Feb. 28, 1939. M. MYERS 2,148,828

COIN FREED GAME APPARATUS

Filed Oct. 9, 1936 3 Sheets-Sheet 1

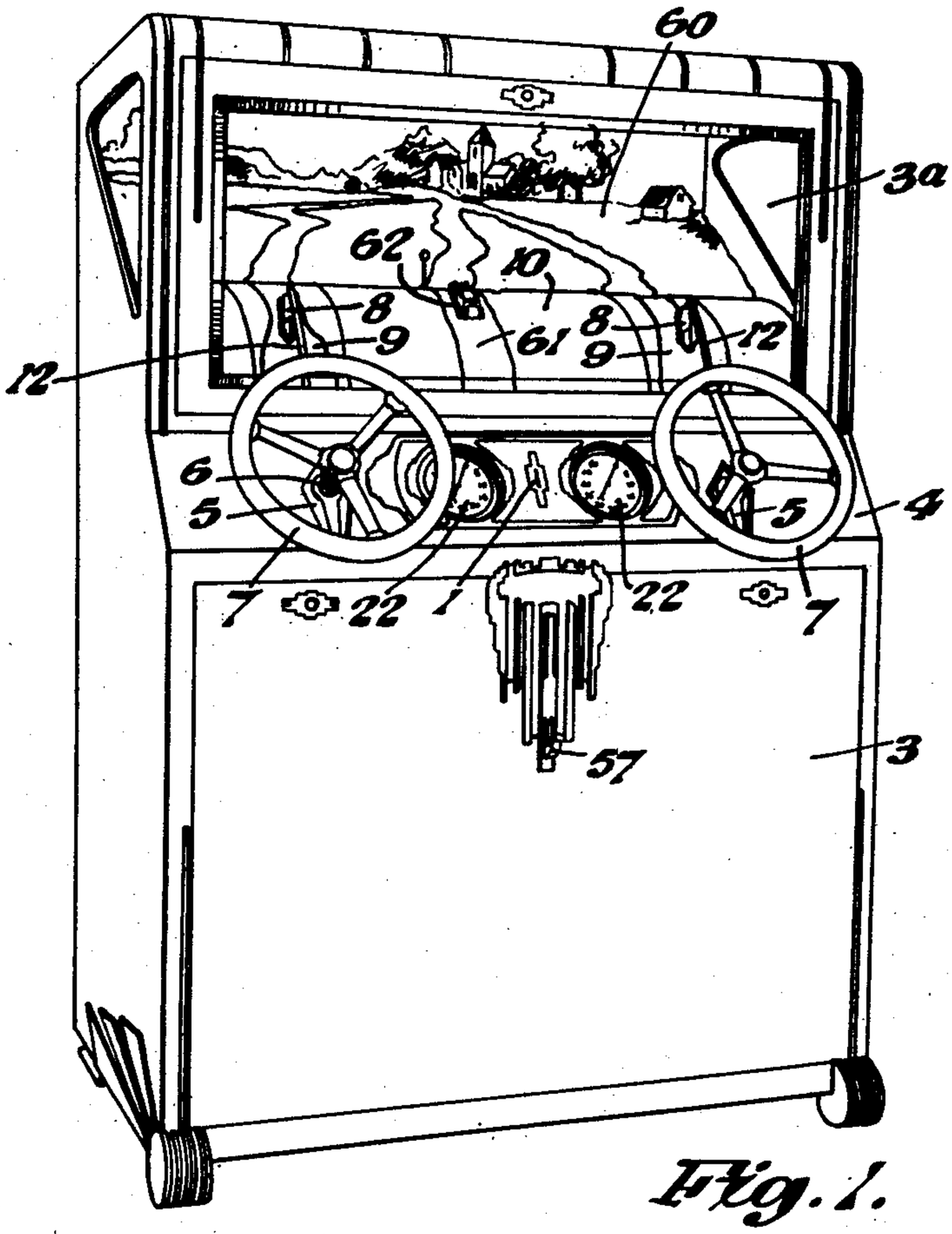
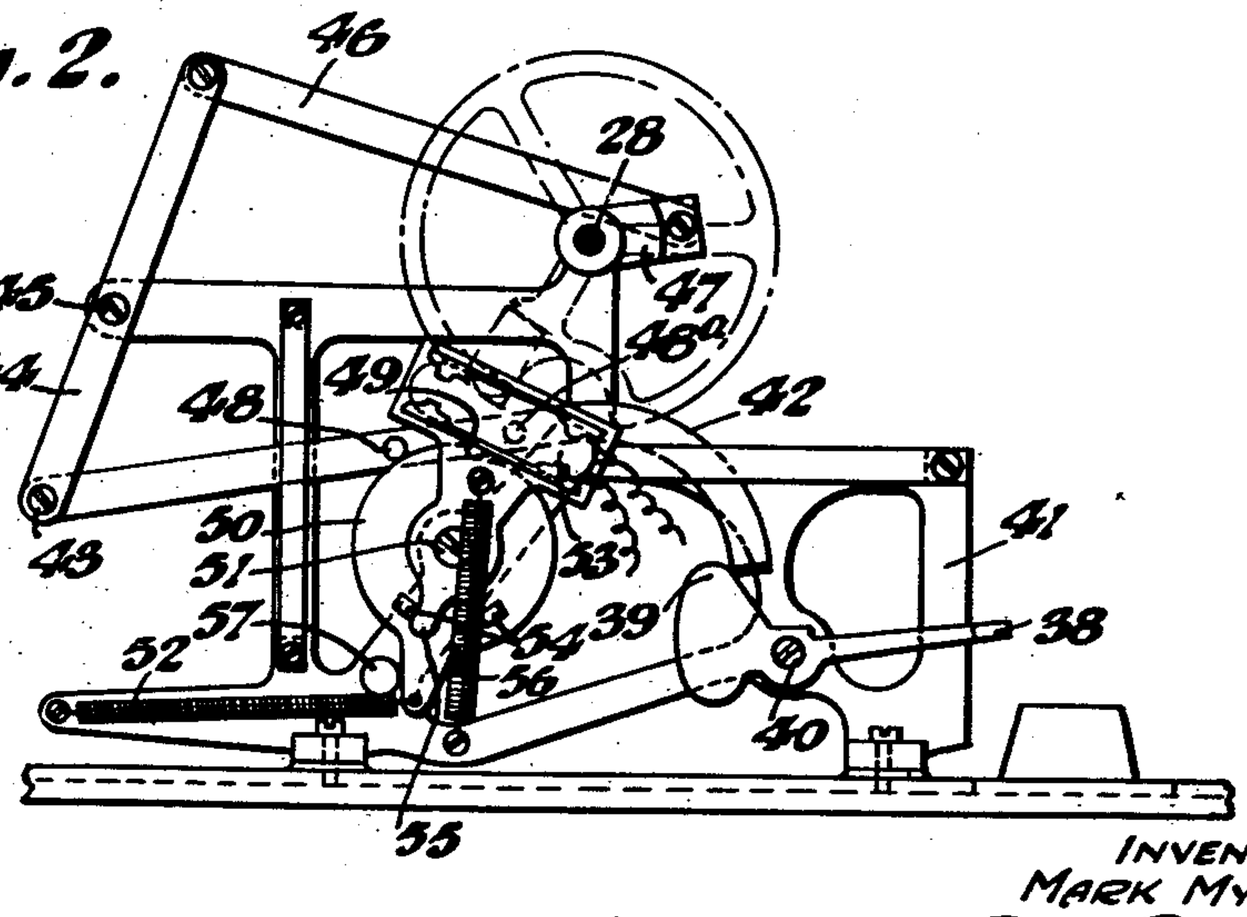


