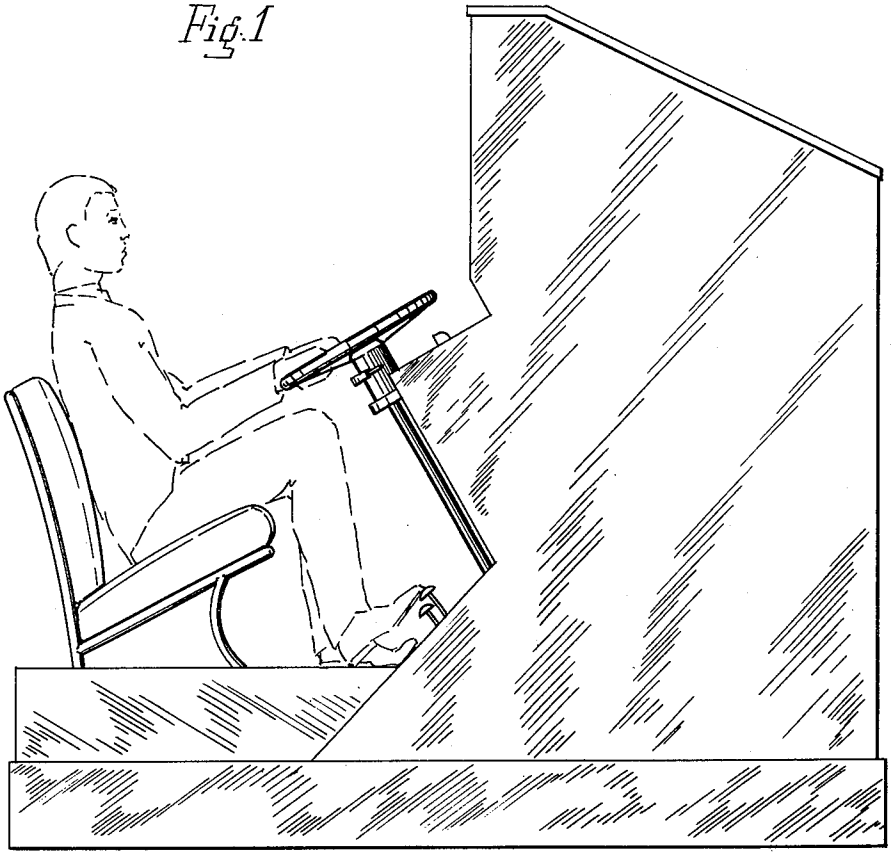
July 13, 1965 F. PATUANO 3,193,946

VEHICLE-DRIVING GAMES

Filed Oct. 29, 1962 4 Sheets-Sheet 1

Fig. 1



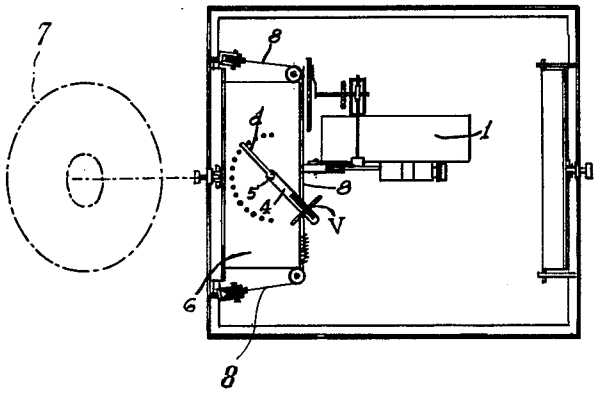


Fig. 3

INVENTOR

FRANCOIS PATUANO

BY Irwin N. Thompson

ATTORNEY

July 13, 1965 F. PATUANO 3,193,946

VEHICLE-DRIVING GAMES

Filed Oct. 29, 1962 4 Sheets-Sheet 2

Fig. 2

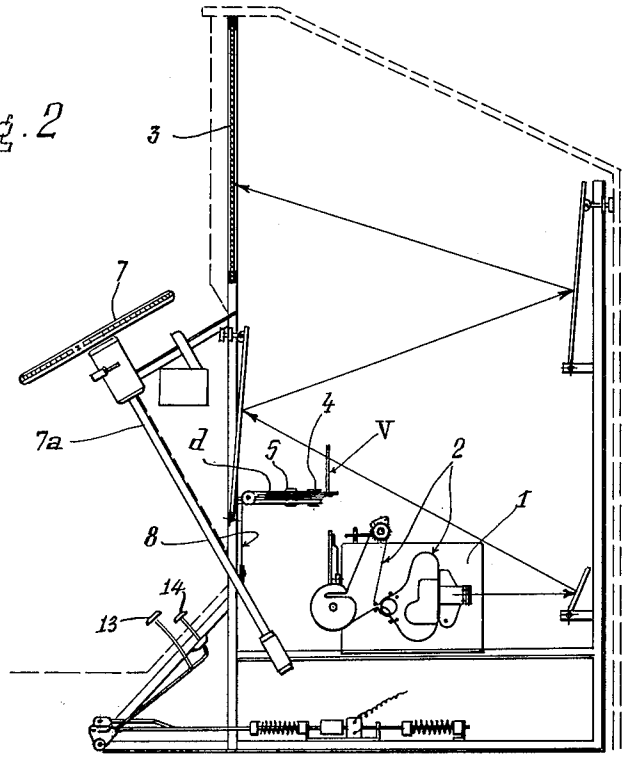
