March 13, 1928. 1,662,504

A. KUDLER

AMUSEMENT APPARATUS

Filed July 8. 1924 3 Sheets-Sheet 1

Fig. 1.

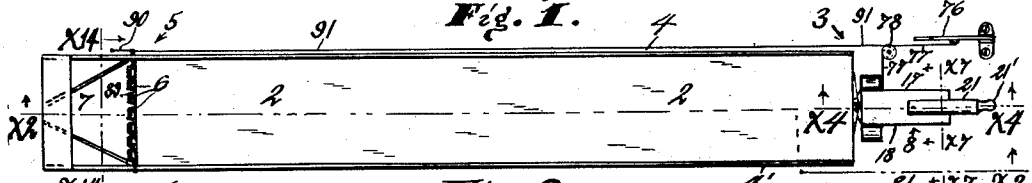


Fig. 2.



Fig. 3.

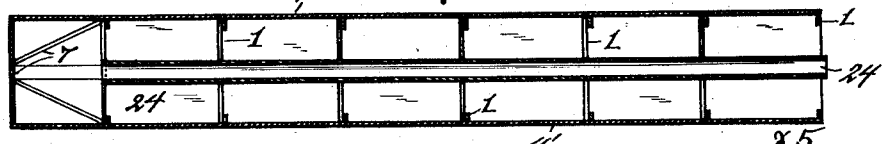


Fig. 4.

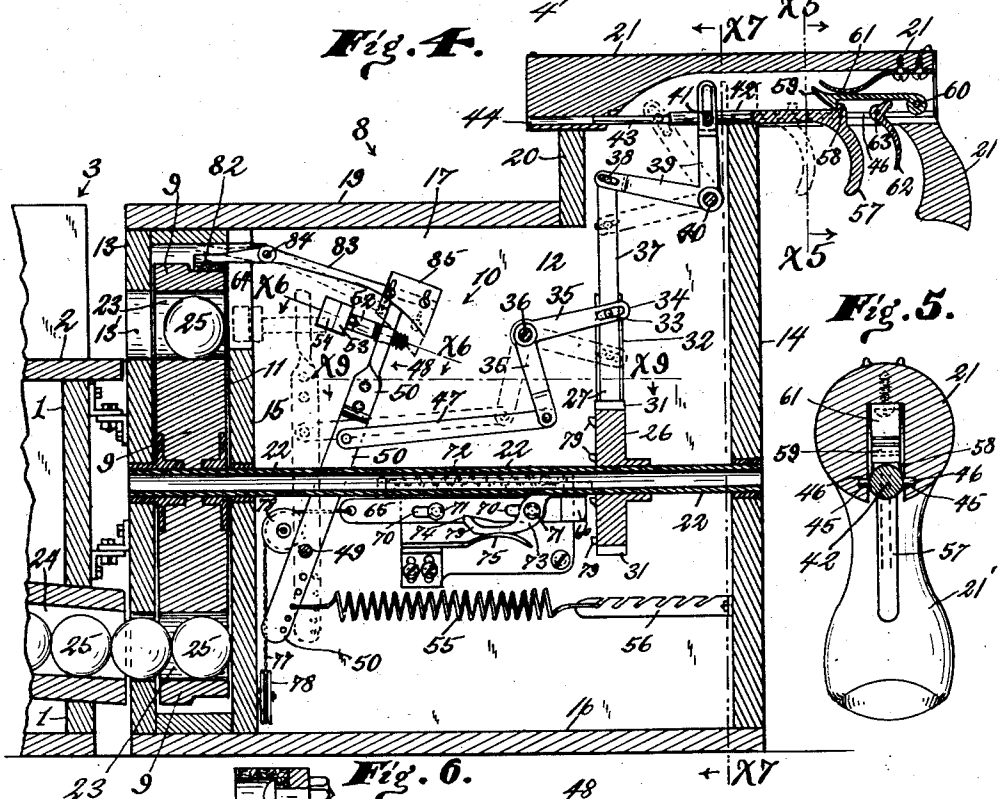
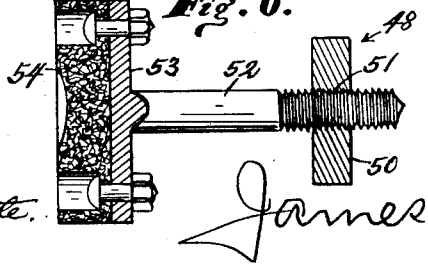


Fig. 5.

