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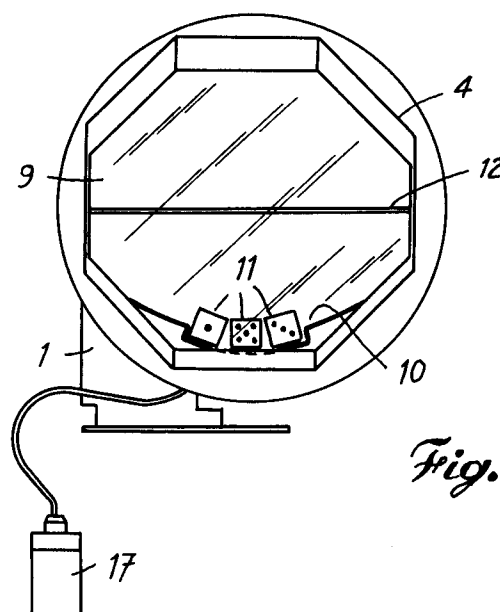
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B-2600 Antwerpen (Berchem) (BE)**(54) **Automatic dice game.**

(57) The invention is for an automatic dice game consisting of a frame (1), a body (4) which can rotate about a shaft (3) mounted in the frame, a means of propulsion (5-6-7-8) for turning the body, a number of dice bodies (11) placed in the body with code carriers (14) and dice symbols, and a code reader (15) for reading the code carriers and installed between the frame (1) and the rotating body (4). The rotating body (4) is provided with a dice bed (10) for catching and locating the dice bodies next to one another (11), and the automatic dice game is provided with an optical sensor (20) and a number of detection strips (19) for placing the rotating body in the zero position and for determining the direction of rotation of the rotating body (4), with an interface unit (17) for converting the signals received from the code reader (15) into coded figures, and with a control unit with control card (18) for receiving the coded figures, for giving a stop signal to the means of propulsion of the rotating body (4) and for comparing the coded figures obtained with the predetermined winning combination.

*Fig. 1***EP 0 635 289 A1**

The invention is for an automatic dice game consisting of a rotating drum containing a number of dice which are visible to the player and which are provided with code carriers which work in conjunction with a code reader and an interface unit for reading the dice symbols, when the drum comes to a standstill, after which this information is compared with a predetermined winning combination.

An automatic game is known from U.K. patent 1,180,560 consisting of a frame, a body or basket capable of rotating on a shaft bearing in the frame, a means of propulsion for turning the body or basket, a number of dice bodies with code carriers and dice symbols and placed in the body, a code reader for reading the code carriers and installed between the frame and the rotating body or basket.

This automatic game has, however, the disadvantage that the game proceeds relatively slowly.

In order to remedy this disadvantage and significantly limit the duration of the game as well as to shake the dice thoroughly, an automatic dice game in accordance with the main characteristic of the invention has been realized which has in principal the characteristics described in claim 1 of the description given below.

By way of example but without in any way being exhaustive, a more detailed description of a preferred embodiment of the automatic dice game according to the invention is given below. This description refers to the attached drawing where:

- fig. 1 shows a front elevation of the automatic dice game;
- fig. 2 shows a side elevation of same;
- fig. 3 shows a rear elevation;
- fig. 4 shows a dice used in the game;
- fig. 5 shows a section along the line V-V in fig. 4;
- figures 6 and 7 show a block diagram and flow chart of the automatic dice game respectively.

In these figures can be seen a frame 1 which by preference slopes backwards in which an axle 3 is mounted on ball bearings 2 to which a by preference octagonal drum 4 is fitted. A gearwheel 5 is also mounted on said axis over which a toothed belt 6 runs which likewise runs over a toothed pinion 7 fixed on the shaft of an electrical motor 8 mounted on aforementioned frame 1. The front of the drum is covered by a transparent wall 9 consisting of one or more parts which swing open. A dice bed 10 is fitted in the drum in which the dice bodies 11 of several dice are caught and positioned next to one another when the drum 4 comes to rest. Furthermore at least one cord 12 is stretched across and inside the drum in order to give the dice bodies an extra turn when the drum is rotated. In each plane of each dice body 11 there is a panel 13 on which the values 1 to 6 are marked

