Nov. 24, 1936. J. LOEB 2,061,973

GOLF APPARATUS

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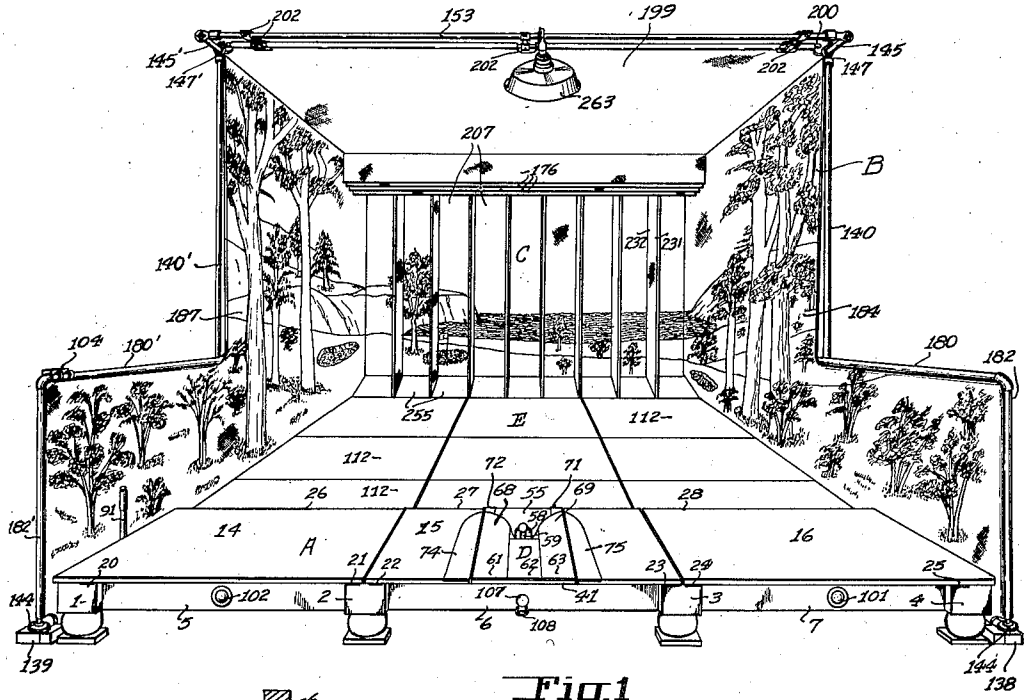


Fig. 1

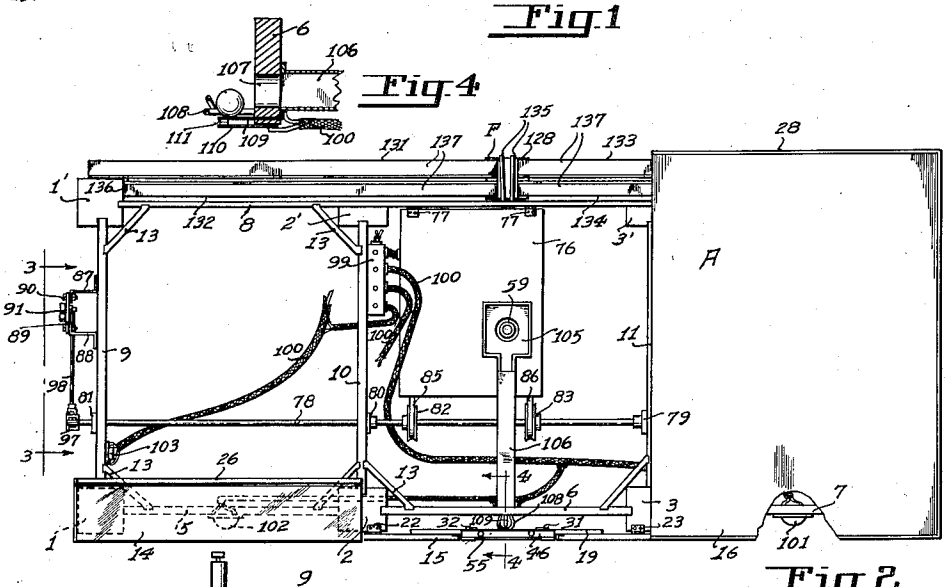


Fig. 2

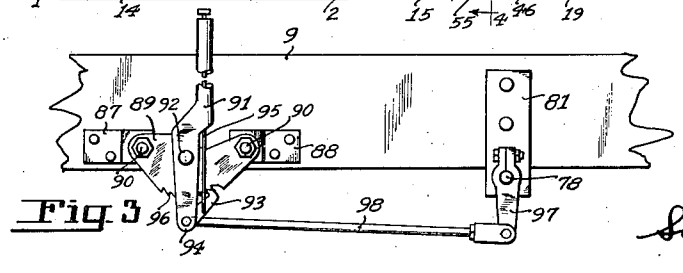


Fig. 3

Fig. 4

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GOLF APPARATUS

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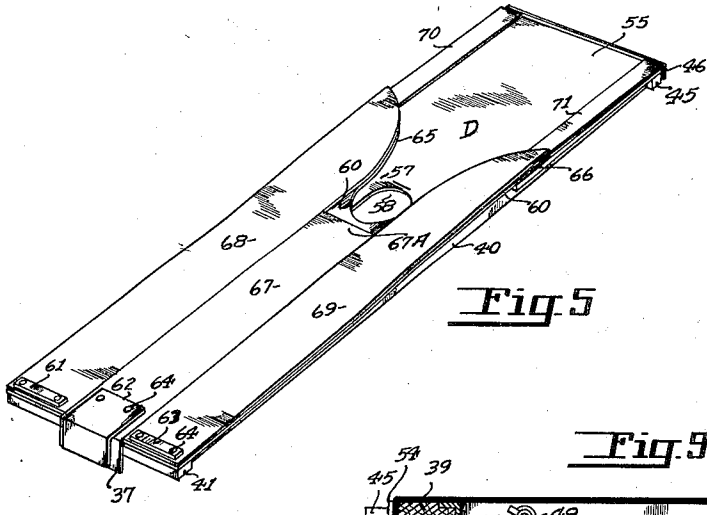


Fig. 5

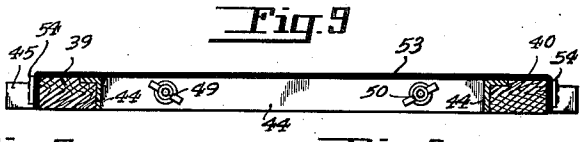


Fig. 9

Fig. 6

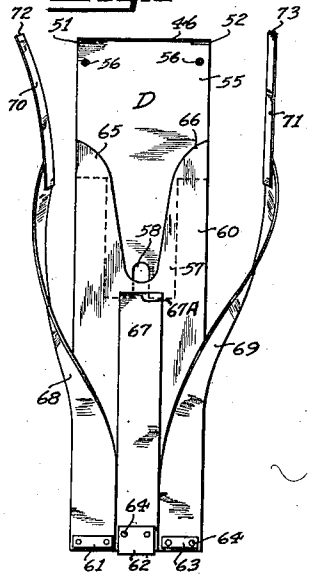


Fig. 7

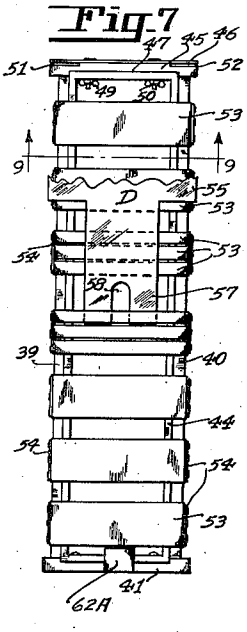
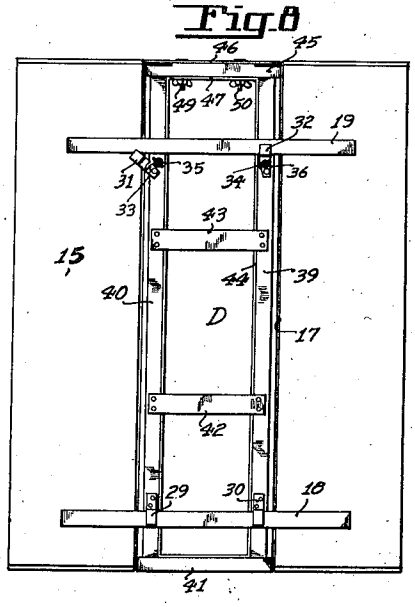


