Nov. 18, 1958 E. HUGHES 2,860,878

SIMULATED BASEBALL GAME

Filed Feb. 25, 1957 2 Sheets-Sheet 1

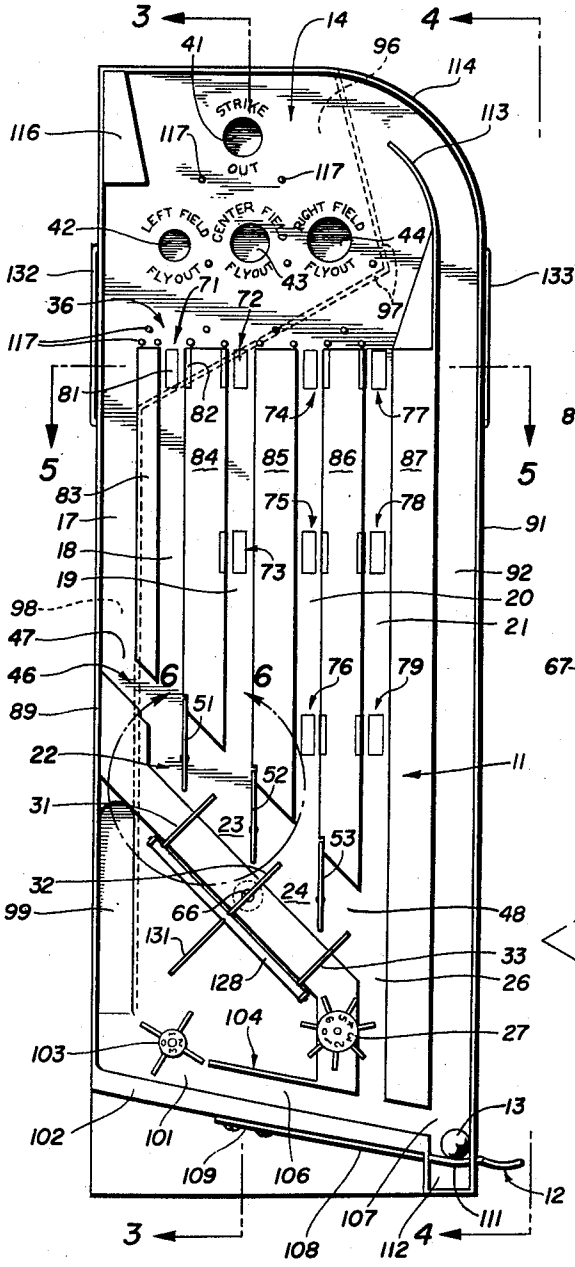
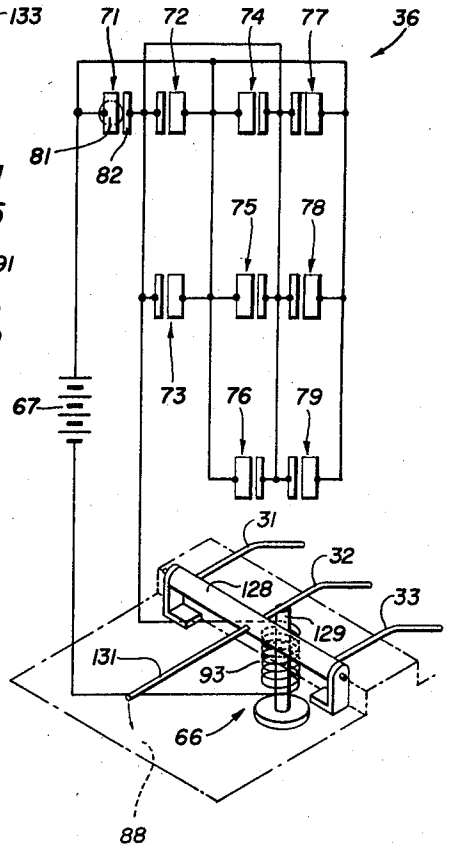


