April 7, 1953 L. E. REED 2,634,128

GRAVITY ACTUATED SPIRAL TRACK DEVICE

Filed Nov. 1, 1950 2 SHEETS—SHEET 1

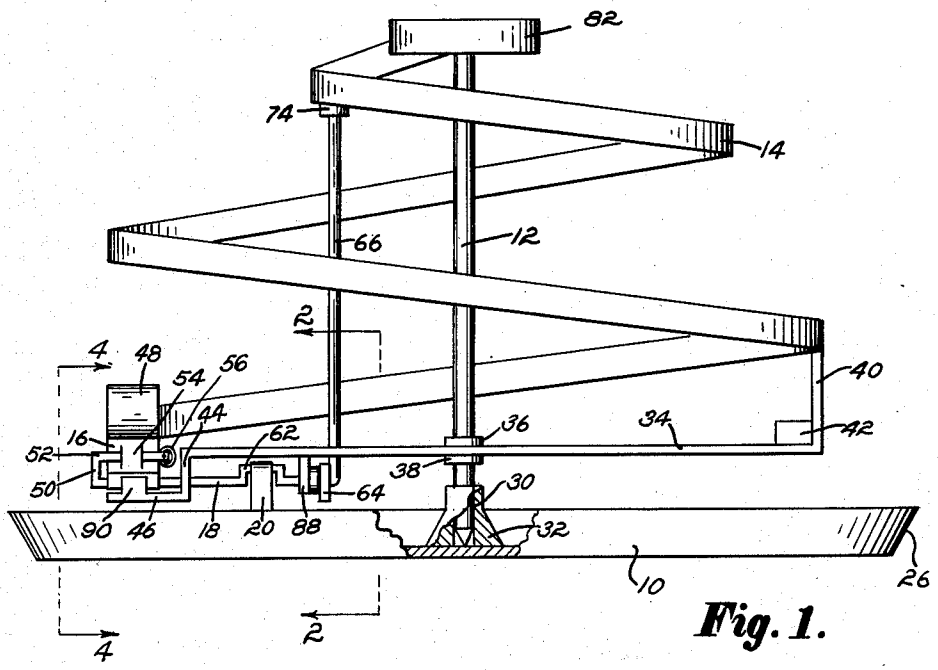
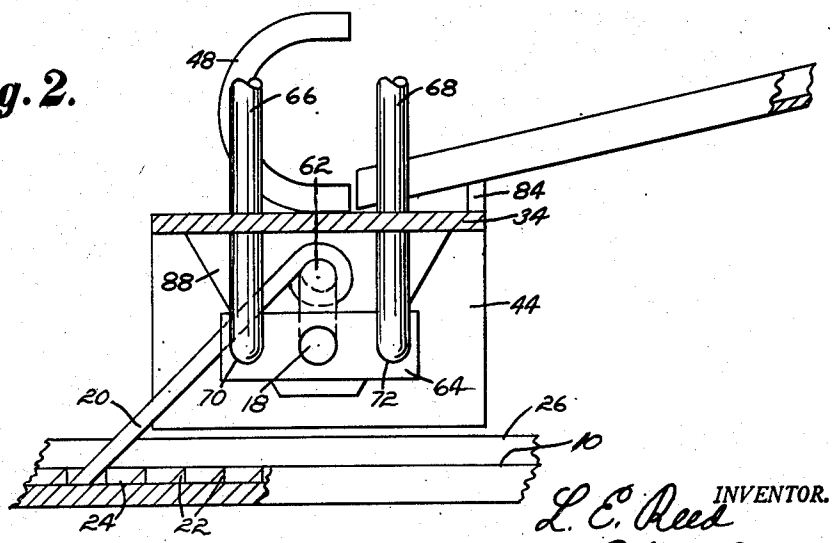



Fig. 1.

Fig. 2.




