A target game having a stationary display that provides the capabilities to mimic moving targets. The target game generally comprises a game board, a control panel and a dart gun which may be used both indoors and outdoors. The game board has an upper frame, a lower frame and at least one target surface therebetween. At least some of the embodiments described herein, have three target positions, each with at least one illustration of a clay target. In use, the target surface has electrical components which will sequentially activate and illuminate target areas within a variety of positions on the target surface. When illuminated the target positions may be hit with a dart, which will be recorded as a hit by related sensors, thus simulating a clay pigeon being shot.
SKEET SHOOTING TARGET GAME

BACKGROUND

[0001] Although many amusement games exist, players often seek variety and are looking for different playing experiences. Furthermore, the convenience of in-home games is also desirable, since this allows continued play at convenient times. One mechanism to allow convenient in-home play of several games, such as dart boards, miniature basketball hoops, etc., is the use of appropriate hooks and related supports which allow players to hang the game from the top of a door. That said, the type of game and size of the play surfaces create significant limitations. Consequently, many of these games are simply miniature versions of the equipment used in the typical or well-recognized version of the game. Additionally, outside games, such as skeet shooting require a prescribed amount of space which allow for items to be tossed or thrown. Based on this requirement, many of these games require locations that are not populated or provide a prescribed play area (e.g. a licensed trap shooting facility to facilitate skeet shooting).

[0002] In some cases, simulations of certain games can be provided indoors so long as appropriate adjustments are made. For example, a projectile launcher toy gun can be used indoors to allow for shooting at stationary targets. Alternatively, lasers can be "shot" at certain targets, but this requires more complicated equipment and systems (often requiring that the "laser gun" is electrically connected to the game system). As can be appreciated, it is difficult to provide for such a system that is easily movable and conveniently positioned within a home.

DESCRIPTION OF THE DRAWING FIGURES

[0003] FIG. 1 is a perspective view of one embodiment of an over-the-door target game.

[0004] FIG. 2 is a perspective view of the over-the-door target game with an exploded perspective view of the hook assembly.

[0005] FIG. 3 is a perspective view of the over-the-door target game with an exploded perspective view of the hook assembly.

[0006] FIG. 4 is a perspective view of the over-the-door target game with an exploded perspective view of the attachment mechanism for the gun rack assembly.

[0007] FIG. 5A is a perspective view of the dart rack and the plurality of darts.

[0008] FIG. 5B is an exploded view of a portion of the dart gun, the dart rack and the plurality of darts, with the dart rack being attached to the dart gun.

[0009] FIG. 5C is a perspective view of the dart rack and the plurality of darts attached to the dart gun.

[0010] FIG. 5A is a perspective view of the gun rack and the dart gun.

[0011] FIG. 6B is a perspective view of the gun rack and the dart gun attached thereto.

[0012] FIG. 7 is a front elevation view of the control panel.

[0013] FIG. 8A is a front perspective view of the over-the-door target game showing a first target position illuminated.

[0014] FIG. 8B is a front perspective view of the over-the-door target game showing a second target position illuminated.

[0015] FIG. 8C is a front perspective view of the over-the-door target game showing a third target position illuminated.

[0016] FIG. 9 is a perspective view of an alternative floor standing version of an embodiment of a target game.

DESCRIPTION

[0017] Referring now to the drawings, wherein like reference numerals designate identical or corresponding parts throughout the several views, FIG. 1 illustrates one embodiment of a target game 10 that generally comprises a game board 20, a control panel 70 and a dart gun 48.

[0018] The game board 20 has an upper frame 30, a lower frame 28 and at least one target surface 22 therebetween. As shown in FIGS. 1 and 8, for example, target surface 22 has three target zones or positions 42, 44, 46, each having at least one target area 26 therein. While FIGS. 1 and 8 illustrate an embodiment having disks or clay pigeons, it will be appreciated that each target area 26 may include alternative images, depending on the desired nature or theme of the game (e.g., cans, balls, vegetables, ducks, geese, pheasants, grouse, wild pigs, gophers, deer, bears, zombies, aliens, space ships, cartoon figures, players in a sporting event such as football, dodge ball, lacrosse, etc.). In use, as discussed further below, target surface 22 has appropriate electrical connections to allow the various target positions 42, 44, 46 to be activated at different times. In addition, the various target areas 26 within a particular target positions 42, 44, 46 could each be activated separately thus providing several variations in the way the game can be operated.

