

HOWARD & HOWARD ATTORNEYS PLLC
3800 Howard Hughes Pkwy., Suite 1000
Las Vegas, NV 89169
(702) 257-1483

1 **HOWARD & HOWARD ATTORNEYS PLLC**
2 Kimberly P. Stein, Esq.
3 (Nevada Bar No. 8675)
4 Wells Fargo Tower, Suite 1000
5 3800 Howard Hughes Parkway
6 Las Vegas, Nevada 89169-5980
7 Telephone: (702) 257-1483
8 Facsimile: (702) 567-1568
9 Email KStein@HowardandHoward.com

7 **HOWARD & HOWARD ATTORNEYS PLLC**
8 Patrick M. McCarthy (Michigan Bar No. P49100) (*pro hac vice to be filed*)
9 One North Main Building, Suite 410
10 101 North Main Street
11 Ann Arbor, Michigan 48104-1475
12 Telephone: (734) 222-1483 | Fax: (734) 761-5957
13 Email: PMcCarthy@HowardandHoward.com

12 **HOWARD & HOWARD ATTORNEYS PLLC**
13 Shelly L. Hokenstad (Michigan Bar No. P67118) (*pro hac vice to be filed*)
14 450 West Fourth Street
15 Royal Oak, Michigan 48067-2557
16 Telephone: (248) 645-1483 | Fax: (248) 723-1568
17 Email: SHokenstad@HowardandHoward.com

16 *Attorneys for Plaintiff Konami Gaming, Inc.*

17 **UNITED STATES DISTRICT COURT**
18 **DISTRICT OF NEVADA**

20 KONAMI GAMING, INC., a Nevada
21 corporation,

21 Plaintiff,

22 v.

23 LIGHTNING GAMING, INC., a Nevada
24 corporation and LIGHTNING SLOT
25 MACHINES, LLC, a Nevada corporation,

26 Defendant.

Case No.:
Dept. No.:

JURY DEMAND

27 **COMPLAINT FOR PATENT INFRINGEMENT**
28

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COMPLAINT FOR PATENT INFRINGEMENT

1
2 Plaintiff, KONAMI GAMING, INC. (“Konami”), for its Complaint against
3 LIGHTNING GAMING, INC., and LIGHTNING SLOT MACHINES, LLC (collectively
4 “Defendants”), alleges as follows:
5

6 **NATURE OF THE ACTION**

7 1. This is an action for patent infringement under 35 U.S.C. §§ 271, 283, 284 and
8 285.

9 **THE PARTIES**

10 2. Plaintiff Konami is a Nevada corporation having a principal place of business
11 at 585 Konami Circle, Las Vegas, Nevada 89119.

12 3. On information and belief, Defendant Lightning Gaming, Inc. is a Nevada
13 corporation having a principal place of business at 23 Creek Circle, Suite 400, Boothwyn,
14 Pennsylvania 19061.
15

16 4. On information and belief, Defendant Lightning Slot Machines, LLC is a
17 Nevada corporation having a principal place of business at 23 Creek Circle, Suite 400,
18 Boothwyn, Pennsylvania 19061. Defendant Lightning Gaming, Inc. is the Manager of
19 Defendant Lightning Slot Machines, LLC.
20

21 **JURISDICTION AND VENUE**

22 5. This Court has subject matter jurisdiction over this matter pursuant to
23 28 U.S.C. §§ 1331 and 1338(a).
24

25 6. This Court has in personam jurisdiction over Defendants because they do
26 business within the United States and committed the acts of infringement and related acts set
27 forth below give rise to this action within the United States and within Clark County, Nevada.
28

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1 7. Venue over Defendants is proper in this judicial district under 28 U.S.C.
2 §§ 1391(d) and 1400(b).

3 **COUNT I – INFRINGEMENT OF U.S. PATENT NO. 8,096,869**

4 8. Konami restates the allegations contained in paragraphs 1-7.

5 9. Konami is the owner of all right, title, and interest in U.S. Patent No.
6 8,096,869 (the ‘869 patent), entitled “Gaming Machines with Runs of Consecutive Identical
7 Symbols,” duly and properly issued by the U.S. Patent and Trademark Office on January 17,
8 2012. A copy of the ‘869 patent is attached as **Exhibit A**.

9 10. Defendants have in the past, or are currently, directly infringing the claims of
10 the ‘869 patent under 35 U.S.C. § 271(a) by making, using, offering for sale, or selling
11 without Konami’s authority, slot machines that embody one or more of the claims of the ‘869
12 patent.

13 11. At least upon the filing of this Complaint, Defendants are inducing and
14 contributing to the direct infringement of the ‘869 patent claims in violation of 35 U.S.C.
15 §§ 271(b) and (c), by making, using, offering for sale, or selling without Konami’s authority,
16 slot machines with knowledge of the ‘869 patent and its claims; knowing that others,
17 including their customers and users of their products, will use the slot machines in an
18 infringing manner; knowing that their slot machines are a material part of the invention
19 claimed in the ‘869 patent; knowing that their slot machines are especially made or especially
20 adapted for use in an infringement of the ‘869 patent; and knowing that their slot machines
21 are not staple articles or commodities of commerce that are suitable for substantial non-
22 infringing use.

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1 12. By way of example and not limitation, Defendants have in the past, or are
2 currently, making, using, offering for sale, or selling Swamp Fever™ slot machines that
3 directly infringe at least claims 1 and 19 of the ‘869 patent.

4 13. By way of example and not limitation, Defendants have in the past, or are
5 currently, making, using, offering for sale, or selling Swamp Fever™ slot machines that their
6 customers use to directly infringe at least claims 1 and 19 of the ‘869 patent.

7 14. Defendants’ infringing activities are directly and proximately causing
8 immediate and irreparable injury to Konami for which Konami has no adequate remedy at
9 law.

10 15. Defendants will continue their infringing activities unless enjoined from doing
11 so by the Court.

12 16. Defendants’ infringing activities have and continue to directly and proximately
13 cause damages to Konami.

14 **COUNT II – INFRINGEMENT OF U.S. PATENT NO. 8,366,540**

15 17. Konami restates the allegations contained in paragraphs 1-7.

16 18. Konami is the owner of all right, title, and interest in U.S. Patent No.
17 8,366,540 (the ‘540 patent), entitled “Gaming Machines with Runs of Consecutive Identical
18 Symbols,” duly and properly issued by the U.S. Patent and Trademark Office on February 5,
19 2013. A copy of the ‘540 patent is attached as **Exhibit B**.

20 19. Defendants have in the past, or are currently, directly infringing the claims of
21 the ‘540 patent under 35 U.S.C. § 271(a) by making, using, offering for sale, or selling
22 without Konami’s authority, slot machines that embody one or more of the claims of the ‘540
23 patent.

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3800 Howard Hughes Pkwy., Suite 1000
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1 20. At least upon the filing of this Complaint, Defendants are inducing and
2 contributing to the direct infringement of the '540 patent claims in violation of 35 U.S.C.
3 §§ 271(b) and (c), by making, using, offering for sale, or selling without Konami's authority,
4 slot machines with knowledge of the '540 patent and its claims; knowing that others,
5 including their customers and users of their products, will use the slot machines in an
6 infringing manner; knowing that their slot machines are a material part of the invention
7 claimed in the '540 patent; knowing that their slot machines are especially made or especially
8 adapted for use in an infringement of the '540 patent; and knowing that their slot machines
9 are not staple articles or commodities of commerce that are suitable for substantial non-
10 infringing use.
11

12 21. By way of example and not limitation, Defendants have in the past, or are
13 currently, making, using, offering for sale, or selling Swamp Fever™ slot machines that
14 directly infringe at least claims 1 and 21 of the '540 patent.
15

16 22. By way of example and not limitation, Defendants have in the past, or are
17 currently, making, using, offering for sale, or selling Swamp Fever™ slot machines that their
18 customers use to directly infringe at least claims 1 and 21 of the '540 patent.
19

20 23. Defendants' infringing activities are directly and proximately causing
21 immediate and irreparable injury to Konami for which Konami has no adequate remedy at
22 law.
23

24 24. Defendants will continue their infringing activities unless enjoined from doing
25 so by the Court.
26

27 25. Defendants' infringing activities have and continue to directly and proximately
28 cause damages to Konami.

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COUNT III – INFRINGEMENT OF U.S. PATENT NO. 8,622,810

1
2 26. Konami restates the allegations contained in paragraphs 1-7.

3 27. Konami is the owner of all right, title, and interest in U.S. Patent No.
4 8,622,810 (the ‘810 patent), entitled “Gaming Machines with Replacement of Runs of
5 Symbols Containing Identical Symbols with New Identical Symbols,” duly and properly
6 issued by the U.S. Patent and Trademark Office on January 7, 2014. A copy of the ‘810 patent
7 is attached as **Exhibit C**.

8
9 28. Defendants have in the past, or are currently, directly infringing the claims of
10 the ‘810 patent under 35 U.S.C. § 271(a) by making, using, offering for sale, or selling
11 without Konami’s authority, slot machines that embody one or more of the claims of the ‘810
12 patent.

13
14 29. At least upon the filing of this Complaint, Defendants are inducing and
15 contributing to the direct infringement of the ‘810 patent claims in violation of 35 U.S.C.
16 §§ 271(b) and (c), by making, using, offering for sale, or selling without Konami’s authority,
17 slot machines with knowledge of the ‘810 patent and their claims; knowing that others,
18 including their customers and users of their products, will use the slot machines in an
19 infringing manner; knowing that their slot machines are a material part of the invention
20 claimed in the ‘810 patent; knowing that their slot machines are especially made or especially
21 adapted for use in an infringement of the ‘810 patent; and knowing that their slot machines
22 are not staple articles or commodities of commerce that are suitable for substantial non-
23 infringing use.
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(702) 257-1483

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of any injunction issued, a report in writing and under oath setting forth in detail the manner and form in which they have complied with the injunction;

D. Require Defendants post an appropriate bond and Order any other appropriate relief to assure compliance with any injunctive provision or other provision Ordered by the Court;

E. Enter an Order directing Defendants and its agents, servants, employees, partners, attorneys, successors and assigns, and all those acting in concert with them, to deliver to this Court or to Konami for destruction, or show proof of said destruction, of all infringing products;

F. Order an equitable accounting to determine the profits of and other sums Defendants derived from the complained of patent infringement and other wrongful acts, and that such amount be paid over to Konami as an equitable remedy;

G. Award to Konami all damages they have sustained as a result of Defendants' patent infringement in accordance with 35 U.S.C. § 284; and

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H. Enter judgment granting such other and further relief and damages to Konami as justice and equity may require.

JURY DEMAND

Konami Gaming, Inc. hereby requests a trial by jury of all issues so triable.

Respectfully submitted,

Dated: May 7, 2014.

HOWARD & HOWARD ATTORNEYS PLLC

/s/ Kimberly P. Stein

Kimberly P. Stein (Nevada Bar No. 8675)
Wells Fargo Tower, Suite 1000
3800 Howard Hughes Parkway
Las Vegas, Nevada 89169-5980
Telephone: (702) 257-1483 | Fax: (702) 567-1568
Email: KStein@HowardandHoward.com

HOWARD & HOWARD ATTORNEYS PLLC

Patrick M. McCarthy (Michigan Bar No. P49100)
(pro hac vice to be filed)
One North Main Building, Suite 410
101 North Main Street
Ann Arbor, Michigan 48104-1475
Telephone: (734) 222-1483 | Fax: (734) 761-5957
Email: PMcCarthy@HowardandHoward.com

HOWARD & HOWARD ATTORNEYS PLLC

Shelly L. Hokenstad (Michigan Bar No. P67118)
(pro hac vice to be filed)
450 West Fourth Street
Royal Oak, Michigan 48067-2557
Telephone: (248) 645-1483 | Fax: (248) 723-1568
Email: SHokenstad@HowardandHoward.com

Attorneys for Plaintiff Konami Gaming, Inc.

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EXHIBIT A



US008096869B2

(12) **United States Patent**
Yoshimi

(10) **Patent No.:** **US 8,096,869 B2**
(45) **Date of Patent:** **Jan. 17, 2012**

- (54) **GAMING MACHINE WITH RUNS OF CONSECUTIVE IDENTICAL SYMBOLS**
- (75) Inventor: **Osamu Yoshimi**, Botany (AU)
- (73) Assignee: **Konami Australia Pty Ltd.**, Botany (AU)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1292 days.
- (21) Appl. No.: **11/299,009**
- (22) Filed: **Dec. 9, 2005**

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(65) **Prior Publication Data**
US 2006/0183534 A1 Aug. 17, 2006

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(30) **Foreign Application Priority Data**
Feb. 14, 2005 (AU) 2005900681

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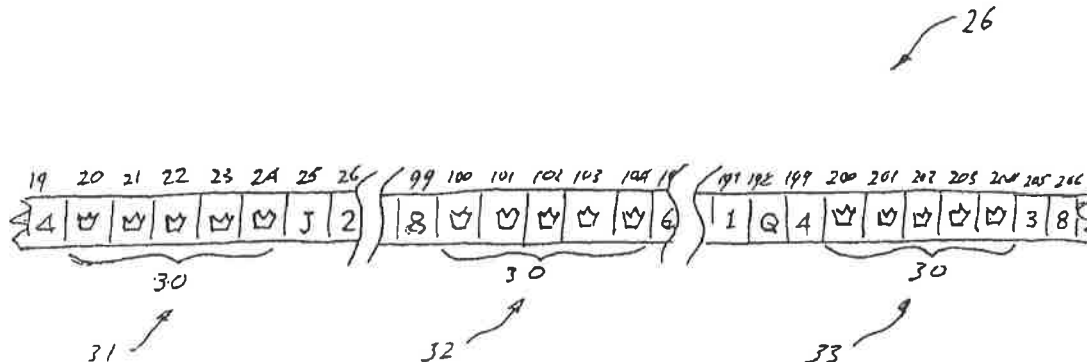
- (51) **Int. Cl.**
G06F 17/00 (2006.01)
G06F 19/00 (2011.01)
A63F 9/24 (2006.01)
A63F 13/00 (2006.01)
- (52) **U.S. Cl.** 463/20; 463/16; 463/29; 273/138.1
- (58) **Field of Classification Search** 463/16-20, 463/25, 29; 273/138.1, 139
See application file for complete search history.

(Continued)
Primary Examiner — Milap Shah
(74) *Attorney, Agent, or Firm* — Knobbe, Martens, Olson & Bear, LLP

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(57) **ABSTRACT**
A gaming machine arranged to display a matrix of symbol containing elements; each column of said matrix comprising a portion of a simulated rotatable reel of said symbol containing elements; and wherein each of said symbol containing elements of at least one consecutive run of said symbol containing elements of at least one said reel is caused to display an identical symbol.

