March 3, 1931. R. L. LLOYD 1,794,967

PIN SETTING AND BALL RETURNING DEVICE

Filed March 27 1929 2 Sheets-Sheet 1

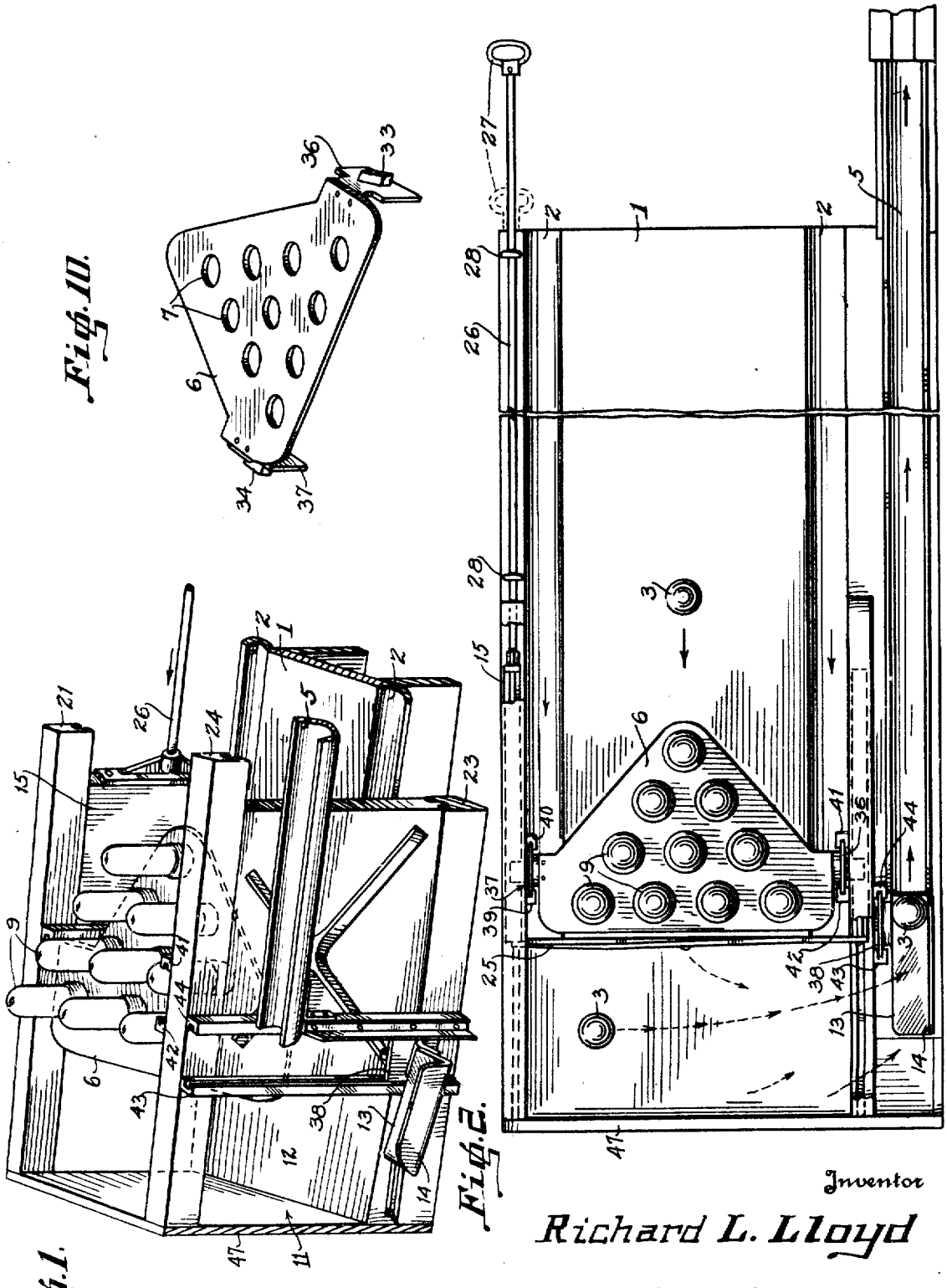


Fig. 1.

Fig. 2.

Fig. 10.

Inventor

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Fig. 3.

