

Jan. 6, 1953

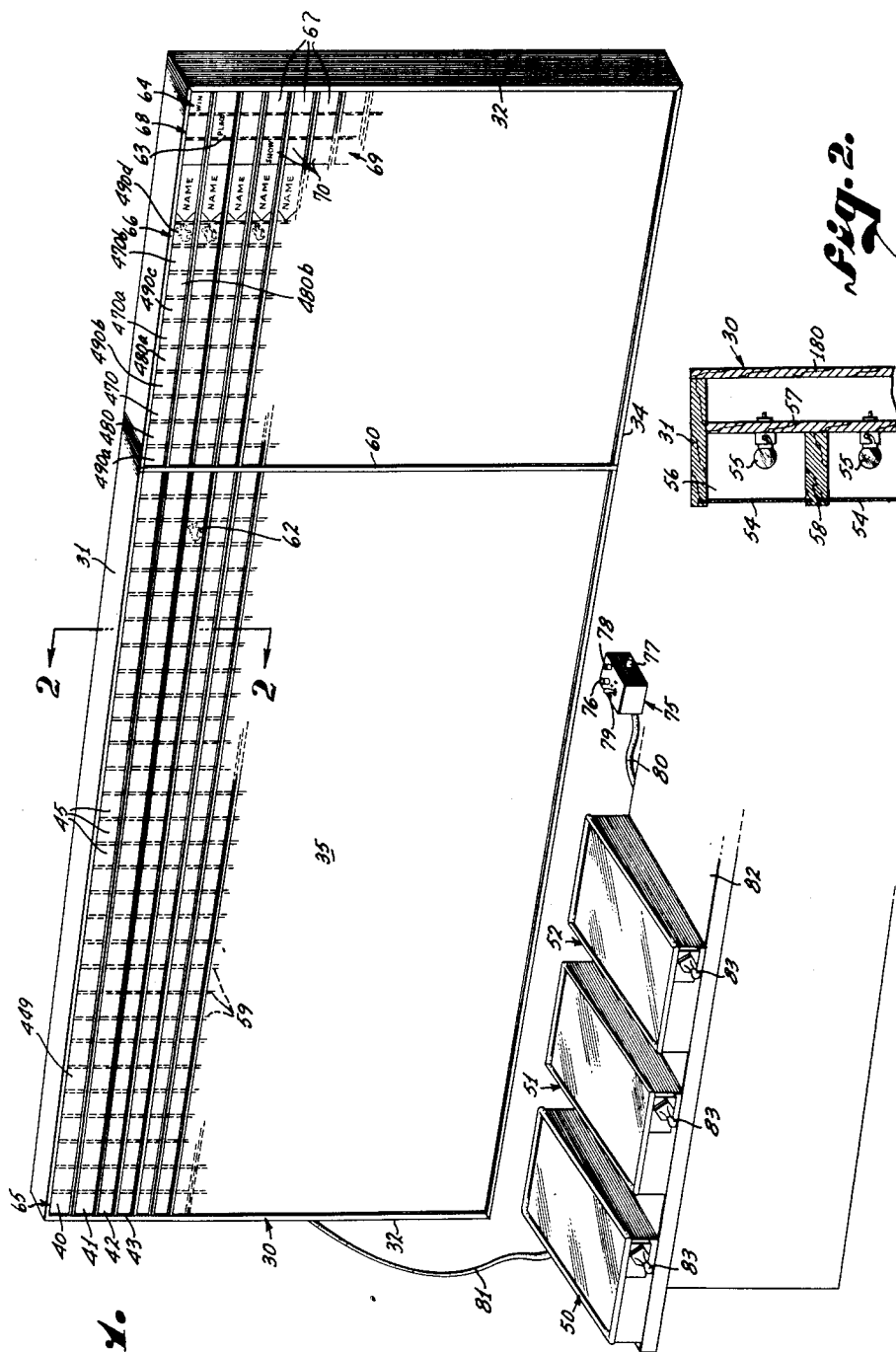
D. R. WISER ET AL

2,624,581

PIN BALL-CONTROLLED RACING GAME

Filed Oct. 30, 1948

4 Sheets-Sheet 1



*Fig. 1.*

*Fig. 2.*

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4 Sheets-Sheet 2

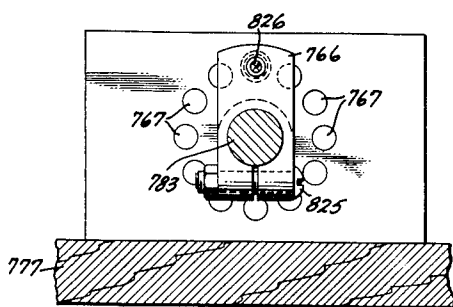
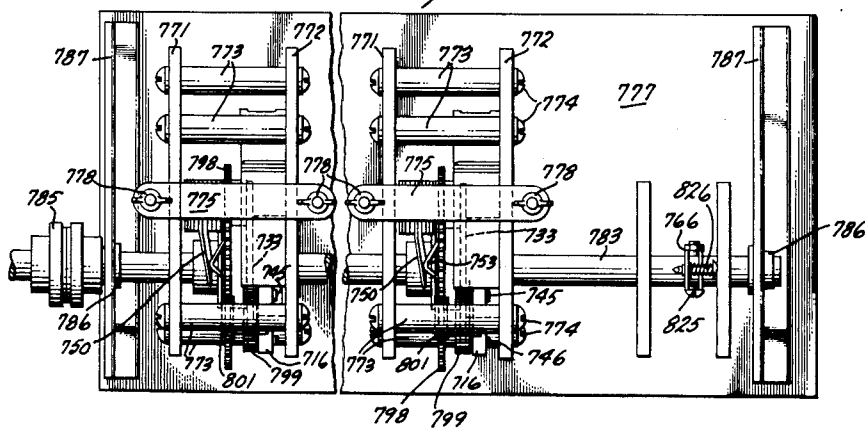
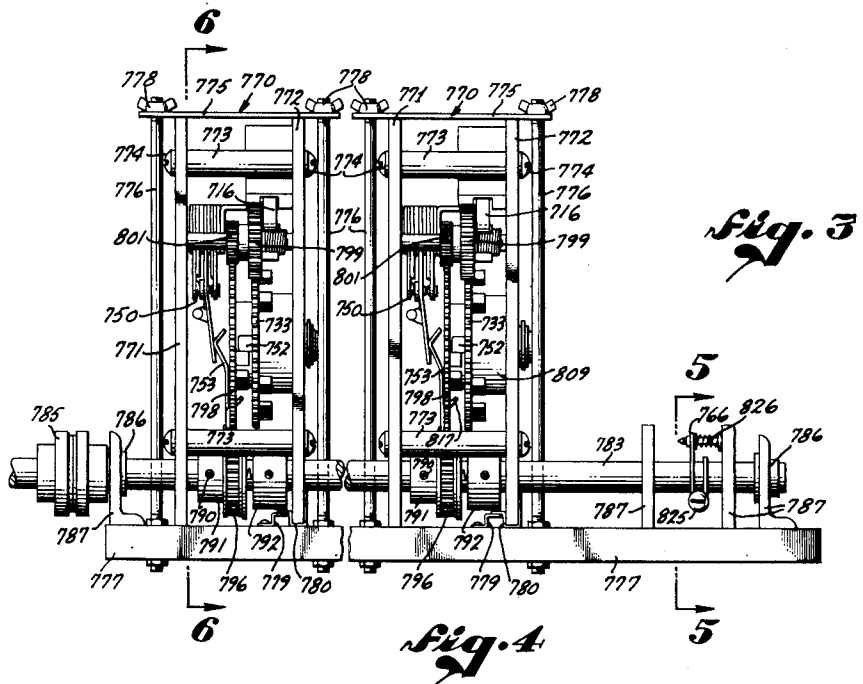


