⑫ **EUROPEAN PATENT APPLICATION**

� **Random lottery computer.**

㊸ A random lottery computer which can be pre-programmed for various lottery markets is provided. Lotteries vary in the number of selections to be made, the range for each selection and whether the selections are single digit or double digit. A microprocessor (T15A) controlled system, with random number generation, is programmed for these various lottery parameters by a set of hard-wired jumpers (J1, J2, J3) and by a game selection switch (18A', 18B'). The hard-wired jumpers (J1, J2, J3) are preset for a particular lottery market while the game selector switch (18A', 18B') allows the player to select the chosen game within that market. The lottery computer may be battery (32) powered or light (photocell 12) powered. Provision is made (34) for initializing the microprocessor (T15A) when power is first applied. Power is also disconnected after a given interval.
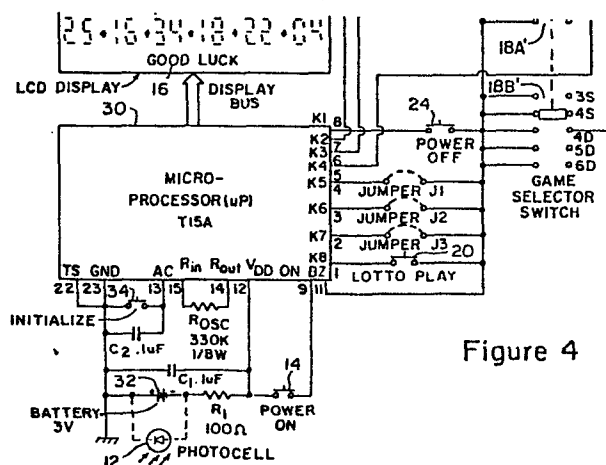
Figure 4

- 1 -

"RANDOM LOTTERY COMPUTER"

BACKGROUND OF THE INVENTION

Field of the Invention

5   The present invention relates generally to number generating devices and, more specifically, to electronic computing devices which generate random numbers appropriate to the playing parameters of various lottery games.

Description of the Prior Art

10   There are many situations in which it is desirable to be able to select numbers at random. One major application is in the selection of lottery numbers. Different lotteries require varied selections of numbers. Numbers are most commonly

15   selected individually or in pairs (i.e. 3-5-7 or 62-45-72-13); in varied clusters (i.e. three pairs

31-18-14, five pairs 12-11-43-23-54); and with different ranges for each individual number or pair (i.e. 0-9, 01-99). At the present state of the art there are no easy-to-use lightweight devices which can perform this function. Lottery selections made by simply thinking of a number are hardly random since the chooser's prior experiences and prejudices will interfere with randomness. Many of the organizations which run lotteries still use the process of selecting marked balls from a tumbler to obtain randomness. General purpose computers may be programmed with random number generating algorithms for this purpose, however they are heavy, expensive and this application wastes their computing power.

A number of efforts have been made to provide random number selector systems; however, each has severe shortcomings. R.C. Lawlor (U.S. Patent 3,612,845) provided a computer utilizing random pulse trains. In this circuit, noise signals from a diode and clock pulses from a clock pulse source are fed to input legs of a logic circuit such as an AND gate, causing pulses of various amplitudes to appear in the output of the circuit. Complex threshold circuits are then required to eliminate low level pulses leaving high level random pulses. Only one random output at a time is provided. S. Harrington et. al (U.S. Patent 4,151,404) provided a random digit

generator which samples a random pulse output, displays that output, determines a second random number and adds it to the first and displays it. This system is clearly unsuitable for the present purpose because each output is inherently greater than the previous output and, therefore, while the first output is truly random, each suceeding output is not truly random. T. Newman, (U.S. Patent 4,227,064), provided a lottery generating method and apparatus which requires a user to depress one pushbutton for each numeral to be randomly selected, whereas one pushbutton is clearly prefereable. Also, each number is chosen independently of all previous choices; however, in most lotteries, no number may be selected twice.

SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide a random lottery computer which provides a visual display of any number of randomly selected 5 numbers made independent of any other selection and which may be powered by a battery or solar cell.

It is another object according to the present invention to provide a random lottery computer which is simple in design, inexpensive in cost and reliable in 10 operation.

Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying claims which disclose the embodiments of the invention.

15   In the drawings wherein similar reference characters denote similar elements throughout the several views:

BRIEF DESCRIPTION OF THE DRAWING FIGURES

The figures in the drawings are briefly described as follows:

Figure 1 is a perspective view of a battery
5   powered embodiment of the invention.

Figure 2 is a perspective view of a light powered embodiment of the invention.

Figure 3 is an enlarged detail partial view of an embodiment in which single digit and double
10   digit games may be played.

Figure 4 is an electronic schematic diagram of the embodiment illustrated in Figure 3.

Figure 5 is a table of data which illustrates the games which are possible with one
15   typical embodiment of the invention illustrated in Figures 3 and 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention 10 is illustrated in figures 1 and 2 which are identical except for their power sources. The invention 10 is powered by an internal
5   battery in figure 1 and by a solar cell 12 in figure 2. In operation, when power on switch 14 is depressed, the display which reads GOOD LUCK, (numeral 16) flashes. The game is then selected by sliding game selector switch 18 to the appropriate
10   position. In figures 1 and 2, game selector switch 18 points to the "6" game thereby selecting a game to be played with "6" pairs of digits (i.e. 25-16-34-18-22-04). When lotto play button 20 is depressed the actual randomly selected number is
15   displayed in LCD display 22 until power off switch 24 is depressed or until some pre-determined time interval has been reached.

The complete operation of an embodiment of invention 10, in which both single and double digit
20   games may be played, is best understood with reference to figures 3 and 4. When power on switch

14   is depressed T15A microprocessor (numeral 30) "on"
input   at pin 9 is activated and power from battery 32
is   applied   to   microprocessor 30 V_{DD} terminal at pin
12.   This causes GOOD LUCK display 16 to flash. When

5   battery 32 is first installed or changed, initialize
switch 34 must be depressed in order to initialize or
re-initialize microprocessor 30.   If solar power is
desired, photocell 12 is substituted for battery 32.

The   game   to be played must now be selected.

10   This is accomplished by a system which includes three
hard-wired Jumpers Jl, J2 and J3 and game selector
switch 18' which is a double pole five throw selector
switch with sections 18A' and 18B'. The combination
of   jumpers and switch selections comprise a selection

15   matrix which, via terminals Kl, K2, K3, K4, K5, K6,
K7 and K8 (pins 8,7,6,5,4,3,2 and 1 respectively)
instructs microprocessor 30 as to which game is to be
played.   The complete range of game possiblilities is
fixed programmed into microprocessor 30, and from

20   this entire set of possibilites, the range of the
player's selection is further limited by the presence
or   absence of jumpers Jl, J2,   or   J3. This
configuration   thereby defines the range of each
selection, the number of selections to be made, and

25   whether the selection are single digit or double
digit.   The entire choice set and possible subsets

will be described below. The rate at which random numbers are selected is determined by the clock rate of microprocessor 30 which is in turn determined by oscillator resistor R_{osc}. In this embodiment, the

5   player may select from any of five games: a three selection single digit game (3S), a four selection single digit game (4S), a four selection double digit game (4D), a five selection double digit game (5D) and a six selection double digit game (6D). These

10 game selections are labelled on game selector switch 18'.

