Jan. 10, 1939. C. W. CRENSHAW 2,143,221

AUTOMATICALLY CONTROLLED POOL TABLE

Filed Sept. 18, 1935 6 Sheets-Sheet 1

Fig. 1.

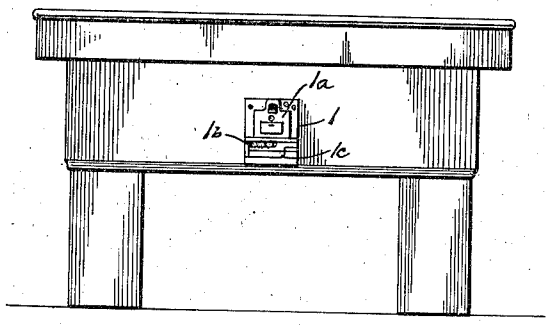


Fig. 2.

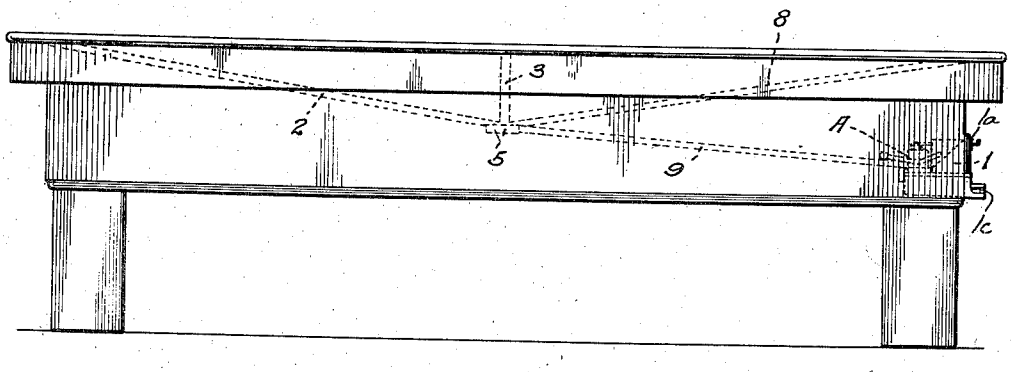
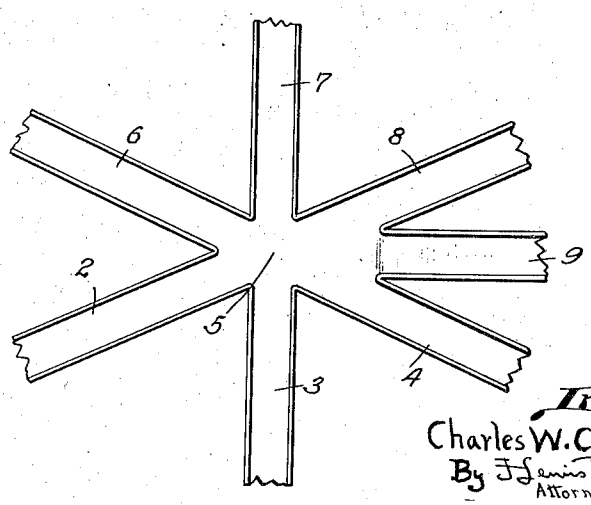


Fig. 3.



Inventor:
Charles W. Crenshaw
By J. Lewis Payton
Attorney

Jan. 10, 1939. C. W. CRENSHAW 2,143,221

AUTOMATICALLY CONTROLLED POOL TABLE

Filed Sept. 18, 1935 6 Sheets-Sheet 2

Fig. 4.

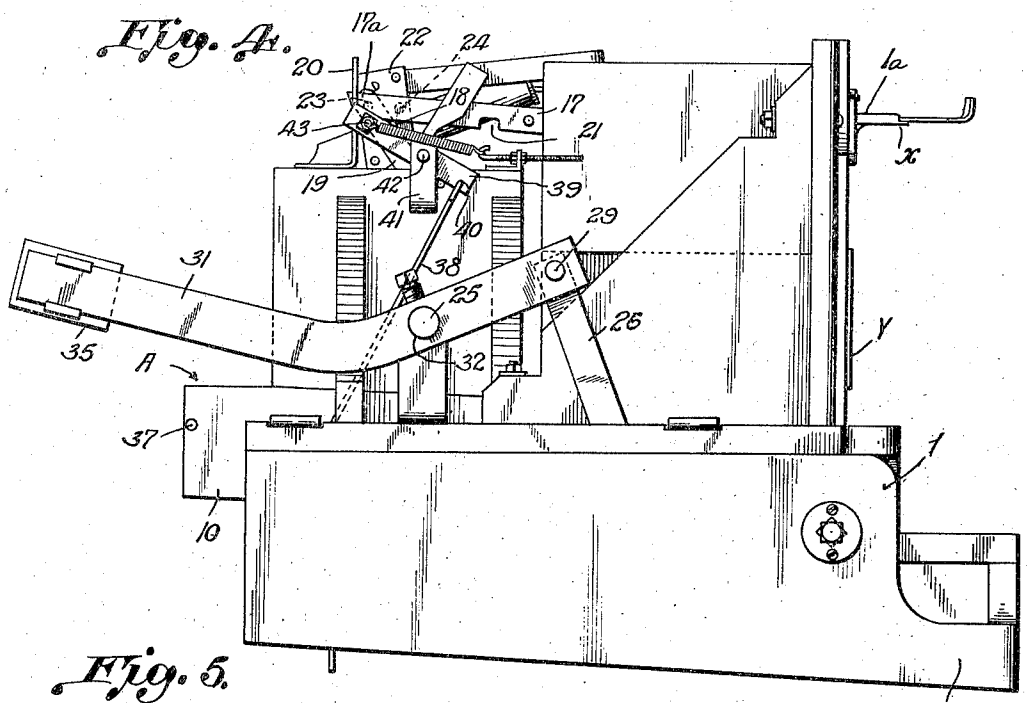
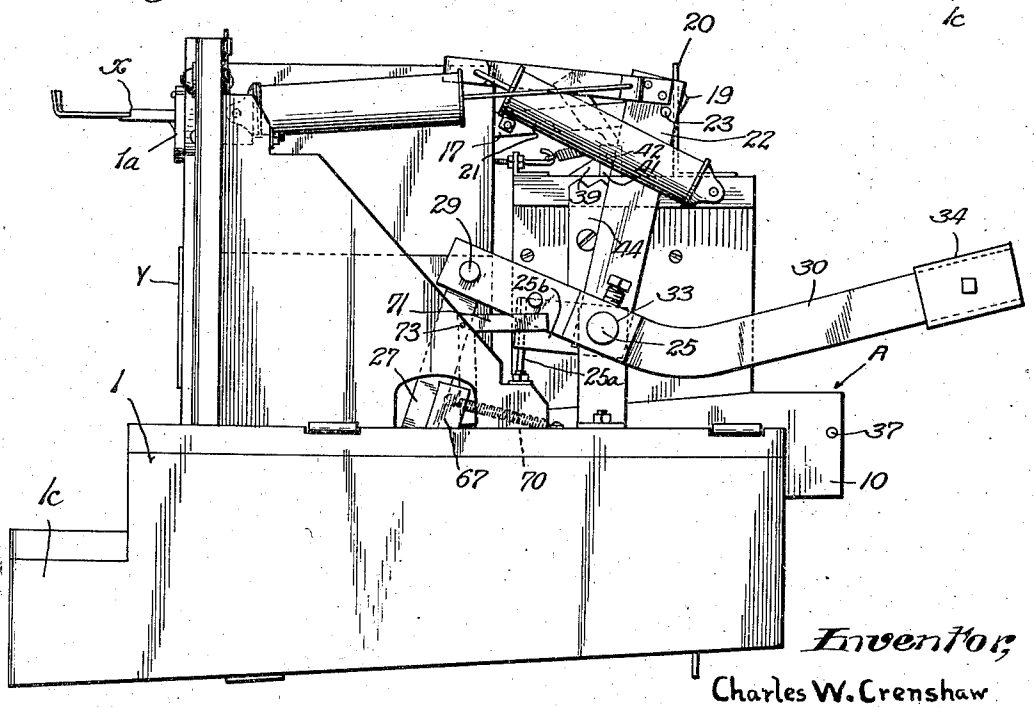


