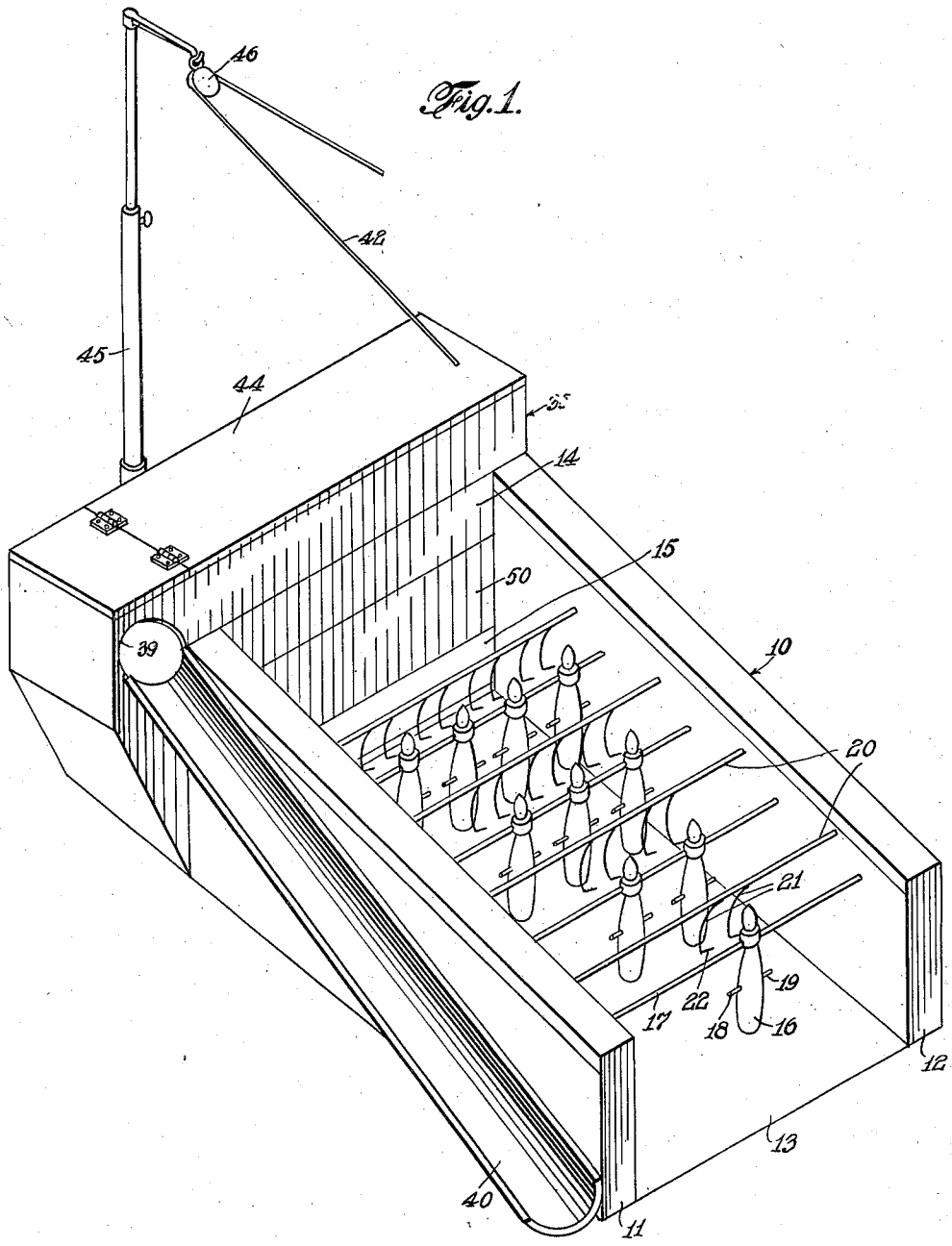
Aug. 9, 1938. M. C. MORRILL 2,126,572

GAME APPARATUS

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Fig. 1.



INVENTOR.
MYRON C. MORRILL
BY
ATTORNEY.

Aug. 9, 1938. M. C. MORRILL 2,126,572

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Fig. 2.