The possible games for this particular embodiment are best understood with reference to figure 5. The presence or absence of jumpers J1, J2

15 and J3 allows for eight different jumper settings where the presence of a jumper is represented as "ON" and the absence of a jumper is represented by "OFF". A typical jumper setting might be ON-OFF-OFF. This is highlighted by an arrow. The five game

20 possiblities already described each have numerical ranges for each selection of jumpers and game selector switch 18' settings. For example, consider the case where the jumper settings are ON-OFF-OFF and game selector switch 18' is set for a double digit

25 game with five selections. The range (circled) is for each pair selected to range between 01 and 41. A

possible outcome, then, would be: 03-15-41-18-01. The invention 10, could, therefore be programmed so that each possible jumper setting represents one lottery market.

5   While certain novel features of this invention have been shown and described and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes in the forms and the details of the device

10   illustrated and in its operation can be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1.   A   random   lottery   computer,   comprising   in
combination:

a)   a   microprocessor   which   generates   numbers
5 randomly,   but   without   repetition,   according   to   information
contained   in   a   data   input   matrix;

b)   a   numeric   display;   and,

c)   an   electrical   power   source.

2.   A   random   lottery   computer,   as   recited   in   Claim
10 1,   wherein   said   numeric   display   is   either   a   liquid   crystal,
a   light   emitting   diode   or   a   flourescent   display.

3.   A   random   lottery   computer,   as   recited   in   Claim
1,   wherein   said   electrical   power   source   is   either   a   battery
or   a   photocell.

15   4.   A   random   lottery   computer,   as   recited   in   Claim
1,   wherein   said   data   input   matrix   comprises   at   least   one
hard   wired   jumper   and   an   n-throw   game   selector   switch
wherein   n   is   at   least   two;   whereby   said   wired   jumpers   define
the   fixed   range   of   digits   which   are   to   be   randomly   selected
20 in   each   single   digit   and   double   digit   game;   and,   whereby
said   game   selector   switch   selects   the   particular   game   to   be
played.

5. A random lottery computer, as recited in Claim 1, further comprising a power-on switch which applies power to said numeric display and to said microprocessor; wherein said microprocessor automatically turns said power off after

5 a predetermined period of time.

6. A random lottery computer, as recited in Claim 1, further comprising a power-off switch which removes said power from said numeric display and said microprocessor when depressed.

10   7. A random lottery computer, as recited in Claim 1, further comprising an initialize switch which is activated whenever said power source is interrupted in order to re-initialize said microprocessor.

8. A random lottery computer, as recited in Claim

15 1, further comprising a lotto play switch which executes the actual random number selection.

9. A random lottery computer, as recited in Claim 11, further comprising an alpha-numeric display which flashes until said lotto play switch is activated.

