Aug. 12, 1924. 1,504,390

E. McC. STEIGLEMAN

BOWLING ALLEY

Filed May 14, 1921 2 Sheets-Sheet 1

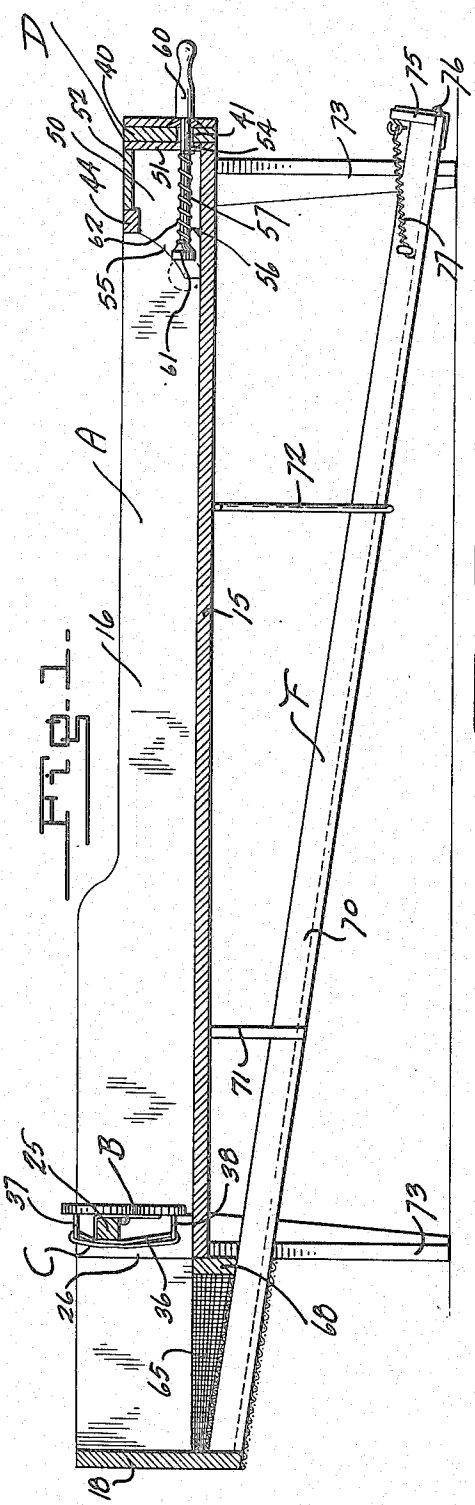


Fig. 1.

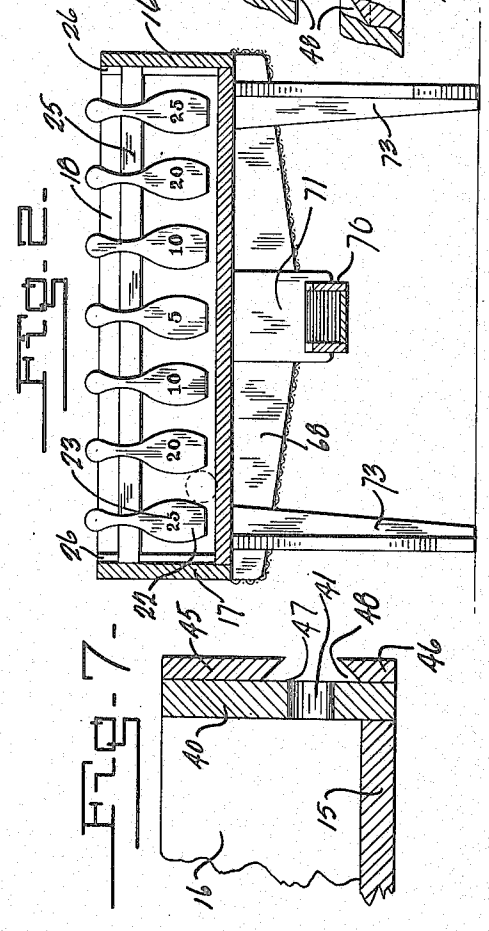


Fig. 2.

