The present invention is directed toward a player operated projectile aiming game including at least one player operated projectile aiming device for enabling a player to aim a projectile along a sideways trajectory at at least one submerged target in a liquid filled tank in an attempt to hit a target of the at least one target in order for the player to win a prize. The present invention is also directed toward a player operated coin aiming device including a housing rotatable about a vertical axis, and a grooved coin chute for aiming coins rolling down therealong at a target wherein the coin chute is slidingly reciprocatable with respect to the housing whereby the coin chute is capable of undergoing yaw movements about the vertical axis and sliding to and fro movements with respect thereto.
FIG. 2
PLAYER OPERATED PROJECTILE AIMING GAME, AND PLAYER OPERATED COIN AIMING DEVICE

FIELD OF THE INVENTION

[0001] The invention relates to player operated projectile aiming games, and player operated coin aiming devices.

BACKGROUND OF THE INVENTION

[0002] Player operated projectile aiming games in which coins are dropped into a liquid filled playing area are known in the art.

[0003] U.S. Pat. No. 4,177,986 to Campbell illustrates and describes a coin drop game requiring a player to drop a coin through a coin receiving slot into a liquid filled tank and move a submerged cup in an attempt to catch the coin before it reaches the bottom of the tank to win a prize.

[0004] U.S. Pat. No. 4,418,912 to Tottey illustrates and describes a coin drop game requiring a player to drop a coin into a hollow liquid filled body of an animal in an attempt to place the coin in a stationary target to win a prize.

[0005] U.S. Pat. No. 5,282,636 to Wyman et al. illustrates and describes a coin drop game requiring a player to drop a coin through a coin receiving slot into a liquid filled tank and move a plurality of submerged pads in an attempt that the coin lands on a pad before it reaches the bottom of the tank to win a prize.

[0006] U.S. Pat. No. 6,367,801 to Spencer illustrates and describes a coin drop game requiring a player to drop a coin through one of a plurality of coin receiving slots into a liquid filled tank and move a plurality of submerged coin receiving surfaces in an attempt that the coin lands on a coin receiving surface before it reaches the bottom of the tank to win a prize.

SUMMARY OF THE INVENTION

[0007] In accordance with a first aspect of the present invention, there is provided a novel player operated projectile aiming game including at least one player operated projectile aiming device for enabling a player to aim a projectile along a sideways trajectory at at least one submerged target in a liquid filled tank in an attempt to hit a target of the at least one submerged as the projectile randomly sinks towards the bottom of the tank in order for the player to win a prize. The tank is preferably filled with ordinary tap water for convenience but may be filled with other clear liquids, say, having different viscosities to change the random manner in which a projectile sinks. The projectile aiming game of the present invention combines the skillful launching of a projectile as opposed to the hitherto mere dropping of a projectile with the inherent exciting unpredictability of its random descent in a liquid filled tank to render a personally challenging fun game appealing to children and adult players alike.

[0008] The phrase “to hit a target” in the context of the present invention includes a projectile sinking down through a target, a projectile sinking onto a target, and the like. Detection of a hit can be achieved by suitable projectile detection devices as follows: targets through which projectiles are intended to sink downward therethrough can be provided with an electromechanical switch, an optical sensor, or the like; targets on which projectiles are intended to land can be provided with a pressure sensitive switch; or the like. Projectiles can be in the form of coins of legal currency, coin-like tokens, large ball bearings as, say, used in a pinball machine, and the like.

[0009] In accordance with a second aspect of the present invention, there is provided a novel player operated coin aiming device including a housing rotatable about a vertical axis, and a grooved coin chute for aiming coins rolling down along a target wherein the coin chute is slindingly reciprocatable with respect to the housing whereby the coin chute is capable of undergoing yaw movements about the vertical axis and sliding to and fro movements with respect thereto. The term “coin” in the context of the second aspect of the present invention is intended to include coins of legal currency, coin-like tokens, and the like. The novel coin aiming device of the present invention can be employed for use with a wide range of coin aiming games for hitting targets, for example, as illustrated and described in U.S. Pat. No. 5,275,402 to Malavazos et al., U.S. Pat. No. 5,385,347 to Halliburton, and the like, in addition to the projectile aiming game in accordance with the first aspect of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] In order to understand the invention and to see how it can be carried out in practice, preferred embodiments will now be described, by way of non-limiting examples only, with reference to the accompanying drawings in which similar parts are likewise numbered, and in which:

[0011] FIG. 1 is a pictorial representation of a single player projectile aiming game with a player operated coin aiming device for aiming coins at submerged targets;

[0012] FIG. 2 is a partially cut away pictorial view of the projectile aiming game of FIG. 1 with a collection basket for collecting spent coins shown raised during play for illustrative purposes only;

[0013] FIG. 3 is a close-up view of the coin aiming device of FIG. 1;

[0014] FIG. 4 is a cross section of the coin aiming device of FIG. 1 along line A-A in FIG. 3;

[0015] FIG. 5 is a close-up view of a target with a cover for cyclically enabling and precluding a hit;

[0016] FIG. 6 is a pictorial view of a coin aiming device mounted on a tank’s lid; and

[0017] FIG. 7 is a pictorial view of a pinball machine-like striking device with an impeller head for striking a stationary coin.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE PRESENT INVENTION

[0018] FIGS. 1 and 2 show a single player projectile aiming game 1 including a player operated coin aiming device 2 mounted on the side of a transparent plastic water tank 3 for enabling a player to aim coins C along sideways trajectories T at submerged targets 4 in order to win prizes. The targets 4 are in the form of upright tubular ducts
traversing the tank’s floor and connected to a drain tube guiding spent coins to a wire mesh collection basket at the bottom of a control column adjacent the tank. The tank’s floor downwardly slopes to a central spent coin opening also connected to the drain tube and into which spent coins which missed targets can fall into either by rolling or sliding down the floor themselves or being periodically pushed thereinto by the game’s operator. Targets can be assigned different prize values depending on their diameter, their distance from the coin aiming device, and the like. Targets can be optionally provided with hinged covers for cyclically covering and uncovering same for enabling and precluding the sinking of a coin therein (see FIG. 5). Each cover is actuated by a vertically reciprocating rod driven by a driving mechanism (not shown).