Fig. 1

Fig. 2



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SIMULATED BASEBALL GAME

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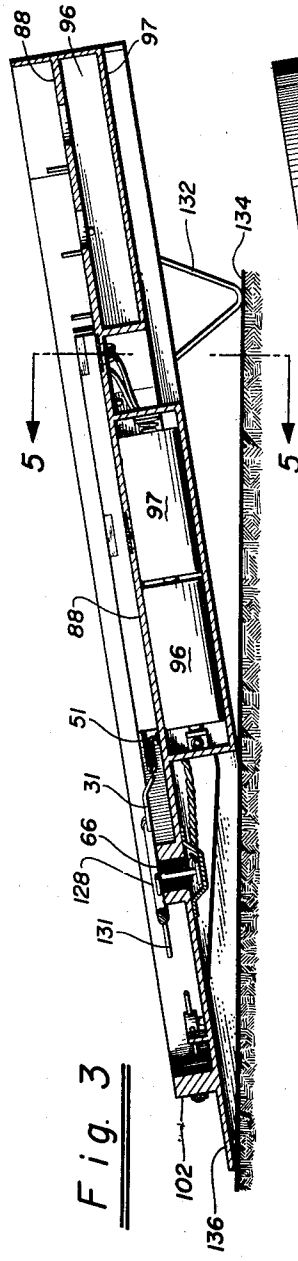


Fig. 3

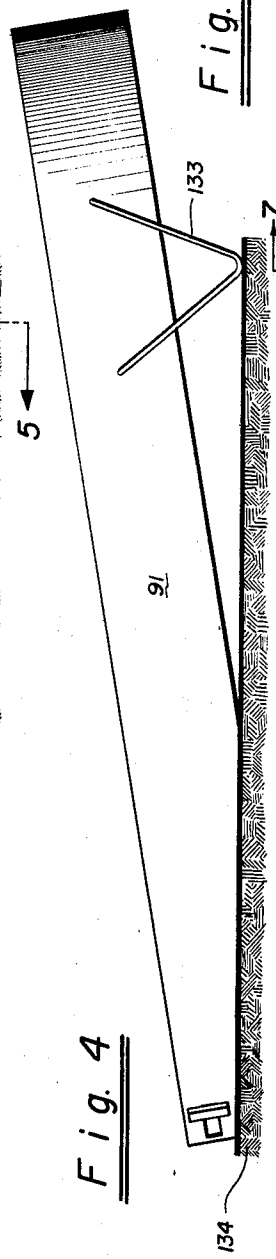


Fig. 4

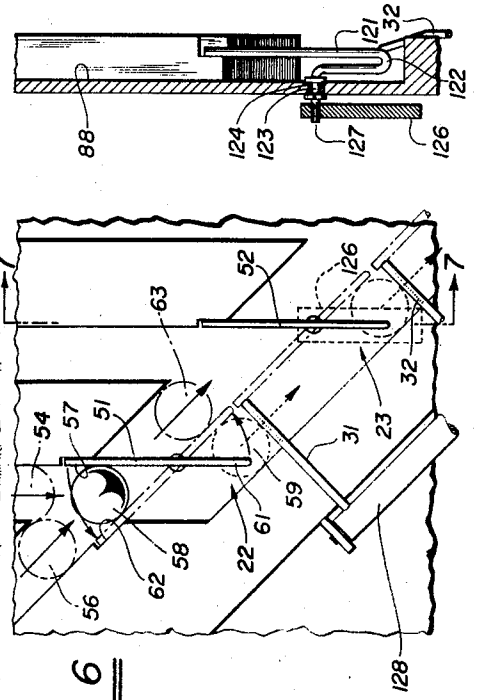


Fig. 6

Fig. 7

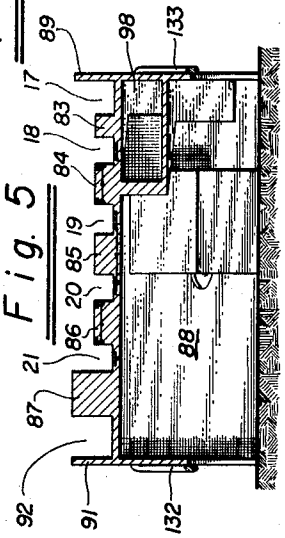


Fig. 5

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2,860,878

SIMULATED BASEBALL GAME

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4 Claims. (Cl. 273—88)

The invention relates to games in which balls are manually "shot" or otherwise caused to roll over a playing field and of the general type sometimes referred to as pinball games.

