Sept. 29, 1942. M. VENERI 2,297,264

COIN-CONTROLLED BILLIARD TABLE

Filed July 12, 1939 4 Sheets-Sheet 1

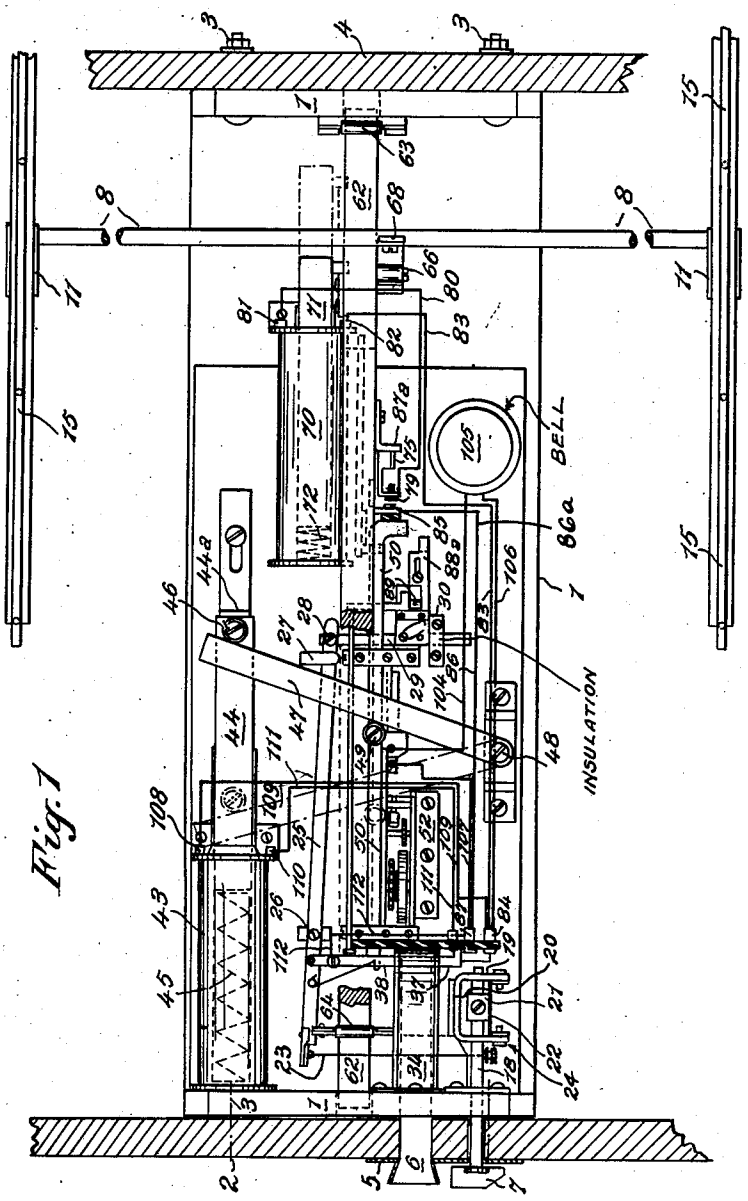


Fig. 1

Inventor,
M. Veneri
By: Glascock Downing & Seebold
Attys.