Fig. 5.



Inventor;
Charles W. Crenshaw
By J. Lewis Peyton
Attorney

Jan. 10, 1939. C. W. CRENSHAW 2,143,221

AUTOMATICALLY CONTROLLED POOL TABLE

Filed Sept. 18, 1935 6 Sheets-Sheet 3

Fig. 6.

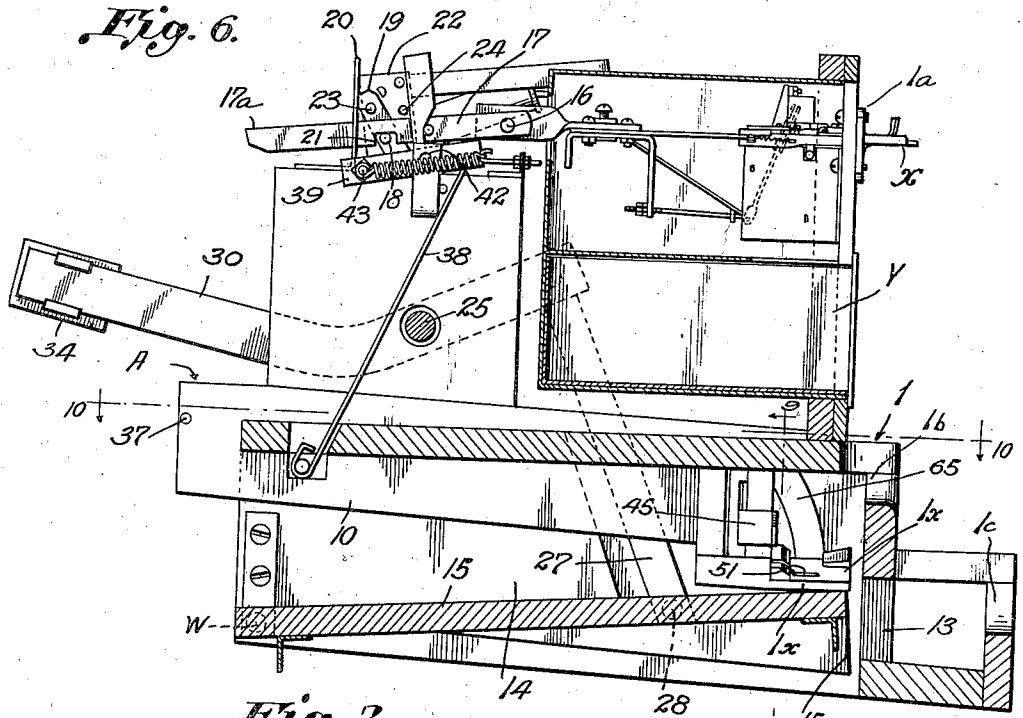
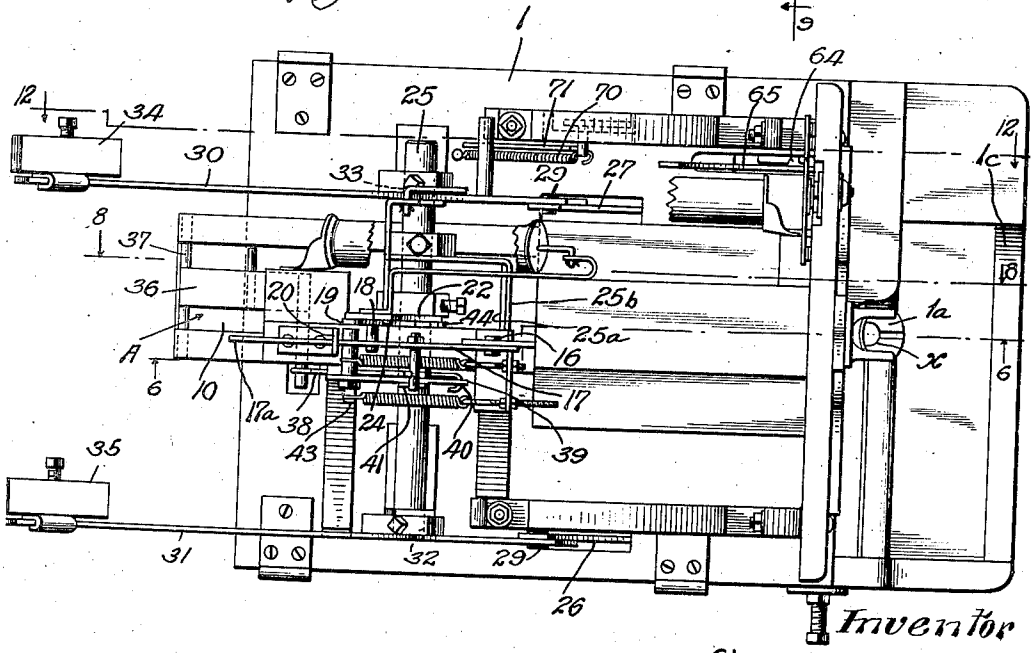