Fig. 8



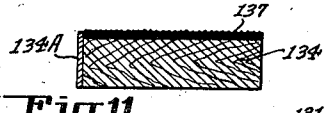


Fig. 11

Fig. 10

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GOLF APPARATUS

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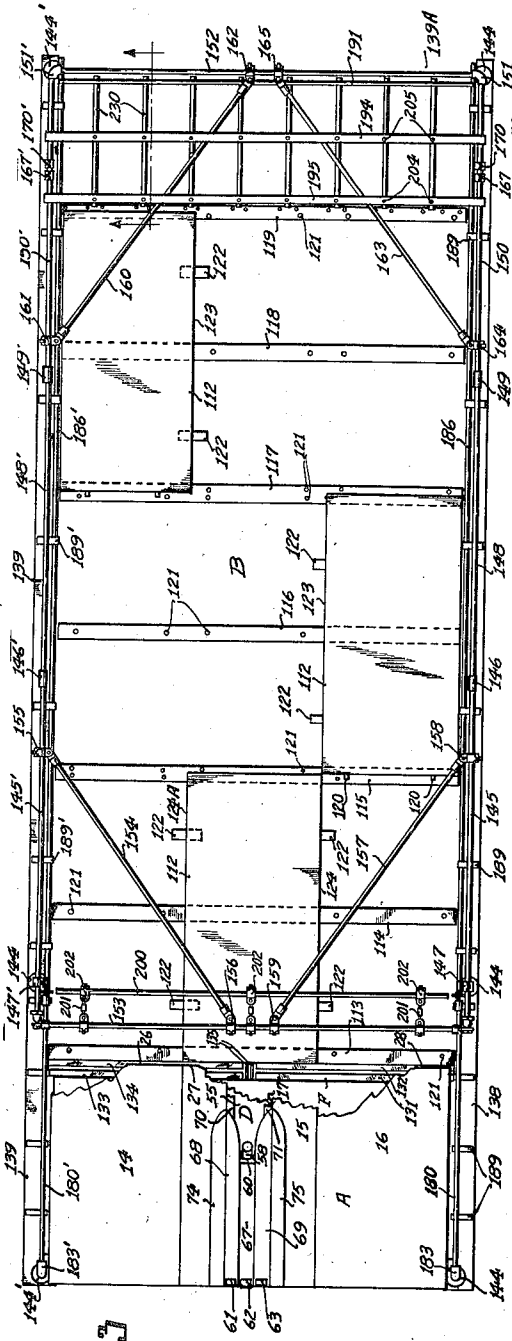


Fig 13

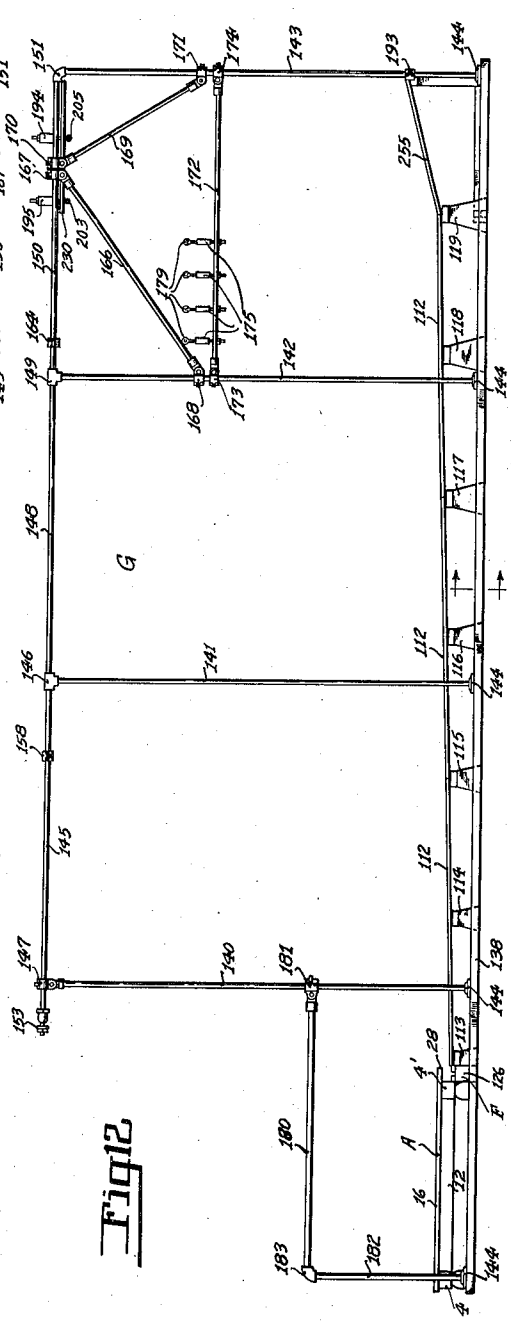


Fig 12

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GOLF APPARATUS

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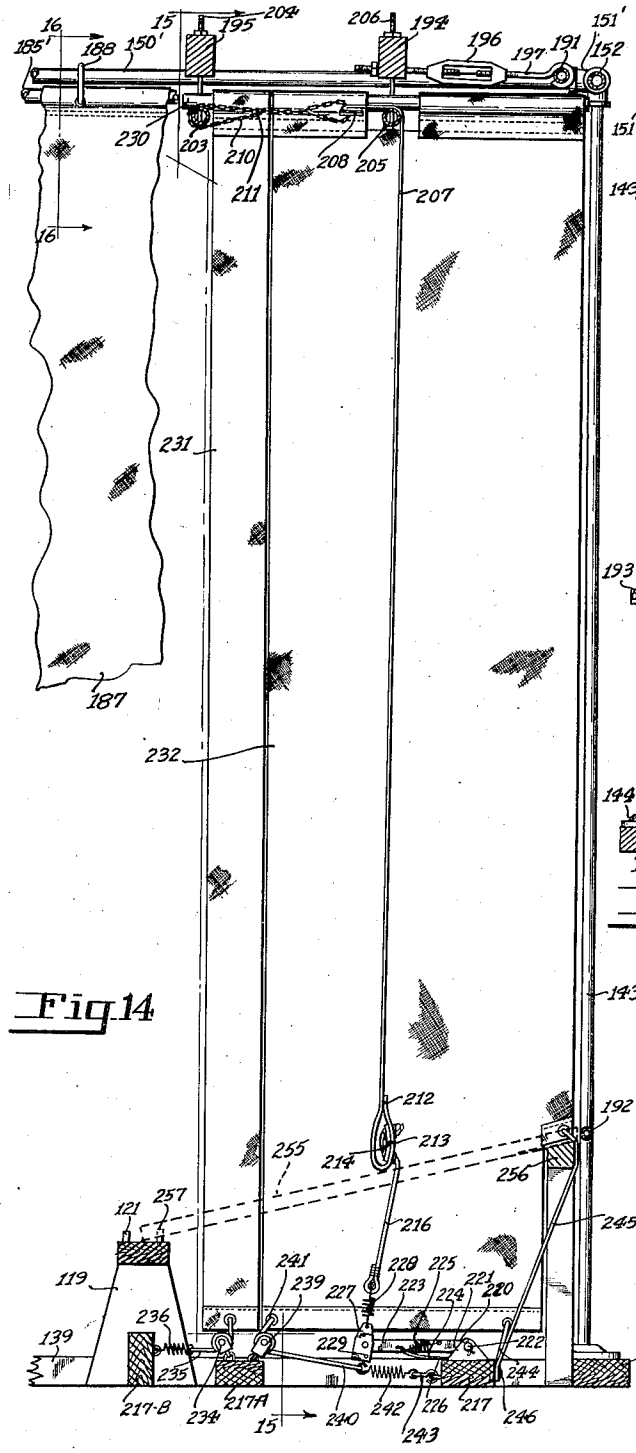


Fig. 14

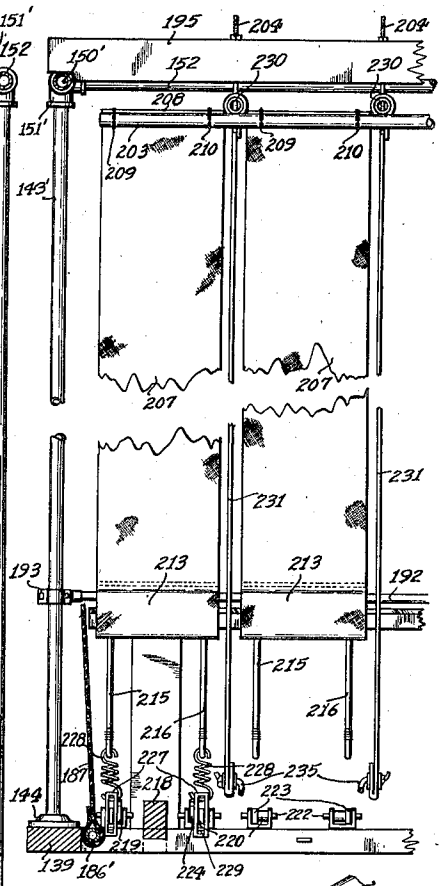


Fig. 15

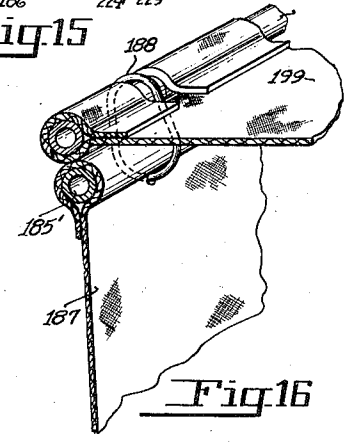


Fig. 16

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GOLF APPARATUS

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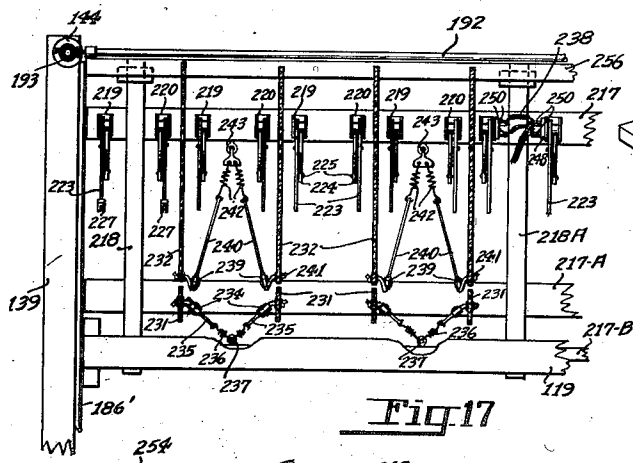