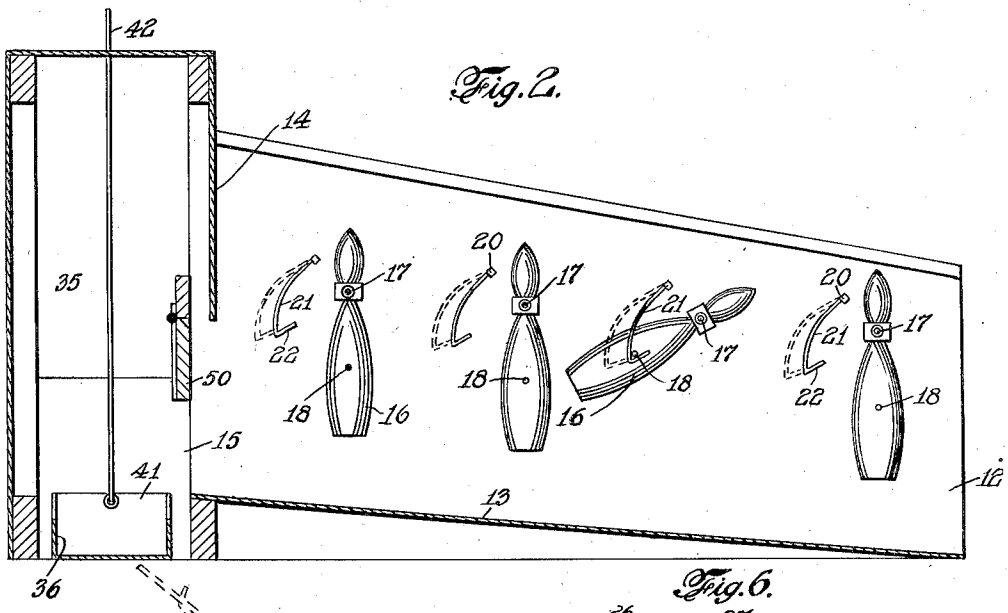


Fig. 6.

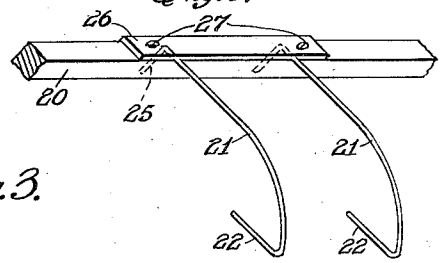
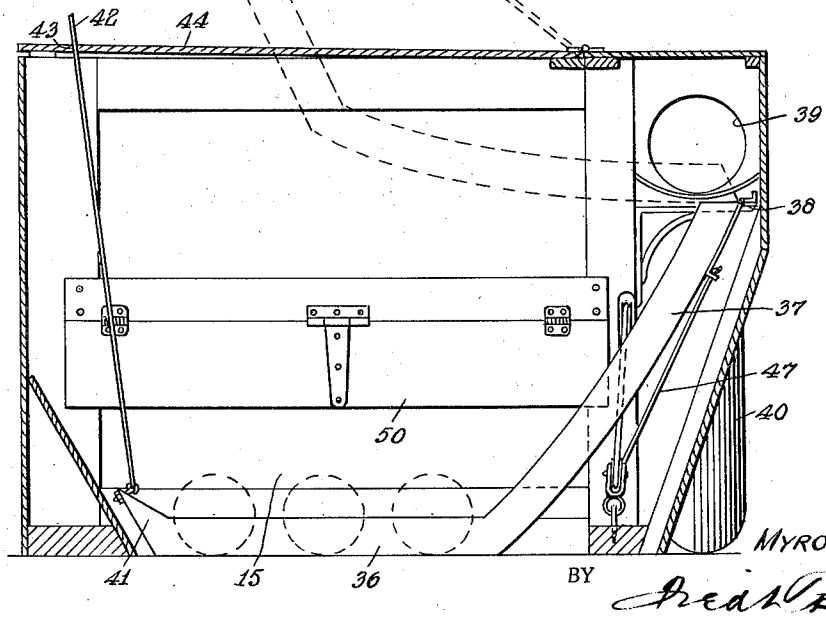


Fig. 3.



INVENTOR.
MYRON C. MORRILL

BY

ATTORNEY.

Aug. 9, 1938. M. C. MORRILL 2,126,572

GAME APPARATUS

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Fig. 4.