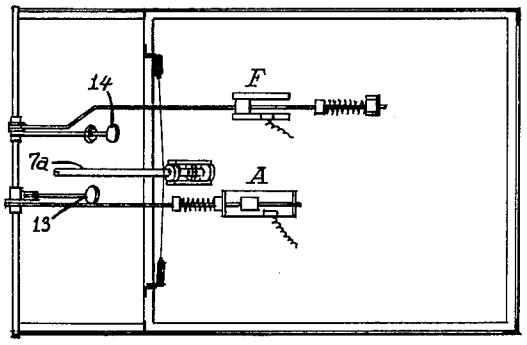


Fig. 4



INVENTOR

FRANCOIS PATUANO

BY Irwin S. Thompson

ATTORNEY

July 13, 1965 F. PATUANO 3,193,946

VEHICLE-DRIVING GAMES

Filed Oct. 29, 1962 4 Sheets-Sheet 3

Fig. 5

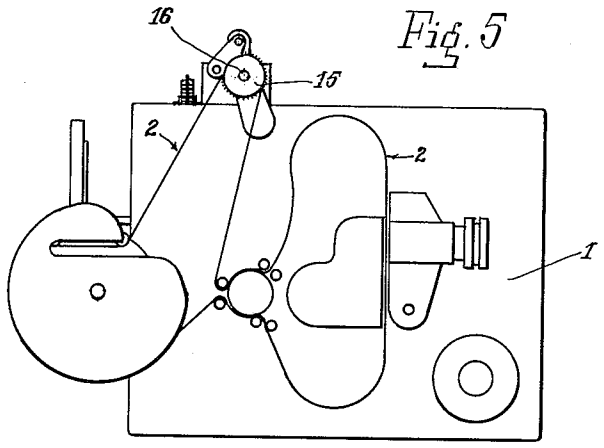


Fig. 7

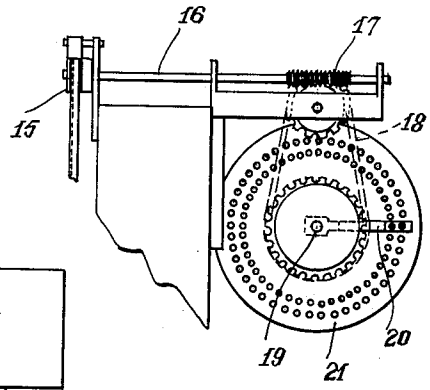


Fig. 6

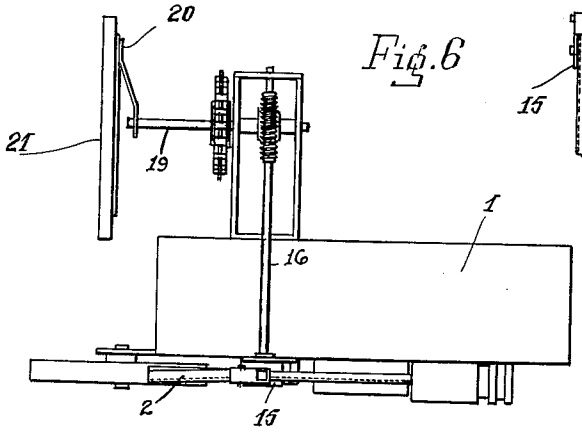
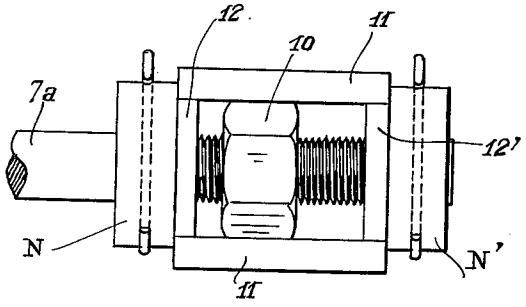


