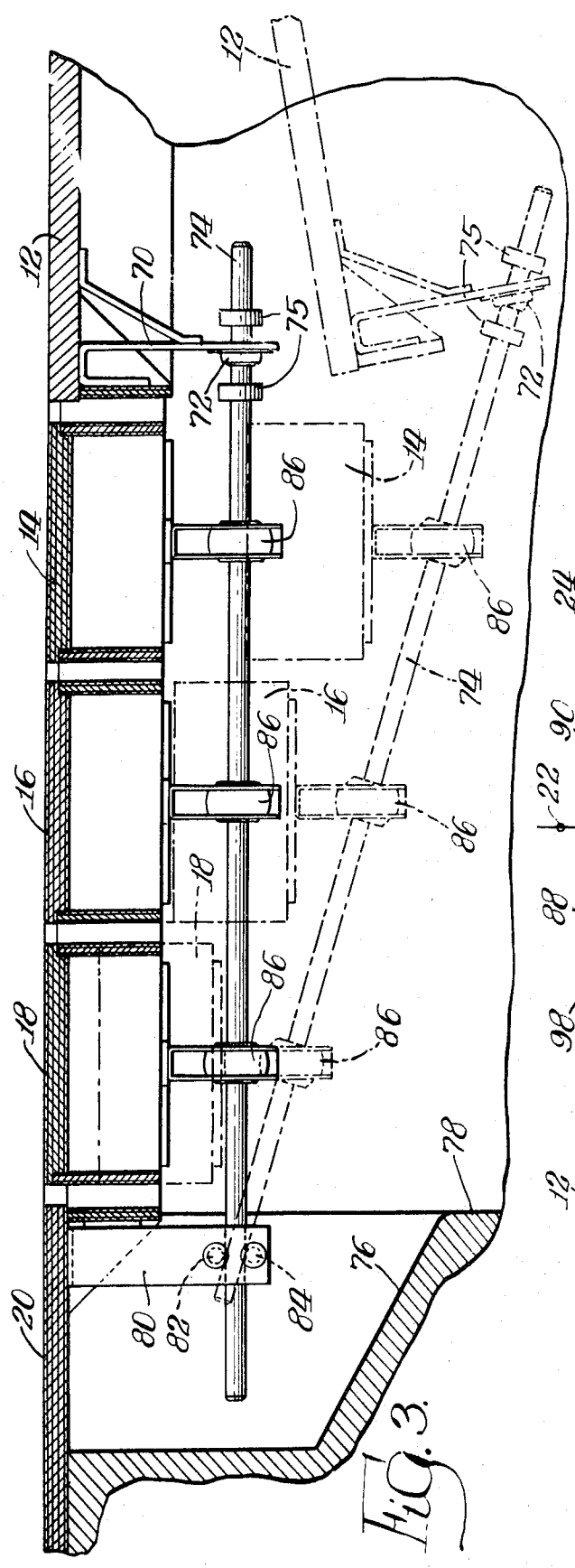

12
70
74
75
72
86
14
16
18
20
80
82
84
76
78

FIG. 3.

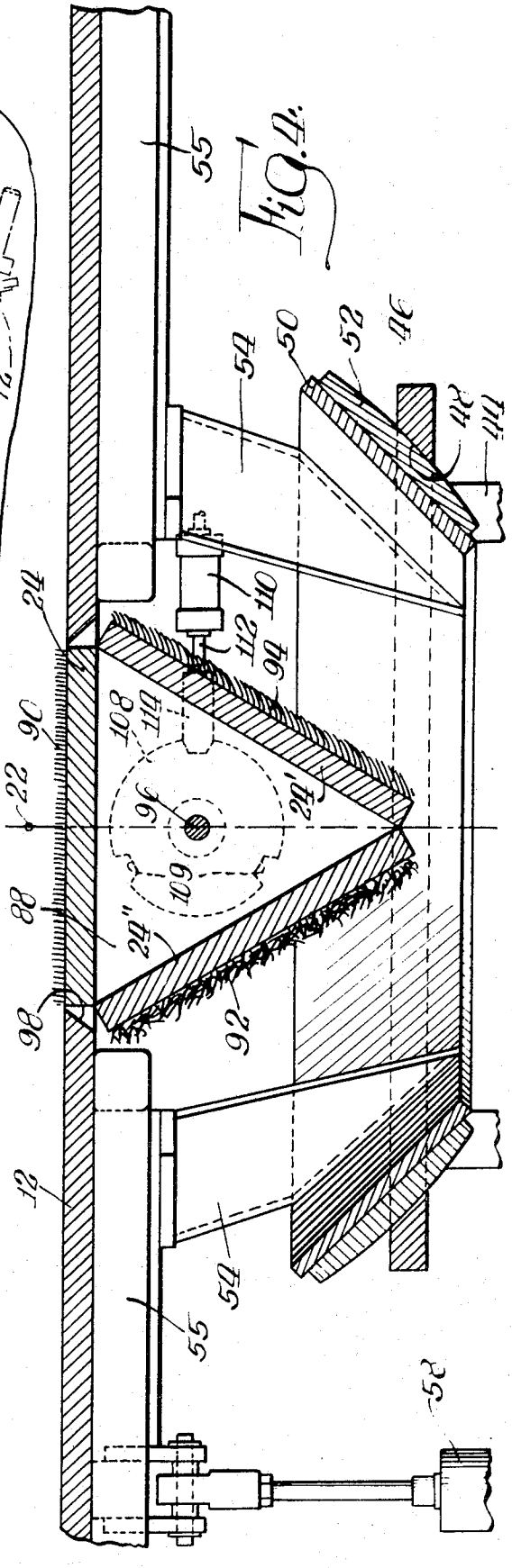

55
54
50
52
46
48
44
24
110
112
94
108
114
90
22
96
24'
109
88
24"
98
92
12
52

FIG. 4.