Fig. 7.



Inventor

Charles W. Crenshaw

By J. Lewis Crampton

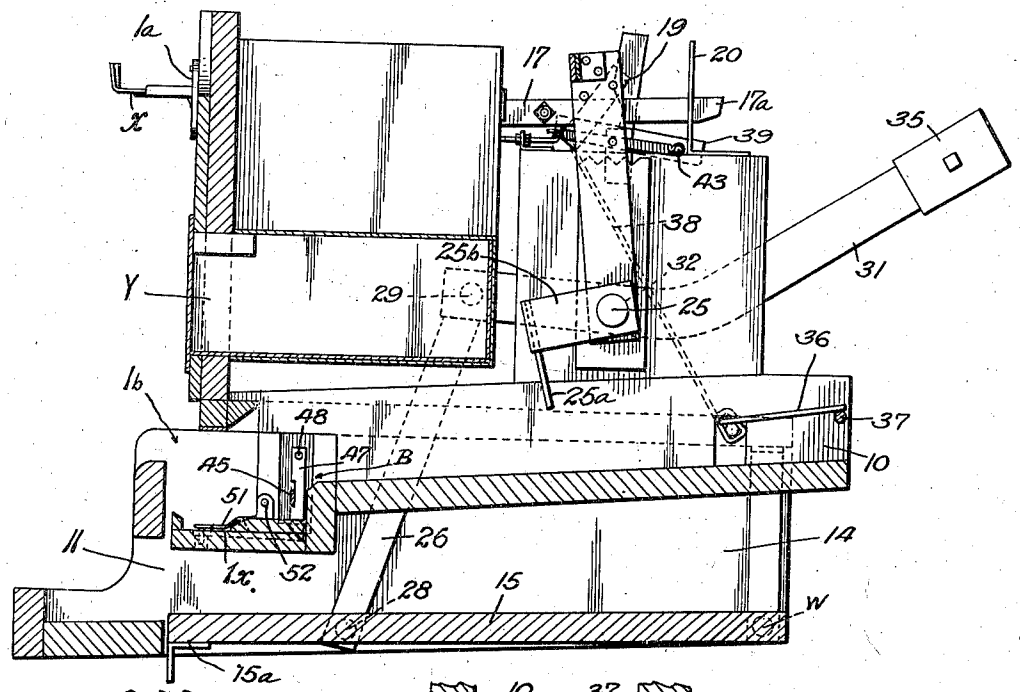
Attorney

Jan. 10, 1939. C. W. CRENSHAW 2,143,221

AUTOMATICALLY CONTROLLED POOL TABLE

Filed Sept. 18, 1935 6 Sheets-Sheet 4

Fig. 8.