The projectile aiming game includes a prize dispensing apparatus for issuing redemption tickets on a coin successfully hitting a target. The prize dispensing apparatus includes a controller, projectile detection devices in the form of electromechanical switches, optical sensors, or the like, for detecting the passage of coins down through their respective targets for issuing hit signals to the controller for dispensing the equivalent number of redemption tickets corresponding to their prize values, and a ticket dispenser for issuing redemption tickets. The prize dispensing apparatus may additionally include a loudspeaker and flashing lights for indicating a hit.

The column has a hinged cover housing the ticket dispenser which can be tipped backwards to enable convenient access to the collection basket having a pole for lifting it upwards for periodically retrieving spent coins, and the ticket dispenser for maintenance purposes including adding new rolls of redemption tickets, and the like. Alternatively, the collection basket can be raised and lowered by electromechanical means for periodic retrieval of spent coins.

FIGS. 3 and 4 show that the coin aiming device includes a housing mounted on a vertical axis, and a housing having an inclined throughgoing slot for slidingly supporting a grooved elongated coin chute having a hand grip at one end and stoppers at opposite ends for delimiting the stroke of the coin chute with respect to the housing. The housing accommodates a replaceable coin mechanism having a coin receiving slot for receiving coins, a coin rejection slot for rejecting invalid coins onto a rejected coin seat, and a valid coin aperture for passing valid coins onto said coin chute. Thus, a player can rotate the coin chute about the vertical axis through yaw movements denoted A, and slide the coin chute along to and fro stroke movements denoted B with respect to the vertical axis whereby the coin chute has two degrees of freedom for aiming coins at a target.

The use of the projectile aiming game is as follows:

A player aims the coin aiming device at one of the submerged targets and places a coin in its coin receiving slot. Assuming the coin is valid, it falls onto the coin chute and rolls down the coin chute into the tank. If accurately aimed, the coin sinks into one of the target and actuates its projectile detection device which issues a hit signal to the controller. The controller controls the ticket dispenser to dispense the number of redemption tickets corresponding to the target’s prize value. The spent coin rolls down the drain tube into the collection basket for later retrieval. If the coin misses the target, it may fall flat on the floor or roll down the floor into the spent coin opening. The game operator periodically pushes all the spent coins lying on the floor into the coin receiving opening and empties the basket to retrieve the spent coins.

While the invention has been described with respect to a limited number of embodiments, it will be appreciated that many variations, modifications, and other applications of the invention can be made within the scope of the appended claims. For example, a coin aiming device can be mounted on a tank’s lid (see FIG. 6). Projectile aiming devices can be in the form of a pinball machine-like striking device with an impeller head for striking an initially stationary coin to launch it into a tank along a sideways trajectory (see FIG. 7). In the case that a projectile aiming game includes two or more projectile aiming devices for enabling a corresponding number of players to play simultaneously, the targets are deployed in such a manner that a projectile aiming device can only launch a projectile at one or more specified targets to avoid confusion between players in the case of a target being hit.

A projectile aiming device and its associated targets can be suitably color coded, and the like.

1. Player operated projectile aiming game comprising at least one player operated projectile aiming device for enabling a player to aim a projectile along a sideways trajectory at least one submerged target in a liquid filled tank in an attempt to hit a target of said at least one submerged target as said projectile randomly sinks toward the bottom of said tank in order for the player to win a prize.

2. The game according to claim wherein a projectile aiming device is constituted by a coin aiming device including a grooved coin chute rotatable about a vertical axis for aiming coins rolling down therealong at a target.

3. The game according to claim wherein said coin chute is slidable and is reciprocating with respect to said vertical axis whereby said coin chute is capable of yaw movements thereabout and to and fro movements with respect thereto.

4. The game according to claim wherein said coin aiming device includes a coin mechanism with a coin receiving slot for receiving coins, a coin rejection slot for rejecting invalid coins onto a rejected coin seat, and a valid coin aperture for passing valid coins onto said coin chute.

5. The game according to claim wherein said projectile aiming device is constituted by a pinball machine-like striking device for aiming projectiles at a target.

6. The game according to any one of claims 1 to 5 wherein a projectile sinks through a target in order for a player to win a prize.

7. The game according to any one of claims 1 to 4 wherein a projectile sinks onto a target in order for a player to win a prize.

8. The game according to claim any one of claims 1 to 7 wherein a target includes a cover for cyclically enabling and precluding a projectile hitting same.

9. The game according to any one of claims 1 to 8 and further comprising an automatic prize dispensing mechanism for automatically dispensing a prize when a target has been hit.
10. Player operated coin aiming device comprising a housing rotatable about a vertical axis, and a grooved coin chute for aiming coins rolling down therealong at a target wherein said coin chute is slidingly reciprocatable with respect to said housing whereby said coin chute is capable of undergoing yaw movements about said vertical axis and sliding to and fro movements with respect thereto.

11. The device according to claim 10 wherein said housing includes a coin mechanism with a coin receiving slot for receiving coins, a coin rejection slot for rejecting invalid coins onto a rejected coin seat, and a valid coin aperture for passing valid coins onto said coin chute.

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