Fig. 5.

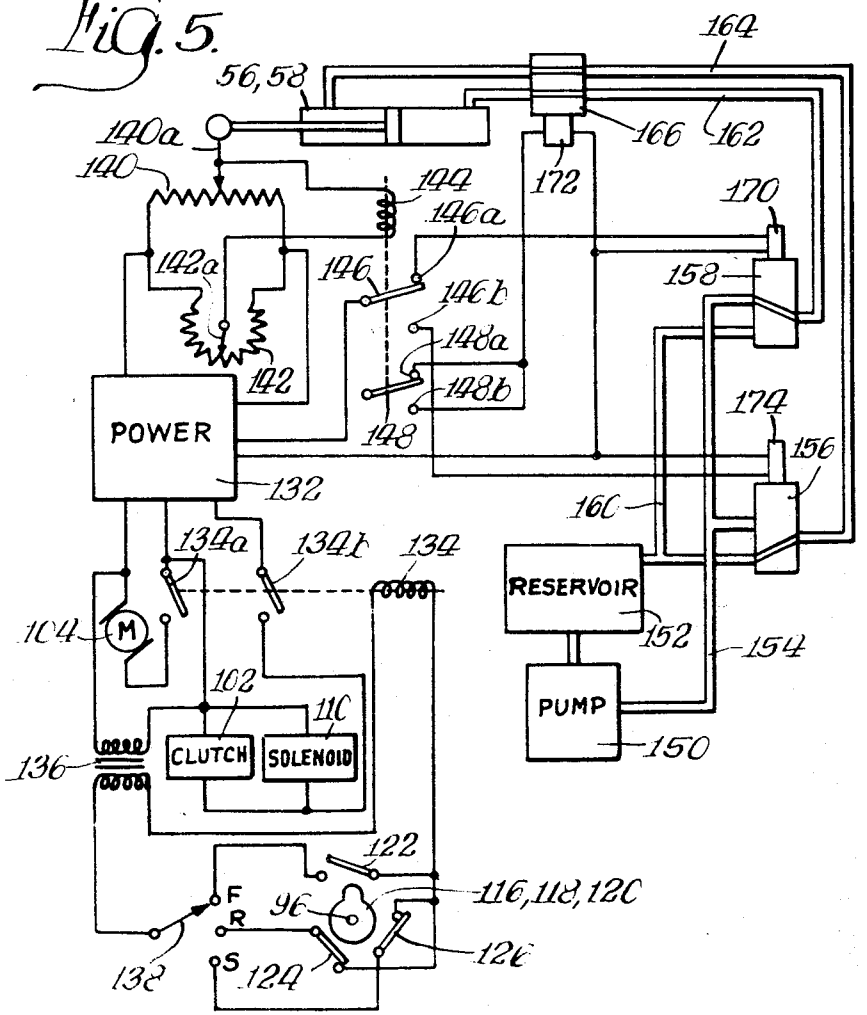


Fig. 6a.

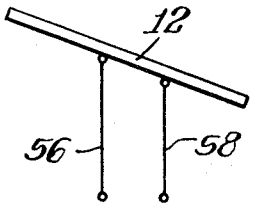


Fig. 6b.

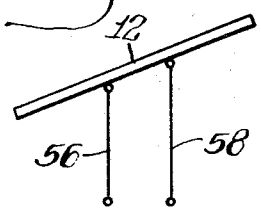


Fig. 6c.

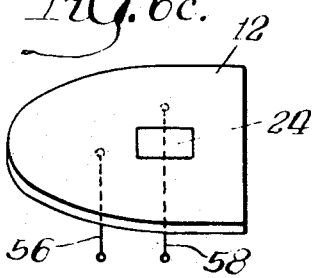


Fig. 6d.

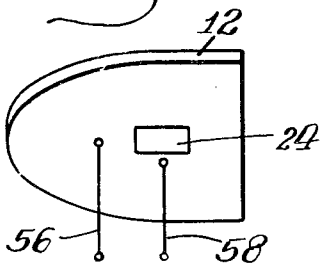


Fig. 6e.

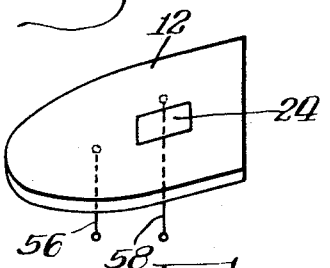
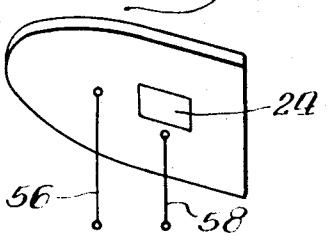


Fig. 6f.



GOLF TEE

CROSS-REFERENCE

This application is a continuation of my copending application Ser. No. 545,411, filed Apr. 26, 1966, now abandoned.