23 Claims, 7 Drawing Sheets



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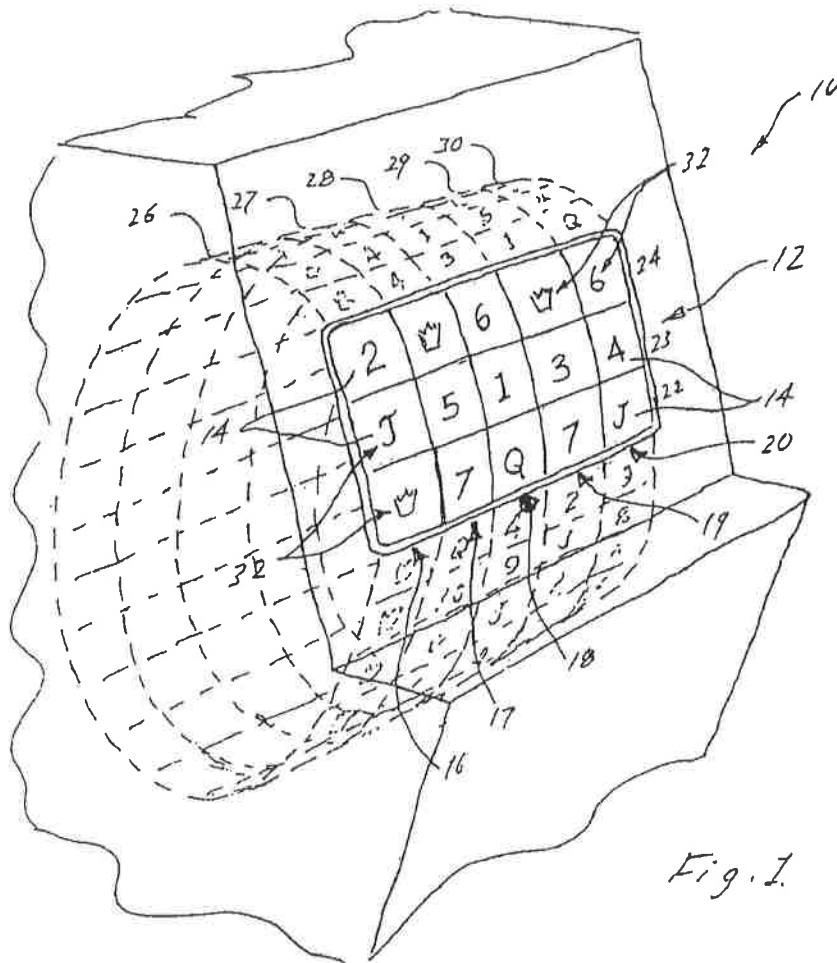


Fig. 1.