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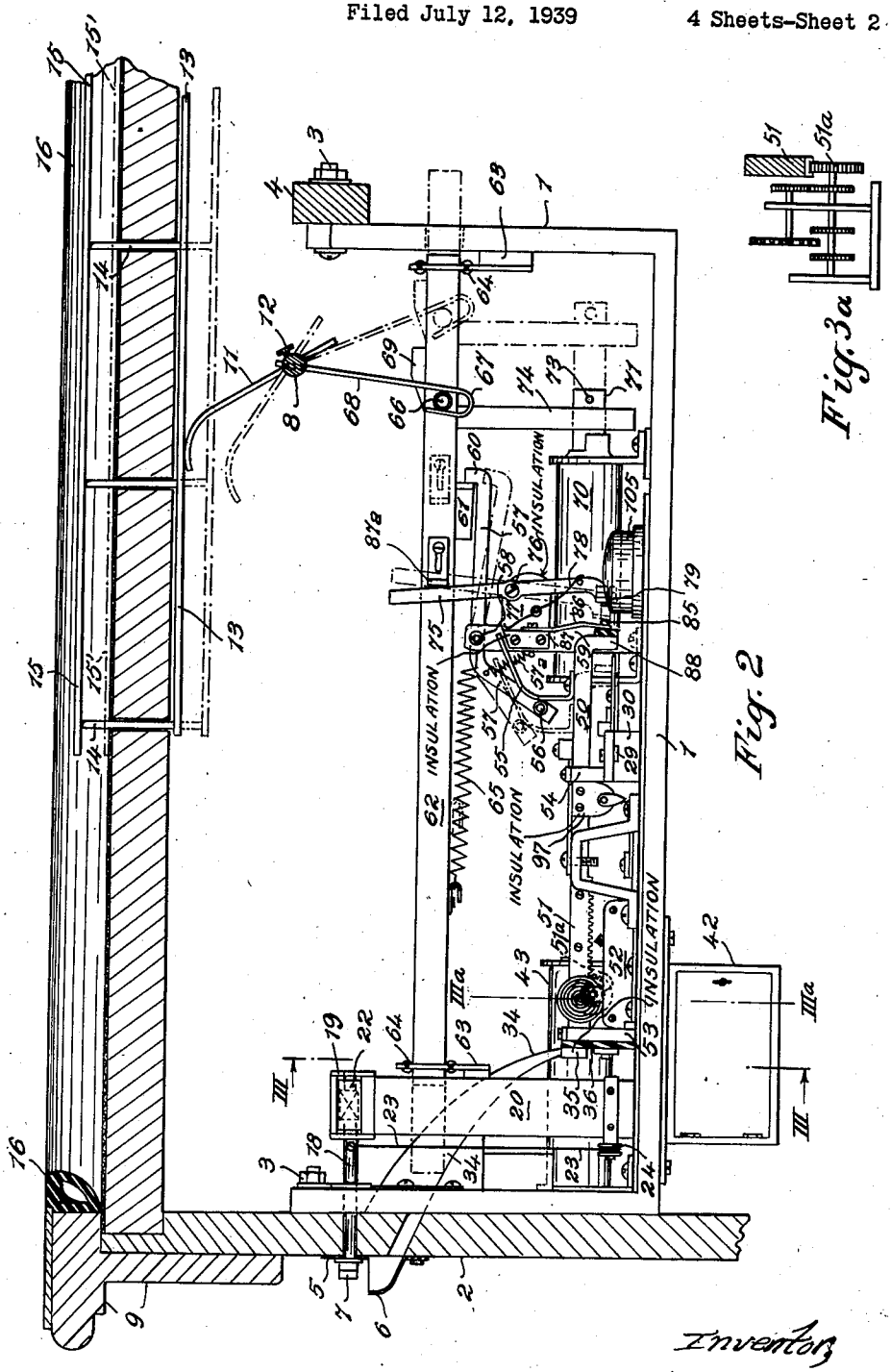


Fig. 2

Fig. 3a

Inventor
M. Veneri
By: Glascock Downing & Seibold
Attys.

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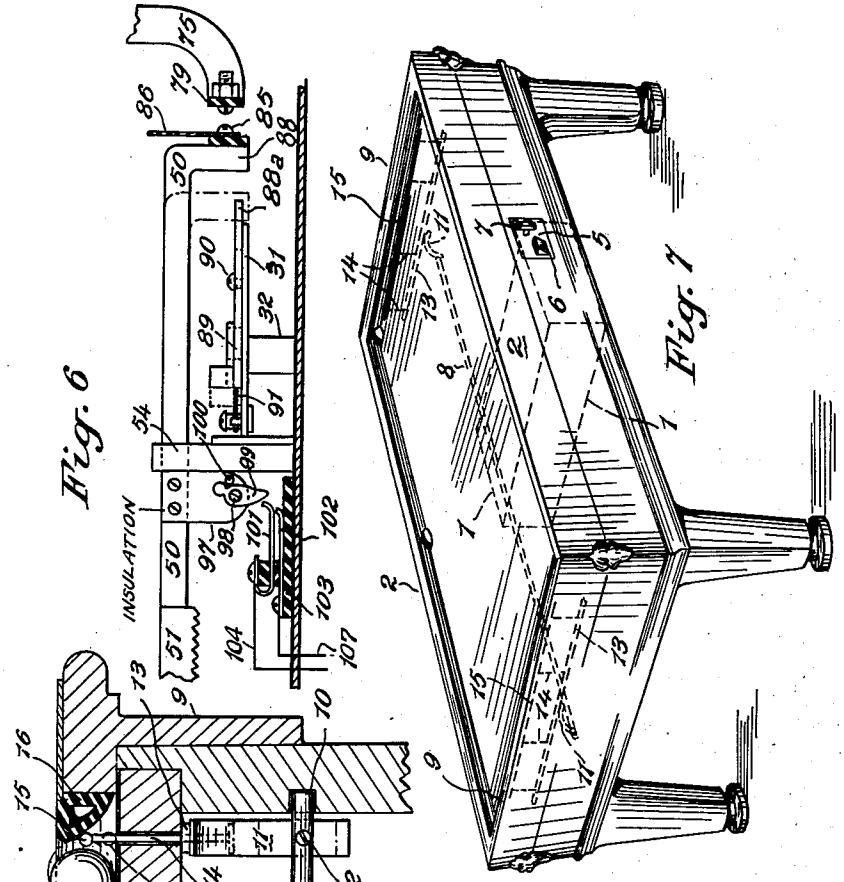