Fig. 6.



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AMUSEMENT APPARATUS

Filed July 8, 1924 3 Sheets-Sheet 2

Fig. 7.

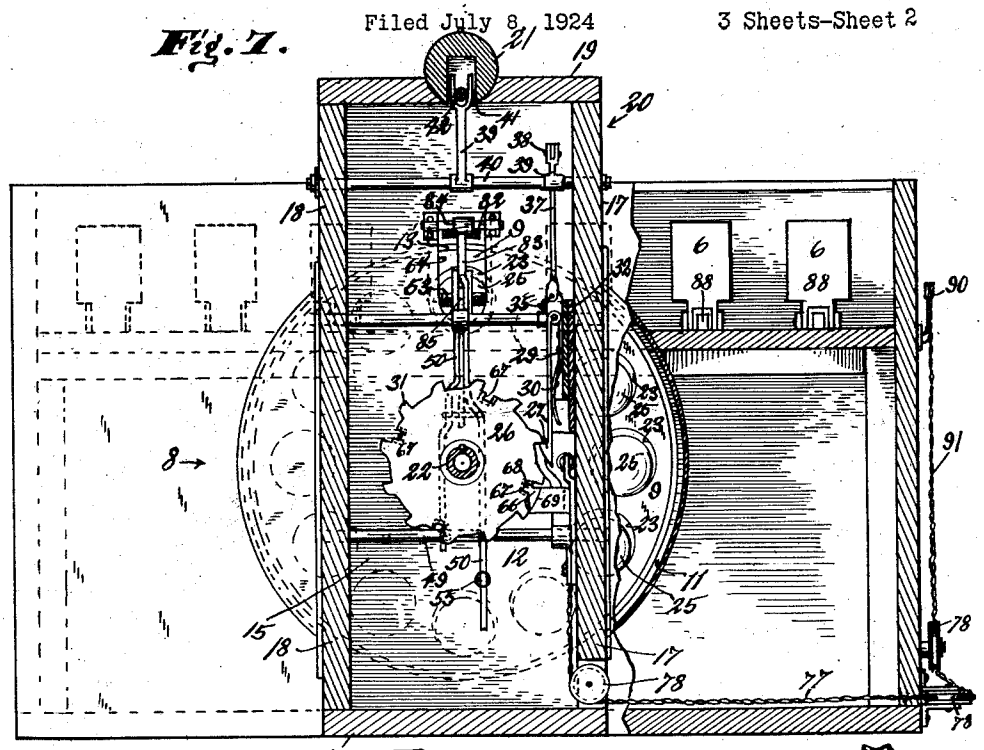


Fig. 8

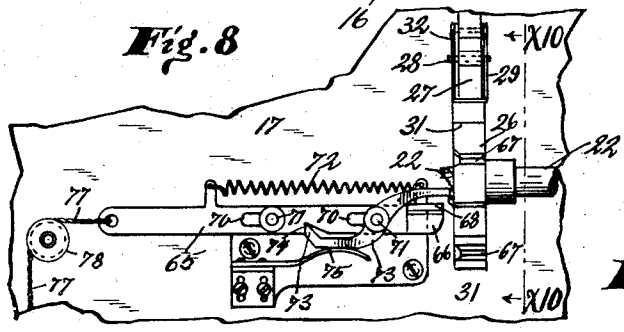


Fig. 10.