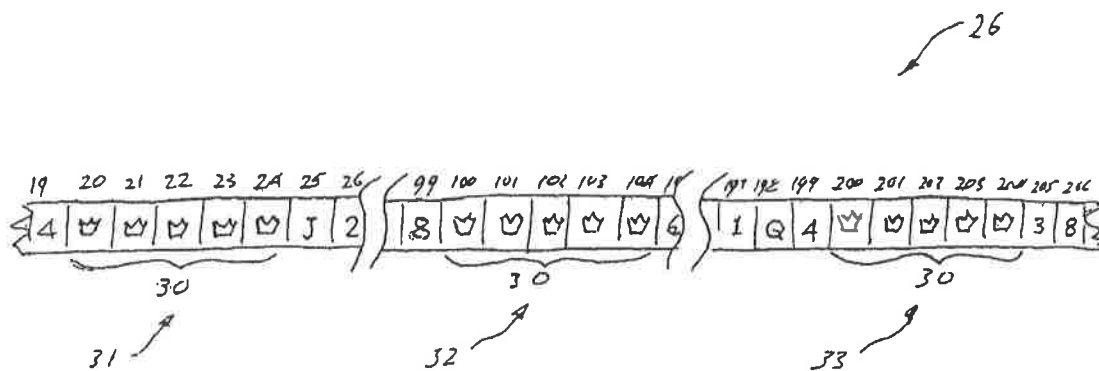


Fig 2

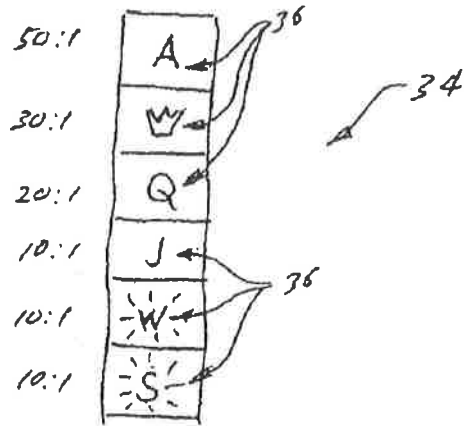


Fig. 3

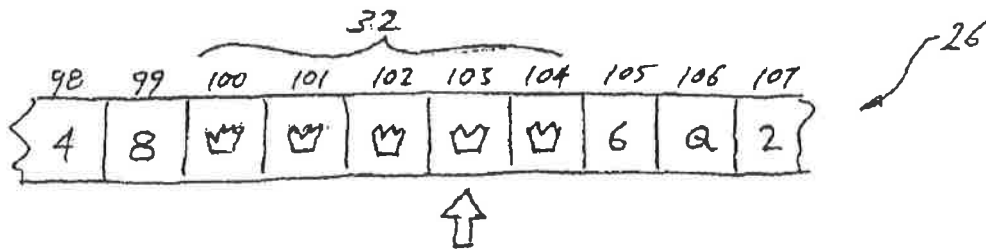


Fig. 4A

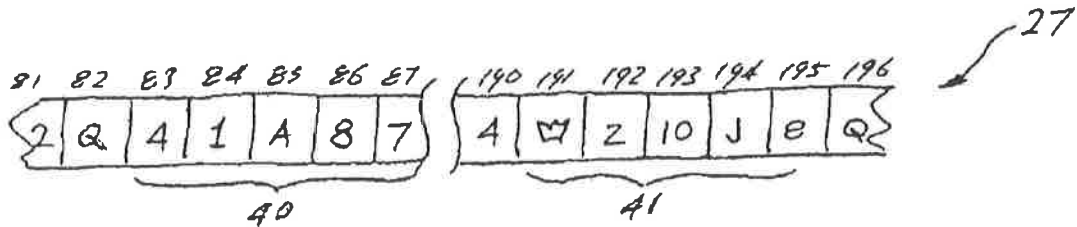


Fig. 4B

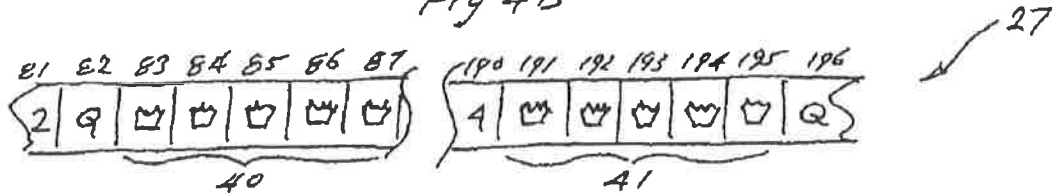


Fig. 4C

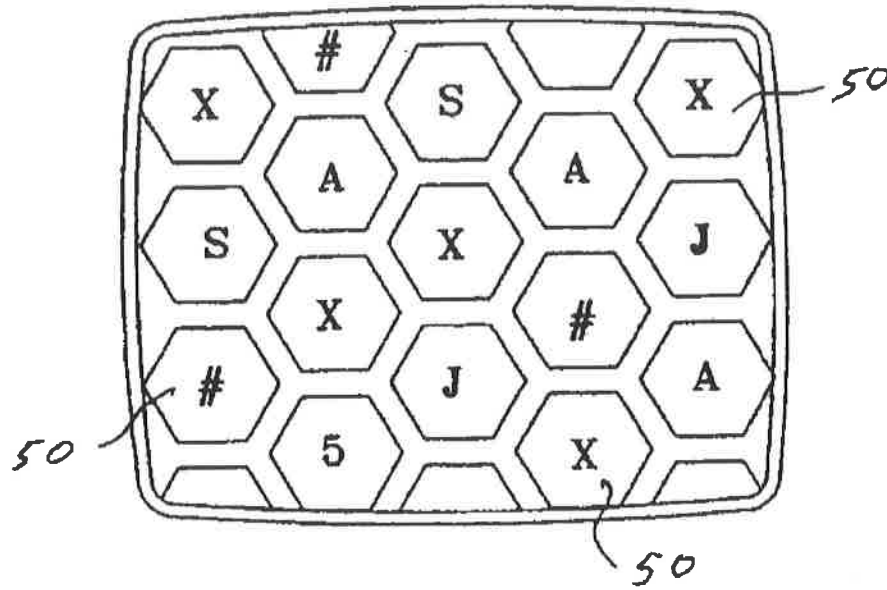


Fig. 5

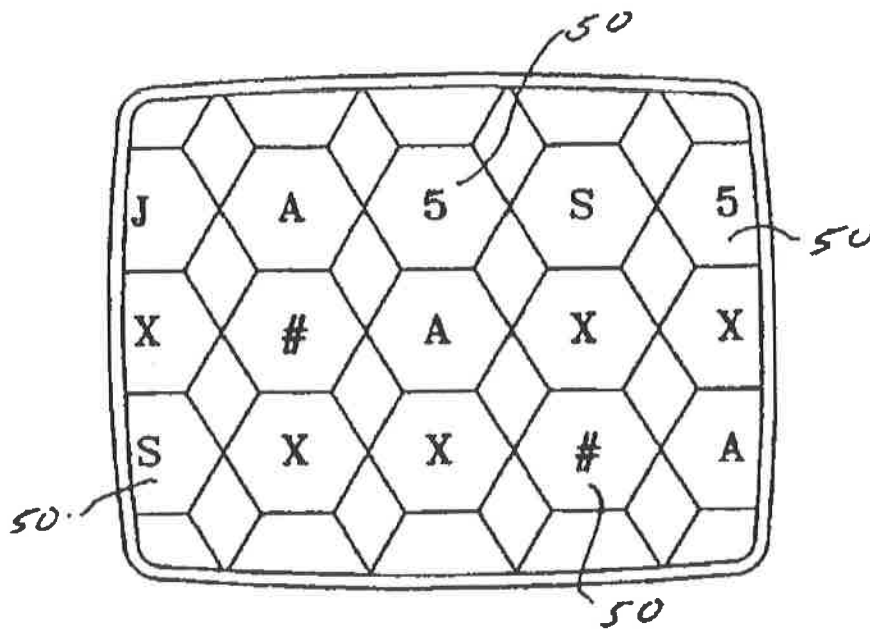


Fig. 6

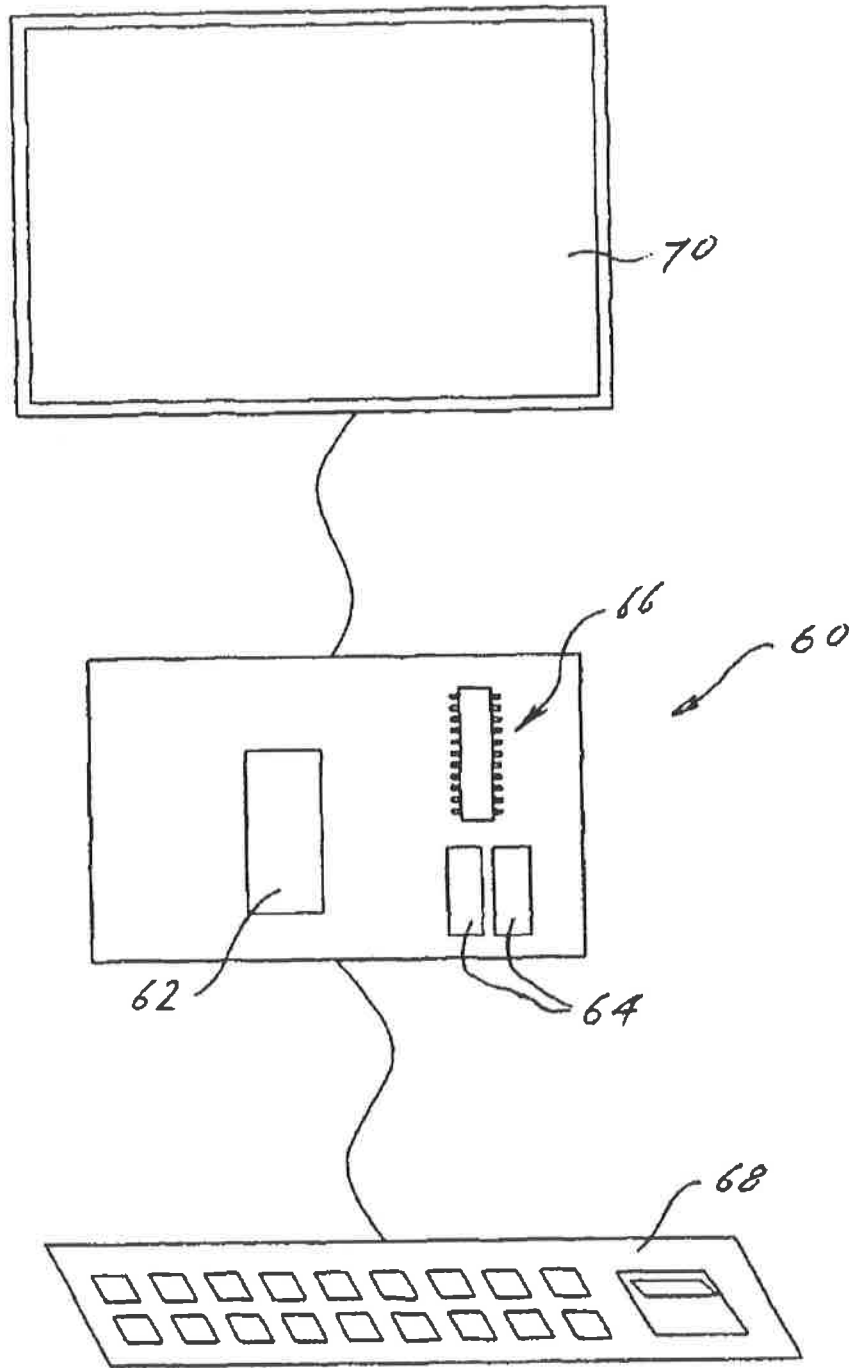


Fig. 7

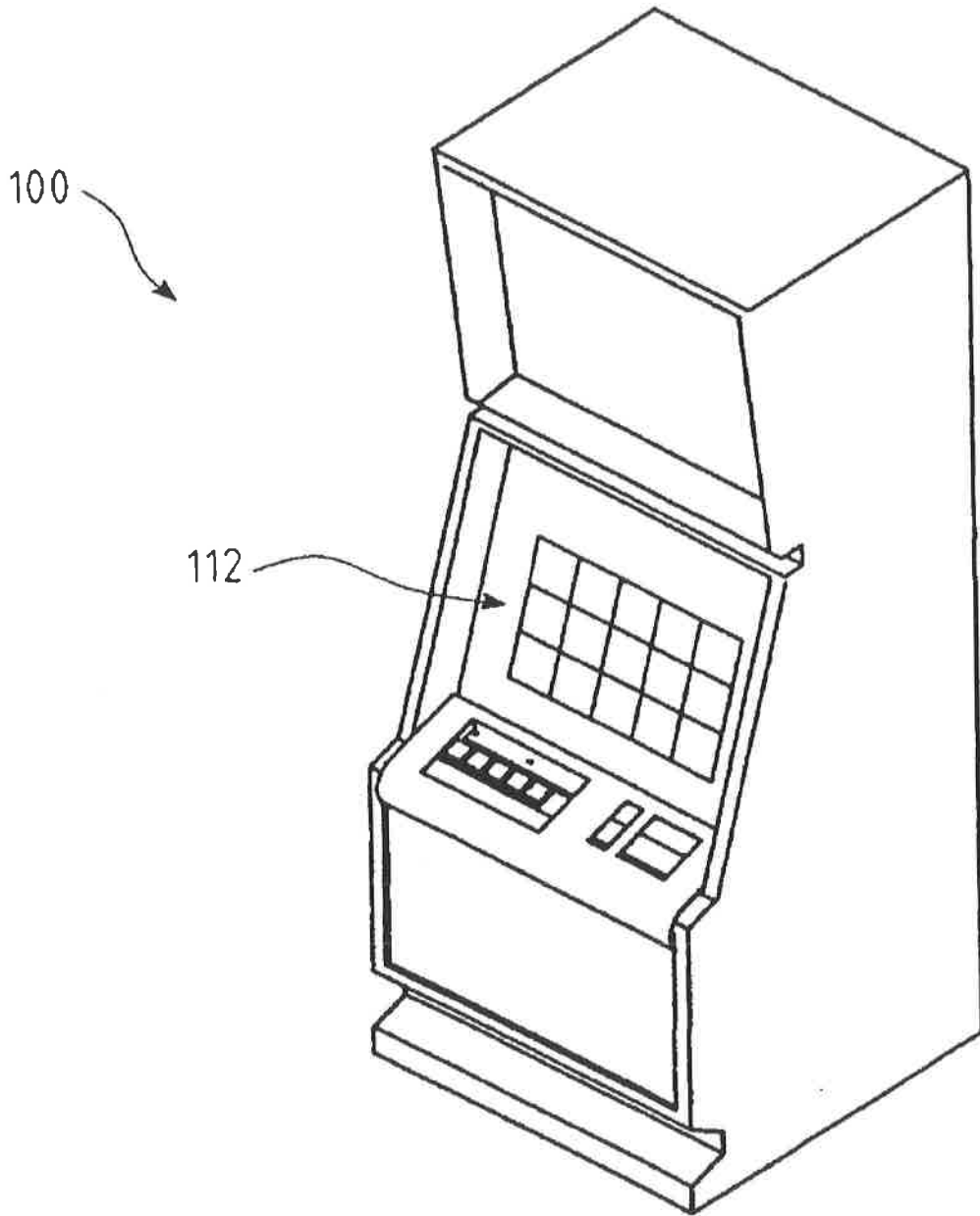


Fig. 8

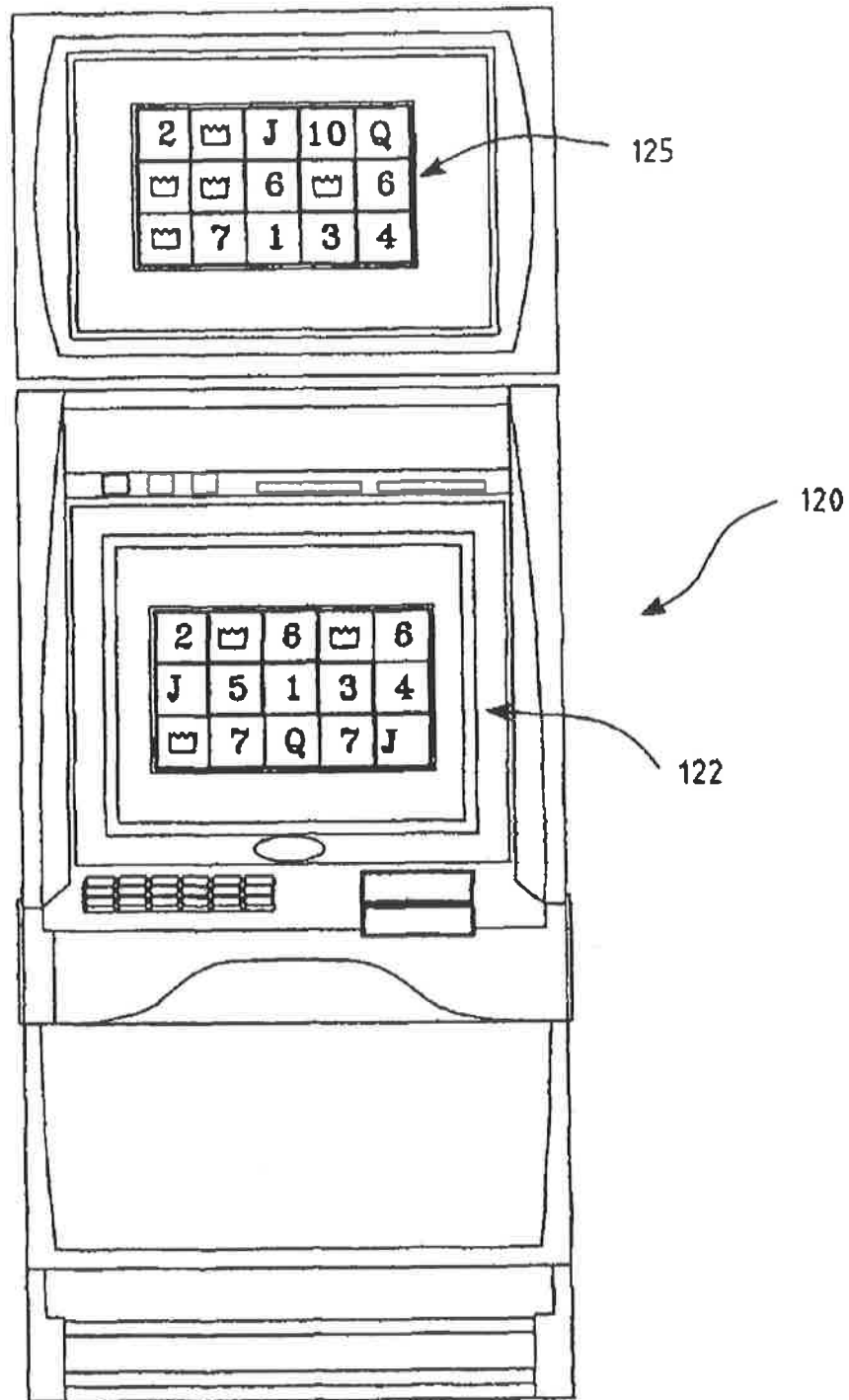


Fig. 9

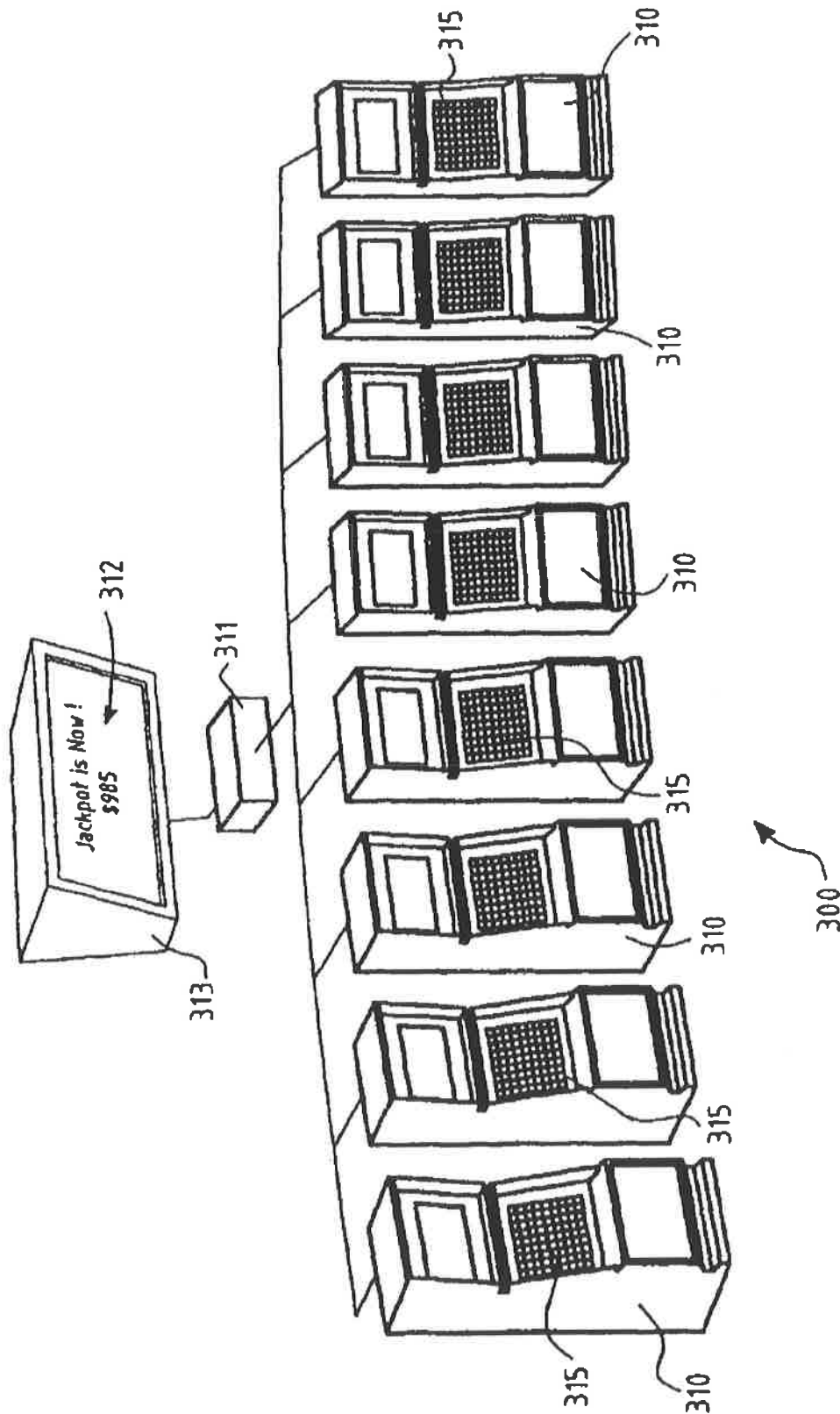


Fig. 10

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**GAMING MACHINE WITH RUNS OF
CONSECUTIVE IDENTICAL SYMBOLS**

RELATED APPLICATIONS

This application claims priority to Australian Provisional Patent Application No. 2005900681, filed Feb. 14, 2005, which is hereby incorporated in its entirety by reference herein.

BACKGROUND

The present invention relates to gaming machines for the playing of games of chance and, more particularly, to special features of games or feature games which may be offered on such machines.

Gaming, or poker machines, have become a major source of amusement and diversion in such places as clubs, hotels and casinos in many parts of the world.

Traditionally such machines were mechanical devices where a number of reels marked with a plurality of numbers or symbols could be made to spin randomly by the application of some mechanical input. If the subsequent patterns of numbers or symbols displayed on the reels, when these returned to a rest state, corresponded to predetermined patterns, the machine would provide a prize or payout. Generally such gaming machines have come to be regulated by government authorities as to their number and in the manner in which the machines must return a percentage of the monetary turnover to the players.

The introduction of electronics, computers and electronic graphical displays, has allowed a continual increase in the complexity and variations of gaming machines, games and displays while maintaining the basic concept of the traditional machine. Nevertheless, in some jurisdictions at least, government regulations effectively restrict the degree of variation which may be incorporated in games played on coin-free machines.

Machines and games therefore that offer novel and stimulating variations on the basic game theme and environment, yet comply with these restrictions are eagerly sought by the gaming industry and there is consequently intense competition between machine manufacturers to innovate.

Games based on simulated rotatable reels typically display a matrix of elements each of which displays a symbol. Predetermined patterns of symbols, if displayed after the reels are spun and come to rest, may then award a prize to the player of the game. Typically also, the symbols are arranged in the elements of a reel so that adjoining elements do not display the same symbol.

An exception to this is found for example in Australian Patent Application number 2004203045 (Aristocrat Technologies Australia Pty Ltd), in which arrangements are envisaged where two special symbols may occur adjacent one to the other.

A similar exception is found in Australian Patent Application number 2002301067 (Stargames Corporation Limited), in which a specific symbol and the number of its occurrences in the display at the conclusion of a game sequence, is determinant of a win. As indicated in FIG. 2 of the specification, two such symbols may appear in adjoining elements of a reel.

Both these examples of the prior art allow for only a single predetermined or special symbol to take up such adjacent positions on a reel.

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It is an object of the present invention to address or at least ameliorate some of the above disadvantages.

BRIEF DESCRIPTION OF INVENTION

Accordingly, in a first broad form of the invention, there is provided a gaming machine arranged to display a matrix of symbol containing elements; each column of said matrix comprising a portion of a simulated rotatable reel of said symbol containing elements; and wherein each of said symbol containing elements of at least one consecutive run of said symbol containing elements of at least one said reel is caused to display an identical symbol.

Preferably, said identical symbol is selected by a game controller from a subset of available symbols.

Preferably, each symbol of said subset of symbols is assigned a probability of selection.

Preferably, said matrix of elements is comprised of five columns and three rows of elements.

Preferably, said at least one said reel is a first left-most reel.

Preferably, each element of said first left-most reel other than elements of said at least one consecutive run of elements is populated by a random selection of said available symbols.

Preferably, said game controller selects one potential win element from each said reel.

Preferably, a prize is awarded to a player of a game on said gaming machine if a predetermined arrangement of said potential win elements is displayed on a pre-defined payline of said matrix of elements when a game sequence is concluded.

Preferably, elements of each of reels two, three, four and five are populated with a default random selection of said available symbols.

Preferably, each symbol of at least one pre-defined consecutive run of said elements of each of said reels two, three, four and five is adapted for potential modification from said default random selection of available symbols to a said identical symbol.

Preferably, said identical symbol is that symbol populating said consecutive run of elements of a leftwardly adjoining reel.

Preferably, said modification from said default random selection occurs within any one of said reels two, three, four or five, if a said win element of a preceding reel coincides with a said element of a consecutive run of elements of said preceding reel.

Preferably, each said reel, which includes said at least one consecutive run of identical symbols, is pre-spun at a relatively slow rate when a game sequence is initiated.

Preferably, all symbols of all elements of at least one said reel are identical.

Preferably, said gaming machine is a single display stand-alone gaming machine.

Preferably, said gaming machine is a stand-alone gaming machine provided with an upper secondary display.

Preferably, said gaming machine is one of a plurality of gaming machine linked to a progressive jackpot controller.

