

Sept 17, 1957

L. A. DURANT

2,806,701

BOWLING GAME APPARATUS

Filed May 12, 1954

5 Sheets-Sheet 1

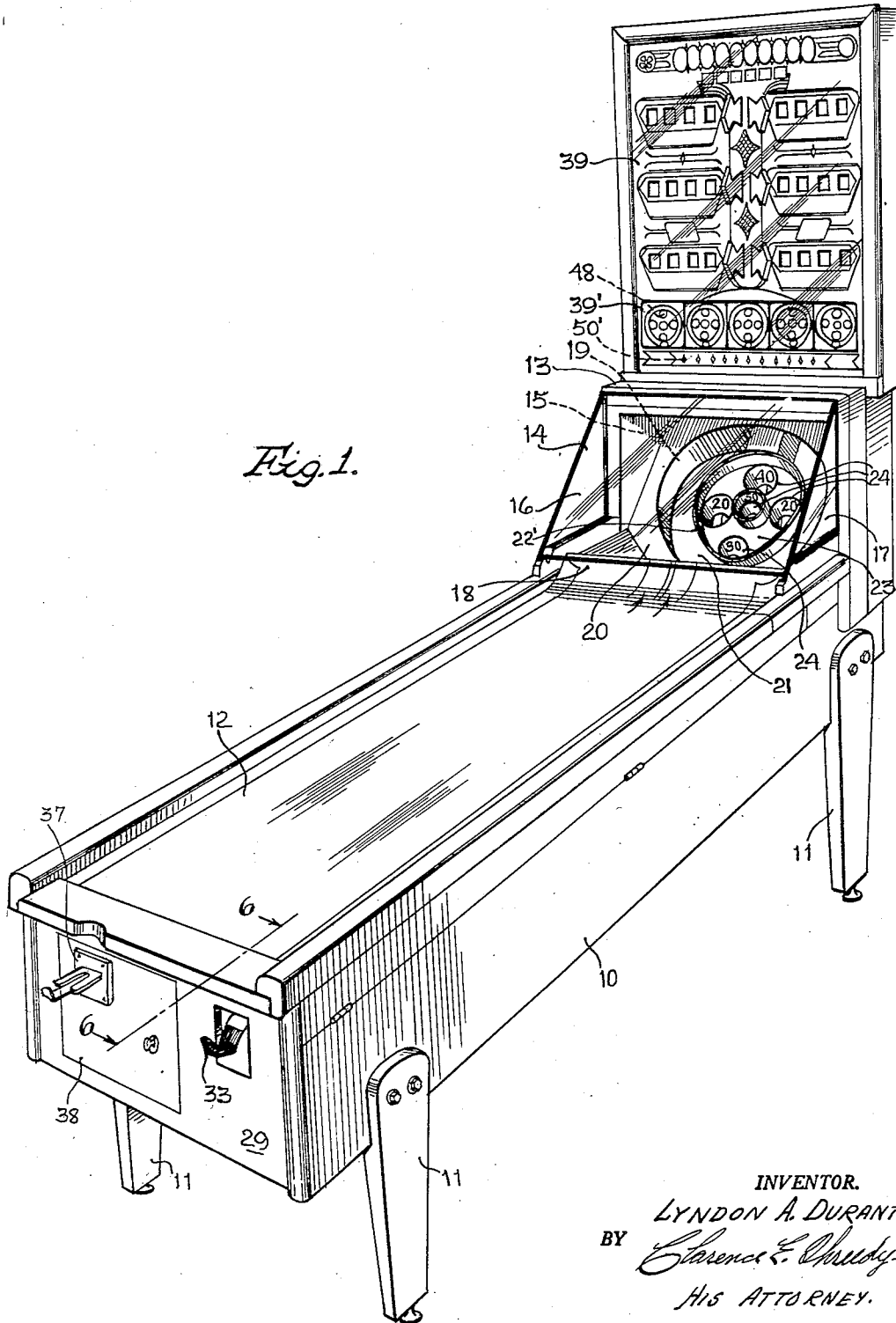


Fig. 1.