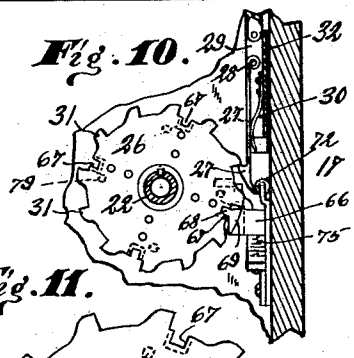


Fig. 11.

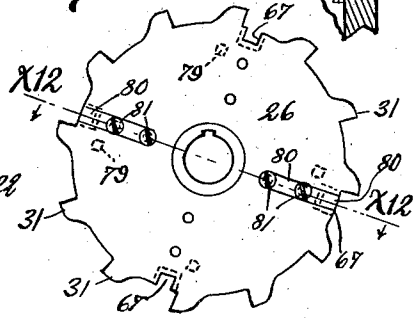


Fig. 9.

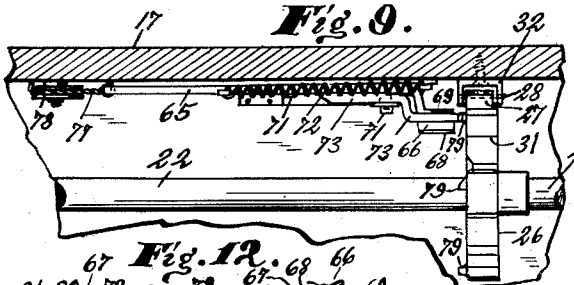


Fig. 12.

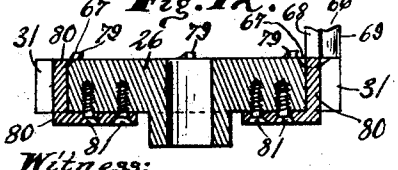
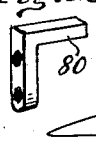


Fig. 13.



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AMUSEMENT APPARATUS

Filed July 8, 1924 3 Sheets-Sheet 3

Fig. 14.

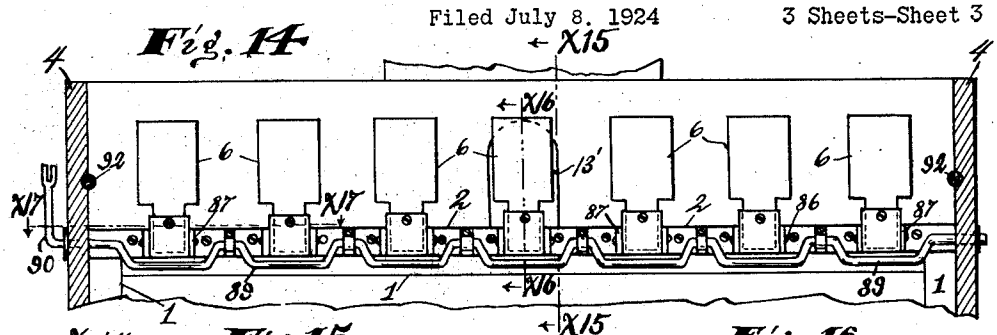


Fig. 15.

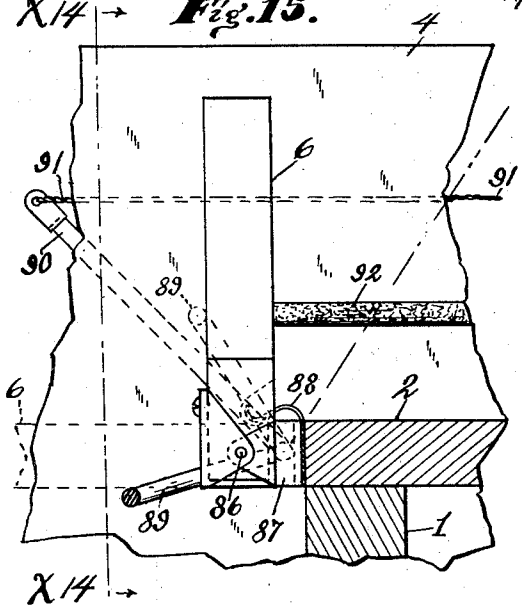


Fig. 16.