Fig. 5

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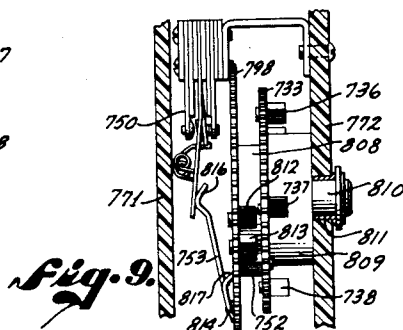
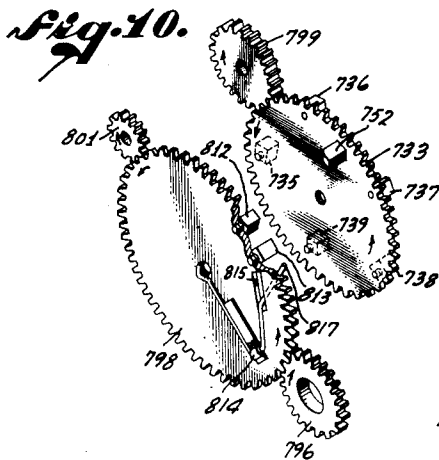
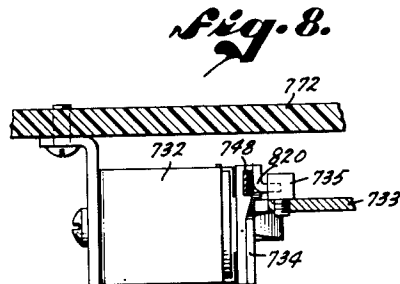
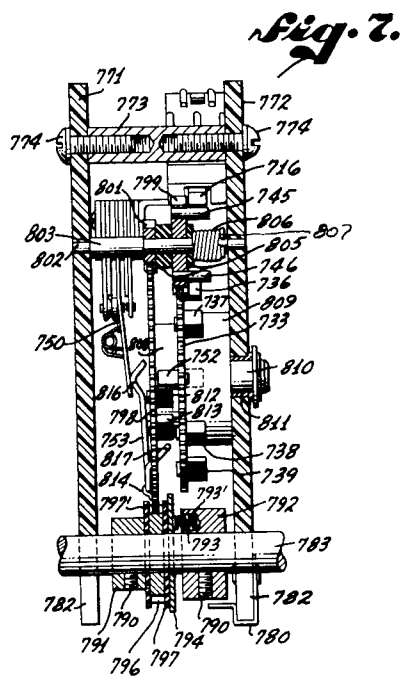
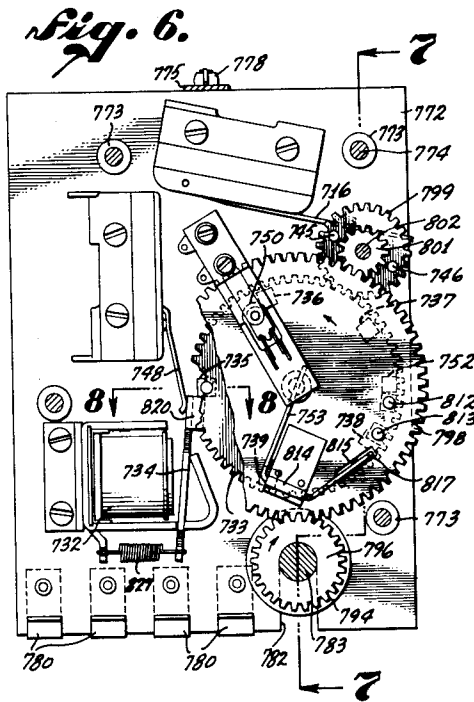
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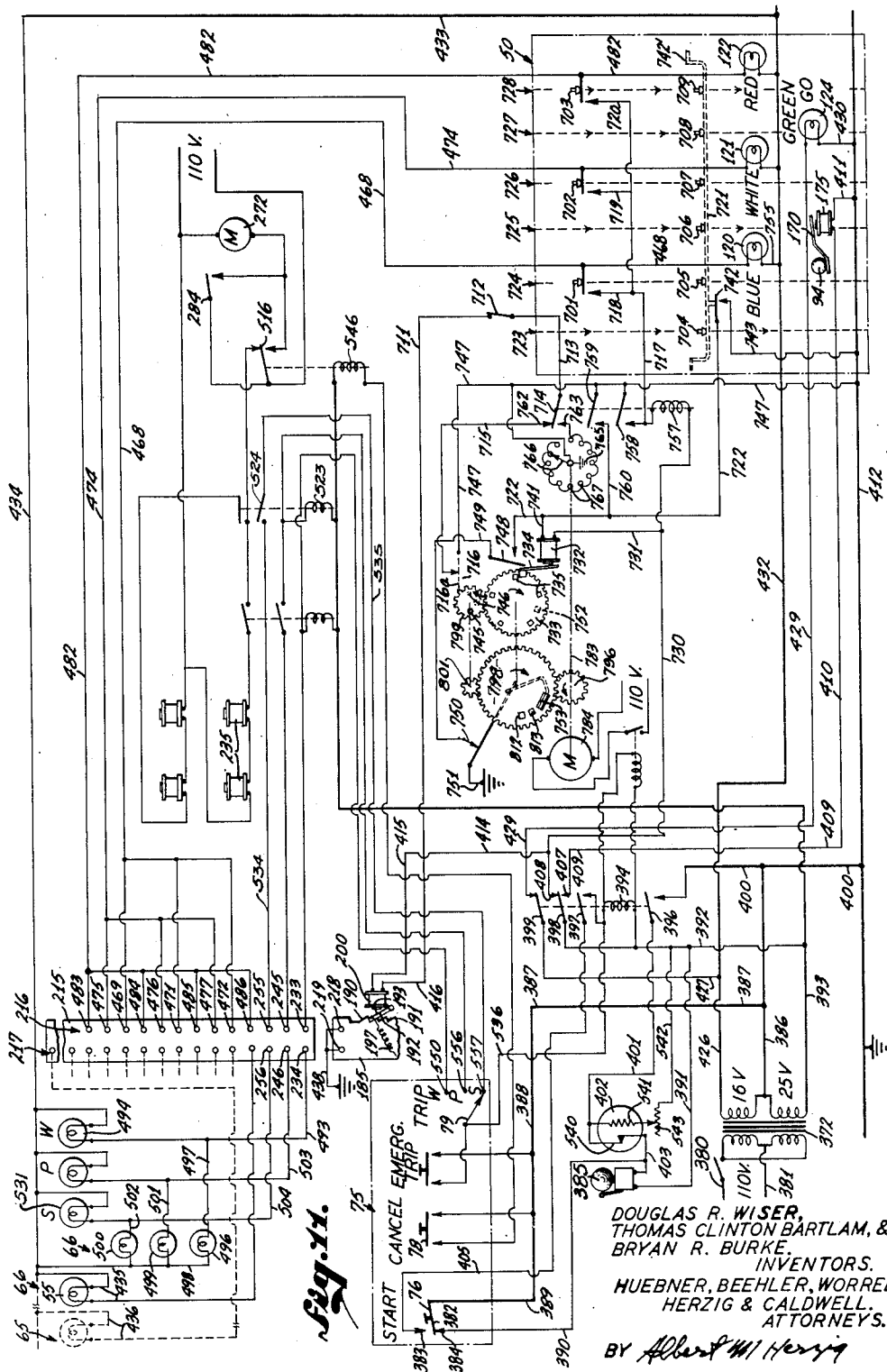
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PIN BALL-CONTROLLED RACING GAME

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## UNITED STATES PATENT OFFICE

2,624,581

## PIN BALL-CONTROLLED RACING GAME

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Application October 30, 1948, Serial No. 57,432

16 Claims. (Cl. 273—86)

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This invention relates to racing games of a general character set forth in a co-pending application of Thomas Clinton Bartlam, Bryan R. Burke, Douglas R. Wiser, and Vincent C. Engstrom, Serial No. 774,742, and more specifically to improvements in a game of said character, its mode of play, result and construction.

Figures 1 and 2 of the drawings of this application correspond to the same figures in the drawings of said co-pending application. The remaining drawings in the instant application are either entirely new (i. e., Figures 3 through 10), or are in part similar to said prior application and in part new or modified to carry out the desired result of the instant invention (Figure 11). An improved total combination and game thereby results.

As in said prior application, it is the intention of the instant invention to simulate as near as may be in a game, a racing event which may be participated in by numerous players and the mechanism of which is preferably electrified or otherwise mechanically operative, its results depending upon a certain degree of control and initiation of movement and operation by the players.