BACKGROUND OF THE INVENTION

With the upsurge in the popularity the game of golf, many products have been devised to enable a golfer to practice various aspects of his golf game. The various products range from simulated golf green to brushlike mats that simulate the fairway such that a golfer may hit a ball from the mat and thereby practice fairway wood shots as well as iron shots. Furthermore, golf games have been devised that permit a golfer to play a simulated hole on a golf course without actually playing on the course itself. However, as far as is known, no one has considered providing an apparatus that may be adjusted to provide a golfer with sloping lies for use in a golf game or to enable a golfer to practice shots from downhill lies, uphill lies, sidehill lies, and combinations of the foregoing and that is suited for use in such golf games. Furthermore, it does not appear that the prior art has contemplated providing a device that permits selective or controlled interchanging of a plurality of differing turf-simulating surfaces such that the golfer may hit shots from a simulation of the turf on the fairway, a simulation of the turf in the rough, and a simulation of the turf in a sand trap.

SUMMARY OF THE INVENTION

It is, therefore, the principal object of the invention to provide a new and improved tee area for use in golf games or for facilitating practice of varying golf shots.

More specifically, it is an object of the invention to provide a tee area comprising a planar member on which a golfer may stand and including means mounting the planar member for movement between a plurality of positions characteristic of downhill lies, uphill lies, sidehill lies and combinations thereof, means for moving the planar member through the plurality of positions, and control means for the moving means.

Another object is the provision of a tee area for use by golfers including a plurality of differing turf-simulating surfaces and having means movably mounting the plurality of turf-simulating surfaces for alternative movement to a ball-teeing position such that a ball may be placed there and hit by a golfer, together with means for moving the turf-simulating surfaces to the ball teeing position and a control therefore.

Yet another object is the provision of a tee area for use by a golfer comprising a relatively rigid member adapted to support a golfer together with means for moving the rigid member through a plurality of differing sloping positions and further including a plurality of differing lie-simulating surfaces and means for alternatively positioning a selected one of the lie simulating surfaces in a position relative to the rigid member such that a golfer may hit the ball therefrom.

A still further object is the provision of a rigid member adapted to support a golfer and including means for moving the rigid member through a plurality of sloping positions characteristic of various lies on a golf course and including flexible apron means interposed between the rigid member and surrounding surface such as a floor so as to present a substantially continuous surface between the rigid member and the surrounding surface regardless of the slope of the rigid member.

Yet another object of the invention is the provision of a tee including a rotatable turret bearing a plurality of differing turf simulating materials, a member adapted to support a golfer and having an opening in registration with the turret such that a selected one of the turf-simulating materials may be disposed within the opening, means for rotating the turret, and control means for the driving means including means for sensing the position of the turret, means for selecting a predetermined one of the turf-simulating materials for disposition within the opening and means responsive to the selecting means and the sensing means for actuating the driving means to position the predetermined one of the turf-simulating materials within the opening and thereafter deenergizing the driving means when the predetermined one of the turf-simulating materials is disposed within the opening.

Another object of the invention is the provision of a tee for use in a golf game including a planar member for supporting a golfer and including a surface simulating a selected portion of a golf course from which golf balls are adapted to be hit, a frame including a first spherical surface for supporting the planar member, a second mating spherical surface mounted on the planar member and engaged with the first spherical surface such that the first and second spherical surfaces provide a pivotal mount for the planar member, a first mechanism for moving the member to slope in one direction, a second mechanism for moving the member to slope in a second direction different from the first direction, and means for selectively controlling the first and second moving mechanisms including manually operable selection means such that the member can be made to slope in a plurality of directions to simulate the varying contours found on a golf course.

A still further object of the invention is the provision of a tee such as that described in the preceding paragraph wherein the member includes edges spaced from a stationary floor surface and including rigid apron members disposed between the planar member and the floor surface, and means interconnecting the floor surface, the planar member and the apron members including a plurality of supporting members for the apron member, means secured to the floor member for pivotally supporting one end of each support member, means secured to the planar member for pivotally supporting the other ends of the support members and means pivotally securing the apron members to the support members such that the apron members are disposed in a position intermediate the floor member and the planar member regardless of the slope of the member to provide a substantially continuous surface between the floor member and the planar member.

Other objects and advantages of the invention will become apparent from the specification taken on conjunction with the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a plan view of a tee area embodying the invention with portions thereof broken away for clarity;

FIG. **2** is an enlarged vertical section of a portion of the tee area illustrated in FIG. **1** and taken approximately along the line **2—2** thereof;

FIG. **3** is an enlarged fragmentary vertical section taken approximately along the line **3—3** of FIG. **1**;

FIG. **4** is a fragmentary vertical section taken approximately along the line **4—4** of FIG. **1**;

FIG. **5** is a schematic of a control system for a tee area embodying the invention; and

FIGS. ***6a***, ***6b***, ***6c***, ***6d***, ***6e*** and ***6f*** are schematics illustrating some of the sloping positions obtainable with a device made according to the invention.

An exemplary embodiment of a contourable and indexable tee made according to the invention is shown in FIG. **1** and is generally designated **10**. Specifically, the tee **10** comprises a movable table **12** on which a golfer may stand and having a shape defined by a combination of a semicircle and a rectangle having its measure length equal to the diameter of the semicircle. The table **12** is partially surrounded by a plurality of arcuate apron members **14**, **16** and **18**, which in turn are partially surrounded by a stationary flooring member **20**. A point **22** which is located just above the table **12** as seen in FIG. **2**, is the center of revolution for generating the arc of the semicircular portion of the table **12** as well as the semicircular portions of the apron members **14**, **16** and **18**. Centered about the point **22** substantially in the plane of the table **12**, is a rectangular mat **25** having means thereon simulating a lie con-

dition on a golf course such as the fairway, the rough or a sand trap. A ball to be hit from the tee is adapted to be placed at the point **22**, and, as will be apparent hereafter, when the tee is used in a golf game requiring that the ball be hit from the same point, shot after shot, for data acquisition purposes, the placing of the ball at the point **22** will fulfill this requirement regardless of the slope of the table **12**.