Fig. 1

Fig. 6

Fig. 3

Inventor,
M. Veneri
By: Glascock Downing & Seebold
Attys.

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COIN-CONTROLLED BILLIARD TABLE

Filed July 12, 1939 4 Sheets-Sheet 4

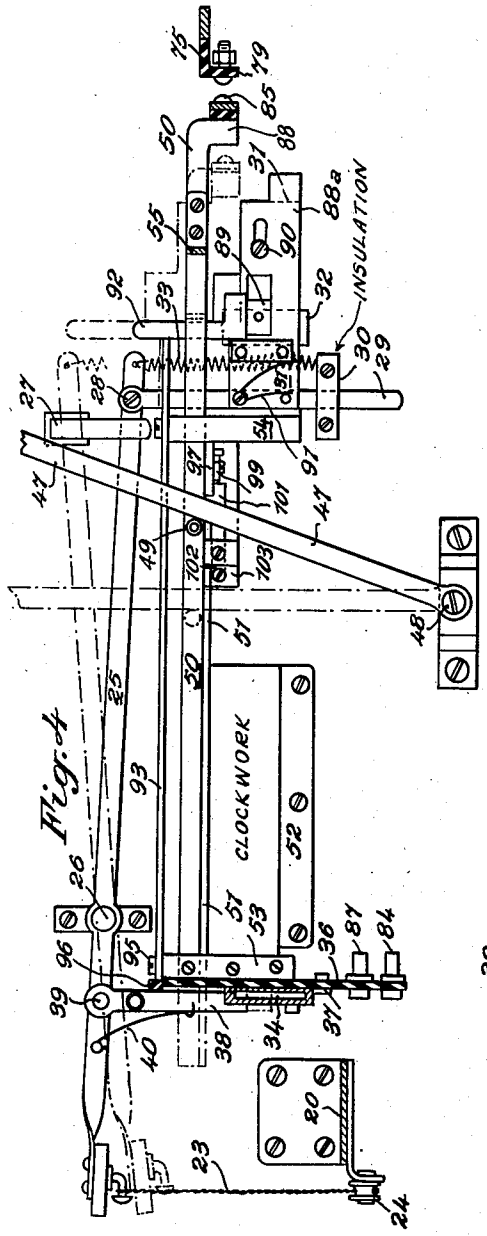


Fig. 4

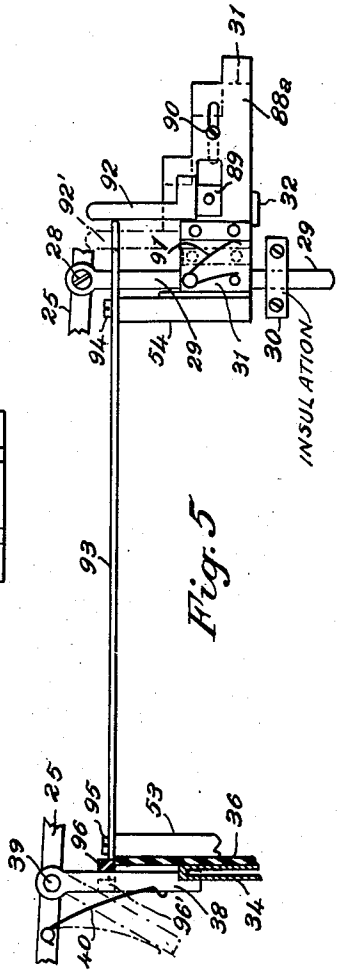


Fig. 5

Inventor,
M. Veneri

By: Glascock Downing & Seibold
Attys.

