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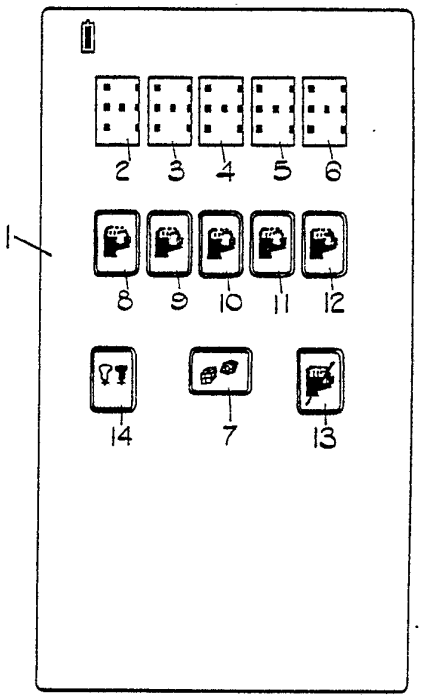
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(54) Title: A GAME

(57) Abstract

An apparatus (1) for playing a game includes five display devices (2 to 6). Each of the display devices includes seven light emitting diodes which may be energised to show configurations corresponding to the six sides of spot dice. The apparatus further includes a roll button (7), five hold buttons (8 to 12) associated with respective display devices (2 to 6), a cancel button (13), and a blanking button (14). When the roll button is depressed, the display changes in a random manner. If one of the hold buttons is depressed, then the associated display is prevented from changing. The action of the hold buttons may be cancelled by pressing the cancel button (13). The display may be blanked by pressing the blanking button (14).



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"A GAME"

TECHNICAL FIELD

This invention relates to a game.

BACKGROUND ART

There are already known a number of games based on dice. Dice may take two forms. In the first form, known as "spot dice", the six faces of each dice show respectively one, two, three, four, five and six dots. In the second form, known as "poker dice", the six faces of each dice show respectively pictures depicting the nine, ten, jack, queen, king, and ace of a pack of cards.

It is an object of this invention to provide a new or improved game based on dice.

DISCLOSURE OF INVENTION

According to one aspect of this invention there is provided apparatus comprising a plurality of display devices each capable of displaying a number of alternative display configurations, player operable means for randomly changing the display configuration of all said display devices, a hold device associated with each display device and operable by the player to prevent the configuration of the associated display device from changing, and blanking means actuable by the player and operating to render the display unreadable until the blanking means is deactuated.

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According to another aspect of this invention there is provided a game comprising a set of five spot dice and a set of rules for playing the game, the rules specifying that the game proceeds by the first player throwing the dice, whilst concealing the dice calling the value of his throw and inviting the next player to accept the throw, and the next and each subsequent player having accepted the throw choosing to throw one or more of the dice to improve the throw before offering the dice to the next player, the rules further specifying that each call may be true or false, that the following player may challenge or accept the call, that the player who makes the challenge wins if the call is higher than the throw, and that each player must call an improvement on the throw he has accepted.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a plan view of an apparatus embodying this invention, and

Figure 2 is a circuit diagram of the apparatus shown in Figure 1.

BEST METHOD OF CARRYING OUT THE INVENTION

Referring now to Figure 1 there is shown the face 1 of an apparatus for playing a game based on dice suitable for 2 or more players. The face is mounted on a case which encloses the electronic circuitry of the apparatus and the case is of suitable dimensions for holding in the hand.

The face comprises five dice or display devices 2 to 6, a roll button 7, five hold buttons 8 to 12 associated respectively with the display devices 2 to 6, a hold cancel button 13, and a blanking button 14. Each display device

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consists of seven light emitting diodes (LEDs) arranged in an array at positions corresponding to the dots on a spot dice, i.e. with four LEDs at four corner positions, two more at the centre of two opposite sides and the seventh LED at the centre.

As will be explained in more detail hereinafter, each of the display devices normally display a configuration of lit LEDs corresponding to one face of a spot dice. When the roll button 7 is depressed the configuration change in a random manner. If one of the hold buttons is pressed, its associated display device is prevented from changing configuration but this hold action may be cancelled by pressing the cancel button 13. The display may be blanked by pressing the blanking button 14 and then returned by pressing the blanking button 14 a second time.