Manifestly, costs and elaboration of mechanism and likelihood of breakdown is increased in proportion as greater detail in simulation of an actual racing event is obtained. Even when this is achieved to a maximum desired extent, however, habitual players, or those playing with particular skill and luck, tend to become more or less consistent winners. Constant shifting or adjustment of the game apparatus and constant vigilance by skilled supervisors is necessary to avoid excessive advantage by one player over another and prevent the attendant loss of business and reputation by the amusement device (whether merited or not) on the grounds that the game is unfair to some players as giving unfair advantages to others.

The instant invention, without detracting from the excitement of competitive play and skill, but in fact enhancing such excitement by substantially equalizing the game, gives each player an even opportunity to score throughout the race. To do this the game achieves a speeding up of laggard racers and an elimination of run-a-way or consistent winners. The racers are thereby more closely grouped throughout a race. The lead constantly changes. Winners therefore are more evenly distributed. The resultant game thus presents a pageant of continuous excitement with consequent increased en-

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joyment to the participants, for a racer who lags, whether at the beginning of the game or near its end, may yet win, and one who is apparently ahead at any stage may hold no necessary advantage during the balance of the race or in another stage of it.

The present invention, like that disclosed in said co-pending application, may also incorporate the features of multiple winners, ties, and/or fast finishes.

It is therefore among the objects of this invention to provide a new and improved simulated racing game per se.

It is another object of this invention to provide in a game of the character described new and improved means for carrying out the purposes of the game.

Among the more specific objects of the invention are the provision of a substantially equalized game, the provision of a restraining barrier to avoid run-a-way winners, provision of a speed up of laggards, provision of facilities for regulating the speed of the game and of its speed-up and its restraining barrier either overall or in part, the optional incorporation of "Win," "Place" and "Show" positions and mechanism for achieving them, the optional provision of a "Fast Finish" in unique association with the game as a whole and the equalizer in particular, provision of a new and improved progressive game regulator, and provision of new and improved equalizer means.

It is a further object of this invention to provide a new and improved game of the desired character described of simple construction, the parts of which are readily accessible for replacement or repair and which will provide long periods of continuous trouble-free use.

It is likewise among the objects of this invention to provide improvements over prior art games and apparatus heretofore intended to accomplish similar or analogous results.

Other objects and advantages of this invention will become apparent in the drawings and the following specification relative thereto.

In the drawings:

Figure 1 is a frontal perspective view of a preferred form of game apparatus as may be used in this invention.

Figure 2 is a sectional view as on a line 2—2 of Figure 1.

Figure 3 is a detailed vertical elevational view as at a portion of the back side of the apparatus of Figure 1, illustrating a pair of equalizer controls and associated mechanism.

Figure 4 is a plan view of the same.

Figure 5 is a sectional view as on a line 5—5 of Figure 3.

Figure 6 is a sectional view as on a line 6—6 of Figure 3.

Figure 7 is a sectional view as on a line 7—7 of Figure 6.

Figure 8 is a detailed view as on a line 8—8 of Figure 6.

Figure 9 is a fragmentary view similar to Figure 7 showing parts in a different operative relationship.

Figure 10 is a simplified view of certain equalizer gear mechanism and associated parts.

Figure 11 is a diagrammatic view of an operative and wiring mechanism of the game apparatus, some parts being simplified and other parts omitted.

The operation of the apparatus chosen to illustrate this invention will proceed concurrently with a description of Figure 11 corresponding with certain modifications and improvements to Figure 20 of said co-pending application, and having reference, where feasible, to corresponding parts in both applications by means of corresponding reference numerals. Reference numerals starting in the 700 series herein are applied to parts added to or modified in the instant application. Direct reference to the prior application is made where its repetition herein would not serve to point out the improved structure or function now disclosed and claimed.

Referring now more particularly to the drawings, there is shown (Figures 1 and 2) an annunciator panel or backboard designated by the numeral 30, including a top 31, ends 32 and a bottom 34. The front face 35 of the annunciator may be divided into a plurality of parallel horizontally disposed lanes, such as 40, 41, 42 and 43, etc., preferably extending entirely thereacross. Each lane may be additionally divided into any number of segments or positions 45 upon which the progress of successive plays across the board for each corresponding player may be indicated as will appear.

Individual playing units 50, 51, 52, etc., are provided corresponding to the lanes 40, 41, 42, 43, etc., and each playing unit is electrically interconnected to the annunciator 30 in a manner to be described in order to control the progress of the game thereon through and by means of said individual playing units.

The positions 45 may be finished off in front by translucent glass, cellophane, or plastic material 54, and may be provided with indicator lamps 55 (cf. also Figure 11). These are preferably separated from one another by means of individual cells 56 bounded, for example, by the top of the annunciator panel 31, a panel board 57 and any number of horizontal and transverse partitions 58 and 59, respectively.

By way of illustration, though not of limitation, the illustrated annunciator 30 is divided into racing lanes or courses 40, 41, 42, etc., each of which may in turn be divided into a horizontal series of forty positions 45. As shown, these are divided as by a vertical tape 60. Thus, an arbitrary ten positions in spaces on the right of the tape in each lane as illustrated collectively comprise the "stretch" or "fast finish" portion, while those thirty at the left may be collectively designated the "straightaway" portion.

Both in the straightaway and the stretch it is preferable, as heightening interest in the game,

to illustrate distinguishing characters, such as horses 62, in various stages of gait so as to give the illusion of movement when the individual lamps 55 are progressively illuminated from left to right (Figure 1) during the play. Such characters also tend to differentiate the several lanes and so identify the players with their respective horses.

The vertical row of positions designated by the numeral 65 may constitute the post or starting line, and the last vertical row of spaces designated by the numeral 66 at the right-hand side of each lane is ordinarily considered the finish line. To the right of the finish line in each lane, the name of the corresponding horse or the like in such lane may be set forth and optionally continuously illuminated during play, or the same may be illuminated simultaneously with the occurrence of a winner in such lane.

Any number of winners and corresponding win positions may be provided for, but it is preferable as corresponding with conventional racing practice to provide three categories of winner separately designated in each row. Thus, the first may be indicated as in a "win" position 64 in the last column 67 and may bear a designation "win." A "place" column 68 may also be provided and designated with "place" positions 63. A "show" column 69 may be made up of the "show" positions or spaces 70. Each of these spaces 64, 63 and 70 may be illuminated individually in a manner similar to the spaces 45, but each should preferably carry an inscription, as stated, appropriately designating it as a "win," "place," "show" or the like signal.

A master control box 75 (cf. Figure 11) may be provided under the control of an operator or general supervisor by whom the game may be selectively started, as by depressing a start button 76; cancelled during the course of a game as by an emergency trip 77; or, at the end of the game, as by a cancel button 78. Or a game may be selectively altered from one involving only one winner, to one involving two, three or any other number of successive winners. The latter result may be achieved as by means of a selective trip lever 79, all in a manner which will be more fully apparent as the description proceeds.

An electrical conductor cable 80 may connect the control switch box 75 to the annunciator 30 and the playing unit 50, etc., while another cable 81 may also connect the conductors from the playing units to the annunciator.

The playing units 50, 51, 52, may be individually or collectively mounted as upon a table 82 in front of which the players may sit or stand in a position to actuate the individual plungers 83. Suggestive plunger construction and associated mechanism are set forth in further detail in said co-pending application. Any conventional ball-directing and impelling means may be employed.

The playing unit or board preferably includes a usual starting lane along which a ball 94 (see Figure 11) may be rolled and guided, as by any suitable guides, through paths such as 723, 724, 725, 726, 727 and 728 defined thereby.

While passing through the paths 723, etc., the ball may actuate buttons and their switches 701, 702, 703, 704, 705, 706, 707, 708 and 709 which are connected to and actuate circuits associated with the annunciator panel as will be discussed later. It will be noted that certain lanes, such as 724, 726 and 728 may each be provided with two buttons 701 and 705, 702 and 707, and 703 and 709, respectively, whereas, lanes 723, 725 and 727 may

be provided with only one button each, e. g., 704, 706, and 708, respectively. This arrangement is intended to activate certain win circuits as will appear.

After leaving the paths 723, etc., the ball may be conducted back to a position for replay.