By means to be seen hereinafter, the table **12**, the aprons **14, 16** and **18** and the stationary floor portion **20** are secured together for relative movement at point **26, 28, 30, 32, 34, 36, 38, 40** and **42**. At the securing points **28** through **40**, the securing means extend radially from the point **22** between the table **12** and the floor member **20**. At the securing points **26** and **42**, the securing means extend between the table **12** and the floor portion **20** in a parallel relation to the front edge **13** of the table **12**.

Turning now to FIG. **2**, there is seen a supporting structure and moving mechanism for the table **12**. Specifically, there is provided a frame generally designated **44** which is adapted to be seated in a pit under the floor member **20**. Supported on the upper extremity of the frame **44** is a ringlike member **46** having an inner spherical surface **48**. The center of curvature of the inner spherical surface **48** is the point **22**. A ringlike member **50** having an outer spherical surface **52**, which also has its center of curvature at the point **22**, is seated in the ring **46** on the inner spherical surface **48** thereof to provide a universal pivot. A plurality of supporting members **54** interconnect the ringlike member **50** and a rigidifying frame **55** for the table **12** such that the latter may pivot about the point **22** to provide various sloping lies for a golfer standing thereon.

In order to accomplish pivotal movement of the table **12** to a variety of sloping positions, there are interposed between the frame **44** and the underside of the table **12** a pair of jacks **56** and **58** which are spaced 90° from each other relative to the point **22**. Each of the jacks **56** and **58** is comprised of a double-acting hydraulic cylinder having its lower end pivotally secured to the frame **44** as by pivots **60** and **62**, respectively, having their pivotal axes disposed at right angles to each other. The jack **56** has a piston rod **64** connected to a pivot pin **66** which is secured to the underside of the table **12** by a suitable bracket **68**. The jack **58** has a similar connection to the underside of the table **12**, not shown. The upper pivot **66** for the jack **56** and the upper pivot for the jack **58** again have their pivotal axes disposed at right angles to each other. Additionally, the pivotal axes of the upper pivots for the jacks **56** and **58** are disposed at right angles to the pivotal axes of their respective lower pivots **60** and **62**. The particular relationship of the pivotal axes of the upper pivots to the lower pivots permits movement of the table to a slope having a component in both of the directions mentioned above. By means to be described hereinafter, the jacks **56** and **58** are individually controlled in order to provide slopes of the table **12** which may correspond to uphill lies, downhill lies, sidehill lies, combinations of the foregoing, and a flat lie.

In order to permit movement of the table **12** to provide any of the above-mentioned sloped positions relative to the floor member **20**, and yet provide a substantially continuous surface therebetween, the apron members **14, 16** and **18** flexibly interconnect the table **12** and the stationary floor member **20**. Turning now to FIG. **3**, the means that flexibly interconnect the table **12**, the aprons **14, 16** and **18** and the stationary floor member **20** are seen in greater detail. While the structure shown in FIG. **3** is that located approximately at the point **28** (see FIG. **1**), identical structure is located at each of the points **26** and **30** through **42**.

A mounting bracket **70** is secured to the underside of the table **12** and mounts, near its lower end, a conventional pillow block bearing **72**. The bearing **72** supports a shaft **74** which extends underneath the aprons **14, 16** and **18** to a pocket **76** in the wall of the pit **78** in which the table **12** is mounted. A pair of stop collars **75** are disposed on the shaft **74** on either side of the bearing **72** to preclude longitudinal movement of the shaft **74** within the bearing **72**. A yokelike bracket **80** depends from the floor member **20** and has at its lower end a pair of spaced elements **82** and **84**, between which the shaft **74** is slidably received. Each of the apron members **14, 16** and **18** has a hollow rectangular cross section as shown in FIG. **3** and is supported on the shaft **74** by means of self-aligning pillow block bearings **86** secured to the undersides of the apron members **14, 16** and **18**. The self-aligning pillow block bearings **86** are of conventional construction and permit movement of the shaft **74** relative to the table **12**, the apron members **14, 16** and **18** and the floor member **20** as for example to the position shown in the dotted lines in FIG. **6** together with sliding movement of the shaft **74** within the bearings **86**.

As mentioned previously, similar flexible interconnecting means between the floor **10**, the table **12** and the apron members **14, 16** and **18** are also provided at the points **26, 30, 32, 34, 36, 38, 40** and **42**. Accordingly, it will be apparent that when the jacks **56** or **58** are actuated to move the table **12** to any one of a plurality of sloping positions, the flexible interconnection will permit the apron members **14, 16** and **18** to provide a substantially continuous supporting surface between the floor **10** and the table **12** on all sides of the latter. Because the apron members **14, 16** and **18** are basically arcuate in shape, they may be sufficiently rigid to support a golfer and will not flex substantially regardless of the particular slope of the table **12**. For example, if at the point **28**, the apron members **14, 16** and **18** are disposed in the position sown in dotted lines in FIG. **3**, it will be apparent that at the point **40**, the configuration will be exactly the reverse as the side of the table **12** adjacent the point **40** will be raised with respect to the floor **10**. At point **34**, the position of the apron members **14, 16** and **18** will appear as that shown in solid lines in FIG. **3**. It will also be apparent that at the points **26, 30** and **32**, the position of the apron members **14, 16** and **18** will be generally similar at the point **28**, although varying the degree and the positioning of the apron members **14, 16** and **18** at the points **36, 38** and **42** will bear the same similarity to the position of the apron members **14, 16** and **18** at the point **40**.

