May 31, 1932. A. J. GUMINA ET AL 1,860,460

MECHANICAL GAME

Filed March 25, 1931 2 Sheets-Sheet 1

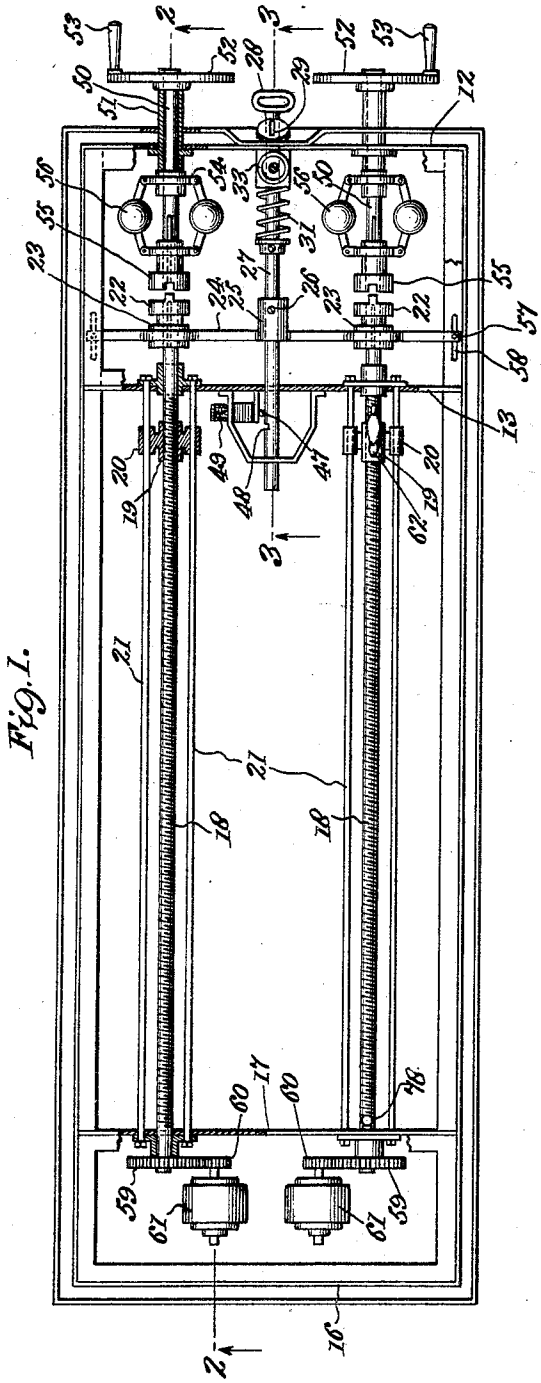


Fig. 1.