Said switch buttons preferably have a shank portion and a head, said shank projecting upwardly through the playing field and engageable and depressible by the ball 94 which, when it rolls thereover, closes a switch 742 (optionally jointly associated, as by an offset arm 742' with said switch 742) or switches 701, 702 and 703 upon which the heads of the pins yieldably rest and are thereby normally urged upwardly to project above the face of the playing field. The closing of the switches 742, 701, 702 and 703 actuates appropriate circuits to progressively illuminate the progress indicator lights 55 on the annunciator panel as hereinafter explained.

Inasmuch as this game is intended to be primarily competitive, it is desirable that all units are simultaneously freed for play. For this purpose it is preferable to have a locking mechanism or the like for the ball 94 so that upon the release thereof all of the balls are free to be played.

To this end a wire 170 may be moved as by a solenoid 175 so that when the solenoid 175 is energized, the wire will hold the ball 94 against play until released as in a manner set forth in said co-pending application.

When the solenoid 175 is de-energized, the wire 170 may be normally held in a non-locking position by means of a spring or the like, not shown.

Preferably mounted upon the back 180 of the annunciator 30 are a plurality of stepping relays described in said co-pending application. Said relays correspond in number and are operatively connected to the playing units and to the lanes 40, 41, 42, etc., on the game progress recording means 30. The function of these stepping relays may, of course, be performed by any other appropriate regulatory means as electronically, or mechanically, by means of conventional relays, or by any combination of these, as illustrated and described, by way of example, in said application.

But as shown in the illustrations (cf. Figure 11) under discussion, the stepping relays generally comprise vertical bars 185 mounted for preferably vertical movement and are grounded as by a wire 438.

Each bar 185 is provided with a row of teeth 190 along one edge 191, and each is supported at various positions of elevation correspondent to the distance between the teeth 190 as by means of an escapement latch 192. The detent 193 of each escapement is normally held in mesh with one of the teeth 190 of the corresponding bar 185 as by means of a spring 197.

Opposed to the spring 197 is a solenoid 200. Upon actuation of the solenoid 200 the latch will be drawn thereagainst, to disengage a tooth 190 actuating the escapement tooth by tooth.

Any number of intermittent energizations of any solenoid 200 will thus allow a corresponding bar 185 to move gravitationally downwardly a distance equal to a similar number of teeth 190.

Non-conductive contact plates 215 corresponding to and adjacent each bar 185 may be provided with a double row 216 and 217 of contact points. The bar 185 is fitted with a pair of preferably yieldable slide contact points 218 and 219, respectively, engageable with the contacts in the rows 216 and 217 as the points are moved into a

position of adjacency to said contacts. This will be accomplished, as will be apparent, each time the bar 185 is lowered by one tooth 190, a distance which is equal to that between adjacent contacts in said rows.

During the course of play and as the bars 185 drop step by step as above noted, and upon play causing the intermittent actuation of the solenoids 200, a point is reached at which the topmost tooth is released by the latch 192 in one of the stepping relays. In the first instant that such a result is achieved in any bar (corresponding with a winner) a win shoulder mechanism described in said co-pending application, preferably in common with all of the bars 185, holds the contact points 218 and 219 at the top of such bar into a position of engagement with the lowermost contacts 233 and 234, respectively, on the contact plate 215, thereby establishing a win circuit, signaling a first or winner on the annunciator, and simultaneously energizing any number of "place" relays 235 which operate in a manner also described in said application to allow the bar contacts 218 and 219 to engage the "place" contacts 245 and 246, respectively, for establishing a "place" circuit in the annunciator panel thereby designating a "place" or second winner.

As further described in said prior application, simultaneously with the scoring of a place, a preliminary third winner or "show" circuit is similarly set up by action calculated to bring the contacts 218 and 219 upon the bar 185 corresponding to the "show" winner into engagement with a pair of "show" contacts 255 and 256, respectively, so as to set up a "show" circuit in a like manner to the "win" circuits and "place" circuits heretofore described, and to close down the game.

The return of all of the bars 185 to their uppermost "start" position wherein all of the latches 192 engage the bottommost teeth on each of the bars 185 restores the game to a condition for commencement of play.

Automatic return mechanism associated with the bars is illustrated and described in said co-pending application wherein a motor 272 may be employed, controlled by switches 284 and 516 and solenoid 546, cancel switch 78, etc.

Referring now, for convenience, particularly to Figure 11, and considering operation with structure, we assume initially, as in said prior application, a power source connected to the apparatus from main power leads 380 and 381 connected to a 110-volt transformer which may be stepped down to 25 volts and 16 volts, respectively, as indicated. We also may initially assume that the selective switch 79 is set for three winners, i. e., a "win" W, a "place" P, and a "show" S, corresponding as to "first," "second" and "third."

At the commencement of the game, an operator in custody of the control box 75 (Figure 1) depresses the start button 76 (Figures 1 and 11) thereby moving the blade 382 (Figure 11) thereof from a contact point 383 to a contact point 384 to energize and ring a bell 385 for a period dependent upon the length of time the start button 76 is held down by the operator.

The bell-energizing circuit may begin in the transformer 372 and thence to conductors 386, 387, 388 and 389, the switch blade 382, contact 384, wire 390, bell 385, wires 391, 392 and thence, for example, to a 25 volt source through a wire 393. By this means the bell 385—so long as the start button is depressed by an operator—sig-

nalizes the commencement of the game to the players.

It may here be noted that upon the conclusion of a game a relay 394 normally remains energized through a circuit including the switch blade 382 in a manner which will later appear, but simultaneously with the depression of the start button 76, said circuit is broken thereby de-energizing the relay 394 and operating switches 396, 397, 398 and 399 controlled thereby causing them to assume their normal positions for play as illustrated in Figure 11. Simultaneously, therefore, with the actuation of the start button 76 by the operator, the switch 396 is permitted to open as shown, thereby opening the bell circuit wires 386 and 400, switch 396, wire 401, thermo-switch 402, wire 403, bell 385 and wires 391, 392 and 393.

The opening of the switch 397 opens the holding circuit for the relay 394 which circuit, when closed, is as follows: Through wires 386, 387, 388, 389, switch 382, contact point 383, wire 405, switch 397, coil 394 and conductors 392 and 393.

The movement of the switch 393 from the point 407 to the point 408 frees the individual balls 94 to each of the players in the playing unit by de-energization of the coils 175 in each of the playing units and thereby releases the ball locks 170 through the breaking of their circuits 393, 392, switch 393, wires 409 and 410, coil 175 and wires 411, 412, 400 and 386.

Said movement of the switch 393 also energizes all of the coils 200 associated with the bars 185 for each of the playing units and energizes the wires and switches associated with the buttons 701 through 709 respectively on each of the playing boards. That is to say, the closing of the switch 393 against the point 408 energizes wires 414, 415, coils 200 and wires 416, 711, 712, 713, switch 714, wire 715 and normally open switch 716 when in closed dotted position 716a for each of the playing units, which, however, do not actuate any of the associated mechanism until the occurrence of later events to be described.

It will be noted that the individual switch 712, susceptible of manual operation, is interconnected in the line 711—713 of each of the playing units, respectively, so that any individual unit may be de-energized to prevent play therein or for repair without interfering with the operation of the other units. During use of the corresponding playing unit such switch is closed.

Lines 718, 719 and 720 are connected with fast finish switches whose actuation will cause the progressive illumination of a predetermined number of indicator lamps 55 in the annunciator panel under a given set of circumstances to be described while the conductor 721 and wire 722 are similarly connected to the switches whose actuation will cause the illumination of any desired number of successive lamps in a row on the annunciator panel depending on the location of the barrier. This feature will also be more fully discussed as the description proceeds.

Simultaneously, with the actuation of the switches 396, 397 and 398, the closure of switch 399 will cause the illumination of a preferably green "go" lamp 124 in each of the playing units, thereby further signaling the start of a game to the players. The illumination of the "go" lamp 124 is established as through wires 426, 427, switch 399, wire 429, lamp 124 and wires 430 and 412.

It may thus be seen that the pressing of the starting button 76 effectively sets up the game for operation. The next moves required for the

progress of the game are under the control of the individual players although it may be noted that so long as the power through leads 380 and 381 is supplied to the system, regardless of the actuation of the starting button 76, certain progress indicia, such as indicator lamps 55 comprising each race course or lane of a game progress recorder or annunciator panel corresponding to each playing unit, are illuminated, depending upon the position of the contact point 219 on the respective stepping bars 185.

