Nov. 29, 1932. N. B. GEDDES 1,889,531

RACE GAME

Filed June 20, 1929 2 Sheets-Sheet 1

Fig. 1.

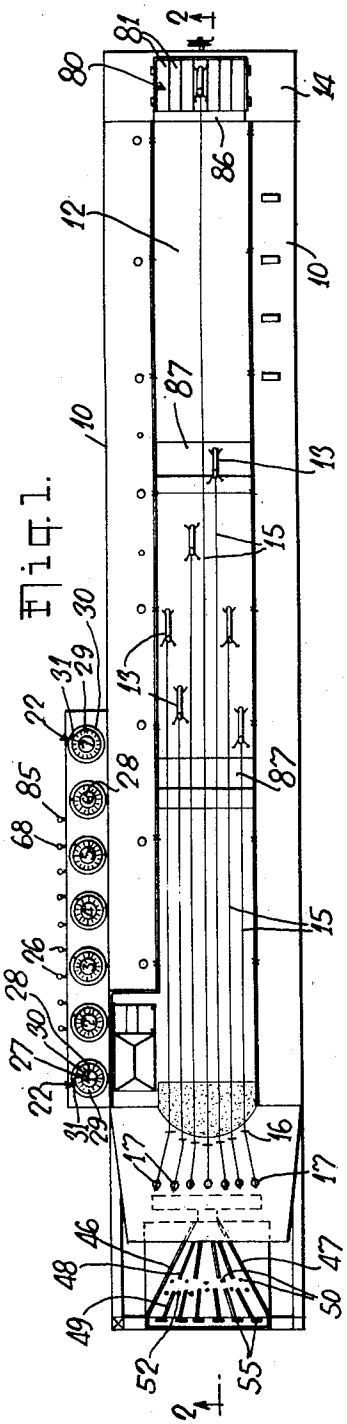
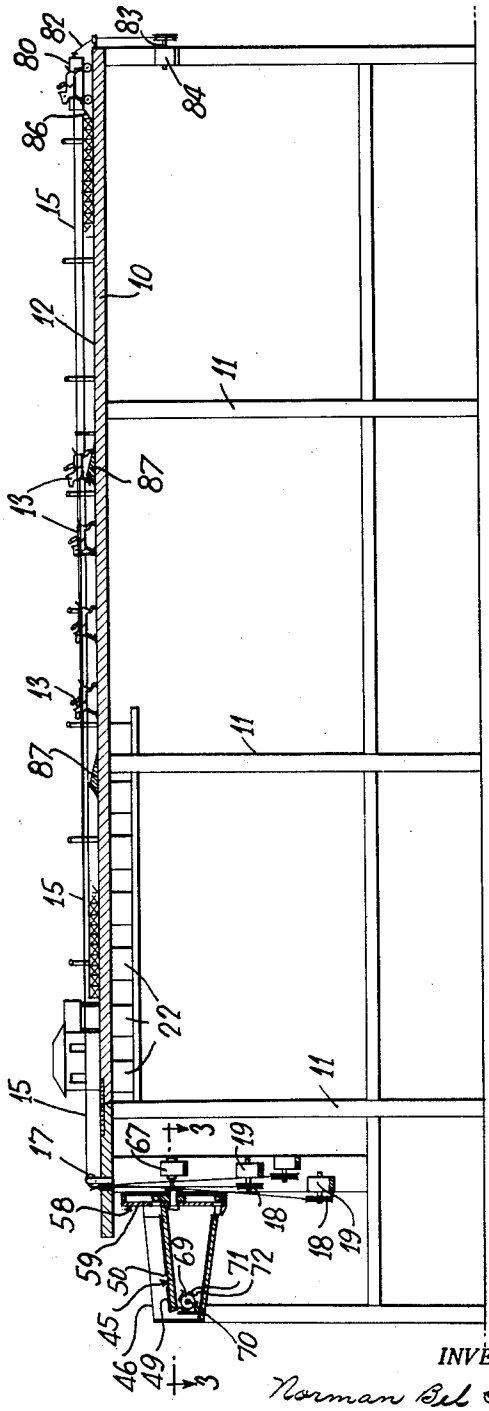


Fig. 2.



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Fig. 4.