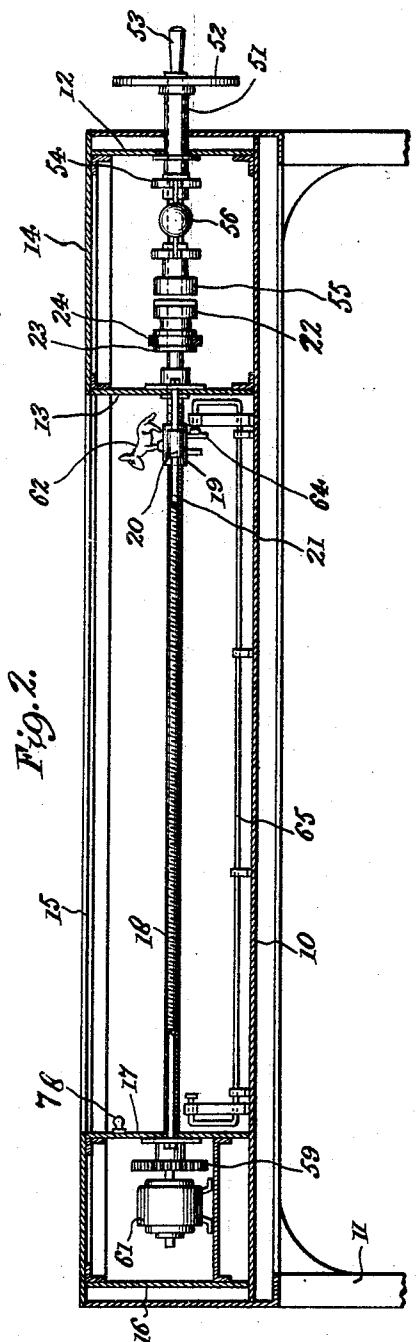


Fig. 2.

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Fig. 3.

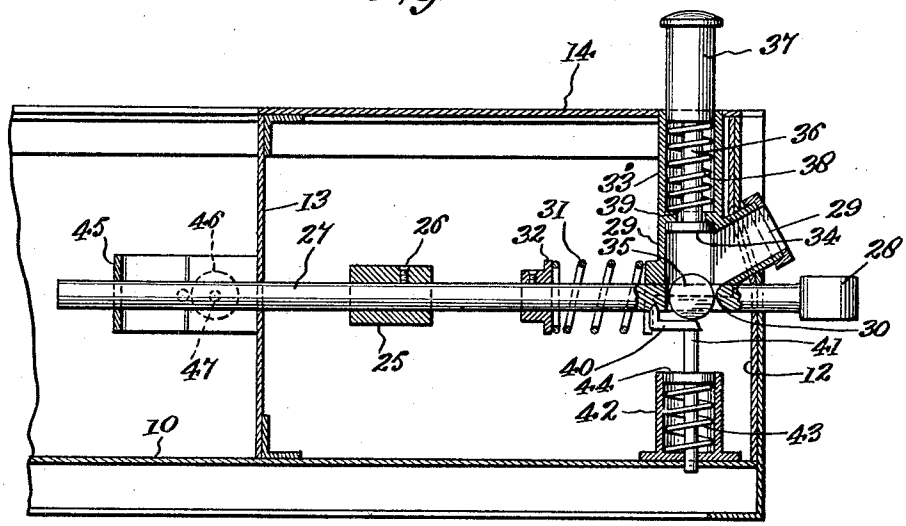
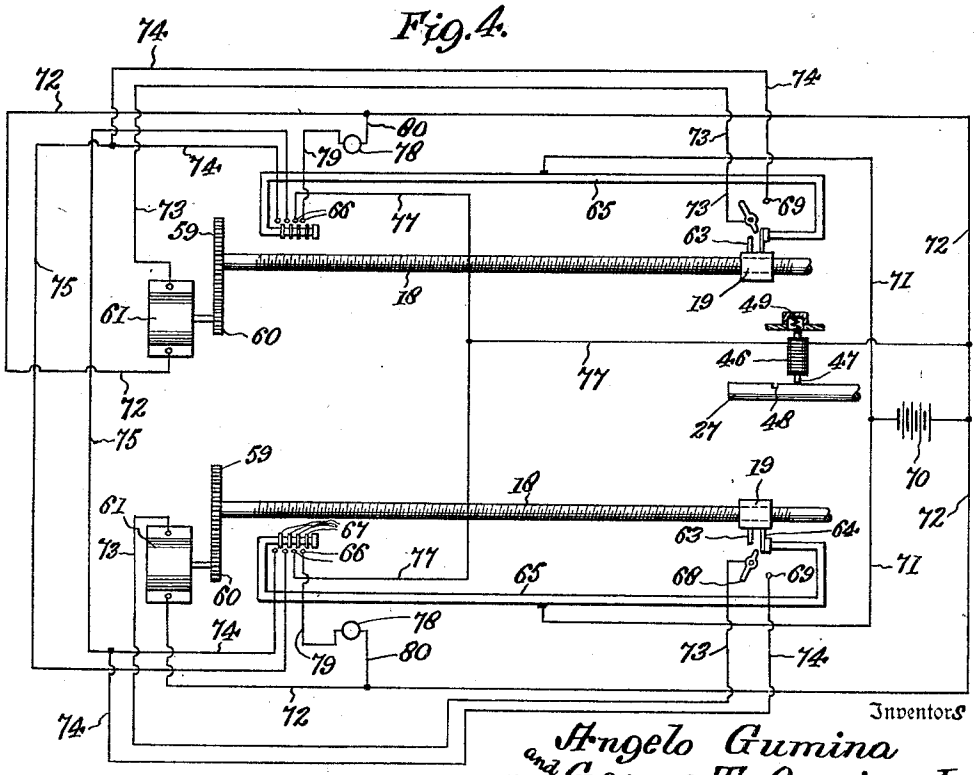