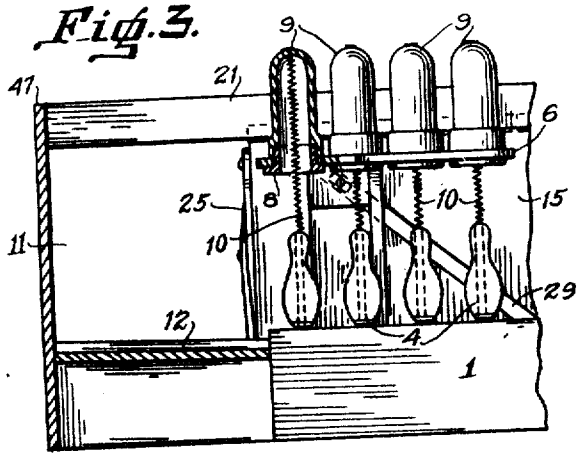


Fig. 9.

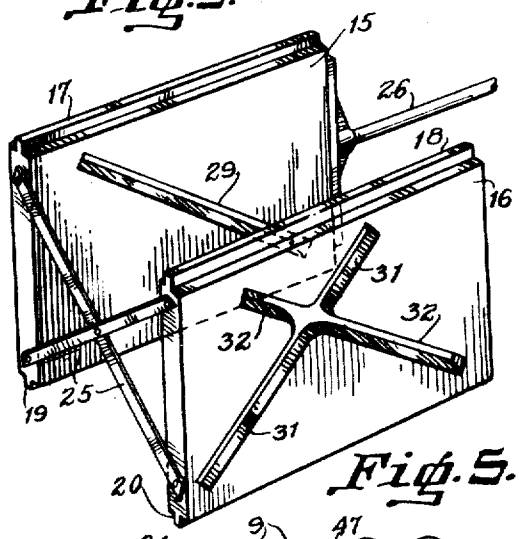
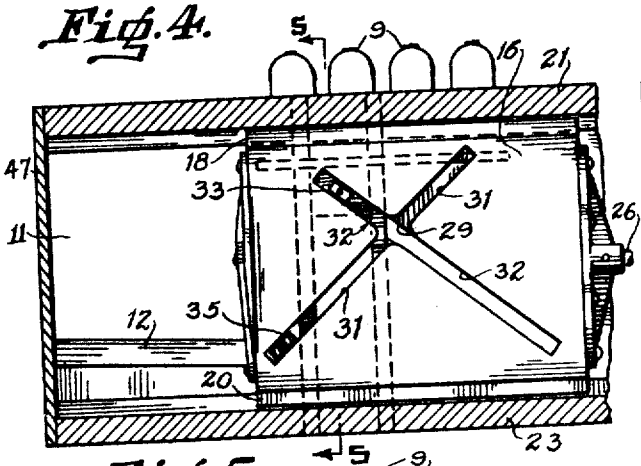


Fig. 5.

Fig. 4.



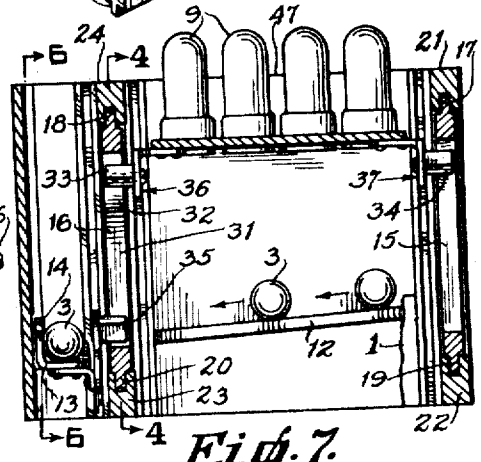
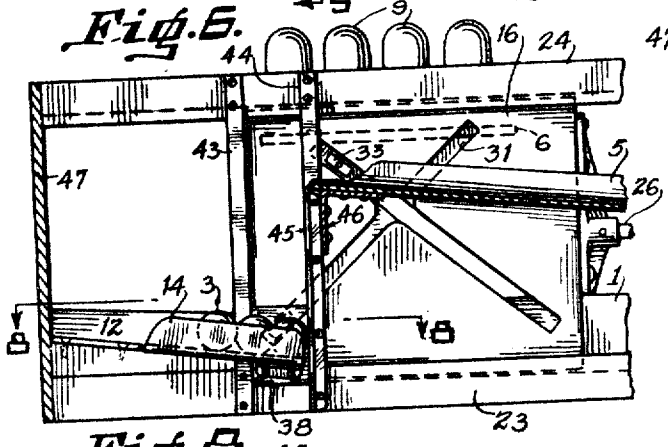


Fig. 7.

Fig. 6.