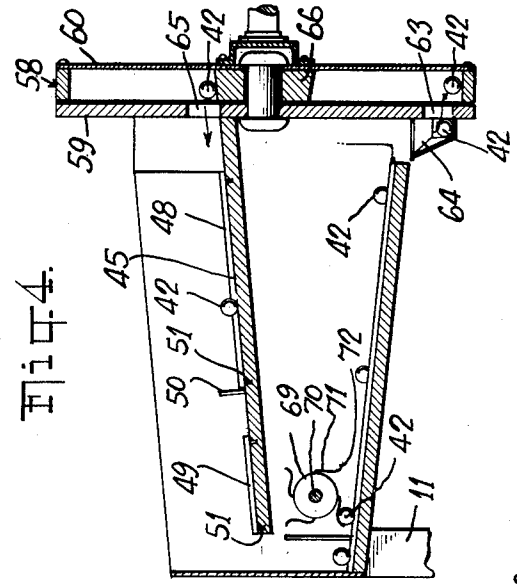


Fig. 5.

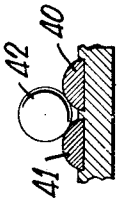


Fig. 7.

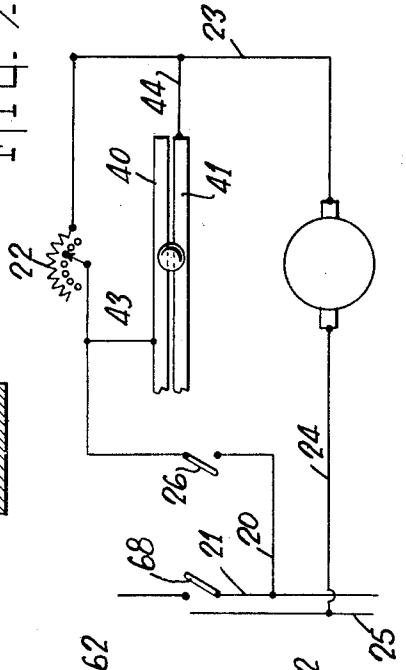


Fig. 3.

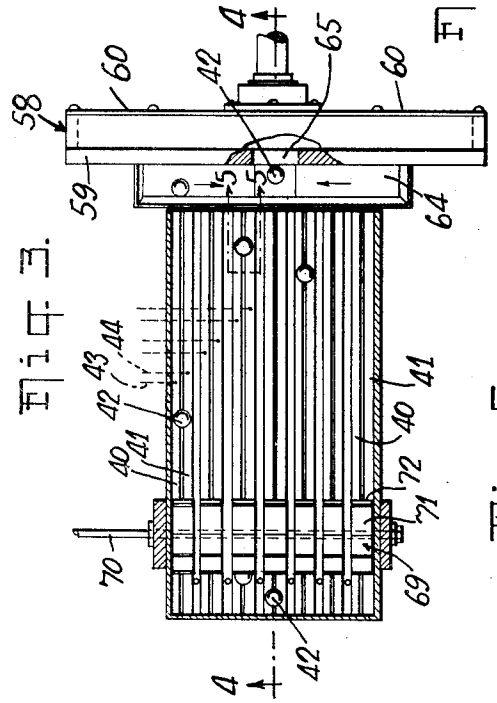
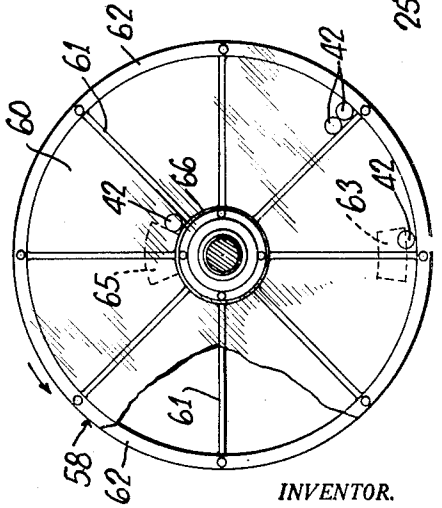


Fig. 6.



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Patented Nov. 29, 1932 1,889,531

UNITED STATES PATENT OFFICE

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RACE GAME

Application filed June 20, 1929. Serial No. 372,297.

This invention relates to games, and, more particularly, to game devices for simulating a horse race or the like.

An object of the invention is to provide a racing game wherein a plurality of racing elements are moved along a course at varying speeds, in such a manner as to closely simulate a horse race or other race in a manner which holds a maximum interest for the spectator.

Another object is to provide an improved type of chance-controlled means for varying the relative speeds of a plurality of racing elements.