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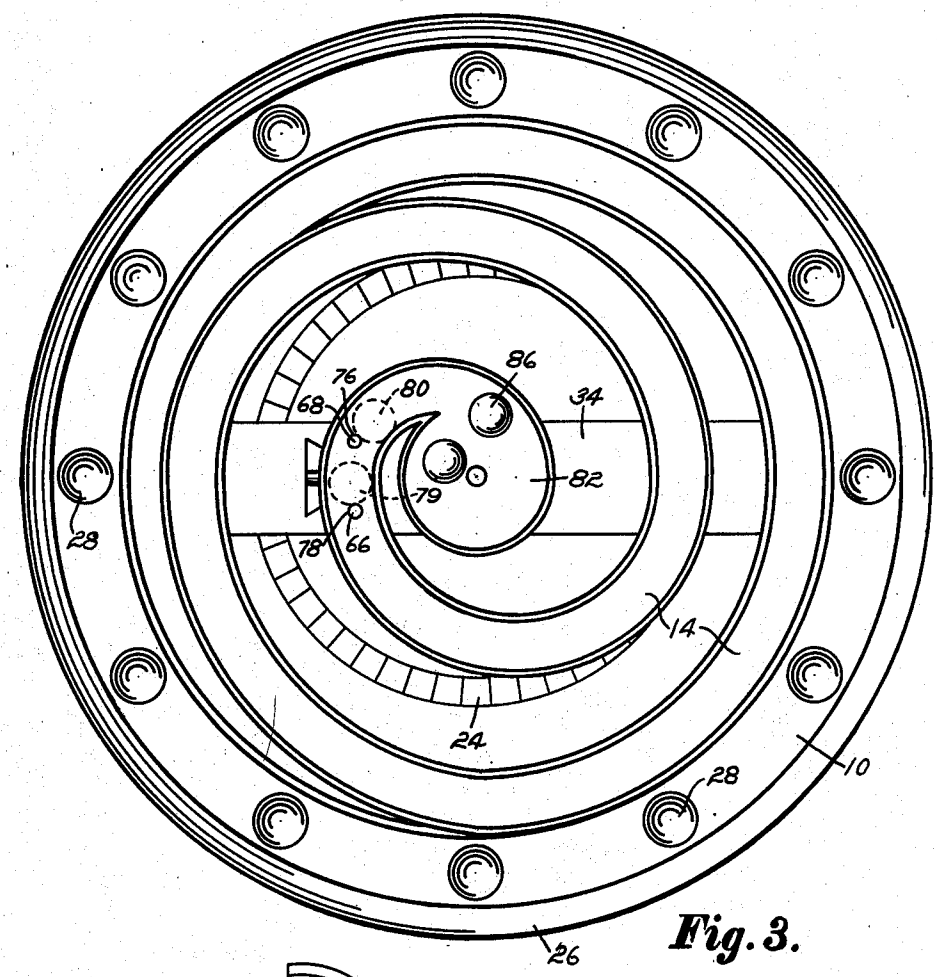



Fig. 3.

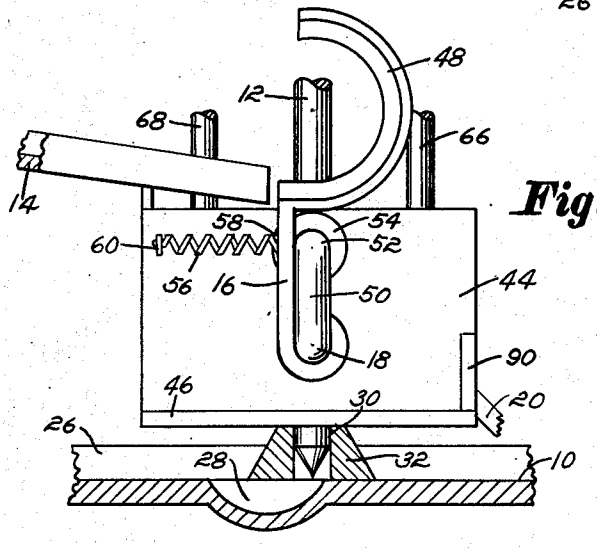



Fig. 4.

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## GRAVITY ACTUATED SPIRAL TRACK DEVICE

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4 Claims. (Cl. 273—120)

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This invention relates to amusement devices or games, particularly of the type in which scores are attained, and in particular a game having a spiral track down which balls or marbles roll by gravity and in which the inertia of the balls actuates the track and provides the scoring means.

The purpose of this invention is to provide means for increasing interest in amusement devices of this type, and particularly where skill is not a predominating factor.

Various types of spiral tracks have been provided for balls, small cars, and similar devices, but where devices of this type are actuated by gravity the travel ceases when the ball or other object reaches the lower end of the track. Where the ball stops or leaves the device at the lower end of the track the novelty is limited and it is difficult to maintain interest in the device. With this thought in mind, this invention contemplates a toy, game, or the like, where a playing piece is actuated over a course by gravity and the resultant inertia is utilized to set in motion a following playing piece, and by this means the playing pieces or balls may be deposited in pockets with the pockets having different values and whereby scoring may be accomplished.

The object of this invention is, therefore, to provide means for constructing a spiral track whereby a plurality of playing pieces positioned at the upper end of the track are released, one by one, by inertia inherent in one of the playing pieces after traveling down the track by gravity.

Another object of the invention is to provide a trip actuated by a ball after the ball has traveled down a spiral track whereby the trip actuates releasing and holding means whereby a following ball is released and another ball is retained.

Another object of the invention is to provide scoring means in a game where balls travel down a spiral track wherein after tripping means for releasing following balls the balls are deposited in pockets in a tray positioned below the track.