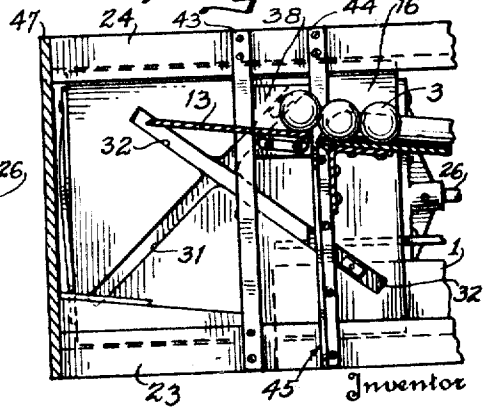
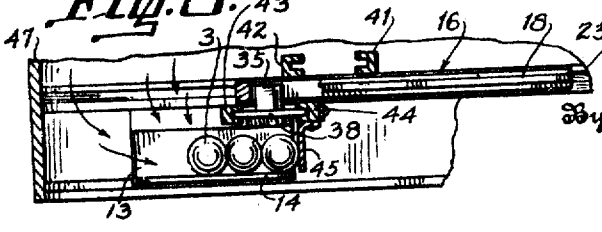


Fig. 8.



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UNITED STATES PATENT OFFICE

RICHARD LINN LLOYD, OF PROVIDENCE, RHODE ISLAND

PIN-SETTING AND BALL-RETURNING DEVICE

Application filed March 27, 1929. Serial No. 350,271.

This invention relates to improvements in pin and ball setting and raising devices for bowling alleys or the like.

An object of this invention is to provide a device which will lower and set the pins and raise the balls simultaneously at one operation.

Another object of this invention is to provide an improved mechanism for lowering and setting the pins and raising the balls which will be made to function from the operator's, or bowler's, position.

Other objects of this invention will appear from the following detailed description and as disclosed in the two sheets of drawings which are herewith made a part of this application.

In the drawings—

Figure 1 illustrates a perspective view of a portion of the bowling alley disclosing the housings for the pins in raised position and the elevator for the balls in lowered position.

Figure 2 illustrates a top plan view of the bowling alley disclosing the housings for the pins in raised position, and the elevator for the balls in lowered position for receiving them previous to raising and delivering in the return chute.

Figure 3 represents a vertical sectional view of the bowling alley disclosing the pins in lowered position and the housings together with the supporting plate in raised position, and tension means for connecting the pin to the housing.

Figure 4 illustrates a sectional view of the device taken along line 4—4 of Figure 5.

Figure 5 represents a sectional view of the device taken along line 5—5 of Figure 4.

Figure 6 illustrates a sectional view of the device taken along line 6—6 of Figure 5.

Figure 7 represents a sectional view of the receiving end of the bowling alley disclosing the elevator for the balls in raised position, and delivering on the ball chute.

Figure 8 illustrates a sectional view of Figure 6 taken along line 8—8, disclosing the balls just previous to being delivered into the receiving chute.

Figure 9 represents a perspective view of the sliding or grooving of the device, which function to lower pins and raise the balls.

Figure 10 illustrates a perspective view of the supporting plate for the pin housings, disclosing the shoe or lugs extending outwardly therefrom.

As one modification of this invention, it is preferred that numeral 1 designate the main alley of a bowling alley or other light game made of any suitable material such as wood and having along each side thereof gutter 2, which will function to receive the balls 3 which may be poorly aimed and run off the sides of alley 1.

The prime object of this invention is to provide a suitable means for lowering the pins 4 into position, and raising the balls 3 simultaneously, so that they will roll by gravity into a chute 5 suitably inclined for delivering the balls at the operator's, or bowler's, end of the alley. In order to accomplish this object, it is preferred to provide a plate 6 made of any suitable material, such as sheet metal, and having openings therein 7 for the purpose of receiving a clamping element 8 which functions to cooperate with main body portion 9 of a housing. The plate 6 is securely clamped in relationship with the housing 9 and clamping element 8, in such a manner that the pin 4 when released from magnetic contact with the alley 1 will snap upwards within the housing 9, the lower end or contact portion of the pin being allowed to extend a short distance below the clamping element 8 of the housing, in order that when the plate or platform 6 is lowered, the pin will function to contact with the alley 1 and be held in firm magnetic contact therewith. Any suitable element such as spring 10 may be used for holding the pin 4 in operative relationship to the housing 9, it being preferred that one end of the spring 10 be attached to the upper inner portion of the housing 9 and the other end to the bottom of the pin 4. It is to be understood that a plurality of housings and pins as above described may be used in connection with the invention, usually ten pins are required for games of this type.

After the ball 3 has been delivered by the

bowler and received in the pit 11, it functions to roll by gravity from the inclined pit floor 12 onto an elevator 13 which is provided with an outer wall 14.