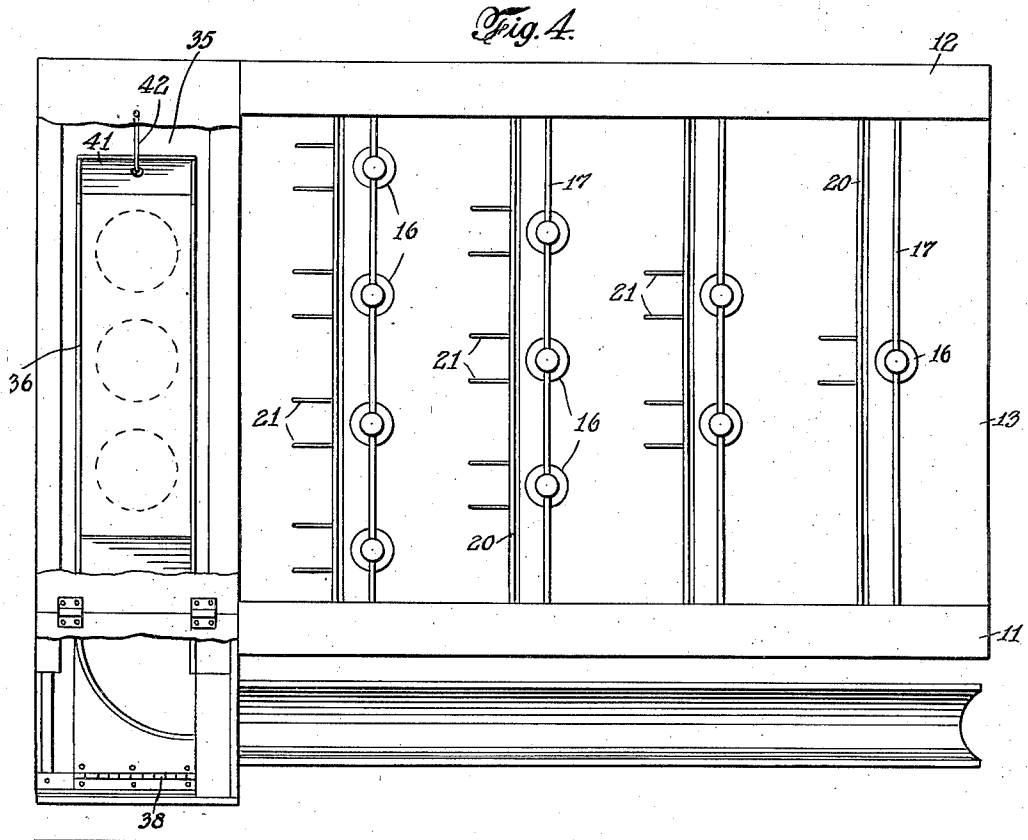
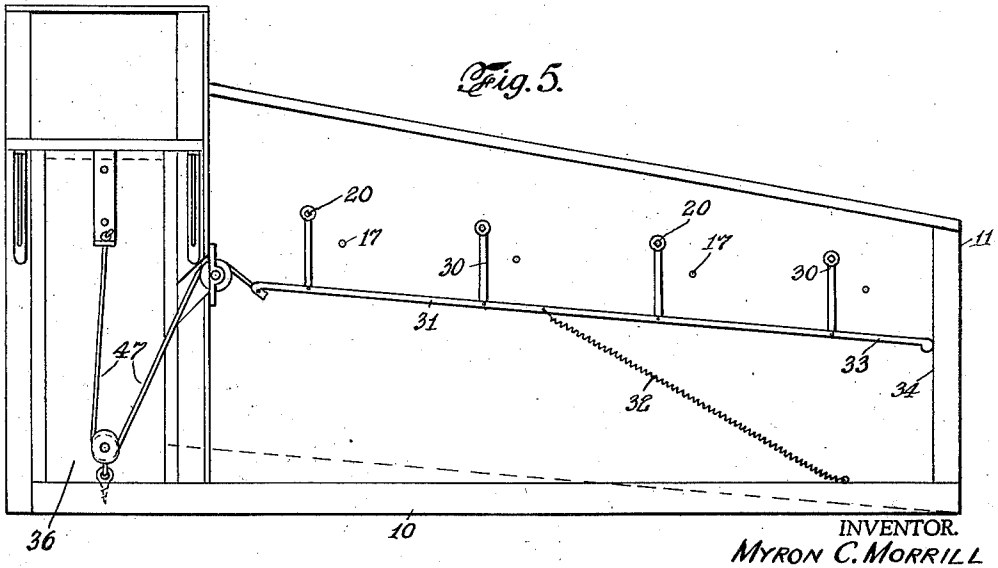


Fig. 5.