Another object is to provide means for varying the speed of different racing elements at various parts of their course.

Another object is to provide improved means for controlling the relative speed of various racing elements.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the constructions hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Figure 1 is a plan view of a horse race game device embodying the invention;

Fig. 2 is a sectional view taken in the direction of the arrows along the line 2—2 in Fig. 1;

Fig. 3 is an enlarged detail view along the line 3—3 of Fig. 2, and showing the ball courses;

Fig. 4 is an enlarged detail sectional view along the line 4—4 in Fig. 3;

Fig. 5 is a sectional detail view along the line 5—5 in Fig. 3;

Fig. 6 is an end view of the ball-lifting wheel; and

Fig. 7 is a diagrammatic showing of a circuit for actuating one of the racing elements.

The interest which a race game arouses depends to a considerable extent upon the continuous variation in the position of the racing elements and in the ability of the game device to simulate to the largest possible extent the conditions occurring in an actual race. It is also desirable that such a device be designed to operate with a minimum of attention to mechanical details on the part of the operator so that the whole attention of the operator and the spectators may be focused on the game itself.

There is exemplified a form of game device which operates without attention during a race, wherein the normal speeds of the individual racing elements may be adjusted from time to time, as desired, and wherein chance-controlled variations in speed are imparted to the individual racing elements at chance-controlled portions of their courses so that actual racing conditions may be closely simulated.

The exemplified device comprises a suitable table 10 mounted on standards 11 and serving to provide on its upper surface a race-course 12 over which a plurality of racing elements or "pieces" formed, in the present instance, to simulate horses, are adapted to move. The "pieces" or "horses", indicated at 13, are normally positioned at the rear end 14 of the course; and each horse has attached thereto a cord 15 extending to the forward end of the course. Each cord passes through a guide staple 16, over a sheave 17, and downwardly to a flanged wheel 18 upon which it is adapted to be wound as the wheel is rotated by a suitable means, as by one of a plurality of electric motors 19. In Fig. 2, only three wheels 18 and three motors 19 are shown. It is to be noted, however, that an individual wheel 18 and individual wheel-rotating means 19 are provided for the operation of each individual piece or horse 13. Since, because of variations in the normal operating speed of the motors 19, because of a tendency of one horse to win an unusual number of races, or for other reasons, it is often desirable to vary the normal relative speeds of the horses from time to time; there is ac-

cordingly provided suitable means individual to each motor for regulating the speed thereof; the particular means exemplified comprising a rheostat inserted in the circuit of each motor. As indicated diagrammatically in Fig. 7, a lead 20, suitably connected to a conductor 21 of a main circuit, leads to a rheostat 22 and from the rheostat 22 a lead 23 runs to the motor from which a lead 24 extends to the other conductor 25 of the main circuit. A suitable switch, which is shown at 26, is preferably introduced in the motor circuit so as to permit any particular ones of the horses to be raced against each other, as desired. Each rheostat 22 is operated from a suitably positioned point adjacent the course, as indicated in Fig. 1, by means of a knob 27. This knob carries a pointer 28 and underneath the same there is provided a stationary dial 29 carrying a scale whereon relative speeds or other suitable indications are marked. Beneath the dial 29 is a larger rotatable disc 30 having thereon a suitable pointer 31. A lost-motion connection is provided between the knob 27 and the disc 30 so that the disc may be turned with the knob in one direction to a point such that the motor under control of the particular rheostat 22 in question will have such normal speed as has been found desirable, and will continue to indicate this speed on the dial, while permitting the knob 27 to be turned in an opposite direction such as will increase the resistance of the rheostat and reduce the speed of the horse, when it is desired to place a particular horse under a handicap in a particular race, or to compensate for an operation of the chance-controlled device, hereinafter to be described, which operation appears to favor one particular horse. In the meantime, the disc 30 permanently marks the point on the dial to which the knob is to be turned when the horse is to be operated at its former normal speed.