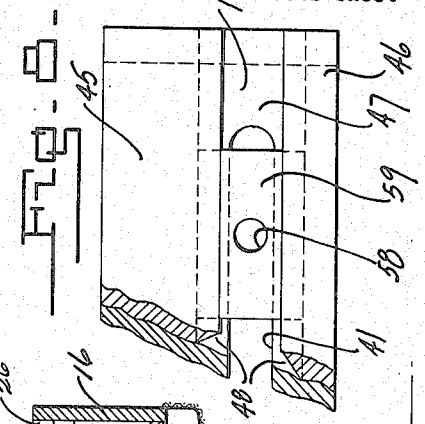


Fig. 3.

Fig. 7.

Inventor
Edgar M. Steigleman

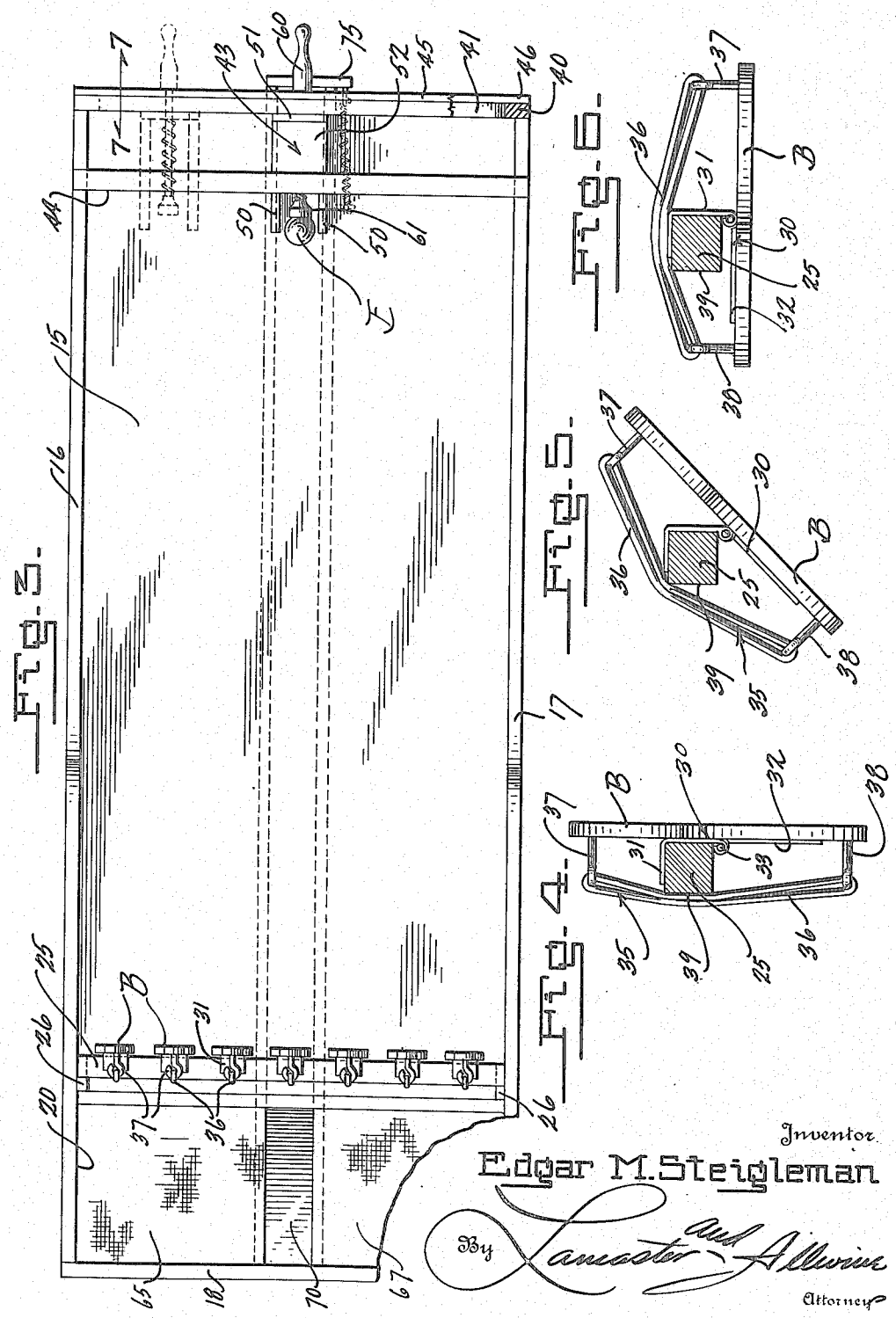
By Lancaster and Allwine
Attorneys

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Inventor
Edgar M. Steigleman
By Lancaster and Allwine
Attorneys

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UNITED STATES PATENT OFFICE.