An object of the present invention is to provide a game of the character described which is modeled after a baseball game and is designed to afford a skillful and realistic play in and scoring of a game of baseball.

Another object of the present invention is to provide a game of the character above which is visually attractive, simple in construction and yet fully automatic in its functioning and scoring in simulating the many individual plays of a baseball game.

A further object of the present invention is to provide a game of the character described which is compact, light in weight, adapted for low cost, mass production and continuous and foolproof operation over a long and useful life.

The invention possesses other objects and features of advantage, which of which, with the foregoing, will be set forth in the following description of the preferred form of the invention, which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings (two sheets):

Figure 1 is a plan view of a ball game constructed in accordance with the present invention.

Figure 2 is a fragmentary perspective view of a portion of the apparatus operatively connected to a schematic wiring diagram showing the electrical circuit of the game.

Figure 3 is a longitudinal cross-sectional view of the game taken substantially on the plane of line 3—3 of Figure 1.

Figure 4 is a side elevation of the game taken from the position suggested by line 4—4 of Figure 1.

Figure 5 is a transverse cross-sectional view of the game taken substantially on the plane of line 5—5 of Figures 1 and 3.

Figure 6 is a fragmentary plan view on an enlarged scale of a portion of the playing field of the game generally identified as area 6—6 in Figure 1.

Figure 7 is a transverse cross-sectional view of the game taken substantially on the plane of line 7—7 of Figure 6.

The ball game of the present invention and as illustrated in the accompanying drawings consists, briefly, of an inclined playing field 11, a shooting device 12 by means of which the player may direct a ball 13 onto the upper part 14 of the field for rolling gravitation thereover, a plurality of downwardly sloping ball-confining paths 17, 18, 19, 20 and 21, here representative of a walk, a one-, two- and three-base hits and a homerun respectively, ball-receiving stations 22, 23 and 24 aligned with the lower ends of paths 18, 19 and 20 for receiving balls therefrom

and generally representing first base, second base and third base, the stations 22—24 being disposed on declining levels for the rolling of a ball from one to the other of the stations and from the lowermost station 24 to a run exitway 26, means 27 counting the number of balls passing through exitway 26, ball-retaining gates 31, 32 and 33 at and defining the lower ends of stations 22, 23 and 24 respectively, and means 36 in certain of the paths responsive to balls passing therethrough for opening and closing of gates 31—33 so as to effect movement of the balls from one to another of the stations and to the exitway 26 in the same manner as a runner is advanced around the bases in a baseball game. Accordingly, with a ball in, say, station 22, representing first base, an ensuing ball rolling down path 18 representing a one-base hit, will effect a single cyclic opening and closing of the gates 31—33 so as to advance the ball from station 22 representing first base, to station 23 representing second base, while the ball rolling down path 18 moves into the first base station. Similarly means 36 is so arranged that a ball rolling down the two-base hit path 19 will effect a double cycle opening and closing of the gates to effect a double step advance of balls in any of the stations; and the means 36 in the three-base hit path 20 responds to a ball rolling therethrough to effect a triple cycle opening and closing of the gates to effect a triple step advance of balls in any of the stations; and in similar fashion the means in the homerun path 21 is responsive to a ball passing therethrough for effecting a triple cycle opening and closing of the gates 31—33.

Preferably the upper part 14 of the playing field, above the start of paths 17—21, is provided with one or more ball-receiving openings functioning to remove a ball from the playing field and thus being representative of a put-out. As here shown, one opening 41 in the uppermost part of the field and first most likely encountered by a ball, represents a strike-out opening, and a series of three openings 42, 43, and 44 arranged below opening 41 represent left field fly-out, center field fly-out, and right field fly-out, respectively. These openings may be graded in size, as shown in Figure 1, being largely at the more probable course of movement of the balls over the playing field.