Preferably, said elements are N-sided elements; where N is a variable and values of N include N=1.

Preferably, said values of N include 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20.

Preferably, said N-sided elements are regular hexagons.

In a further broad form of the invention there is provided a method for increasing probability of a winning outcome on a gaming machine; wherein said winning outcome is determined by pre-defined arrangements of symbols displayed in a

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matrix of elements comprising portions of simulated rotatable reels; said method including the steps of:

- (a) arranging at least one of said simulated rotatable reels with at least one consecutive run of elements displaying an identical symbol; said identical symbol selected from a subset of available symbols,
- (b) a game controller randomly selecting one element from each one of said simulated rotatable reels as a potential win element.

Preferably, said matrix of elements comprises three rows and five columns of said elements; said columns comprising portions of said rotatable reels.

Preferably, said identical symbol is selected from a look-up table of said subset of available symbols.

Preferably, said at least one of said simulated rotatable reels is a first left-most reel.

Preferably, all said elements of said reels, except said at least one consecutive run of elements displaying said identical symbol on said first left-most reel, display randomly selected symbols from said available symbols.

Preferably, reels other than said first left-most reels are each provided with at least one potential consecutive run of elements adapted for modification from said randomly selected symbols to a said identical symbol.

Preferably, said modification from said randomly selected symbols within said potential consecutive run of said reels other than said first left-most reel, occurs if said potential win element of a leftwardly preceding reel falls within a said consecutive run of elements of said leftwardly preceding reel.

In yet a further broad form of the invention there is provided a method of implementing a game on a gaming machine; said method including the steps of:

- (c) providing said gaming machine with a control module; said module including a microprocessor, a working memory and a data storage device connection means,
- (d) writing program code to said data storage device,
- (e) connecting said data storage device to said control module.

In still a further broad form of the invention there is provided media for storing enabling digital code for playing games; said media comprising solid state data retaining devices including, read only memory (ROM) and erasable programmable read only memory (EPROM), compact flash cards and PCMCIA cards; said media further including disc-based storage devices.

BRIEF DESCRIPTION OF DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

FIG. 1 is a partial view of a gaming machine with a display showing a matrix of elements and symbols comprising portions of simulated rotatable reels,

FIG. 2 is a schematic representation of the elements and symbols of portions of the first or left-most rotatable reel of FIG. 1,

FIG. 3 is a schematic representation of an "inner reel" or look-up table,

FIGS. 4A to 4C are schematic representations of portions of the reel of FIG. 2 and of the adjoining second reel for a particular game situation,

FIGS. 5 and 6 show examples of the display of FIG. 1 during play of a game using hexagonal elements,

FIG. 7 is a schematic representation of a control module, input keyboard and display for implementing the game embodiments of FIGS. 3 to 9,

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FIG. 8 is a perspective view of a stand-alone gaming machine with a single display unit,

FIG. 9 is a front view of a stand-alone gaming machine with a main display and a secondary display unit,

FIG. 10 is a perspective view of a number of the gaming machines of FIG. 8 or 9 when linked to a progressive jackpot system.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

First Preferred Embodiment

With reference to FIGS. 1 and 2, a gaming machine 10 is provided with a display 12, showing portions of a number of adjoining simulated rotatable reels 26 to 30. Each reel is divided into a given number of elements, for example 256 elements. In this example, when rotatable reels 26 to 30 are at rest, the display shows a matrix of elements 14 in five columns, 16 to 20 and three rows, 22 to 24, so that each column comprises a three-element portion of the respective simulated rotatable reel. Each element 14 of simulated rotatable reels 26 to 30 is arranged to display a symbol 32. With some exceptions, as explained below, the sequence of symbols within the elements of a reel remains fixed for all games played.

A game controller (not shown) pre-selects at random, at the initiation of a game sequence, a potential win element for each reel from the set of elements. That is, the game controller predetermines which element, and therefore which symbol, will be displayed in a pay line position at the end of a game sequence, and may therefore contribute to a winning outcome.

In this first preferred embodiment of the invention, at least one reel, the first left-most reel, is arranged to have at least one run of an identical symbol in each of a number of consecutive elements. The arrangement is shown schematically in FIG. 2 where portions of the left-most reel 26 are shown in strip form and, for example, a run of kings (crown symbol) is arranged for display in runs of five consecutive elements 30 at three locations 31 to 33 respectively. The three runs of consecutive elements in this example are elements 20 to 24, 100 to 104 and 200 to 204, within the 256-element length of the strip. In this preferred embodiment, the number of elements in a run and the location of the consecutive run or runs within the strip are predetermined and remain constant for each game played on the machine. The identical symbol which populates these consecutive run or runs of elements may be considered as one of a set of "inner reel" symbols.

The game controller (not shown) determines the identical symbol to be displayed in each consecutive element of the run or runs of consecutive elements in which the symbol is to be shown. The selection of the identical symbol is through a notional rotation of an "inner reel" 34 shown as a strip of elements and symbols in FIG. 3. This "inner reel" is in effect a look-up table and is not displayed, but its simulated rotation and "coming to rest" determines which symbol will populate the run or runs of consecutive elements of the left-most reel.

The symbols of the "inner reel" or look-up table from which the selection is made, are a sub-set of the set of symbols displayed in the remaining non-"inner reel" elements of the left-most reel. Thus, where the symbols are those of a suit of cards, the "inner reel" symbols may be those of the Ace, King, Queen and Jack, sometimes called the trump or court cards. The look-up table could also include a "wild" or "scatter" symbol. As previously noted, the arrangement or ordering of the symbols in the elements of the reel, other than the consecutive run or runs of elements, remain constant for every

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game, only the selection of the identical symbol from the look-up table is performed anew for each new play of a game.

The symbols 36 of the look-up table 34 need not all have the same probability of selection but may be assigned a hierarchy of probability. Thus for example, those symbols for which a winning combination confers on the player of a game a relatively higher value prize, such as the ace and the king, may have an inversely proportional probability of being selected as an "inner reel" symbol.

The reels are now spun as normal. The player will notice the run or runs of identical symbols passing through the display 12 for each revolution of the left-most reel 26, thereby providing a heightening of interest, since the odds of a winning arrangement of symbols appearing on a pre-defined pay line in the matrix at the conclusion of the game sequence will be increased.

Second Preferred Embodiment

In a second preferred embodiment of the invention, the second reel, that is the second reel from the left in this example, may also be modified to include at least one run of consecutive elements displaying the same "inner reel" symbol as that used to populate the elements of the consecutive run or runs of the left-most reel. As for the first, left-most reel, the number and location of the consecutive elements of the potential run or runs within the strip of elements forming the simulated reel, is predetermined and remains constant.

Prior to modification, all the elements of the second reel (and likewise those of the third fourth and fifth reel) are randomly populated with symbols from the set of available symbols. Unless modification is triggered in the manner explained below, the ordering of these symbols within the elements of the reels remains constant for every game; only those symbols of the potential run or runs being displaced should a modifying event occur.

The populating of the potential "inner reel" elements of the second reel, and of any subsequent reels, is dependent on the potential win element for the first, or preceding reel, which was randomly selected by the game controller, lying within a run of consecutive elements of that reel. For example if, as shown in FIG. 4A, in the left-most reel 26, which has consecutive runs comprising the elements as numbered in the First Preferred Embodiment above, the potential win element selected is element number 103, the second reel 27 will be modified. Second reel 27 in this example has two potential runs 40 and 41 of consecutive "inner reel" elements, element numbers 83 to 87 and 191 to 195 respectively, which in a default state are randomly populated from the set of available symbols as shown in FIG. 4B. However, because the selected potential win element 103 of reel 26 falls within run 32, the potential "inner reel" elements 83 to 87 and 191 to 195 of reel 27 are replaced with the same identical symbol as used for the consecutive run or runs of the left-most reel 26 as shown in FIG. 4C.

A player will now discern a bias of symbols, (in our example crown symbols), in both the first, left-most, and second reels as these are spun during the play of a game. The effect is clearly an increase in the probability of a winning combination of symbols appearing along a pre-defined pay line within the matrix and consequently a raised level of interest in the outcome of the game for the player.

The same process of populating potential "inner reel" elements with the "inner reel" symbol of the preceding reel, may be sequentially applied to the third, fourth and fifth reels. As described for the second reel, the modification of a succeed-

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ing reel depends on the selected potential win element of the preceding reel falling within a run of "inner reel" elements of that reel.

Third Preferred Embodiment

In at least one preferred form of this embodiment, a player is made aware of the populating of one or more consecutive runs of the left-most reel with the identical symbol. This may be done prior to the main game sequence, for example, by a slower pre-spin of only the left-most reel. If any further reels are so populated, each may be pre-spun sequentially.

The displayed game rules and experience will alert a player to the fact that the potential winning element for a given reel is positioned somewhere within the run, or one of the runs of consecutive elements populated with the identical symbol if the second and any subsequent reels are also pre-spun to display a run or runs of that symbol. The player will appreciate that the probability of a winning combination occurring increases with each additional reel which is pre-spun to display its run or runs of elements with the same symbol.

Fourth Preferred Embodiment

The above described embodiments may be applied to a main game of a gaming machine or to a feature game offered as a result of some triggering event in a main game.

In a preferred embodiment of the invention as adapted for a feature game, the number of elements comprising a run of identical "inner reel" symbols and the number of such runs in any given reel is not constant but may be determined in a number of ways. Thus, in at least one preferred embodiment, the number of elements comprising a run may be a function of the amount of a bet placed by the player on the main game which triggered the feature game, or as a function of accumulated throughput of bets over a given time period. In one special case, all the elements of the first left-most reel may be populated by the same "inner reel" symbol.

Likewise, the number of runs in a given reel may be a function also of the betting pattern preceding the conferring of the feature game or alternatively, may be a function of the particular triggering event of the main game which led to the feature game.

Fifth Preferred Embodiment

The elements comprising the matrix of elements of any of the above described embodiments may be of conventional rectangular configuration, but in at least one preferred embodiment the delineation of an element, that is, the boundary defining the field containing a symbol, may be any N-sided figure, where N may take the value 1 (thus a circular field) or any value from 3 to 20. In at least one preferred form of N-sided element, as shown in FIGS. 5 and 6, the elements 50 are hexagon shape for the value of N=6.

Game Implementation

Any of the above described embodiments may be implemented on any gaming machine or group of gaming machine provided with a control module. As shown in FIG. 7, a control module 60 is provided with a microprocessor 62 and working random access memory (RAM) 64. The program code driving any of the described embodiments may be introduced into the control module 60 by connection of a data storage device 66. The device may take any of a number of forms, such as read only memory (ROM), erasable read only memory (EPROM), Compact Flash Card, PCMCIA card and the like.

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Alternatively, control module 60 may incorporate a hard disc drive to which the code may be written via a suitable input device.

Control module 60 acts to implement appropriate elements of the program code according to inputs from a user keyboard 68 and outputs video imagery to at least a main display module 70.

1. Stand-Alone Gaming Machines

As shown in FIG. 8, any of the above described embodiments for use on electronic display gaming machines may be incorporated into a stand-alone gaming machine 100 provided with a single display unit 112. In this implementation of games according to the invention, both main games and feature games (if offered) are displayed on the single display unit.

2. Stand-Alone Gaming Machines with Secondary Display Unit

In a further preferred embodiment of the invention as shown in FIG. 9, a stand-alone gaming machine 120 is provided with a secondary display unit 125 as well as a main display unit 122. In this embodiment the main game played on the primary display unit may take the form of either the first or second preferred embodiments described above. It is then a triggering event in the main game which offers a player a feature game as described in the third preferred embodiment above.

3. Gaming Machines Linked to Progressive Jackpot System

In yet a further preferred embodiment of the invention as shown in FIG. 10, a plurality of gaming machines 300 are arranged side by side in a line or arc so as to allow each of the players (not shown) of the machines to view a common jackpot prize display unit 313. Each individual machine 310 is provided with at least a main game display unit 315 for the playing of a main game according to the above described first and second embodiments

Each of machines 310 of the embodiment illustrated in FIG. 7 is electronically linked to a jackpot control module 311 which monitors the volume of play on each of the linked machines and displays an incrementing jackpot value 312 determined according to the combined volume of play on the linked machines.

A win of the jackpot prize may be triggered by specific outcomes of either a main game or of a feature game. If the jackpot trigger is dependent on an outcome of the feature game, players on adjoining machines may be made aware by means of the common display that a potential triggering of the jackpot is to commence on the machine offered the feature game, thus adding interest for all the players.

It will be appreciated that the linked machines may form part of Local Area Networks (LAN) or Wide Area Networks (WAN).

What is claimed is:

1. A gaming machine comprising: a processor configured to execute a game displaying a matrix of symbol containing elements having a plurality of rows and a plurality columns; at least one column of said matrix comprising a portion of a simulated rotatable reel of a plurality of said symbol containing elements; said simulated rotatable reel comprising sections of symbol containing elements displaying a plurality of symbols that are fixed for each game played on said gaming machine; said simulated rotatable reel including at least one section in which a consecutive run of three or more of said symbol containing elements is populated by an identical symbol so that, as the simulated rotatable reel rotates, a consecutive string of said same identical symbol is sequentially displayed within said consecutive string of symbol containing elements; and said identical symbol is randomly selected anew for each play of said game, wherein said identical sym-

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bol is selected by virtually spinning a notional, non-visible, inner reel comprising a subset of said plurality of symbols.

2. The gaming machine of claim 1 wherein said identical symbol is selected by the processor from the subset of said plurality of symbols.

3. The gaming machine of claim 2 wherein each symbol of said subset of symbols is assigned a probability of selection.

4. The gaming machine of claim 2 wherein said game controller selects one potential winning symbol containing element from said simulated rotatable reel.

5. The gaming machine of claim 4 wherein a prize is awarded to a player of said game on said gaming machine if a predetermined arrangement of said potential winning symbol containing elements is displayed on a pre-defined pay line of said matrix of symbol containing elements when a game sequence is concluded.

6. The gaming machine of claim 1 wherein said matrix of symbol containing elements is comprised of five columns and three rows of symbol containing elements, said five columns being portions respectively of simulated rotatable reels one, two, three, four, and five.

7. The gaming machine of claim 6 wherein symbol containing elements of each of simulated rotatable reels two, three, four, and five are populated with a default random selection of said plurality of symbols.

8. The gaming machine of claim 7 wherein each symbol containing element of at least one section of a consecutive run of three or more of said symbol containing elements of each of said simulated rotatable reels two, three, four, and five is adapted for potential modification from said default random selection of said plurality of symbols to said identical symbol.

9. The gaming machine of claim 8 wherein said identical symbol is that symbol populating said consecutive run of symbol containing elements of a leftwardly adjoining reel.

10. The gaming machine of claim 8, wherein said potential modification from said default random selection occurs within any of said simulated rotatable reels two, three, four, or five, if a win element of a preceding simulated rotatable reel coincides with a said identical symbol of a consecutive run of symbol containing elements of said preceding reel.