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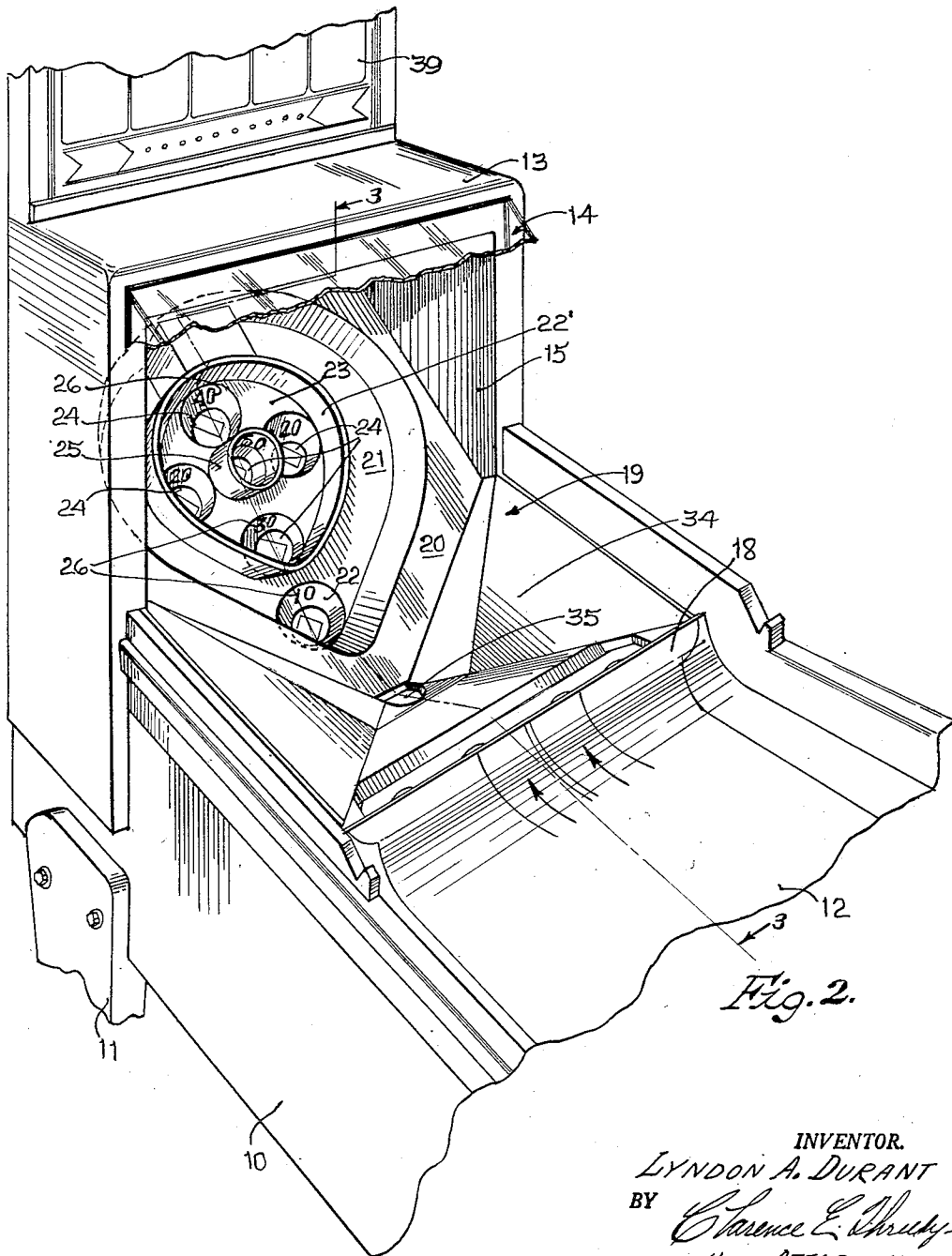


Fig. 2.