In order to provide a racing game, the result of which cannot be predicted, even when the racing elements or "horses" are close to the finish line, and in order to hold the interest of the spectators throughout the race, the invention contemplates the provision of means for varying the speed of individual ones of the racing pieces from time to time throughout their travel over the race course. The particular type of such means which is exemplified is located, in the present instance, at the forward end of the race-course, and is shown in detail in Figs. 3, 4, 5 and 6. This means comprises a plurality of pairs of spaced rails 40 and 41 inclined downwardly to the rear and composed of electrical conducting material, and mounted on suitable insulating means. The rails of each pair are arranged to provide a ball-course so that any of a plurality of balls 42 may roll downwardly along the same and bridge the gap therebetween during its descent; it being understood that the word "ball" as used herein refers to a suitable member having electrical conducting properties. The rail 40 of each pair is connected by means of a lead 43 to the lead 20 in the operating circuit of one of the motors at a point on one side of the resistance 22, and the rail 41 of the pair is connected by means of a lead 44 to the lead 23 of the motor circuit at the other side of the resistance so that when the gap between a pair of conducting rails 40 and 41 is bridged by a ball thereon a circuit is established which shorts the resistance 22 in a particular motor circuit and permits a greater amount of current to be imparted to the motor during the time that the ball is rolling down these rails. For delivering balls to the pairs of conducting rails there is provided a ball-race comprising a forwardly inclined member 45 carrying a pair of rearwardly converging guard-rails 46 and 47 adapted to receive a ball therebetween at their rear ends. With a view to providing chance-control for the balls rolling down the inclined member 45, this member also carries a plurality of dividing rails 48 adapted to guide a ball in one direction or another, depending upon the direction in which it happens to move as it starts its course down the member 45, and it also carries, preferably, a plurality of additional dividing rails 49 spaced longitudinally of the elements 48 and adapted to receive the balls and guide the same in one direction or another, as the balls continue their travel down the inclined member 45. If desired, there may be provided intermediate the rails 48 and 49, a series of dividing pins 50 which are adapted to further vary the direction of the ball in its forward travel. A sufficient number of rails 49 are provided to form a series of channels, the number of which is equal to the number of racing pieces and the number of pairs of conducting rails 40 and 41. The rails 49 may be mounted in any suitable manner and, in the present instance, are mounted by means of pins 51 extending into holes 52 in the element 45. With a view to permitting the adjustment of the forward ends of the rails 49, when this is desirable for any reason, as for example, when it is found that there is too great a tendency to deliver the balls to one or another of the pairs of conducting rails, the member 45 may be provided with any desired number of holes 52 adapted to receive the pins of the higher ends of the rails 49. The rails 48 may, of course, be similarly mounted. As a ball reaches the lower end of the inclined member 45, it is guided by uprights 55 and delivered upon one of the pairs of conducting rails.

In order to return a ball from the lower end of the conducting rails to the inclined member 45, there is provided a ball-lifting wheel 58

having an open face fitting against a stationary plate 59 and formed, in the present instance, with a transparent back-plate 60 and with a plurality of radial spokes 61 and a rim 62. The plate 59 is formed with an opening 63 below the lower end of the rails 40 and 41, and there is provided a suitable guide-trough 64 to lead to the opening 63 the balls falling off the lower end of the rails. The plate 49 is also formed with an opening 65 adjacent the converging ends of the guard-rails 46 and 47. Thus, as a ball falls off a pair of conducting rails 40 and 41 it will be carried by the guide-trough 64 to the opening 63, will roll therethrough onto the inner surface of the rim of the wheel, and will be carried upwardly by one of the spokes 61 until it is adjacent the opening 65. Preferably, the outer surface of the hub 66 of the wheel is inclined somewhat toward the inclined member 45 so as to make sure that the ball will roll out through the opening 65 when the spoke 61 reaches the opening. The wheel 58 may be rotated by a suitable motor 67 under control of the main circuit comprising the conductors 21 and 25 and under the control of a suitable switch, such as 68. Any desired number of balls may be kept in motion on the ball course.

With a view to avoiding sharp changes in the speed of the pieces and to giving a naturalness of movement thereto, the invention contemplates the provision of means for dividing into three parts the accelerated movement of the piece when the resistance in its respective circuit is shorted. To this end, there are provided means for pressing a ball more firmly against the conducting rails 40 and 41 during its travel along a portion of these rails intermediate their ends, it being understood that a greater amount of current will pass through the circuit when the ball is tightly pressed against the conducting rails 40 and 41, than when it only rests lightly thereon. In the exemplified apparatus this means consists of a plurality of wheels 69 carried on a shaft 70 adapted to be rotated in a counter-clockwise direction (as viewed in Fig. 2) by suitable means (not shown), preferably under control of the switch 68. One of the wheels is provided above each pair of conducting rails. On each wheel there is mounted a plurality of springs 71 having outwardly bent ends 72 extending in a clockwise direction, and adapted to be carried downwardly so as to contact with a ball on the conducting rails and to press the ball firmly against the same, and finally thrust the ball along the conducting rails at an increased speed.