11. The gaming machine of claim 1 wherein said simulated rotatable reel is a first left-most reel.

12. The gaming machine of claim 1 wherein said simulated rotatable reel, which includes said consecutive run three or more symbol containing elements populated with said identical symbol, is pre-spun at a relatively slow rate when a game sequence is initiated.

13. The gaming machine of claim 1 wherein said gaming machine is a single display stand-alone gaming machine.

14. The gaming machine of claim 1 wherein said gaming machine is a stand-alone gaming machine provided with an upper secondary display.

15. The gaming machine of claim 1 wherein said gaming machine is one of a plurality of gaming machines linked to a progressive jackpot controller.

16. The gaming machine of claim 1 wherein said symbol containing elements are N-sided elements, where N is a variable and values of N include N=3.

17. The gaming machine of claim 16 wherein said values of N include 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20.

18. The gaming machine of claim 16 wherein said N-sided elements are regular hexagons.

19. A method for increasing probability of a winning outcome on a gaming machine; wherein said winning outcome is determined by a game including pre-defined arrangements of a plurality of symbols displayed in a matrix of symbol con-

taining elements comprising portions of simulated rotatable reels; said method comprising a processor of the gaming machine configured to:

- (a) arrange at least one of said simulated rotatable reels with at least one consecutive run of three or more symbol containing elements displaying an identical symbol; said identical symbol selected from a subset of said plurality of symbols so that, as the simulated rotatable reel rotates, a consecutive string of the same identical symbol is sequentially displayed in said consecutive run of three or more symbol containing elements within a column defined by the simulated rotatable reel; and

- (b) randomly select one of the plurality of symbols from each one of said simulated rotatable reels as a potential win element;

wherein, said at least one consecutive run of three or more symbol containing elements comprises a section of said simulated rotatable reel, such that all other remaining symbol containing elements of said simulated rotatable reel are populated with fixed symbols from the plurality of symbols for each play of the game; and wherein said subset of said plurality of symbols is arranged on a notional non-visible inner reel, such that said iden-

tical symbol is randomly selected anew for each play of the game by virtual rotation of said notional non-visible inner reel.

20. The method of claim 19 wherein said matrix of symbol containing elements comprises three rows and five columns, said columns comprising portions of said simulated rotatable reels.

21. The method of claim 19 wherein said at least one of said simulated rotatable reels is a first left-most reel.

22. The method of claim 21 wherein said simulated rotatable reels other than said first left-most reel are each provided with at least one potential consecutive run of three or more symbol containing elements adapted for modification from said fixed symbols to said identical symbol.

23. The method of claim 22 wherein said modification from said fixed symbols within said potential consecutive run of three or more symbol containing elements of said simulated rotatable reels other than said first left-most reel, occurs if said potential win element of a leftwardly preceding simulated rotatable reel falls within a said consecutive run of three or more symbol containing elements of said leftwardly preceding simulated rotatable reel.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

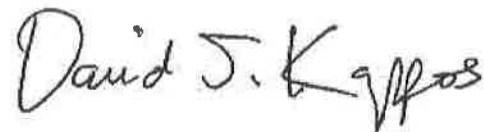
PATENT NO. : 8,096,869 B2
APPLICATION NO. : 11/299009
DATED : January 17, 2012
INVENTOR(S) : Osamu Yoshimi

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- In Column 7, Line 14, please change "diplayed" to --displayed--.
- In Column 7, Line 18, please change "gaining" to --gaming--.
- In Column 7, Line 34, please change "embodiments" to --embodiments.--.
- In Column 7, Line 34, Claim 1, after "plurality" please insert --of--.

Signed and Sealed this
Twenty-fifth Day of September, 2012



David J. Kappos
Director of the United States Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,096,869 B2
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INVENTOR(S) : Osamu Yoshimi

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Column 7, Line 54, Claim 1, after "plurality" please insert --of--.

Signed and Sealed this
Twenty-ninth Day of January, 2013

A handwritten signature in black ink that reads "David J. Kappos". The signature is written in a cursive style with a large initial "D" and "K".

David J. Kappos
Director of the United States Patent and Trademark Office

EXHIBIT B



US008366540B2

(12) **United States Patent**
Yoshimi

(10) **Patent No.:** **US 8,366,540 B2**
(45) **Date of Patent:** ***Feb. 5, 2013**

(54) **GAMING MACHINE WITH RUNS OF CONSECUTIVE IDENTICAL SYMBOLS**

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(75) Inventor: **Osamu Yoshimi**, Botany (AU)

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(73) Assignee: **Konami Gaming, Inc.**, Las Vegas, NV (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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This patent is subject to a terminal disclaimer.

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International Search Report—date of mailing Apr. 22, 2005.

(22) Filed: **Dec. 9, 2011**

(Continued)

(65) **Prior Publication Data**

US 2012/0094740 A1 Apr. 19, 2012

Primary Examiner — Milap Shah

Related U.S. Application Data

(74) *Attorney, Agent, or Firm* — Howard & Howard Attorneys PLLC

(63) Continuation of application No. 11/299,009, filed on Dec. 9, 2005, now Pat. No. 8,096,869.

(57) **ABSTRACT**

(30) **Foreign Application Priority Data**

Feb. 14, 2005 (AU) 2005900681

A gaming machine for executing a game displaying a matrix of symbol containing elements having a plurality of rows and columns; at least one column of the matrix comprising a portion of a simulated rotatable reel of a plurality of the symbol containing elements; the simulated rotatable reel comprising sections of symbol containing elements displaying a plurality of symbols; the simulated rotatable reel including at least one section in which a consecutive run of two or more of the symbol containing elements is populated by a first identical symbol so that, the first identical symbol being used for a first play of the game, a second identical symbol being randomly selected, the first identical symbol being replaced by the second identical symbol in the consecutive run of two or more of the symbol containing elements, the second identical symbol being used for a second play of the game.

(51) **Int. Cl.**

A63F 9/24 (2006.01)
A63F 13/00 (2006.01)

(52) **U.S. Cl.** 463/20; 463/16; 463/29; 273/138.1

(58) **Field of Classification Search** 463/16-20, 463/25, 29; 273/138.1, 139

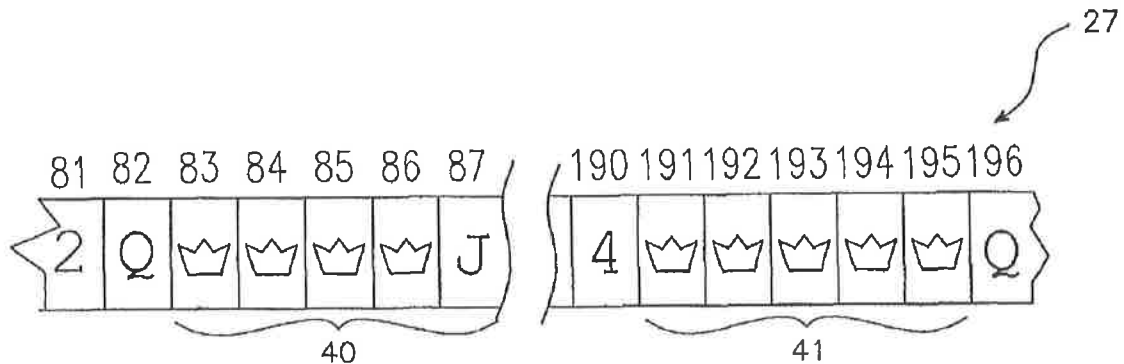
See application file for complete search history.

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27 Claims, 7 Drawing Sheets



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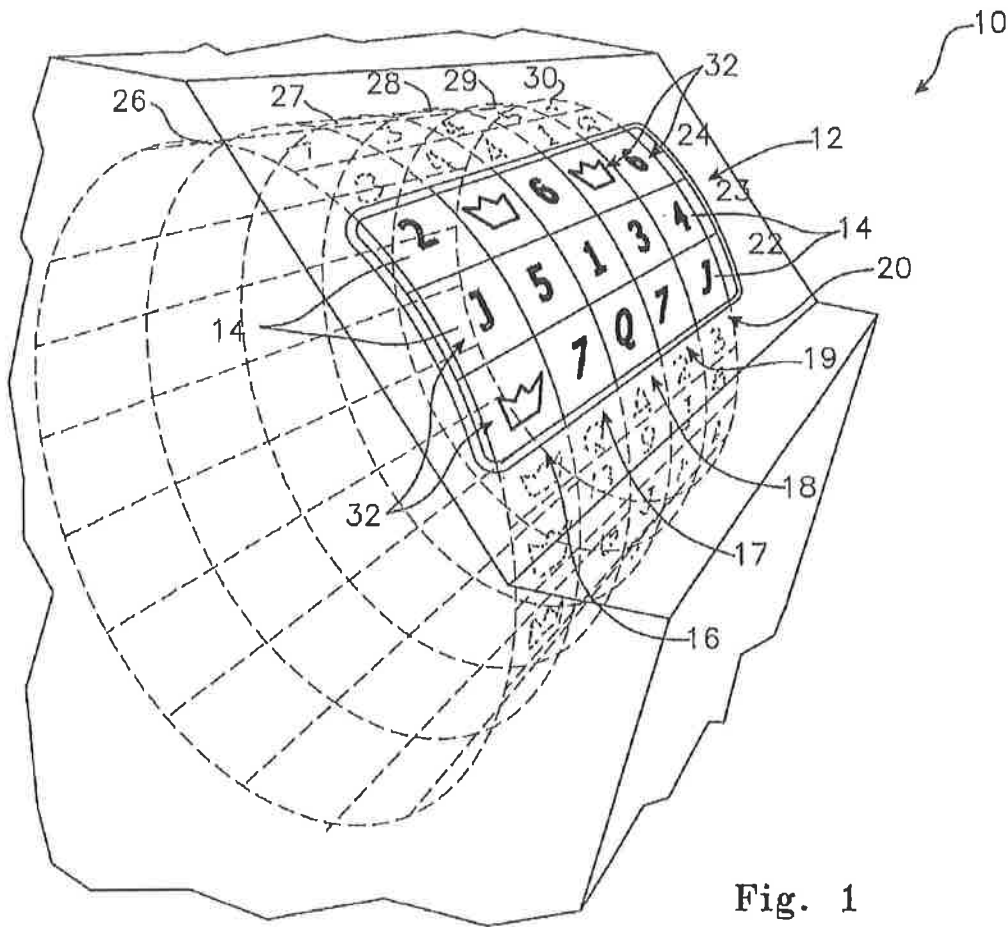


Fig. 1

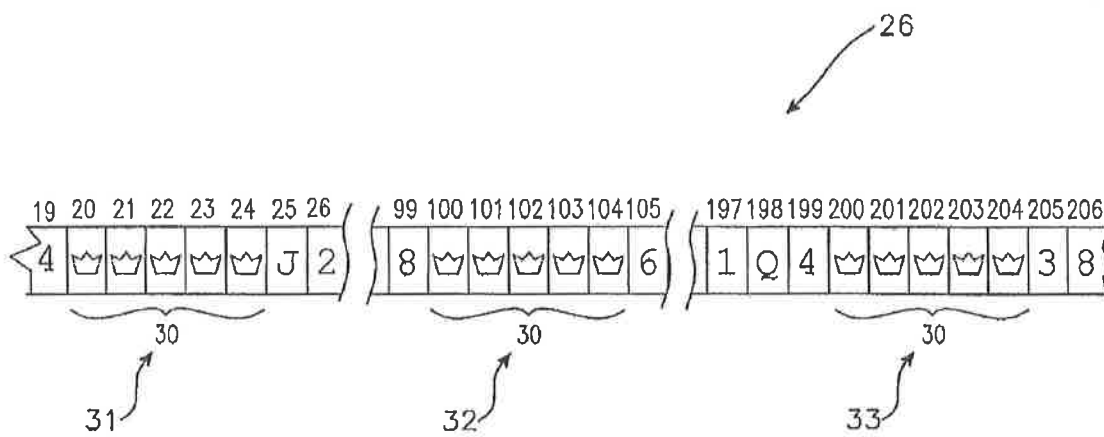
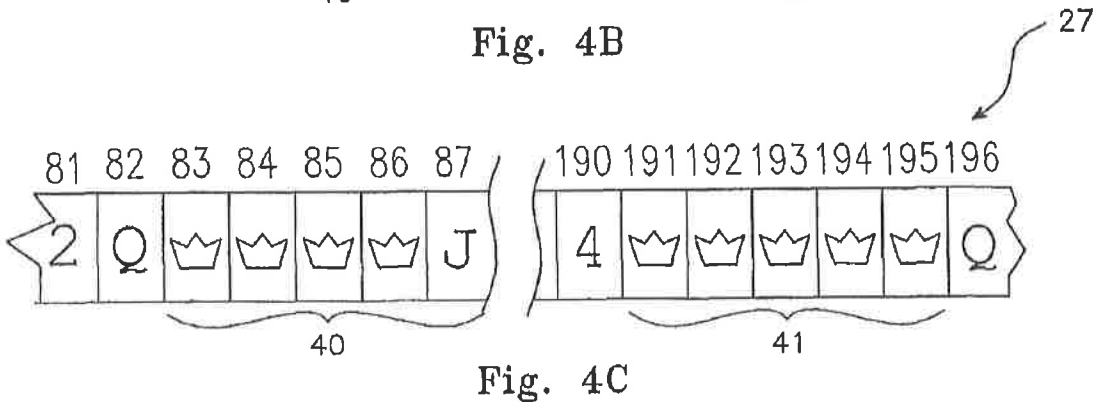
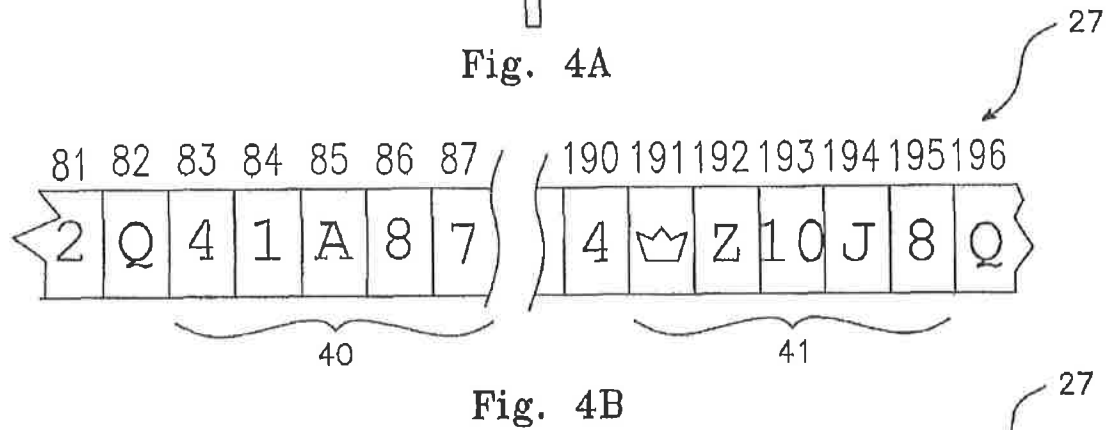
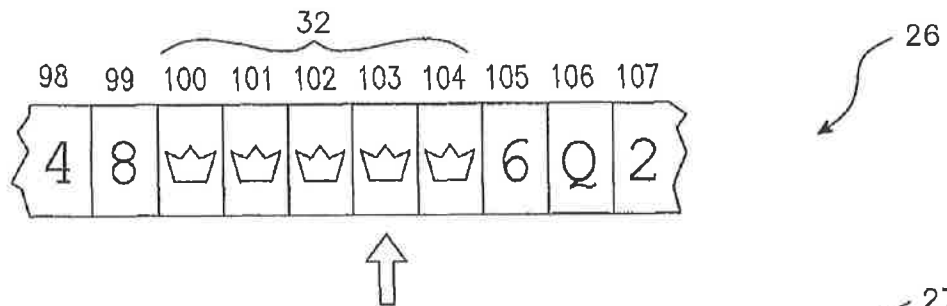
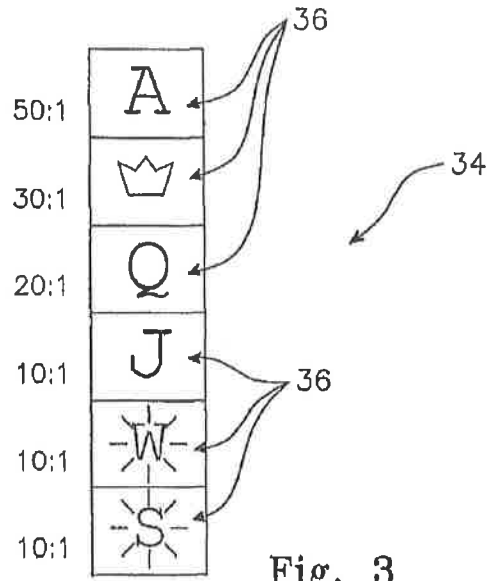