20   10. A random lottery computer, as recited in Claim 1, further comprising an oscillator resistor which determines the clock rate of said microprocessor thereby determining the rate at which said random numbers are selected.
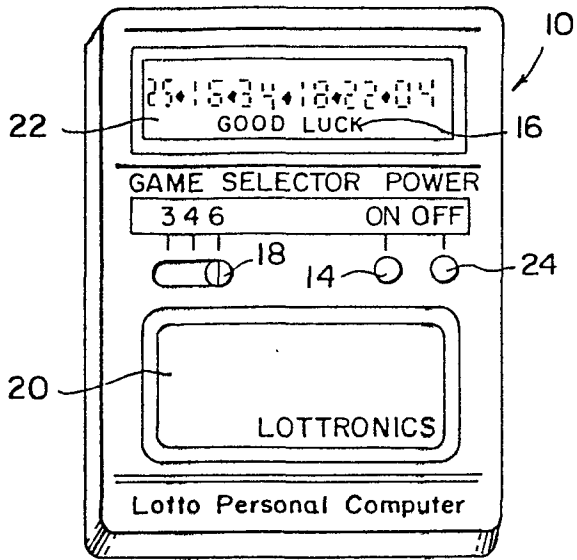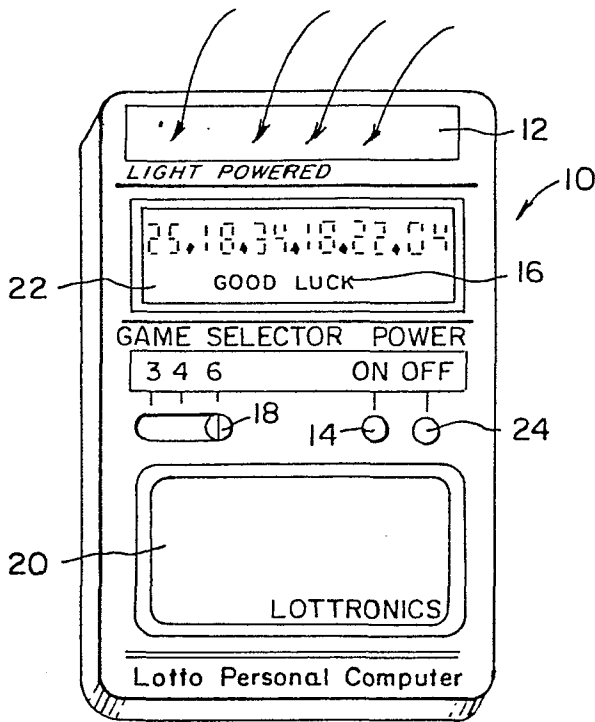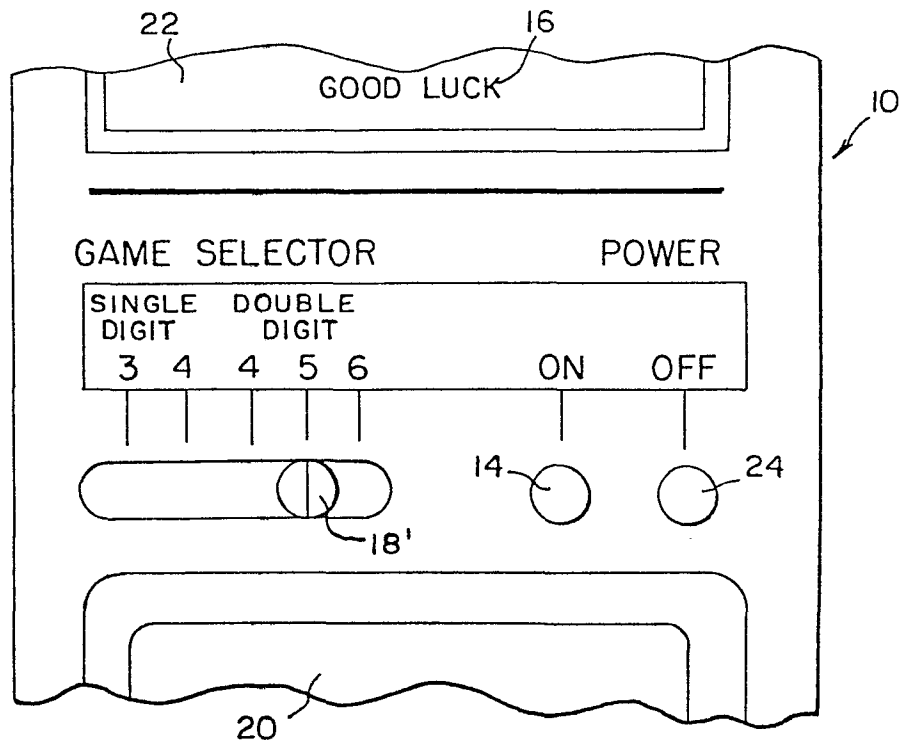
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Figure 1