Patented Sept. 29, 1942

2,297,264

UNITED STATES PATENT OFFICE

2,297,264

COIN-CONTROLLED BILLIARD TABLE

Modesto Veneri, Sinalunga, Italy; vested in the Alien Property Custodian

Application July 12, 1939, Serial No. 284,136
In Italy July 14, 1938

12 Claims. (Cl. 273—3)

The present invention relates to apparatus applied to billiard tables for limiting the time of use thereof in correspondence with the amount paid. In carrying out the invention any type of game on a billiard-table is prevented before the introduction of a coin into the apparatus for the amount corresponding to the length of time it is desired to play and which amount is fixed with respect to the various types of coins according to the rate adopted in the place where the billiard-tables have been set up.

The main purpose of the invention is obtained by disposing a series of bars along the cushions of the billiard-table, which bars in a normal position project from the surface of the billiard-table at about half of the height of the cushions so that rebounding of the billiard balls is prevented. When the coin is introduced into the apparatus, these bars move down onto the surface of the billiard-table and remain in such a position so that the balls may rebound against the elastic cushion without engaging the bars. A time control device may be placed beneath the table and is thus completely hidden, on the outside appearing merely the slot for the introduction of the coin and a pointer which serves to adjust the apparatus in correspondence with the time it is desired to play.

In the device according to the invention there are provided electric contact members by means of which the players are advised of the proximate end of the play-period and without any interruption they may extend this period by introducing another coin into the apparatus.

According to a preferred form of the invention the time regulating mechanism comprises a board on which is provided the slot for introducing the coin, such board bearing a pointer which may assume various positions in relation to the values of the coins. The apparatus includes a clockwork mechanism which regulates the play-period with respect to time.

The displacement of the pointer on the board controls the disposition of a stepped plate, which after the coin having established the contact and a control rod of the clockwork mechanism having been displaced, regulates the amplitude of the displacement of the control rod and consequently the length of the play-period. The positions of the pointer indicate the type of coin to be used and with coins of a higher value there corresponds a greater distance of the elements between which the coins must establish the contact and if a coin of a value less than the one indicated by the pointer is introduced in the apparatus, such coin passes idly between the contact elements.

Other features and objects of the invention will be apparent from a consideration of the accompanying drawings and the following detailed description wherein an exemplary embodiment of the invention is disclosed.

In the drawings:

Fig. 1 is a plan view partly in section illustrating the general organization of the invention.

Fig. 2 is an elevational view of the timing mechanism showing the association thereof with a billiard-table, parts of which are represented in section.

Fig. 3 is a sectional view taken on the line III—III of Fig. 2.

Fig. 3*a* is a sectional view of the clockwork mechanism and taken on the line III*a*—III*a* of Fig. 2.

Fig. 4 is a plan view of part of the control mechanism illustrating portions of Fig. 1 on a larger scale.

Fig. 5 is a view similar to Fig. 4 with various elements thereof removed to clearly illustrate means for moving one of the contact members.

Fig. 6 is an elevational view of parts of the control mechanism illustrating means for controlling various circuits of the electrical system.

Fig. 7 is a perspective view of a billiard-table showing the control mechanism dissociated therewith.

With reference to the drawings, the device according to the invention is constituted by a frame 1 which is applied to a billiard-table in the manner indicated in Fig. 7. The frame 1 is supported by a cross bar 4 and is fixed to the cross bar and to the frame of the billiard-table by means of the bolts 3 as shown in Fig. 2. On the outside merely appears a board 5 with an element 6 for the introduction of the coin and a pointer 7 which has some determined positions, in correspondence with a similar number of values indicated on the board 5.

The frame 1 supports the time regulating mechanism which drives a shaft 8 mounted in movable manner at 10 as shown in Fig. 3 on the frame portions 9 of the billiard-table. At the two ends of the shaft 8 there are fixed by means of the screws 12 eccentric members 11 which possess an inclined end adapted to bear against a lower cross bar 13, which by means of upright pins 14 transversing the top of the billiard-table, supports the little bars 15 for preventing a game of billiards on the table. When in the

condition of rest, or after the shaft 8 has been turned to the left when looking at Fig. 2, the little bars 15 rest on the surface of the billiard-table as indicated at 15'. In this position of the bars 15 a billiard-ball 17 may engage the cushion 16 as shown at 17', and the ball 17 under these conditions does not engage the little bars 15 in the position 15'.

Should the shaft 8 be turned to the right in Fig. 2, however, in the manner which will be explained later on, the curved end of the members 11 raise the cross-bar 13 and thus the little bars 15 are moved against the elastic cushion 16 at about half of its height, so that the rebounding of the balls 17 against the cushion is prevented and, therefore, it is impossible to carry out a game with the balls 17.