Fig. 2



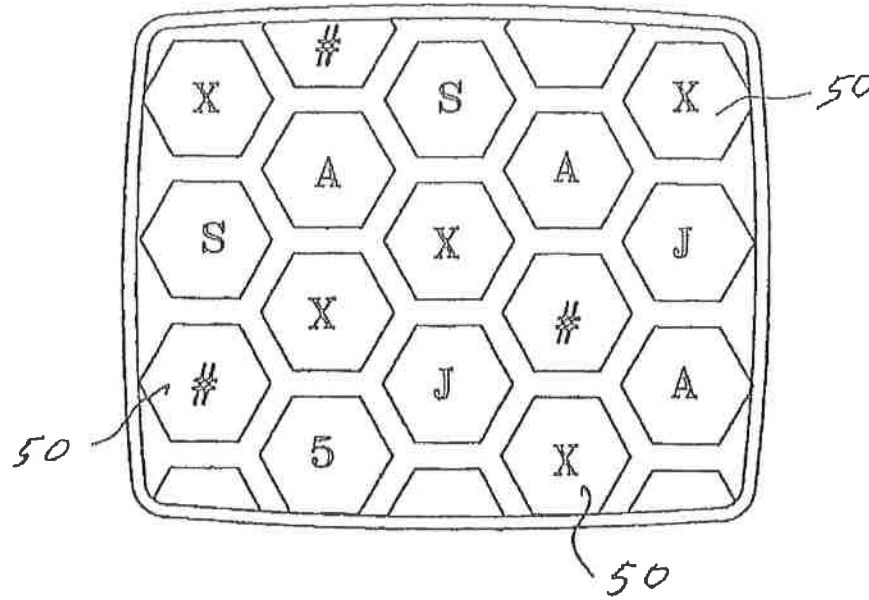


Fig. 5

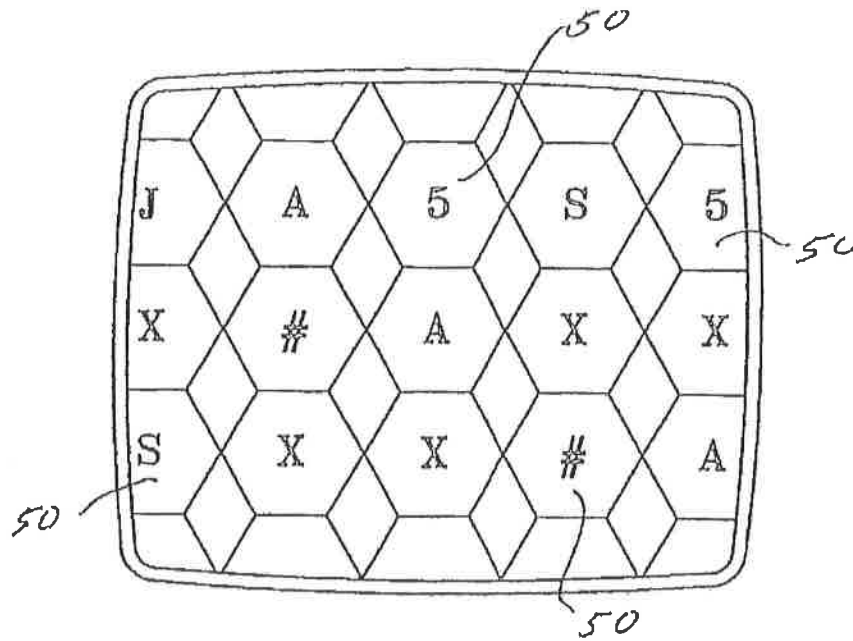


Fig. 6

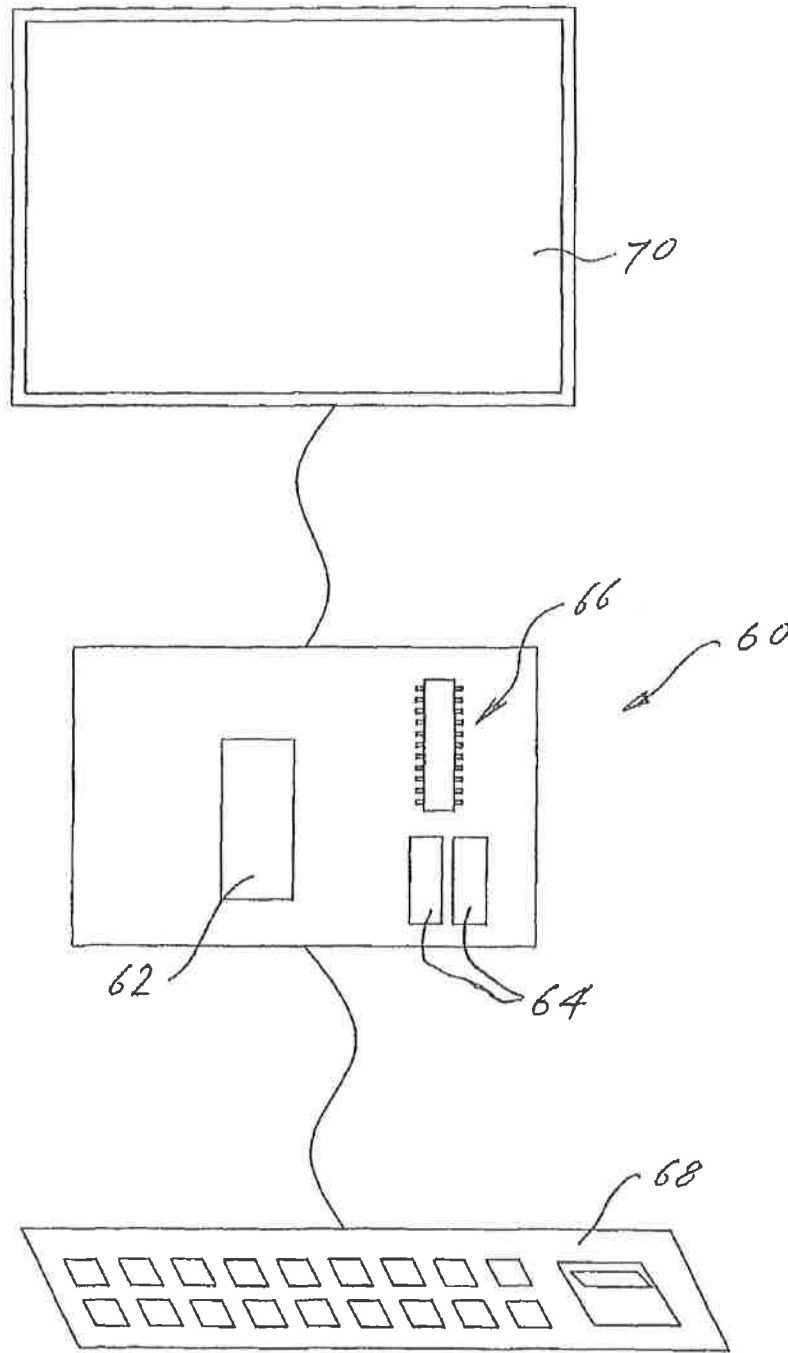


Fig. 7

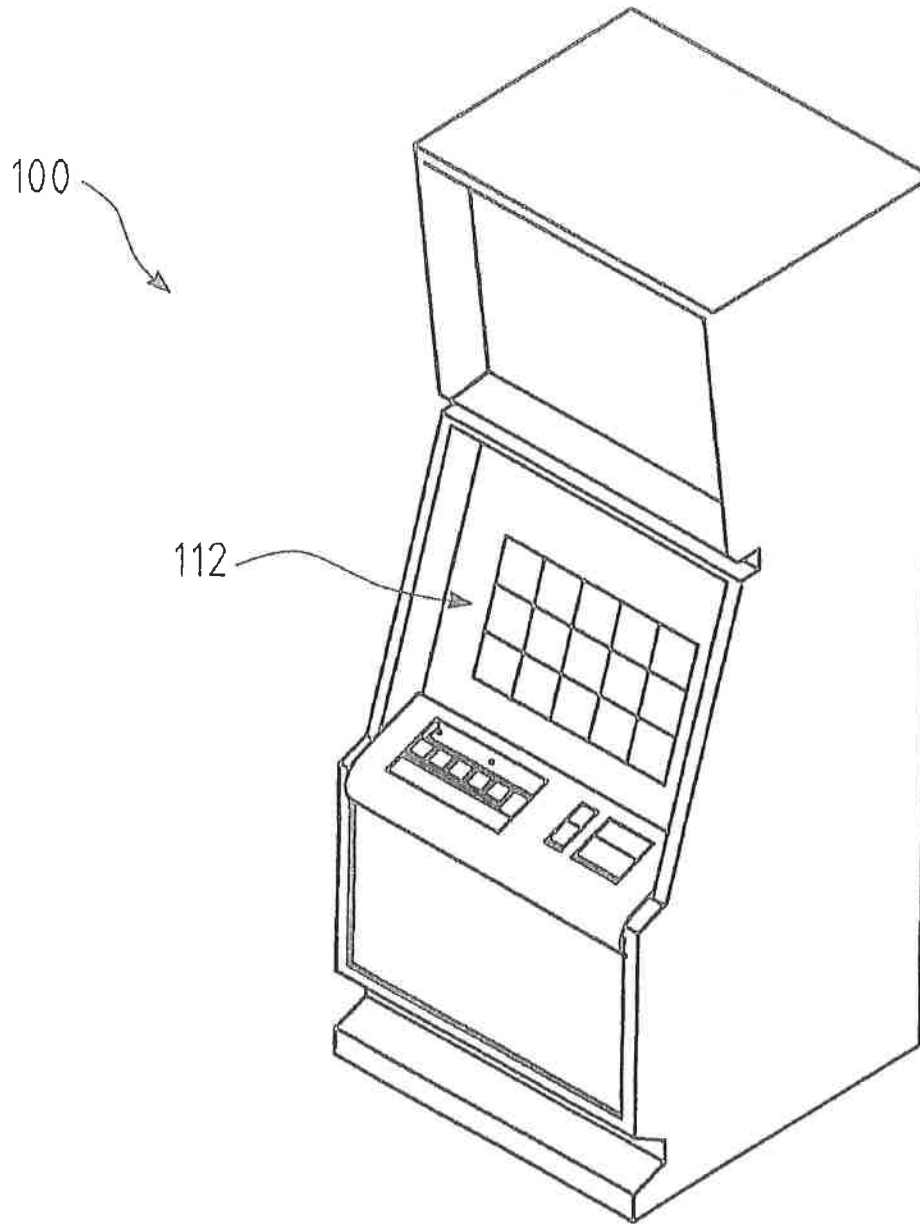


Fig. 8

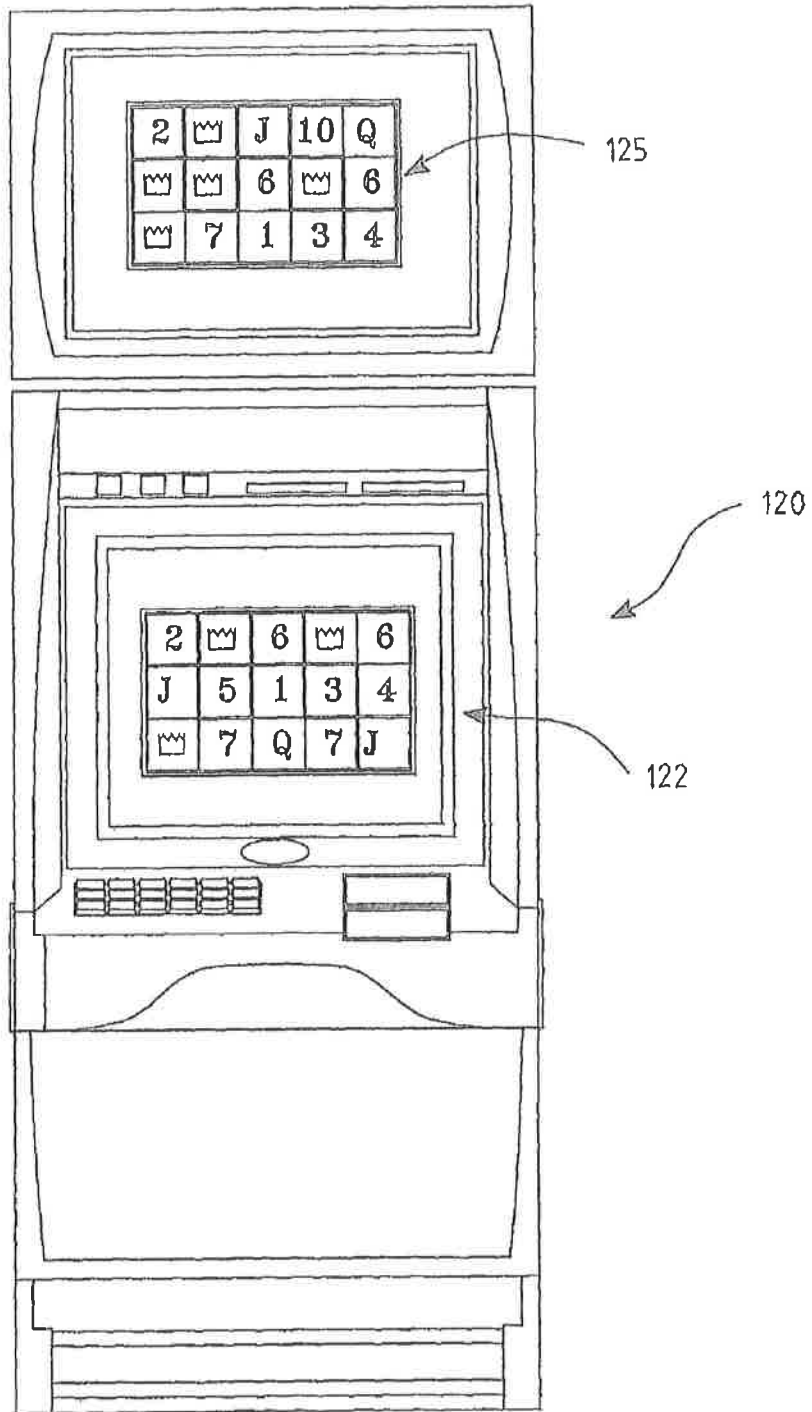


Fig. 9

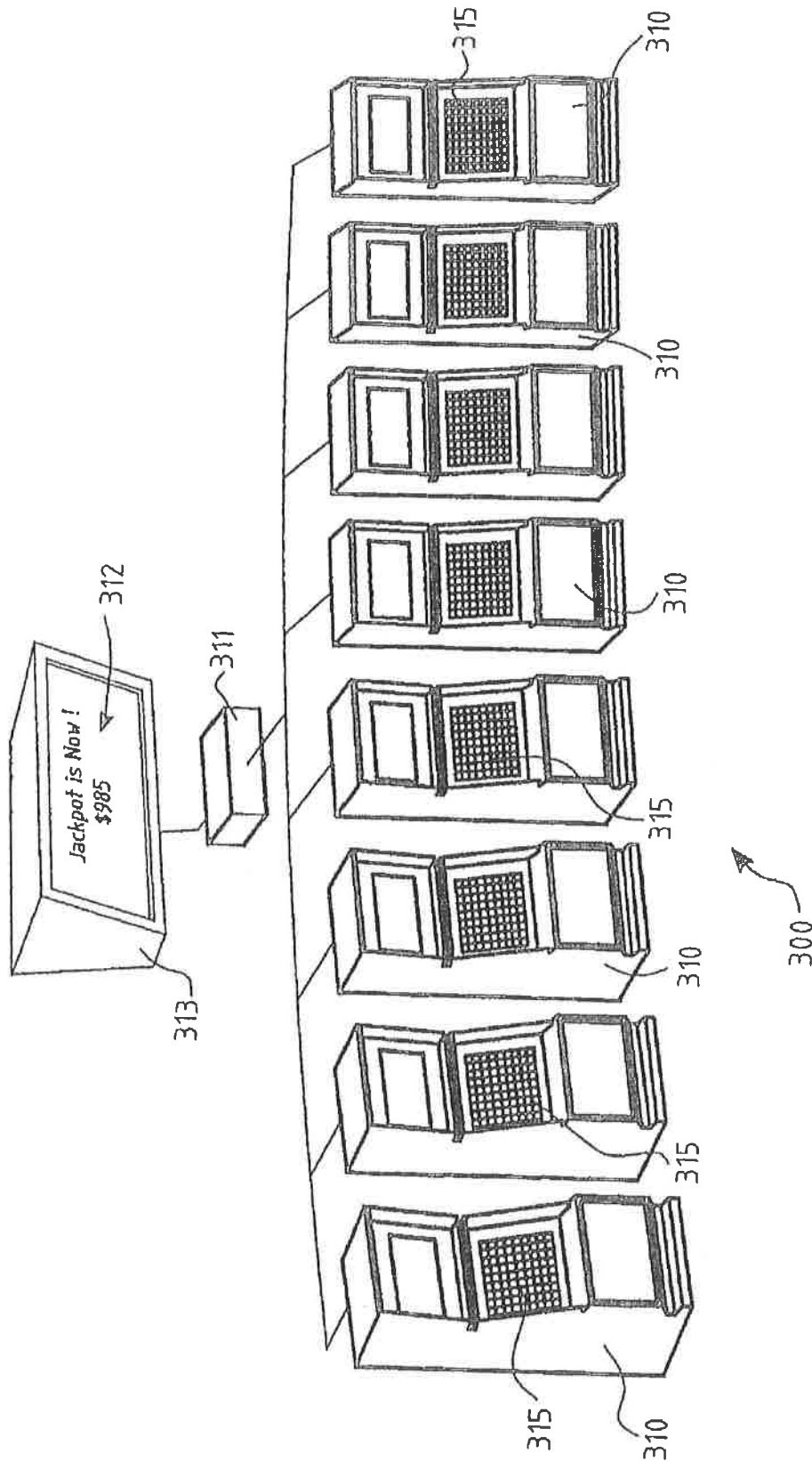


Fig. 10

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**GAMING MACHINE WITH RUNS OF
CONSECUTIVE IDENTICAL SYMBOLS****CROSS-REFERENCE TO RELATED
APPLICATION**

This application is a continuation of U.S. patent application Ser. No. 11/299,009 filed on Dec. 5, 2005, now U.S. Pat. No. 8,096,869, issued on Jan. 17, 2012, which claims priority to Australian Patent Application No. 2005900681, filed on Feb. 14, 2005, the disclosures of which are hereby incorporated by reference in their entirety.

BACKGROUND

The present invention relates to gaming machines for the playing of games of chance and, more particularly, to special features of games or feature games which may be offered on such machines.

Gaming, or poker machines, have become a major source of amusement and diversion in such places as clubs, hotels and casinos in many parts of the world.

Traditionally such machines were mechanical devices where a number of reels marked with a plurality of numbers or symbols could be made to spin randomly by the application of some mechanical input. If the subsequent patterns of numbers or symbols displayed on the reels, when these returned to a rest state, corresponded to predetermined patterns, the machine would provide a prize or payout. Generally such gaming machines have come to be regulated by government authorities as to their number and in the manner in which the machines must return a percentage of the monetary turnover to the players.

The introduction of electronics, computers and electronic graphical displays, has allowed a continual increase in the complexity and variations of gaming machines, games and displays while maintaining the basic concept of the traditional machine. Nevertheless, in some jurisdictions at least, government regulations effectively restrict the degree of variation which may be incorporated in games played on coin-freed machines.

Machines and games therefore that offer novel and stimulating variations on the basic game theme and environment, yet comply with these restrictions are eagerly sought by the gaming industry and there is consequently intense competition between machine manufacturers to innovate.

Games based on simulated rotatable reels typically display a matrix of elements each of which displays a symbol. Predetermined patterns of symbols, if displayed after the reels are spun and come to rest, may then award a prize to the player of the game. Typically also, the symbols are arranged in the elements of a reel so that adjoining elements do not display the same symbol.

An exception to this is found for example in Australian Patent Application number 2004203045 (Aristocrat Technologies Australia Pty Ltd), in which arrangements are envisaged where two special symbols may occur adjacent one to the other.

A similar exception is found in Australian Patent Application number 2002301067 (Stargames Corporation Limited), in which a specific symbol and the number of its occurrences in the display at the conclusion of a game sequence, is determinant of a win. As indicated in FIG. 2 of the specification, two such symbols may appear in adjoining elements of a reel.

Both these examples of the prior art allow for only a single predetermined or special symbol to take up such adjacent positions on a reel.

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It is an object of the present invention to address or at least ameliorate some of the above disadvantages.

BRIEF DESCRIPTION OF INVENTION

Accordingly, in a first broad form of the invention, there is provided a gaming machine arranged to display a matrix of symbol containing elements; each column of said matrix comprising a portion of a simulated rotatable reel of said symbol containing elements; and wherein each of said symbol containing elements of at least one consecutive run of said symbol containing elements of at least one said reel is caused to display an identical symbol.

Preferably, said identical symbol is selected by a game controller from a subset of available symbols.

Preferably, each symbol of said subset of symbols is assigned a probability of selection.

Preferably, said matrix of elements is comprised of five columns and three rows of elements.

Preferably, said at least one said reel is a first left-most reel.

Preferably, each element of said first left-most reel other than elements of said at least one consecutive run of elements is populated by a random selection of said available symbols.

Preferably, said game controller selects one potential win element from each said reel.

Preferably, a prize is awarded to a player of a game on said gaming machine if a predetermined arrangement of said potential win elements is displayed on a pre-defined payline of said matrix of elements when a game sequence is concluded.

Preferably, elements of each of reels two, three, four and five are populated with a default random selection of said available symbols.

Preferably, each symbol of at least one pre-defined consecutive run of said elements of each of said reels two, three, four and five is adapted for potential modification from said default random selection of available symbols to a said identical symbol.

Preferably, said identical symbol is that symbol populating said consecutive run of elements of a leftwardly adjoining reel.

Preferably, said modification from said default random selection occurs within any one of said reels two, three, four or five, if a said win element of a preceding reel coincides with a said element of a consecutive run of elements of said preceding reel.

Preferably, each said reel, which includes said at least one consecutive run of identical symbols, is pre-spun at a relatively slow rate when a game sequence is initiated.

Preferably, all symbols of all elements of at least one said reel are identical.

Preferably, said gaming machine is a single display stand-alone gaming machine.

Preferably, said gaming machine is a stand-alone gaming machine provided with an upper secondary display.

Preferably, said gaming machine is one of a plurality of gaming machine linked to a progressive jackpot controller.

Preferably, said elements are N-sided elements; where N is a variable and values of N include N=1.

Preferably, said values of N include 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20.

Preferably, said N-sided elements are regular hexagons.

In a further broad form of the invention there is provided a method for increasing probability of a winning outcome on a gaming machine; wherein said winning outcome is determined by pre-defined arrangements of symbols displayed in a