As an important feature of the present construction, the several downwardly sloping ball-confining paths 17—20 open to a downwardly sloping diagonal path 46 which runs from an upper end 47 at the lower end of path 17 to a lower end 48 terminating in the ball exitway 26 at the lower end of path 21, and the several gates 31—33 are mounted in this diagonal path 46 to define the several ball-receiving stations 22—24; and in order to carry out the realistic playing of the game, there is provided in the diagonal passage 46 one or more swinging gates having a normally biased position extending across the diagonal path and aligned with one of the paths 18—20 for directing a ball therefrom into the underlying station, the gate being formed and mounted for displacement by a ball guided thereby to a position lying across and closing the station on a downwardly sloping diagonal so as to shunt ensuing balls from the closed station to the next lower station. As best seen in Figures 1 and 6, three such hinged gates 51, 52 and 53 are mounted in the diagonal path 46 and are normally biased to positions aligned with paths 18, 19 and 20 for directing balls into the first, second and third base stations 22—24. Each of the hinged gates is pivotally mounted intermediate its ends for swinging movement as depicted in Figure 6. Thus a ball 54 descending in path 18 or a ball 56 descending in the diagonal path 46 from the walk path 17 will strike the upper end 57 of hinged gate 51, as depicted by ball 58, and thus be directed by the gate 51 into the first base station 22,

the ball coming to rest at position 59 against gate 31. As will be seen in Figure 6, the ball rolls laterally in station 22 to its position against gate 31 and in so doing engages the lower end 61 of gate 51, thus swinging this gate in a counterclockwise direction to a position, as depicted in dotted lines, against a stop 62 wherein the gate 51 dies across the normally open end of station 22 and on a diagonal generally parallel to the path 46. As also will be observed from Figures 1 and 6, the diagonal path is widened opposite the one-, two- and three-base hit paths 18, 19 and 20 so as to define first, second and third base stations 22—24 at the substantially lower half of the widened path and leaving the upper half of the path open so that ensuing balls may pass a closed station, as depicted by ball 63 in Figure 6. Hinged gates 52 and 53 are mounted within the widened part of the diagonal passage in the same manner as described in connection with gate 51 so that these gates similarly move from their normally biased position, directing balls into their associated underlying stations to closed positions across these stations, so as to shunt ensuing balls past the closed stations. As noted, the hinged gates 51—53 are biased to their station open position as shown in solid lines in Figure 6 so that they will automatically return to such open position when gates 31—33 are operated to release balls therein.

The means, heretofore identified by general reference numeral 36, for cycling the gates 31—33 is preferably electrically operated and here includes a solenoid 66 mounted for raising of gates 31—33 and which is operatively connected to a source 67 of electric potential and a series of switches connected electrically in parallel as illustrated in Figure 2, and arranged in the passages 18—21 for closing by balls rolling therethrough. One such switch 71 is located adjacent the upper entrance of the one-base hit passage 18. Two such switches 72 and 73 are provided in the two-base hit passage 19, switch 72 being positioned adjacent the upper entrance of the path, and switch 73 being spaced medially of the length of the path. Three such switches 74, 75 and 76 are positioned at the entrance to and at longitudinally spaced positions along the three-base hit path 20, and in a similar fashion three switches 77, 78 and 79 are provided in the homerun path 21.

The balls may themselves form part of the electric circuitry by using polished steel balls in the game and forming the switches 71—79 of spaced metal strips such as strips 81 and 82 in the case of switch 71, which are spaced for joint engagement with a rolling ball in path 18. These several paths 17—21 may be conveniently formed by a plurality of spaced parallel ribs 83, 84, 85, 86 and 87 on the top wall 88 of the game defining the playing field 11, rib 83 being spaced from a raised side wall 89 to define the walk path 17, rib 83 being spaced from rib 84 to define the one-base hit path 18, rib 84 being spaced from rib 85 to define the two-base hit path 19, rib 85 being spaced from rib 86 to define the three-base hit path 20, rib 86 being spaced from rib 87 to define the homerun path 21, and rib 87 being spaced from an opposite side wall 91 to define a passageway 92 for the balls leading from the shooting device 12 to the upper part 14 of the playing field.

The switch contact strips 81—82 may be mounted either on the opposed sides of ribs 83 and 84 or, as here shown, on the floor of path 18 and on the side of the adjacent rib 84 so that a ball entering the path 18 will jointly engage the two switch contacts to thereby close the circuit through the metal ball itself. Similarly the contact strips for the remaining switches 72—79 may be mounted either on the opposed sides of the ribs defining the paths or in each case on the floor of such paths and the side of one adjacent rib. With reference to Figure 2, it will be seen that all of the switches 71—79 are electrically connected in parallel with each other and with source 67 and the field winding 93 of solenoid 66 so that closing of any of the switches will energize the solenoid. Source 67 may be conveniently provided by flashlight cells 96 and 97 mounted at the under side of the playing field as illustrated in Figure 3.