Thus, at the commencement of any game, the bars having normally been raised to their uppermost position, the contacts 219 on each bar will engage the uppermost contact point in the row of contacts 217 thereby illuminating the indicator lamp in the start row 65 of the annunciator panel.

This illumination is occasioned as through wires 426, 432, 433 and 434 which commonly connect with all of the annunciator lamps 55 including those 65 in a "start" row, as through wires 435 and 436, respectively. Said individual wires as 435 and 436 leading from all said lamps interconnect with corresponding contact points in each of the vertical rows 217 of the contact panels 215, through the contact members 219 upon the bars 185 and lead thence as to a ground wire 430.

Immediately following said depression of the start button by an operator as heretofore described, each player directs his ball 94 over a playing board in any desired playing unit 50 and thence through any paths as 723, 724, 725, 726, 727 and 728, formed thereon between corresponding ball guides. Thus, one path 723 may lead over a button 704, another over both buttons 701 and 705, another 725 over button 706, another 726 over both buttons 702 and 707, another 727 over button 703, and the last, 728, over buttons 703 and 709.

It will be noted that some of the lanes or paths for the balls 94 may be provided with a single button, the depression of which is good for the progressive illumination along the player's course of a number of indicator lamps 55 corresponding with the number of space positions between his active progress lamp or indicator and the barrier 69. Other lanes are marked for the similar progressive illumination of their lamps during ordinary play, or, when certain fast finish conditions have been established, such a number of positions as have been pre-established as the fast finish area.

Considering these alternative possibilities seriatim, it will first be assumed that the ball passes along the path 723 thereby depressing the button 704. The depression of the button 704 is only momentary as the ball passes over it but nonetheless an electrical impulse may pass from the contact 408 along the path heretofore described, thence along wires 730 and 731, a coil 732 associated with the equalizer wheel 733, instantaneously withdrawing its latch 734 from a pin as 735 thereon. Thereupon, said wheel 733 is rotated as described. The circuit through the coil 732 is completed by wires 741 and 722, switch 742 and wires 743 and 412.

The wheel 733 as it rotates, permits the wheel 799 to revolve causing the cam members 745 and 746 thereon to move so as to close its associated micro-switch 716 intermittently, so long as the coil 732 is energized, in a manner to transmit impulses to a corresponding coil 200 as from point 408 through wires 414 and 415, coil 200, wires 416 and 711, switch 712, wire 713, switch 714, wire 715, switch 716 and wire 747. A hold-



ing circuit on coil 732 is simultaneously established through point 408, wires 730 and 731, coil 732, wires 741 and 722, normally open switch 748 (now closed), wire 749, and normally closed switch 750 grounded at 751. Said holding circuit is broken by opening of the switch 750 by the long cam 752 and lever 753 barrier mechanism as herein described.

Each momentary closure of the micro-switch 716 actuates said corresponding coil 200 which in turn causes the retraction from the teeth 190 of the corresponding bar 185 and its associated latch member 192. Accordingly, in the present play under illustration, the result will be recorded upon the annunciator panel in a lane corresponding with the playing board in question by the successive illumination of indicator lamps 55. At the completion of this particular play (i. e., through path 723), therefore, the lamp 55 in position 449 will remain illuminated and indicate the progress of a racer, as a horse or the like, along its course or lane 40 while the balance of said lane will be preferably dark.

Assuming that on the next play the ball 94 of the same playing unit traverses the path 724 on said playing board 50, and further assuming the blue lamp 120 is illuminated, the button 701 will be depressed temporarily in a similar manner to the button 704 and a current will then flow from the wire 718 through the switch corresponding with the button 701 as from wires 432 and 755, blue lamp 120 and wire 498 to contacts 469, 471 or 472.

It should be noted that the temporary passage of the ball 94 over the button 701 in path 724 will have no effect in the annunciator panel so long as the contact point 218 on the bar 185 has not engaged one of the contacts in the row 216 of the contact plate, i. e., unless the blue lamp 120 is illuminated. For until such eventuality the circuit in wire 468, etc., will remain broken at the contacts 469, 471 and 472 notwithstanding the closure of the switch at 701.

The blue lamp 120 connected between wires 468 and 432 will therefore remain extinguished during play until the bar contact 218 engages one of said contacts 469, 471 or 472, drawing current therethrough to the ground through wire 438 and closing said last named circuit.

In the last illustration, the passage of the ball over the switch 701 when the lamp 120, for example, is illuminated, will create a fast finish by drawing current from the point 408 of switch 398 through the wire 739, coil 757, wire 717, switch associated with button 701, wire 468, contact 469, 471, or 472, contact 218, and wire 438, thereby energizing the coil 757 and actuating the switches 758, 759, and 714 associated therewith.

Actuation of the switch 758 closes a holding circuit from wire 730 through the coil 757, said switch 758 and wire 747.

The closure of switch 759 energizes the coil 732 through wires 730, 731, said coil 732, wires 741 and 760, said switch 759, and wire 747, causing the gear wheel 733 to turn until restrained by the barrier stop 813 in order that the winner of the instant game will have no advantage, but will in fact be deprived of any accumulated equalizer movement in the next succeeding game.

The movement of switch 714 from the uppermost contact 762 to the lowermost contact 763, switches current from said point 408 through wires 414 and 415, coil 200, wires 416 and 711, switch 712, wire 713, switch 714, contact 763, and

the fast finish panel 765 where the same is grounded. Rapid rotation of the contact point 766 over the fast finish contacts 767 causes rapid pulsations in the corresponding coil 200 thereby oscillating the latch 192 and permitting the corresponding bar 185 to fall into a win, place, or show position, as the case may be, corresponding with contacts 233 and 234, 245 and 246, for 255 and 256, respectively.

In the event that the blue lamps 120 in the lane 724 were not illuminated during the passage of the ball therethrough, no result would be accomplished by the ball's passing over the button 701. However, passage over the button 705 in the same lane 724 would close the switch 742 in a similar manner to the closure of the same by the button 704 in the first illustration and with the same result of actuating the coil 732 to withdraw the latch 734 as from the equalizer wheel 733 to cause the same to rotate to an extent limited by the barrier structure.

As heretofore noted the rotation of the rotor 766 is preferably more rapid than the rotation of the wheel 733, the consequence of which is that the progress in the corresponding lane by the rotation of the rotor 766 establishes what is referred to as a "fast finish." It is understood, of course, that in event another player succeeds in reaching the finish line with or without having achieved a fast finish or any portion thereof, the finish line 66 may be reached and a win scored in the interval between the onset and completion of the "fast finish" move. If both players or more reach the finish line at approximately the same instant of time a "photo" finish or tie may be the result.

Thus, due to the interconnection of the wire 468 to contact points 469, 471 and 472, the coming of the bar contact 218 to rest on any of these contact points will cause the blue lamp 120 to be illuminated on the corresponding playing unit with the result that if the succeeding play results in the ball's being passed over the corresponding path 724 (i. e. when an annunciator lane as 40 is illuminated in one of the spaces 470, 470a or 470b in the stretch at the right-hand side of the tape 60), a fast finish will result in that lane.

In a similar manner a lamp 121 (white) is connected into the circuit 432 and 474 which terminates in contacts 475, 476 and 477 corresponding on the annunciator panel with spaces 480, 480a and 480b. Therefore, the stoppage of a bar contact point 218 upon any of these contacts during play will result in the illumination of the lamp 121 on the corresponding playing board and similarly the passage of the ball through the path 726 on the next succeeding play will result in a fast finish for said unit.

The lamp 122 (red) may also be interconnected with wires 432 and 482, whereby similar "fast finish" circuits may be set up as through contact points 483, 484, 485 and 486 comprising the terminations of the latter wire on the contact panel 215 corresponding on the annunciator panel with spaces 490a, 490b, 490c and 490d. As in the other two instances, the passage of the playing ball through the path 728 on the playing board will, the lamp 122 of the corresponding path being then illuminated, bring about a "fast finish."

A winner, as stated, is designated upon the annunciator panel by the illumination of a corresponding space in the finish line 66. Thus, if a winner be designated in lane 40, for example, position 490d would be illuminated as through

a win lamp contact 234, wire 493, win lamp 494, wires 434, 433, 432 and 426. Such illumination would be evidenced on the back on the annunciator panel in a space 64.