Fig. 4.



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UNITED STATES PATENT OFFICE

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MECHANICAL GAME

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The present invention relates to game apparatus and has for an object to provide an improved construction of apparatus which requires skill in its manipulation and which excites competition, and an apparatus which is of the coin controlled type.

Another object of the present invention is to provide a racing game wherein two objects, such as representations of horses, are disposed side by side and provided with independent manually operable means for impelling the objects toward a common goal and wherein a certain amount of skill is required in the manipulation of the operating means independently for each object, and wherein both of the operating means are check or coin controlled from a single check apparatus.

A further object of the present invention is to provide a construction of horse racing game embodying the above characteristics and which has means for automatically returning the objects to their normal starting position, which has means for automatically locking the operating mechanism against operation after the race has been completed, and provided with automatic means controlled by the movements of the objects for indicating the winning object, therefore releasing the indicating means after the travelers have been returned to the starting point.

A further object of the present invention is to provide a game apparatus of this character which is of relatively simple construction, may be completely housed or encased in a cabinet so that it may be protected, and wherein the device may be electrically controlled for returning the parts to a normal position of rest.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views.

Figure 1 is a top plan view, with the cover removed, of a game apparatus constructed according to the present invention.

Figure 2 is a longitudinal section taken vertically through the same substantially on the line 2—2 of Figure 1.

Figure 3 is an enlarged fragmentary vertical section taken through the check controlled portion of the apparatus, and

Figure 4 is a diagrammatic view of the apparatus and electric circuits controlled thereby.

Referring to the drawings, 10 designates a cabinet or frame for supporting the game apparatus and which is preferably of rectangular oblong shape and adapted to be supported horizontally upon legs 11 or the like.

The casing 10 is provided in its outer end with a pair of longitudinally spaced apart transverse partitions 12 and 13 between which the operating and check controlled means is housed. The casing 10 may be provided with a cover plate 14 seated upon the upper edge of the casing 10 and its partitions and which may be cut out as shown at 15 for observing the operation of the movable objects.

The casing 10 is provided at its inner end with a pair of spaced apart transverse partitions 16 and 17 between which are housed the motors or other means used for returning the objects to their normal starting position.

Longitudinally disposed in each side portion of the casing 10 is a threaded shaft 18, the two shafts 18 being arranged in parallel relation and having bearings at opposite ends in the adjacent partitions 13 and 17, as shown in Figure 2. Disposed in threaded engagement on each shaft is a traveler 19 which may be in the form of a sleeve, and each traveler 19 is provided with apertured wing or side portions 20 forming eyes for slidably receiving therethrough guide rods 21 which are secured at opposite ends in the partitions 13 and 17 at opposite sides of the adjacent threaded shaft 18. The travelers 19 are therefore held from turning as they slide on the rods 21 and are fed lengthwise of the casing 10 by the turning of the shafts 18 first in one direction, and then in the other.