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matrix of elements comprising portions of simulated rotatable reels; said method including the steps of:

(a) arranging at least of said simulated rotatable reels with at least one consecutive run of elements displaying an identical symbol; said identical symbol selected from a subset of available symbols.

(b) a game controller randomly selecting one element from each one of said simulated rotatable reels as a potential win element.

Preferably, said matrix of elements comprises three rows and five columns of said elements; said columns comprising portions of said rotatable reels.

Preferably, said identical symbol is selected from a look-up table of said subset of available symbols.

Preferably, said at least one of said simulated rotatable reels is a first left-most reel.

Preferably, all said elements of said reels, except said at least one consecutive run of elements displaying said identical symbol on said first left-most reel, display randomly selected symbols from said available symbols.

Preferably, reels other than said first left-most reels are each provided with at least one potential consecutive run of elements adapted for modification from said randomly selected symbols to a said identical symbol.

Preferably, said modification from said randomly selected symbols within said potential consecutive run of said reels other than said first left-most reel, occurs if said potential win element of a leftwardly preceding reel falls within a said consecutive run of elements of said leftwardly preceding reel.

In yet a further broad form of the invention there is provided a method of implementing a game on a gaming machine; said method including the steps of:

(a) providing said gaming machine with a control module; said module including a microprocessor, a working memory and a data storage device connection means,

(b) writing program code to said data storage device,

(c) connecting said data storage device to said control module.

In still a further broad form of the invention there is provided media for storing enabling digital code for playing games; said media comprising solid state data retaining devices including, read only memory (ROM) and erasable programmable read only memory (EPROM), compact flash cards and PCMCIA cards; said media further including disc-based storage devices.

BRIEF DESCRIPTION OF DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

FIG. 1 is a partial view of a gaming machine with a display showing a matrix of elements and symbols comprising portions of simulated rotatable reels,

FIG. 2 is a schematic representation of the elements and symbols of portions of the first or left-most rotatable reel of FIG. 1,

FIG. 3 is a schematic representation of an "inner reel" or look-up table,

FIGS. 4A to 4C are schematic representations of portions of the reel of FIG. 2 and of the adjoining second reel for a particular game situation,

FIGS. 5 and 6 show examples of the display of FIG. 1 during play of a game using hexagonal elements,

FIG. 7 is a schematic representation of a control module, input keyboard and display for implementing the game embodiments of FIGS. 3 to 9,

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FIG. 8 is a perspective view of a stand-alone gaming machine with a single display unit,

FIG. 9 is a front view of a stand-alone gaming machine with a main display and a secondary display unit,

FIG. 10 is a perspective view of a number of the gaming machines of FIG. 8 or 9 when linked to a progressive jackpot system.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

First Preferred Embodiment

With reference to FIGS. 1 and 2, a gaming machine 10 is provided with a display 12, showing portions of a number of adjoining simulated rotatable reels 26 to 30. Each reel is divided into a given number of elements, for example 256 elements. In this example, when rotatable reels 26 to 30 are at rest, the display shows a matrix of elements 14 in five columns, 16 to 20 and three rows, 22 to 24, so that each column comprises a three-element portion of the respective simulated rotatable reel. Each element 14 of simulated rotatable reels 26 to 30 is arranged to display a symbol 32. With some exceptions, as explained below, the sequence of symbols within the elements of a reel remains fixed for all games played.

A game controller (not shown) pre-selects at random, at the initiation of a game sequence, a potential win element for each reel from the set of elements. That is, the game controller predetermines which element, and therefore which symbol, will be displayed in a pay line position at the end of a game sequence, and may therefore contribute to a winning outcome.

In this first preferred embodiment of the invention, at least one reel, the first left-most reel, is arranged to have at least one run of an identical symbol in each of a number of consecutive elements. The arrangement is shown schematically in FIG. 2 where portions of the left-most reel 26 are shown in strip form and, for example, a run of kings (crown symbol) is arranged for display in runs of five consecutive elements 30 at three locations 31 to 33 respectively. The three runs of consecutive elements in this example are elements 20 to 24, 100 to 104 and 200 to 204, within the 256-element length of the strip. In this preferred embodiment, the number of elements in a run and the location of the consecutive run or runs within the strip are predetermined and remain constant for each game played on the machine. The identical symbol which populates these consecutive run or runs of elements may be considered as one of a set of "inner reel" symbols.

The game controller (not shown) determines the identical symbol to be displayed in each consecutive element of the run or runs of consecutive elements in which the symbol is to be shown. The selection of the identical symbol is through a notional rotation of an "inner reel" 34 shown as a strip of elements and symbols in FIG. 3. This "inner reel" is in effect a look-up table and is not displayed, but its simulated rotation and "coming to rest" determines which symbol will populate the run or runs of consecutive elements of the left-most reel.

The symbols of the "inner reel" or look-up table from which the selection is made, are a sub-set of the set of symbols displayed in the remaining non-"inner reel" elements of the left-most reel. Thus, where the symbols are those of a suit of cards, the "inner reel" symbols may be those of the Ace, King, Queen and Jack, sometimes called the trump or court cards. The look-up table could also include a "wild" or "scatter" symbol. As previously noted, the arrangement or ordering of the symbols in the elements of the reel, other than the consecutive run or runs of elements, remain constant for every

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game, only the selection of the identical symbol from the look-up table is performed anew for each new play of a game.