As above explained, the function of the switches 71—79 is to effect a cyclic opening and closing of the gates 31—33 so as to permit a stepped advance of balls in the base stations 22—24. Thus, for example, the sequential closing of the two switches 72—73 in the two-base hit path 19 will effect a two-cycle operation of the gates and a two-step advance of balls in the stations—that is, from first base to second base to third base. It will be apparent that this same two-base advance of a ball from first to third base may be effected by holding the gates 31—33 open for a sufficient period of time to allow a ball to roll from station 22 under gates 31 and 32 to station 24. Thus instead of having two switches 72—73 in the two-base hit path 19, the switch contacts of switch 72 could be elongated so as to hold the solenoid 66 energized and therefore the gates in elevated position for the requisite period of time to effect a two-base advance of the balls in stations 22—24. Similarly the switch contacts of switches 74 and 77 at the entrances of the three-base hit path 20 and the homerun path 21 may be elongated to retain the solenoid energized for a period corresponding to a three-base advance of the balls in the stations. It will be observed that the timing of the balls rolling in the paths 17—21 may be controlled by the pitch or incline of these paths and also by the width and depth of the paths—that is, the spacing between the ribs 83—87 and side walls 89 and 91.

Balls directed into the "out" openings 41—44 in the upper part of the playing field drop into an underlying chamber 96 provided by a housing 97 under the top wall 88 defining the playing field. Housing 97 also defines a downwardly sloping ball-return chute 98, seen in Figure 5 and indicated generally in dotted lines in Figure 1, and which at its discharge end 99 re-enters the playing field adjacent the lower end 101 of the field. As will be observed from Figures 1 and 3, the lower end of the field is bounded by a downwardly inclined end wall 102 along which the balls may gravitate to the shooting device 12. A counter 103 is mounted adjacent the end wall 102 for counting balls passing through the ball-return chute 98. An interior partition wall 104 cooperates with the end wall 102 to define an existing passage 106 for balls passing counter 103 to the shooting device, the latter being here located at the lowermost end 107 of the playing field in line with passageway 92. The shooting device 12 may be simply composed of a spring-operated arm 108 fixed at one end 109 for resilient springing action of its opposite end 111 which is mounted to strike ball 13 in a pocket 112 at the lower discharge end of passage 106. Run exitway 26 also terminates in passage 106 so that balls passing counter 27 will roll to the pocket 112 of the shooting device. As will be understood, manual pulling back of arm end 111 and then releasing the arm will be accompanied by an abrupt resilient forward displacement of the arm end against ball 13, driving the ball over passageway 92 to the upper part 14 of the playing field. An interior curved guide 113 here cooperates with a curved end wall 114, forming an arcuate extension of side wall 91 to guide the ball in an arcuate orbit onto the upper end of the playing field. A ball so driven may strike a resilient abutment 116 at the other side of the playing field and rebound for gravitation over the playing field past one of the strike-out openings. A series of pins 117 may be mounted on the playing field around the put-out openings 41—44 and adjacent the entrances to paths 17—21 for deflecting the balls. If desired, a transparent cover such as a glass sheet may be mounted in spaced relation over the top of the playing field.