In order to play the game, the first player presses the roll button 7, notes the resulting throw displayed on the five dice 2 to 6, removes the display by pressing the blanking button 13, and calls this throw. His call may be true or false. He then passes the apparatus to the next player who may accept the call or challenge it prior to unblanking the display. If he challenges, then the first player looses a stake if his call is higher than the actual throw but otherwise the challenger looses. If he accepts, he may press the roll button after optionally pressing one or more of the hold buttons and play then proceeds as before until a challenge occurs. Each successive player must call a higher throw.

The calls rank as follows commencing with the highest call: five of a kind (e.g. 5 "threes"), four of a kind, three of a kind plus two of another kind, a "high run" i.e. "six", "five", "four", "three" and "two", a "low run" i.e. "five", "four", "three", "two", and "one", three of a kind, two pairs, and lastly one pair.

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Referring now to Figure 2, there is shown the circuit diagram for the apparatus. The circuit includes a battery 15 the positive pole of which is connected to a +5V rail and the negative pole of which is connected to a 0V rail. The +5V rail is connected through a roll switch 7A, operated by the roll button 7, and a pair of resistors 16 and 17 connected in series to the 0V rail. The resistors 16 and 17 are bridged by a capacitor 18. The junction of switch 7A and resistor 16 is connected to the input of a Schmitt inverter 19, the output of which is connected to the input of a further Schmitt inverter 20.

Also shown in Figure 2 are the seven light emitting diodes 2A to 2G of the display device 2. The light emitting diodes are driven by a channel circuit generally indicated at 21 and which will be described in more detail hereinafter. Each set of seven diodes which respectively form the display devices 3 to 6 are driven by four further channel circuits which are identical to the circuit 21. These further channel circuits and their associated diodes are not shown in Figure 2.

The apparatus further includes a blanking circuit 22, and a sound circuit 23, both of which will be described in more detail hereinafter.

The channel circuit 21 includes a counter/decoder which includes a pair of NOR gates 30, 31, a NAND gate 32, and three flip-flops 33 to 35. The clock input CLK of flip-flop 35 receives clock pulses from an oscillator 36 to be described, and its S and R inputs are connected to the 0V rail. The $\overline{Q}$ output of flip-flop 35 is connected to its D input and the $\overline{Q}$ output also drives LED 2A. The Q output of flip-flop 35 is connected to the clock input of flip-flop 34 and also to one input of NOR gate 31. The S input of flip-flop 34 is connected to the output of NOR

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gate 31 and the R input is connected to the OV rail. The Q output is connected to another input of NOR gate 31, to the clock input of flip-flop 33, to one input of NOR gate 30, and to one input of NAND gate 32. The $\overline{Q}$ output is connected to the D input. The S input of flip-flop 33 is connected to the output of NOR gate 31 and the R input is connected to the OV rail. The Q output of flip-flop 33 is connected to the third input of NOR gate 31, the other input of NOR gate 30, and the other input of NAND gate 32. The $\overline{Q}$ output of flip-flop 33 is connected to the D input and the $\overline{Q}$ output drives LEDs 2F and 2G. NOR gate 30 drives LEDs 2B and 2C and the NAND gate 32 drives the LEDs 2D and 2E.

The counter/decoder operates as a divide by six counter with LED 2A being turned on and off by alternate pulses from the oscillator to indicate odd and even counts, diodes 2F and 2G turning on and off on the fourth, fifth and sixth count, LEDs 2B and 2C turning on for all the counts except for the first, and diodes 2D and 2E turning on for the sixth count only.

The oscillator 36 comprises a NAND gate 37 and a NOR gate 38, the output of NOR gate 38 providing the clock pulses and being connected to its input through a capacitor 39 and a resistor 70. The junction of capacitor 39 and resistor 70 is connected through a resistor 71 to one input of NAND gate 37, the output of which is connected to both inputs of NOR gate 38. The values of capacitor 39 and resistor 71 are identical to the values of the corresponding components in the remaining four channel circuits but the value of the resistor 70 and the corresponding resistors in the other channel circuits differ from channel to channel to cause the oscillators of different channels to run at different frequencies.