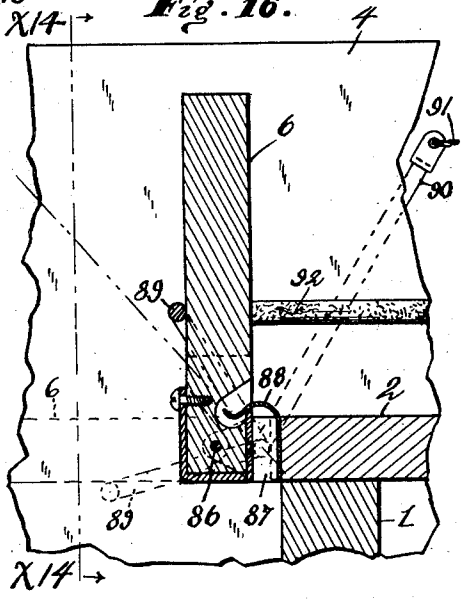
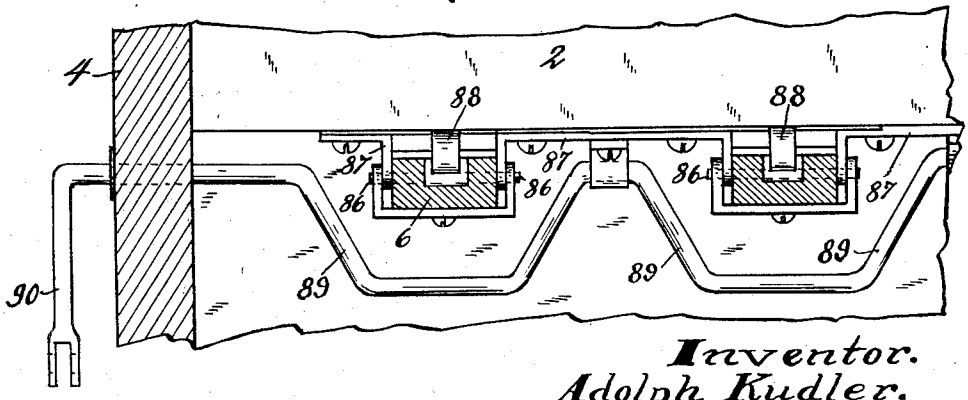


Fig. 17.



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Patented Mar. 13, 1928. 1,662,504

UNITED STATES PATENT OFFICE.

ADOLPH KUDLER, OF LOS ANGELES, CALIFORNIA.

AMUSEMENT APPARATUS.

Application filed July 8, 1924. Serial No. 724,774.

An object of this invention is to provide an amusement apparatus adapted to discharge balls over a runway toward pivotally mounted paddles with means connected therewith for locking the ball discharging appliance after a predetermined number of balls have been discharged; and also means for unlocking the ball discharging appliance that can be actuated at a place remote from the apparatus as by a lever offset thereto. In other words I provide an appliance in which a player can discharge a certain number of balls over the course after which the ball discharging appliance is automatically locked; and will remain so until unlocked by an attendant, so that a charge can be made for a play; and a means is provided whereby a play can comprise a discharge of a predetermined number of balls.

An object is to provide an interesting game that can be utilized for amusement and commercial purposes.

Features of the invention are shown in the construction, combination and arrangement of parts whereby an amusement apparatus of cheap and durable construction is provided.

Features of invention are shown in the novel means for elevating balls from a return runway; and discharging them over a ball course.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detail description and the appended claims.