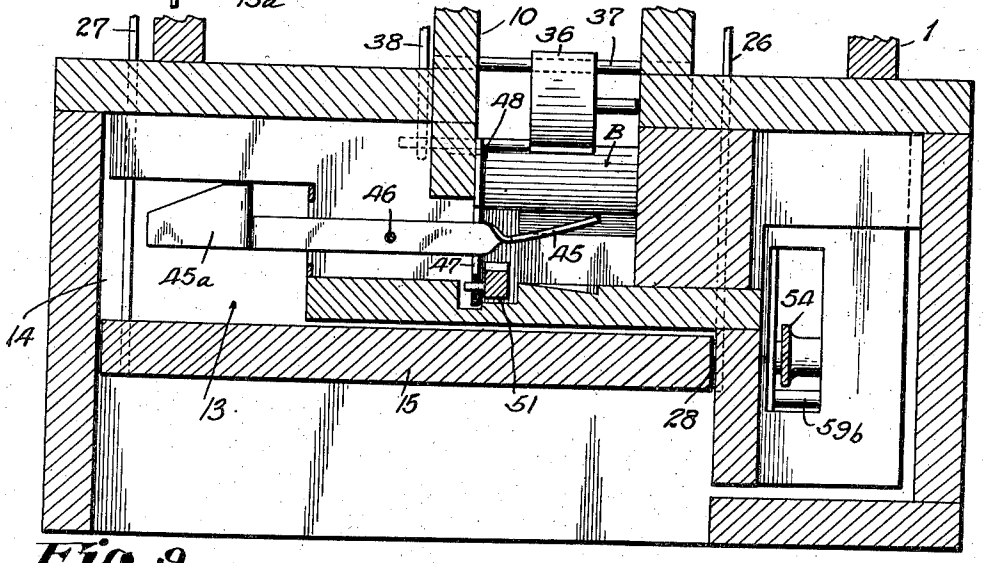


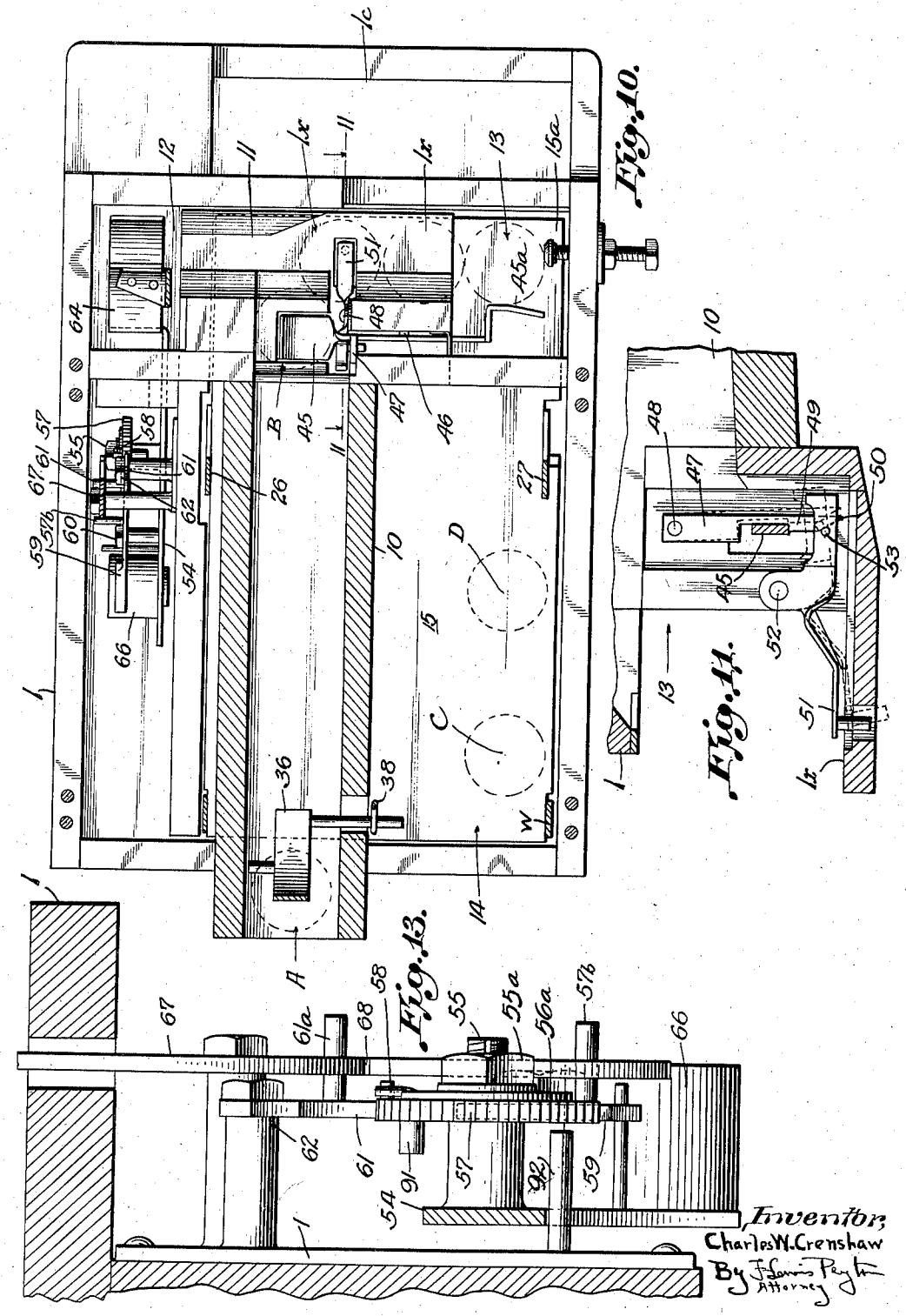
Fig. 9.