INVENTOR.
MYRON C. MORRILL
BY Fred L. Schuett
ATTORNEY.

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2,126,572

UNITED STATES PATENT OFFICE

2,126,572

GAME APPARATUS

Myron C. Morrill, South Plainfield, N. J.

Application April 18, 1938, Serial No. 202,744

12 Claims. (Cl. 273—41)

The invention relates to game apparatus, more especially to a form of bowling apparatus wherein balls are rolled along an alley or platform to strike pins swingably suspended above the same.

It has for an object to provide a compact and more or less portable unit comprising an alley portion wherein the pins are swingably mounted, and an inclined floor terminating in an opening above a pit at the back for spent balls.

A further object of the invention is to provide means for temporarily retaining a struck pin in raised position.

The invention has for another object the provision of means whereby all of the retained pins may simultaneously be released and together with the operation of means for returning the spent balls to a player.

Still another object of the invention resides in the provision of means for reducing the impact of a spent ball and for preventing its return to the playing portion of the apparatus.

In carrying out the invention, provision is made for a box-like structure having parallel sides and open at the front, with a bottom inclined upwardly from the front to the rear of the structure. There is provided at the rear thereof an opening from the top of the floor into a compartment located behind the structure and into which is received a spent ball after delivery over the floor in the playing of the game. Between the sides of the structure are located transverse rows of pins which are swingably suspended upon transverse rods supported in the said sides. These pins are provided with laterally extending or like engaging means designed to be caught in suitable resilient hooks when a pin is struck by a ball and elevated sufficiently thereby.

The hooks in turn are supported removably upon further transversely located rods behind the various rows of pins and are likewise supported in the sides of the structure. The arrangement is such, moreover, that the hook-supporting rods may be rocked in their supporting walls, and preferably simultaneously, to release thereby any retained pins.

The compartment at the rear of the structure contains a delivery trough or channel located below the inner end of the floor and pivotally mounted at one end, provision being made for elevating the opposite end to an extent slightly above the pivoted end. By this expedient, a spent ball or balls received by the trough may be returned in being delivered through a suitable opening in the upper portion of the compartment and located immediately above an external delivery trough or channel. The arrangement is such, moreover, that the upward movement of the trough operates at the same time the mechanism for rocking the pin-releasing rods, thereby resetting the pins for use. The elevation of the trough may be accomplished, for example, manually through a suitable flexible connection thereto and extending to the vicinity of the players; although the same may be accomplished directly, as in actuating or winding up the flexible connection by electrical means.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawings, in which:

Fig. 1 is an isometric projection of the novel game apparatus.

Fig. 2 is a longitudinal section therethrough, showing also one of the pins retained in elevated position.

Fig. 3 is a transverse section through the rear compartment.

Fig. 4 is a plan view of the game apparatus with a portion of the cover of the rear compartment broken away.

Fig. 5 is a side elevation of the game apparatus with the delivery trough and the outer walls along one of the sides removed.

Fig. 6 is a fragmentary isometric projection illustrating the novel pin-retaining members and the manner of removably securing the same to their supporting bars.

Referring to the drawings, 10 designates a box-like structure which is open at the top and comprises the sides 11, 12 and the bottom 13 with back 14. The bottom 13 is, as shown, inclined upwardly toward the back wall 14, and terminates thereat in a transverse opening 15 of the said back.

Between the sides 11 and 12 are designed to be suspended according to any prearranged plan and in parallel rows, pins 16; and this may conveniently be accomplished by means of rods 17 fixed in the opposite sides 11 and 12 and passing through the heads of the pins so that the latter may swing thereon when struck by a ball. It will be understood, of course, that a pin may be rigid with its rod which then would be rotatably mounted in the sides of the structure.

Each pin is provided with engaging means which may comprise a pin passing through the body portion of a swingable pin and affording oppositely projecting arms 18 and 19. These arms are designed to be engaged by hook members supported behind a swingable pin, for example on bars 20 located respectively behind the rods 17

and supported in the corresponding sides 11 and 12. Such hooks may comprise a bowed portion 21 of resilient material, the one end thereof being secured to a corresponding bar and its other and free end terminating in a finger 22 directed toward the associated rod and also upwardly.

