Sept. 12, 1933. F. M. BERKLEY 1,926,258

MECHANICAL BOWLING ALLEY

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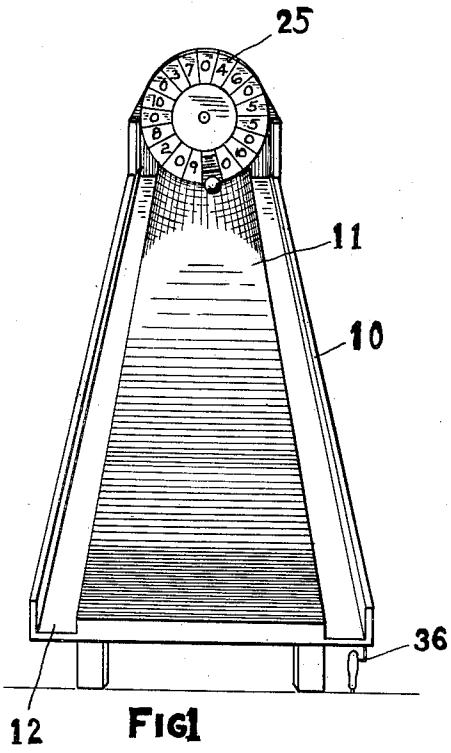


FIG 1

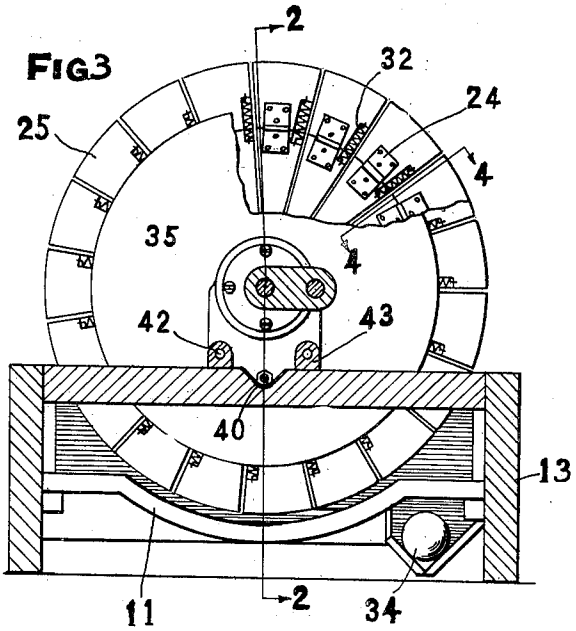


FIG 3

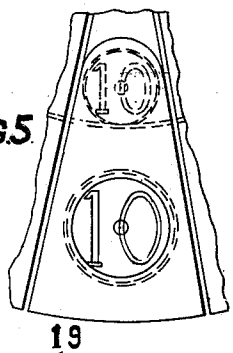


FIG 5

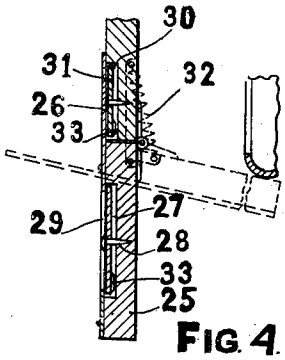


FIG 4

FIG 2

INVENTOR
Frederick M. Berkley
BY
Martin Lachmanson
ATTORNEY

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MECHANICAL BOWLING ALLEY

Frederick M. Berkley, New York, N. Y.

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Serial No. 576,549

4 Claims. (Cl. 273—41)

This invention relates generally to games and more particularly to games of the bowling alley type.

A primary object of my invention is to provide a novel game of sport and recreation which at the same time is conducive of physical and mental benefits to the player.

Another object is to provide a game of this type in which the complicated system of scoring is eliminated and in which the score can be seen at a glance.

Another object is to provide a game of this type with ready and simple means for restoring the knocked down targets.

Another object is to provide the targets with means for keeping their numerals in upright readable position.

A further object is to provide a novel combination of numbers for scoring.

A further object is to provide an improved game apparatus that is simple in construction, sturdy and economical to manufacture.

Other advantages of my improved game will be apparent from the description thereof to follow taken in connection with the accompanying drawing in which—

Figure 1 is a perspective view of my improved game.

Figure 2 is a vertical sectional view of one end of my improved game apparatus showing the position of the targets and associated parts.

Figure 3 is a detail view looking toward the rear of the wheel mounting the targets.

Figure 4 is a detail view showing the construction of the targets.

Figure 5 is a detail view showing the front of the wheel.

Referring to the drawing in detail, my improved game consists of an elongated frame 10 for supporting the various parts of the apparatus. This frame may be of wood or metal or any other suitable material and may be of any desired length or width depending on the space available. A floor 11 extends substantially the length of the frame and is provided with gutters 12 on each side thereof similar to those of an ordinary bowling alley.