Fig. 1.

Fig. 2.



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COIN FREED GAME APPARATUS

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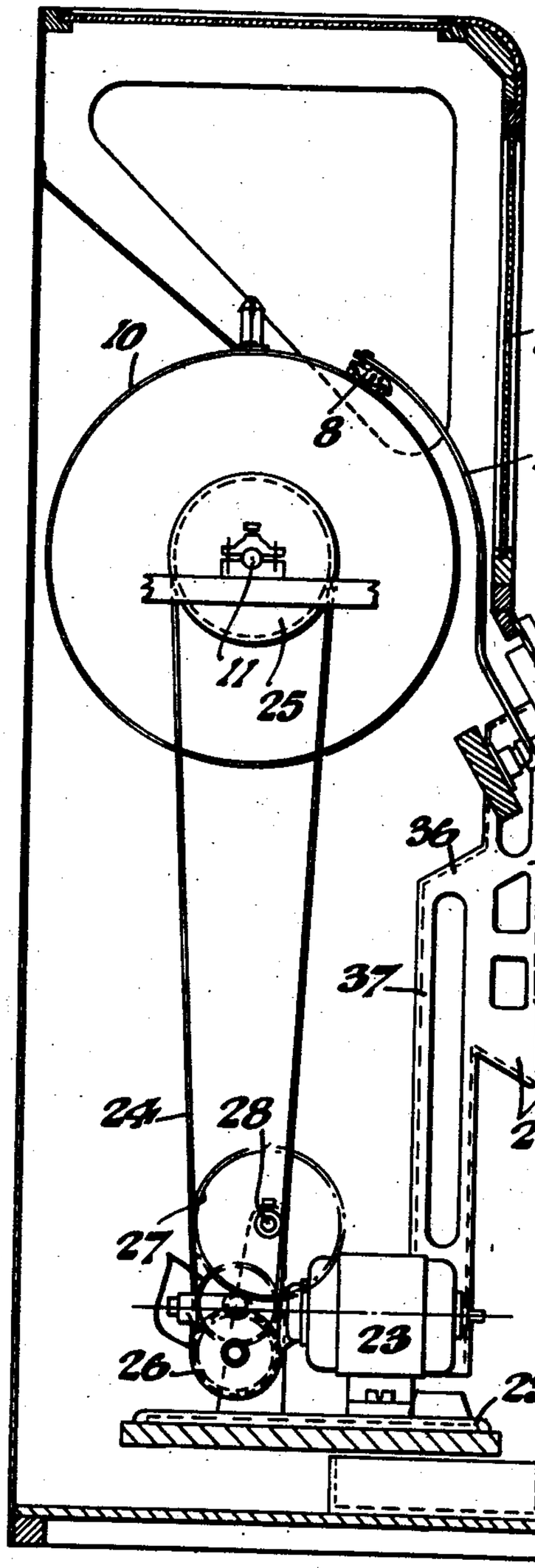

Fig. 3.

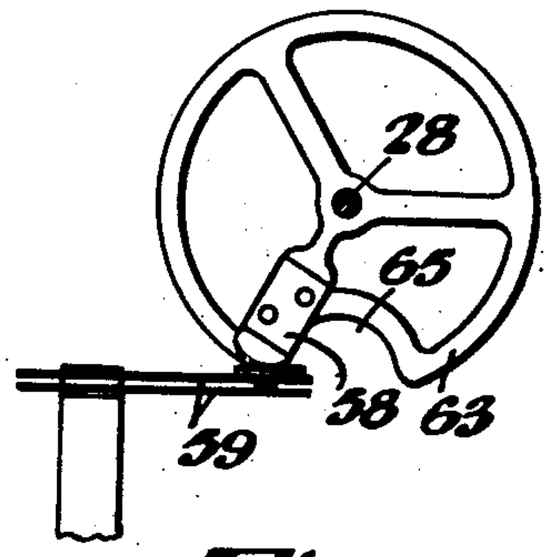

Fig. 5.

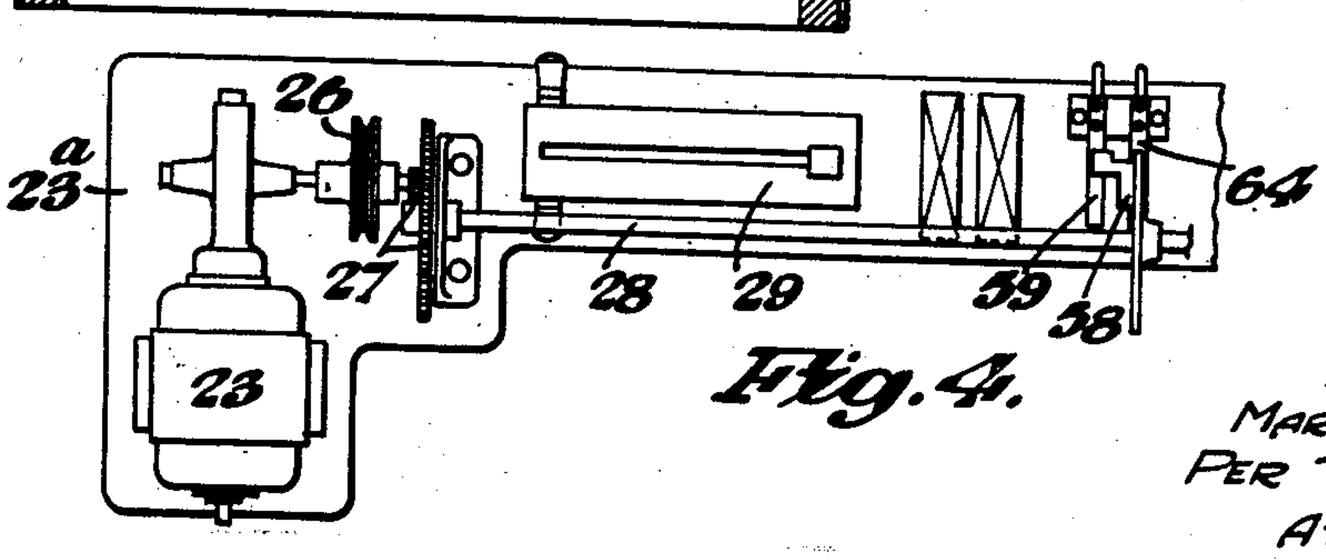

Fig. 4.