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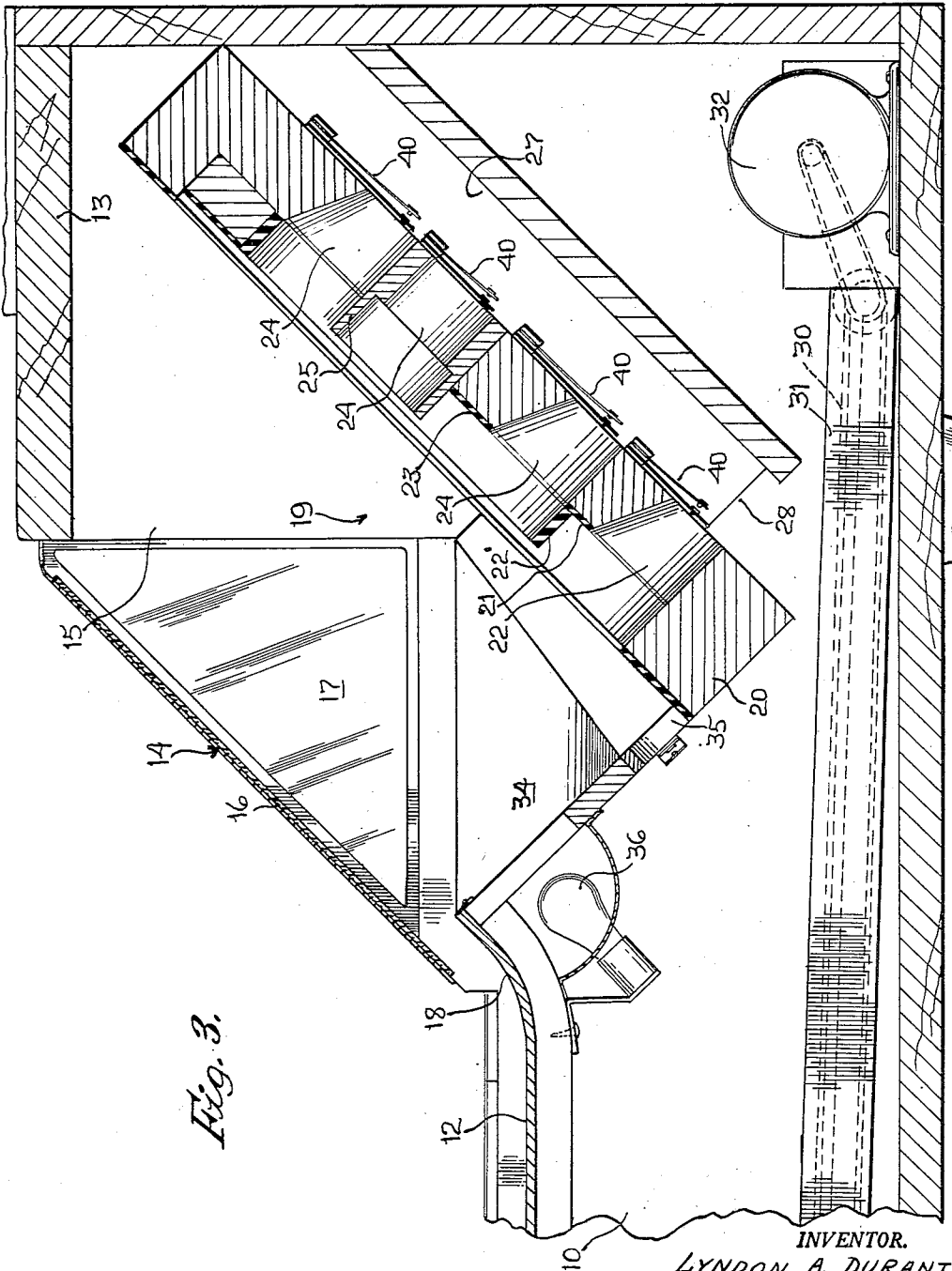
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5 Sheets-Sheet 3