A further object of the invention is to provide means in combination with a spiral track whereby the inertia of a ball traveling down the track by gravity rotates the track.

A still further object of the invention is to provide a self-propelled and actuated amusement device wherein balls traveling down a spiral track pivotally mounted on a tray trip following balls and actuate means to rotate the track, in which the device is of a comparatively simple and economical construction.

With these and other objects and advantages

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in view the invention embodies a spiral track carried by a post pivotally mounted on a tray with trip means carried by the lower end of the track and positioned to actuate a latch in combination with a rack for rotating the track and also operate releasing and holding means whereby balls are released and retained in the upper end of the track.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings, wherein:

Figure 1 is a side elevational view of the amusement device showing the track and tray with part of the tray broken away illustrating the pivotal mounting of the track in the tray.

Figure 2 is a cross section taken on line 2—2 of Figure 1 illustrating the trip and latch elements at the lower end of the track.

Figure 3 is a plan view of the device showing, in particular, the spiral track.

Figure 4 is a cross section taken on line 4—4 of Figure 1 also showing the trip device and showing the side of the device opposite to that shown in Figure 2.

Referring now to the drawings wherein like reference characters denote corresponding parts, the improved amusement device of this invention includes a tray 10 forming a base, a post 12 pivotally mounted in the base, a spiral track 14, a trip lever 16, through which the device is actuated, a shaft 18, and a ratchet 20 which coacts with teeth 22 in an annular rack bar 24 for rotating the post and track.

In the design shown, the base or tray 10 is provided with an upwardly sloping side wall 26, and between the annular rack 24 and the side wall, indentations 28, providing ball receiving pockets are provided, and these pockets may be numbered to provide scores. The base is also provided with a socket 30 in a hub 32 and the lower end of the post 12 is rotatably mounted in the socket as shown in Figure 1.

The spiral track 14, which is substantially U-shape in cross section, is mounted on the post 12 by a plate 34 which is secured between collars 36 and 38 and one end of the plate is provided with an upright 40 that supports a section of the track 14, as shown in Figure 1.

A counter-weight 42 may be provided on the end of the plate 34 to balance the operating instrumentalities on the proper side of the track.

The opposite end of the plate 34 is provided with a vertical section 44 on the lower end of which a horizontal section 46 is provided, and as illustrated in Figure 4, the section 46 extends below

an arcuate ball receiving arm 48 that is positioned to register with and receive balls from the lower end of the track 14.

The arm 48 is mounted on the upper end of the trip lever 16, as shown in Figure 4, and the lever is pivotally mounted on the shaft 18, the outer end of which is provided with an upwardly extended section 50 and a horizontally disposed section 52, which extends from the upper end of the section 50 and extends through a socket 54 on the trip lever 16.

The trip lever 16 with the end sections of the shaft 18 and arcuate arm 48 are resiliently held in the upwardly extended positions as illustrated in Figure 4 by a spring 56, one end of which is attached to the trip lever 16 at the point 58 and the opposite end of which is attached to the section 44 of the plate 34, at the point 60. The parts remain in this position until the inertia of a ball traveling down the track and engaging the arm 48 forces the arm and trip lever in a clockwise direction, from the position shown in Figure 4 and in this movement the ratchet 20 engages a tooth 22 of the rack 24, rotating the spiral track in a clockwise direction from a point looking downward upon the device. The ball, after rolling throughout the length of the arcuate arm 48 is deposited in one of the pockets 28 of the tray 10 and with the pockets numbered a score is indicated.

The shaft 18 is provided with an eccentric section 62 on which the ratchet 20 is pivotally mounted, as shown in Figure 1, and the inner end of the shaft is secured in a lever 64, as illustrated in Figure 2, wherein pivotal motion of the shaft turns the lever in a counter-clockwise direction, from the position shown in Figure 2.

A pair of vertically disposed rods 66 and 68 are pivotally mounted in openings 70 and 72 in the ends of the lever 64 and these rods extend upwardly through the area in the center of the track with the upper ends extended through bosses 74 on the under surface of the track, and through openings 76 and 78 which extend through the bosses and floor of the track so that the rods extend into the track, as shown in Figure 3.

The upper end of the rod 66, this rod being longer than the rod 68, extends into the track, whereas the upper end of the rod 68 is flush with the floor of the track and as the trip is actuated by a ball reaching the lower end of the track the lever 64, turning with the shaft 18, draws the rod 66 downwardly whereby a ball, as indicated by the dotted line 79, is released and a following ball 80 is retained by the end of the rod 68 which in this movement passes upwardly through the floor of the track. The upper end of the track is provided with a ball retaining chamber 82 and any suitable number of balls may be placed in this chamber when the game is started.