Fig. 8



INVENTOR

FRANCOIS PATUANO

BY Irwin S. Thompson

ATTORNEY

July 13, 1965 F. PATUANO 3,193,946

VEHICLE-DRIVING GAMES

Filed Oct. 29, 1962 4 Sheets-Sheet 4

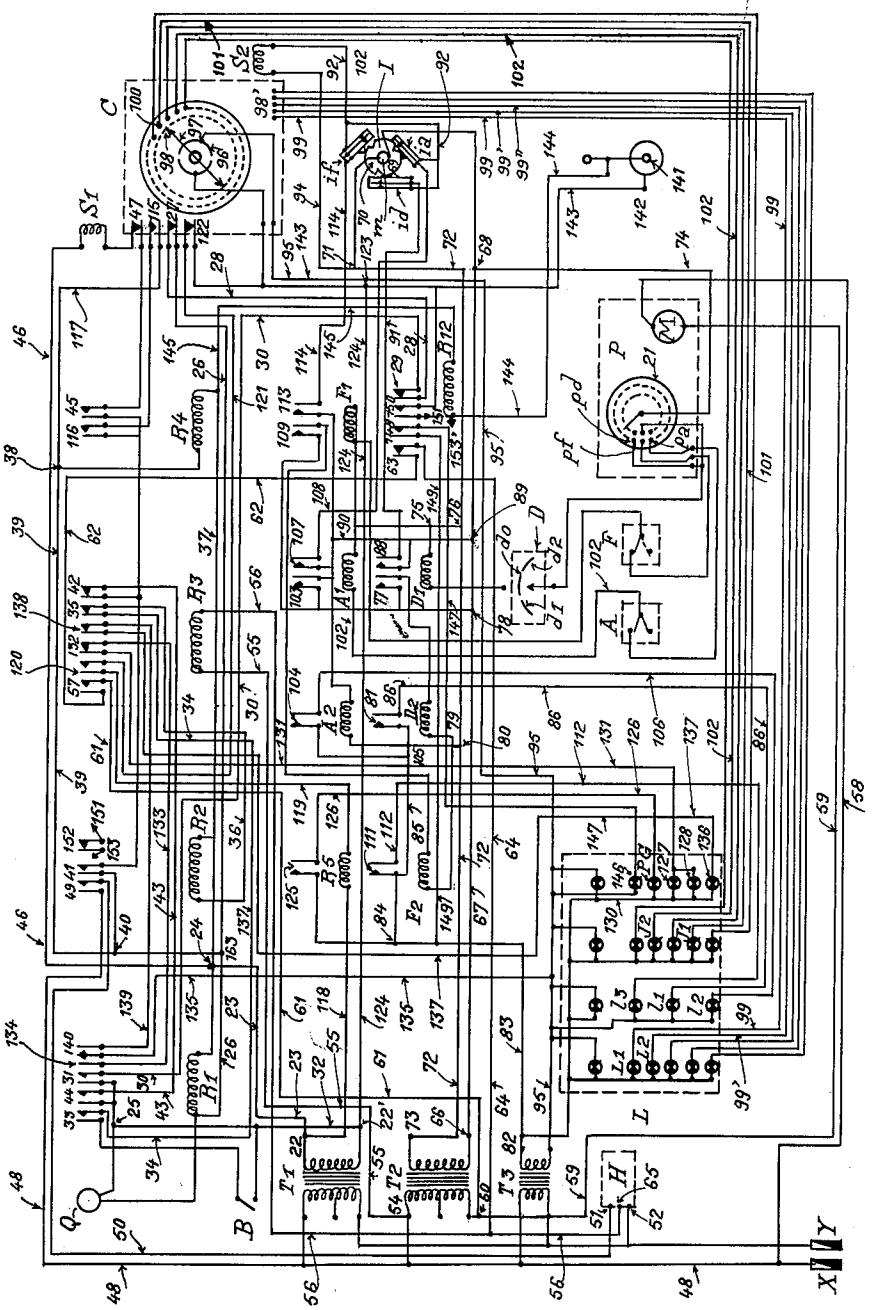


Fig. 9

INVENTOR

FRANCOIS PATUANO

By Irwin S. Thompson

ATTY.