and to which a code carrier 14 is attached. Behind the drum 4 and on the frame 1 a code reader 15 is mounted for reading said code carriers 14 on the dice bodies through the drum wall 16 when the drum comes to a standstill. An interface unit 17 operates in conjunction with said code reader 15 for capturing the signals transmitted by the code reader and converting these signals for a control card 18 of a control unit. Detection strips 19 are fitted to the drum wall 16 which work in conjunction with an optical sensor 20 which gives a signal to the motor 8 for transforming the rotary motion into a delayed back and forth motion of the drum 4, which motion is limited by aforesaid detection strips 19. A coin test unit 21 attends to the validation of the inserted coins in order to put the automatic game into motion by pressing a button 22. The control card 18 coordinates the group of components constituting the game and the performance of the calculations. A unit 23 displays the winning combinations of the dice game visually and a payment unit 24 pays the prize in the event of a win. Other provisions include a unit 25 for the power supply and the conversion of mains voltage to low voltage, a unit 26 for the acceptance of coins, a unit 27 of limiting the number of rotations of the drum 4, a unit 28 for slowing the rotational speed of the drum 4, and a unit 29 for checking the received codes by the code reader 15 and the interface unit 17.

When a coin is inserted in the coin insert of the dice game the coin is checked by the coin test units 21 and is stocked in a pay-out unit 24 after validation by unit 26. By then pressing on button 22 of the game the control card 18 of the control unit starts the electrical motor 8 and the drum 4 turns through a number of revolutions. Thereafter the combined action of the optical sensor 20 and the detection strips 19 causes the zero position of the drum to be detected, after which the control card 18 will cause the motor 8 to impart a slowed back and forth motion to the drum 4. During this back and forth motion the dice bodies 11 fall into one or another position next to one another in the dice bed 10, after which the code reader 15 reads the code carriers 14 on the dice bodies, which are closest to the code reader 15. The interface unit 17 connected to aforesaid code reader converts the signals received by the code reader into coded figures for control card 18. The coded dice symbols are visible to the player through the transparent wall 9. The drum 4 continues to move back and forth until the control card has received three different figures relating to the position assumed by the dice bodies 11, after which the drum 4 becomes stationary in its zero position. Afterwards the control card 18 checks the figure combination obtained against the predetermined winning fig-

ures. When these correspond the amount won is paid out by sending a signal to pay-out unit 24.

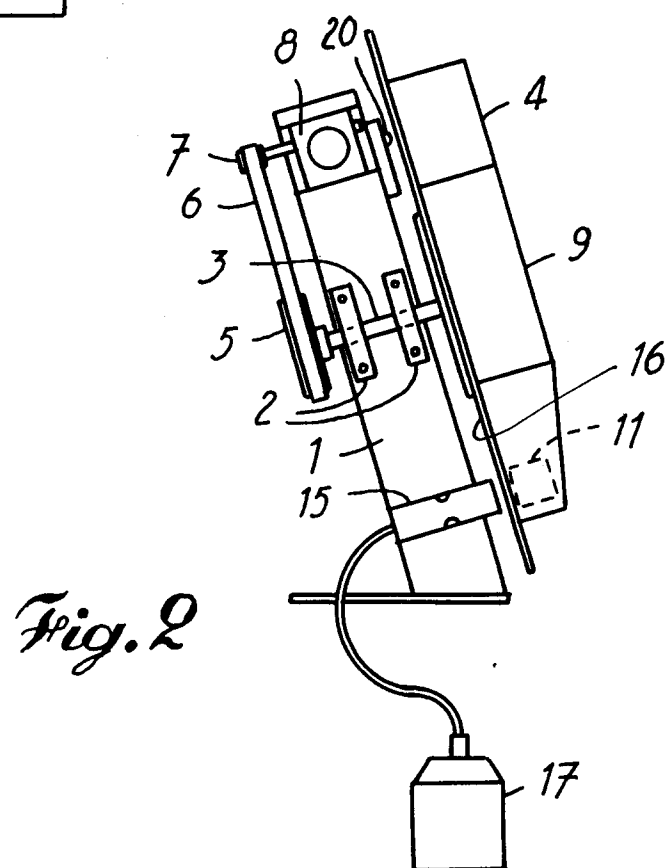
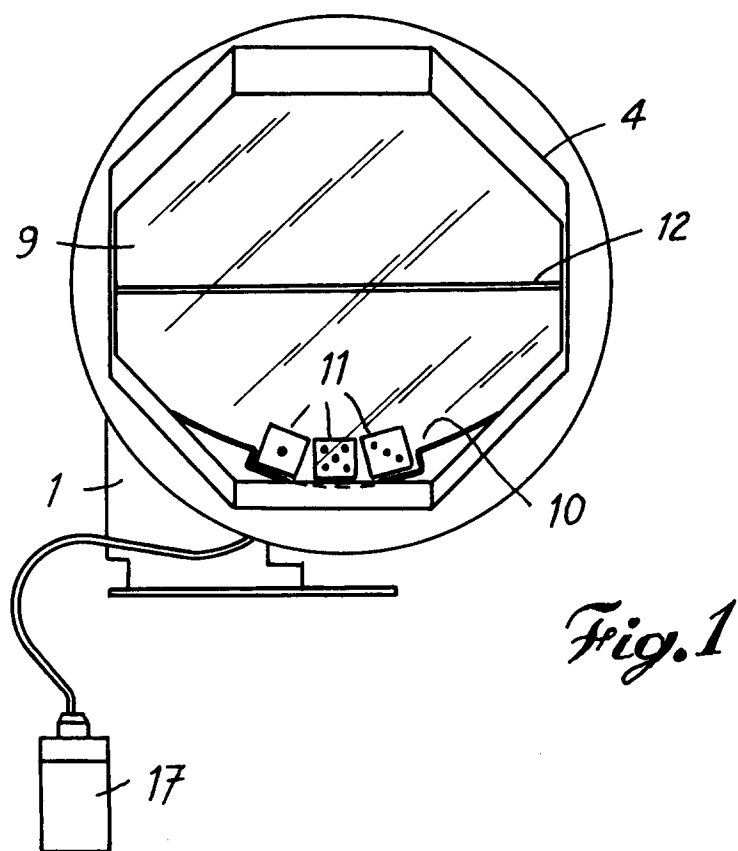
It goes without saying that the form, dimensions and the layout with respect to one another of the parts described above may differ within the scope of this invention. It also goes without saying that some of the parts described above may be replaced by others which have the same purpose.