EDGAR McCLELLAN STEIGLEMAN, OF HIGHSPIRE, PENNSYLVANIA.

BOWLING ALLEY.

Application filed May 14, 1921. Serial No. 469,587.

To all whom it may concern:

Be it known that I, EDGAR M. STEIGLEMAN, a citizen of the United States, residing at Highspire, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Bowling Alleys, of which the following is a specification.

This invention relates to an amusement device simulating in character a bowling alley.

The primary object of the invention is the provision of a bowling alley which is an amusing and instructive device, and which is particularly well adapted for construction on a miniature plan to form a toy bowling alley.

Further objects of the improved toy bowling alley, are improved means for mounting the scoring members, and means for selectively propelling a ball or the like toward a pin or scoring member.

Other objects and advantages will be apparent during the course of the following detailed description.

In the accompanying drawings, forming a part of this specification, and in which similar reference characters designate like and corresponding parts throughout the several views,

Figure 1 is a longitudinal cross sectional view of the improved bowling device.

Figure 2 is a transverse cross sectional view showing various scoring elements of the game, and their relation with respect to the alley structure.

Figure 3 is a fragmentary plan view of the improved bowling alley.

Figure 4 is a side elevation of a scoring element in vertical position.

Figure 5 is a side elevation of the mounting of the scoring element in an inclined position.

Figure 6 is a side elevation of the mounting of the scoring element in horizontal position.

Figure 7 is a fragmentary enlarged cross sectional view taken on the line 7—7 of Figure 3.

Figure 8 is a fragmentary enlarged view showing the arrangement of various details of the bowling alley.

In the drawings, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the letter A designates a playing alley, having the pins B operatively mounted therein, as by means C. Projecting means D is provided upon one end of the playing alley A opposite the pins B, and adapted to project a ball or other element over the playing alley A. Means F is provided for returning the ball E to the end of the alley A containing the projecting means D.

The bowling alley A preferably comprises the table surface 15, which may be of any dimension to conform with the size of the game desired. It is preferably rectangular in formation, and provided upon the longitudinal edges with the upstanding sides 16 and 17, said sides being preferably higher rearwardly of the alley A, than their forward portions adjacent the projecting means D. An end or ball contacting plate 18 is provided for connection to the sides 16 and 17 to the rear of the alley A.

It is preferred that the table surface or board 15 terminate short of the rear plate 18, to provide a substantially rectangular opening 20, extending entirely the width of the bowling alley A, and for provision of several elements of the ball return means F.

The pins B are of the ordinary "ten pin" formation, except that the same are relatively flat to provide the enlarged bottom portion 22 upon each of the same, for the reception of suitable scoring indicia 23. It is preferred that the indicia 23 be numerals having a common multiple and of increasing denominations.

The mounting means C preferably comprises a rectangular shaped bar 25, transversely mounted upwardly of the table 15 to the sides 16 and 17; vertical bracing members 26 being provided for rigid attachment to the sides 16 and 17, and rearwardly of the horizontal bar 25, the same, receiving strain incident to contact of the member E against any of the pins B. The pins B are arranged in spaced relation transversely along the forward face of the bar 25. They are preferably pivotally connected centrally of their height by hinged members 30, one leaf 31 of the hinge 30 being rigidly attached to the top and forward face of the rectangular bar 25; while a second leaf 32 of each of the hinges 30 is rigidly attached to the lower part of the individual pins B. The leaves 31 and 32 are so arranged that their connecting or pivoting pin 33 is disposed immediately below the point of juncture of the forward face and bottom face

of the member 25, substantially as illustrated in Figures 4, 5, and 6 of the drawings. In this manner, the pins or scoring members B are centrally pivoted to the bar 25 to be spaced in proper relation with respect to each other, and with respect to the top of the table surface 15.