Simultaneous continued illumination of the space 496d may be achieved as by a finish line lamp 496 through wires 493 and 497, and a common wire 498. A finish line "place" lamp 499 and a finish line "show" lamp 500 may also be connected as by similar wires 501 and 502, respectively, to wires 503 and 504.

Upon the making of a first winner the corresponding bar 185 thereof comes to rest upon the win position by any suitable means such as that illustrated and described in the co-pending application above referred to. Thereby contact point 219 engages the win contact 234 as just described to illuminate the finish line lamp 496 and the win lamp 494.

But, if desired, the selective "trip" switch 79, if pre-set at the win point 550, may act to close down the game at the making of only a single winner. Such a closing down will be discussed hereinafter.

Optionally, also, the game may be shut down at the making of the second winner by pre-setting the switch 79 at "place" point 556 as described herein or as further described in said co-pending application.

The actual shutting down of a game, for example after a "show" has been scored, is accomplished as follows:

When the bar 185 corresponding to the show winner has fallen into a position of rest, the bar contact 219 engages the show light contact 256 to light the show lamp 531 through wire 504, etc., as noted, and also illuminates the finish line show lamp 500. A like engagement of the point contact 218 with the opposite show contact 255 closes a circuit through wire 534, switch 524 (previously closed by solenoid 523), wire 535, switch 79, wire 536, solenoid 394 and wires 392 and 393, thereby energizing the solenoid 394.

The solenoid 394 operates to open the switch 399 thereby breaking the circuit to the "go" lamp 124 in each game. It also separates the switch 398 from the contact 408, de-energizing the stepping coils 200 in all units and the associated game mechanism including the button switches 701 through 709 on the respective playing boards.

Movement of the switch blade 398 to contact point 407, moreover, may actuate coils 175 in each unit to lock the balls 94 against further play.

Simultaneously, the closing of the switch 397 establishes a holding circuit for the coil 394.

The switch 396, also closed by the energization of the coil 394, closes a circuit through wire 400, switch 396, wire 491, point 540 of the thermo-switch 402, wire 403, bell 385 and wires 391, 392 and 393, ringing the bell 385 and further signaling the end of the game. A secondary current also flows through the tube 402 via heating element 541 and also a wire 542, thereby shutting off the bell after a predetermined period of time as established by the adjustment of a variable resistance 543.

Manual actuation of the cancel button 78 as by means described in said co-pending application, returns all the bars 185 to their initial elevated position ready for the commencement of another game, e. g., through the medium of a motor 272 and its associated mechanism as therein set forth.

In the event, as heretofore noted, that it is desired to make only a single winner, the switch 79 may be set upon the "win" point 550 whereupon the game is automatically closed down, as aforesaid, by the establishment of but a single winner. Or, in the event that a "win" and a "place" is desired, but not a "show," the switch blade may be set upon the "place" point 556. If, however, a "win," a "place" and a "show" position are alike desired, the selective trip switch may be placed upon the show point 551 as illustrated. The game will be automatically shut down accordingly.

In order that the more specific operation of the barrier equalizer and associated apparatus may be understood in detail, reference is now had particularly to Figures 3 through 8.

Individual barrier and equalizer means, each generally designated at 770 (one corresponding to each race course), may be housed between individual corresponding side frame members 771 and 772 separated by spacers 773 held in place by any means as screws 774. Hold-down plates 775 retain these units 770 in place as by tie rods 776 equipped with wing nuts 778 upon a frame member 777 preferably positioned at the back of an annunciator or other progress recording mechanism 30.

Any contacts 779 and 780 may provide electrical connection between the operative mechanism and wiring and the frame structure 777 which latter may be grounded. Said contacts are connected with required wiring in the switches 716, 734, 748 and coil 732, for example.

The frames 771 and 772 are notched at 782 to slidably accommodate a drive shaft 783 operated as by an electric motor 784 (Figure 11) by any suitable means as a clutch arrangement 785. By virtue of said slots 792 and the general frame structure of the units 770, each may be separately removed by the loosening of the wing nut 778 and the removal of the hold-on plate 775. The mechanisms 770 and their corresponding housings may then be individually lifted from their positions on the frame 777 and from their respective engagement with other mechanism more permanently secured to the frame 777 and axle 783. Said axle is secured to the frame by any number of spaced bearings as 786 housed in brackets as 787.

Keyed to the shaft 783 as by screws 790 are collars 791 and 792 in spaced relationship to one another in a manner to carry between them any number of springs 793 nested as in recesses 793' within the collar 792. Also disposed between them is a clutch plate 794 normally urged by the springs 793 against a fabric clutch element 797 which bears against the spur gear 796 frictionally abutting opposed fabric clutch element 797'. The latter bears against the collar 791. By this means the gear 796 is frictionally held between the elements 797 and 797' for clutched revolution with the shaft 783.

The gear 796 drives a gear train comprising a barrier gear 798, a cam carrying and switch actuating gear 799, and an equalizer gear 733. The connection between the barrier gear 798 and the cam carrying gear 799 may be through a drive gear 801 turning on an axle 802 journaled in the side members 771 and 772 and carrying a sleeve 803 thereon. The gear 801 is clutchingly associated with the gear 799 as through clutch elements 805 and a coil spring 806 held as by a pin 807.

Cam fingers 745 and 746 on the gear 799 dur-

ing rotation of the latter actuate the micro-switch 716.

The barrier and equalizer gears 798 and 733, respectively, may be separated from one another by any suitable sleeves 898 and 809 which may turn upon a common pin 819 secured as within a bearing 811 to a side plate 772.

The barrier gear 798 carries a barrier limiting stop 812 and also preferably spaced therefrom a barrier stop 813, both of said stops being engageable with the equalizer stop 752 upon the equalizer gear 733. The distance between the stops 812 and 813 may be established or regulated so that any number of jumps equivalent to any desired maximum distance of travel along the race courses 40, etc., may be allowed. The barrier gear 798 may also carry the switch actuating wire 753 pivoted thereto by means of any appropriate yoke 814. The wire 753 has a switch-engaging end 816 for actuating the snap switch 750 and a stop-engaging end 817 extensible through an opening 815 in said gear 798 and engageable with the end of the equalizer stop 752 by means of which the wire 753 is tipped about its axis at 814 to the left, as illustrated in Figures 7 and 9 and as recorded in the extreme of such pivotal movement in Figure 9.

The equalizer gear 733 carries, as noted, an equalizer stop 752 and also, preferably upon the opposite side thereof, any number of latch-engaging stops 735, 736, 737, 738 and 739 engageable with the end 820 of the solenoid actuated latch 734 for intermittently restraining rotation of said equalizer gear or permitting its rotation to any desired extent. The distance between the latch-engaging stops 735 through 739 is preferably such that corresponding rotation of the equalizer gear will cause a half revolution of the cam carrying gear 799 to bring about a single actuation of the micro-switch 716, in turn causing a move of one space in the corresponding race course.

The gear ratios are such that the barrier gear 798 moves relatively more slowly than the equalizer gear 733. The speed of the latter is such as to cause successive actuations of the switch 716 at a desired rate along the courses 40, etc., for example, two or three moves per second when the gear 733 is released for rotation by the latch 734. Rotation is then preferably limited by the equalizer stop 752 in its engagement with the barrier stop 813. (Its simultaneous engagement with the end 817 of the wire 753 also opens the switch 750.)

The speed of the barrier gear 798 relative to the equalizer gear 733 should be such that when the equalizer gear is stationary the barrier gear may move ahead of it in the direction of the arrow to the full extent permitted by the stops 752, 812 and 813 within the average time required to make successive tosses of the ball 94. Of course, this speed may be varied within wide limits depending upon whether it is desired to give the lagging player (i. e., one who is slower in projecting his balls, as distinguished from a player whose game progress recording means is trailing) an actual advantage over his faster opponent or rather to give the rapid player a slight edge.

It will thus be seen that upon release of the equalizer gear 733, it will rotate to catch up with the barrier gear and engage, by its stop 752, the stop 813. Thereby such a number of moves along the race course of the corresponding player will

be recorded as equals the number of actuations of the switch 716.