The accompanying drawings illustrate the invention.

Figure 1 is a semi-diagrammatic plan view of an amusement apparatus constructed in accordance with this invention.

Fig. 2 is a broken section on line x^2, Fig. 1.

Fig. 3 is a section on line x^3, Fig. 2.

Fig. 4 is an enlarged fragmental section on line x^4, Fig. 1; showing by full lines the ball discharging appliance in set position with the discharge spring under tension and the hammer ready to discharge a ball; and indicating by dotted lines the normal position of the hammer and associated parts.

Fig. 5 is an enlarged cross section on line x^5, Fig. 4.

Fig. 6 is a section on line x^6, Fig. 4, showing a detailed construction of the ball discharging hammer.

Fig. 7 is an enlarged cross section on line x^7, Figs. 1, 2 and 4, with part of the housing and ball course broken away to show the ball wheel and paddles.

Fig. 8 is an enlarged fragmental side view of the ball control ratchet and the automatic lock.

Fig. 9 is an enlarged section on line x^9, Fig. 4, showing a plan of the automatic lock.

Fig. 10 is a section on line x^{10}, Fig. 8.

Fig. 11 is a detail of the ball control ratchet provided with filler bars that are used with the ratchet when the number of balls of a play are to be increased or decreased.

Fig. 12 is a section on line x^{12}, Fig. 11, showing two filler bars secured to the ratchet and also showing a fragmental portion of the lock bolt abutting an end of a filler bar and side of the ratchet wheel.

Fig. 13 is a perspective view of one of the filler bars.

Fig. 14 is an enlarged cross section on line x^{14}, Fig. 1.

Fig. 15 is an enlarged fragmental section on line x^{15}, Fig. 14, showing a detail of a paddle and the resetter rod that is indicated by full lines in normal and by dotted lines in actuated position.

Fig. 16 is an enlarged fragmental section on line x^{16}, Fig. 14, showing a detail of a paddle and a spring for holding it in an upright position; also showing by full lines the resetter rod in actuated and by dotted lines the normal position.

Fig. 17 is an enlarged fragmental section on line x^{17}, Fig. 14, showing a detail construction of two paddles and a portion of the resetter rod.

The apparatus comprises a frame 1 on which an elevated ball course 2 is secured that has a front end 3, sides enclosed by elongated walls 4, 4′, and a rear end 5 provided with pivotally mounted paddles 6 and a ball stop 7.

Adjacent the forward end 3 and secured thereto is a narrow gun housing 8 that encloses a ball elevating wheel 9 and a ball discharging appliance 10 arranged in the respective compartments 11, 12 that are formed between the end walls 13, 14 and an intermediate wall 15.

These walls are secured to a bottom 16, sides 17, 18 and a top plate 19; and at the rear of the housing 8 is a riser 20 on which is mounted an auxiliary housing 21 for the triggers and gun grips, which latter will be

more fully described and that is pointed over and toward the rear of the ball course 2 the auxiliary housing 21 is rigidly secured to the housing 8 and has the appearance of an automatic pistol.

A shaft 22 is journalled in the walls 13, 14, 15, and to it is secured the ball elevating wheel 9.

The wheel 9 is provided with cylindrical pockets 23 that are spaced equidistant apart and an equal radial distance from the shaft 22, and preferably there are twelve of the pockets.

They are arranged so that when in their highest position in revolving around the shaft 22 that they are slightly above the surface of the ball course 2 with their centers aligned in a perpendicular plane above the longitudinal axis of the shaft.

They are also arranged so that when in their lowest position they register with the discharge end of a return ball runway 24 that is inclined from the ball stop 7 toward the forward end of the apparatus so that balls 25 discharged over the course 2 will return by gravity to one of the pockets 23 of the wheel 22.