[0019] Referring now to FIGS. 1-3, game board 20 is illustrated having a strap 32 positioned between upper frame 30 and a hook assembly 34. As shown, strap 32 may include a means for adjusting the strap length, such as a strap adjuster 33. Referring specifically to FIGS. 2 and 3, strap 32 is coupled to a hook assembly 34 which includes a center plate 38 and a pair of hook members 36.

[0020] The hook assembly 34, as better shown in the enlarged sections of FIGS. 2 and 3, includes hook members 36 and a central plate 38 all preferably made of plastic material or other suitably rigid yet resilient material. Central plate 38 has a front side 39, a back side (not shown), and two projecting arms 40 which allow for hook members 36 to be received through clips 47 positioned along the front side of front leg 37. When assembled, the hook members 36 are attached to each side of the central plate 38 by outwardly projecting arms 40 received within clips 47. The central plate 38 includes an aperture 69 for receiving one end of the strap 32. The other end of the strap 32 is secured to the upper frame 30. The strap 32 preferably includes a strap adjuster 33, such as a tri-glide strap adjuster or any other suitable strap adjustment hardware familiar to those of ordinary skill in the art. The strap adjuster 33 may optionally be combined with a quick release connector such as a side-release buckle or any other suitable connector to allow for quick and easy height adjustment without having to remove the hook assembly 34 from the door 15.

[0021] Hook members 36 includes a front leg 37 and a back leg 41 joined together by a top member 43. The legs 37, 41 are resilient and angled inwardly toward one another, while the top member 43 is preferably of sufficient length to receive the widest standard residential or commercial door (having a typical thickness of approximately 2 inches). The inward angling of the resilient legs 37, 41 allows hook members 36 to snugly receive the thinnest standard residential or commercial door thickness (approximately 1 1/8 inches).
Although the above described hook assembly 34 proud’s one effective embodiment, several other alternatives are clearly possible. These alternatives would include a simple hook structure which simply captures the top edge of the door, or many other well recognized methods to hang items.

Referring now to FIGS. 4 and 6A, gun rack 77 is shown having a connection plate 78, a pair of lower supports 80 and an upper support 82. Gun rack 77 is positioned along the back wall of control panel 70 so it does not interfere with other components. As shown in FIG. 4, gun rack 77 has two appendages (not shown) that are mattingly attached to receiving slots 84 where gun rack 77 is slid into receiving slots 84 and then pressed down to mechanically couple gun rack 77 to the rear portion of control panel 70.

Referring to FIGS. 1, 5 and 6, dart gun 48 is shown having a stock 54, a barrel 56 and a trigger 58. The barrel 56 may further include an opening (not shown) which is adapted to receive dart 50. As best shown in FIGS. 5 and 6, barrel 56 and stock 54 may comprise an outer hollow housing and an interior firing mechanism (not shown) configured to propel or project a dart 50 outwardly from the dart gun 48. It is understood that this could be achieved using mechanical force, pressurized air, or any other appropriate mechanism. In the illustrated embodiment, the stock 54 may be configured with a grip portion 60 and a finger guard opening 62 that may be grasped by a user in a manner allowing the user to pull a trigger 58 to fire dart gun 48. The trigger 58 may be configured to actuate the interior mechanism of dart gun 48 when trigger 58 is squeezed by the user in a manner known by one of ordinary skill in the art.

Still referring to FIGS. 5 and 6 where dart 50 is best shown comprising a foam shaft 90, a suction cup head 92 and a collar 94. When in use, dart 50 is first loaded into dart gun 48. More specifically, the foam shaft 90 of dart 50 is inserted into barrel 56. The shaft 90 of dart passes through the barrel tip and into the tube until the collar 94 of dart 50 engages the barrel tip and creates a generally air tight seal. Once dart 50 is seated, the trigger 58 is squeezed by a user. In this embodiment, which makes use of a spring mechanism to propel dart 50, activation of trigger 58 releases a spring mechanism, thereby transferring the force of the cocked spring to dart 50. This mechanical release of spring provides a sudden high pressure against the dart and stock 50 that displaces dart 50 from barrel 56, thereby launching dart 50 into flight.