Fig. 17

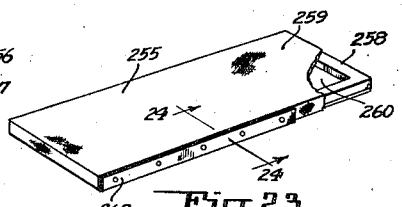


Fig. 23

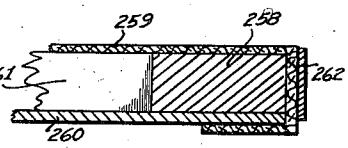


Fig. 24

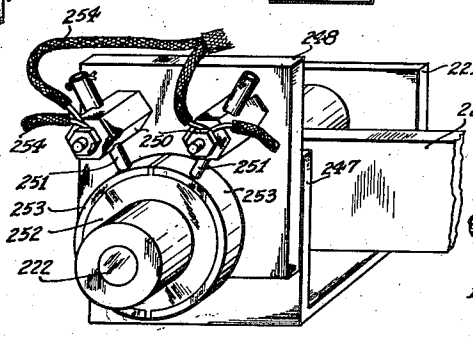


Fig. 18

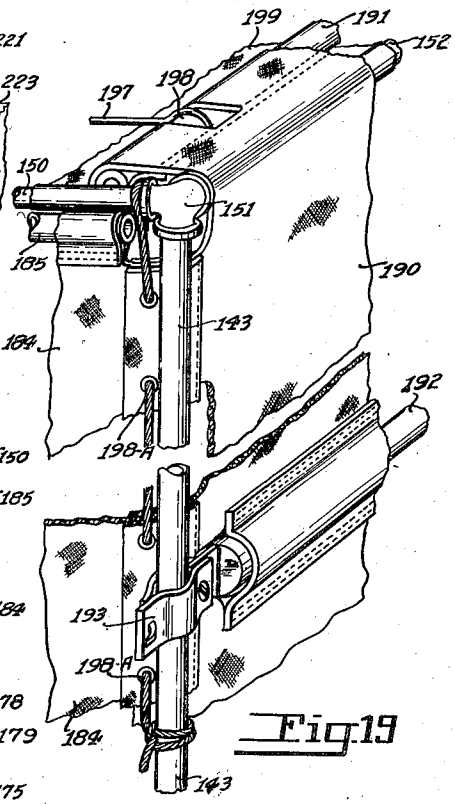


Fig. 19

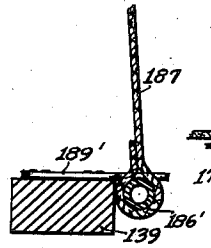


Fig. 21

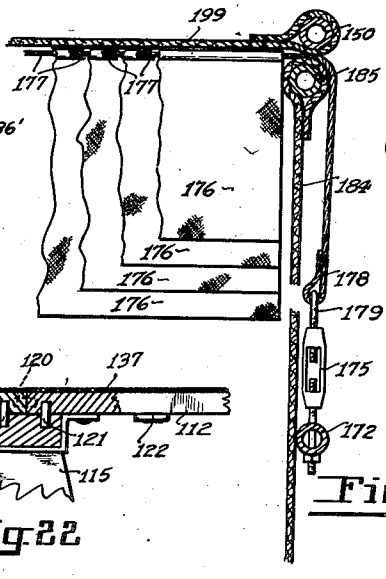


Fig. 20

Fig. 22

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GOLF APPARATUS

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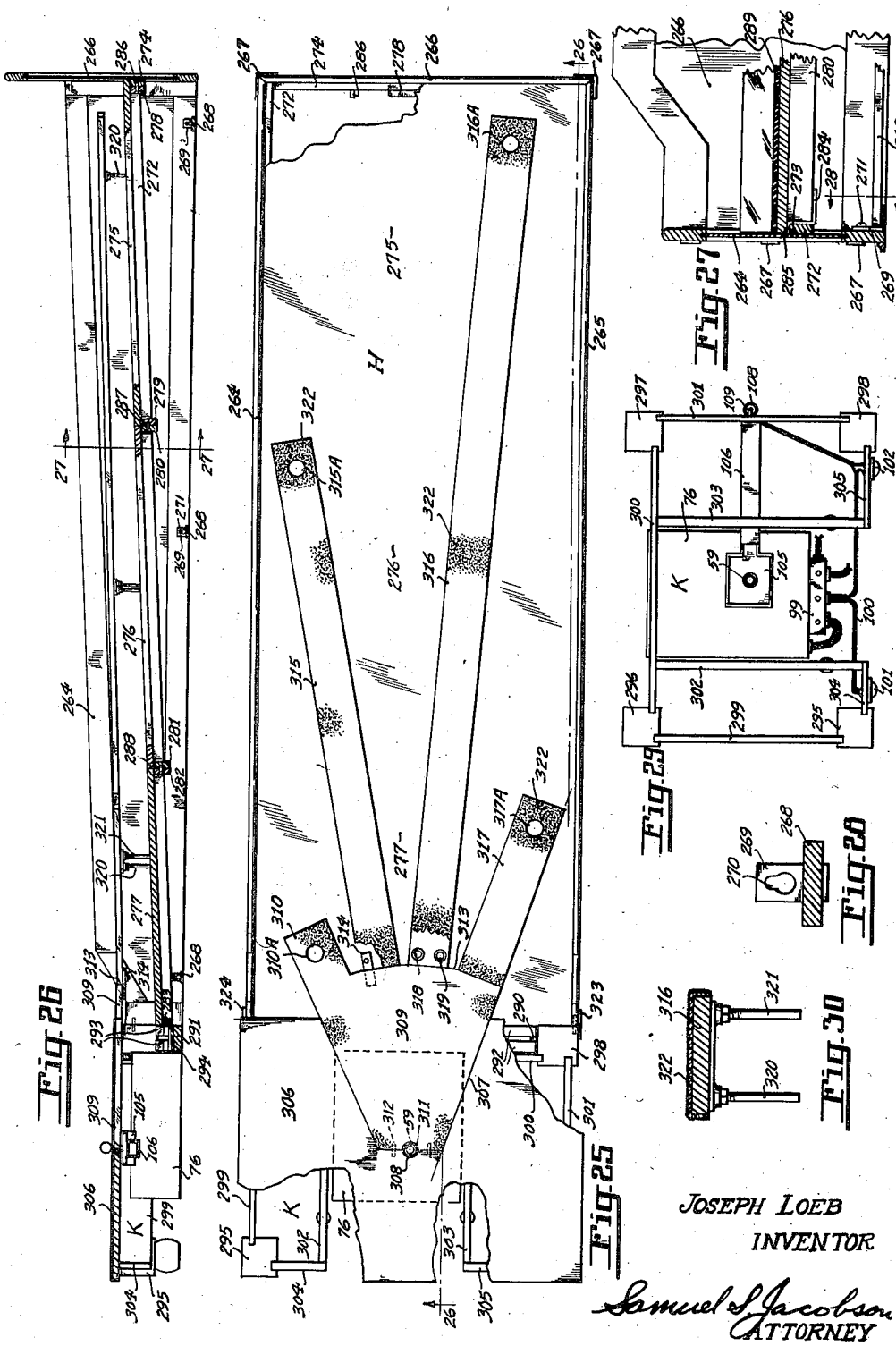


Fig. 26

Fig. 25

Fig. 27

Fig. 29

Fig. 28

Fig. 30

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Patented Nov. 24, 1936 2,061,973

UNITED STATES PATENT OFFICE

2,061,973

GOLF APPARATUS

Joseph Loeb, Portland, Oreg.

Application August 6, 1934, Serial No. 738,582

3 Claims. (Cl. 273—35)

This invention relates in general to golf apparatus of the type adaptable for use with either manual or automatic teeing devices and relates more specifically to golf apparatus which provides a golf playing field of relatively small dimensions that has incorporated therein features which simulate the essential conditions existing on golf links and many desirable conditions that do not exist on golf links. Broadly stated, the apparatus, embodying my invention, consists of a uniquely constructed platform upon which either a left or right handed player may stand and from which a ball may be propelled, which permits a tee to pass therethrough, either automatically or by manual actuation, and which provides means for adjusting the heighth of the tee with respect to the platform in order to reproduce the different elevations from which a golf ball may be played. The invention, also, includes an objective or target against which golf balls may be propelled from the platform, said objective or target incorporating features and instrumentalities for absorbing and dissipating the force of the blows received from the balls, there being provided means for dividing the objective into a plurality of compartments, and means for avoiding damage or destruction of the objective or target. The apparatus, also, includes a fairway and other features and structure, which will be more fully described forthwith.