At the rear end of the elongated frame 10 is another frame or table 13 including uprights 14 and top 15. This frame may be made of the same material as the frame 10. Formed between the end of the floor 11 and the front of the frame 13 is a pocket or chamber 16 having an inclined bottom 17 leading to each of the gutters 12. Fastened on the top 15 of the frame 13 is a motor 18 of any desired type and this motor in conjunction with a reduction gearing 19 drives a shaft 20 at a reduced speed. This shaft 20 has a wheel 21 mounted on its end by means of a bolt 22. The motor and reduction gear casing are shown fastened to the frame 13 by bolts 23 but any suitable means of attachment may be used.

Mounted on the periphery of the wheel 21 by means of hinges 24 are a plurality of targets or counters 25. These targets form an extension of the wheel and the hinges are mounted on the rear of the wheel permitting the targets to swing backward thereof. Each target comprises a plate 26 secured to the face of the target which plate extends over the hinge joint and inwardly toward the center of the wheel. This plate is formed with an opening or recess 27 and rotatably mounted on a pin or bolt 28 in this opening is a disk 29. This disk bears suitable indicia such as a number "0" or any number up to "10" on its face. This disk 29 with its number is exposed on the face or front of the wheel. Formed in the face of the wheel adjacent the periphery or hinge joint and in line with plate 26 is a recess 30 and mounted rotatably in this recess is another disk 31 which bears indicia or a number corresponding to the number appearing on the disk 29. For example, if the disk 29 bears the number "5" the disk 31 will bear the number "5". This disk 31 is normally concealed from view by the inward extension or tip of the plate 26. Each of the hinged targets 25 is normally held in elongation of the wheel or in "closed" position by means of a tension spring 32, one end of which is fastened to the wheel and its other end to the target at the rear thereof. As the wheel rotates carrying the targets around with it, it is essential that the numbers on the disks 29 and 31 are always in upright position so that they will be readable. I accomplish this by placing a weight 33 at the bottom of the number on the rear of the disk so that the weighted portion of the disk will always be down and the number thereon be positioned in upright readable position as will be understood.

An important feature of my present invention is the novel arrangement of figures or numbers; that is, the novel combination of numbers which novel combination makes the game more interesting and tends to bring out the skill of the player. By reference to Figure 1, it will be seen that I have so numbered the targets that there are two targets bearing the number "10" considerably spaced from each other however. The

number "10" it will be noted is the highest number on the wheel. The remaining targets are so grouped that pairs of targets bear numbers totalling "10"; that is, form combinations of "10". The target bearing the number "9" is next to the target bearing the number "1"; the target bearing the number "8" is next to the one bearing the number "2"; the target bearing the number "7" is next to the one bearing the number "3"; the target bearing the number "6" is next to the one bearing the number "4"; the target bearing the number "5" is next to the one bearing the number "5", and between each such group of pairs and the targets bearing the number "10" is a target bearing the number "0", thus separating each group.

Having explained the foregoing parts of my improved game apparatus, I will now describe the manner of playing the game. The game is played with a ball 34, such as used in bowling. Each player is given three balls and bowls three balls to a frame. The wheel is turned slowly by means of the motor and reduction gearing and carries the targets around with it. The player bowls the ball down the floor or alley and the object is to hit the target bearing the highest number; the three balls allowing for a high score of 30. In a ten frame game the highest score is 300, the same as scoring on a regular bowling alley. As there are only two "10" targets on the wheel, combination shots are necessary to make high scores. These combination shots are made by making the ball hit directly between the targets bearing the numbers totalling "10"; i. e., between the target bearing the number "6" and the target bearing the number "4".

It will be understood of course that by reason of the hinged construction of the targets when they are hit by the ball 34, they swing backward to "open" position or to the position shown in dotted lines in Figures 2 and 4. The ball 34 after it strikes the target falls down into the pocket 16 and returns by gravity to the front of the apparatus by way of the gutters 12. The ball 34 is of a size to substantially span the width of a target, a 4½ inch ball and target being preferred.

In playing this game, it is of course necessary after each frame to restore or reset the targets, that have been knocked backward, to their initial or "closed" position.

An important feature of my present invention is the improved device for restoring these targets, which restoring device is positive in action and easily manipulated. This device consists of a disk member 35 slidably mounted on the shaft 20. This disk 35 is positioned to the rear of the wheel 21 and adjacent thereto and is of a width slightly greater than the width of the wheel 21 so that the periphery of the disk 35 extends slightly beyond the periphery of said wheel as will be seen from Figure 2. This disk is positioned sufficiently close to the wheel so that when a target is struck it falls backward and rests against the periphery of said disk 35 as is shown in dotted lines in Figure 2. All of the targets knocked to "open" position rest on this disk. The disk 35 is moved toward and away from the wheel 21 manually by means of a foot pedal 36 supported on the front of the frame 10 convenient to the player. This foot pedal is connected to a rod 37 extending the length of the frame and which is secured to a link 38 pivotally mounted on a bracket 39 fastened to the rear of the frame 13. Secured to one end of this link member 38 and supported in bearings in the frame 13 and extending along the frame to the wheel 21 is another rod 40. The rod 40 at its end adjacent the wheel 21 is fastened to a block 41, which block mounts the disk 25 and forms a hub therefor. A pair of guide pins 42 extend rearwardly from the block and these pins slide in bearings 43. It will be understood that movement of the rod 37 imparts a movement to the rod 40 which reciprocates the block 41 and disk 35. The disk 35 is normally kept in a position away from the wheel 21 by reason of a tension spring 44 normally urging the rod 40 rearwardly.