Claims

1. Automatic dice game consisting of a frame (1), a body (4) which can rotate about a shaft (3) mounted in the frame, a means of propulsion (5-6-7-8) for turning the body, a number of dice bodies (11) placed in the body with code carriers (14) and dice symbols, and a code reader (15) for reading the code carriers and installed between the frame (1) and the rotating body (4), characterized in that the rotating body (4) is provided with a dice bed (10) for catching and locating the dice bodies next to one another (11), and that the automatic dice game is provided with an optical sensor (20) and a number of detection strips (19) for placing the rotating body in the zero position and for determining the direction of rotation of the rotating body (4), with an interface unit (17) for converting the signals received from the code reader (15) into coded figures, and with a control unit with control card (18) for receiving the coded figures, for giving a stop signal to the means of propulsion of the rotating body (4) and for comparing the coded figures obtained with the predetermined winning combination.
2. Automatic game in accordance with claim 1, characterized in that the rotating body (4) with the dice bed (10) consists of polygonal, preferably octagonal rotating drum (4) with a transparent wall (9) and two door panels which can be swung open.
3. Automatic game in accordance with claim 2, characterized in that there is at least one cord (12) stretched in drum (4) so that during the rotation of the drum an additional tumbling motion is imparted to the dice bodies (11).
4. Automatic game in accordance with claim 1, characterized in that the dice bed (10) has a recess in which a number of dice bodies (11) fit next to one other.
5. Automatic game in accordance with claims 1 and 2, characterized in that the optical sensor (20) is installed on the frame (1) and operates

in conjunction with detection strips (19) fitted to the drum for giving a signal to the drive mechanism (5-6-7-8) of the drum (4) in order to put this into the zero position and to convert the rotational movement of the drum into a slowed back and forth motion.

6. Automatic game in accordance with claim 1, characterized in that it is provided with a coin test unit (21), a button (22) for starting the means of propulsion of the drum (4), a unit (23) for indicating the winning combinations of the dice game, a payment unit (24) for paying out the price in the event of win, a unit (25) for converting mains voltage into low voltage, a unit (26) for accepting coins, a unit (27) for limiting the number of rotations of the drum (4), a unit (28) for slowing the speed of revolution of the drum (4), and a unit (29) for verifying the codes received by the code reader (15) and the interface unit (17).