As shown in FIG. 5B, stock 54 may further comprise a dart rack 52 configured to receive extra darts 50 for storage prior to loading into dart gun 48. Dart gun 48 may also include a slide member 64 slidably disposed on the exterior. The slide member 64 may be operatively connected to the interior firing mechanism of dart gun 48 such that when the slide member 64 is drawn rearward by the user, the interior firing mechanism to move to a cocked position in preparation for discharging dart 50 from barrel 56. Dart rack 52 further includes pliable brackets 51 for holding darts 50 when not in use. Brackets 51 are fashioned in a manner to allow darts 50 to be removable secured to gun rack 77 without inadvertent disengagement. However, when a user desires a dart 50 a small amount of force being applied to dart 50 will allow a user to remove a dart for loading in dart gun 48.

FIGS. 5B and 5C show the slide member 64 which provides a “cocking” action for the dart gun 48. Dart gun 48 is illustrated with the slide member 64 disposed in the “uncocked” forward position on the dart gun 48 with the dart (not shown) disposed in the barrel 56. When in use, slide member 64 is drawn rearwardly on the housing of dart gun 48 to the “cocked” position. Access to the interior of the dart gun 48 and, consequently, the interior firing mechanism, may be provided via a slot 66 through the walls of dart gun 48. In one example embodiment, a spring is disposed on the interior of the housing, and may be connected at one end to the interior of the housing, and at the opposite end to the slide member 64 such that the spring applies a force to the slide member 64 biasing the slide member 64 to its forward position on dart gun 48. After the slide member 64 is drawn rearward to the “cocked” position such that the interior mechanism of the dart gun 48 is ready for firing and the slide member 64 may return to the “uncocked” forward position (as best illustrated in FIG. 5C).

Referring still to FIG. 5, where trigger 58 extends through the stock 54 within a finger guard opening 62. The trigger 58 may be secured to an interior portion of the stock 54 by a securement means, such as a screw or bolt (not shown). A spring may be disposed between the trigger 58 and a support along the interior wall of stock 54 such that the spring biases the trigger 58 toward its forward position.

Although the above embodiment discusses the use of darts 50 and a dart gun 48 it is contemplated that other devices could also be used, such as bow and arrow structures, hand launched darts, thrown balls, etc. Those skilled in the art will recognize that virtually any projectile, capable of making contact with target surface 22 could be used. As discussed herein, darts are one example embodiment, that adapts to many themes. In addition, footballs could be used in a football gaming theme. Naturally, any type of projectile launching device could also be used.

As shown in FIGS. 4 and 7, game board 20 is associated with a control panel 70 which generally includes a processor (not shown), a power supply 74 (e.g., a battery, AC power, etc.), a speaker 100, an on/off button 105 (i.e. power and/or reset), at least one control button 110, such as a next shooter/scroll button (110A) and/or an enter/sound button (110B), and/or a display 76. As will be appreciated by those skilled in the art, the processor will receive power from the power supply 74, and may be in data communication with target surface 22, speaker 100, on/off button 105, at least one control button 110 and/or a display 76. The processor includes programming (e.g., software or firmware) to actuate the power supply 74, to cooperate with the appropriate sensors (not shown) located at each of the particular target positions 42, 44, 46, and to carry out the play of the game. In one embodiment, capacitive sensors are utilized, and changes in relative capacitance can be detected, which will typically indicate a “hit”. As the game is played, these changes in capacitance can be detected by the processor which is then able to carry out appropriate scoring or game play. If appropriate, a processor will send a signal to display 76 indicating a score for the shooting party. This score will then be registered on display 76.

In another alternative embodiment, physical sensors are used to detect physical force created by darts 50 making physical contact with the related target area 26. Based upon this detected physical force, an electrical signal is sent to the processor, again signaling a “hit”. With this information, the processor can then execute the programmed scoring methodology.

Processor may additionally include programming to cause the display 76 to announce a detected “hit”. The display
76 may include, for example, a visual display, such as player, round, shooter score, shooter percentage or volume indicator (i.e. a diagonal line through an illustration of speaker indicating “no sound”), a visual alert on display 76 and/or an audible alarm. The audible alarm may, for example, include sounds such as a shotgun being shot and/or a clay pigeon being hit. Alternatively, the display could announce “hit” if the activated target position 42, 44, 46 is hit.