The fast finish rotor arm 766 may be non-rotatably held on the shaft 783 as by a pinch bolt 825. A spring-urged contact 826 thereon is thus held in a position to make electrical contact with each of the buttons 767. Inasmuch as the fast finish contacts 767 are relatively closely spaced and also because the rotor arm 766 moves relatively rapidly as compared with the equalizer gear 733, a fast finish will be achieved preferably at a more rapid rate (as, for example, five to ten moves per second) than the rate of progress occasioned by rotation of the equalizer gear. The fast finish is made only when one of the switches 701, 702, or 703 is actuated at or after the tape position 60, provided also a corresponding lamp 120 (blue), 121 (white) or 122 (red) is then illuminated.

In sum, the operation of the mechanism illustrated in greatest detail in Figures 3 through 10 is as follows:

When the game is set up for operation, the drive shaft 783 continuously revolves by means of the motor 784 thereby driving the gears 796 associated with each of the units 770. If no play is sooner made, the gears 796 turn the barrier gears 798 to a limit of rotation caused by engagement of the barrier limit stop 812 thereon with the equalizer stops 752 on the equalizer gear 733. Said gear 733 is normally restrained against rotation by engagement of the latch 734 (see Figure 6) with any of the stops 735 through 739 prior to commencement of play.

If no play is sooner made, the clutch mechanism 794, 795 and 797, associated with the drive gear 796, next permits the latter to slip holding the barrier stop 812 against the equalizer stop 752 as illustrated in Figures 6 and 7.

Upon a play's being made, a circuit is closed as heretofore described through the coil 732 thereby momentarily disengaging the latch 734 from one of the stops 735, etc., permitting rotation of the equalizer gear 733 in a counter-clockwise direction as illustrated in Figures 6 and 10 at a more rapid rate than the barrier gear 798 (i. e., through the gear 801, clutch element 805 and cam carrying gear 799). Thereby the equalizer stop 752 upon said gear 733 is carried in a counter-clockwise direction (Figures 6 and 10) ahead of the barrier stop 812 on the barrier gear 798.

The switch 750 being normally closed, a holding circuit (cf. Figure 11) is made for the coil 732 thereby permitting continued movement of the equalizer gear and stop 752 ahead of the barrier limiting stop 812 until the same is caused to engage with the barrier stop 813, as shown in Figure 9, in which position said equalizer stop 752 engages the end 817 of the wire 753, moving the end 816 against and actuating the snap switch 750 to open the same and break the holding circuit in the coil 732. Thereupon, the latch 734, under the influence of the coil spring 827, resumes its position of engagement with the stops 735, etc.

Meanwhile, however, during said rotation of the equalizer gear 733, the cam carrying gear 799, by engagement of its cam pins 745 and 746 with the micro-switch 716, causes intermittent impulses in an associated coil 299 to actuate stepping relays for the lights 55, etc., along the race courses.

Upon re-engagement of the latch 734 to stop the rotation of the equalizer gear 733, and hence also the cam carrying gear 799, the clutch arrange-

ment 205 between the gears 799 and 801 slips and, being weaker than the clutch associated with drive gear 799, thereby permits a continued rotation of the gears 801, 798, and 796 (gear 796 rotating in a counter-clockwise direction, as illustrated in Figures 6 and 10).

The barrier stop 813 thereupon moves away from the equalizer stop 752, and the wire 753 is freed to return to the position of Figure 7, allowing the switch 756 again to close and setting up the mechanism for another play.

The amount of time taken by a player to again pass the ball 94 through one of the playing lanes 723, etc. (i. e., for again depressing any of the buttons 704 through 709), will govern the amount of movement of the barrier stop 813 away from the equalizer stop 752 between plays. It will therefore also govern the amount of rotation required of the equalizer gear 733 to again overtake the barrier gear so as to bring the equalizer stop 752 again into engagement with the barrier stop 813. Accordingly, the longer the player waits between plays the more moves will he obtain for his indicator means along his race course at the next succeeding play. Conversely, a faster player, while not accumulating moves between plays, will retain a position close behind the barrier.

If the slow player waits too long, however, final engagement of the barrier limiting stop 812 with the equalizer stop 752 will halt further rotation of the barrier gear 798, causing the clutch mechanism associated with gear 796 to slip. Within limits, therefore, the slow player will lose time and progress without gaining the advantage of accumulating moves. Obviously, however, no matter how fast one play may follow another, no player can advance faster than nor go beyond the barrier.

It may be noted that the distance the stops 812 and 813, i. e., the maximum distance therebetween covered by the equalizer stop 752, may be adjusted to any desired extent to permit any number of moves to accumulate behind the barrier. Depending upon such pre-adjustment, the barrier may accumulate any desired maximum number of moves, though preferably two or more.

The mechanism can be so adjusted that the fastest time within which the ball 94 may be replayed will correspond to the amount of time required for moving the barrier stop 813 a distance equal to that between adjacent stops 725 and 736. Optionally, any additional time required during rotation of both gears 798 and 733 for equalizing their relative movement can be deducted.

It will thus be seen that a game has been produced simulating many of the essential characteristics of a real horse race or similar competition. Although a preferred form of the game apparatus is similar to that which has been illustrated and above described, the horses 62 or other figures may comprise physical three-dimensional characters conducted along courses similar to that illustrated in connection with the instant apparatus by any well-known means.

More than one win, place or show winner may result in one or more "ties" or "dead heats."

The particular number of winners or players and the combination of operative parts herein set forth by way of illustration can be altered in any desired manner. Well-known innovations or alterations of the sequence or number of events or the number of steps may be used for the achievement of the desired result without departing from the intention herein contemplated.

Such modifications within the intentment and general spirit of the invention of various of the devices employed in the instant game will readily occur to anyone skilled in the art of mechanics, electricity and game manufacture. And, as shown in said co-pending application, the stepping relays may be replaced by conventional relays or electronic devices also intended to achieve a generally similar result.

Inasmuch as it is the normal desire of a player to repeat his plays as fast as possible and also because separate players do not ordinarily close their corresponding switches on the playing field simultaneously, lagging players are the exception rather than the rule. They will be taken care of by the accumulated plays created behind the barrier (exemplified in the barrier stops 813, etc., considered collectively) and made up by the equalizer (exemplified by the equalizer gear 733, cam gear 799, switches 715, etc.).

The time between average plays may be in the neighborhood of five seconds but will vary. The apparatus can in any event be adjusted so that any differential in time between the fastest and slowest average plays may accumulate any desired additional number of moves.

The progress indicators will, in this game, move across the racing field in a usually well-defined or closely packed group. The barrier being, generally speaking, in constant motion, will not be apparent to the players nor will its position at any instant of time between plays be generally known. In any case, interest and enthusiasm in this close type of racing will be enhanced by the realization that at or near the tape 60 the ball may pass through a lane having a lighted blue, white, or red lamp 129, 121 or 122 resulting in one or more racers scooting ahead of the field to a fast finish, preferably regardless of the position of the other players on the field. In fact, any of the racers might be moving towards the tape under the influence of the equalizer 752 at a relatively slow pace and may therefore be overtaken and passed by the more rapid pace of the fast finish mechanism.

All of these factors contribute to a racing game of great interest as is testified to by the enthusiastic reception accorded its appearance at fairs and centers of amusement where its use is primarily contemplated. By way of illustration, when used at the places mentioned, games made in accordance with the structures and principles herein set forth have been arranged with approximately ten spaces in the stretch. The elapsed time for a fast finish from the tape to the finish line is approximately one and one-half seconds. The game has been also so arranged that a player may accumulate as many as eight moves behind the barrier. The rate at which movement takes place along the race courses for catching up with the barrier has been approximately three spaces per second.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred method and embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent structures and methods.

The invention having been herein described, what we claim as new and desire to secure by Letters Patent is:

1. A racing game comprising game progress

recording means having race courses each including a start and a finish position and a plurality of playing units for individual players, electrical circuits and switches interconnecting said playing units and said recording means, progress indicia associated with said courses intermittently actuated by said electrical circuits and switches in response to play upon said playing units, time-controlled barrier means limiting the rate of progress of said progress indicia along said courses, a tape position on said courses between said start and finish positions, and fast finish means actuatable by selected ones of said switches for accelerating corresponding progress indicia after said indicia have passed said tape position.