The primary object of the invention is to provide facilities for teaching, learning and practicing golf with apparatus which simulates the out of doors, thus eliminating practically all of the distracting and disturbing mental hazards and physical impediments inherent in indoor golf apparatus of the present type.

Another important object of my invention is to provide a full force driving golf court and related apparatus, landscaped in order to make the same as representative of the natural conditions of an outdoor golf course as is possible which materially assists in developing coordination of mind and body of a player in order to obtain consistent placement accuracy.

Still another object of my invention is to provide apparatus which may be used with marked success to develop in the player natural concentration by providing unbroken continuity and repetition of normal driving action necessary to develop proper coordination of mind and body to obtain placement accuracy.

A further object of my invention is to provide a playing field simulating the out of doors and for the purpose of fixing in the player's mind the same nature, color and perspective effect in practice as is obtained in play on a golf links, and which possesses means for cushioning the blow of the golf club on the platform portion immediately adjacent the golf ball tee, an objective, means for dividing the objective or target into compartments without detracting from the scenery, and means for cushioning, absorbing and dissipating the blows received by each portion of the objective or target.

An object of my invention is to provide a smooth, level and uniform platform, upon which a player may stand for the purpose of driving golf balls toward an objective or target, said platform including a driving mat assembly which is capable of cushioning the blows received from a golf club incident to driving a ball from the tee and which prevents damage to the tee actuating mechanism and club and prevents the sclaffing of the platform with the sole of the shoe of the club while making a stroke.

Another object of my invention is to provide means for dividing the objective or target so that a player may observe the path of travel of the balls after they are struck, there being provided audible means for indicating the fact that a player has made a straight drive.

Another object of my invention is to provide golf apparatus which results in the increase in the number of balls that may be driven by a player in a given time without a proportionate amount of increase in fatigue of the player and which effectively and quickly discloses the errors committed by the player.

Another object of my invention is to provide golf apparatus which occupies comparatively little space, which is simple, durable, inexpensive to manufacture and maintain, is attractive in appearance and which may be assembled with a maximum of speed and a minimum of tools and which may be kuocked down for shipping purposes without the requirement of expert labor.

Other objects of my invention are the provision of a fairway which simulates the greensward of an out of door golf course; the provision of means for protecting the superstructure and upper portions of the objective target and compartment curtains from balls having a high trajectory; the provision of a self contained frame structure assembled and held rigidly together without guy wires or external supports and anchors; the provision of visible and audible signals and means for automatically registering each tee movement; and the provision of means for maintaining the ceiling, end and side walls under proper tension.

The invention resides in the new and useful formation, combination and interrelation of parts, members and features and is directed to other objects and possesses other features and advantages, a full understanding of which will become readily apparent from the following description to be read in conjunction with the accompanying drawings, which illustrate one embodiment by which the invention may be realized and in which:

Figure 1 is a perspective front view of the playing field and other elements embodying my invention.

Figure 2 is a plan view of a portion of the understructure of the platform embodying my invention showing the details of construction and graphically indicating the elevating mechanism for adjusting the heighth of the tee with respect to the top of the platform.

Figure 3 is a side view taken on line 3—3 of Figure 2 looking in the direction indicated showing the construction of portions of the elevating mechanism.

Figure 4 is a sectional, side view taken on line 4—4 of Figure 2 looking in the direction indicated showing a portion of the ball escapement conduit, and related structure.

Figure 5 is a perspective, plan view of the driving mat assembly embodying my invention and forming part of the platform shown in Figure 2.

Figure 6 is a plan view of the driving mat assembly shown in Figure 5 and illustrating the relative positions of the several resilient members forming the driving mat assembly.

Figure 7 is a plan view of the driving mat assembly shown in Figures 5 and 6 without the top resilient members to show the supporting frame upon which there is mounted a plurality of resilient straps.

Figure 8 is an inverted plan view of the driving mat assembly shown in Figures 5, 6 and 7 showing the manner of locking the supporting frame within the platform shown in Figure 2.

Figure 9 is a sectional, end view taken on line 9—9 of Figure 7 looking in the direction indicated showing the end construction of the driving mat supporting frame.

Figure 10 is a perspective view of the ball well assembly embodying my invention which is employed in directing the returned balls into the reservoir of the tee actuating mechanism.

Figure 11 is a sectional, end view taken on line 11—11 of Figure 10 looking in the direction indicated showing the fabrication of the runners of the ball well.

Figure 12 is a side view of the frame skeleton embodying my invention showing the structural details thereof and also showing the relative relationship between the frame, the fairway and the platform.

Figure 13 is a top view of the frame skeleton showing the structural details thereof and also illustrating the relationship between the frame, the fairway and the platform.

Figure 14 is a side elevation taken on line 14—14 of Figure 13 looking in the direction indicated showing the construction of the baffle target and compartment curtains and also showing the means for cushioning and dissipating the shocks received by these curtains.

Figure 15 is a front elevation, partially broken away, of the baffle target and compartment curtains illustrated in Figure 14 and being taken on line 15—15 of Figure 14 looking in the direction indicated.

Figure 16 is a sectional, perspective end view taken on line 16—16 of Figure 14 looking in the direction indicated showing the means for connecting the side wall and ceiling supports with respect to each other.

Figure 17 is a top view, fragmentary in parts, of the baffle target curtains, shock cushioning, absorbing and dissipating mechanism and of the compartment curtains tensioning members.

Figure 18 is a perspective side view of one of the signalling switches associated with the center baffle target curtain.

Figure 19 is a fragmentary, perspective view of a rear corner of the frame showing the manner of attaching the side and rear walls to the frame and to each other.

Figure 20 is a fragmentary, sectional, front view of the ballet curtains placed immediately in front of the compartment and baffle target curtains and adjacent the ceiling to prevent the rebounding of misdirected balls and protect the superstructure adjacent the ceiling.

Figure 21 is a fragmentary, sectional, end view taken on line 21—21 of Figure 12 looking in the direction indicated showing the manner of securing the side wall curtains to the base of the frame.

Figure 22 is a fragmentary, sectional, side view of a portion of the fairway showing the manner of joining the fairway panels to each other and to their supports.

Figure 23 is a perspective, plan view of one of the air space drums that are placed in inclined position between the compartment curtains to assist the driven balls to travel by gravity to the golf ball well.

Figure 24 is a fragmentary, sectional, side view of the drum shown in Figure 23 taken on line 24—24 of said figure looking in the direction indicated.

Figure 25 is a top plan view, partially in section, of a modified form of playing field embodying my invention to be used primarily for putting purposes.

Figure 26 is a sectional, side view taken on line 26—26 of Figure 25 looking in the direction indicated showing more graphically the construction of the playing field shown in Figure 25.

Figure 27 is a fragmentary, sectional, end view of a side wall taken on line 27—27 of Figure 26 looking in the direction indicated showing the construction thereof.

Figure 28 is a fragmentary, sectional, end view taken on line 28—28 of Figure 27 looking in the direction indicated showing the method of securing the cross braces to the side walls.

Figure 29 is a plan view of the platform embodying my invention with the top portion removed showing the details of construction of the understructure.

Figure 30 is a sectional, end view of one of the runs, taken on line 30—30 of Figure 25 looking in the direction indicated illustrating the covering used on the runs.

Like reference characters, to be referred to in the description to follow, indicates corresponding and like parts in the several views shown in the accompanying drawings.

The assembled golf apparatus embodying my invention is graphically illustrated in Figure 1 wherein reference character A designates generally the platform, reference character B designates generally the playing field, reference character C designates generally the objective or target members and reference character E the fairway. For a more detailed description of the

construction of the platform, attention is called to Figures 2 to 9 inclusive of the drawings. The supporting structure for the platform, designated by reference character A, consists of leg members 1 and 1', 2 and 2', 3 and 3' and 4 and 4'. Legs 1 to 4 inclusive are rigidly held in spaced relationship with each other by cross bars 5, 6 and 7; legs 1' to 4' inclusive are rigidly held in spaced relationship with each other by a single cross bar 8; legs 1 and 1' are rigidly held in spaced relationship with each other by cross bar 9; legs 2 and 2' are held together by cross bar 10; legs 3 and 3' are held together by cross bar 11; and legs 4 and 4' are rigidly held together by cross bar 12 forming a rigid frame for the platform. For greater rigidity and in order to reinforce the frame heretofore described, there is provided a plurality of braces 13, which are secured diagonally between the cross bars at their juncture with the legs.

The platform designated generally by reference character A is divided into three sections 14, 15 and 16. Platform section 14 is hingedly secured to the understructure or frame by any suitable means, as by hinges 20 and 21; platform section 15 is hingedly secured to the understructure or frame by any suitable means, as by hinges 22 and 23; and platform section 16 is hingedly secured to the undestructure or frame by any suitable means, as by hinges 24 and 25. While in practice, these platform sections are hinged to the understructure; still they may be placed upon the understructure or frame without being mechanically attached thereto. Ends 26, 27 and 28 of platform sections 14, 15 and 16 respectively, overlap the understructure or frame heretofore described for the purpose of hiding from view the ball well assembly, the description of which will be related shortly. Each of the platform sections 14, 15 and 16 is covered with a resilient material impregnated with a substance which simulates the greensward of a golf course; although if desirable, the same may be covered with any other material, which will resist wear and provide a suitable non-skid supporting surface. Platform sections 14 and 16 are constructed in accordance with identical specifications, the details of which will become apparent from the description that will follow. The construction of platform section 15 is graphically illustrated in Figure 8 of the drawings which shows an elongated opening 17 which divides the platform section 15 into two parts. These parts are held together by transverse cross bars 18 and 19. These cross bars are also used for supporting the driving mat assembly and for disengageably engaging the assembly to the platform section 15.