Each of the hinged gates **51—53** may be conveniently formed, as best seen in Figure 7, as a single length of wire bent to provide a top length **121** providing the ball-engaging portion, and an end loop **122** terminating in a stem **123** generally perpendicular to length **121** and extending therefrom intermediate its ends so as to provide a medial pivotal axis. Stem **123** is here journaled in and projects through bearing **124** carried in the wall **88**. Biasing of the gate to a normal upright position in alignment with its associated path may be conveniently effected by eccentrically mounting a weight **126** on the lower end **127** of stem **123**. As will be understood, weight **126** normally gravitates to a position swinging the gate across the diagonal path **46** as above explained. In the present apparatus the several gates **31—33** are connected together for joint raising and lowering so that balls will be advanced in the stations **22—24** in the same manner as runners are advanced around the bases in a baseball game. For this purpose the several gates **31—33** are connected to a rocker shaft **128** and extend radially therefrom in generally parallel relation to the top of the playing field, the forwardly projecting ends of the gates being curved downwardly, as best seen in Figures 2 and 3, for intercepting balls in the stations **22—24**. Joint raising of the gates is here effected by mounting solenoid **66** under the center gate **32** and in vertical position for effecting when energized the upward travel of its plunger **129**, the latter being mounted to come up under and abruptly strike the center gate **32**, see Figure 2, thus abruptly raising gate **32** and its connected gates **31** and **33**. Since the gates are to be opened only momentarily so as to release balls in the station and then to close so as to trap the next ensuing ball, a stop **131** is provided on the rocker shaft **128** to limit its rotary displacement. As here shown, the several gates **31—33** may be formed as stiff metal wires and the center gate **32** is extended through the rocker shaft, as best seen in Figures 1 and 2, to project from the opposite side and to provide a free end serving as stop **131**, this end functioning on a predetermined raising of the gates to strike the top surface of the playing field and cause a rapid return of the gates to their normal weight-biased closed position.

Appropriate elevation of the upper end of the playing field to provide the desired incline thereof is here effected by a pair of depending feet **132** and **133** which may rest on a table top **134** or other support. The opposite end **136** of the wall **88** may be rested directly on the supporting surface **134**, as seen in Figure 3.

The functioning of the device in the playing of a simulated game of baseball is briefly summarized in part in the following: At the start of the batting series, a ball directed into the "walk" path **17** will find the first base station **22** open and roll therein against the lower end **61** of hinged gate **51**. The ball, depicted by ball **59** in Figure 6, will roll against gate **31** and in so doing will swing hinged gate **51** closed, thus closing the first base station. A second ball directed over the "walk" path will accordingly find the first base station closed and will travel on to second base station **23**. On entering this station the ball will engage hinged gate **52** and swing this gate to close the second base station. The player will now have runners at first and second base in the same manner as occurs when the first two men at bat are walked in a baseball game. Should the third ball be directed into the walk path **17**, it will find both first and second base stations closed and roll on to and enter and close the third base station **24** thus filling the bases as in an actual baseball game. A fourth walk following the succession of walks above described would cause the fourth ball to travel past closed first, second and third base stations and into the run exitway **26** and past counter **27**, thus scoring a run. Counters **27** and **103** are here of simple starwheel form having a plurality of radially extending arms which are engaged and displaced by balls passing the counters, each ball so passing causing a stepped advance of the counter wheel. The wheel may carry appropriate numerical legends as here suggested to count the runs and outs.

A ball directed into the first base hit path **18** will roll past switch **71**, thus energizing solenoid **66** and effecting a cyclic opening and closing of gates **31, 32** and **33**. Thus a ball in the first base station **22** will be released to roll into the second base station; a ball in the second base station will be released to roll into the third base station; and a ball in the third base station will be released to roll into the run exit passage **26** to "score." As will be observed, the action here is identical to the usual plays resulting in a baseball game.

A ball directed to the two-base hit path **19** will travel over and close switches **72—73** and in so doing cause a double cycle opening and closing of gates **31—33** and thus effect a two-base advance of balls in the stations and sending "home" any ball in either the second or third base station.

A three-base hit, as represented by a ball directed into path **20**, will similarly effect a three cycle opening and closing of the gates as the ball traverses switches **74, 75** and **76**. The three-base hit ball will end up in the third base station **24** but prior to reaching this position it will have cleared the bases and sent all runners "home." A homerun as represented by the directing of a ball into path **21** will similarly clear all of the bases as the ball traverses switches **77, 78** and **79**. However in the case of a homerun the ball passes directly into the run exitway **26** to score.

In each of the above described plays it will be observed that a ball entering and retained in the first or second or third base station will effect a closing of the station by a swinging shut of the associated hinged gate **51—53** and so long as gates **31—33** are unactuated, any ensuing balls will be shunted past the closed base station. However when gates **31—33** are actuated by a one-, two- or three-base hit or homerun to release balls in the base stations, the associated hinged gates **51—53** immediately swing open due to their weight bias so as to coordinate with the other parts in the realistic playing of a baseball game.