As will be seen, the device operates to impart to the pieces varying speeds at varying times, in accordance with the pairs of conducting rails 40 and 41 to which the balls are being continuously directed from the channels between the dividing rails 49. An individual ball passing down the inclined element 45 is directed by means of the rails 48 and the pins 50 to one or another of these channels and then falls onto one pair of conducting rails, thus short-circuiting the resistance 22 in the circuit in the motor for operating an individual one of the pieces. The ball rolls slowly down the rails 40 and 41, and as the wheel 69 rotates is caught by the outer end 72 of one of the springs 71 and pressed more firmly against the conducting rails so as to further increase the speed of the piece. As the wheel 69 turns further, the ball is driven forward by the spring 71 and rolls rapidly down the conducting rails to the guide-trough 64. Thus, when a ball is directed to one pair of conducting rails a short circuit is established and the piece under control of the motor operated by this circuit moves forward with increased rapidity, this rapidity being further increased when the ball is pressed firmly against the conducting rails by the spring 71, and then slowing up somewhat as the ball rolls down the remainder of its course over these rails and returns to normal speed when the ball drops from the lower end of the rails.

After the completion of the race, the switch 68 is thrown out and the pieces returned to the starting point manually, or in any suitable manner. If desired, there may be provided a car 80 having a plurality of stalls 81 individual to each horse and adapted to be moved to the forward end of the course and to have the horses placed thereon. The car may then be returned to the starting point by means of a cord 82 which is wound on a sheave 83 operated by a motor 84 under control of a circuit in which a switch 85 is inserted. The use of such a car assists in the positioning of the horses for starting the race, the car being provided with a pivotally mounted front 86 which may be let down, as shown in Figs. 1 and 2, so that upon the starting of the motors 19 the horses under control thereof will slide from the car down the incline provided by the front 86 and onto the course.

In order to add to the interest of the game, there may be provided suitable obstructions or "jumps" comprising cross-pieces 87 having inclined surfaces, and being positioned in suitable places along the course. The upper surfaces of the cross-pieces are sufficiently uneven so that occasionally a piece will be tipped over as it is pulled across the same, this being particularly likely when the piece is going at an especially fast speed, as when the current for the propelling motor thereof flows through the short circuit provided when a ball bridges respective pairs of conducting rails.

As will be seen from the foregoing description, apparatus, such as exemplified, provides a game device wherein racing elements are operated under chance-control in a particu-

larly interesting and natural manner and which is adapted to be adjusted from time to time to provide a maximum of pleasure and excitement.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, driving means forming a part of each propelling means, and chance-controlled means to vary the speed of operation of various ones of said driving means.

2. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, driving means forming a part of each propelling means, and chance-controlled means to vary the speed of operation of various ones of said driving means at a variety of times, whereby the speed of various ones of said pieces is varied during various parts of their travel over said course.

3. A game device comprising a race course, a plurality of pieces movable over said course, propelling means for said pieces, driving means forming a part of said propelling means, and chance-controlled means for controlling said driving means to temporarily vary the speed of one or more of said pieces.

4. A game device comprising a race course, a plurality of pieces movable over said course, propelling means for said pieces, driving means forming a part of said propelling means, and chance-controlled means for controlling said driving means to vary the speed of various ones of said pieces during various parts of their travel over said course.

5. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, driving means forming a part of each propelling means, and chance-controlled means for operating said driving means to temporarily increase the speed of various ones of said pieces during various parts of their travel over said course.

6. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, an electric circuit for controlling the speed of operation of each of said propelling means, a reduced resistance conductor bridging a relatively high resistance portion in each circuit, a gap in each reduced-resistance conductor, and chance-controlled means for bridging one or another of said gaps from time to time during the operation of the device.

7. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, an electric circuit for controlling the speed of operation of each of said propelling means, a reduced resistance conductor bridging a relatively high resistance portion in each circuit, a gap in each reduced-resistance conductor, a plurality of ball courses each comprising a pair of spaced conducting elements, each pair of elements being connected in said circuit at opposite sides of one of said gaps, and chance-controlled means to direct a ball to one or another of said ball courses.