The outer end of each shaft 18 projects forwardly through the partition 13 and has keyed for sliding movement thereon a clutch element 22 having projections or teeth ex-

tending outwardly therefrom. Each clutch element 22 has an annularly grooved collar 23 freely rotatable within the opposite end portions of a yoke bar 24 which extends crosswise within the compartment in the outer end of the casing and which is adapted for movement to shift the clutch elements 22 simultaneously and equally lengthwise of their respective shafts 18. The yoke bar 24 carries a sleeve 25 intermediate its ends, and the sleeve is adjustably fixed by a set screw 26 or the like upon a check controlled shaft 27, as shown in Figure 3.

The shaft 27 is slidably supported through the partitions 12 and 13. The outer end of the shaft 27 extends through the adjacent end of the casing 10 and is provided with a hand-hold 28 by means of which the shaft 27 may be pulled outwardly at certain times.

A coin chute 29 is mounted in the outer upper portion of the casing and projects downwardly for sliding engagement at its lower end against an enlarged and slotted plate portion 30 which is carried by the shaft 27 and which is adapted to be shifted against the lower end of the coin chute 29. A spring 31 bears at its outer end against the side of the coin chute 29 and at its inner end bears against an adjustable collar or nut 32 which is secured by a set screw or the like to a shaft 27 for placing the spring 31 under the desired tension, the spring acting to normally held the shaft 27 in retracted position, as shown in Figure 3.

The slot in the plate 30 registers with the lower end of the coin chute 29, and the coin chute is provided with an extension 33 in the form of a cylinder which opens through the top 14 of the casing and in which is slidably disposed a plunger 34 adapted to engage the upper edge of a coin 35 to force the coin downwardly from the chute 29 through the slotted plate 30. The plunger 34 has a stem 36 which rises through the cylinder 33 and has a head or button 37 on its upper end of greater diameter than that of the stem 36. A spring 38 surrounds the plunger 36 with one end bearing beneath the head 37 and its other end engaging a shoulder or partition 39 which is carried in the lower end of the cylinder 33.

The spring 38 normally holds the plunger 34 in raised position so as to clear the coin slot and admit of the free passage of coins downwardly into position beneath the plunger, as shown in Figure 3. In line with the cylinder 33, and below the plate 30, is disposed a detent 40 arranged in line with the slot in the plate 30 so as to receive the lower edge of the coin 33 thereagainst. The detent 40 is provided with an upturned pointed end adapted to enter a correspondingly shaped recess or notch in the lower side of the plate 30 for holding the plate against shifting lengthwise of the device. The detent 40 is carried on the upper end of a rod 41 which extends downwardly into a guide cylinder 42 carrying a spring 43 surrounding the lower portion of the rod 41 and resting in the bottom of the cylinder 42. A disc 44 is carried by the rod 41 and bears against the upper end of the spring 43 for normally urging the detent 40 upwardly against the plate 30.

The inner end of the check control shaft 27 extends through the partition 13 and also through a bracket 45 in one side of which is mounted a solenoid 46 having a core rod 47 arranged to engage in a notch 48 in one side of the shaft 27. The notch 48 is so located on the shaft as to register with the core rod 47 when the shaft 27 is pulled forwardly to its fullest extent. The core rod 47 is normally urged against the shaft 27 by a spring 49 or the like.

Mounted through the outer end of the casing 10, and in axial alignment with each threaded shaft 18, is an operating shaft 50. Each shaft 50 has a bushing or bearing sleeve 51 surrounding its outer end and secured in the forward partition 12. The hand wheel 52 is carried on the outer end of each shaft 50 and is provided with a handle 53 by means of which the wheel 52 may be easily turned for rotating the shaft 50. A governor collar 54 is mounted upon each shaft 50 at the inner end of the bushing 51, and each shaft 50 is provided on its inner end with a keyed slidable clutch element 55 connected by governor balls 56 to the governor sleeve 54 so that the slidable clutch section 55 is under control of the governor on each shaft 50.

The opposite extremities of the yoke bar 24 are slidably supported in the opposite sides of the casing or frame 10 by means of pins 57 which engage in longitudinal slots 58 carried in the side portions of the casing for admitting of the bodily movement of the yoke bar when the shaft 27 is shifted.