A pair of the said hooks is provided for each pin and the two hooks are located in alignment with the engaging arms 18, 19 of a pin to receive the same when a pin is elevated sufficiently, as indicated in Fig. 2, upon being struck by a ball. The action is such that arms 18 and 19 will engage the corresponding fingers 22 of the hooks which are sufficiently resilient to allow the arms to wipe past the said fingers and then drop behind the same to retain the swingable pin in the elevated position.

As these hooks are subject to constant operation, a hook will occasionally break; and provision is made for convenient renewal of the same. To this end, reference being had to Fig. 6, the bar end of a hook is turned at right angles to its bowed portion 21 to enter an opening 25 in bar 20; and a plate 26 is then mounted over the inserted end and attached to the bar as by means of screws 27. By this expedient, any defective or broken hook may quickly be replaced.

Provision is made for releasing a pin or pins suspended in elevated position by rigidly attaching to each of the bars 20 an end of an arm 30 for rocking the same and pivotally connecting all of the opposite ends of the respective arms to a reciprocable bar 31 common thereto. A spring 32 attached at its opposite ends respectively to the bar 31 and to the structure 10 serves to return all of the bars 20 to their normal positions wherein the hooks attached thereto may be in a position to retain an upwardly swung pin 16. An extension 33 of the bar 31, adapted for engagement with the wall 34 of the side 11 housing the release mechanism, will determine the normal position of the said bars 20. The manner of effecting movement of bar 31 for release of the swingable pins will be set forth hereinafter.

As hereinbefore noted, the back of the structure is provided with the transverse opening 15 through which balls rolled over the bottom 13 pass; and there is provided behind the structure 10 a compartment 35 to receive such balls and to contain mechanism for returning the same for reuse. Thus, a trough 36, located beneath the opening 15 and in the bottom of the compartment, is designed to receive a spent ball; and said trough is continued upwardly as in the portion 37 to one side of the compartment, where it is hingedly attached as at 38. The elevation of this point is so selected that sufficient momentum will be acquired by a ball, when released from the trough, to return the same to the point of use under the action of gravity.

The trough to this end is designed to be raised at its opposite end to the required level, and there is provided an opening 39 in the compartment front through which a ball is delivered from the trough to a delivery trough 40 located along the one side 11 of the structure 10.

The elevation of the trough 36 may be effected in various ways, for example, electrically or manually; and in the present ebodiment manual operation is indicated. Thus, there may be attached to the free end 41 of the trough a flexible element such as a rope 42 which is carried upwardly and through a guide opening 43 in a lid 44 hinged to the top of the compartment at the ball-delivery end. This tends to prevent binding of the trough against the sides of the compartment when the direction of external pull is at an angle. A mast 45, which may be collapsible, if desired, is attached to the compartment and provides means, such as the pulley 46, over which the rope may be guided to the point from which the game is being played.

The lid 44 normally closes the top of the compartment 35, but in order to accommodate the upward movement of trough 36, rises with the same, as indicated in the broken line position, Fig. 3.

Through a flexible connection or rope 47, the bar 31 is also connected to the trough 36 so that motion of the latter will be communicated to said bar to cause rocking of the various bars 20 and effect simultaneously the release of any elevated pins with the return of the said balls.

It has been found desirable, not only to reduce the impact of a spent ball in its delivery to the trough, but also to prevent the possible return of the same to the bottom 14, to provide a spring-urged, hinged flap 50 over the upper portion of the transverse opening 15 and movable inwardly of the compartment. The clearance between the flap and the inner end of the floor is substantially equal to the diameter of the balls used.

It will be understood that while the invention has been shown and described herein as embodied in apparatus of substantial size and designed generally for use on a floor, it may equally well be constructed of a size suitable for mounting upon a table or the like and the balls propelled indirectly as by a cue or by a spring-urged plunger, etc., as in the case of bagatelle apparatus.

I claim:

1. Game apparatus, comprising a box-like structure open at the front with bottom inclined upwardly therefrom to the rear of the box and terminating in a transverse opening for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, and resilient hook means mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball.

2. Game apparatus, comprising a box-like structure open at the front with bottom of the box extending to the rear, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, and pairs of resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball.

3. Game apparatus, comprising a box-like structure open at the front with bottom inclined upwardly therefrom to the rear of the box and terminating in a transverse opening for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swing-

ably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, and pairs of resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball.