A demountable driving mat assembly designated generally by reference character D is placed in opening 17 so that it rests upon transverse cross bars 18 and 19. The driving mat assembly is held rigidly against the transverse cross bars by retaining brackets 29 and 30, engaging the transverse cross bar 18, and by retaining brackets 31 and 32, engaging transverse cross bar 19. In order to facilitate the removal of the driving mat assembly from opening 17, the retaining brackets 31 and 32, which have respectively arcuate slots 33 and 34 therein, are rotatably secured to sides 39 and 40 of the frame to be more particularly described. The arcuate slots 33 and 34 are adapted for engagement by bolt and wing nuts 35 and 36 respectively in order to hold the brackets 31 and 32 in locked position relative to transverse cross bar 19 when desired.

The detailed construction of the driving mat assembly frame is illustrated in Figures 5 to 9 inclusive but more graphically illustrated in Figure 7 of the drawings wherein sides 39 and 40 are parallelly disposed with respect to each other and held rigidly spaced apart by cross members 41, 42 and 43 themselves spaced apart. For additional rigidity and reenforcement of the frame, there is provided a quadrangular metallic frame 44 which is secured in any desirable manner to sides 39 and 40 and to cross brace 41. A member 45, having cut out portions 51 and 52 at each end thereof, is disposed transversely of the sides 39 and 40 and is removably secured to end wall 47 of the quadrangular frame 44 by any suitable means, as by bolts and wing nuts 49 and 50 passing through the member 45 and end wall 47. A metallic strip 46, whose length is equal to the over all length of the member 45 and its cut out portions 51 and 52, is disposed adjacent the member 45 and is normally held in intimate contact therewith by bolts and wing nuts 49 and 50 which also pass therethrough. The cut out portions 51 and 52 disposed within member 45 form seats for a pair of resilient members which form a part of the floor of the driving mat assembly, and it at once becomes apparent that, since the metallic strip 46 overlies these cut out portions, the ends of the resilient members may easily be removably but fixedly held within said cut out portions under tension or otherwise and retained in that position by the metallic strip 46 when the nut wings 49 and 50 are tightened about their respective bolts.

A flexible bed, consisting of a plurality of straps 53, made of any desirable resilient material, such as rubber, are secured to the sides 39 and 40 of the frame by means of removable metallic anchor strips 54.

A specially treated resilient member 55 has one of its ends secured to the sides 39 and 40 of the frame structure by any suitable means, as by screws 56 and lies on top of some of the resilient straps 53. Resilient member 55 has a tongue 57 formed integrally therewith, said tongue having a cut out portion 58 therein through which tee 59 projects. Another resilient member 60 lies over the remaining resilient strips 53 and has one of its ends secured to brace 41 of the frame structure by any suitable means, as by metallic anchor strips 61, 62 and 63, which are held in gripping relation to the resilient member 60 by a plurality of threaded elements 64 that are threaded into cross member 41. The other end of the resilient member 60 has a substantial portion thereof cut out, thus forming arms 65 and 66 which lie upon the edges of tongue 57 and cover a portion of the cut out portion 58, but leaving a sufficient opening therein through which tee 59 may intermittently oscillate. The foregoing construction is deemed important and necessary to the proper operation of the golf apparatus herein since the area adjacent tee 59 must be able to withstand terriffic abuse caused by the intermittent application of force thereto. The above construction not only provides a bed around the tee, which avoids the possibility of injury to the club, balls or tee, but also allows a drive to go through smoothly with a minimum of friction.

To preserve this basic resilient structure, to provide greater resiliency and to facilitate replacement of parts subjected to great abuse and therefore relatively quickly worn out, there is provided a resilient flap 67 that has one of its ends anchored to the cross member 41 by metallic

anchor strips 62. There is also provided resilient flaps 68 and 69, which have one of their ends anchored to cross brace 41 by metallic anchor strips 61 and 63 respectively. The other ends of the resilient flaps 68 and 69 have resilient straps 70 and 71 respectively attached thereto. In order to insure that resilient straps 70 and 71 are held in a relatively taut position with respect to the resilient members 55 and 60, their free ends 72 and 73 are placed within cut out portions 51 and 52 respectively formed within member 45 and held securely against member 45 by metallic strip 46. Resilient flap 67 is normally subjected to a greater amount of abuse than other portions of the resilient bed structure and consequently is worn out more quickly; therefore, to insure quick renewal of the worn out parts of resilient flap 67, its end 37 extends downwards over the cross member 41 and is held by anchor strip 62 as shown at 38. The end 37 has a plurality of openings 37A therein, which are aligned with the openings in the metallic anchor 62. Whenever end 67A is worn out, the resilient flap 67 is moved up, and the worn out portion is cut off. From the foregoing, it becomes apparent that the driving mat assembly, constructed as described, offers a bed surrounding the tee 59 which is capable of receiving an extraordinary amount of shock and punishment from the club and the ball as it is driven from the tee without in any way injuring the ball, club and the tee assembly. The foregoing construction also permits the quick replacement of any portion of the driving mat assembly which is damaged by use. Resilient straps 74 and 75 are secured to the top of platform section 15 so that they are adjacent the resilient flaps 68 and 69 respectively.

The tee actuating mechanism is located within casing 76 which is secured to cross bar 8 in any desirable manner, as by hinges 77. In order to permit the use of different types of clubs and to take a divot, the height of the tee is adjustable with respect to the driving mat assembly. To accomplish this, there is provided a shaft 78 that has one of its ends disposed in journal 79 secured to cross brace 11. The shaft passes through journals 80 and 81 secured to cross braces 10 and 9 respectively. A pair of sheaves 82 and 83 are fixedly secured to the shaft 78 in spaced relationship with each other. A pair of flexible members 85 and 86 have one of their ends fixedly secured to sheaves 82 and 83 respectively in any well known manner, and the other of their ends secured to the under side of the casing 76 in any well known manner.

A pair of brackets 87 and 88 are secured to cross bar 9 in any well known manner. These brackets have quadrant 89 secured thereto in any well known manner, as by bolts 90. Lever 91 is pivotally secured to the quardant 89 on stub shaft 92. A pawl 93 is movably secured to the end 94 of lever 91. A push rod 95 passes through the major portion of the lever 91 and connects with pawl 93. Pawl 93 is in registerable alignment with teeth 96 of the quadrant 89. An arm 97 is removably but rigidly secured to the end of shaft 78 and a link 98 has one of its ends secured to end 94 of lever 91 and the other end secured to the end of arm 97. It will be seen from the foregoing description that, by moving the lever on its pivot, shaft 78 will be rotated and thereby cause the flexible members 85 and 86 to be wound around sheaves 82 and 83 respectively. When this action occurs, the casing 76 is raised, thus causing tee 59 to be raised to the height desired.

An electrical control box 99 is secured to cross bar 10. A plurality of conductors 100 are connected to visible signals 101 and 102, to audible signal 103 and to number registering mechanism 104.

There is provided, in connection with the tee actuating mechanism, a golf ball escapement assembly, illustrated graphically in Figures 2 and 4, which consists of a receiving well 105 that surrounds tee 59; an escapement conduit 106 communicating with receiving well 105 and secured to cross bar 6 in any well known manner, said conduit 106 being in registerable alignment with opening 107 disposed through cross bar 6; and a receiving pocket 108 extending outwardly from and secured to cross bar 6 immediately below opening 107. Contacts 109 and 110 are disposed immediately below receiving pocket 108 and are of sufficient flexibility for the weight of a ball to cause these contacts to come together as shown at 111 and complete a circuit connected to visible signal 102.

The fairway, generally designated by reference character E, extends on an inclined plane to any desired distance from the platform A along the line of play and consists of a plurality of sections or panels 112. Each of the panels 112 is covered with a specially processed paint impregnated resilient material, such as rubber as illustrated in Figure 11 at 137, in order to eliminate the noise caused by the balls as they roll toward the ball well assembly, hereinafter to be more specifically described, and to simulate the natural color of grass on a golf links. These sections or panels are positioned upon and secured to a plurality of supports 113 to 119 inclusive which extend in spaced relationship with each other transversely of the frame skeleton, hereinafter to be more fully described. The height of each of these supports 113 to 119 inclusive increases slightly, as graphically shown in Figure 12, thus providing a bed for the fairway panels 112 that lies in a plane inclining rearwardly from the horizontal plane of the platform assembly designated by reference character A. A plurality of dowel pins 121 extend upwardly from supports 113 to 119 inclusive in spaced relationship with each other. Recesses, equal in number to the number of dowel pins 121, are disposed within the lower face of each of the panels 112 and are disposed in spaced relationship so that, when the panels are placed upon supports 113 to 119 inclusive, the recesses are in registerable alignment with and are engaged by dowel pins 121. Each of the panels 112, positioned centrally of the fairway assembly E, have a pair of dowel pins 120 extending outwardly from their ends, and the other panels 112 have a pair of recesses within their ends that lie adjacent the ends of the intermediate panels that have dowel pins 120 therein, said recesses being in registerable alignment with and engaged by dowel pins 120. The panels 112, which lie adjacent the sides of the frame hereinafter to be more specifically described, have a plurality of brackets 122 secured to the lower face and extending from the inner side 123 thereof. The panels 112, which lie between the groups of panels adjacent the sides of the frame also have a plurality of brackets 122 secured to the lower face of and extending from the inner sides 124 and 124A thereof. Brackets 122 are adapted to support the panels 112, lying in the center of the fairway, and brackets 122 secured to sides 124 and

124A are adapted to support the panels lying on each side thereof. Each of the panels, which lie adjacent the sides of the frame, also have a U-shaped bracket 125, which is secured to and extends downwardly from the lower face thereof, said bracket 125 being adapted to engage with the ends of each of the supports 113 to 119 inclusive. This construction is graphically illustrated in Figure 22. From the foregoing, it becomes obvious that the panels are interlocked with each other and with the supports so that a rigid fairway is provided which may easily be disassembled without affecting the rigidity of the whole assembly.