The inner or rear ends of the threaded shafts 18 are each provided with a gear wheel 59 which meshes with a pinion 60 carried upon the shaft of an electric motor 61, an independent motor 61 being provided for each shaft 18. The motors 61 are adapted for turning the shafts 18 in a direction to move the travelers 19 outwardly into their normal starting position. Each traveler 19 may be provided with an object 62, such as the figure of a horse or the like, so as to simulate a horse race in the operation of the game.

With particular reference to Figure 4, each traveler 19 is provided with a pair of depending striker arms 63 and 64 which are arranged toward the opposite ends of the traveler and which are adapted to alternately strike against the overturned opposite ends of a slide bar 65. Each slide bar 65 has at its inner end a plurality of contacts 66 which are adapted to co-operate with a plurality of fixed contacts 67 for simultaneously clos-

ing circuits through the contacts 66 and 67 when the slide bar 65 is shifted inwardly. At the outer portion of each slide bar 65 there is disposed a switch arm 68 adapted for engagement at its upper end with the striker arm 64 for swinging the switch arm 68 first into one position as shown in Figure 4, and subsequently throwing the switch arm into a closed position to engage the fixed contact 69. Thus, when the traveler 19 moves toward the outer end of the casing it breaks the circuit between the switch arm 68 and the contact 69 and subsequently engages the adjacent end of the slide bar 65 so as to break the circuits through the contacts 66 and 67. Each traveler 19 is provided with a slide bar 65 and its adjacent contacts and switch elements so that the circuits are independently controlled by the independent travelers.

While any suitable and desired wiring may be resorted to in connecting together the various parts of this game apparatus to carry out the features of the invention, Figure 4 shows one possible arrangement. A battery 70, or other suitable source of electric energy, is connected by branch wires 71 with the spaced apart or opposed slide bars 65. The opposite side of the battery or source of electric energy is connected by ground wires 72 to one side of each of the electric motors 61. The opposite side of each motor 61 is connected by a wire 73 to the adjacent switch arm 68 and the respective fixed contact 69 of the switch arm is connected by a wire 74 with one of the fixed contacts 66 of the adjacent slide 65. Each wire 74 is provided with a branch wire 75 which leads to one of the contacts 66 of the opposite slide 65. The locking magnet 46 is connected by a branch wire 75 to one of the ground wires 72 and is also connected by a branch wire 77 with one contact of each group of contacts 66 of the opposed slide bars 65.

A signal, in the form of an electric light 78, is provided for each traveler 19 and is connected by a wire 79 to one of the adjacent contacts 66, and by a wire 80 to the adjacent ground wire 72.

In operation, a coin 35 is deposited in the coin slot 39 and the coin rolls downwardly into contact with the detent 40. The plunger 37 is now depressed so as to force the lower end 34 thereof into engagement with the coin and the latter transmits pressure of the plunger to the detent 40 for depressing the same out of engagement with its notch in the plate 30 so that one of the two players may draw upon the handle 28 and pull the check control shaft 27 outwardly. The coin 35 now drops into the bottom of the box, the spring 31 is placed under tension, and the spring actuated core rod 47 of the locking magnet drops into the notch 48 and holds the shaft 27 in its forward position.

Forward pulling of the shaft 27 carries the yoke bar 24 therewith and the yoke bar in turn advances the clutch members or elements 22 into interlocking engagement with the clutch elements 55 which are connected to the governors 56.

The game is adapted to be played by two people and each person grasps a respective handle 53 so as to turn the hand wheels 52 and their respective shafts 50. As the shafts 50 turn the interlocking clutch elements 22 and 55 cause the rotation of the threaded shafts 18 in a direction to advance the followers 19 inwardly toward the motors 61. Should the shafts 50 be manually turned at a speed sufficient to bring the adjacent governor into action to withdraw its clutch element 55, the threaded shaft 18 will be disconnected from the hand shaft and will stop so that it requires a certain amount of skill to manipulate the governor controlled operating means to insure a steady forward advancement of the follower with the utmost possible speed of travel and yet not with such speed as to disconnect the clutch elements.