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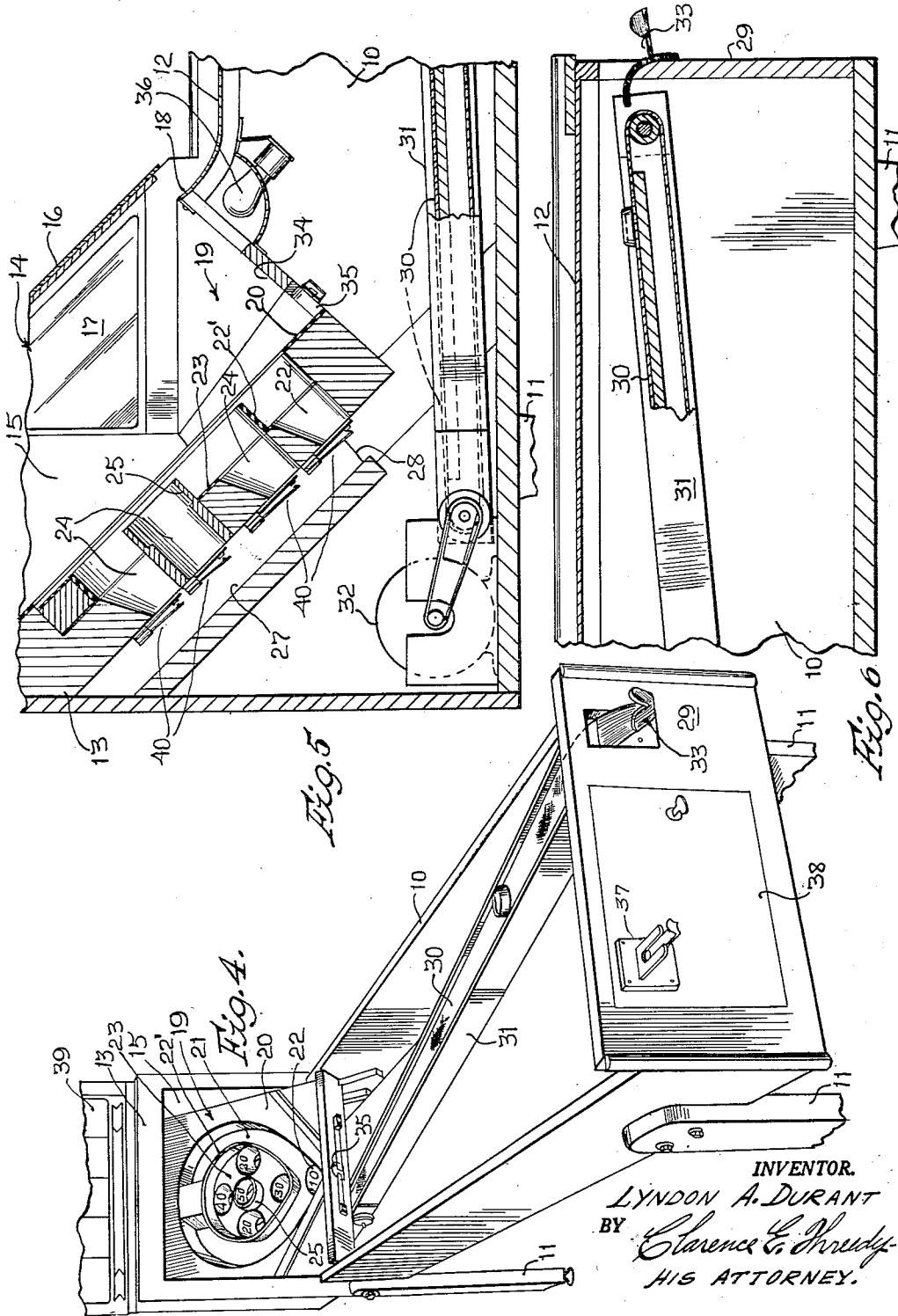
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BOWLING GAME APPARATUS