The pointer 7 is connected to a shaft 18 mounted in a movable manner on frame 2 of the billiard-table and in a bracket 19 of the upright 20, fixed to the frame 1. The shaft 18 on the inside of the U-shaped bracket 19 is provided with an eccentric 21 of square section which cooperates with a leaf-spring 22 fixed to the two arms of the bracket 19 as shown in Fig. 1. On the shaft 18 is fixed a flexible cord 23 which is wound up around the pulley 24 and terminates at the end of a rod 25 as shown in Fig. 4. The rod 25 is pivoted at 26 on the frame of the mechanism and at its other end it is guided in a member 27. The rod 25 is provided with a pivot-like connection 28 and a small rod 29 guided by an element 30 of insulating material and carrying a stepped plate 31 shown in dotted lines in Fig. 5. The end of the rod 25 is urged towards the element 30 by a spring 33 which is anchored on the small block 30.

From the receiving element 6 the coins pass into a funnel 34 which has the form shown in Fig. 2 and terminates in a reception member 35 as shown in Fig. 3 of insulating material fixed on the support 36. On the support 36, furthermore, is fixed a contact 37 disposed in a slightly inclined manner. The contact 37 cooperates with another contact 38 pivoted at 39 on the lever 25 and continuously urged by a spring 40 against the support 36.

As can be seen from Fig. 4 the various positions of the pointer 7 correspond to positions of the lever 25 and thus of the contact 38. Since the contact 37 is fixed, the distance left from between the two contacts 37 and 38 varies and therefore varies likewise the type of coin 41 to be utilized for operating the apparatus in correspondence with the values indicated on the board 5. Should an attempt be made to operate the apparatus by a coin which is of a smaller size than the one indicated by pointer 7, this coin passes idly without bridging the contacts 37 and 38 and falls into the collecting receptacle 42 without having any bearing, since between the elements 37 and 38 there is a larger space than the diameter of such coin.

On the frame 1 is mounted an electromagnet 43 the armature 44 of which is urged out of the coil by a spring 45. The armature 44 is provided with a roller 46 which acts on a lever 47 pivoted at 48 on the frame 1 and its movement towards the right in Fig. 1 is limited by a stop 44a. The lever 47 acts on a roller 49 of a control rod 50 which has a rack 51 adapted to cooperate with a toothed wheel 51a driven by the clockwork mechanism 52. The control rod 50 is guided within the metallic blocks 53 and 54 and close to its right end it carries a curved element 55 as shown in Fig. 2 designed to cooperate with a roller 56 mounted at the end of an angle lever 57 pivoted at 58 on the support 59 and urged in a counter-clockwise direction on the pivot 58 by a spring 57a. The other end of the lever 57 is provided with a tooth 60 adapted to engage in the manner indicated in Fig. 2 with a projection 61 provided on the lower part of a rod 62, mounted at its two ends on the supports 63 and 64 carried by the frame 1.

The rod 62 is urged towards the right by a spring 65 anchored on the support 59. The rod 62 carries a roller 66 adapted to cooperate with a curved part 67 of a lever 68 fixed on the rotative shaft 8 which as hereinabove described controls the movement of the little bars 15. The movement of the rod 62 towards the right is regulated by a projection 69.

The movement of the rod 62 towards the left is operated by an electromagnet 70 the armature 71 of which is urged towards the outside of the coil by a spring 72. The armature 71 is provided with a roller 73 which engages a lower attachment 74 of the rod 62 and thus when the electromagnet 70 is energized the rod 62 is displaced towards the left.

The excitation of the electromagnet 70 is controlled by an arm 75 pivotally mounted at 76 on the insulating support in 77 and urged in a clockwise direction by a spring 78. The arm 75 is turned in a counter-clockwise direction by means of a lug 87a adjustably mounted on the rod 62. The lower end of the arm 75 is provided with a contact screw 79, which by means of the conductor 80, shown in Fig. 1, is connected to one of the terminals 81 of the electromagnet 70. The other terminal 82 of the electromagnet is connected by a conductor 83 to one of the contacts 84 of a common plug fixed on the insulating support 36.