The inner portion of the block 41 is adapted to rotate on ball bearings 45 in case turning moment is exerted thereon by reason of vibration or otherwise.

It will be understood that when the targets 25 are knocked backward to "open" position they rest against the disk 35 and movement of the disk 35 toward the wheel 21 will push all of the targets simultaneously to normal "closed" position ready for another frame. This eliminates the necessity of having individual means for pushing each individual target to "closed" position.

The wheel 21 illustrated in Figure 1 consists preferably of nineteen hinged targets 25, each target being numbered individually and in the following definite and specific numerical arrangement, to wit: 0—10—0—1—9—0—2—8—0—10—0—3—7—0—4—6—0—5—5—0. With the wheel revolving, the object is for the player to aim for the target bearing one of the numbers "10" and if successful the target will fall backward on its hinge leaving an opening or gap through which the numbered disk 31 appears. The bowler then focuses his attention on the second target bearing the number "10" and if he strikes this target it will open as aforesaid leaving a second opening. The wheel having no more "10" targets on it, the bowler is forced to take a choice of two separately numbered targets which total "10" and if correctly struck therebetween both targets swing backwardly simultaneously as for example "5—5", "4—6" etc., or any combination of numbers with a "0" as for example "0—5", "0—4" etc. Under no condition can a bowler hit more than two targets at time with one ball.

A very important feature of this game is the arrangement of the "0" targets which are placed in front and behind both individual "10" targets and any two adjacent targets totaling "10", to wit: 0—10—0; 0—1—9—0; 0—2—8—0; 0—10—0; 0—3—7—0; 0—4—6—0; 0—5—5—0.

It will be seen from the foregoing that I have constructed an apparatus with moving targets that provides ready, quick and positive means for restoring the targets to initial "closed" position; that the numbers on said targets are always in upright readable position no matter where they are positioned on the wheel; and that the novel method of arranging or combining the numbers make for skill and interest in the game.

While I have illustrated and described one form of my invention, it will be understood that changes in details of construction may be resorted to without departing from the principle of my invention and I desire to be limited only by the state of the prior art and the appended claims.

I claim:

1. In a game of the character described, an alley, a revolving wheel at one end thereof, a series of targets hingedly mounted on the periphery of said wheel, and adapted to be knocked rearwardly of said wheel by a ball, a slidable disk positioned rearwardly of said wheel with its periphery in the path of backward movement of said targets and manual means operable from the front of said alley for actuating said slidable disk to restore said targets.

2. In a game of the character described, an alley, a revolving wheel at the rear end thereof, a series of targets hingedly mounted on the periphery of said wheel, disks rotatably mounted on the face of said targets, each of said disks bearing a number, a weight on each disk for holding the number upright, a disk slidably mounted at the rear of said wheel with its periphery in the path of backward movement of said targets, sliding rods operatively connected to said disk and a pedal at the front of said alley for actuating said rods.

3. In a game of the character described, an alley, a revolving wheel at the rear end thereof, a series of targets hingedly mounted on the periphery of said wheel, disks rotatably mounted on the face of said targets, each of said disks bearing a number, another disk rotatably mounted at the rear of said targets and concealed thereby, each of said disks bearing a number corresponding to the number on the target concealing it, a disk slidably mounted at the rear of said wheel with its periphery in the path of backward movement of said targets, rods actuated from the front of said alley for sliding said disk and weights carried by each of said numbered disks for holding each of said disks so that its number is in upright position.

4. In a game of the character described, an alley, a revolving wheel at the rear end thereof, a series of targets hingedly mounted on the periphery of said wheel and forming a continuation thereof, a spring for normally holding said targets in the plane of said wheel, a plate on the face of each of said targets, each of said plates having an opening, a disk rotatably mounted in each of said openings, each of said disks bearing a number, another disk rotatably on said wheel adjacent its periphery and hidden normally by the plate on said target, each of said latter disks bearing a number corresponding to the number on the target whose plate conceals it, a disk slidably mounted at the rear of said wheel with its periphery in the path of backward movement of said targets, rods actuated from the front of said alley for sliding said disk, and weights carried by each of said numbered disks for holding each of said disks so that its number is in upright vertical position, the normally hidden disks on the wheel being so positioned that they are visible when the targets are moved on their hinges.

FREDERICK M. BERKLEY.