8. A game device comprising a race course, a plurality of pieces movable over said course, propelling means including a motor individual to each of said pieces, an electric circuit for each motor, each circuit including a high resistance portion, a plurality of ball courses each comprising a pair of spaced conducting elements, one of said ball courses being individual to each motor, a lead extending from one of said conducting elements of each ball course to one side of the high resistance portion of each circuit, a lead extending from the other conducting element to the other side of the high resistance portion in each circuit, and chance-controlled means to direct a ball to one or another of said ball courses from time to time during the operation of the device.

9. A game device comprising a race course, a plurality of pieces movable over said course, propelling means including a motor individual to each of said pieces, an electric circuit for each motor, each circuit including a high resistance portion, a plurality of ball courses each comprising a pair of spaced conducting elements, one of said ball courses being individual to each motor, a lead extending from one of said conducting elements of each ball course to one side of the high resistance portion of each circuit, a lead extending from the other conducting element to the other side of the high resistance portion in each circuit, means temporarily to press a ball firmly against the conducting elements of each of said ball courses during a portion of the travel of said ball over the ball course, and chance-controlled means to direct a ball to one or another of said ball courses from time to time during the operation of the device.

10. A game device comprising a race course, a plurality of pieces movable over

said course, propelling means including a motor individual to each of said pieces, an electric circuit for each motor, each circuit including a high resistance portion, a plurality of ball courses each comprising a pair of spaced conducting elements, one of said ball courses being individual to each motor, a lead extending from one of said conducting elements of each ball course to one side of the high resistance portion of each circuit, a lead extending from the other conducting element to the other side of the high resistance portion in each circuit, means temporarily to press a ball firmly against the conducting elements of one of said ball courses during a portion of the travel of said ball over the ball course, said means comprising a rotatable element above each ball course, said rotatable element carrying springs adapted to contact with a ball in said ball course and to press the same against said conducting elements, and chance-controlled means to direct a ball to one or another of said ball courses from time to time during the operation of the device.

11. A game device comprising a race course, a plurality of pieces movable over said course, piece-controlling means including an electric circuit, a ball course provided by a pair of spaced conducting elements in said circuit, chance-controlled means for directing a ball to said ball course from time to time during the operation of the device, and means for controlling all of said pieces when the aforesaid piece-controlling means is inoperative.

12. A game device comprising a race course, a plurality of pieces movable over said course, piece-controlling means including an electric circuit, a ball course provided by a pair of spaced conducting elements in said circuit, chance-controlled means for directing a ball to said ball course from time to time during the operation of the device, and resilient means for pressing a ball firmly against said conducting elements during a portion of the period when it is upon said ball course.

13. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, chance-controlled means to vary the speed of operation of various ones of said propelling means, and means for adjusting the relative normal speed of operation of the individual propelling means.

14. A game device comprising a race course, a plurality of pieces movable over said course, propelling means including an electric motor individual to each of said pieces, an electric circuit for each motor, a rheostat in each circuit, and chance-controlled means to impart temporary variations in the relative speed of operation of said motors.

15. A game device comprising a race course, a plurality of pieces movable over said course, propelling means including an electric motor individual to each of said pieces, an electric circuit for each motor, a high resistance portion in each circuit, and chance-controlled means for bridging one or more of said high resistance portions from time to time during the operation of said device.

16. A game device comprising a plurality of ball courses, a ball race, means on said ball race for directing balls to one or another of the ball courses, said ball race and said ball courses being inclined in a manner to conduct a ball from the beginning of said ball race to the end of said ball courses by gravity, and means for elevating to said ball race the balls which have traversed said ball courses.

17. A game device comprising a race course, a plurality of pieces movable over said course, propelling means for said pieces and chance-controlled means to vary the speed of said pieces from time to time during the operation of said device, said chance-controlled means comprising a plurality of ball courses, a ball race, and means on said ball race for directing balls to one or another of said ball courses.

18. A game device comprising a race course, a plurality of pieces movable over said course, propelling means for said pieces and chance-controlled means to vary the speed of said pieces from time to time during the operation of said device, said chance-controlled means comprising a plurality of ball courses, a ball race, means on said ball race for directing balls to one or another of said ball courses, and means providing for the adjustment of said ball-directing means.

19. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, each of said propelling means including an electric motor, electric circuits for each motor, and chance controlled means individual to the circuit for each motor to vary the speed of individual motors from time to time.

20. A game device comprising a race course, a plurality of pieces movable over said course, propelling means individual to each of said pieces, each of said propelling means including an electric motor, means to regulate the normal speed of each motor, and chance controlled means for temporarily varying the speed of operation of individual motors.