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5 Sheets-Sheet 4



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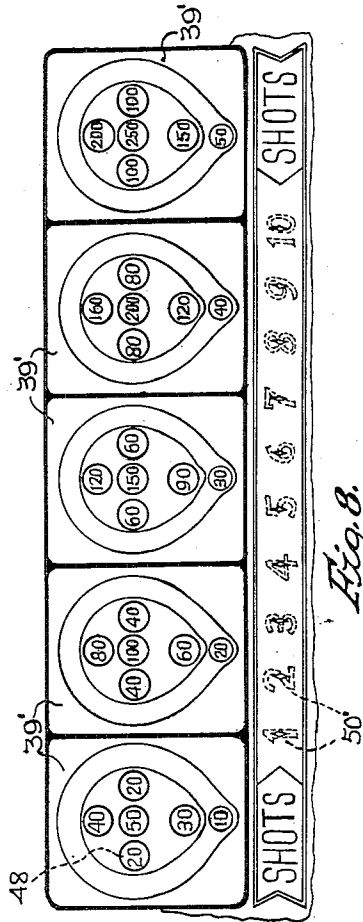
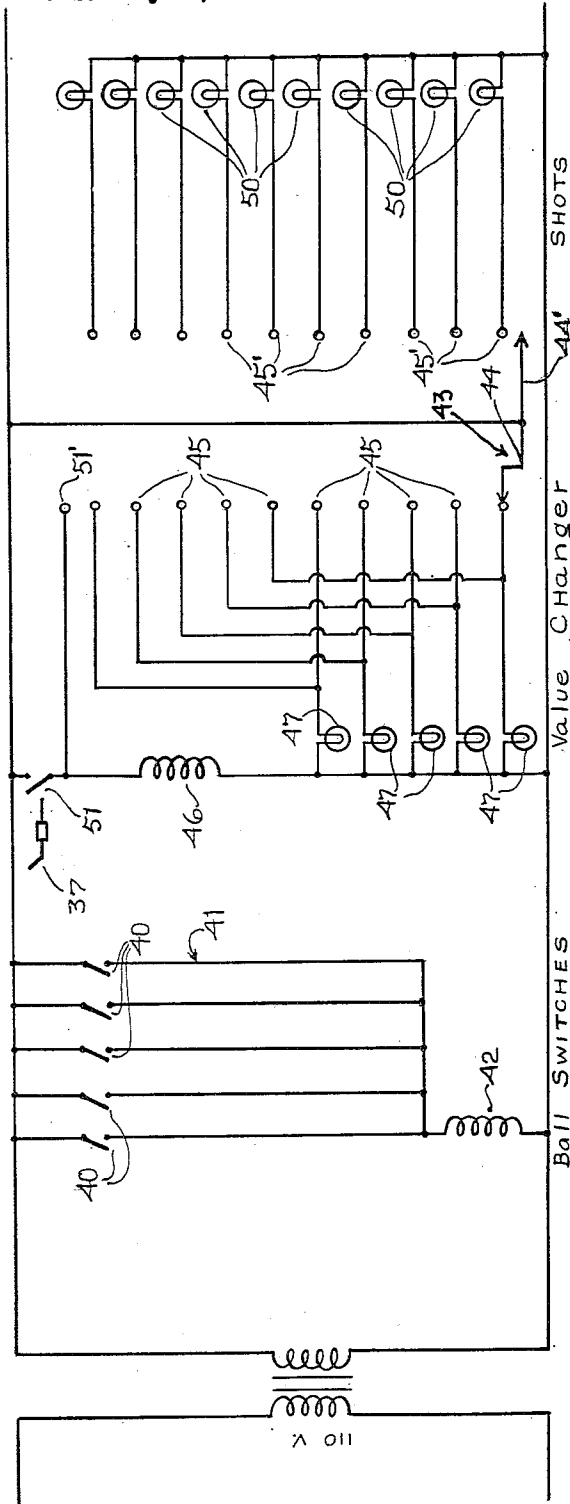
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5 Sheets-Sheet 5



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2,806,701

BOWLING GAME APPARATUS

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2 Claims. (Cl. 273-95)

This invention relates to certain new and useful improvements in a bowling game apparatus and has for one of its objects the provision of an improved construction of this character which will be economical in manufacture.

One of the objects of the invention is the provision of an arrangement for presenting to a player at the start of the game a minimum score value of the targets and then progressively increasing such score value as the game is played, starting from a minimum score and ultimately reaching a high score, depending upon the skill of the player, starting score values being made apparent to the player at the start of the playing of the game, by illumination or otherwise.

Another and equally important object of the invention is to provide an amusement game of the character hereinafter described which calls for the exercise of the skill of the player in the playing of the game.

Yet another and equally important object of the invention is to provide an amusement game which will afford the maximum amusement.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a perspective view of a game apparatus embodying the invention;

Fig. 2 is a fragmentary perspective view of the same;

Fig. 3 is a fragmentary sectional detail view taken substantially on line 3-3 of Fig. 2;

Fig. 4 is a fragmentary perspective view of the game apparatus illustrated in Fig. 1 with the playing field and target cover removed;

Fig. 5 is a fragmentary sectional detail view of the target embodied in the invention;

Fig. 6 is a fragmentary sectional detail view taken substantially on line 6-6 of Fig. 1;

Fig. 7 is a schematic view of a circuit arrangement employed in the invention; and

Fig. 8 is a plan view of score panels embodied in the invention.