Disposed between the platform, designated by reference character A, and the fairway, designated by reference character E, is a ball well assembly, designated generally by reference character F, the construction of which is graphically shown in Figures 10 and 11. This assembly consists of end supports 126 and 127 and center support 128 held in spaced relationship with each other and reenforced by cross bars 129 and 130 which are secured to the respective supports in any well known manner. Supports 126 and 127 are of a height greater than the heighth of support 128 so that, by placing parallel tracks 131 and 132 with their lower faces on support 126 and on the edge of support 128, and parallel tracks 133 and 134 with their lower faces on support 127 and on the edge of support 128, there is provided two inclined planes, meeting at a common parallel plane provided by that portion of the support 128 which is not covered by parallel tracks 131—132 and 133—134. Secured to tracks 131 and 132 are metallic runways 131A and 132A, and secured to tracks 133 and 134 are metallic runways 133A and 134A. These runways have their upper side placed evenly with the resilient covering 137 and run throughout the length of the tracks. It is upon these runways that the balls finally land after they leave the runway. A pair of inclined parallel rods 135 are disposed upon that portion of support 128 not covered by the parallel tracks and these rods lead the retrieved balls into the tee actuating mechanism. Tracks 131 and 133 are slightly shorter than tracks 132 and 134 so that the ball well assembly F may be placed against the platform assembly A as shown at 136 in Figure 2. Tracks 131 to 134 inclusive have a resilient covering thereon, such as rubber 137, which is impregnated with a color that simulates the greensward of a golf course and offers a surface which eliminates noise. It should be noted that the greatest heighth of the ball well assembly is slightly less than the heighth of the ends of the panels lying adjacent to it. By this arrangement, a driven ball is forced by gravity to travel down the fairway and reach the lowest point of the ball well assembly with the least amount of effort and with a minimum of noise.

The platform, fairway and ball well assembly are surrounded on three sides by a frame, designated generally by reference character G and graphically illustrated in Figures 12 and 13. The frame is supported on bases 138 and 139, which extend in spaced parallel relationship with each other throughout the length of the frame. These bases 138 and 139 have disposed therebetween at their extreme ends cross member 139A. A plurality of uprights or standards 140, 141, 142 and 143 extend upwardly in spaced parallel relationship to each other from and are secured to base 138 in any desirable manner, as by being fitted into feet 144. A similar number of uprights or standards (not all shown) are secured to base 139 and extend upwardly therefrom in direct alignment with uprights 140 to 143 inclusive.

Post 145 is disposed between and secured to the upper ends of uprights 140 and 141 by T-connection 146 and bracket 147; post 148 is disposed between and secured to uprights 141 and 142 by T-connections 146 and 149; and post 150 is disposed between and secured to uprights 142 and 143 by T-connection 149 and elbow 151. Similar posts directly in line with posts 145, 148 and 150 are disposed between and secured to the ends of the corresponding uprights extending upwardly from base 139 and are joined to these uprights by T-connections and elbows identical to those used in joining the posts 145, 148 and 150 to uprights 140, 141, 142 and 143.

Upright 143, extending upwardly from base 138 and the corresponding upright extending upwardly from base 139, in direct alignment with upright 143 are joined together by post 152. The extreme end of post 145 and the extreme end of the corresponding post secured between the uprights extending upwardly from base 139 in line with uprights 140 and 141 respectively are joined together by post 153. Railing 180 is secured to upright 140 by clamping bracket 181. Upright 182, extending upwardly from and secured to base 138, is joined to railing 180 by elbow 183. A corresponding railing 180' and upright 182' is secured to the upright corresponding to upright 140 and to base 139 respectively. In order to reenforce and make the frame more rigid, there is provided brace rods 154 and 157, which are secured to post 153 by clamping brackets 156 and 159 respectively, and to post 145 and its corresponding post on the opposite side of the frame structure by clamping brackets 155 and 158 respectively. A similar pair of brace rods 160 and 163 are secured to post 152 by clamping brackets 162 and 165 respectively, and to post 150 and its corresponding post on the opposite side of the frame structure by clamping brackets 161 and 164 respectively. Reenforcement is also provided between the uprights 142 and 143 and the corresponding uprights on the opposite side of the frame structure. This reenforcement is deemed essential since that portion of the frame structure contains the objectives or targets, which intermittently receive a tremendous amount of shock from the golf balls driven from the platform by a player. This reenforcement is accomplished by a pair of brace rods 166 and 169 that are secured to post 150 by clamping brackets 167 and 170 respectively and to uprights 142 and 143 by clamping brackets 168 and 171 respectively. A similar pair of brace rods are secured in the same manner to the corresponding uprights and post on the opposite side of the frame structure. Still another brace rod 172, which also acts as an anchor for the ballet curtains to be described forthwith, is secured to uprights 142 and 143 by clamping brackets 173 and 174 respectively. A similar brace rod used for the same purpose is secured to the corresponding uprights disposed upon the opposite side of the frame structure. From the foregoing, it will be seen that the frame structure is rigidly contained within itself and does not require guy wires or any other external supports or anchors.

A plurality of turnbuckles 175 are anchored to brace rod 172 in spaced relationship with each other, and an equal number of turnbuckles of the same design are anchored to the corresponding

brace rod disposed on the opposite side of the frame structure. A plurality of ballet curtains 176 are suspended from a plurality of cables 177 and extend transversely and adjacent the ceiling of the frame structure. The ends 178 of cables 177 are secured to the eyes 179 of the turnbuckles 175 that are disposed on both sides of the frame structure. By this arrangement, the ballet curtains may be tensioned as desired and may be quickly and easily removed for repair or for any other purpose. It is clear from the foregoing that the ballet curtains prevent balls, traveling at a high trajectory, from damaging the bridge work and other structure, lying behind the ballet curtains. There is also little likelihood of the balls being damaged by hitting sharp and rigid elements that form a part of the superstructure and related elements.

Side wall curtain 184 is mounted on the elongated rods 185 and 186, and side wall curtain 187 is mounted on rods 185' and 186' respectively. Each of these curtains contains a portion of a scene which forms a part of a colored landscape, the purpose of which is to eliminate the unnatural effect of plain white canvas and to fix in a player's mind the same surroundings and perspective during indoor practice as he would obtain on a golf links. The rod 185 is removably clamped and held against the posts 145, 148 and 150 by a plurality of clamping members 188, spaced apart throughout the length of the rod 185, and rod 185' is also removably clamped and held against the posts on the opposite side of the frame structure which correspond to and are aligned with posts 145, 148 and 150 by clamps 188. Rod 186 is removably secured to base 138 by a plurality of metallic strips 189, extending outwardly therefrom in spaced relationship with each other; and rod 186' is also removably secured to base 139 by a plurality of metallic strips 189'. By this arrangement, the side curtains 184 and 187 are tautly held against the sides of the frame structure. A similar means of attachment is provided for that portion of the curtains that extend to the railings 180 and 180'.

A pair of cross beams 194 and 195 are disposed transversely of the top of the frame structure and are secured to post 150 and to the corresponding post on the opposite side of the frame in any desirable manner. A plurality of turnbuckles 196 are anchored to cross beam 194 and are disposed in spaced relationship to each other throughout the length of the cross beam 194. The rear wall curtain 190 is mounted on rods 191 and 192. Rod 192 is removably clamped and held against uprights 143 and against the upright on the opposite side of the frame corresponding to upright 143 by clamping members 193. The clamping members 197 of turnbuckles 196 connect with rod 191 as shown at 198. By this arrangement, the rear wall curtain 190 is held in taut condition against the frame. In order to completely inclose the field of play and prevent the possibility of golf balls escaping from the field of play when they are propelled in the direction of the rear wall and to provide greater tautness between the side wall curtains and rear wall curtain, they are laced together at their meeting ends as shown at 198A.

A ceiling curtain 199 is mounted upon posts 145, 148 and 150 and also upon the posts disposed opposite the side of the frame corresponding to posts 145, 148 and 150. The rear end of the ceiling curtain 199 is mounted upon post 152 and the front end of ceiling curtain 199 has rod 200 disposed transversely thereof. A plurality of turnbuckles 201 are clamped upon rod 200 by clamps 202 in spaced relationship with each other and are anchored against post 153 in any well known manner. By this arrangement, it is possible to adjust the ceiling curtain 199 and maintain the same in taut condition.