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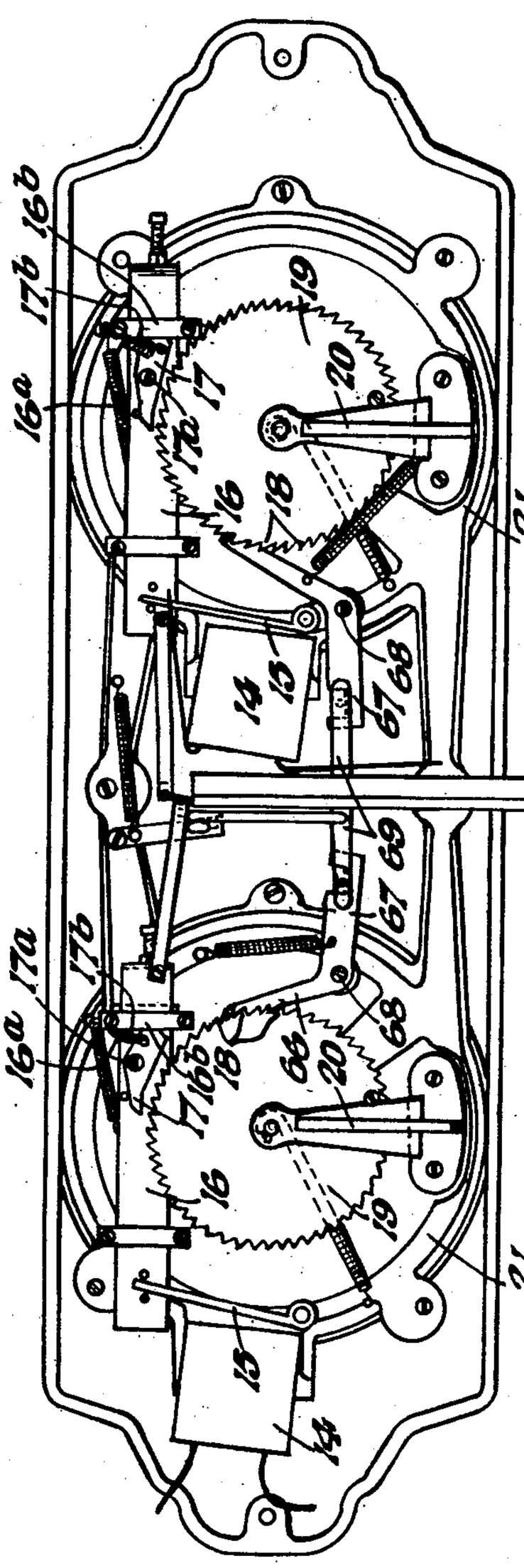

Fig. 6.