With the parts arranged in this manner the track 14 is carried by the cross bar or plate 34 with an intermediate part of the track supported by the upright 40 and with the lower end of the track supported by a block 84, and with the trip lever and ball receiving arm on the lower end of the track balanced by the counter-weight 42 on the opposite end of the plate the track is free to rotate as the ratchet 20 is actuated with the trip lever 16 and lever 64. The shaft 18 is journaled in the section 44 of the plate 34 and also in a bearing 88 extended downwardly from the plate. A stop 90 is provided on the edge



of the section 46 of the plate to limit downward movement of the arm 48.

To start the device balls or marbles 86 are placed in the chamber 82 and the trip lever and lever 64 are actuated by hand to release the first ball. This ball travels down the track and as it rolls into the arm 48, the arm, trip lever, and lever 64 are actuated by the inertia thereof whereby another ball is released, the track is rotated about the base tray and the first ball is deposited in one of the pockets of the tray.

The scores of the different players may be totaled to ascertain the winners of the game.

From the foregoing description it is thought to be obvious that an amusement device constructed in accordance with this invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that the invention is susceptible of some change and modification without departing from the principles and spirit thereof, and for this reason it is not to be understood that the invention is limited to the precise arrangement and formation of the several parts herein shown, except as claimed.

Having thus fully described the invention what I claim is new and desire to secure by Letters Patent is:

1. A game device comprising a tray having a vertically disposed centrally positioned socket extended upwardly therefrom and having an annular rack with teeth therein concentric with said socket, a post rotatably mounted in the socket of the tray, a spiral track carried by the post and adapted to rotate therewith, a trip lever mounted at the lower end of the track and positioned to receive a playing piece from the track, means pivotally mounting the trip lever whereby upon engagement of a playing piece with the trip lever the trip lever is actuated, means operated by the trip lever releasing another playing piece in the upper end of the track as the trip lever is actuated, and a ratchet positioned to coact with the rack for operation by the trip lever for rotating the track as the trip lever is actuated, said tray having an annular row of radially disposed pockets in the upper surface thereof positioned to receive playing pieces from the trip lever for scoring.

2. A game device comprising a tray having a vertically disposed centrally positioned socket extended upwardly therefrom and having an annular rack with teeth therein concentric with said socket, a post rotatably mounted in the socket of the tray, a spiral track carried by the post and adapted to rotate therewith, a trip lever mounted at the lower end of the track and positioned to receive a playing piece from the track, means pivotally mounting the trip lever whereby upon engagement of a playing piece with the trip lever the trip lever is actuated, means operated by the trip lever for releasing another playing piece in the upper end of the track as the trip lever is actuated, a ratchet positioned to coact with the rack for operation by the trip lever for rotating the track as the trip lever is actuated, and resilient means returning the trip lever, releasing means and track rotating means to their original positions after the trip lever is actuated.

3. In a game, the combination which comprises a tray having a vertically positioned centrally disposed socket extended upwardly therefrom, said tray having an annular rack in the upper surface concentric with the socket and said tray also having pockets in the upper sur-

face, a vertically positioned post rotatably mounted in the socket and extended upwardly from the tray, a spiral track, U-shaped in cross section, carried by the post and adapted to rotate therewith, a supporting plate mounted on the post and providing supporting means for the lower part of the track, a shaft having an eccentric section therein journaled on the supporting plate, a trip lever mounted on the shaft and having a ball receiving arm thereon, said ball receiving arm positioned to register with the lower end of the track, a ratchet pivotally mounted on the eccentric section of the shaft and positioned to coact with the annular rack to rotate the track as the trip lever is actuated, and means actuated by the shaft for releasing balls in the upper part of the track.

4. In a game, the combination which comprises a tray having a vertically positioned centrally disposed socket extended upwardly therefrom, said tray having an annular rack in the upper surface concentric with the socket and said tray also having pockets in the upper surface, a vertically positioned post rotatably mounted in the socket and extended upwardly from the tray, a spiral track, U-shaped in cross section, carried by the post and adapted to rotate therewith, a supporting plate mounted on the post and providing supporting means for the lower part of the track, a shaft having an eccentric section therein journaled on the supporting



plate, a trip lever mounted on the shaft and having a ball receiving arm thereon, said ball receiving arm positioned to register with the lower end of the track and post, a ratchet pivotally mounted on the eccentric section of the shaft and positioned to coact with the annular rack to rotate the track as the trip lever is actuated, a horizontally disposed lever mounted on the shaft, vertically positioned rods extended upwardly from ends of the lever and extended through the floor of the track, one of said rods positioned to release a playing piece as the trip lever is actuated and the other of said rods positioned to retain a following playing piece as the said trip lever is actuated.

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