Figure 2

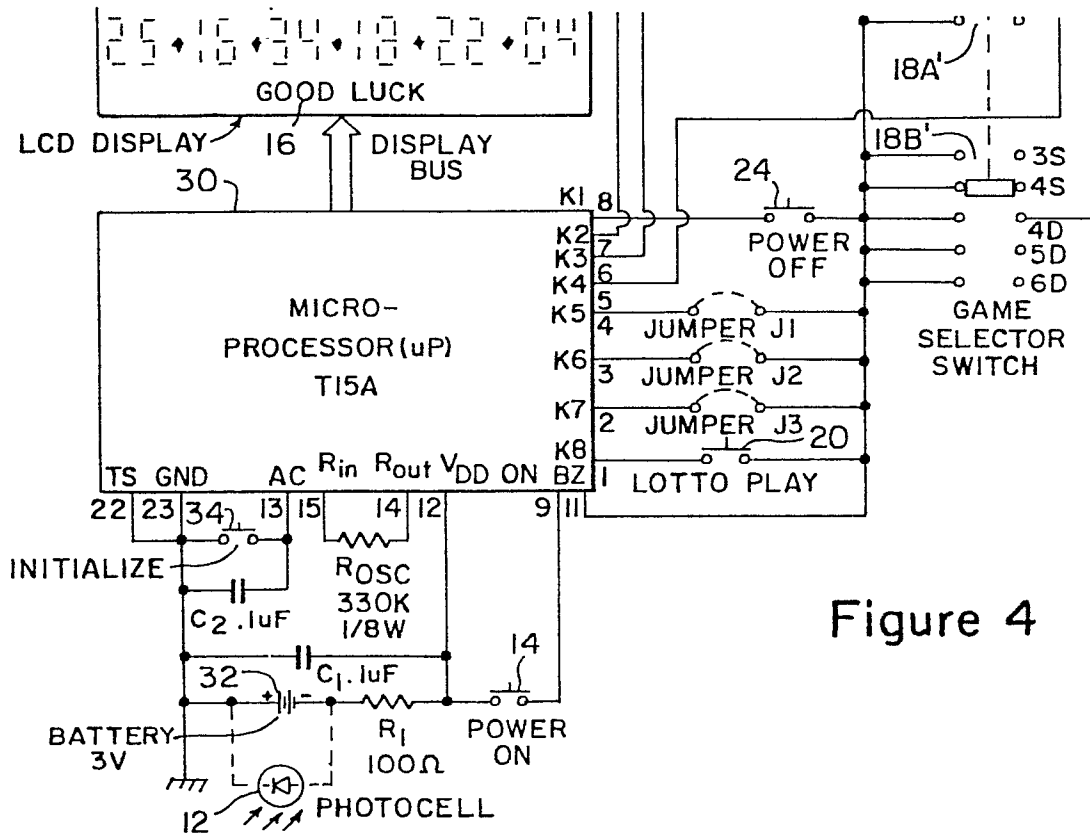Figure 3

Figure 4

LOTTO COMPUTER GAME TABLE

JUMPER SETTINGS			DOUBLE DIGIT GAME			SINGLE DIGIT GAMES	
J1	J2	J3	6 PAIRS	5 PAIRS	4 PAIRS	4 SINGLE DIGITS	3 SINGLE DIGITS
ON	ON	ON	01-30	01-35	01-36	0-9	0-9
ON	ON	OFF	01-36	01-37	01-30	0-9	0-9
ON	OFF	ON	01-39	01-40	01-39	0-9	0-9
ON	OFF	OFF	01-40	(01-41)	01-42	0-9	0-9
OFF	ON	ON	01-42	01-45	01-40	0-9	0-9
OFF	ON	OFF	01-44	01-50	01-47	0-9	0-9
OFF	OFF	ON	01-49	01-90	01-44	0-9	0-9
OFF	OFF	OFF	01-49	01-100	01-50	0-9	0-9
			RANGE FOR EACH PAIR OF DIGITS			RANGE FOR EACH DIGIT	

EXAMPLE: JUMPER SETTING: ON-OFF-OFF

GAME SELECTOR SWITCH:

DOUBLE DIGIT, FIVE SELECTIONS

POSSIBLE OUTCOME: 03-15-41-18-01

Figure 5