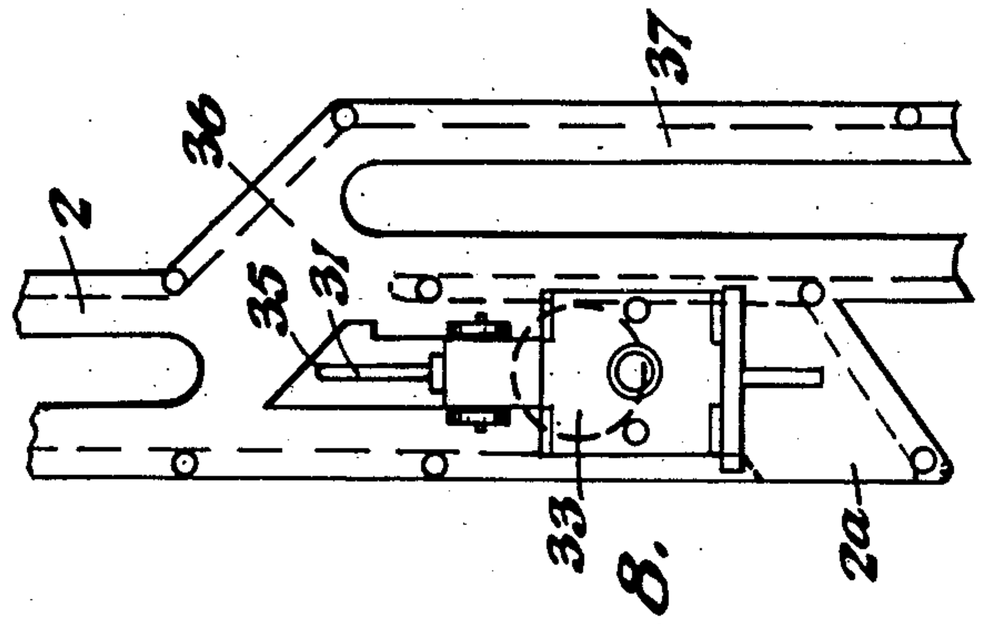

Fig. 8.

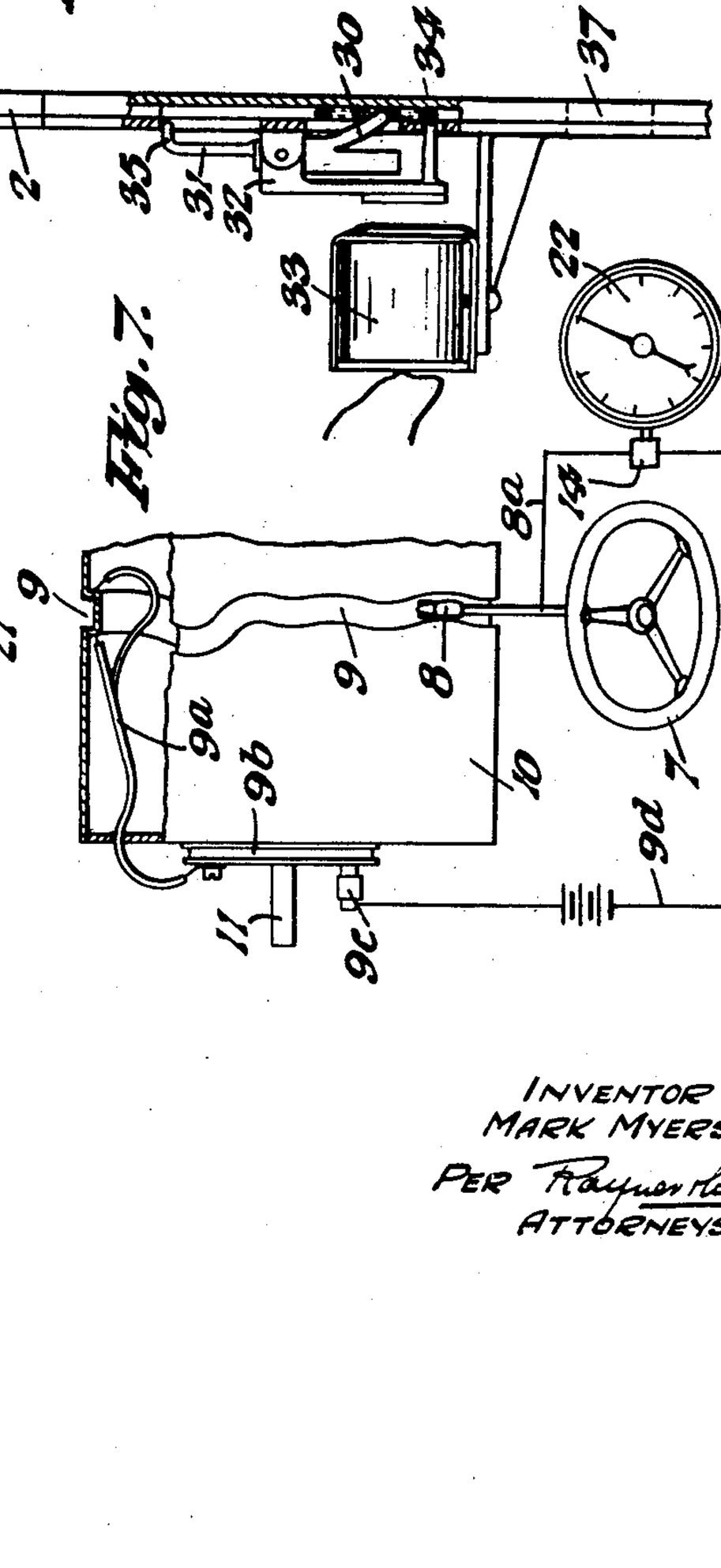

Fig. 7.