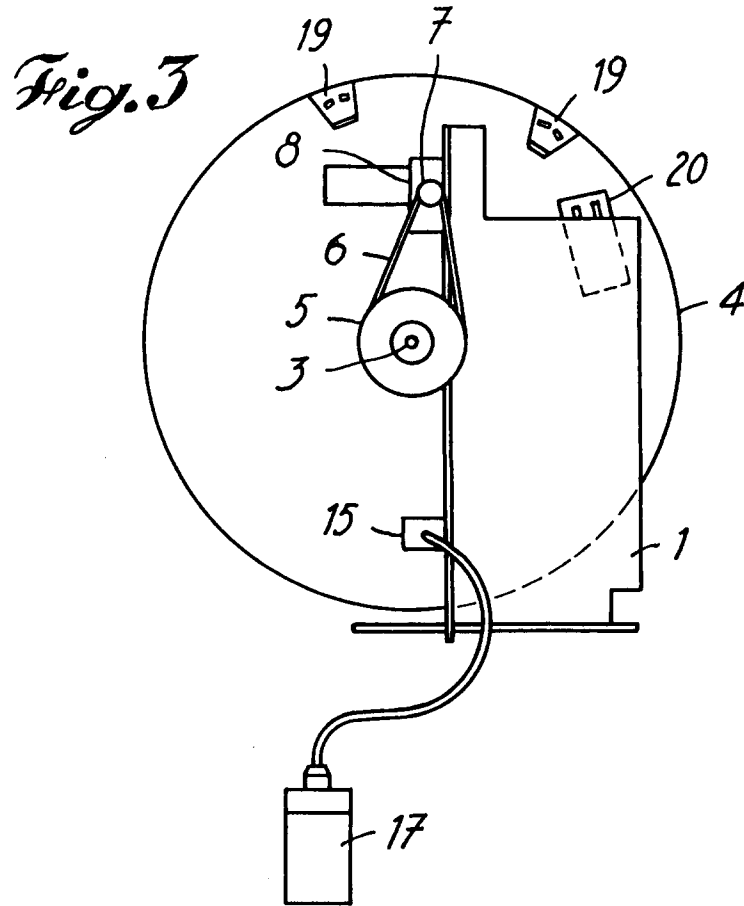


Fig. 4

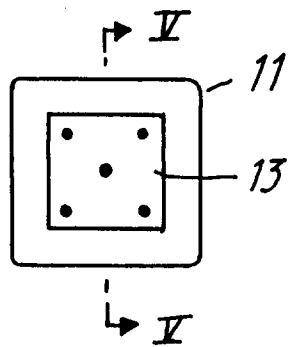
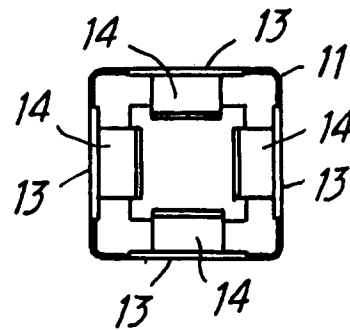