The objective or target assembly, still to be described, is situated in the rear portion of the frame immediately in front of the rear wall curtain 190. A rod 203 is rigidly secured to and transversely of and depending from cross beam 195 by a plurality of threaded bolts 204 disposed in spaced relationship with each other throughout the entire length of cross beam 195 and rod 203. Another rod 205 is rigidly secured to and transversely of and depending from cross beam 194 by a plurality of bolts 206 in spaced relationship with each other throughout the entire length of cross beam 194 and rod 205. Rods 203 and 205 are disposed in the same plane in parallel alignment with each other. A plurality of target baffle curtains 207 are adjustably secured with respect to rod 203 by having the reinforced end 208 of each of said target baffle curtains secured to a pair of chains 209 and 210. These chains are mounted upon rod 203 and have their free ends removably secured to their own links, as shown at 211. The target baffle curtains 207 hang over rod 205 and extend downwardly therefrom. By this arrangement, it is possible to raise or lower each of the target baffle curtains whenever it becomes ncessary since the material, from which the target baffle curtains are constructed, is subject to expansion or contraction resulting from temperature, moisture or other causes. The lower end 212 of each of the target baffle curtains 207 has a sleeve 213 formed therein in which a heavy flexible element 214 is disposed in order to weight each target baffle curtain and to provide a substantial anchorage for the flexible connecting members 215 and 216 which depend therefrom. This construction also avoids the possibility of the canvas adjacent the sleeve 213 being cut or frayed by either the impact of balls thereon or by frictional engagement with portions of the apparatus. The flexible connecting members 215 and 216 are secured to the heavy flexible element 214 in any well known manner. Each one of the target baffle curtains 207 has a portion of a scene thereon which blends into the other portions of the scene on the other baffle curtains and on the side walls 184 and 187. By this arrangement, a landscape incorporating the natural surrounding of a golf links is provided, which gives depth, color and naturalness to the playing field and target. This is very beneficial to the player using the golf apparatus and desirable for teaching golf since no unnatural distractions are present. Because no paint applied to the canvas material, from which the target baffle curtains and the side walls are constructed, could stand up under the constant impact of balls, it is necessary to impregnate the canvas with a specially prepared mixture that gives the desired result.

In order to avoid the rebounding of the balls propelled against the target baffle curtains 207 and to avoid the fraying and otherwise damaging the said target baffle curtains, there is provided a pair of shock compensating, absorbing and dissipating mechanisms for each of the target baffle curtains 207 to be described forthwith. A plurality of anchoring members 217, 217A and 217B are disposed transversely of the frame structure

in spaced relationship with cross member 139A and with each other. These anchoring members are held in fixed relationship to each other by cross braces 218 and 218A. The shock compensating, absorbing and dissipating mechanisms, referred to above, are fixedly secured to anchoring member 217. As stated before, there are a pair of such mechanisms for each tarket baffle curtain 207, as shown at 219 and 220. Each shock compensating, absorbing and dissipating mechanism consists of a channel bracket 221 that is secured in a proper manner to anchoring member 217. A shaft 222 is journaled within channel bracket 221. Secured to and extending outwardly from shaft 222 is an arm 223. A reacting element anchor 224 is secured to and extends outwardly from the base of channel bracket 221. A reacting element, such as coil spring 225, is secured to arm 223, as shown at 226, and to the extreme end of anchor 224. A yoke member 227 is pivotally connected to the extreme end of arm 223. A pin 229 is disposed through the yoke member 227 in order to prevent the yoke from making an excessive pivot with respect to the arm 223. A reacting element, such as a spring 228, is secured to the yoke member 227 and to flexible connecting members 215 and 216.

Attention is called to the fact that each of the shock compensating, absorbing and dissipating mechanisms contains the same elements heretofore described, and that each pair of shock compensating, absorbing and dissipating mechanisms, as shown at 219 and 220, is connected to each target baffle curtain 207 by identical flexible connecting members 215 and 216 and operates in the same manner. By this arrangement, it will be seen that, when a ball strikes a target baffle curtain 207, the force of the blow will cause the target baffle curtain to give in a rearward direction against the reaction of coil spring 228, causing the arms 223 of the pair of shock compensating, absorbing and dissipating mechanisms 219 and 220 or either of them, to be raised against the reaction of coil spring 225. Consequently, the blow on the target baffle curtains 207 is absorbed and dissipated by the compensating action of the shock compensating, absorbing and dissipating mechanisms connected to each of the target baffle curtains 207.

There is shown in Figure 18 a shock compensating, absorbing and dissipating mechanism which has incorporated therein all of the elements heretofore described and shown in Figures 14 and 17, but which have additional structure therein for the purpose of effecting an electrical connection, when the centrally located target baffle curtain 207, to which a pair of these modified shock compensating, absorbing and dissipating mechanisms is attached, is struck by a ball. It will be seen that there is secured to side 247 of channel bracket 221, an insulated plate 248. A pair of insulating members 250 extend outwardly from insulated plate 248 and have contact brushes 251 extending therethrough. An insulated drum 252 is disposed about shaft 222 adjacent insulated plate 248. A pair of semicircular metallic members 253 are disposed in spaced relationship upon the periphery of the drum 252. Contact brushes 251 normally ride on the members 253, since the contact brushes are under spring tension. The terminals of the contact brushes 251 have a plurality of conductors 254 secured thereto. The terminals of both of the shock compensating, absorbing and dissipating mechanisms, connected to the centrally located target baffle curtains 207, as heretofore described, are interconnected, as shown at 238 in Figure 17, and lead to an audible signal 103, shown in Figure 2. Since all players seek to make a straight drive, it pleases a player to learn when he does make such a drive. Consequently, the audible signal serves the purpose of notifying the player when he has made a proper drive, whether or not his eyes follow the ball through. In fact, by the use of the apparatus herein described, it is not necessary that the eyes of the player shall follow the ball after each stroke in order to learn its direction, since the direction may be learned when the ball comes out of the compartments after its speed has been spent.

A plurality of rods 230 are disposed at right angles and are securely anchored to rods 203 and 205 by bolts 204 and 206 and extend to the rear wall curtain 190 and are equally spaced and positioned to lie between target baffle curtains 207. From each of the rods 230, a pair of compartment curtains 231 and 232 are suspended. Secured to anchoring member 217A, in registerable alignment with the lower end of each of the compartment curtains 231, is a pulley 234 through which cord 235 passes. Cord 235 is connected to the lower end of each of the compartment curtains 231 and to a reacting element, such as a coil spring 236, which, in turn, is secured to anchoring member 217B, as shown at 237 in Figures 14 and 17. There is secured to anchoring member 217A, in registerable alignment with the lower end of each of the compartment curtains 232, a pulley 239 through which cord 240 passes. Cord 240 is secured to the lower end of each of the compartment curtains 232, as shown at 241; and the other end of the cord is secured to spring 242, which, in turn, is secured to a common anchoring point as shown at 243 in Figures 14 and 17. In order to maintain the compartment curtains 232 in relatively tensioned condition, flexible members 244 and 245 extend from the lower end of each of the compartment curtains 232 and are secured to anchoring member 217, as shown at 246. It should be noted that each of the compartment curtains 231 and 232 are secured to the anchoring members 217, 217A and 217B in the manner heretofore described. This construction lends flexibility to the compartment curtains 231 and 232, so that, when a ball strikes the ends of any of the compartment curtains 231, the material will not be thrown out of line nor will the ball rebound toward the player.

A plurality of drums 255, graphically illustrated in Figures 23 and 24, are disposed between the compartment curtains 231 and 232 and immediately below the target baffle curtains 207. These drums 255 are positioned upon support 256 extending transversely of the frame structure adjacent cross member 139A and are removably secured to support 119 by dowel pins 257, as shown in Figure 14. Each of the drums 255 consists of a frame 258 over which a fabric 259 is stretched and held in relatively taut condition in any well known manner. A panel 260 is disposed in spaced relationship to the fabric 259, thus forming an air well 261 therebetween. This air well deadens the noises and prevents the balls, when striking the fabric 259, from rebounding. The inclination of the air spaced drums 255, when in position, is materially greater than the inclination of the fairway E, so that balls are speeded toward the ball well assembly F. Strips 262 are secured on both sides of the air spaced drums, so that neither fabric 259 nor flexible connecting members 215

and 216 may be quickly worn out by frictional engagement with each other. A floodlight 263 is secured to post 153, as shown in Figure 1, and lights the playing field and platform without casting shadows or throwing light rays into the eyes of players.

In Figures 25 to 30 inclusive is illustrated a modified type of playing field to be used solely for the purpose of teaching, learning and practicing the art of directing a golf ball toward targets, lying in different directions from the platform and at different distances. While the playing field disclosed in Figures 25 to 30 inclusive is materially different in appearance from that illustrated in Figures 1 to 24 inclusive and heretofore described, still the principles underlying the construction and design of this golf apparatus are substantially the same.