United States Patent Office 3,193,946 Patented July 13, 1965

3,193,946

VEHICLE-DRIVING GAMES

Francois Patuano, 10 Ave. de Fabron, Nice, France

Filed Oct. 29, 1962, Ser. No. 233,643
Claims priority, application France Apr. 13, 1962
5 Claims. (Cl. 35—11)

This invention relates to an automobile or motor vehicle driving game.

The present invention is a motor vehicle driving game in which the road or highway to be followed is represented by a cinematographic projection on a screen placed in front of the player and the vehicle by a small silhouette the displacement of which transversely to the road or highway is controlled by a player, the said silhouette being arranged in the path of the luminous rays between the road image projector and the screen in such manner that its image is superposed on the screen on that of the road or highway.

In one preferred embodiment of the invention the game consists of the following apparatus: a rotary contact slide, turning in step with a motor unwinding a film of a road or highway, which co-operates with contact studs (known as error studs for faults due to failure to maneuver properly), each situated on a fixed disc at the point which will be reached by the slide at the instant when the vehicle reaches the place on the road or highway where one of the control elements should be operated or manipulated, so that the slide, at each of these points, forms a special circuit (known as an error circuit) which indicates and records the mistake if the said element has not been operated or manipulated properly. This special circuit passes through a contact breaker controlled by the control element in question in such a manner that, if this element is properly operated at the appropriate time, the error circuit is broken by the contact breaker, which prevents the recording of an error which has not been made.

Furthermore, additional studs may be arranged on the disc to co-operate with the rotary contact slide (known as studs for errors due to incorrect maneuvering), each of which will close a corresponding error circuit if the player makes an incorrect maneuver, such as braking instead of accelerating, or vice-versa, or turning the steering wheel at the wrong moment, or also pressing simultaneously on the brake and accelerator pedals. These incorrect maneuver studs will naturally be arranged on the disc so that they are contacted by the slide either at the same time as a failure-to-maneuver stud (case of bearing on the two pedals simultaneously) or at other suitably selected instants. In this case, each control element operates not a simple contact-breaker but a two-position switch which, in the normal state, closes the contact on a failure to maneuver circuit, and, when it is displaced by the control element, closes the circuit for an error due to an incorrect maneuver.

Thus each mistake has its special error-circuit which can only remain closed for the period during which the slide remains in contact with the corresponding stud. When this circuit is closed, it excites an electromagnet, actuating step by step an error-counter and simultaneously energises a relay, exlusive to the type of error made (steering, accelerating or braking) which, on the one hand, closes instantaneously a circuit lighting up a lamp signalling the kind of mistake made, placed within sight of the player, and, on the other hand, excites another associated relay which lights up another lamp signalling the number of mistakes, and keeps it lit until the perpetration of another mistake changes the circuits and replaces the said recording lamp by another recording a higher number.

A known kind of apparatus, called an "impulser," consisting of a notched disc rotated by a motor to close in rapid succession three contacts corresponding to the three control elements, can be interposed in the circuits of the electromagnet actuating the error counter, in such a manner as to prevent interferences between the different error-circuits if two errors occur at the same time; generally, with this apparatus, only one mistake is recorded in this case.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 shows the external appearance of the machine and the position of the player, conforming to reality;

FIG. 2 is a diagrammatic view, in side elevation, of the whole mechanism;

FIG. 3 is a partial plan view, showing the control by the wheel of the miniature silhouette of the car;

FIG. 4 is another partial plan view, showing the braking and accelerating elements, equipped with circuit breakers or switches for error circuits;

FIG. 5 is a diagrammatic view of a known type of projector;

FIG. 6 is a corresponding plan view showing the synchronising linkage between the unreeling of the film of the road and the rotation of the slide contact;

FIG. 7 shows a front view of the contact slide and its control on the fixed disc;

FIG. 8 shows a device particularly adapted to restrict displacements of the miniature vehicle; and

FIG. 9 is the electrical circuit diagram.