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The oscillator 36 is controlled by a NAND gate 38, the two inputs of which are connected to the output of a further NAND gate 39. One input of NAND gate 39 is connected to the junction of resistors 16 and 17, the junction of resistors 16 and 17 also being connected to one input of identical NAND gates in the remaining channel circuits. The other input of NAND gate 39 is connected to the $\overline{Q}$ output of a flip-flop 40. The clock input of flip-flop 40 is connected to the output of Schmitt inverter 19, the output of Schmitt inverter 19 also being connected to the clock input of identical flip-flops in the other channel circuits. The D input of flip-flop 40 is connected to the OV rail. The S input of flip-flop 40 is connected through a hold switch 8A operated by the hold button 8 to a rail 57, and the S input is also connected to the OV rail through a pull-down resistor 41. The R input of flip-flop 40 is connected through a cancel switch 13A to the +5V rail, the cancel switch 13A being operated by the cancel button 13 and being common to all five channel circuits. The R input is also connected to the OV rail through a pull-down resistor 42 and the junction of pull down resistor 42 and cancel switch 13A is connected to the R input of flip-flops corresponding to the flip-flop 40 in the remaining channel circuits.

If the roll switch 7A is closed with the $\overline{Q}$ outputs of flip-flop 40 and the corresponding flip-flops in the remaining channel circuits high, then oscillator 36 and the corresponding oscillators in the remaining circuits will start to run thereby changing the display. When the switch 7A is released, capacitor 18 will discharge so the signal at the junction of resistors 16 and 17 will fall. When the signal applied from this junction to the input of NAND gate 39 falls below the threshold of this NAND gate, oscillator 36 will stop running and the display on LEDs 2A to 2G will cease changing. Likewise, in each of

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the remaining channels, when the input signal applied to the input of a NAND gate which corresponds to NAND gate 39 falls below its threshold value, the oscillator will stop and the display will cease changing. As the NAND gate 39 and the corresponding NAND gates in the remaining channel circuits will all have slightly different threshold values, a further element of randomness will be introduced to that established by making the oscillator frequencies different.

If the hold switch 8A is closed, then the $\overline{Q}$ output of flip-flop 40 will go low thereby preventing the oscillator 36 from running. A similar result will be obtained by closing the hold switches in the remaining channel circuits. If one of the hold switches is closed in error, then all the flip-flops corresponding to flip-flop 40 may be reset by closing the cancel switch 13A. Also, a short time after the roll switch 7A is released, all the flip-flops corresponding to flip-flop 40 will be reset by a clock signal from Schmitt inverter 19.

In the blanking circuit 22, the +5V rail is connected through a blanking switch 14A operated by blanking button 14, and a pair of resistors 50 and 51, connected in series, to the 0V rail. The resistor 51 is bridged by a capacitor 52 and the junction of resistors 50 and 51 is connected to the input of a Schmitt inverter 53. The output of Schmitt inverter 53 is connected to the clock input of a flip-flop 44. The J and K inputs of flip-flop 54 are connected to the +5V rail. The Q output of flip-flop 54 is connected through a resistor 55 to the base of a PNP transistor 56, the emitter of which is connected to the +5V rail and the collector of which is connected to the rail 57, which is the supply rail for the LEDs. In operation, the supply rail 57 will be alternately energised and de-energised by successive closures of the blanking switch 14A.

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The sound circuit 23 comprises three oscillators 60, 61 and 62. The input of oscillator 60 is connected to the junction of cancel switch 13A and resistor 42 and the output of this oscillator provides an input signal to oscillator 62. The input of oscillator 61 is connected to the output of Schmitt inverter 20 and the output of this oscillator provides a further input signal to oscillator 62. The oscillator 62 also receives an input signal from the output of a NAND gate 63, the two inputs of which are connected to the output of a NOR gate 64. The NOR gate 64 has five inputs, one of which is connected to the junction of hold switch 8A and resistor 41 in channel circuit 21 and the remaining inputs are connected to corresponding junctions in the remaining channel circuits. The output of oscillator 62 is connected through a pair of NAND gates 65 and 66 to one side of an acoustic transducer 47, the other side of which is connected to the OV rail. The oscillators 60, 61 and 62 are tuned to different frequencies so as to produce three tones. Each time the roll switch 7A, or the cancel switch 13A or one of the hold switches is depressed, a tone signal will be emitted by the transducer 47.

The example of the invention described above makes use of separate oscillators for the individual channel circuits. It will be appreciated, however, that other arrangements could be employed in which there is a single oscillator, dividing circuits being employed to cause the counters to run at different frequencies. Alternatively, the counters could be cascaded. As yet a further alternative there could be a single counter and a read only memory addressed by the counter and providing output signals to drive the LEDs of all the display devices. In any of these cases the hold arrangement could be in the form of a separate four latch for each display device.

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Other forms of display blanking means could also be used such as a hinged flap movable to a display covering position.

As an alternative to the light emitting diodes described above, the display devices could employ liquid crystal devices.