It is readily apparent that when the balls 3 are delivered and the pins 4 have been detached from the alley 1 by reason of the ball having hit them or otherwise, that some means must be provided for lowering the pins 4 again into position and returning the balls to the operator, or player, either by manual operation or otherwise. This invention provides a construction for accomplishing the purpose automatically, consisting of a plurality of sliding members 15 and 16 which may be made of any suitable material and adapted to be provided with guiding edges 17, 18, 19 and 20 adapted to be received slidably within cooperating grooves formed in the frame members 21, 22, 23 and 24 which may be a part of the general construction of the bowling alley or otherwise.

The sliding members 15 and 16 are positioned one on each side of the alley about opposite the pins, and are securely connected together by means of cross members 25, so that they may be both moved simultaneously on the operation of a rod member 26 which is securely attached at one end to one of the sliding members, such as 15. The rod 26 extends rearwardly parallel to the alley, and is of sufficient length for convenient operation of the player, or bowler, a suitably formed handle element 27 being provided at the free end of the rod 26 for the use of the operator. Guiding elements 28 for the rod 26 may be located at various points along the side of the alley.

Suitably formed slots are provided in the sliding members 15 and 16 as at 29, 31 and 32 for receiving in slidable position therein lug members or shoes 33, 34 and 35. The lugs 33 and 34 are formed from or attached to the plate 6 in any suitable manner such as disclosed in Figure 10 wherein bracket plates 36 and 37 are fastened securely to the plate or platform 6, and the lugs 33 and 34 in turn fastened to the brackets, thereby providing a firm structure for the purpose.

The lug 35 is securely attached to a plate member 38 which in turn is fastened to the elevator 13 adapted to receive the balls.

The bracket members 36 and 37 extending from plate 6 are adapted to be slidably positioned within guide members 39, 40, 41 and 42 securely fastened to the inner side of the frame members 21, 22, 23 and 24, while the plate element 38 fastened to the elevator is adapted to be slidably positioned within guides 43 and 44 attached to the outer side of the frame members 23 and 24.

It is obvious from the above construction that the lug or shoe members 33 and 34 will function to slide in the grooves 29 and 32, and the lug 35 will function to slide in the groove 31 whenever the rod member 26 is either pushed or pulled from the limits of movement.

A stop plate member 45 for the balls 3 is preferably located in such a manner that the balls 3 will be retained within the elevator 13 until they arrive at a point for delivery by gravity into the return chute 5 as clearly disclosed in Figure 7. The receiving end of the return chute 5 may be held in fixed relationship to the frame by a bracket member 46 or any other suitable supporting means. The pit 11 may be formed in any proper manner such as disclosed in Figure 1 wherein the frame members 21, 22, 23 and 24 are disclosed as securely fastened to a rear partition 47.

This invention provides a very efficient game of bowling wherein a minimum amount of labor is required for returning the pins to striking position and the balls to the player, or operator. As a matter of fact the need of a pin boy in the larger games is entirely eliminated, for the reason that the operator, or bowler, could deliver the ball, and make a strike of all pins and by merely pushing the rod inwardly, the pins are automatically lowered to striking position on the alley and the balls would be raised in the elevator 13 simultaneously for delivery into the return chute. The game of bowling could, therefore, be played without the necessity of leaving the point of delivery by a single individual.

Not only is this invention advantageous for larger games of bowling, but it is likewise applicable to smaller parlor games which may be made in compact form and operated with great ease and interest. The pulling or pushing of the operating rod creating a fascinating pastime, functioning as it does to lower the pins and raising the balls simultaneously for return delivery.

The game functions primarily in cooperation with magnetic means for holding the pins in temporary fixed relationship to the alley, but it is understood that the invention is limited only by the scope of the appended claims.

What I claim is:—

1. A game of bowling having an alley, pins, balls and means for detachably holding the pins in firm relationship to the alley, housings mounted in a platform for receiving the detached pins, a pit having an inclined floor for receiving the balls, an elevator adapted to receive the balls by gravity from the inclined floor of the pit, members slidably positioned on each side of the alley having slots therein, lug members extending from the platform and elevator, slidably positioned within the slots.

2. In a bowling alley having pins, balls, means for setting the pins and means for raising the balls, means for simultaneously operating the pin setting and ball raising means

comprising members slidably positioned with respect to the alley with cam means adapted to operate said pin setting the ball raising means.

3. The structure of claim 2 in which the pin setting and ball raising means are adjacent each other and each provided with lugs adapted to be engaged by the cam means.

In testimony whereof I affix my signature.

RICHARD LINN LLOYD.

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In testimony whereof I affix my signature.

RICHARD LINN LLOYD.

CERTIFICATE OF CORRECTION.

Patent No. 1,794,967.

Granted March 3, 1931, to

RICHARD LINN LLOYD.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 3, for the word "the" read and; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of May, A. D. 1931.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.

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