Thus, it will be apparent that the unique flexible interconnecting structure just described permits movement of the table **12** to a plurality of sloping positions relative to the stationary floor member **20** while maintaining the apron members **14, 16** and **18** positioned to provide a substantially continuous supporting surface such that a golfer may walk from the floor member **10** to the table **12** without danger of being tripped by the edge of the table **12** or the edge of the floor member **10**.

In order to enhance the continuity of the surface thus presented, the entire area shown in FIG. **1** with the exception of the mat **24** may be covered by a suitable layer of carpeting, not shown.

Turning now to FIGS. **1** and **4**, there is shown an exemplary form of lie material positioning device. As seen in FIG. **4**, three rectangular planar members **24, 24'** and **''** secured to a frame **88** to form a rotatable turret having a cross section in the form of an equilateral triangle. To each of the rectangular planar members **24, 24'** and **24''** there is secured a material simulating a selected lie on a golf course. For example, a number of relatively short bristles **90** are secured to the rectangular planar member **24** to simulate a portion of the fairway of a golf course while substantially longer bristles **92** are secured to the rectangular planar member **24''** to simulate the rough on a golf course. Extremely long bristles **94** are secured to the rectangular planar member **24'** and angled with respect thereto to simulate the sand in a sand trap on a golf course. By angling the bristles **94** with respect to the rectangular planar member **24'** towards the rear of the table **12**, the bristles **94** present more resistance to the passage of a club head therethrough by tending to trap the club head to provide the effect of hitting a ball out of the sand on a golf course.

The turret **88** mounts at its center an elongated shaft **96** which, in turn, as best seen in FIG. **1**, serves to pivotally mount the triangular member formed by the rectangular planar members **24, 24'** and **4''** and the turret **88** to the underside of the

table 12. A rectangular opening 98 is provided in the surface of the table 12 such that the center of the rectangular opening 98 lies directly below the point 22. The rectangular opening 98 has a size slightly larger than that of each of the planar rectangular members supporting the lie simulating materials. Accordingly when the shaft 96 is rotated, any one of the rectangular planar members 24, 24' or 24'' may be disposed within the opening 98 in approximately the plane of the table 12.

The shaft 96 is supported on either side of the rectangular opening 98 by a pair of self-aligning bearings 100 (FIG. 1) secured to the frame 55 of the table 12. One end of the shaft 96 is secured to the output of a magnetic clutch 102 which may be of conventional construction. A motor 104 secured to the frame 55 of the table 12 drives the input of the clutch 102 through a pair of gears 106. Thus upon actuation of the motor 104, the turret 88 bearing the various lie simulating materials may be rotated to present various ones of the lie simulating materials at the rectangular opening 98.

At the other end of the shaft 96 is disposed a portion of the control mechanism for controlling the position of the triangular member having the lie simulating materials thereon within the opening 98. A circular lock plate 108 having three notches 109 equally spaced about its periphery is mounted on the shaft 96. Mounted adjacent the shaft 96 is a locking mechanism comprised of solenoid 110 having a plunger 112 on which a lock arm 114 is mounted. By means not shown, the plunger 112 is biased towards an extended position to cause the lock arm 114 to enter any one of the three notches on the lock plate 108 to preclude rotation of the shaft 96. When, by means of a control described hereafter the solenoid 110 is energized, the lock arm will be withdrawn from a locking position. The notches 109 in the lock plate 108 are arranged with respect to lock arm 114 and the lie material simulating surfaces on the turret 88 such that one of the latter is disposed approximately in the plane of the table 12 whenever the lock arm 114 is extended into one of the notches 109 in the lock plate 108.

In order to ascertain when a given lie simulating surface is properly disposed within the opening 98, and also which one of three lie simulating materials is disposed within the opening 98, there are provided three one-point cams 116, 118 and 120. Microswitches 122, 124 and 126 have their operators disposed in contact with the cams 116, 118 and 120 respectively and are arranged such that one of the switches is opened by its associated cam when a given lie simulated material is disposed within the rectangular opening 98. For example, the closing of the switch 122 may correspond to the disposition of the planar member 24 bearing the fairway simulating bristles 90 within the opening 98 while the opening of the switch 124 may correspond to the disposition of the planar member 24'' bearing the rough simulating bristles 92 within the openings. Finally, the opening of the switch 126 detects that the member 24' bearing the sand trap simulating bristles 94 is disposed within the opening 98.

The operation of the switches 122, 124 and 126 with respect to the remainder of the control circuitry is best seen in FIG. 5. The motor 104 is connected to a suitable source of power 132 through a normally open contact 134*a* of a relay 134. The switches 122, 124 and 126 are connected in parallel with each other and in series with the relay coil 134. The other side of the relay coil 134 is connected through the secondary coil of a transformer 136 to a manually operated lie selection switch 138. The lie selection switch 138 may be closed thru any one of three contacts F, R and S, for fairway, rough and sand, respectively, so as to complete a circuit between the transformer 136 and the relay coil 134 and any one of the switches 122, 124 and 126. The transformer 136, of course, has its primary coil connected to the source of power 132.