Inventor;
Charles W. Crenshaw
By J. Lewis Payton
Attorney

Jan. 10, 1939. C. W. CRENSHAW 2,143,221

AUTOMATICALLY CONTROLLED POOL TABLE

Filed Sept. 18, 1935 6 Sheets-Sheet 5



Jan. 10, 1939. C. W. CRENSHAW 2,143,221

AUTOMATICALLY CONTROLLED POOL TABLE

Filed Sept. 18, 1935 6 Sheets-Sheet 6

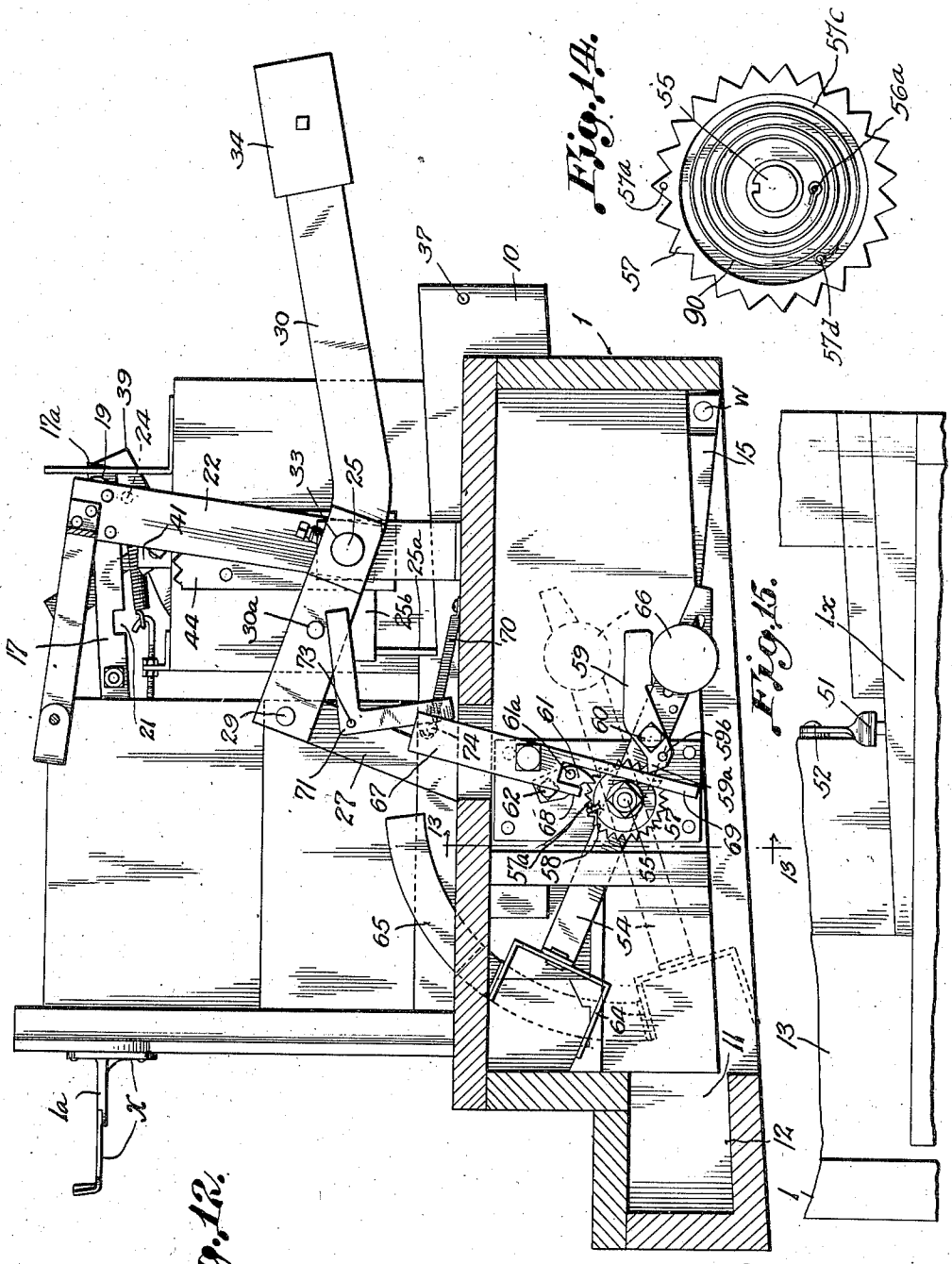


Fig. 12.

Fig. 14.

Fig. 15.

Inventor,
Charles W. Crenshaw
By J. Lewis Payton
Attorney

Patented Jan. 10, 1939 2,143,221

UNITED STATES PATENT OFFICE

2,143,221

AUTOMATICALLY CONTROLLED POOL TABLE

Charles W. Crenshaw, Jackson, Miss.; Cora J. Crenshaw administratrix of said Charles W. Crenshaw, deceased

Application September 18, 1935, Serial No. 41,086

2 Claims. (Cl. 273—11)

This invention relates to pool tables and particularly to pool tables which employ an automatic coin control of the pool balls.

One object of the invention is the attachment of an automatic coin control of the pool balls to any general type of pool table.

Another object of the invention is the employment of an automatic coin control of the pool balls, in which all of the balls used are of the same weight and size.

Another object of the invention is the employment of a ball cabinet which permits visibility of the balls after they have been shot into the pockets of the table, but prevents their removal from the cabinet back to the table.

Still another object of the invention is the employment of an automatic coin control of the pool balls, which permits the re-use of a predetermined number of balls after they have been "scratched."

A still further object of the invention is an automatic control of the re-used pool balls shot into the table pockets, and means which prevents the payment of but one coin for a complete set of balls in the playing of a game.

Still further objects and advantages of my invention will appear in the description thereof which follows:

In order that the invention may be more readily understood and its particular advantages fully appreciated, reference may be had to the accompanying drawings in which I have illustrated one form of embodiment thereof. However, it is to be understood that the invention is not confined to the form of construction shown, and that various changes in the details of construction may be made within the scope of the claims, without departing from my invention.

In the drawings,

Figure 1 is a front view of the device in attachment to a pool table.

Figure 2 is a side view of a pool table, disclosing the under table structure employed in conjunction with the invention.

Figure 3 is a broken top plan view of the table conduit structure employed.

Figure 4 is a left side view of the mechanism.

Figure 5 is a right side view of the device.

Figure 6 is the same view as Figure 4, with however, portions in cross-section disclosing a left side view of the interior mechanism, with the coin slot pushed in.

Figure 7 is a top view of the device.

Figure 8 is the same view as Figure 5, with however, portions in cross-section disclosing a right view of the lower interior of the mechanism.

Figure 9 is a front view in cross-section of the trigger arm mechanism.

Figure 10 is a top cross-sectional view of the lower half of the device.

Figure 11 is a side view of the trigger arm 45 mechanism.

Figure 12 is a right side detail view, a portion in cross-section of the mechanical structure embodied in the invention.

Figure 13 is a top view of the U-shaped carrier mechanism shown in Figure 12.

Figure 14 is a side view of the ratchet gear wheel 57 mechanism.

Figure 15 is a sectional front view of the front ball channel and foot 51.

Following the drawings now in detail, Figure 1 illustrates an embodiment of the invention at one end of the pool table, the principal embodiment of the invention being contained in the box 1, the face thereof as shown in Figure 1, being divided into three distinct sections; the coin control mechanism 1—A, to which, in itself no claim is here made, the ball channel 1—B through which the balls pass from the pool table to within the vision of the players, the outer opening of this channel 1—B being of a lesser width than the diameter of the pool balls, and the ball channel 1—C, which extends below and forward of the channel 1—B, and from which the pool balls may be taken in the manner hereafter described.

In the employment of this invention any ordinary type of pool table may be used by equipping the table with a series of conduits 2, 3, 4, 6, 7, 8, and 9 which extend from the respective pockets of the table to join at a central point 5 below the center of the table surface, and from the central point 5 are connected with the box 1 by the conduit 9, as illustrated in Figures 2 and 3. It is to be noted that the respective conduits follow a general slope downward to permit gravitation of the ball through the conduits to the box 1.

When a pool ball enters one of the pockets on the table it is carried by gravitation through the respective conduits to the box 1, where it enters at the point A, as illustrated in Figure 10. It thence follows the channel 10 forward to the point B where it enters the channel 1—B, as illustrated in Figure 10, where it becomes visible to the players, as illustrated in Figure 1.

The course and position of the ball through the channel 10 is illustrated in Figure 10. It is to be noted that the position of the channel 1—B is immediately forward of and extends cross-wise

of the channel 10, being joined therewith by an opening. The floor 1—X of the channel 1—B is sloped to the left, as shown in Figure 15, and thus the balls which enter the channel 1—B from the channel 10 gravitate to the left side of the box 1.