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COIN-FREED GAME APPARATUS

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2 Claims. (Cl. 194—9)

The present invention relates to coin freed game apparatus in which steering wheels or equivalent devices are mounted upon a casing for controlling the positions of vehicle or like simulating members relatively to tracks which move under such vehicle simulating members within the casing, e. g. simulating motor vehicles travelling along roads. An object of this invention is to generally improve upon such apparatus whereby an accurate scoring record is obtained indicating individual faults in the steering of the competitors, so that an indication is given of the competitors making most faults. Another object of this invention is to provide with such apparatus a coin freed mechanism in which a coin for each competitor is inserted, and in which one coin is returned at the completion of a predetermined period, whilst at the same time separate visual records of errors in steering are indicated in order to clearly indicate the winner. A still further object of this invention is to provide an electrically controlled apparatus in which a rotary cylinder carrying tracks thereon, visible to the competitor, is driven over a predetermined period and in which such tracks embody contacts incorporated with vehicle simulating bodies in such manner that when such bodies engage the contacts, electric circuits are closed to operate scoring points, the points being scored against the competitors, whereby the person who contrives to so manoeuvre the vehicle simulating body as to result in a minimum number of times of contact of the vehicle body with the contact of the appropriate track is the winner. Other objects and advantages of this invention will be apparent hereinafter.

In an embodiment of this invention a coin freed game apparatus of the type specified may comprise a casing accommodating a rotary member having marked thereon a number of tracks, each track having located close to it a vehicle simulating member, steering wheels or the like being mounted on the casing for manoeuvring the vehicle simulating members laterally relatively to the tracks, electrically energised members adapted to operate numerical recorders and to have circuits closed by engagement of said vehicle simulating members and edges of said tracks, a coin freed electrical circuit closing means adapted to close a circuit of the source of current to a motor for driving the track carrying member, means for automatically breaking the circuit at a predetermined period, and means for resetting the numerical recorders to zero.

In order that this invention may be clearly understood and readily carried into effect I have appended hereto three sheets of drawings illustrating embodiments thereof and wherein:

Fig. 1 is a perspective view of the outside of the apparatus.

Fig. 2 is a side elevation view of the coin operated circuit closing switch.

Fig. 3 is a sectional end elevation of the apparatus showing the motor for driving the track carrying drum.

Fig. 4 is a diagrammatic plan view showing the electric motor and a contact device for operating a coin releasing device.

Fig. 5 is a detail elevation view of part of the latter mentioned contact device.

Fig. 6 is a part sectional rear elevation view of the scoring mechanism and coin chute.

Fig. 7 is a part sectional detail plan view of one end of the track carrying cylinder, and

Fig. 8 is a broken detail side elevation of the part of the chute appropriate to the separate distribution of the two coins.

Referring to the drawings the apparatus shown is intended for two competitors, and both insert a coin in a slot 1 (Fig. 1) disposed above the chute 2 (Fig. 6). The apparatus is mainly contained in a casing 3 which has an inclined front panel 4 to imitate the panel of a motor car, this panel carrying brackets 5 in which rotate steering columns 6 on which are mounted steering wheels 7. These steering wheels are adapted to be operated by the two competitors for the purpose of moving laterally through a small angle a pair of members 8 which can, for example, be shaped to represent motor vehicles. These two members 8 are located close against a cylindrical drum 10 and within a pair of circumferential channels 9 formed in the periphery of the cylindrical drum 10. The drum 10 is supported by a shaft 11, and as shown in Fig. 7 the tracks are in the form of channels which receive the vehicle simulating members 8. The drum is disposed behind a glass panel 3*a*.

The vehicle simulating members 8 are carried by a pair of arms 12 (see Fig. 3) radiating from the steering columns 6 shaped so as to partly encircle the drum 10. By this means slight steering movements of the wheels 7 will enable the competitors to adjust the positions of the members 8 with a view to maintaining them spaced from the edges of the channels 9 in accordance with the change in position of the

channels 9 relative to the members 8. The channels 9 are of sinuous form and can contain therein suitable islands or other obstructions around which the members 8 have to be manoeuvred.

The drum 10 can be rotated at the desired speed for a number of revolutions, and should a member 8 contact with one edge of its appropriate channel 9 it will close a circuit, because each member 8 is an electrical contact and it is connected by a lead 8a (see Fig. 7) to one of a pair of electro-magnets 14 (see Fig. 6). The circuit is closed through the longitudinal edges of the channels 9, a conductor 9a, an annular contact 9b, a bush 9c, and lead 9d also leading to the electro-magnet 14 via the source of current.