A second contact 134*b* of the relay 134 is arranged in series with the parallel combination of the magnetic clutch 102 and the lock solenoid 110 across the source of power 132. Thus, it will be apparent that whenever the relay 134 is energized, the normally open contacts 134*a*, and 134*b* will be closed to energize the motor 104, the magnetic clutch 102 and the lock solenoid 110.

The operation of the lie selection system is as follow. Initially, let it be assumed that the member 24 bearing the fairway-simulating bristles 90 is disposed within the opening 98. Accordingly, it will be apparent that the switch 138 will be in the position shown in FIG. 5, namely closed through the contact F, the switch 122 will be opened by its cam 116 as shown in FIG. 5, the relay 134 will be deenergized and thus neither the clutch 102 nor the solenoid 110 will be energized. Since the solenoid 110 is deenergized, it will be apparent that the lock arm 114 is extended into one of the notches 109 such that the turret 88 will be locked in the position shown in FIG. 4. As a result, the turret 88 cannot be rotated until the position of the switch 138 is moved to be closed through either the contact R or the contact S. If the golfer desires to use the sand-simulating bristles for the next shot and manipulates the switch 138 accordingly, it will be apparent that the relay 134 is energized through the circuit including the transformer 136, the switch 138 and the contact S thereof and the switch 126. The resultant energization of the relay 134 closes the contacts 134*a* and 134*b*. The closing of the contacts 134*b* energizes the solenoid 110 thereby causing the lock arm 114 to be retracted from a notch 109 to permit rotation of the shaft 96. Simultaneously therewith, the clutch 102 will be energized and will drivingly engage the shaft 98 with the gears 106. The closing of the contact 134*a* energizes the motor 104 to drive the shaft 96 and the turret 88 through the gears 106 and the clutch 102. As a result of rotation of the shaft 96, the cams 116, 118 and 120 will be rotated and when the shaft 96 has rotated the turret 88 to the point where the sand-simulating bristles 94 are disposed in the opening 98 and in the plane of the table 12, the cam 120 will open the switch 126 to deenergize the relay 134. The resultant opening of the contacts 134*a* and 134*b* will deenergize the motor 104, disengage the magnetic clutch 102, and deenergize the solenoid 110. Since the clutch 102 disengages immediately upon the opening of the switch 126, coasting of the motor 104 after it is deenergized will not cause further rotation of the shaft 96. Furthermore, deenergization of the solenoid 110 simultaneously with the opening of the switch 126 will cause the lock arm 114 to be urged into an aligned one of the notches 109 to lock the turret 88 in the proper position. Thus, manipulation of the switch 138 causes automatic election of the proper lie material and proper positioning thereof.

FIG. 5 also illustrates a control system for selective operation of the jacks 56 and 58 to cause the table 12 to assume any desired slope. Since the control system for each of the jacks 56 and 58 is identical, only the control system for one jack is shown in FIG. 5 and described hereinafter. Of course, it will be understood that the control system for the other jack is substantially identical.

A conventional Wheatstone bridge is formed of a potentiometer 140 and a rheostat 142. The potentiometer 140 and the rheostat 142 are connected together to form a loop and the resulting two junctions are connected across a direct current source of power. An error signal is detected by connecting the wiper 140*a* of the potentiometer 140 and the wiper 142*a* of the rheostat 142 to opposite sides of a micropositioner relay 144. The wiper 142*a* of the rheostat 142 is adapted to be positioned manually to provide a control signal while the position of the wiper 140*a* of the potentiometer is controlled by the degree of extent of one of the jacks 56 or 58 to provide a feedback signal. The mechanical interconnection between the wiper 140*a* and the jack can be achieved by any suitable means known in the art. The micropositioner 144 operates a switch 146. Wen the imbalance in the bridge causes the current of an error signal to flow in one direction through the micropositioner 144, the switch 146 may be closed through a contact 146*a* while if the direction of current flow through the micropositioner 144 is in the opposite direction, the switch 146 will be closed through a contact 146*b*. When the bridge is balanced and there is no current flow, the switch 146 will be opened.

A similar switch **148** is also operated by the micropositioner **144** and may be closed through contacts **148***a* or **148***b* whenever the bridge is not balanced. When the bridge is balanced, the switch **148** will also be opened.

A conventional hydraulic pump **150** includes an input from a conventional reservoir **152** and an output line **154** which provides hydraulic fluid under pressure to a pair of three-way spool valves **156** and **158**. The spool valves **158** and **156** have ports connected to a line **160** which returns hydraulic fluid to the reservoir **152**. The valves **156** and **158** additionally have ports connected to lines **152** and **164** which communicate thru a valve **166**, which controls the passage of hydraulic fluid to or from one of the hydraulic jacks **56** or **58**. The lines **162** and **164** communicate with the cylinder of the jacks **56** or **58** on opposites sides of the piston thereof such that when hydraulic fluid under pressure is passed from the pump **150** through the valve **156**, the line **164** and the valve **166**, the piston of the jack **56** or **58** will be moved downwardly while if hydraulic fluid under pressure is directed from the pump **150** through the valve **158**, the line **162**, and the valve **166**, the piston of the jack **56** or **58** will be directed upwardly.