21. A game device comprising a race course, a plurality of pieces movable over said course, propelling means including an

electric motor individual to each of said pieces, an electric circuit for each motor, a high resistance portion in each circuit, means for bridging various ones of said high resistance portions from time to time during the operation of said device, said bridging means including a ball course provided by a pair of spaced conducting elements and chance controlled means for directing a ball to said ball course from time to time during the operation of said device, and means for pressing a ball firmly against said conducting elements during a portion of the period that it is upon said ball course.

22. In an amusement apparatus having racing objects movable over a course, individual driving means for said racing objects adapted to move them at a like rate of speed, said individual driving means including electric motors arranged in individual electric circuits, a master switch common to all of said circuits for controlling all of them simultaneously, a resistance in each circuit for reducing the flow of current to the respective motors, a set of circulating balls, tracks for the passage of said balls thereover, and means operable by the passage of the balls over said tracks for causing current to flow direct to the respective electric motors without passing through the said resistance to increase the speed of the driving means.

23. In an amusement apparatus having racing objects movable over a course, individual driving means for said racing objects adapted to move them at a like rate of speed, said individual driving means including electric motors arranged in individual electric circuits, a master switch common to all of said circuits for controlling all of them simultaneously, a resistance in each circuit for reducing the flow of current to the respective motors, a set of circulating balls, tracks for the passage of said balls thereover, obstacles in the path of movement of said balls, and means operable by the passage of the balls over said tracks for causing current to flow direct to the respective electric motors without passing through the said resistance to increase the speed of the driving means.

24. In an amusement apparatus having racing objects movable over respective courses, individual driving means for the respective racing objects including an electric motor arranged in an electric circuit, an inclined runway, sets of spaced contact strips on said runway and arranged in the respective electric circuits, and a series of balls of conducting material movable over said inclined runway from the top to the bottom thereof for bridging said sets of spaced contact strips to close the respective circuits.

25. In an amusement apparatus having racing objects movable over respective courses, individual driving means for the respective racing objects including an electric motor arranged in an electric circuit, an inclined runway, sets of spaced contact strips on said runway and arranged in the respective electric circuits, and a series of balls of conducting material movable over said inclined runway from the top to the bottom thereof for bridging said sets of spaced contact strips to close the respective circuits, and means for picking up said balls at the lower end of said runway and depositing them upon the higher end thereof to roll thereover.

26. In an amusement apparatus having racing objects movable over respective courses, individual driving means for the respective racing objects including an electric motor arranged in an electric circuit, an inclined runway, sets of spaced contact strips on said runway and arranged in the respective electric circuits, and a series of balls of conducting material movable over said inclined runway from the top to the bottom thereof for bridging said sets of spaced contact strips to close the respective circuits, and obstructions along said runway for deflecting said balls during their passage thereover, and means for picking up said balls at the lower end of said runway and depositing them upon the higher end thereof to roll thereover.

27. In an amusement apparatus having racing objects movable over respective courses, individual driving means for the respective racing objects including an electric motor arranged in an electric circuit, an inclined runway, sets of spaced contact strips on said runway and arranged in the respective electric circuits, and a series of balls of conducting material movable over said inclined runway from the top to the bottom thereof for bridging said sets of spaced contact strips to close the respective circuits, and means for picking up said balls at the lower end of said runway and depositing them upon the higher end thereof to roll thereover, said last means including a rotatable wheel having radially arranged pockets therein.

28. In an attachment for electrically motor operated racing game devices, reversely inclined runways coacting to provide a continuous chute, sets of spaced contact strips suitably arranged along said chute, a series of balls of conducting material adapted to roll down said runways, and a rotatable wheel having pockets therein for receiving said balls from the lowest end of said chute and lifting them to and releasing them onto the highest end thereof for gravitation thereover.

29. In an attachment for electrically motor operated racing game devices, reversely inclined runways co-acting to provide a continuous chute, sets of spaced contact strips suitably arranged along said chute, a series of balls of conducting material adapted to roll down said runways, and a rotatable wheel having pockets therein for receiving

said balls from the lowest end of said chute, and lifting them to and releasing them onto the highest end thereof for gravitation thereover, and ball deflecting elements arranged along said runways for causing said balls to take irregular courses in their passage over said runways.

In testimony whereof I affix my signature.

NORMAN BEL GEDDES.