The channel 1—B is open at the end 11, on the right, joining there the passage 12 which extends downward to connect with the right end of the channel 1—C, as illustrated in Figure 10. It should be noted that the channel structure here described positions the channel 1—B above and back of the channel 1—C, as shown in Figure 10. Therefore, with no obstruction in the passage 12, a ball may be pushed from the channel 1—B to the right through the opening 11 and thence it will drop through the passage 12 and enter the channel 1—C, and from this position it might then be removed from the box, as the front of the channel 1—C is open to the hand.

The channel 1—B is provided with an opening 13 at the left rear thereof, as illustrated in Figures 9 and 10, which opening 13, without obstruction permits the balls to gravitate from the channel 1—B to within the chamber 14 being connected therewith by the opening 13, as illustrated in Figure 10.

The floor 15 of the chamber 14 is hinged at the rear thereof at W, as illustrated in Figures 6, 8 and 9, the front of the floor 15 being immediately behind the channel 1—C and the entire floor being below the channel 10. Thus, when the front end 15—A of the floor 15 is depressed from the position shown in Figure 6 to the position shown in Figure 8, balls which are in the chamber 14, at the points C and D, Figure 10, will roll forward from the chamber 14 to a position within the channel 1—C, from which they may be removed, the channel 1—C having no back thereto and being closed only by the floor 15 being raised.

The course of a ball after reaching the box from the channel 9 is that it enters the channel 10 and thence gravitates forward to the channel 1—B, where it will naturally gravitate to the left and from thence will pass through the opening 13 into the chamber 14, if the opening 13 is not closed. Normally, however, opening 13 may be closed as hereafter described. With the opening 13 closed, balls arriving in the channel 1—B will back up until they may be forced through the opening 11 and into the channel 12 and thence into the channel 1—C, from which they may be removed. If we depress the floor 15, all of the balls in the chamber 14 will immediately roll forward into the channel 1—C, however, the floor 15 may only be depressed under conditions hereafter described.

The mechanism which controls the course of the balls through the several channels will now be set forth:

Extending centrally from front to rear of the box 1, through the central portion thereof, and well above the floor 15 is the channel 10. Disposed in the face of the box 1 is the coin control mechanism 1—A, as shown in Figures 4, 5, 6, 8, and 12. The channel 10 extends from the rear end of the box 1 to the ball channel 1—B, previously described, which ball channel 1—B is disposed below the coin control mechanism 1—A.

The coin control mechanism is one already well known in the art, and embodies a coin carriage X with a round hole therein for receipt of the coin. A coin is placed in the hole of the coin carriage X, and the carriage is then pushed inward to a position where the coin may drop from the carriage into the coin receptacle Y. The rear end of the coin carriage X has hinged thereto at 16 the arm 17, which rests alternately on the pin 18 in the finger 19 or on the lug 20, which is supported in a fixed position by a portion of the housing of the box 1. When the arm 17 is drawn completely forward, the rear end 17a thereof is just slightly forward of the lug 20.

The arm 17 has disposed on the under side thereof a notch 21, which is adapted to engage with the pin 18 in the finger 19, when the arm 17 has been pushed rearward to a position where the notch 21 is immediately over the pin 18. The upper end of the finger 19 is hinged to the arm 22 at 23, and the arm 22 has disposed thereon a lug 24, which lug 24 is positioned to the left of and slightly above the finger 19, as most clearly shown in Figure 6. The purpose of the lug 24 is to hold the arm normally in the position. The lower extremity of the arm 22 is affixed to the shaft 25. On engagement of the notch 21 with the pin 18, the coin carriage X is pulled forward, thereby drawing forward the arm 17, until the rear end 17a thereof has just cleared the end of the lug 20. By this operation, the upper end of the arm 22 has been swung forward thereby rotating forward the shaft 25, and on completion of the forward movement of the arm 17, by its own weight the end 17a falls below the top of the lug 20, thereby preventing the arm 17 from again being moved backward until it is raised.

In normal position, the floor 15 of the chamber 14 rests in a raised position as illustrated in Figure 6. The rear end of the floor 15 is hinged at W, and the front end thereof is supported by the arms 26 and 27, being hinged thereto at 28. The arms 26 and 27 extend upward, the upper ends thereof being hinged at 29 with the forward ends of the horizontal arms 30 and 31, which are supported at 32 and 33 on the shaft 25. The rear ends of the arms 30 and 31 have disposed thereon the weights 34 and 35 to counterbalance against the forward weight of the floor 15. When the shaft 25 is rotated forward, by movement of the upper end of the arm 22, the arms 30 and 31 are rotated by the shaft 25, the forward ends of the arms 30 and 31 going downward and the rear ends going upward, as illustrated from the position shown in Figure 6 to the position shown in Figure 12. It is seen, therefore, that any balls which might be contained in the compartment 14, on this movement of the compartment floor 15, will naturally gravitate to the front and out of the compartment 14 and into the channel 1—C, as previously described. It is further seen that due to the locked position of the end 17—A with the lug 20, the floor 15 cannot now be raised, without first raising the end 17—A above the end of the lug 20; and, therefore, until this is done, one may reach back through the channel 1—C and get out any balls which might possibly be retained within the chamber 14. It is also to be noted that until the arm 17 has fully carried forward the arm 22, by engagement of the notch 21 with the pin 18, none of the balls in the chamber 14 will be released.