Operation of the system is as follows. When a golfer desires a different slope, he manipulates the wiper **142***a* of the rheostat, which may cooperate with suitable indicia indicating degrees of slope, which will create an imbalance in the bridge, and the micropositioner **144** will be energized. If it be assumed that the current direction causes the switches **146** and **148** to be closed through the contacts **146***a* and**148***a*, respectively, the resultant energization of a solenoid actuator **170** will cause the valve **158** to permit communication between the lines **154** and **162**. The closing of the switch **148** through the contact **140***a* will energize a solenoid actuator **172** for the valve **166** to cause the latter to permit communication of fluid between the jack **56** or **58** and both of the lines **162** and **164**. Thus, hydraulic fluid under pressure will be admitted to the jack **56** or **58** to cause the piston rod thereof to move outwardly to pivot the table **12** about the point **22**. This action will, of course, cause hydraulic fluid on the upper side of the piston of the jack **56** or **58** to be forced backwardly through the line **164** to the valve **156** which, when its actuator **174** is deenergized, permits fluid communication between the line **164** and the reservoir **152**. When the wiper**140***a* of the potentiometer **140** has been moved a sufficient distance by the piston of the jack **56** or **58** so as to balance the bridge corresponding to the normally programmed slope of the table **12**, current will cease to flow through the relay **144** and as a result, the switches **146** and **148** will be opened. The resultant deenergization of the solenoid **170** will preclude further admission of fluid under pressure from the pump **150** into the jack **56** or **58** while the deenergization of the solenoid **172** for the valve **166** will cause the valve **166** to disrupt fluid communication between the lines **162** and **164** and the jack **56** or **58** thereby trapping hydraulic fluid within the jack to cause the piston rod to be maintained in its bridge balancing attitude within the jack **56** or **58** and thereby maintain the table **12** in the selected position.

If the imbalance in the bridge formed by the potentiometer **140** and the rheostat **142** was such as to cause the relay **144** to close the switches **146** and **148** through the contacts **146***b* and **148***b*, respectively, it will be apparent that the valve **156** will be operated to ultimately cause the piston to descend within the jack **56** or **58** to thereby pivot the table **12**. In all other respects, the operation is substantially identical.

Turning now to FIG. **6**, there is seen a plurality of schematic illustrations of various positions obtainable with a tee constructed in accordance with the invention. For example, FIG. **6***a* shows a position of the table **12** corresponding to a downhill **76** lie wherein the jack **56** is extended and the jack **58** is in a partially extended or neutral position. FIG. **6***b* shows a position of the table **12** corresponding to uphill l wherein the jack **58** is at a neutral position while the jack **58** is retracted. FIG. **6***c* shows a position of the table **12** corresponding to a sidehill lie wherein a right-handed golfer would have his feet located above the ball. The jack **56** is in a neutral position while the jack **58** is extended. FIG. **6***d* illustrates another sidehill lie wherein a right-handed golfer would have his feet below the ball. In this instance, the jack **56** is again in a neutral position while the jack **58** is in a retracted position. FIG. **6***e* shows a combination uphill and sidehill lie for a right-handed golfer would have his feet below the hall. To achieve this position, the jack **56** is extended while the jack **58** is retracted. It will be apparent that virtually an infinite number of positions of the table **12** other than those shown in FIG. **6** may be obtained by proper control of the jacks **56** and **58** using the corresponding rheostat **142**.

From the foregoing it will be apparent that the invention provides a tee that may be used for practice or in conjunction with a golf game wherein any one of a plurality of turf simulating materials may be selectively moved to a point on a tee such that the golfer may hit a ball therefrom. Furthermore, the invention provides a tee area that may be sloped in many different ways such that a golfer may hit a ball from a selected slope simulating the various turret contours found on a golf course. Finally, it will be apparent that a unique flexible interconnecting structure is provided for interconnecting the slopable tee area with a surrounding stationary structure so as to provide a substantially continuous surface that eliminates the possibility of a golfer tripping on a discontinuity when approaching the tee area.

Having described a specific embodiment of my invention as required by 35 USC 112, I do not wish to be limited to the details set forth, but rather, to have my invention construed broadly according to the true spirit thereof as set forth in the following claims.

I claim:

1. A golf device for enabling a golfer to drive, from a single location, a plurality of shots from materially differing lie conditions representing the lie conditions at differing locations on a hole on a golf course, said golf device comprising, in combination:

a. means defining a generally planar surface on which a golfer may stand to hit golf balls;

b. means on said surface defining a single-hitting zone in which a golf ball may be placed and thereafter driven by a golfer standing within said area, said zone being capable of receiving any one of a plurality of differing turf-simulating mats;

c. means, including a plurality of mats having substantial areas, for presenting a golfer with ball-playing surfaces that simulate a fairway, the rough and a sand trap and vary from each other in the difficulty they present to the driving of balls therefrom to an extent typical of that presented to a golfer when driving a golf ball in a fairway, the rough and a sand trap; and

d. mean operatively associated with said zone and movably mounting said mats for alternate reception in said single-hitting zone whereby a golfer standing on said surface may hit shots from a single location from lie conditions like the lie conditions of the fairway, rough and sand traps found at various locations on a golf hole on a golf course.

2. The combination of claim **1** wherein said mounting means comprises a rotatable turret having said plurality of mats mounted about the periphery thereof at different locations thereon so that rotation of said turret will selectively dispose any one of said mats at said single-hitting zone; and means for rotating said turret including a moving means and means for controlling said moving means and operable to cause said moving means to rotate said turret so that a selected one of said mats is disposed at said hitting zone in readiness to support a golf ball so that a golfer may drive a ball therefrom.