In order to provide an effective operating pin B, the resilient means 35 has been provided to maintain a pin B in an adjusted position, which the same assumes from contact with an operating ball E. This means 35, preferably consists of a resilient elastic band 36 tensioned in suitable eye screws 37 and 38, mounted at the extreme top and bottom respectively of each of the pins B. The resilient elements 36 are each of the ordinary rubber band formation, and tensioned from the eye of the upper screw 36 to contact and engage the rear surface 39 of the horizontal bar 25, said element 36 being looped into the eye of the bottom screw or pin 38. In this position, the eyes of the elements 37 and 38 are inwardly disposed with respect to the rear surface 39 of member 25, in order to give an arcuate or bent appearance to the band 36, and to tension the same in proper manner.

The propelling means D is mounted upon the forward end of the table 15 and opposite the pins B. The forward upstanding end 40 is provided for rigid attachment to the sides 16 and 17 and extending transversely of the alley A, the same being provided adjacent the table surface 15 with a horizontal slot 41 extending practically the entire width of the forward end 40. The propelling means D preferably includes a housing 43, adapted for reciprocation transversely of the alley A and adjacent the end 40. To this end, a horizontal and substantially rectangular shaped bar 44 has been provided forwardly of the end 40, and rigidly attached in suitable depressions in the sides 16 and 17, to be disposed parallel to the end 40 and spaced therefrom, as well as spaced upwardly from the table 15. Suitable guide strips 45 and 46 have been disposed upon the exterior face 47 of the end 40, and at the top and bottom thereof respectively. The strips 45 and 46 are of such formation, that when properly disposed upon the face 47, the same will provide a substantially dovetailed slot or recess 48, extending horizontally of the ends 40 and to expose the slot 41 therein.

The housing 43 is preferably rectangular in formation, including the sides 50, end 51 and roof 52. The end 51 preferably contacts the inside of the end 40, the same being provided with an aperture 54 adapted for alignment with the slot 41. The top 52 of the housing 43 is provided for rigid mounting upon the sides 50 and for disposal between the end 51 and a vertical side of the horizontal bar 44. In this position, the top 50 and end 51 snugly fit intermediate the end of the alley 40 and the bar 44, sufficient to permit reciprocation of the housing 43 in its transverse direction. The forward portions 55 of the sides 50 are arcuated and incline downwardly to extend forwardly of the horizontal bar 44, substantially as illustrated in Figures 1 and 3 of the drawings. The plunger element 56 preferably includes a rod 57, adapted for horizontal disposition in the housing 43 to extend longitudinally of the alley A. The same is reciprocably mounted through the aperture 54, and the slot 41, extending rearwardly through an aperture 58 in the sliding member 59, and provided with a handle 60 adapted for contact exteriorly upon the sliding member 59; whereby the rod 57 will be maintained within the housing 43 in proper manner. A head 61 is formed forwardly upon the rod 57, said head receiving an end of the spiral spring 62, which is wrapped around the rod 57, and disposed within the housing 43, the same, being normally under tension to force the head 61 forwardly between the arcuate side portions 55.

The sliding member 59 is of formation to have bevelled top and bottom edges to cooperate in the dove tailed groove 48, formed by the members 45 and 46. The same is reciprocable back and forth in the dove tailed groove 48. The housing 43 is likewise reciprocable upon the table 15 intermediate the horizontal bar 44 and the end 40 of the bowling alley 15. In a like member, the plunger 56 cooperates to reciprocate within the housing 43 by pulling the handle 60 outwardly from contact with the sliding member 59, thus compressing the spring 62 and pulling the head 61 of the plunger 56 into the interior of the housing 43.