Referring now to the drawings, and firstly to FIG. 2, the known type of projector **1** of the film **2**, projects the image of the road or highway, after reflection by mirrors, on the screen **3** located in front of the player sitting on the seat, as shown in FIG. 1. In accordance with the invention, the path of the projected light beam is intercepted by a miniature silhouette V representing the vehicle to be driven, and the image of the silhouette will consequently appear on the screen, superposed on that of the road or highway. The silhouette V is mounted on an arm **4** (FIGS. 2 and 3) which can turn about a spindle **5** on a fixed support **6** and which is controlled in known manner by the steering-wheel **7** by means of an endless wire **8** passing over small pulleys and wound on the tube **7***a* of the wheel **7** in such manner that, if the player turns his wheel, the image of the car V on the screen is displaced transversely towards the right or the left of the road or highway. The device shown in FIG. 8 is provided to prevent an exaggerated turning of the wheel in the one direction which would cause the breaking of the wire **8**. Referring to FIG. 8, the end of the steering tube **7***a* is threaded and on it is mounted a nut **10** which is prevented from turning by bars **11** connecting two fixed stops **12**, **12'** in such a manner that, if the screw **7***b* rotates, the nut moves in the longitudinal direction, guided by the bars **11** and strikes against the stop **12** or **12'**, thus limiting the turning of the wheel. N, N' are two discs or washers pinned or keyed on the tube **7***a* and bearing on the fixed assembly **11–12–12'** to fix the axial position of the wheel. The tube **7***a* of the wheel thus causes turning, through the intermediary of the wire **8** of the contact slide *d* of a circuit breaker comprising three groups of pairs of studs fitted on the plate **6**. Each pair of studs, forming a cut-off for a circuit, can be short-circuited by the slide *d*. The group d_0 (FIG. 9) corresponds to an advance in an approximately straight line, and the two others d_1 and d_2 correspond to deviation in one direction or the other. The slide *d* is connected with the disc with error studs mentioned heretofore and represented at **21** (FIG. 9), and the outer studs of the three groups d_0, d_1,

d_2 are connected to a common terminal going to a relay specifically for steering errors, as will be hereinafter seen.

In addition to the wheel, the player naturally has at his disposal acceleration and braking pedals 13 and 14, respectively (FIGS. 2 and 4) and each actuates either a circuit breaker or a two-position switch, A and F respectively, which are themselves also mounted in error circuits passing by way of the contact slide in step with the projector.

This projector 1 is shown on a larger scale in FIG. 5, and its motor M, when started, turns at a constant speed and unreels the film at a uniform rate. This film passes over a toothed wheel 15 (FIGS. 4, 5 and 6), keyed on a shaft 16 which drives through tangential worm screw 17 and a chain 18, the shaft 19 of the rotary slide 20 which will consequently travel at a constant, reduced speed, over the fixed disc 21 carrying the studs of the error circuits.

FIG. 9 is the electrical circuit diagram. P designates the novel assembly of the projector, the disc with the error studs and the slide of FIG. 5; C the usual type of mistake counter which will be actuated step by step by the solenoid S_2 and returned to zero by the solenoid S_1; I the known device called "impulser" consisting of a notched disc, rotated by its motor m to provide a rapid succession of current impulses by successive closing of contact-makers: H the time-switch which will top the apparatus at the end of a specified operating period.

X, Y denote the mains terminals, T_1 and T_3 are two transformers, constantly charged, the first supplying current for the general operation of the apparatus and the second for the indicating and recording lamps and other accessory lamps. The transformer T_2 is charged only after insertion of the necessary coin in the usual slot Q in the apparatus and pressing of the starter button B.

R_1 is a relay for preparing a circuit which will be closed on the relay R_2 by closing the contact of the starter button B, and it is the latter relay R_2 which sets everything in motion. Excitation of the relay R_3 causes the projector motor to turn. The relay R_4 has the task of zeroing the counter-mechanism. Finally, a relay R_{12} is provided for cutting the operating circuits and stopping the apparatus if the latter is shaken too roughly.

Three groups of two associated relays, D_1, D_2—A_1, A_2—F_1, F_2— will serve for recording mistakes respectively in steering, accelerating and braking respectively, under the respective controls of the steering switch d, the contact breaker or switch of the acceleration pedal and the contact breaker or switch of the brake pedal.

Other components are provided which will be indicated in the following description of the manner of functioning:

The required coin is inserted at Q and this short circuits the two terminals at Q when passing through the slot of the apparatus. This excites the relay R_1 through the circuit: terminal 22 of the transformer T_1, conductor 23, point 24, winding of R_1, Q, point 25, and terminal 22′ of transformer T_1. This momentary circuit is immediately replaced by the following: 22, R_1, conductor 26, closed contact 27 of the counter C, conductor 28, closed contact 29 of the relay R_{12}, which is not energized, conductor 30, closed contact 31 of relay R_1, point 25, and return to 22′ of the transformer T_1: which maintains R_1 energized after the coin has dropped.

The starter button B is then pushed which energizes the relay R_2 for starting operations through the circuit: 22′, conductor 32, B, closed contact 33 of R_1, conductor 34, closed contact 35 of R_3 which is not energized, conductor 36, winding of R_2, and return through 24 and 23 to terminal 22.