When the electro-magnet 14 is energised the armature 15 thereof will draw horizontally a bar 16 to the left (looking at Fig. 6) against the influence of a coiled tension spring 16a. It will be apparent that a bar 16 and an electro-magnet 14 is provided for each member 8.

Each bar 16 carries a spring loaded pawl 17 which at a predetermined point of movement of the bar 16, engages ratchet teeth 18 in one of a pair of ratchet wheels 19 mounted in a pair of suitable brackets 20 fixed to opposite ends of a frame or plate 21 secured to the back of the panel 4. Each pawl 17 is pivoted at 17a between its ends, and its end remote from the ratchet wheel engaging end is connected to one end of a small coiled tension spring 17b, the other end of which spring is fixed to one of a pair of stationary guides 16b for the bar 16. The end 17b of the pawl normally engages against the guide 16b so that the nose of the pawl is held clear of the ratchet wheel 19, but when the bar 16 has moved part of its distance the tension on the spring will cause the pawl to engage with the ratchet teeth so that only a portion of the movement of the armature 15 is utilised to rotate the ratchet wheel. By this means the ratchet wheel 18 is rotated only one tooth for each energising of the electro-magnet 14, and this rotation is utilised to move a pointer on one of a pair of graduated dials 22 mounted on the panel 4. This enables a large number of scoring points to be recorded in a very positive manner. It will be apparent that the competitor who contrives to permit his member 8 from contacting with the edges of the appropriate track 9 only a minimum number of times will score less than the other, and therefore the lesser scorer is the winner.

The drum 10 is driven from an electric motor 23 mounted on a suitable base plate 23a; an endless belt 24 passed over a pulley 25 on the drum to a pulley 26 geared to the motor, effecting the necessary transmission. The motor 23 can receive current from an available mains supply, and it drives through a train of reduction gear wheels 27 a shaft 28 adapted once every complete revolution to break the circuit to the motor, whereby the time during which the apparatus is in use depends upon the speed of the motor 23 and the gear reduction to the shaft 28. A variable resistance 29 enables the motor and other parts of the apparatus to be readily adjusted to suit different voltages of mains supply.

When the first coin is inserted in the slot 1 it descends the chute 2 and in doing so strikes and brushes past an inclined finger 30 (Fig. 6) projecting into the chute from a pawl 31 pivoted to an armature 32 of an electro-magnet 33. The coin then rests upon a projection 34 carried by said armature. When the said coin strikes the said finger 30 it causes the upper end of the pawl 31 to move towards the chute, resulting in a cranked projection 35 at the top of said pawl becoming located in the path of the second coin and deflecting such second coin into an inclined offset chute member 36 (Fig. 8) which terminates into a vertical chute part 37. The second coin on descending the chute 37 strikes one end of a lever 38 (see Fig. 2), the other end of which lever is formed as a cam 39, the lever being pivoted at 40 to a frame 41 fitted just beneath the chute 37.

Resting lightly on the cam 39 is one end of a finger 42, the other end of which is pivoted as at 43 to the lower end of a lever 44 pivoted between its ends as at 45 to the frame 41, and at its upper end to a connecting rod 46 connected to a crank 47 on the beforementioned slowly rotating shaft 28. The finger 42 carries a lateral pin 48 normally engaged in a notch 49 in the periphery of a disc 50 oscillatable through a small angle about a fixed pivot pin 51. This engagement of the pin 48 in the notch 49 normally prevents rotation of the disc 50 to the position shown in Fig. 2 under the influence of a tension spring 52, a stop pin 57 limiting the movement of the disc 50. However, when the cam 39 raises the finger 42 the pin 48 is slightly raised from the notch 49 to the position shown in Fig. 2 and releases the disc 50. The pivot pin 51 carries loosely a mercury tilting switch 53, and the disc 50 carries a pair of lateral abutments 54 adapted to alternately engage a finger 55 depending from the mercury switch so as to swing the switch to the position shown in Fig. 2 to close the circuit to the mains supply when the pin 48 releases the disc 50, and subsequently to swing the switch in the reverse direction to break the circuit. A coiled tension spring 56 located to provide a maximum tension dead centre position for the switch 53 provides a snap action for the switch, the axis of the spring 56 being in line with the axis of the pin 51 when the switch 53 is midway between its off and on positions.