2. A racing game comprising game progress recording means having race courses and a plurality of playing units for individual players, electrical circuits and switches interconnecting said playing units and said recording means, progress indicia associated with said courses intermittently actuated by said electrical circuits and switches in response to successive plays upon said playing units, means driven at a first rate of speed for intermittently actuating electrical circuits and switches at each play, time controlled barrier means invisible to the players and continuously driven at a slower speed than said normal speed of said actuating means, and stop means between said actuating means and said barrier means preventing the actuating means from passing the barrier means as a result of any single play upon said playing units, thereby limiting the extent of progress of said progress indicia along said course, and common drive means for said barrier means.

3. In a racing game of the character described, comprising a plurality of individual courses having a finish position, individual racers designated in said courses and intermittent individual control means for recording the positions of said racers therealong, individual time-controlled barrier means invisible to the players and independent of the control means normally governing the extent of maximum recorded progress of said racers at any single actuation, and individual automatic time-controlled equalizer means operatively associated with said individual racers and with said control means for automatically expediting corresponding lagging racers towards said finish to an extent varying directly with the passage of predetermined intervals of time and as limited by said barrier means.

4. In a racing game of the character described, comprising a plurality of individual courses having a finish position, individual racers designated in said courses and intermittent individual control means for recording the positions of said racers therealong, a plurality of time-controlled barrier means, each individual to a racer having a common drive and invisible to the players and independent of the control means normally governing the extended maximum recorded progress of said racers at any single actuation, individual automatic time-controlled equalizer means operatively associated with said individual racers and with said control means for automatically expediting corresponding lagging racers towards said finish to an extent varying directly with the passage of predetermined intervals of time and as limited by said barrier, and time operated limiting means for limiting the extent of expedition of a racer towards the finish line after a prescribed maximum interval of time.

5. A racing game comprising game progress

recording means having race courses including finish positions and a plurality of playing units for individual players, electrical circuits and switches interconnecting said playing units and said recording means, progress indicia associated with said courses intermittently actuated by said electrical circuits and switches in response to play upon said playing units, time-controlled barrier means limiting the rate of progress of said progress indicia along said courses, fast finish means actuatable by a selected one of said switches at a predetermined position of said progress indicia along said courses for accelerating corresponding progress indicia over a portion of said courses, individual movable equalizer means associated with the barrier means for expediting corresponding lagging progress indicia towards the finish positions, and advantage-eliminating means associated with said fast finish means automatically cancelling the operation of the equalizer means for any player upon his actuation of the fast finish means in a corresponding playing unit and course.

6. A racing game comprising game progress recording means having race courses and a plurality of playing units for individual players, electrical circuits and switches interconnecting said playing units and said recording means, progress indicia associated with said courses intermittently actuated by said electrical circuits and switches in response to play upon said playing units, and time-controlled barrier means limiting the rate of progress of said progress indicia along said courses, said time-controlled barrier means comprising a motor, a common drive means powered thereby, relays in said circuits, clutch driven relay actuating members normally movable by said drive means for intermittently actuating corresponding relays during play, and corresponding clutch-controlled stop members having elements positioned in the path of movement of said relay-actuating members, said stop members normally automatically moved at a uniform speed more slowly than the relay actuating members but ahead of said members and said elements preventing the relay actuating members from passing the same.

7. A racing game comprising game progress recording means having race courses including finish positions and a plurality of playing units for individual players, electrical circuits and switches interconnecting said playing units and said recording means, progress indicia associated with said courses intermittently actuated by said electrical circuits and switches in response to play upon said playing units, time-controlled barrier means limiting the maximum extent and over-all rate of progress of all said progress indicia along said courses to less than permitted by said intermittent actuation, and individual equalizer means associated with the barrier means for expediting corresponding lagging progress indicia towards the finish positions, said equalizer means comprising a plurality of clutch driven members comprising a slow-moving member and a relatively fast moving member, said slow-moving member comprising a part of the barrier means, and means to drive said members at different speeds, means engageable between a slow moving member and a relatively faster moving member to restrain over-running movement of the slow moving member by the faster member beyond a predetermined limit, latch means normally holding said faster moving member, means actuated by certain of said switches



to release said latch means for said over-running movement within said limit, said faster moving member having means for actuating other of said switches during said over-running movement.

8. A racing game comprising game progress recording means having race courses including finish positions and a plurality of playing units for individual players, electrical circuits and switches interconnecting said playing units and said recording means, progress indicia associated with said courses intermittently actuated by said electrical circuits and switches in response to play upon said playing units, time-controlled barrier means limiting the rate of progress of all said progress indicia along said courses to less than permitted by said intermittent actuation, and individual equalizer means associated with the barrier means for expediting corresponding lagging progress indicia towards said finish positions, said equalizer means comprising a plurality of clutch driven members comprising a slow-moving member and a relatively fast moving member, said slow-moving member comprising a part of the barrier means, and means to drive said means at different speeds, means engageable between a slow moving member and a relatively faster moving member to restrain relative over-running movement of the slow moving member by the faster member beyond a predetermined limit, latch means normally holding said faster moving member, means actuated by certain of said switches to release said latch means for said relative over-running movement within said limit, said faster moving member having means for actuating other of said switches during said over-running movement, said equalizer means further comprising corresponding stops engageable between said slow moving and said faster moving members following a predetermined relative over-running movement of said slower member relative to said faster member while said faster member is restrained from movement between successive plays.

9. A control mechanism for simulated horse racing games of the character described, said mechanism comprising drive means, a first member normally moved by said drive means at a predetermined speed, a second member normally moved by said first member at a relatively faster predetermined speed, a first clutchlike connection between said drive means and said first moving member, and a second clutchlike connection of relatively less driving power than said first clutchlike connection between said first and second members, releasable stop means for said second moving member normally preventing movement thereof, first inter-engaging abutment means between said first and second moving members whereby said first moving member is stopped following an interval of movement relative to said second moving member, stop releasing means fortuitously operable to release the stop means for said second moving member whereby said second moving member is permitted to move at said relatively faster speed, and second inter-engaging abutment means between said first and second moving members operating to limit said movement of said second moving member a predetermined distance with respect to said first moving member, a stop re-establishing means operative upon said last limitation of movement between said first and second moving members to re-engage said releasable stop means associated with said second moving member.

10. A control mechanism as described in claim 9, including switch means actuatable by said second moving member, a progress indicator, said progress indicator being activated by and including a circuit in common with said switch means.

11. A control mechanism as described in claim 10 wherein said switch means comprises a gear wheel operatively associated with and rotatable by said second moving member and plurality of fingers extending from said gear wheel, said switch means further comprising an electric switch engageable by said fingers during movement of said gear wheel and said second moving member whereby said switch is intermittently actuated.

12. A control mechanism as described in claim 9, wherein said first and second moving members are wheel-like and said clutchlike means are friction clutches.

13. A control mechanism as described in claim 9, wherein said first and second moving members are gears.

14. A control mechanism as described in claim 9, wherein said stop means for said second moving member is a solenoid and arm controlled thereby said second moving member including a number of abutments engageable against said arm, said stop releasing means including said stop re-establishing means comprising an electrical switch associated with said first moving member, and further including an electrical holding circuit common to said solenoid and last mentioned switch, such switch being actuated by said second moving member for opening said holding circuit and permitting said arm to re-engage an abutment on said second moving member.

15. A control mechanism as described in claim 9, wherein said first and second moving members are wheel-like and disposed in parallel spaced co-axial relationship, said inter-engaging means comprising mutually engaging abutments on said first and second moving members engageable at predetermined angles of relative rotation for limiting said relative rotation within said predetermined angles.

16. A control mechanism for simulated horse racing games of the character described, said mechanism comprising drive means, a first means normally moved by said drive means at a predetermined speed, a second means normally moved by said first means at a relatively faster predetermined speed, a first clutchlike connection between said drive means and said first moving means, and a second clutchlike connection of relatively less driving power than said first clutchlike connection between said first and second means, releasable stop means for said second moving means normally preventing movement thereof, inter-engaging means between said first and second moving means whereby said first moving means is stopped following an interval of movement relative to said second moving means, stop releasing means fortuitously operable to release the stop means for said second moving means whereby said second moving means is permitted to move at said relatively faster speed, said inter-engaging means including means operating to limit said movement of said second moving means a predetermined distance with respect to said first moving means, a stop re-establishing means operative upon said last limitation of movement between said first

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and second moving means to re-engage the stop means associated with said second moving means.

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