3. The combination of claim **2** wherein said surface is defined by a rigid platform capable of supporting a golfer, and said hitting zone defining means comprises an opening within said platform; sad turret being rotatably mounted below said opening with a portion of its periphery in close proximity thereto so that a selected one of said mats may be disposed in said opening in approximately the plane of said surface.

4. The combination of claim 3 wherein said moving means includes an energizable motor; and said control means comprises means for sensing the position of said turret, means operable to select a predetermined one of said mats for disposition within said opening, and means responsive to both said selecting means and said sensing means for energizing said motor to rotate said turret thereby positioning said selected one of said mats within said opening and for deenergizing said motor when said selected one of said mats is disposed within said opening.

5. The combination of claim 3 further including means mounting said platform and said turret for tilting movement to a plurality of positions simulating various sloping lies on a golf course.

6. A golf device for enabling a golfer to hit, from a single location, a plurality of shots from differing lie conditions representing the lie conditions at differing locations on a hole on a golf course sad golf device comprising, in combination: means providing a hitting area in which a golfer may stand to hit a plurality of golf balls therefrom, said hitting area including a predetermined zone at which golf balls may be located by a golfer in readiness for each shot and in which any one of a plurality of different playing surfaces may be disposed: means defining a first playing surface having a substantial area and adapted to be received in said zone for simulating the type of lie at one location on a golf hole so that a golfer, in hitting a ball therefrom will be confronted with a shot like that which must be made from a corresponding location on the golf hole; means defining a second playing surface having a substantial area and adapted to be received in said zone for simulating another type of lie at another location different from said first location on the golf hole so that a golfer, in hitting a ball therefrom, is confronted with a shot like that which would be played from the second, different location on the golf hole; said first and second playing surface each differing from each other in difficulty they present to the driving of balls therefrom to an extent typical of that presented to a golfer when driving a golf ball from materially different locations on a golf hole; means for moving said first and second playing surfaces to said predetermined zone in said hitting area; and means for selectively controlling said moving means so that a selected one of said first and second playing surfaces may be disposed in said predetermined zone of said hitting area whereby the golfer may hit, from a single location in the hitting area, shots of materially different character due to the material difference in the difficulty in hitting shots from the different playing surfaces.

7. The invention of claim 6 wherein said mounting means comprises a turret bearing said first and second playing surfaces and operatively connected to said moving means to be driven thereby, means mounting the turret for rotation about an axis below said hitting area and adjacent said predetermined zone thereof; said hitting area including an opening therein at said predetermined zone whereby rotation of said turret will dispose one or the other of said first and second playing surfaces in said opening and in said predetermined zone such that a golfer may drive a ball therefrom.

8. The invention of claim 7 wherein said moving means comprises a motor for drivingly rotating said turret; means for sensing the position of said turret; means for selecting one of said first and second playing surfaces for disposition within said opening; and means responsive to both said selecting means and said sensing means for energizing said motor to position said selected one of said first and second playing surfaces within said opening and for deenergizing said motor when said elected one of said first and second playing surfaces is disposed within said opening.

9. The invention of clam 7 further including means operable to lock said turret in a position wherein one of said first and second playing surfaces is disposed within said opening whenever said moving means is not inoperation.

10. A golfing station whereby golf shots may be hit from differing lie conditions at a single location comprising: a planar golfer supporting surface; an interruption in said supporting surface defining a golf ball lie zone of substantial area; means for simulating golf course lie conditions including matlike portions having substantial areas of different turf condition simulating characteristics disposable in said golf ball lie zone with each matlike portion presenting a ball playing surface that varies from the others in the difficulty it presents to the driving of balls therefrom typical of the difficulty presented to a golfer when driving a golf ball from different locations on a golf hole; a means, including a motor, for moving said lie condition simulating means, aid moving means being connected to said lie condition simulating means to move said position of said condition simulating means toward said interruption to occupy said golf ball lie zone in approximately the plane of said surface and away from said interruption to thereby provide materially different turf-simulating conditions in said interruption.

11. A golfing station according to claim 10 wherein said interruption comprises an opening within said supporting surface.

12. A golfing station according to claim 10 wherein there are three said portions one simulating a fairway, one simulating the rough, and one simulating a sand trap.

13. For use in a golf game, the combination of:

a. a member adapted to support a golfer and including a surface simulating the turf on a selected portion of a golf course hole to provide a lie condition and adapted to have golf balls hit therefrom,

b. means mounting said member for movement about a fixed point just above said surface between a plurality of positions characteristic of crosshill lies, downhill lies, uphill lies and flat lies, such that a ball may be located on said surface at said point for all of said plurality of positions of said member, and

c. means for moving said member between said plurality of positions.

14. The combination of claim 13 wherein said mounting means includes means for mounting said member for compound movement whereby said member may achieve a plurality of positions wherein it slopes two directions and said moving means comprises first means including a motor for moving said member to slope in one direction and second means including a motor for moving said member to slope in a second direction at right angles to said first direction.

15. The invention of claim 13 wherein said mounting means comprises a fixed frame, means on said frame having a concave spherical surface, means mounted on said member having a convex spheral surface and in mating engagement with said first spherical surface, the center of each of said spherical surfaces being located at said first point just above said surface.

16. The combination of claim 13 further including:

d. a second surface simulating the turf on a second selected portion of a golf course hole to provide a second lie condition differing from said first lie condition in the difficulty it presents to the driving of a ball therefrom;

e. means on said member movably mounting said turf-simulating surfaces for alternative disposition in a single-ball teeing position relative to said member; and

f. means for moving said turf-simulating surfaces to said ball-teeing position.

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