4. Game apparatus, comprising a box-like structure open at the top and front with bottom inclined upwardly therefrom to the rear of the box and terminating in a transverse opening for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, and resilient hook means mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball.

5. Game apparatus, comprising a box-like structure open at the front with bottom extending to the rear of the box, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, and pairs of resilient hooks comprising a bowed portion having one end for attachment to a bar and the other terminating in a finger directed toward the associated rod and also upwardly, said hooks being mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained by the finger thereof in elevated position when a pin is struck by a ball.

6. Game apparatus, comprising a box-like structure open at the front with bottom extending to the rear of the box, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same and including arms attached to the respective bars and a reciprocable bar attached to all of said arms to rock the same, a spring acting on said reciprocable bar to return the same to its normal position, and pairs of resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball.

7. Game apparatus, comprising a box-like structure open at the front with bottom extending to the rear of the box, a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, and bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, and pairs of resilient hooks in alignment with the engaging means of corresponding pins, together with means to mount removably a hook upon its bar and including a plate removably secured to the top of a bar over the inner end of a said hook.

8. Game apparatus, comprising a box-like structure open at the front with bottom of the box extending to the rear, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, pairs of resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball, a compartment located at the rear of the structure, a ball-receiving trough pivoted at one end therein to receive a spent ball passing through the transverse opening and located below said opening, together with means to elevate said trough to an opening provided at the top of the compartment for discharge of a ball when the trough is elevated, and an inclined delivery trough located along the outer face of a side wall of the structure to receive and return a discharged ball for use.

9. Game apparatus, comprising a box-like structure open at the front with bottom of the box extending to the rear, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, pairs of resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball, a compartment located at the rear of the structure, a flap hinged within the compartment behind the transverse opening affording clearance for a ball, a ball-receiving trough pivoted at one end therein and located below the said flap and transverse opening to receive a spent ball passing through said opening, together with means to elevate said trough to an opening provided at the top of the compartment for discharge of a ball when the trough is elevated, and an inclined delivery trough located along the outer face of a side wall of the structure to receive and return a discharged ball for use.

10. Game apparatus, comprising a box-like structure open at the front with bottom of the box extending to the rear, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, pairs of

resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball, a compartment located at the rear of the structure, a ball-receiving trough pivoted at one end therein to receive a spent ball passing through the transverse opening, together with means to elevate said trough to an opening provided at the top of the compartment for discharge of a ball when the trough is elevated, a lid closing the top of the compartment and hinged thereto at the ball opening end, and the trough elevating means including a flexible element passing through said lid for manual operation and the free end of the trough being adapted to engage said lid.

11. Game apparatus, comprising a box-like structure open at the front with bottom of the box extending to the rear, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same, and pairs of resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball, a compartment located at the rear of the structure, a ball-receiving trough pivoted at one end therein to receive a spent ball passing through the transverse opening, together with means to elevate said trough to an opening provided at the top of the compartment for discharge of a ball when the trough is elevated, a lid closing the top of the compartment and hinged thereto at the ball opening end, the trough elevating means including a flexible element passing through said lid for manual operation and the free end of the trough being adapted to engage said lid, and a collapsible mast attached to the compartment and bearing means for supporting the flexible element.

12. Game apparatus, comprising a box-like structure open at the front with bottom extending to the rear of the box, there being a transverse opening thereat for spent balls rolled over the said bottom, a plurality of rows of horizontally disposed rods supported between the sides of the structure, pins swingably mounted thereon having laterally projecting engaging means, bars located behind the respective rods parallel thereto and supported in the sides of the structure, together with means to rock the same and including arms attached to the respective bars and a reciprocable bar attached to all of said arms to rock the same, a spring acting on said reciprocable bar to return the same to its normal position, pairs of resilient hooks mounted on the respective bars in alignment with the engaging means of corresponding pins to permit said means to engage the hooks and be retained thereby in elevated position when a pin is struck by a ball, a compartment located at the rear of the structure, a ball-receiving trough pivoted at one end therein to receive a spent ball passing through the transverse opening, said trough being connected with said reciprocable bar, together with means to elevate said trough to an opening provided at the top of the compartment for discharge of a ball when the trough is elevated, and an inclined delivery trough located along one side of the structure at the outer face of the side wall thereof to receive and return a discharged ball for use.

MYRON C. MORRILL.