On removal of the balls from the box 1 they are placed on the table for play. The arm 17 continued to hold the floor 15 of the chamber 14 downward in the position shown in Figure 12. Disposed on the shaft 25 is the gate 25—A supported by the arm 25—B, as shown in Figure 8, this gate 25—A closing the forward end of the channel 10 to the passage of balls, so long as the arm 17 remains forward and the floor 15 downward. When the first ball shot on the table, in

the new game, enters a pocket, it is carried as previously described to the position A in the channel 10, as shown in Figure 10. The ball on entering the channel 10 falls on the trigger 36 positioned at the rear of the channel 10 and hinged at 37, as shown in Figures 8 and 10. The front end of the trigger 36 has extending upward therefrom the link 38, the upper end thereof being hinged to the forward end of the arm 39 at 40. The arm 39 is centrally pivoted to the box support 41 at 42. A pin 43 extends from the rear of the arm 39 below the arm 17, as shown in Figures 4 and 6. On depression of the front end of the trigger 36 by the weight of the ball, the link 38 is pulled downward, thereby pivoting the arm 39 on the pivot 42 and raising the pin 43 to engagement with the under side of the arm 17, thereby raising the end 17—A of the arm 17, and in so doing the notch 21 from about the pin 18. On release of the pin 18, the weights 34 and 35 on the arms 30 and 31 pivot the shaft 25 rearward, and in so doing carrying the upper end of the arm 22 to the position shown in Figure 5. On rotation of the shaft 25 as here described, the front ends of the horizontal arms 30 and 31 are raised, thereby lifting the floor 15 to the position shown in Figure 6 from the position shown in Figure 8. The compartment 14 thereby becomes closed, and the only way to re-open it is to rotate the shaft 25 counter forward, and this only can be achieved by engagement of the arm 17 with the arm 19, as previously described.

On revolution of the shaft 25 forward, the gate 25—A is simultaneously raised out of the channel 10, thereby permitting passage of the balls through this channel and into the channel 1—B.

A rack bar 4 is provided just below the finger 19, the lower end of the finger 19 normally engaging with the teeth of the rack bar 44 as shown in Figures 5 and 12. Thus it is impossible to move forward the arm 22 to which the finger 19 is hinged, without raising the lower end of the finger 19. This raising of the finger 19 is performed by engagement of the notch 21 in the arm 17 with the pin 18 and pulling forward the arm 17, thereby lifting the lower end of the finger 19 away from its engagement with the teeth of the rack bar 44. Until, therefore, the arm 17 can be pulled forward, the floor 15 cannot again be lowered.

Referring now to the passage of the ball through the channel 10, it enters the channel 1—B through the opening 13—A, passing over the trigger-arm 45, as shown in Figure 7. The trigger-arm 45 is pivoted at 46 and extends lengthwise across the opening 13 which connects the channel 1—B with the chamber 14. The normal position of the trigger-arm 45 is that shown in Figure 9, the left end thereof forming a gate in the opening 13, at the left end of the channel 1—B. By pressing downward on the right end of the trigger-arm 45 the left end is raised and the obstruction to the opening 13 is removed. Normally, the trigger arm 45 is maintained in the position shown in Figure 9 by the latch 47 pivoted at 48 to the side of the opening 13—A, the latch 47 having provided in the lower end thereof a key 49 adapted to fit about the trigger-arm 45. The lower end 50 of the latch 47 is beveled inwardly to a point as shown in Figure 11. A foot 51 is pivoted at 52 to the side of the opening 13—A, and the inner extenuation of the foot 51 has extending therefrom a pin 53 which rests against the beveled end 50 of the latch 47. On depression of the outer end of the foot 51 the pin 53 bears against the lower end 50 of the latch 47, thereby freeing the trigger-arm 45 from the key 49. The foot 51 extends well into the channel 1—B, and is spaced from the left wall of the box 1 so that the third ball from the left end of the box 1 in the channel 1—B will rest on it, thereby causing the latch 47 to release the trigger-arm 45, and thus with three balls in the channel 1—B, a fourth ball passing from the channel 10 through the opening 10—A will press downward the right end of the trigger-arm 45, raise the left end thereof, and permit the ball on the left end of the channel 1—B to pass from the channel 1—B through the opening 13 into the compartment 14. In this way the total number of balls maintained in the channel 1—B cannot at any time exceed the number of three.

The description already given discloses how a ball played on the table passes into the channel 1—B and from thence into the compartment 14, from which it is finally discharged into the channel 1—C. In playing a game of pool there are ordinarily a number of "scratch" balls, including the cue ball, which will find their way into the channel 1—B, and for playing a regular game of pool it is necessary that these "scratch" balls be returned to the table for re-play. With this essential to the game in view, this invention embodies an additional feature, which will permit the return to the table of a predetermined number of scratch balls. The particular mechanism which governs this feature of the invention is illustrated particularly in Figure 12 of the drawings.

Disposed on the lower right hand side of the box 1 is the arm 54 pivoted on the shaft 55. Affixed the outer side of the arm 54, with the shaft 55 passing therethrough is a ratchet gear 57, of ordinary construction. A pin 58 is set in the housing 56 of the ratchet gear 57, to control the number of spacings allowed the ratchet gear. The normal spring pull on the ratchet gear 57 is to the left; and to revolve the ratchet gear 57 to the right, there is disposed on the arm 54 a finger 59 on a swivel pin 60. On raising the right end of the arm 54, the finger 59 is raised from between the teeth of the ratchet gear 57, and on lowering the right end of the arm 54, the prong 59—A of the finger 59 is brought back into engagement with the teeth of the ratchet gear 57, and thereby the ratchet gear 57 is caused to revolve to the right.

It will be seen that on raising the arm 54 and disengagement of the finger 59 with the ratchet gear 57, normally the ratchet gear 57 would revolve back to the left. Therefore, to retain the ratchet gear 57 in the position previously given it by the finger 59, there is disposed above the ratchet gear 57 a second finger 61 on a swivel pin 62 extending from the side of the box 1, as previously disclosed. The finger 61 having a straight left side, the ratchet gear 57 may be revolved to the right; however, on release of the ratchet gear 57 by the finger 59, the ratchet gear 57 is prevented from revolving back to the left, as is its natural tendency, by engagement with the finger 61, between the teeth of the ratchet gear 57. It is to be noted that the prong of the finger 61 is curved downward to the right of the swivel pin 62, and thereby it prevents any revolution of the ratchet gear 57 to the left, as long as it is in engagement therewith.

The left end of the arm 54 has disposed thereon a U-shaped carrier 64, and extending upward

from the upper prong of the U, on the left side thereof, is an arm 65. The right end of the arm 54 has adjusted thereon a counterweight 66, to counterbalance against the weight of the U-shaped carrier 64. The U-shaped carrier 64 travels vertically through the passage 12 which connects the channel 1—B with the channel 1—C, at the right side of the box 1, as previously described.