The resetting of the switch 53 to its off position is effected automatically by the crank 47 on the shaft 28, this crank causing the pin 48 to occupy the position 48a, through the medium of the connecting rod 46, lever 44 and finger 42, at about half the revolution of the shaft 28, and during the remainder of the revolution of such shaft 28 the pin 48 is drawn towards its normal position, drops into the notch 49 and pulls the disc 50 round to its normal position. It will be apparent that as the disc 50 reaches this normal position the tilting mercury switch 53 will be swung back to its off position, i. e. to the left of that shown in Fig. 2. At the same time the first inserted coin, which has been resting upon the projection 34 (Fig. 6) will be released by the energizising of the electro-magnet 33 which will draw its armature 32 away from the chute 2, the released coin passing out through an inclined lower end 2a (Fig. 8) of said chute to an external collecting cup 57 (Fig. 3).

The energising of the electro-magnet 33 at the appropriate moment is effected by means of a fibre block 58 (see Figs. 4 and 5) on the shaft 28 bearing against one of a pair of normally spaced spring contact fingers 59 resulting in momentarily pressing the two contacts together and closing a circuit containing the electro-magnet 33.

The circuit to the other electro-magnets can be completely broken slightly in advance of the breaking of the circuit from the mains supply, and/or it can be closed slightly after the closure of the circuit to the mains supply, the latter

affording the competitors an opportunity to adjust the vehicle simulating members 8 centrally in the tracks 9 as the drum 10 commences to rotate, and also preventing a score being recorded at the moment of starting the rotation of the drum should one of the members 8 happen to be in contact with an edge of one of the tracks. For this purpose the circuit for the electro-magnets 14 can be closed by a wheel 63 (see Figs. 4 and 5) on the shaft 28 pressing by its periphery against one of a pair of spring contacts 64 located alongside the contacts 59, such pressure maintaining the contacts 64 engaged, this pressure however being released to separate the contacts at the completion of the rotation of the shaft 28 by means of a recessed part 65 in the said wheel. The source of current for the electro-magnets can be the mains supply, by interposing a stepped down transformer between the resistance 29 and the contacts 59 and 64.

To enhance the general effect, a pictorial representation 60 can be mounted on a panel behind the drum, and it can contain pictorial matter signifying roads apparently in prolongation of the tracks on the drum. A central track 61 can be marked on the drum carrying a vehicle simulating body 62 which will move with the drum and cause some diversion to the competitors.

During the playing of a game, the ratchet wheels 19 are prevented from returning the numerical recorder pointers to zero, by pawls 66 on the outer ends of spring loaded levers 67 (see Fig. 6) pivoted at 68, the inner or opposed ends of these levers being adapted to be depressed by a bar 69 bridging such ends, such bar being depressed by the insertion of a coin in the slot 1.

I claim:

1. In coin freed electrically operated game apparatus operable by the insertion of two coins to close an electric circuit of the apparatus to set the apparatus in operation, means to retain one coin in the apparatus and to utilise it to close the electric circuit and to automatically return the other coin to the player at the end of each operation of the apparatus, said means comprising a coin chute, an electro-magnet and armature, a relatively movable member carried by the armature, upper and lower abutments on said relatively movable member adapted to alternately project into the coin chute, the lower abutment normally being located in the chute to be engaged and deflected out of the chute by the first inserted coin to move the upper abutment into the chute in the path of the second inserted coin, an outlet for the second coin in the chute opposite said upper abutment, a circuit closing device adapted to be operated by the second coin as said second coin descends from said outlet, and means to momentarily energise said electro-magnet after a predetermined period of operation of the game apparatus to move said armature and therewith the lower abutment to release the first inserted coin for collection by the player.

2. In coin freed electrically operated competitive game apparatus operable by the insertion of two coins to close an electric circuit of the apparatus to set the apparatus in operation, means to retain one coin in the apparatus and to utilise it to close the electric circuit and to automatically return the other coin to the player at the end of each operation of the apparatus, a switch operated by the weight of a coin for closing the circuit for the said motor, a coin receiving chute adapted to receive two coins in succession, a movable abutment in juxtaposition to said chute adapted to be displaced by the weight of the first inserted coin so as to intercept and deflect the second inserted coin, a guide to convey said deflected coin to said switch, an electro-magnet and armature close to said chute, said abutment comprising a projection at the upper end of a vertical finger pivoted between its ends to said armature, the lower end of said finger normally projecting into the chute to be displaced by the weight of the descending first inserted coin to move the abutment into the chute, a projection on the armature below said finger affording a temporary stop for the inserted coin and means to automatically momentarily close the circuit of the electro-magnet after a predetermined period of operation of the apparatus to retract its armature to release the first inserted coin for collection by a player.

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