A means is provided for moving the wheel 9 one twelfth of a revolution each time that the discharging appliance 10 is set to shoot a ball 25 from an uppermost pocket of the wheel; and also each time that the appliance 10 is set a pocket 23 containing a ball 25 is moved into position for the ball to be shot out through an opening 13′ in the wall 13 over the ball course.

A ratchet wheel 26 is arranged in the compartment 12 and secured to the shaft 22 in position to be actuated by a dog 27 that is pivoted at 28 to a slide 29 and pressed toward the ratchet by a spring 30 carried by the slide; and the parts are constructed and arranged so that when the slide 29 is moved downward the dog will slide over the teeth 31 of the ratchet, and when moved upward the dog will engage a tooth 31 and rotate the ratchet, shaft and wheel one twelfth of a revolution.

The slide 29 is mounted in a guide 32 secured to the side wall 17; and the slide is pivotally connected by a pin 33 to the slotted end 34 of a bell crank 35 on the rocking rod 36 journalled in the walls 17, 18, see Fig. 4.

Also pivotally connected to the pin 33 is one end of a link 37 that has its other end pivotally connected by a pin 38 to one arm of a bell crank 39 secured to a rod 40 journalled in the walls 17, 18.

The other arm of the bell crank 39 is slotted and pivotally connected to a pin 41 secured to a draw bar 42.

The draw bar 42 has a reduced end 43 slidably mounted in a guide 44 in the auxiliary housing 21; also the bar 42 is provided with side extensions 45 that are slidable in guide slots 46 in the auxiliary housing gun 21, see Figs. 4, 5.

The bell crank 35 has its other arm pivotally connected by a link 47 with a hammer 48 pivotally mounted on a rod 49 secured in the walls 17, 18.

The hammer comprises a handle formed of bars 50 secured together, one of which is turned at right angles to the major portion of the handle and threaded to form a socket 51 for the shank 52 of the hammer head 53; and preferably the head is provided with a soft cushion 54 as indicated in Figs. 4, 6.

A spring 55 connects the lower end of the handle 50 with a rack 56 that is secured to the end plate 14 and normally the spring holds the hammer and associated parts in the dotted position indicated in Fig. 4.

The hammer is drawn back into a set position against the tension of the spring 55 by means of the false trigger 57 on the draw bar 42; and on the bar 42 is an upper extension 58 that is adapted to be engaged and held by a dog 59 when the hammer is drawn back into a set position shown by full line in Fig. 4.

The dog 59 is pivoted at 60 and is pressed toward the bar 42 by a spring 61 secured to the auxiliary housing 21, and a trigger 62 pivoted at 63 is provided for releasing the dog from the extension 58 when a ball is to be discharged over the ball course. That is, when the trigger 62 is pulled toward the gun grip 21′ the dog 59 will release the bar 42 and permit the spring 55 to actuate the hammer 48 and drive a ball out of a pocket 23 over the ball course.

The wall 15 is slotted at 64 so that when the hammer is released from a set position the spring 55 will drive the head 53 through the slot into engagement with a ball 25 and drive it out of a pocket 23 with considerable force over the course 2 toward the paddles 6, any one of which if struck by a discharged ball will be knocked down into the dotted positions indicated in Figs. 15, 16.

An automatic stop is provided for locking the ratchet wheel 26. This stop comprises a lock bar 65 with an end 66 adapted to be automatically wedged between predetermined ratchet teeth 31 so that the wheel 9 cannot be turned after a certain number of balls have been driven or discharged over the course. That is, the ratchet wheel 26 is formed so that the end of the bar is wedged between the teeth each time that the dog 27 has been actuated to move the ball wheel 9 three or any other predetermined number of times.

Slots 67 are cut between the third and fourth, the sixth and seventh, the ninth and tenth, and the one and twelfth teeth so that the guide 68 of the lock bar end 66 can slide through the slots 67 and permit a peripheral

portion 69 of the bar end 66 to close the space between the teeth so that the dog 27 cannot engage them. When peripheral portion 69 is in place between the teeth of the ratchet the false trigger 57 can be actuated without turning the wheel 9; and the parts will remain locked until released by means that will be described later.