The right end of the control rod 50 is bent downwardly as indicated in 88 and has a little block of insulating material by means of which it is capable of moving a contact 85 carried by a contact spring 86 mounted on an insulating block 87 in such a manner as to move the contact 85 into engagement with a screw 79. The contact 85 is connected by a conductor 86a to the other contact 87 of the plug. When the rod 50 is reconducted into its normal position by the clockwork mechanism 52, it can easily be seen how the end 88 effects the contact between the elements 85 and 79 and thus closes the excitation circuit for the electromagnet 70 through a circuit including the contact 87, conductor 86a, contact 85, contact 79, conductor 80, terminal 81, winding of the electromagnet 70, terminal 82, conductor 83, and the contact 84. The electro-magnet 70 thus attracts the armature 71 and moves the rod 62 against the action of the spring 65 until the projection 61 engages the tooth 60 of the lever 57 and thus stops the rod 62. The lateral attachment 87a when the rod 62 by means of the electromagnet 70 is displaced towards the left, acts upon the upper end of the arms 75 to move the same against the action of the spring 78, so that the contacts 79 and 85 are opened and the electromagnet 70 is de-energized and the armature 71 moves to the external position through the action of the spring 72.

A mechanism for controlling the duration of the game in dependence on the value of the coin introduced is shown in Figs. 4, 5 and 6 wherein a second stepped plate 88a is mounted on the

stepped plate 31. The plate 88a is guided by an element 89 and a screw 90. The outer shape of the plate 88a is identical to the plate 31. The plate 88a is urged towards the right by a spring 91. The plate 88a is provided with an attachment 92 which can act upon a rod 93 guided by screws 94 and 95 and carrying on the left-hand end thereof an insulating element 96, by means of which it may displace the contact element 38 in a clockwise direction against the action of the spring 40, when plate 88a is moved to the position indicated in dotted lines in Figs. 4 and 5.

When the electromagnet 43 is excited in the manner described in the following, the control rod 50 is displaced by the lever 47 towards the left up to the point permitted by a tooth of the plate 31 which is engaged by the end 88 of the rod 50. Since the position of the plate 31 is controlled by the pointer 7 in conformity with the type of money introduced, the displacement amplitude of the rod 50 towards the left is controlled accordingly. Owing to the connection between the control rod 50 and the clockwork-mechanism 52, the rod 50 needs a longer or shorter time for returning to its extreme right-hand position, and the play-period allowed is shorter or longer since, as it will be seen from the following, when rod 50 returns to its extreme right-hand position, the little bars 15 are operated in such a manner as to prevent engagement of the balls 17 with the cushion 16.

However, before the end 88 of the lever 50 during its movement towards the left engages the corresponding tooth of the plate 31, it strikes the plate 88a and displaces the same towards the left for a length corresponding to which this plate projects beyond the plate 31. During this movement the attachment 92 is moved to the position indicated at 92' and thus displaces the insulating element 96 to the position represented at 96' in Fig. 5 in such a manner that the contact element 38 is rotated sufficiently to permit the coin, which had been between the contact element 38 and the contact element 37, to fall into the collecting receptacle 42.

In its middle part the rod 50 is provided with a further element of insulating material 97 on which is mounted at 98 a pawl 99 as shown in Fig. 6 which is able to rotate freely in a counter-clockwise direction but is prevented from rotating in an opposite direction by means of a pin 100. The pawl 99 cooperates with a contact spring 101 mounted above another contact spring 102 on the insulating plate 103. When the control rod 50 is displaced towards the left, the pawl 99 rotates without difficulty and no contact is effected, however, when rod 50 returns towards the right, a short time before effecting the contact between the elements 85 and 79, or a certain period of time before the play is interrupted, the pawl 99 engages the spring 101 and effects contact thereof with the spring 102. As shown in Figs. 1 and 6 the spring 101 is connected by means of a conductor 104 to a bell 105, which, by means of a conductor 106, is connected to the contact 84. The other contact 87 is connected to the lower spring 102 by means of a conductor 107. If the rod 50 reaches the above mentioned position, the bell 105 emits an acoustic signal and should the players desire to prolongate the period of time allowed, without interrupting the game, they can immediately introduce a new coin.

A circuit for the electromagnet 43 includes a terminal 108 directly connected to the contact 84 of the plug through a conductor 109. The other terminal 110 of the coil 43 is connected to the contact element 37 by a conductor 111 and thus by a coin 41 to the other contact element 38 which is connected to the other contact 87 of the plug by means of a conductor 112.

When introducing a coin of the size indicated by the position of the pointer 7 into the aperture 6, the coin disposes itself in the manner indicated in Fig. 3 and effects the electric contact between the elements 37 and 38. Thus the circuit for the electromagnet 43 is closed, which latter attracts the armature 44, causing the lever 47 to swing to the left in Fig. 1 and displaces the control rod 50 towards the left, up to the point allowed by the position of plate 31. The roller 56 of the lever 57 rolls on the inclined guide 55 and the tooth 60 frees the rod 62 for displacement towards the right by the spring 65. The rod 8 rotates in a counter-clockwise direction as shown in Fig. 2 and the little bars 15 fall on the surface of the billiard-table.