There is provided a quadrangular inclosure, designated generally by reference character H, which is formed of side walls 264 and 265 and rear wall 266. The side walls 264 and 265 and the rear wall 266 are removably joined together in any well known manner, as by angle brackets 267. A plurality of cross members 268 extend transversely of the side walls 264 and 265 in spaced relationship with each other. Brackets 269 are secured to each end of each cross member 268 and extend upwardly at right angles to the cross member. Each bracket 269 has a slot 270 therein. A plurality of pins 271 are secured to and extend inwardly from side walls 264 and 265 and are disposed in spaced relationship with each other. Cross members 268 are removably secured to side walls 264 and 265 by having the brackets 269, through slots 270, engage with pins 271. These cross members materially assist in holding the side walls 264 and 265 and rear wall 266 in rigid fixed relationship with each other.

An elongated support 272 is secured to side wall 264. A similar elongated support (not shown) is secured to side wall 265 and is directly aligned with elongated support 272. Each of these supports is slightly offset from the side walls 264 and 265 as shown at 273. Support 272 and its corresponding support on the opposite side wall 265 are inclined downwardly from the rear wall 266 throughout their length. Support 274 is secured to and disposed transversely of end wall 266, and its ends lie against the ends of elongated support 272 secured to side wall 264 and to the elongated support secured to side wall 265.

The floor or base of the inclosure, designated generally by reference character H, is divided into a plurality of sections 275, 276 and 277. Section 275 has cross brace 278 secured to the underside thereof adjacent one end and cross brace 279 secured to the underside thereof adjacent the other end; section 276 has cross brace 280 secured to the underside thereof adjacent one end and cross brace 281 secured to the underside thereof adjacent the other end; and section 277 has cross brace 282 secured to the underside thereof adjacent one end and cross brace 283 secured to the underside thereof adjacent the other end. Each of these cross braces 278 to 283 inclusive have an angle bracket 284, such as is shown in Figure 27, secured to each of their ends. When sections 275, 276 and 277 are in position, these angle brackets 284 engage with the elongated support 272 and the corresponding elongated support secured to side wall 265 so that the engaging end of each bracket intimately hooks upon the top of the supports, as shown, at 285 in Figure 27. By this arrangement, the sections 275, 276 and 277 are not only braced within themselves but are securely held against the side walls 264 and 265. In order to more securely hold the sections against the side walls, end wall and against each other, cross brace 278 is removably held against support 274 by a plurality of dowel pins 286 which extend inwardly from the support and are engaged within recesses (not shown) disposed within the side of the cross brace; cross braces 279 and 280 are held together by a plurality of dowel pins 287 which are disposed within recesses within said cross braces; and cross braces 281 and 282 are engaged with each other in similar fashion by dowel pins 288. Sections 275, 276 and 277 are covered with a paint impregnated resilient material, such as rubber 289, shown in Figure 27, which not only deadens noises, but also simulates the appearance of the greensward on a golf links. Since the elongated support 272 and its corresponding support secured to the side wall 265 are inclined downwardly from the rear wall 266, the floor or base composed of sections 275, 276 and 277 will also lie in an inclined plane.

A ball well assembly lies adjacent the end of floor section 277 next to cross brace 283. The ball well assembly is constructed in substantially the same manner as that illustrated in Figures 10 and 11 of the drawings. End supports 290 and center support 291 have pairs of tracks 292 and 293 inclined toward each other and disposed upon center support 291. In the center of the support 291, are a pair of runners 294 which lead directly to the ball reservoir in casing 76, which holds the tee actuating mechanism.

The frame of the platform, generally designated by reference character K, is graphically illustrated in Figure 29 wherein there is shown a plurality of supports 295, 296, 297 and 298. Brace 299 is secured to supports 295 and 296; brace 300 is secured to supports 296 and 297; and brace 301 is secured to supports 297 and 298. Members 302 and 303 are secured to and extend parallelly from brace 300 in spaced relationship with each other. The extreme ends of members 302 and 303 are secured to braces 304 and 305, respectively. Brace 304 is also secured to support 295, and brace 305 is also secured to support 298. By this manner of construction, a support of substantial rigidity is provided for the platform to be shortly described.

Between members 302 and 303 and passing under brace 300, is casing 76 in which the tee actuating mechanism is disposed. An electrical control box 99 is secured to the casing 76. A plurality of conductors 100 are connected to visible signals 101 and 102. There is also provided, in connection with the tee actuating mechanism, a ball escapement assembly which consists of a receiving well 105 that surrounds the tee 59; an escapement conduit 106 which communicates with receiving well 105 and is secured to brace 301 in any well known manner, so that it is in registerable alignment with an opening disposed through said brace; and a receiving pocket 108 is secured to and extends outwardly from brace 301 immediately below the said opening. The said receiving pocket is in direct alignment with electric contacts of sufficient flexibility that the weight of a ball causes them to come together and complete an electric circuit in order to illuminate visible signal 102.

A platform 306 is disposed upon the support, shown in Figure 29. The platform has a substantial portion thereof cut out, as shown at 307.

A semi-circular cut out portion, as shown at 308, is also formed within the platform. A platform segment 309, having finger 310 extending therefrom, fits snugly into the cut out portion of the platform 306, shown at 307. Platform segment 309 has a semi-circular cut out, as shown at 311, which joins with cut out, as shown at 308 to form an opening through which tee 59 may project. Platform 306 and platform segment 309 are removably secured to each other by dowels 312 engaging with recesses in the meeting edges of the platform and end platform segment. The end 313 of platform segment 309 is semi-circular, and a plurality of pairs of brackets 314 are secured to the underside of the platform segment and extend outwardly from end 313 thereof. A plurality of fingers or putting strips 315, 316 and 317 are removably secured to pairs of brackets 314, as shown at 318 and 319. It will be seen that these fingers extend radially from the platform segment 309 and have the opening formed by cut outs 308 and 311 as a common starting point. Each finger 310, 315, 316 and 317 are of different lengths and are supported upon the floor sections 275, 276 and 277 within the inclosure, designated by reference character H, by pairs of legs 320 and 321, shown in Figure 30 of the drawings. These legs are adjustable in order to vary the pitch of the fingers with respect to the inclination of the floor assembly. The platform segment 309 and each of the fingers are covered by a paint impregnated fabric 322, such as linen, in order to simulate the putting green on a golf links and to present a playing surface which will possess as nearly as is possible the qualities of a putting green.

The ball well assembly is placed between supports 296 and 297 adjacent the end of floor section 277 and the platform assembly, designated by reference character K, is removably secured to side walls 264 and 265 by brackets 323 and 324, as shown in Figure 25.

The invention has been described in connection with a specific illustrative embodiment disclosing a definite arrangement of parts. However, it will be understood that many variants thereof are possible to those skilled in the art, and the invention, in its broader aspect, is not limited to the specific construction herein described and shown, as changes in the size, proportions, configurations, arrangements, assemblage, materials, juxtaposition and mechanical relations, as well as additions, omissions, substitutions, combinations, interrelations and alterations of forms, parts, members and features, may be made without departing from the broad spirit of this invention.

Having thus disclosed my invention, what I claim as new and upon which I desire to secure Letters Patent is:

1. A target assembly to be used with apparatus of the class described comprising, a pair of cross beams disposed in spaced relationship with each other, a pair of elongated rods depending therefrom in horizontal relationship with said cross beams and with each other, a plurality of rods disposed in spaced relationship with each other transversely of the elongated rods, a pair of compartment curtains secured to and depending from each of the transverse rods, means for maintaining said compartment curtains under tension, a plurality of target portions disposed over and depending from one of the elongated rods and adjustably secured to the other of the elongated rods, each target portion being disposed between a pair of compartment curtains, and means secured to the lower end of each of the target portions for compensating, absorbing and dissipating the blows received thereby.

2. Apparatus characterized as in claim 1, wherein the means for compensating, absorbing and dissipating the blows received by the target portions comprises a pair of brackets for each of the target portions, an arm movably disposed on each of said brackets, an anchor arm fixedly secured to each of said brackets, a resilient element connecting the arm on each bracket to the anchor arm on each bracket, a yoke pivotally disposed at the extreme end of each of the arms, a flexible member disposed within the end of each portion of the target, a pair of flexible connecting elements secured to each of the flexible members, and a resilient element secured to each of the flexible connecting elements and to each of the yokes.

3. In golf apparatus of the class described, a pair of cross beams disposed in spaced relationship with each other, a pair of rods depending therefrom in horizontal relationship with each other and with said cross beams, a target disposed over and depending from one of said rods and adjustably secured to the other of said rods, means secured to the lower end of the target for compensating, absorbing and dissipating the blows received from golf balls, a plurality of pairs of curtains disposed in spaced relationship with each other at right angles to the target and adapted for dividing the target into compartments, means for suspending said pairs of curtains adjacent said target and means for maintaining said pairs of curtains under yielding tension, said means including a plurality of flexible members secured to the lower end of the rear portion of each compartment curtain, a pulley anchored with respect to the frame and having one of said flexible members passing therearound, a resilient element secured to the end of said flexible member and anchored with respect to the frame, the other flexible members being fixedly secured with respect to the frame, a flexible member secured to the lower end of the front portion of each compartment curtain, a pulley anchored with respect to the frame and having said flexible member passing therearound, and a resilient element secured to the end of said flexible member and anchored with respect to the frame.

JOSEPH LOEB.