The lock bar is slotted at 70 and mounted on the guide pins 71; and normally it is pressed toward the ratchet 26 by a coil spring 72.

The lock bar is held out of engagement with the ratchet by a latch 73 mounted on one of the guide pins 11 and said latch is forced into a notch 74 on the bar 65 by a spring 75 when the bar is manually moved against the tension of the coil spring 72.

The bar 65 is manually moved away from the ratchet by means of a lever 76 that can be remotely located relative to the amusement apparatus as illustrated in Fig. 1.

The lever 76 is connected to the bar 65 by a cable 77 that passes over the pulleys 78, so that an operator can unlock the ratchet wheel when desired, as when a player has paid for the privilege of another play.

The latch 73 is released from the notch 74 so that the bar will automatically lock the ratchet wheel again by means of trip pins 79 secured to the sides of the ratchet wheel. In other words after the lever 76 is actuated to move the bar 65 and unlock the ratchet wheel the first movement of the ratchet by actuation of the dog 27, causes one of the pins 79 to engage the free end of the latch 73 and release it from the notch 74 so that the spring 72 will force the end 66 of the lock bar in sliding engagement on the side of the ratchet until a slot 67 comes into register with a guide 68 so that it can enter the slot and wedge the end of the bar between the teeth and lock the ratchet wheel until it is released by another pull on the operator's control lever 76. As shown in the drawing the slots 67 are slightly tapered adjacent the bar 66 so that the guides 68 can easily enter when the parts come into register.

I provide filler bars 80 that can be fitted into one or more of the slots 67 and be secured to the ratchet wheel by screws 81 so that the number of balls played can be varied and the purpose of the filler bars is to prevent the guides 68 from entering the slots 67 between ratchet teeth, except at desired places.

That is, by operating the wheel without any of the filler bars a player can operate the appliance to discharge three balls in series of four plays to each revolution of the ball wheel 9, and with two of the filler bars attached, the plays will be in a series of two to each revolution of the ball wheel and six balls to each play, and with three of the filler bars attached, there will be one play to each revolution of the ball wheel and twelve balls to the play, and with four filler bars attached the play can be continued indefinitely.

A brake 82 is provided for holding the ball wheel 9 in a fixed position after it has been moved a proper distance by actuation of the ratchet wheel 26.

The brake consists of a lever 83 that is fulcrumed on a pin 84 secured to the wall 15.

On one end of the lever is a cam 85 that is engaged by the top end of the handle 50 when the hammer 53 is drawn back into set position; and an upward movement of the cam 85 forces the brake 82 into engagement with the periphery of the wheel 9 and holds it in a fixed position until the brake is released by a stroke of the hammer.

When the hammer is released from a set position it is thrown toward the rear end of the course with considerable force against a ball in the uppermost pocket of the ball wheel 9 to drive it from the pocket toward the paddles one of which it may knock down.

The paddles are pivoted on pins 86 in brackets 87 secured to the ends of the course, and the paddles are provided with latch springs 88 that support them in an upright position until struck by a ball, and when the paddles are down they lay flat with the course.

A resetting bar 89 is pivotally mounted adjacent the pins and this bar is provided with a lever 90 that is connected by a cable 91 with the operator's lever 76 so that when it is actuated by the operator to release the lock bar 65 it will also reset the paddles that may have been knocked down by a series of discharged balls.

If desired the side walls 4, 4′ can be provided with resilient cushions 92 as indicated in Figs. 14, 15, 16.

In operation a player sets the hammer by actuation of the false trigger which also moves a ball into position to be struck by the hammer. Then a pull of the trigger releases the hammer which drives a ball over the course toward the paddles, and this operation is continued until a series of balls have been driven over the course, and each ball returns by gravity to the elevator wheel to again be elevated and driven over the course in its turn.