The return means F preferably comprises a pair of flexible fabric inclined portions 65 and 67, inclined transversely of the sides 16 and 17 respectively, toward the center of the alley A. They are of course disposed rearwardly of the pin mounting means C, and are connected to the rear plate 18, as well as to a downwardly extending member 68, said member 68 being attached to the rear end of the bowling table 15 and downwardly thereof. A ball runway 70 including a floor and upstanding sides is preferably inclined longitudinally of the alley A, the same extending from the rear face 18 thereof, and inclining downwardly toward the propelling or ball projecting end of the alley A. The fabric inclined floors 65 and 67 are connected at their downward marginal edges to the sides of the runway 70, whereby the ball members E may readily roll down either of the sides 65 and 67 and into the runway 70. Suitable supporting brackets 71 and 72 are arranged beneath the

table 15, to support the runway 70. Supporting legs 73 may be provided upon the bottom of the alley table 15 in any desired position to properly support the alley A. A door 75 is hingedly connected by a hinged member 76 to the outer surface of the runway 70 and at the lower mouth end thereof; the door 70 being normally maintained in closed position by a spiral spring or resilient element 77.

In operation, a player disposes the ball element into the arcuate forward surface of the head 61, and draws the rod 57 rearwardly by means of handle 60 until the head 61 is disposed within the casing 43. The ball E will of course, follow or be pushed into contact with the head 61 when the spring 62 is compressed, as by the above operation. The operator then slides or has already positioned his casing 43 transversely in proper relation to the particular pin 23 toward which he is aiming. Upon releasing the handle 60, the spring 62 will sharply force the head 61 forwardly and project the element or ball E toward the pins B. It is of course desirable to get the pin containing the highest delineation, the hitting of said pin of course depending upon the skill of the operator in properly aiming the plunger 56, to direct the force in proper relation to effectively project the ball E against said pin B.

The ball E contacts with a pin B, the pin B will be rocked upon its hinge 30 from a vertical position into a horizontal position, as illustrated in Figure 6, and the indicia contained on the pin thus rocked into horizontal position will count in favor of the operator.

However, the projecting force must be sufficient to send the element E into sharp contact with the various pins B, and if such force is not sufficient, due to carelessness of the operator, the pin B will not rock into horizontal position, due to the frictional resistance imposed upon the pins B by the resilient elastic element 35. As illustrated in Figure 5, the pin B is only positioned at an inclined position, and of course, cannot count for a player. As the ball passes the pins B, either missing or effectively hitting the same, it passes forwardly into the substantially rectangular opening 20 provided by the frame work of the bowling alley A, and either contacts the plate 18 or rolls directly upon one of the flexible inclined elements 65 or 67. Due to such inclination of the elements 65 and 67, the ball or element E will roll into the runway 70 and roll to the forward or operating part of the alley A. The elements E will of course contact with the hinged door 75 of the runway 70, and it is merely necessary for an operator to manually force the door 75 open, in order to release any of the elements E.

From the foregoing, it can be seen that a bowling device has been perfected, in which skill is required as an element of operation, thus providing an amusing and instructive device. The same may be made into many sizes, ranging from a toy of very miniature size, to large bowling alleys.

Changes in the shape, size and arrangement of parts may be made to the form of the invention herein shown and described, without departing from the spirit of the invention or the scope of the claims.

I claim:

1. A bowling device comprising a playing alley, a bar transversely mounted over said playing alley, pins hingedly connected to said bar, and elastic resilient members for each of said pins, each of said members being connected at its ends to a pin on opposite sides of the hinge axis of its pin so that the same may engage said bar opposite to the hinge connection of its pin therewith to hold the same under tension.

2. In a bowling device the combination of a playing alley, a bar transversely mounted in spaced relation over said bowling alley, a pin hingedly connected to said bar, screw eyes connected to said pin extending outwardly therefrom at the ends thereof on opposite sides of the hinged connection of said pin with said bar, and an elastic band engaged at its ends through said screw eyes and engaging intermediate its ends said bar opposite thereon with respect to the hinged connection of the pin therewith, said band being normally held in tensioned relation in this position to maintain the pin in any position in which the same might be placed.

3. In a bowling device, the combination of a bowling alley, and projecting means mounted at an end of the bowling alley comprising a support member provided with a slot longitudinally therein, a casing slidable over the floor of said bowling alley adjacent said support member, a plunger extending transversely through said slot of the support member in said casing, means for holding the plunger in forward position, strips outwardly on said support member providing a V-shaped slot, and a guide member reciprocably receiving said plunger therethrough transversely slidable in said V-shaped slot.

EDGAR McCLELLAN STEIGLEMAN.