Although in the embodiment of the invention described above, the game is played using an electronic apparatus, the game could also be played simply by using a set of five dice.

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C L A I M S

1. Apparatus characterised in that it comprises a plurality of display devices (2 to 6) each capable of displaying a number of alternative display configurations, player operable means (7, 7A) for randomly changing the display configuration of all said display devices (2 to 6), a hold device (8 to 12, 8A, 40) associated with each display device (2 to 6) and operable by the player to prevent the configuration of the associated display device from changing, and blanking means (22) actuable by the player and operating to render the display unreadable until the blanking means is deactuated.

2. Apparatus as claimed in Claim 1 characterised in that there are five display devices (2 to 6) each of which is capable of displaying six different configurations corresponding respectively to the six different faces of spot dice.

3. Apparatus as claimed in Claim 1 characterised in that each display device is an electrical display device.

4. Appratus as claimed in Claim 3 characterised in that each hold device (8 to 12, 8A, 40) comprises a player operable hold switch (8A) and electronic circuit means (40) operated by the hold switch for preventing change of the associated display device.

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5. Apparatus as claimed in Claim 4 characterised in that the apparatus includes first cancelling means (19) responsive to the change means (7A) for deactuating the hold device (40) at the end of each change operation.

6. Apparatus as claimed in Claim 4 or Claim 5 characterised in that the apparatus includes second cancelling means (13, 13A) operable by the player to deactuate the hold device (40).

7. Apparatus as claimed in Claim 3 characterised in that the blanking means (22) comprises a switch (14A) which controls a switch element (56) providing current to the display devices (2 to 6).

8. A game characterised in that it comprises a set of five spot dice and a set of rules for playing the game, the rules specifying that the game proceeds by the first player throwing the dice, whilst concealing the dice calling the value of his throw and inviting the next player to accept the throw, and the next and each subsequent player having accepted the throw choosing to throw one or more of the dice to improve the throw before offering the dice to the next player, the rules further specifying that each call may be true or false, that the following player may challenge or accept the call, that the player who makes the challenge wins if the call is higher than the throw, and that each play must call an improvement on the throw he has accepted.