I claim:

1. The amusement apparatus set forth comprising an elevated ball course having front and rear ends; a return ball runway under said course; balls adapted to be driven over said course; a main housing secured to the forward end of said course; a stationary auxiliary housing on said main housing; said auxiliary housing having the

appearance of a gun, a shaft in said main housing; a wheel on said shaft for elevating said balls from said runway to the upper surface of and in position to be driven over said course; a hammer for driving said balls over said course; a spring for driving said hammer against said balls; a draw bar in said auxiliary housing, links connecting said draw bar and said hammer whereby said hammer may be set against the tension of said spring, locking means for said draw bar, a trigger in said auxiliary housing adapted to release said locking means; and means for locking said wheel against rotation after a number of balls have been driven over said course.

2. The amusement apparatus set forth comprising an elevated ball course having front and rear ends; a return ball runway under said course; balls adapted to be driven over said course; a housing secured to the forward end of said course; a shaft in said housing; a wheel on said shaft for elevating said balls from said runway to the upper surface of and in position to be driven over said course; a hammer for driving said balls over said course; a spring for driving said hammer against said balls; a draw bar in said housing; a ratchet wheel on said shaft; a slide; a dog on said slide engaging said ratchet wheel; a bell crank lever pivoted to said slide and to said draw bar; a second bell crank lever pivoted to said slide and to said hammer for setting said hammer; locking means for said draw bar; a trigger in said housing adapted to release said locking means; and means for locking said ratchet wheel against rotation after a number of balls have been driven over said course.

3. The amusement apparatus set forth comprising an elevated ball course having front and rear ends; a return ball runway under said course; balls adapted to be driven over said course; a housing secured to the forward end of said course; a shaft in said housing; a wheel on said shaft for elevating said balls from said runway to the upper surface of and in position to be driven over said course; a hammer for driving said balls over said course; a spring for driving said hammer against said balls; manually actuated means for setting said hammer against the tension of said spring; a trigger on said housing for releasing said manually actuated means and said hammer from set position; means for locking said wheel against rotation after a predetermined number of balls have been driven over said course; and brake means engaging said wheel while the hammer is in set position.

4. The amusement apparatus set forth comprising an elevated ball course having front and rear ends; a return ball runway under said course; balls adapted to be driven over said course; a housing secured to the forward end of said course; a shaft in said housing; a wheel on said shaft for elevating said balls from said runway to the upper surface of and in position to be driven over said course; a hammer for driving said balls over said course; a spring for driving said hammer against said balls; manually actuated means for setting said hammer against the tension of said spring; a trigger in said housing for releasing said manually actuated means and said hammer from set position; a ratchet wheel secured to said shaft; means connecting said hammer setting means and said ratchet wheel whereby said ratchet wheel is rotated as said hammer is set; said ratchet wheel having slots therein; a lock bar adapted to enter said slots; means holding said lock bar out of said slots; and means adapted to release said lock bar when a number of balls have been driven over said course.

5. The amusement apparatus set forth comprising an elevated ball course having front and rear ends; a return ball runway under said course; balls adapted to be driven over said course; a housing secured to the forward end of said course; a shaft in said housing; a wheel on said shaft for elevating said balls from said runway to the upper surface of and in position to be driven over said course; a hammer for driving said balls over said course; a spring for driving said hammer against said balls; manually actuated means for setting said hammer against the tension of said spring; a trigger in said housing for releasing said manually actuated means and said hammer from set position; a ratchet wheel secured to said shaft; means connecting said hammer setting means and said ratchet wheel whereby said ratchet wheel is rotated as said hammer is set, said ratchet wheel having slots therein; a lock bar adapted to enter said slots; manual means to retract said lock bar, a latch adapted to hold said lock bar in retracted position; and means on said ratchet wheel adapted to release said latch.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 1st day of July, 1924.

ADOLPH KUDLER.