When a period of time has elapsed which is controlled by the clockwork-mechanism 52, depending on the displacement amplitude of the rod 50 which returns backwards with uniform motion, the pawl 99 causes the spring 101 to close the contact with the spring 102 and the bell 105 is energized to provide the acoustic signal. Should the players desire to proceed with the game they may introduce a fresh coin into the aperture 6, and the electromagnet 43 thus becoming excited and the cycle of operation as described above is repeated. Should the play be terminated, the rod 50 proceeds in its displacement towards the right and the contacts 85 and 79 are closed. The electromagnet 70 is then excited and the rod 62 is displaced and consequently the little bars 15 are raised to prevent engagement of the balls 17 with the cushion 16. It has already been seen from the above how the electromagnet 70 is de-energized by rotation of the lever 75. It will be noted that the tooth 60 may engage the projection 61 in the extreme right-hand position of the rod 50 as illustrated in Fig. 2 since the roller 56 does not find any obstacle against its downward displacement on the part of the inclined guide 55.

The present invention has been illustrated and described in a preferred form of realization, but it is understood that constructive variations may be applied thereto in practice without exceeding the scope of protection of the present patent.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In a coin controlled billiard table having a flat surface, an elastic cushion extending upwardly from the table surface and adapted to be engaged by balls rolling on the table surface, non-resilient means arranged adjacent the surface of the table and longitudinally of the cushion so that the balls may engage the cushion when rolling on the table surface without engaging said non-resilient means, means for raising said non-resilient means to a position along the cushion whereby the balls rolling on the table surface engage the non-resilient means without engaging the cushion, and detent means for maintaining said non-resilient means in a raised position.

2. In a coin controlled billiard table having a flat surface, an elastic cushion having an inner upper edge disposed above the surface of the

table so that the upper inner edge of the cushion is engaged by balls rolling on the table surface, a bar arranged adjacent the table surface extending longitudinally of the cushion and under the upper inner edge thereof so that the balls when rolling on the table surface may engage the upper inner edge of the cushion without engaging the bar, means for raising said bar to a position above the table surface whereby the balls rolling on the table surface are prevented from engaging the upper edge of said cushion, and means for maintaining said bar in the raised position.

3. In a coin controlled billiard table having a flat surface, a plurality of elastic cushions each having an upper inner edge positioned above the surface of the table so that the upper inner edges of the cushions may be engaged by balls rolling on the table surface, a plurality of bars, one of said bars being arranged longitudinally of each cushion and under the upper inner edge of each cushion so that the balls when rolling on the table surface may engage the upper inner edges of said cushions without engaging said bars, means for simultaneously raising said bars above the surface of the table to positions where the balls rolling on the table are prevented from engaging said cushions, and means for maintaining said bars in said raised positions.

4. In a coin controlled billiard table having a flat surface, an elastic cushion adapted to be engaged by balls rolling on the table surface, non-resilient means arranged adjacent the surface of the table and longitudinally of the cushion so that the balls may engage the cushion when rolling on the table surface without engaging said non-resilient means, means for raising said non-resilient means to a position along the cushion whereby the balls rolling on the table surface engage the non-resilient means without engaging the cushion, detent means for maintaining said non-resilient means in a raised position, means for releasing said detent means, and yieldable means for moving said raising means to an inoperative position whereby the non-resilient means moves towards the table surface so that the balls may engage said cushion.

5. In a coin controlled billiard table having a flat surface, an elastic cushion adapted to be engaged by balls rolling on the surface of the table, rigid means arranged longitudinally of the cushion and adjacent the surface of the table so that the balls may engage the cushion when rolling on the table surface without engaging said rigid means, electro-magnetic means including a rod for raising said rigid means to a position along the cushion where the balls rolling on the table surface are prevented from engaging said cushion, detent means retaining said rod in a position for maintaining said rigid means in said raised position, means for releasing said detent means, and yieldable means for moving said rod to an inoperative position whereby said rigid means may move to a position along said table surface.

6. In a coin controlled billiard table having a flat surface, an elastic cushion adapted to be engaged by balls rolling on the surface of the table, a bar arranged longitudinally of the cushion, electro-magnetic means for raising said bar to a position along the cushion where the balls when rolling on the table are prevented from engaging the cushion, detent means for maintaining the bar in said raised position, coin controlled means for releasing said detent means, and means for actuating said electro-magnet to raise said bar to a position along the cushion for preventing the balls rolling on the table from engaging said cushion.