The several objects of my invention are accomplished by the preferred form of construction shown in the accompanying drawings. In such drawings the amusement game apparatus is shown as embodying a main cabinet 10, supported by suitable legs 11. The top wall of this cabinet 10 provides a substantially horizontal playing field 12.

At one end of the cabinet is mounted a target cabinet 13 including a removable closure 14 normally closing the open face 15 of the latter. Such closure 14 may be of any approved construction and preferably provides a front incline 16 and side walls 17 of transparent shatter-proof material.

2

The end 18 of the playing field provides an upwardly curved ramp designed to direct game pieces into a target area 19 of the target cabinet 13. Such target area includes a plate 20 inclined upwardly from the horizontal plane of the playing field 12 and with the lower portion thereof preferably below the horizontal plane of the playing field 12. The plate 20 defines a well 21 having an exit opening 22. Within the well 21 is arranged a circular partition 22' defining a target area 23 having a plurality of target openings 24 formed therein with the center one of such openings 24 defined by a wide ring 25 to make it more difficult for the placement of a game playing piece in the target opening defined thereby.

Printed or otherwise placed near the openings are numbers 26 designating the value of the target openings.

Beneath the plate 20 the target cabinet 13 is provided with a return trough 27 which is substantially triangular in plan view and provided with an exit opening 28 centrally located with respect to the long axis of the cabinet 10 and adjacent the lowermost point of the well 21 (Fig. 3).

Within the cabinet 10 and extending beneath the openings 22 and 28 is an arrangement for returning the spent game playing pieces to the player's end 29 of the cabinet. Such arrangement preferably comprises a motor-driven belt 30 operating within a trough 31 and driven by a suitable motor 32.

While I have shown this mechanism in the form of a conveyor belt, it is to be understood that other forms of mechanisms may be employed for returning the spent playing pieces to the player's end of the game. This belt 30 is arranged to discharge the spent playing pieces into a cup 33 supported by the front wall 29 of the cabinet 10. From this cup 33 the player obtains the game piece for the playing of the game.

Interposed between the target area 15 and the ramp 18 is a funnel-shaped structure 34 having at its apex an outlet 35. This outlet 35 is directly over the belt conveyor 30 so that playing pieces that fall short of the target area fall into this funnel 34 and are subsequently returned to the players by the belt 30.

The target area may be illuminated by suitable lighting fixtures 36 (Figs. 3 and 5).

The front wall 29 of the cabinet 10 carries a suitable door 38 of any improved or standard construction. This door 38 carries a suitable coin chute 37 which controls the electric circuit of the game. This coin chute 37 is of a well-known construction now commercially in use.

On the target cabinet 13 is arranged a score cabinet 39 within which suitable score mechanism is arranged. This cabinet has a front wall on which appear separate score panels 39' each having printed or screened thereon a representation of the target well 21 and its representative openings with score numbers or values for such openings. It will be particularly noted that the value of the openings progressively increases in the manner shown in Fig. 8. Such arrangement adds player attraction to the game.

Beneath the openings 22 and 24 are arranged suitable switches 40, which are connected in series in an electric circuit 41. In this electric circuit is a step-up coil 42 of a step-up switch 43 including wiper contact arms 44 and 44' and stationary contacts 45 and 45'. The circuit as shown in Fig. 7 also includes a reset coil 46 for returning the wiper arms 44 and 44' to zero position.

This step-up switch 43 is constructed preferably like that shown in United States Patent No. 2,618,719. The contacts 45 control an electric circuit to incandescent lamps 47. These incandescent lamps 47 are arranged within pockets 48 to the rear of the panels 39'.

The reset coil 46 may be controlled by a switch 51 operated by the coin mechanism 37.

The object in the playing of this game is to project the game playing piece through one of the target openings, especially that opening which bears the highest score value.

Assuming that the player has projected the playing piece through the score opening having the value of "10" (Figs. 4 and 8), the following takes place. As the playing piece passes through this opening, it will close the switch 40 of that opening. The closing of this switch will set up a circuit through the step-up coil 42 (Fig. 7) and advance the arms 40 and 41' one step into contact with the preceding contact buttons 45 and 45', respectively. When the arm 44 is in contact with such preceding contact button 45, the second score panel from the left, as viewed in Fig. 1, will be illuminated and, as will be noted in Fig. 8, the values of the score openings bearing the values "10" to "50" inclusive have been doubled to "20" to "100" inclusive. At the same time, when the arm 44' is in contact with the second of the contact buttons 45' from the bottom as viewed in Fig. 7, the shot light illuminating "Shot No. 1" will be illuminated to indicate that the player has played one shot.