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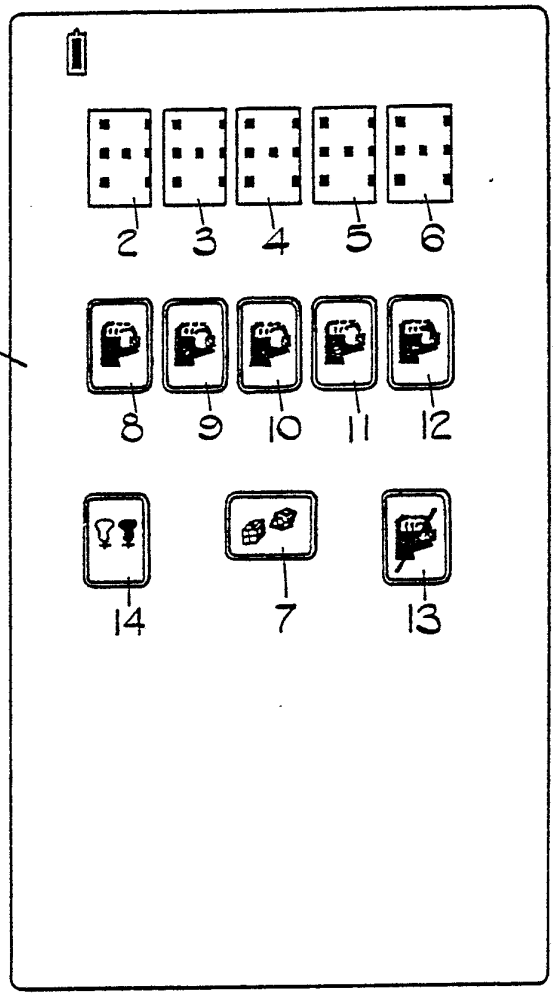
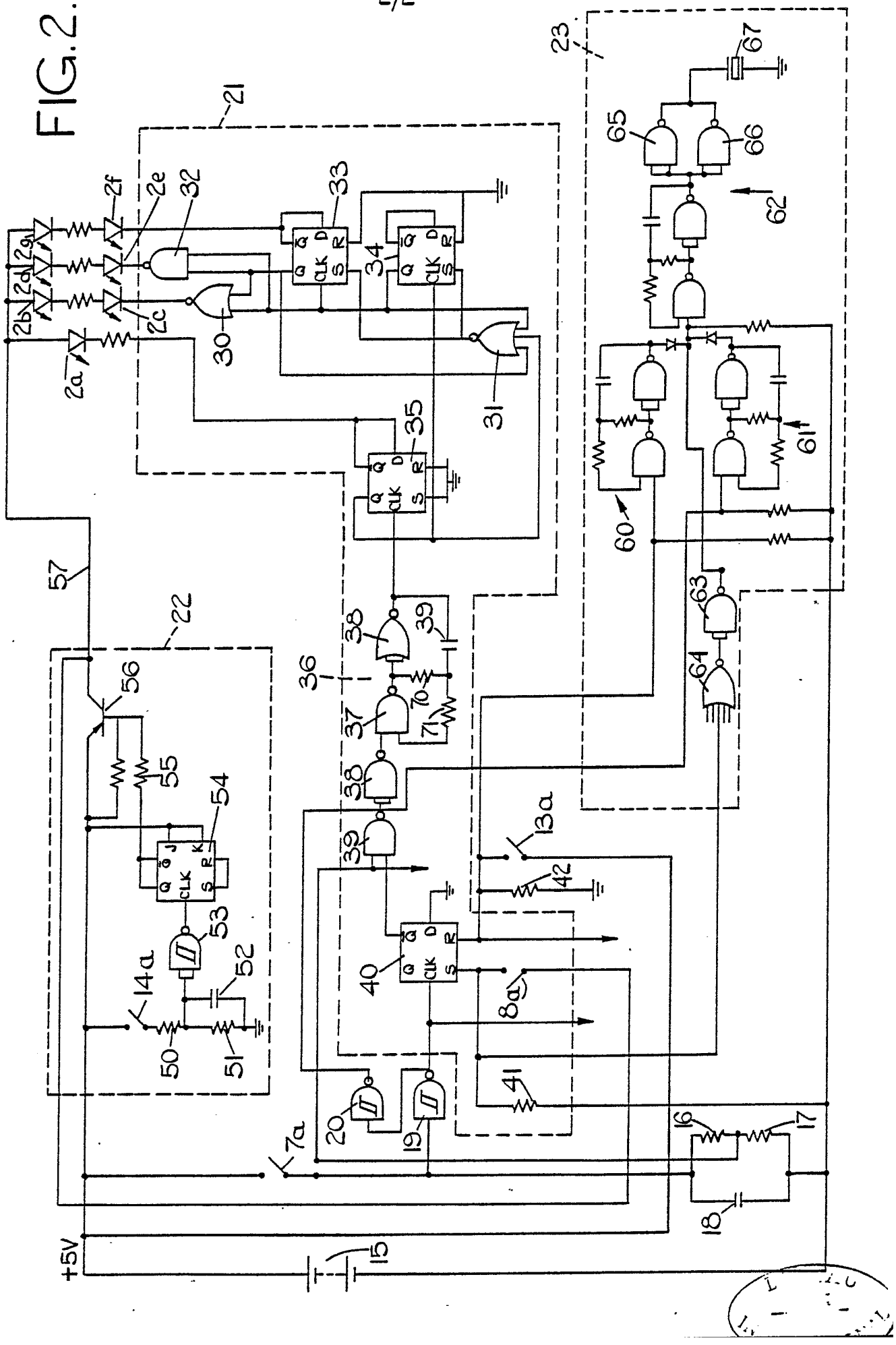


FIG. 1.

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FIG. 2.


21
23
22
57
+5V
15
2a
2b
2c
2d
2e
2f
2g
30
31
32
33
34
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INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 81/00151

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl.[3]: G 07 C 17/34

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
Int.Cl.[3]:	A 63 F; G 07 C

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched [5]

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
	US, A, 3642287, published February 15, 1972 see column 1, lines 1-56; figures 1,7, Bally Manuafacturing Corp.	1
	Elektor, volume 5, no. 7/8, issued July/ August 1979, Elektor Publishers Ltd., (Canterbury, GB), A. Vandermaelen: "Electronic poker dice", see pages 66-67	1,2,3,4,5, 6,8
	Elektor, volume 2, no. 7/8, issued July/ August 1976, Elektor Publishers Ltd. (Canterbury, GB), "Poker", see page 741	1,2,3,5,6, 8
	US, A, 3124359, published March 10, 1964 see column 2, line 72 to column 4, line 54; figures 1-4, Bottini	1,2,8

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IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
20th October 1981	3rd November 1981

International Searching Authority [1]	Signature of Authorized Officer [20]
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