When the travelers 19 start to move, the arms 64 thereof first engage the switch arms 68 and swing the same into closed position so as to close the circuit through the wires 73 and 74 at each side of the apparatus. At the completion of the race where one horse or object 62 first reaches the goal, the traveler 19 of the winning object strikes, through its contact arm 63, the inner end of the slide bar 65 so as to shift the contacts 67 into engagement with the fixed contacts 66 and closing the following circuits:

The slide bar 65, such as for example the lower slide bar shown in Figure 4, is connected to the source of current 70 by the wire 71, the wire 71 leading from one pole or side of the circuit. From the bar 65, the current passes through the contacts 66 and 67, wire 79, lamp 78 and wire 80 to the ground wire 72 which leads back to the opposite pole or side of the circuit. Thus, the light 78 for the foremost or winning object is illuminated. The lamp 78, as shown in Figure 2, will be located above the adjacent threaded shaft 18 and at the inner end of the game apparatus. The partition 17 may be utilized for supporting this lamp 78.

At the same time the circuit is closed from the slide bar 65, contacts 66 and 67, wire 77 to magnet 46 which is connected through wire 75 to the ground or opposite side of the circuit. The magnet or solenoid is thus energized and the core rod 47 thereof is withdrawn from the slot 48 so as to free the check controlled shaft 27. The shaft 27 is urged by its spring 31 inwardly and carries the yoke bar 24 backwardly toward the partition 13 to move the clutch elements 22 out of the range of contact with the opposite clutch elements 55 so that the manually operated

shafts 50 are automatically disconnected from the threaded shafts 18.

As soon as the shaft 27 springs backwardly the detent 40, is raised by its spring 43 into interlocking engagement with the plate 30 so that the latter cannot be drawn outwardly by the handle 28 until a second coin or check 35 is deposited in the chute.

As the slide bar switch is closed, the circuit is closed from battery 70, through wire 71, lower slide bar 65, the fourth pair of contacts 66 and 67, wire 74 to contact 69 and switch arm 68, thence backwardly through wire 73 to the lower motor 61, and from the motor 61 to the ground wire 72 at the opposite side of the battery 70. Thus, the lower motor 61 will be driven, and it is so arranged as to turn the threaded shaft 18 backwardly. The third pair of contacts 66 and 67 associated with the slide bar 65 closes the following circuit through the opposite motor 61 so as to simultaneously drive both motors and thus return both of the travelers 19 toward their initial starting position:

From battery 70 through wire 71 to slide bar 65, through third pair of contacts 66 and 67 to wire 75 which leads across to the opposite mechanism, shown at the top of Figure 4, the wire 75 extending upwardly and being connected to the opposite wire 74 which leads to the opposite contact 69 and switch arm 68, thence through wire 73 to the upper motor 61, and from the upper motor through ground wire 72 to the opposite side of the battery. It will be noted that the wires 74 of the opposite slide bar switches are connected to the fourth stationary contacts 66 thereof, and that the cross wires 75 are connected to the third stationary contacts 66 of their opposed slide bar switches.

The travelers 19 are thus carried outwardly along their threaded shafts 18 by the continuous running of the motors until the travelers reach their initial starting position. The first traveler which reaches its starting position, for instance the upper traveler in accordance with the diagram in Figure 4, first engages the switch arm 68 and throws it into open position as clearly shown in Figure 4. The circuit is thus broken through the wires 73 and 74 and consequently no current can flow through the upper motor 61. However, the current through the lower motor 61 is undisturbed and consequently the lower motor continues driving until the lower follower 19 swings the lower switch arm 68 into open position. The last follower to reach the starting point not only swings the switch arm 68 into open position, but also shifts the slide bar 65 outwardly so as to open the contacts 66 and 67 and thus simultaneously break circuit through the magnet 46, the signal light 78, and the last running motor 61.