A ball in the channel 1—B may be pushed to the right, and when the U-shaped carrier 64 is in a raised position as shown in Figure 12, the ball will enter the U-shaped carrier 64, and the weight of the ball will cause the U-shaped carrier 64 to lower, thereby permitting the ball to be carried from the channel 1—B to the channel 1—C, from which it may then be removed by hand. When the ball leaves the U-shaped carrier 64 to enter the channel 1—C, the counterweight 66 on the arm 54 will raise the U-shaped carrier 64 back from the position shown by the dotted lines to its normal position as shown in Figure 12. In this manner the "scratch" balls may be removed from the channel 1—C and be replayed on the table.

It is further seen by the employement of the ratchet gear 57, previously described, the ratchet gear 57 is caused to revolve to the right for a predetermined distance on the lowering and raising of the arm 54 which carries the U-shaped carrier 64; and that after the said U-shaped carrier 64 has been raised and lowered a predetermined number of times, the ratchet gear 57 will stop the further movement of the arm 54 up and down, thereby preventing any more balls from being removed from the channel 1—B to the channel 1—C; therefore, only a predetermined number of "scratch" balls are made available to the player. The manner in which the ratchet gear operates is as follows:

A pin 57—A is disposed at a predetermined position on the outer side of the ratchet gear 57, as illustrated in Figures 12 and 13. The ratchet gear 57 has a hollow interior 57—C. Disposed at a predetermined point on the interior 57—C is a pin 57—D; and disposed on the inner side of the housing 56 at a predetermined position is the pin 56—A. A coil spring 90 is disposed within the interior 57—C of the housing 57, the outer end thereof connected with the pin 57—D and the inner end thereof connected with the pin 56—A. The housing 56 is held in a rigid position by the nut 55—A on the shaft 55, while the ratchet gear 57 revolves on the shaft 55; thus, by tension of the spring 90 the pin 57—A of the ratchet bar 57 normally rests against the pin 58 on the housing 56. The ratchet gear 57 is revolved to the right and held in predetermined position on revolution by the fingers 59 and 61, as heretofore described. The ratchet gear 57 has disposed on the inner side thereof the pin 91, and rigidly extending from the housing 1 to proximity of the inner side of the ratchet gear 57 is the pin 92, the pin 91 adapted to meet with the pin 92 on revolution of the ratchet gear 57. Thus, it is seen that the ratchet gear 57 may be revolved to the right for a predetermined distance when further revolution will be stopped by engagement of the pin 91 with the pin 92, at which time the arm 54 becomes locked and cannot further travel up and down in its course as heretofore described.

To release the arm 54 after it has been locked by position of the ratchet gear 57, it is necessary to release the ratchet gear. A trigger arm 67 with prongs 68 and 69 at the lower end engages respectively with pins 61—A of the finger 61 and 59—B of the finger 59. A spring 70 normally retains the trigger arm 67 in the position shown in Figure 12. An L-shaped finger 71, seen in Figure 12, is positioned to the right and slightly above the upper end of the trigger arm 67. The trigger arm 67 is attached to the left side of the box 1 by the swivel pin 73. A pin 30—A is positioned on the arm 30, just above the right extension of the L-shaped finger 71. When the arm 30 is lowered, the pin 30—A bears against the right extension of the L-shaped finger 71, causing the lower extension of the finger 71 to bear against the pin 74 in the trigger arm 67, thereby causing the prongs 68 and 69 to bear on the pins 61—A and 59—B, thereby disengaging the respective fingers 61 and 59 from the teeth of the ratchet wheel 57, and permitting the wheel 57 to revolve to the left back to its normal position, as maintained prior to being revolved to the right by engagement with the finger 59. Thus when the balls are removed from the compartment 14, as previously described, and a new game commenced, when the first ball enters the box 1, it raises the floor 15, and through the inter-coordinating elements of the device, previously described, sets the U-shaped carrier 64 with its ratchet control 56. Thereafter a predetermined number of "scratch" balls may be removed from the channel 1—B by means of the U-shaped carrier 64, after which no further balls may be removed until a new game is commenced.

It is of course understood that while I have here employed the use of a particular coin control, that this invention is in no wise limited to that particular device, it being only one means of controlling the arm 17.

The construction, operation and advantages of my invention will, it is believed, be understood and appreciated by those skilled in the art when the foregoing description has been read in connection with the accompanying drawings. The degree of adjustment of the several members in relation to each other is such, as to take care of any requirements; and while I have here shown and described and pointed out certain novel features of my invention, it is to be understood that various omissions, substitutions and changes in the form and details of the device and its manner of operation may be made by those skilled in the art, and that I do not wish to be restricted to the precise structure disclosed, but hold myself entitled to make such changes therefrom as fairly fall within the scope of what I claim.

I claim:

1. A ball container having disposed centrally therethrough a channel, and two channels one disposed above the other, the top channel connecting with the central channel, and disposed below the central channel a ball compartment, a hinged bottom to said compartment the open end thereof adjacent the back side of the bottom channel, means adapted to raise and lower the compartment bottom, responsive to the movement of a horizontal trigger a means disposed adjacent the central channel, disposed in the rear end of the central channel a means responsive to the weight of a ball and adapted to release the horizontal trigger from a pre-attained position, substantially as described.

2. A ball container comprising a ball compartment a ball channel disposed in said container forward of the compartment and connecting with the compartment; a secondary ball

channel disposed above the first ball channel and connecting with a third ball channel, the first and second channels connecting one with the other by means of a passageway, and means disposed within said passageway adapted to carry a ball from the upper to the lower channel, an opening from the top channel to the ball compartment, means disposed across said opening and in the juncture of the second ball channel with the third ball channel adapted to normally close the opening from the second ball channel to the ball compartment, means responsive to pressure of a ball to raise the closing means of the opening between the second ball channel and the ball compartment, and a secondary means, adapted to normally lock the closing means of the ball channel opening, substantially as described.

CHARLES W. CRENSHAW.