As the game is played, the score values will be progressively increased, preferably to the values shown in Fig. 8. After the last shot has been played, the contact arm 44 will be in contact with the button 51', thereby to set up a circuit to the reset coil 46 to return the arms 44 and 44' back to starting position.

To record the shots, it is preferably intended that there be included in the circuit shown in Fig. 1 incandescent lamps 50. Such lamps are arranged within the individual pockets 50' to the rear of the lower portion of the closure 39. It is desirable that such portion of the closure adjacent the pockets bear indicia indicative of the shots or plays. The number of shots or plays may vary; however, in the circuit shown in Fig. 7, I have shown for purposes of illustration ten shots.

The game may be played by a ball or by a puck. In the present instance the game is set up for playing by a puck. The player manually throws the puck over the playing surface 12. The speed of the puck determines the score opening through which the puck will fall. The curved end of the playing surface will deflect the puck and if such puck be in line with a score opening, it will fall into and through such opening. As the puck falls through such score opening, it closes the switch 40 of that opening and effects operation of the score value changer and shot counter hereinbefore described.

After the last play or shot, the arm 44 will contact a button 51' to energize the reset coil 46 to return the score value changer or shot counter to starting position.

From the foregoing description, it will be manifest that the skill of the player is required in the playing of the game. The game will afford maximum enjoyment.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. An amusement game apparatus of a game piece throwing type comprising a cabinet having a substantially horizontally extending playing field over which a game playing piece is adapted to be manually projected, a target cabinet at one end of said field into which playing pieces are adapted to fall from said playing field, said end of said playing field being curved upwardly toward said target cabinet to deflect the game pieces into said target cabinet, a member mounted in said cabinet and inclined upwardly with respect to the playing field

with its lower end portion below the horizontal plane thereof, said member providing a well having an outlet below the horizontal plane of said field and adjacent said lower end portion of said member, a circular partition arranged in the well and providing within the well a target area having a central exit opening and a plurality of exit openings concentrically arranged with respect to the central opening with one of said openings below the horizontal plane of said field but above said outlet of said well, the central opening being surrounded by a circular ring, a funnel-shaped return trough between said member and the said end of said playing field and having a centrally located exit opening below the horizontal plane of said field and extending at right angles to said outlet of said well and communicating with the interior of said game cabinet, a return trough in spaced parallel relation and beneath said member and formed substantially triangular in plan view and having open communication with the openings of said target area and provided at its apex with an exit opening having open communication with said one of said openings below the horizontal plane of said field, an elongated channel within said game cabinet and having one end portion disposed beneath the exit openings of said troughs, and a traveling belt in said elongated channel onto which game pieces passing through the exit openings of said return troughs are adapted to fall.

2. An amusement game apparatus of a game piece throwing type comprising a cabinet having a substantially horizontally extending playing field over which a game playing piece is adapted to be manually projected, a target cabinet at one end of said field into which playing pieces are adapted to fall from said playing field, said end of said playing field being curved upwardly toward said target cabinet to deflect the game pieces into said target cabinet, a member mounted in said cabinet and inclined upwardly with respect to the playing field with its lower end portion below the horizontal plane thereof, said member providing a well having an outlet below the horizontal plane of said field and adjacent said lower end portion of said member, a circular partition arranged in the well and providing within the well a target area having a central exit opening and a plurality of exit openings concentrically arranged with respect to the central opening with one of said openings below the horizontal plane of said field but above said outlet of said well, the central opening being surrounded by a circular ring, a funnel-shaped return trough between said member and the said end of said playing field and having a centrally located exit opening below the horizontal plane of said field and extending at right angles to said outlet of said well and communicating with the interior of said game cabinet, a return trough in spaced parallel relation and beneath said member and formed substantially triangular in plan view and having open communication with the openings of said target area and provided at its apex with an exit opening having open communication with said one of said openings below the horizontal plane of said field, and a conveyor means beneath the said exit openings of said troughs to receive playing pieces passing therethrough to convey the same to a playing position with respect to the game cabinet.

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