The energizing of R_2 brings about the following operations:

(a) The counter C is returned to zero by the energizing of the solenoid S_1 as follows:

The relay R_4 is first energised by the circuit: 22 of T_1, conductor 23, point 24, conductor 37, winding of R_4, point 38, conductor 39, point 40, closed contact 41 of R_2, closed contact 42 of R_3 which is not energized, conductor 43, closed contact 44 of R_1 which is energized, point 25, and terminal 22′ of T_1.

The relay R_4 energized, has closed its contact 45 and established the following circuit:

22 of T_1, conductor 23, point 24, conductor 46, solenoid S_1, closed contact 47 of the counter in the rest position, contact 45 of R_4, closed contact 42 of R_3, conductor 43, closed contact 44 of R_1, point 25, and terminal 22′ of T_1.

(b) The time switch H is started by the circuit: mains terminal X, conductor 48, closed contact 49 of R_2 which is energized, conductor 50, input and output terminals 51 and 52 of the time switch H, and mains terminal Y.

(c) The motor M of the projector is started as follows:

The relay R_3 is first energized by the circuit: terminal X, points 53 and 54, conductor 55, winding of R_3 and return through the conductor 56 and the time switch to the terminal Y.

The energizing of R_3, having closed its contact 57, establishes the following circuit: terminal X, conductor 58, motor M, conductor 59, point 60, conductor 61, contact 57 of R_3, conductor 62, closed contact 63 of the relay R_{12} and return through the conductors 64 and 56, and the time switch between its common terminal 65 and its output terminal 52 to the mains at Y.

(d) the pulse generator I is actuated as follows:

The transformer T_2 is charged by the circuit: X, points 53 and 54, primary of T_2, point 60, conductor 61, closed contact 57 of R_3, conductor 62, contact 63 of R_{12} and return through 64, and the time switch between 65 and 52 to the mains terminal Y.

The motor of the impulser receives its current through the circuit: terminal 66 of the secondary of T_2, conductor 67, point 68, motor M between its terminals 69 and 70, point 71, conductor 72, and terminal 73 of the secondary T_2.

When the apparatus has thus been started, the player drives his vehicle. He may make mistakes in steering, accelerating or braking. We shall describe in succession what happens in these three cases.

(1) Steering error:

If a mistake is made, the slide 20 synchronised with the projector being on a stud such as p_d of the disc 21, for a steering error, and thus in series with the slide d, the following circuit is established:

Terminal 66 of T_2, conductor 67, point 68, conductor 74, slide 20 on p_d, slide d, winding of the relay D_1, points 75 and 76, conductor 72, and terminal 73 of T_2.

(a) The energized relay D_1 closes its contact 77, producing the following circuit:

66, 67 point 78, contact 77, winding of D_2, points 79 and 80 and return to the terminal 73 of T_2.

The energized relay D_2 closes its contact 81 and establishes the following circuit:

Terminal 82 of T_3, conductor 83, point 84, conductor 85, contact 81, conductor 86, lamp I_1 and return to the terminal 87 of T_3.

The lighting up of this lamp indicates to the player that he has just made a mistake in steering. The light is extinguished as soon as the slide 20 leaves the error stud.

(b) The exicted relay D_1 has also closed its contact 88 and causes the counter C to advance one step by the following circuit:

Terminal 66 of T_2, conductor 67, point 89, conductor 90, contact 88, conductor 91, contact (instantaneous) of the blades i_d of the impulser I, conductor 92 up to point 93, solenoid S_2 and return through 94 and 72 to the terminal 75 of T_2.

(c) At the same time, a lamp, indicating the number of mitakes is lit up by the circuit:

Terminal 87 of T_3, conductor 95, fixed conducting ring 96, sliding contact 97 and stud 98 of the counter C, wire (not shown in the drawing, joining 98 to 98′), conductor 99, lamp L_1 recording errors, and return to the terminal

82 of T_3. It should be understood that there can be any desired number of lamps L, lighting up in succession, the preceding lamp being extinguished each time as a result of the advance of the sliding contact, due to an error of any kind, which contact, passing from a stud such as 98 to the following stud, gives current to successive conductors such as 99, terminating in successive lamps L.

(d) It is possible to add a panel of lamps, such as J indicating the standard of the player, each of them lighting up only after a predetermined number of mistakes have been made, as, moreover, is known practice. For this purpose, circuits such as the following are provided:

Terminal 87 of T_3, conductor 95, stud 100 of the counter corresponding to the number of mistakes permissible for a player of such standard, conductor 101, lamp J_1 and return to the terminal 82 of T_3.