At any time during the above play a "player" may be put out by the direction of a ball into one of the "out" openings **41—44** in the upper part of the playing field. "Out" balls return to the playing field through chute **98** and past counter **103**, and three outs "retire the side" in the usual fashion.

I claim:

1. A baseball game comprising, an inclined playing field having a plurality of first downwardly sloping ball-confining paths opening to a downwardly sloping diagonal path traversing the lower ends of said first paths and terminating at its lower end in a ball exitway, a plurality of first gates extending into said diagonal path from the lower side thereof and defining therewith a plurality of open upper ended ball-receiving stations disposed on declining levels and aligned with and arranged to receive balls from the lower ends of said first paths, a plurality of hinged gates mounted in said diagonal path and normally biased to positions aligned with said first paths for directing balls therefrom into said stations, each of said hinged gates being formed and mounted for displacement by a ball guided thereby into its associated station to a position lying across and closing the normally open end of said station and on a downwardly sloping diagonal so as to shunt ensuing balls from the closed station and to the next lower open station, electric means for effecting joint cyclic raising and lowering of said first gates to effect on each cycle an advance of balls from one to another of said stations and from the lowermost station to said exitway, and electric switches mounted in said first paths for closing by balls rolling therethrough and connected for energizing said electric means, said hinged gates returning to their said normally biased positions upon release of balls from their associated stations.

2. A baseball game comprising, an inclined playing field having a plurality of side-by-side downwardly sloping ball-confining paths denoted walk, one-base hit, two-base hit, three-base hit and homerun; said homerun path terminating in a run exitway; a downwardly sloping diagonal path extending from said walk to said homerun path and across the lower ends of said one-, two- and three-base hit paths; said diagonal path being widened opposite said one-, two- and three-base hit paths; a plurality of gates extending into the widened part of said diagonal path from the lower side thereof and defining therewith a plurality of open upper ended ball-receiving stations disposed on declining levels and aligned with the lower ends of said one-, two- and three-base hit paths and being denoted as first base, second base and third base; electric means for effecting joint cyclic raising and lowering of said gates to effect on each cycle a single-step advance of balls from first base to second base to third base to said run exitway; and electric switches mounted in said one-, two- and three-base hit paths and said homerun path for effecting respectively a single, double, triple and triple cyclic operation of said gates; a plurality of hinged gates mounted medially in said widened part of said diagonal path and being normally biased to positions aligned with said one-, two- and three-base hit paths for directing balls therefrom into said first, second and third base stations; each of said hinged gates being formed and mounted for displacement by a ball in its associated station to a position lying across and closing the normally open end of said associated station and on a downwardly sloping diagonal so as to shunt ensuing balls from the closed station to the next lower open station, said hinged gates returning to their said normally biased positions upon release of balls from their associated stations.

3. A baseball game as characterized in claim 2 and having a plurality of ball exiting openings in the upper part of said field and denoted strike- and fly-outs, means providing a ball-receiving chamber underlying said openings and a downwardly sloping ball return chute re-entering said field adjacent the lower end thereof, a ball shooting device for directing balls onto the upper part of said field, means leading balls from said run exitway and said ball return chute to said shooting device, and means counting balls passing through said ball return chute and from said run exitway.

4. A ballgame comprising, an inclined playing field having a plurality of first downwardly sloping ball-confining paths opening to a downwardly sloping diagonal path traversing the lower ends of said first paths and terminating at its lower end in a ball exitway, a plurality of gates in said diagonal path defining a plurality of ball-receiving stations disposed on declining levels and aligned with and arranged to receive balls from the lower ends of said first paths, electric means for effecting joint cyclical raising and lowering of said gates to effect on each cycle an advance of balls from one to another of said stations and from the lowermost station to said exitway, electric switches mounted in said first paths for closing by balls rolling therethrough and connected for energizing said electric means and a swinging gate having a normally biased position extending across said diagonal path and aligned with one of said first paths for directing a ball therefrom into an upper of said stations, said swinging gate being formed and mounted for displacement by a ball guided thereby into said upper station to a position lying across and closing said upper station and a downwardly sloping diagonal so as to shunt ensuing balls from said closed position to the next lower station.

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