Fig. 5



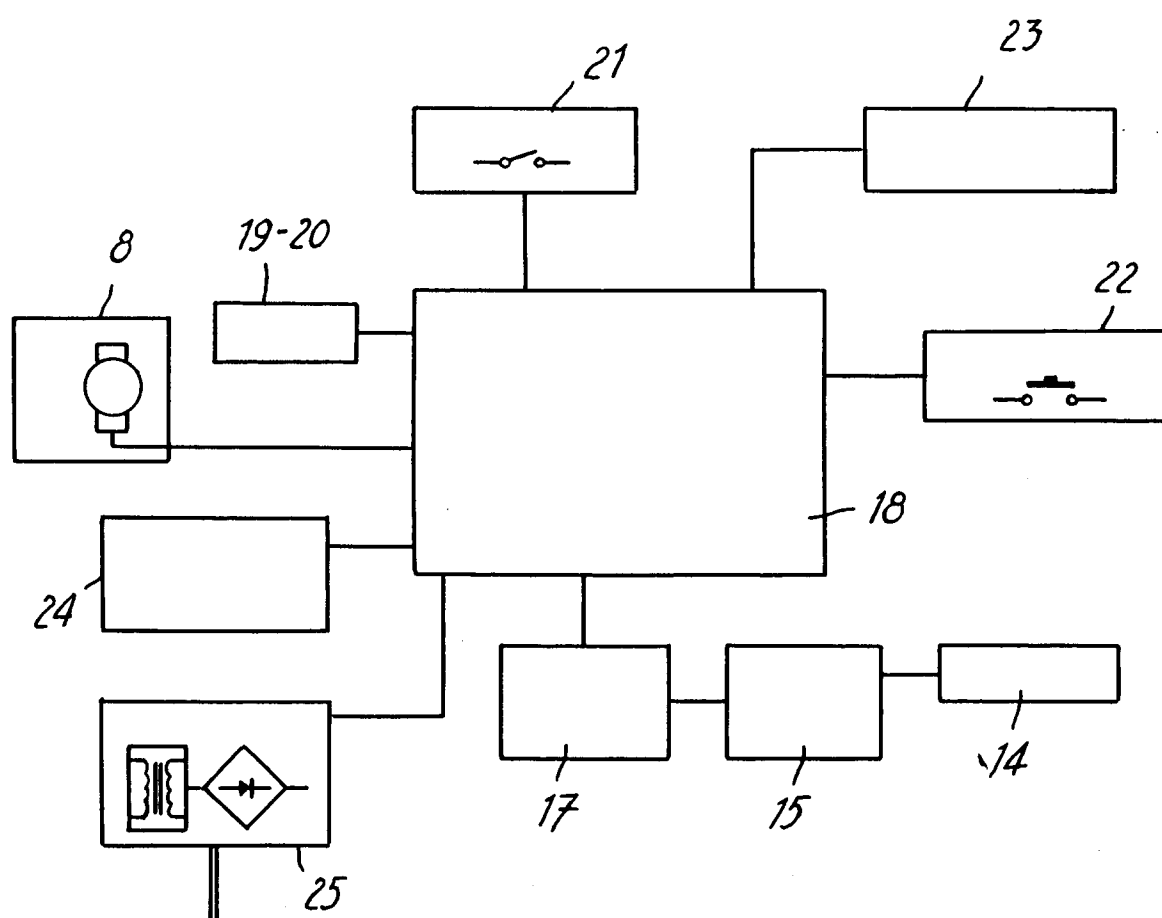
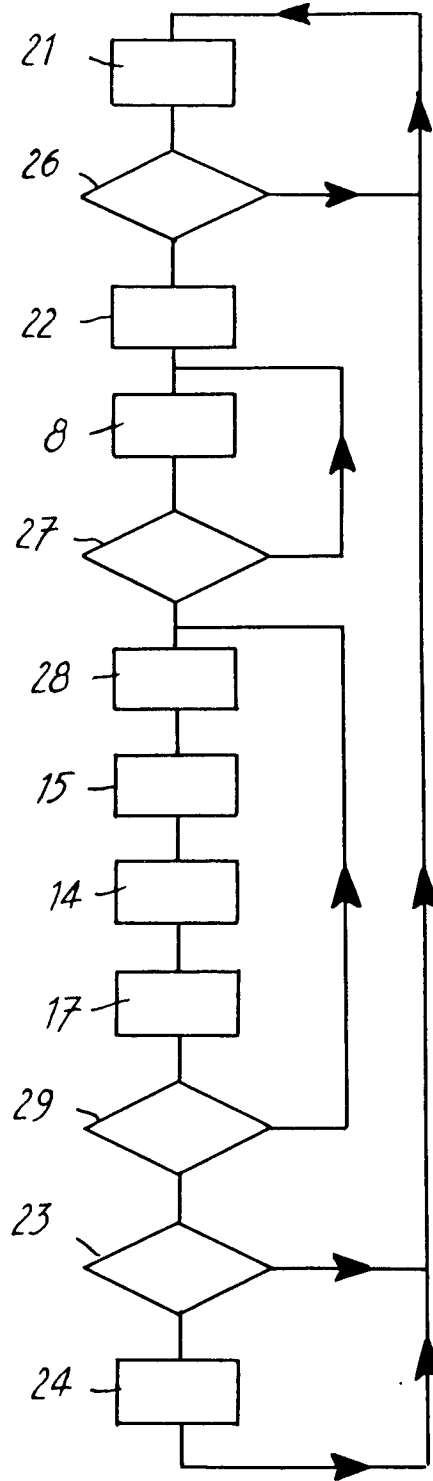


Fig. 6

Fig. 7





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EUROPEAN SEARCH REPORT

Application Number
EP 94 20 1728

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
D,Y	GB-A-1 180 560 (MAYFIELD ELECTRONICS) * the whole document *	1,6	A63F9/04 G07F17/34
A	---	2,5	
Y	DE-A-37 17 593 (N. DRESSELHAUS) * abstract; claims; figures *	1,6	
A	---		
A	EP-A-0 426 301 (HARRY LEVY AMUSEMENT CONTRACTORS) * abstract; claims; figures *	1,6	
A	---		
A	EP-A-0 311 252 (KLYONO SHOZO) ---		
A	US-A-4 892 311 (KOUJI ZAITSU) -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			G07F A63F G07C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14 November 1994	Examiner David, J
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	