(2) Acceleration error:

If a mistake is made, the slide 20 in step with the projector and happening to be on an acceleration error stud such as p_a on the disc 21 and thus put in series with the switch A, the following circuit is established;

Terminal 66 of T_2, conductors 67 and 74, contact between slide 20 and stud p_a, switch A in either of its two positions, as the case determines, conductor 102, winding of the relay A_1, points 75 and 76 and return to the terminal 73 of T_2.

(a) The energized relay A_1 closes its contact 103 producing the following circuit:

66 of T_2, 67 point 78, contact 103, winding of relay A_2 and return through 80 and 72 to the terminal 73 of T_2.

The energized relay A_2 closes its contact 104 and establishes the following circuit:

82 of T_3, 83, 84, 85 and 105, contact 104, conductor 106, lamp I_2 and return to the terminal 87 of T_3. The lighting up of I_2 indicates to the player that he has just made a mistake in accelerating.

(b) The advance through one step of the counter C is obtained as follows. A_1 energized has similarly closed its contact 107 which has established the following circuit on S_2: 66 of T_2, point 89, conductor 90, contact 107, conductor 100, contact (instantaneous) of the blades i_a of the impulser, conductor 92, solenoid S_2, and return through 94 and 72 to the terminal 73 of T_2.

(c) The lamp indicating the number of errors (one of the lamps L) is lit up by the circuit:

Terminal 87 of T_3, conductor 95, ring 96, sliding contact 97 and stud of the counter on which the sliding contact had stopped and which is connected to a conductor, such as 99', lamp L_2 and return to 82 of T_3.

(d) The standard previously indicated of the skill of the player can be modified by the lighting of another lamp J through a circuit fed by T_3 and passing through the counter and a wire such as 102 similar to 101.

(3) Braking error:

If a mistake is made, the slide 20 happening to be on a braking error stud such as p_f on the disc 21 and thus put in series with the switch F, the following circuit is established:

Terminal 66 of T_2, 67, 68, 74, contact between slide 20 and stud p_f, switch F, winding of the relay F_1 and return through 75, 76 and the conductor 72 to the terminal 73 of T_2.

(a) The energized relay F_1 closes its contact 109 which excites the relay F_2 through the following circuit:

66, 67, 68, contact 109, conductor 110, winding of F_2, points 79, 80 and return through 72 to the terminal 73 of T_2.

The energized relay F_2 closes its contact 111 and lights the lamp I_3 through the circuit:

82 of T_3, 83, 84 contact 111, conductor 112, I_3, and terminal 87 of T_3.

(b) The relay F_1 having similarly closed its contact 113, the counter is advanced by one step, through the circuit:

66, 67, 89, conductor 90, contact 113, conductor 114, contact (instantaneous) of the lamps i_1 of the impulser, conductor 92, and solenoid S_2, with return to T_2 through 94 and 72.

(c) The changing of the lamp L is effected in the same way as previously set forth by the slide of the counter C putting in circuit another conductor such as 99''.

(d) Similarly, the changing of the lamp J is effected by replacing a conductor such as 102 by another.

Accessory devices—Accessory devices can be added in to the machine just described. For instance:

Free turn—If the player does not reach a predetermined number of errors, a free turn is allowed, as follows:

In this event, the counter C closes its contacts 115 and 122: the following circuit is established:

Terminal 22' of T_1, conductor 32, point 25, contact 44 of T_1, conductor 43, contact 42 of R_3, contact 116 of R_4, contact 115 of C, conductors 117 and 39, point 163, winding of R_1 and return through 24 and 23 to the terminal 22 of T_1.

As a result, on termination of the game in which this result has been obtained, the relay R_1 instead of being deenergized by the time switch, remains excited and enables the game to be started again without insertion of a fresh coin.

The free turn is indicated by a lamp PG through the action of a special relay R_5 excited by the following circuit:

22 of T_1, conductor 118, winding of R_5, conductor 119, contact 120 of R_3, conductor 121, contact 122 of the counter C, point 123, conductor 124, and terminal 22' of T_1. R_5 having closed its contact 125, the lamp PG is lit by the circuit:

82 of T_3, conductor 85, contact 125 of R_5, conductor 126, lamp P_g and return to 87 of T_3.

Indicator lamps—To show that the starting relay R_1 is energized, the lamps 127 and 128 are lit by the circuit:

82 of T_3, conductors 129 and 130, lamps, conductor 131, contact 132 of R_3, conductor 133, contact 134 of R_1 and return through the conductor 135 to 87 of T_3. The lighting up of these lamps show that the starter button B can be pushed.