As soon as the slide bar 65, which was shifted backwardly by the winning traveler 19, has been shifted outwardly again into a normal position of rest, all of the circuits are broken and the apparatus is locked and held against further operation until a coin 35 is used.

It is of course understood that while a battery is shown at 70, any suitable source of electric energy may be used, such as a cord and plug connection for engagement with a wall outlet or the like from which is supplied house current.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims:

What is claimed is:

1. A game apparatus comprising a casing, a pair of objects mounted in the casing adapted for movement therein simulating a race, manual means for independently moving the objects, automatic releasable means disposed between the manually operable means for releasing the objects from the latter when the manually operable means is actuated beyond a definite rate of speed, check controlled means for holding said objects out of engagement with the operating means, and means controlled by the movements of said objects for returning the latter to a starting position.

2. A game apparatus comprising a pair of threaded shafts, a follower on each shaft, a motor connected to each shaft for turning the shaft backwardly and moving the followers to initial starting position, a manually rotatable shaft for each threaded shaft, relatively shiftable clutch elements carried upon the threaded and manually operable shafts, check controlled means for normally maintaining one of said clutch elements in retracted position, and governor means connected to the other clutch element adapted to withdraw the same from the shaft elements when a predetermined speed of rotation is reached.

3. A game apparatus comprising a casing, a pair of threaded shafts disposed longitudinally in parallel relation in the casing, a follower having an object mounted upon each shaft, a manually operable shaft disposed in line with the forward ends of the threaded shafts, complemental clutch elements carried upon the threaded and manually operable shafts, check controlled means for advancing one of the clutch elements into interlocking position, governor controlled means connected to the opposite clutch elements for withdrawing the same from the shaft elements upon a predetermined speed of operation of the shafts, a separate motor for each threaded shaft to turn the same backwardly, circuit means operable by the travelers when moved

to their innermost positions for reversing the direction of movement of the travelers, and means operable upon the return of the travelers to normal position for stopping said motors.

4. A game apparatus comprising a casing, a pair of parallel threaded shafts arranged lengthwise in the casing, a pair of independent manual shafts mounted in the outer end of the casing in line with the threaded shafts, check controlled means for interconnecting the manual shafts with the threaded shafts, a motor for each threaded shaft, and electric means connected to the motors and to said travelers for actuating both motors when one of said travelers reaches its goal, and cooperating electric means adapted for engagement by the travelers as to reach their normal starting position for independently stopping the motors as the travelers move into starting position.

5. A game apparatus comprising an elongated casing, a pair of parallel threaded shafts arranged lengthwise in the casing, manual means arranged at the outer end of the casing in line with the shafts, check controlled means for connecting the operating means to the threaded shafts, variable connections arranged between the operating means and the threaded shafts for controlling the interconnection between the shafts and freeing the threaded shafts from the operating means under predetermined conditions of operation, an electric motor for each threaded shaft, a shifting member for each threaded shaft, a traveler on each threaded shaft adapted to engage the shifting member at each end of its movement, electric means including the motors and the shifting members, switches carried by the shifting members for closing a circuit through the motors when one of the travelers reaches the goal, and a separate switch for each motor arranged near the outer end of each threaded shaft for independent operation by the travelers for independently cutting out the respective motors.

6. In game apparatus, a pair of travelers, independent operating means for advancing the travelers toward a goal, electric means operable by a traveler when one of the travelers reaches the goal for reversing the movement of the travelers and returning the same to initial starting position, signal means operable by a traveler when it reaches the goal to actuate the respective signal and show which traveler has won the race, and check controlled interlocking means between the travelers and the operating means therefor, and manually set electrically released locking means associated with said check controlled device for holding the operating means normally in operative relation to the travelers.

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