[0033] Referring now to FIG. 8, which helps to illustrate one method of operating target game 10. When in use, a player will start the game by hitting the on/off button 105. At this time, the user will load dart 50 as described above, and be ready to start the play of the game. In one embodiment, the game will start with at least one target area 26 in the first target position 42 being illuminated. As shown in FIG. 8A, both target areas 26 within first target position 42 are illuminated (illumination shown in solid lines for the targets and radial accent lines). This illumination will be for a predetermined time interval. Once the time interval has expired desired target areas within the second target position 42 will illuminate (again shown in solid lines and radial accent lines) (see FIG. 8B). Finally, upon the predetermined time interval for second target position 44 expiring, third target position 46 will illuminate (again shown in solid lines and radial accent lines) for a predetermined period of time. While illuminated, it is anticipated that this portion of the game board 20 is the target for the player to shoot at. If a projectile, such as dart 50 makes contact with a target area 26 when illuminated, the control panel 70 will add the number of points for a particular player depending on what position 42, 44, 46 was hit while illuminated. In this embodiment, the points drop as the targets move up the board.

[0034] The sequential nature of target game 10 provides a visualization of skeet shooting where the faster a target is hit with dart 50, the more points that can be earned for that round. It should be appreciated that variables may be established prior to beginning the game like number of players, number of rounds, sound on/off, shooter percentage, etc. In addition, by having individual targets illuminated in varying sequences, target game 10 can create an impression of targets moving in different directions. For example, the targets can be illuminated along either the right or left side of game board 20. Alternatively, the target can be moved up through the middle and then further upward to either the right or the left. This will provide a different and alternative path for the targets, and thus a different impression. Naturally, many alternatives are possible.

[0035] Although the above discussion involves an embodiement or embodiments which are suspended from a door, FIG. 9 shows yet another embodiment where the game board 120 is supported by a free standing frame 130. This embodiment provides further alternatives for users and illustrates additional features. Standing frame 130 includes a base structure 132, a pair of uprights 134, a top frame support member 136, a bottom frame support member 138 and a holding crossbar 140. Game board 120 is formed of a flexible material, which creates a main target panel or target surface 122, and supports a plurality of target areas 142, 144, 146. As will be appreciated, each target area 142, 144, 146 can be separately illuminated, and designated as a target (similar to the target areas discussed above). Additionally, each target area 142, 144, 146 includes a sensor (not shown) to detect when this portion of target surface 122 has been struck by a projectile of some type (e.g. a dart, arrow, ball, etc. as discussed above). Further, different point values can be assigned, for example target areas 144 are assigned values of 10 points, while target areas 146 are assigned values of 5 points. Target surface 122 is coupled to frame members 134, 136, 138 using tabs 124, 126, 128. Also, controller 150 is coupled to the target areas, to accommodate the game operation as generally discussed above. This structure uses a straight forward collection of tubular frame members attached to create the desired structure to support game board 50. Naturally, several alternatives are possible.

[0036] The embodiment of FIG. 9 further illustrates the use of alternative target patterns. As shown, additional target areas 142, 144, 146 exist in this embodiment, when compared with FIG. 1. This will again provide for further variation in game operation.

[0037] While particular examples of the dart gun 48, control panel 70 and game board 20 are illustrated and described herein, those skilled in the art will understand that other configurations of the target game may be implemented. The foregoing description is presented to enable one of ordinary skill in the art to make and use the invention and is provided in the context of a patent application and its requirements. Various modifications to the preferred embodiment of the apparatus, and the general principles and features of the system and methods described herein will be readily apparent to those of skill in the art. Thus, the present invention is not to be limited to the embodiments of the apparatus and methods described herein and illustrated in the drawings, but is to be accorded the widest scope consistent with the spirit and scope of the appended claims.

1. An over-the-door target game configured for use with at least one projectile capable of being propelled toward a target surface:
   a. a hook assembly capable of receiving a top edge of a standard door, said standard door having a substantially vertical face;
   b. a game board supporting the target surface, said target surface having at least one target area;
   c. a game support having one end operably secured to the hook assembly and another end connected to the game board disposed a desired distance down from the top edge of the door; and
   d. a control panel in electrical communication with the game board, wherein the control panel is capable of highlighting the at least one target area and designating the highlighted area as a target, and where the control panel is capable of determining if the target has been struck by the at least one dart while it is highlighted.