7. In a billiard-table, a top for the table having a flat surface, an elastic cushion adapted to be engaged above the top of the table by a ball rolling on the flat surface thereof, said top having a vertical opening therein, a pin movable vertically within said opening, a bar connected to an upper end of said pin resting on the surface of the top and positioned so that the ball may engage the cushion above the bar and rebound from the cushion without engaging the bar, and means for moving said pin upwardly to position the bar along the cushion so that the ball engages the bar in rolling towards the cushion.

8. In a billiard-table, a frame including a top for the table having a flat surface, an elastic cushion adapted to be engaged above the table top by a ball rolling on the flat surface thereof, said top having spaced vertical openings therein, a pin movably mounted within each opening, a bar connected to upper ends of said pins resting on the surface of said top and so positioned that the ball may engage the cushion above the bar and rebound from the cushion without engaging the bar, a shaft rotatable in the frame, a transverse bar connecting the pins below the table top, an eccentric member carried by the shaft for engaging the transverse bar, and means for rotating said shaft for moving said pins upwardly to position the first bar along the cushion so that the ball will engage the bar in rolling towards the cushion.

9. In a billiard-table, a frame including a top for the table having a flat surface, an elastic cushion adapted to be engaged above the table top by a ball rolling on the flat surface thereof, said top having spaced vertical openings therein, a pin movably mounted within each opening, a bar connected to upper ends of said pins resting on the surface of said top and so positioned that the ball may engage the cushion above the bar and rebound from the cushion without engaging the bar, a shaft rotatable in the frame, a transverse bar connecting the pins below the table top, an eccentric member carried by the shaft for engaging the transverse bar, a lever extending radially from said shaft, a rod movable longitudinally on the frame transversely of the said lever, means connecting the rod and the lever, means for moving said rod in one direction to rotate said shaft and raise the pins and the first bar to a position along the cushion whereby the ball engages the bar in rolling on the table top towards the cushion, and a spring for biasing the rod in an opposite direction.

10. In a billiard-table, a frame including a top for the table having a flat surface, an elastic cushion adapted to be engaged above the table top by a ball rolling on the flat surface thereof, said top having spaced vertical openings therein, a pin movably mounted within each opening, a bar connected to upper ends of said pins resting on the surface of said top and so positioned that the ball may engage the cushion above the bar and rebound from the cushion without engaging the bar, a shaft rotatable in the frame, a transverse bar connecting the pins below the table top, an eccentric member carried by the shaft for engaging the transverse bar, a lever extending radially from said shaft, a rod movable longitudinally on the frame transversely of the said lever, means connecting the rod

and the lever, means for moving said rod in one direction to rotate said shaft and raise the pins and the first bar to a position along the cushion whereby the ball engages the bar in rolling on the table top towards the cushion, a projection carried by said rod, and a pivotally mounted lever having a tooth engaging said projection to maintain the bar in said raised position.

11. In a billiard-table, a frame including a top for the table having a flat surface, an elastic cushion adapted to be engaged above the table top by a ball rolling on the flat surface thereof, said top having spaced vertical openings therein, a pin movably mounted within each opening, a bar connected to upper ends of said pins resting on the surface of said top and so positioned that the ball may engage the cushion above the bar and rebound from the cushion without engaging the bar, a shaft rotatable in the frame, a transverse bar connecting the pins below the table top, an eccentric member carried by the shaft for engaging the transverse bar, a lever extending radially from said shaft, a rod movable longitudinally on the frame transversely of the said lever, means connecting the rod and the lever, means for moving said rod in one direction to rotate said shaft and raise the pins and the first bar to a position along the cushion whereby the ball engages the bar in rolling on the table top towards the cushion, a projection carried by said rod, a pivotally mounted lever having a tooth engaging said projection to maintain the bar in said raised position, a cam member for pivoting the last mentioned lever, an electromagnet for moving said cam, a circuit for supplying current to said electromagnet, and contacts in said circuit adapted to be closed by a coin for completing the circuit to the electromagnet.

12. In a coin-controlled billiard-table having a flat surface, an elastic cushion adapted to be engaged by a ball rolling on the table, non-resilient means movably mounted on the table outside a path of movement of a ball rolling on the table towards the cushion whereby the ball may rebound from the cushion, means for moving and maintaining the non-resilient means in a position to be engaged by the ball rolling on the table surface towards the cushion, and means operably responsive to the introduction of a coin for rendering said last mentioned means inoperative.

MODESTO VENERI.