At the end of a game, a lamp 136 lights up to show that the apparatus is free, through the circuit:

82 of T_3, conductor 129, lamp 136, conductor 137, contact 138 of R_3, conductor 139, contact 140 of R_1, conductor 135 and return to 87 of T_3.

Tilt—A device known under the name of "tilt" is required to cut the circuits and stop the apparatus if it is shaken too roughly. It consists of a ball 141 suspended from a wire and normally, placed at a short distance from the contact 142 of conductor 143, but operating the contact in the case of shaking.

The circuit which closes in the case of shaking is the following:

Terminal 22' of T_1, the conductor 124, point 123, conductor 143, contact with 141, metal suspension thread and conductor 144 winding of R_{12}, conductors 145 and 37, point 24, conductor 23 and terminal 22 of T_1.

R_{12} thus energized opens its contact 29, which is normally closed, which cuts the starting circuit.

At the same time, a lamp 106 lights up to indicate this fact, through the following circuit:

87 of T_3, lamp 1446, conductor 147, closed contact 148 of R_{12}, conductors 149 and 83 for a return to 82 of T_3.

As a cutting due to tilt is abrupt, the excitation of R_{12} is maintained by the following replacement circuit as otherwise the contact 29 of R_{12} would close and the motor of the projector would again start to operate until the expiration of the time switch.

22' of T_1, conductor 124, point 123, conductor 143, closed contact 150 of R_{12}, conductor (not shown in the drawing) extending from point 151 of R_{12} to 151' of the closed contact 152 of the de-energized relay R_2, re-

turn conductor (not shown in the drawing) going from point 153 of R_2 to point 153' of R_{12}, winding of R_{12}, conductors 145 and 37, point 24 and return through 23 to 22 of T_1.

After the apparatus is stopped in this way, it is necessary to wait for the expiration of the time switch in order to start a new game.

In the game and in accordance with the invention, the player is placed in conditions identical with those in which he would find himself if he were really travelling along the road or highway, having at his disposal the three control elements, steering wheel, acceleration and brake pedal to manipulate.

I claim:

1. A vehicle driving game comprising in combination a screen, means for projecting a film of a moving scene to be travelled by said vehicle onto said screen, a movably mounted silhouette of the vehicle disposed to intercept a path of projection of said projector means on said screen, a driver's seat having control means for displacing the silhouette of the vehicle transversely to the scene and other control means for braking and accelerating the progression of said film, a fixed disc having pairs of contact studs disposed in a circle thereon in relative positions corresponding to parts of the scene in which certain driving maneuvers must be made, a rotary slide cooperating with said studs, means for driving said slide in synchronization with the unreeling of the film, electrical error circuits wherein said pairs of studs form breaks in said circuits and said rotary slide is effective to close said breaks, other electrical means responsive to the condition of said error circuits indicating to the driver that a necessary maneuver has not been made, and normally closed switch means in said error circuits in series with said pairs of studs, said switch means being responsive to the manipulation of said control means to prevent the closing of one of said electrical error circuits.

2. A game according to claim 1 wherein the electrical circuits further comprise error counters for each of the control means and each includes corresponding groups of two relays wherein one of said relays is excited by contact between the rotary slide and a stud on the disc and the other is excited by the one relay to establish a circuit of excitation to actuate step-by-step the corresponding error counter.

3. A game according to claim 2 wherein the circuits include electromagnets for activating the counters and contacts corresponding to each of the control means, and a notched rotary disc driven in rotation by a motor to open and close said contacts in rapid succession to thereby control said error counters.

4. A game according to claim 2 in which the first-mentioned control means includes a steering wheel linked with a second sliding member disposed in the circuits of the above-mentioned relays and positioned to establish a steering error circuit wherein the second sliding member cooperates with fixed studs corresponding to operation of the vehicle in an approximately straight line or in a direction to either side thereof and which are each connected to the studs of the disc coinciding with steering operations to be performed.

5. A game according to claim 1 in which the other control means includes a brake and an accelerator pedal, and said switch means comprises a two-way switch.

References Cited by the Examiner

UNITED STATES PATENTS

2,260,432	10/41	Brown	35—11
2,269,444	1/42	Durham et al.	35—11
2,273,091	2/42	De Silva	35—11
2,547,973	4/51	Richards	20—34
3,015,169	1/62	Chedister et al.	35—11
3,078,093	2/63	Hotkins et al.	35—11

JEROME SCHNALL, *Primary Examiner.*

GEORGE NINAS, JR., *Examiner.*