2. The over-the-door target game of claim 1 wherein the game is configured for use with a dart gun capable of propelling the projectile, the control panel further comprises a gun rack.

3. The over-the-door target game of claim 1 wherein the control panel further comprises a digital display.

4. The over-the-door target game of claim 1 wherein the dart gun further comprises a dart rack wherein the dart rack is remotely coupled to the dart gun.

5. The over-the-door target game of claim 1 wherein the dart gun further comprises a slide member to position the dart gun in a cocked configuration.

6. The over-the-door target game of claim 1 wherein the strap further comprises a strap adjuster to vary the height of the game board to said top edge of said door.
7. The over-the-door target game of claim 1 wherein the at least one target area has a sensor in electrical communication with the control panel.

8. The over-the-door target game of claim 7 wherein the target surface further comprises at least one target position which contains the at least one target area.

9. The over-the-door target game of claim 7 wherein the target surface further comprises at least two target positions wherein each of the target positions comprises a plurality of target areas, and wherein the control panel is capable of highlighting the target areas in a predetermined manner so as to create the impression of a flying target.

10. The over-the-door target game of claim 9 wherein the plurality of target positions comprise illustrations selected from a group consisting of cans, balls, vegetables, ducks, geese, pheasants, grouse, wild pigs, gophers, deer, bears, zombies, aliens, space ships, cartoon figures, etc.

11. An target game configured for use with at least one flying projectile, the target game comprising:
   a game board having at least one target surface, said target surface having a plurality of target areas;
   a game support configured to position the target surface in a desired location so the at least one flying projectile can be propelled at the target surface; and
   a control panel in electrical communication with the game board, wherein the control panel is capable of highlighting the plurality of target areas in a predetermined sequence and designating the highlighted target area as a target, and where the control panel is capable of determining if the target has been struck by the at least one projectile while it is highlighted.

12. The target game of claim 11 wherein the flying projectile is a dart which is propelled by a dart gun, and wherein the control panel further comprises a gun rack for supporting the dart gun.

13. The target game of claim 12 wherein the dart gun further comprises a dart rack wherein the dart rack is removably coupled to the dart gun.

14. The target game of claim 12 wherein the dart gun further comprises a slide member to position the dart gun to a cocked configuration.

15. The target game of claim 11 wherein the control panel further comprises a digital display.

16. The target game of claim 11 wherein the at least one target area further comprises at least one target position.

17. The target game of claim 11 wherein each of the at least one target areas further comprises at least two target positions wherein each of the target positions can be separately highlighted by the controller to create the impression of a moving target.

18. The method of using an over-the-door target game, configured for use with a flying projectile, the steps comprising:
   positioning the target game, the target game comprising, a hook assembly capable of receiving a top edge of a standard door, said standard door having a substantially vertical face; a game board having a target surface, said target surface having at least one target area; a game support strap having one end operably secured to the hook assembly and another end connected to the game board disposed a desired distance down from the top edge of the door; and a control panel in electrical communication with the game board, wherein the control panel is capable of highlighting the at least one target area and designating the highlighted area as a target, and where the control panel is capable of determining if the target has been struck by the at least one dart while it is highlighted;

   initiating use of the target game via the control panel; and
   operating the game to highlight at least one target area for a predetermined period of time and determining if the target area has been struck by the flying projectile while highlighted.

19. The method of claim 18 wherein the target surface further comprises a first target position, a second target position and a third target position, wherein each of said target positions comprises at least one of the target areas.

20. The method of claim 19 further comprising the step of illuminating at least one of the target areas within the first target position.

21. The method of claim 20 further comprising the step of illuminating at least one of the target areas within the second target position after the at least one of the target areas within the first target position is no longer illuminated.

22. The method of claim 21 further comprising the step of illuminating at least one of the target areas within the third target position after the at least one of the target areas within the second target position is no longer illuminated.

23. The method of claim 19 further comprising the step of commencing an illumination sequence; the sequence comprising:
   illuminating at least one of the target areas within the first target position;
   illuminating at least one of the target areas within the second target position after the at least one of the target areas within the first target position is no longer illuminated;
   illuminating at least one of the target areas within the third target position after the at least one of the target areas within the second target position is no longer illuminated.

24. The method of claim 23 further comprising the step of terminating the illumination sequence upon an illuminated target area being hit with the dart.

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