The symbols 36 of the look-up table 34 need not all have the same probability of selection but may be assigned a hierarchy of probability. Thus for example, those symbols for which a winning combination confers on the player of a game a relatively higher value prize, such as the ace and the king, may have an inversely proportional probability of being selected as an "inner reel" symbol.

The reels are now spun as normal. The player will notice the run or runs of identical symbols passing through the display 12 for each revolution of the left-most reel 26, thereby providing a heightening of interest, since the odds of a winning arrangement of symbols appearing on a pre-defined pay line in the matrix at the conclusion of the game sequence will be increased.

Second Preferred Embodiment

In a second preferred embodiment of the invention, the second reel, that is the second reel from the left in this example, may also be modified to include at least one run of consecutive elements displaying the same "inner reel" symbol as that used to populate the elements of the consecutive run or runs of the left-most reel. As for the first, left-most reel, the number and location of the consecutive elements of the potential run or runs within the strip of elements forming the simulated reel, is predetermined and remains constant.

Prior to modification, all the elements of the second reel (and likewise those of the third fourth and fifth reel) are randomly populated with symbols from the set of available symbols. Unless modification is triggered in the manner explained below, the ordering of these symbols within the elements of the reels remains constant for every game; only those symbols of the potential run or runs being displaced should a modifying event occur.

The populating of the potential "inner reel" elements of the second reel, and of any subsequent reels, is dependent on the potential win element for the first, or preceding reel, which was randomly selected by the game controller, lying within a run of consecutive elements of that reel. For example if, as shown in FIG. 4A, in the left-most reel 26, which has consecutive runs comprising the elements as numbered in the First Preferred Embodiment above, the potential win element selected is element number 103, the second reel 27 will be modified. Second reel 27 in this example has two potential runs 40 and 41 of consecutive "inner reel" elements, element numbers 83 to 87 and 191 to 195 respectively, which in a default state are randomly populated from the set of available symbols as shown in FIG. 4B. However, because the selected potential win element 103 of reel 26 falls within run 32, the potential "inner reel" elements 83 to 87 and 191 to 195 of reel 27 are replaced with the same identical symbol as used for the consecutive run or runs of the left-most reel 26 as shown in FIG. 4C.

A player will now discern a bias of symbols, (in our example crown symbols), in both the first, left-most, and second reels as these are spun during the play of a game. The effect is clearly an increase in the probability of a winning combination of symbols appearing along a pre-defined pay line within the matrix and consequently a raised level of interest in the outcome of the game for the player.

The same process of populating potential "inner reel" elements with the "inner reel" symbol of the preceding reel, may be sequentially applied to the third, fourth and fifth reels. As described for the second reel, the modification of a succeed-

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ing reel depends on the selected potential win element of the preceding reel falling within a run of "inner reel" elements of that reel.

Third Preferred Embodiment

In at least one preferred form of this embodiment, a player is made aware of the populating of one or more consecutive runs of the left-most reel with the identical symbol. This may be done prior to the main game sequence, for example, by a slower pre-spin of only the left-most reel. If any further reels are so populated, each may be pre-spun sequentially.

The displayed game rules and experience will alert a player to the fact that the potential winning element for a given reel is positioned somewhere within the run, or one of the runs of consecutive elements populated with the identical symbol if the second and any subsequent reels are also pre-spun to display a run or runs of that symbol. The player will appreciate that the probability of a winning combination occurring increases with each additional reel which is pre-spun to display its run or runs of elements with the same symbol.

Fourth Preferred Embodiment

The above described embodiments may be applied to a main game of a gaming machine or to a feature game offered as a result of some triggering event in a main game.

In a preferred embodiment of the invention as adapted for a feature game, the number of elements comprising a run of identical "inner reel" symbols and the number of such runs in any given reel is not constant but may be determined in a number of ways. Thus, in at least one preferred embodiment, the number of elements comprising a run may be a function of the amount of a bet placed by the player on the main game which triggered the feature game, or as a function of accumulated throughput of bets over a given time period. In one special case, all the elements of the first left-most reel may be populated by the same "inner reel" symbol.

Likewise, the number of runs in a given reel may be a function also of the betting pattern preceding the conferring of the feature game or alternatively, may be a function of the particular triggering event of the main game which led to the feature game.

Fifth Preferred Embodiment

The elements comprising the matrix of elements of any of the above described embodiments may be of conventional rectangular configuration, but in at least one preferred embodiment the delineation of an element, that is, the boundary defining the field containing a symbol, may be any N-sided figure, where N may take the value 1 (thus a circular field) or any value from 3 to 20. In at least one preferred form of N-sided element, as shown in FIGS. 5 and 6, the elements 50 are hexagon shape for the value of N=6.

Game Implementation

Any of the above described embodiments may be implemented on any gaming machine or group of gaming machine provided with a control module. As shown in FIG. 7, a control module 60 is provided with a microprocessor 62 and working random access memory (RAM) 64. The program code driving any of the described embodiments may be introduced into the control module 60 by connection of a data storage device 66. The device may take any of a number of forms, such as read only memory (ROM), erasable read only memory (EPROM), Compact Flash Card, PCMCIA card and the like.

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Alternatively, control module 60 may incorporate a hard disc drive to which the code may be written via a suitable input device.

Control module 60 acts to implement appropriate elements of the program code according to inputs from a user keyboard 68 and outputs video imagery to at least a main display module 70.

1. Stand-Alone Gaming Machines

As shown in FIG. 8, any of the above described embodiments for use on electronic display gaming machines may be incorporated into a stand-alone gaming machine 100 provided with a single display unit 112. In this implementation of games according to the invention, both main games and feature games (if offered) are displayed on the single display unit.

2. Stand-Alone Gaming Machines with Secondary Display Unit

In a further preferred embodiment of the invention as shown in FIG. 9, a stand-alone gaming machine 120 is provided with a secondary display unit 125 as well as a main display unit 122. In this embodiment the main game played on the primary display unit may take the form of either the first or second preferred embodiments described above. It is then a triggering event in the main game which offers a player a feature game as described in the third preferred embodiment above.

3. Gaming Machines Linked to Progressive Jackpot System

In yet a further preferred embodiment of the invention as shown in FIG. 10, a plurality of gaming machines 300 are arranged side by side in a line or arc so as to allow each of the players (not shown) of the machines to view a common jackpot prize display unit 313. Each individual machine 310 is provided with at least a main game display unit 315 for the playing of a main game according to the above described first and second embodiments.

Each of machines 310 of the embodiment illustrated in FIG. 7 is electronically linked to a jackpot control module 311 which monitors the volume of play on each of the linked machines and displays an incrementing jackpot value 312 determined according to the combined volume of play on the linked machines.

A win of the jackpot prize may be triggered by specific outcomes of either a main game or of a feature game. If the jackpot trigger is dependent on an outcome of the feature game, players on adjoining machines may be made aware by means of the common display that a potential triggering of the jackpot is to commence on the machine offered the feature game, thus adding interest for all the players.

It will be appreciated that the linked machines may form part of Local Area Networks (LAN) or Wide Area Networks (WAN).

The invention claimed is:

1. A gaming machine comprising:

a display device; and,

a processor configured to execute a game displaying, on said display device, a matrix of symbol containing elements having a plurality of rows and a plurality of columns;

wherein at least one column of said matrix comprising a portion of a simulated rotatable reel of a plurality of said symbol containing elements;

wherein said simulated rotatable reel comprising sections of symbol containing elements displaying a plurality of symbols;

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wherein said simulated rotatable reel including at least one section in which a consecutive run of two or more of said symbol containing elements is populated by a first identical symbol;

wherein said first identical symbol is used for a first play of said game; wherein a second identical symbol is randomly selected, and

wherein the first identical symbol is replaced by the second identical symbol in said consecutive run of two or more of said symbol containing elements, said second identical symbol being used for a second play of said game.

2. The gaming machine of claim 1 wherein said second identical symbol is selected by the processor from a subset of said plurality of symbols.

3. The gaming machine of claim 2 wherein each symbol of said subset of symbols is assigned a probability of selection.

4. The gaming machine of claim 2 wherein said game processor selects one potential winning symbol containing element from said simulated rotatable reel.

5. The gaming machine of claim 4 wherein a prize is awarded to a player of said game on said gaming machine if a predetermined arrangement of said potential winning symbol containing elements is displayed on a pre-defined pay line of said matrix of symbol containing elements when a game sequence is concluded.

6. The gaming machine of claim 1 wherein said first identical symbol is randomly selected.

7. The gaming machine of claim 1 wherein said second identical symbol is selected by virtually spinning a notional, non-visible, inner reel comprising a subset of said plurality of symbols.

8. The gaming machine of claim 1 wherein said matrix of elements is comprised of five columns and three rows of elements; said five columns being portions respectively of rotatable reels one, two, three, four and five.

9. The gaming machine of claim 8 wherein symbol containing elements of each of simulated reels two, three, four and five are populated with a default random selection of said plurality of symbols.

10. The gaming machine of claim 9 wherein each symbol containing element of at least one section of a consecutive run of two or more of said symbol containing elements of each of said simulated rotatable reels two, three, four and five is adapted for potential modification from said default random selection of said plurality of symbols to said first or second identical symbol.

11. The gaming machine of claim 10 wherein said first or second identical symbol is that symbol populating said consecutive run of symbol containing elements of a leftwardly adjoining reel.

12. The gaming machine of claim 10 wherein said potential modification from said default random selection occurs within any one of said simulated rotatable reels two, three, four or five, if a win element of a preceding simulated rotatable reel coincides with said first or second identical symbol of a consecutive run of symbol containing elements of said preceding reel.

13. The gaming machine of claim 1 wherein said at least one said reel is a first left-most reel.

14. The gaming machine of claim 1 wherein said simulated rotatable reel, which includes said consecutive run of two or more symbol containing elements populated with said first or second identical symbol, is pre-spun at a relatively slow rate when a game sequence is initiated.

15. The gaming machine of claim 1 wherein said gaming machine is a single display stand-alone gaming machine.

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16. The gaming machine of claim 1 wherein said gaming machine is a stand-alone gaming machine provided with an upper secondary display.

17. The gaming machine of claim 1 wherein said gaming machine is one of a plurality of gaming machines linked to a progressive jackpot controller.

18. The gaming machine of claim 1 wherein said elements are N-sided elements; where N is a variable and values of N include N=3.

19. The gaming machine of claim 18 wherein said values of N include 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20.

20. The gaming machine of claim 18 wherein said N-sided elements are regular hexagons.

21. A method for increasing probability of a winning outcome on a gaming machine; wherein said winning outcome is determined by a game including pre-defined arrangements of a plurality of symbols displayed, on a display device of said gaming machine, in a matrix of symbol containing elements comprising portions of simulated rotatable reels; said method comprising a processor of the gaming machine configured to:

- (a) arrange at least one of said simulated rotatable reels including at least one section in which a consecutive run of two or more of said symbol containing elements is populated by a first identical symbol; said first identical symbol being used for a first play of said game;
- (b) randomly select a second identical symbol; and
- (c) replace the first identical symbol by the second identical symbol in said consecutive run of two or more of said symbol containing elements, said second identical symbol being used for a second play of said game.

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22. The method of claim 21 wherein, said consecutive run of two or more symbol containing elements comprises a section of a said simulated rotatable reel, such that all other remaining symbol containing elements of said simulated rotatable reel are populated with fixed symbols from the plurality symbols for each play of the game.

23. The method of claim 21 wherein said subset of said plurality of symbols is arranged on a notional non-visible inner reel, such that said identical symbol is randomly selected anew for each play of the game by virtual rotation of said notional non-visible inner reel.

24. The method of claim 21 wherein said matrix of elements comprises three rows and five columns, said columns comprising portions of said simulated rotatable reels.

25. The method of claim 21 wherein said at least one of said simulated rotatable reels is a first left-most reel.

26. The method of claim 25 wherein simulated rotatable reels other than said first left-most reel are each provided with at least one potential consecutive run of two or more simulated symbol containing elements adapted for modification from said fixed symbols to said identical symbol.

27. The method of claim 25 wherein said modification from said fixed symbols within said potential consecutive run of two or more symbol containing elements of said simulated rotatable reels other than said first left-most reel, occurs if said potential win element of a leftwardly preceding simulated rotatable reel falls within a said consecutive run of two or more symbol containing elements of said leftwardly preceding simulated rotatable reel.

* * * * *

EXHIBIT C



US008622810B2

(12) **United States Patent**
Yoshimi

(10) **Patent No.:** **US 8,622,810 B2**
(45) **Date of Patent:** ***Jan. 7, 2014**

(54) **GAMING MACHINE WITH REPLACEMENT OF RUNS OF SYMBOLS CONTAINING IDENTICAL SYMBOLS WITH NEW IDENTICAL SYMBOLS**

(71) Applicant: **Konami Gaming, Inc.**, Las Vegas, NV (US)

(72) Inventor: **Osamu Yoshimi**, Botany (AU)

(73) Assignee: **Konami Gaming, Inc.**, Las Vegas, NV (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/685,439**

(22) Filed: **Nov. 26, 2012**

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US 2013/0084945 A1 Apr. 4, 2013

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(63) Continuation of application No. 13/316,025, filed on Dec. 9, 2011, now Pat. No. 8,366,540, which is a continuation of application No. 11/299,009, filed on Dec. 9, 2005, now Pat. No. 8,096,869.

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A63F 13/00 (2006.01)

(52) **U.S. Cl.**
USPC 463/20; 463/16; 463/29

(58) **Field of Classification Search**
USPC 463/16-20, 25, 29; 273/138.1, 139
See application file for complete search history.

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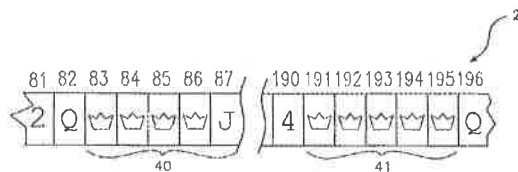
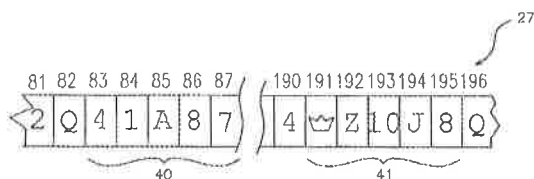
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Primary Examiner — Milap Shah
(74) *Attorney, Agent, or Firm* — Howard & Howard Attorneys PLLC

(57) **ABSTRACT**

A gaming machine comprising a processor configured to execute a game displaying a matrix of symbol containing elements having a plurality of rows and a plurality columns; at least one column of said matrix comprising a portion of a simulated rotatable reel of a plurality of said symbol containing elements; said simulated rotatable reel comprising sections of symbol containing elements displaying a plurality of symbols; said simulated rotatable reel including at least one section in which a consecutive run of two or more of said symbol containing elements is populated by a first identical symbol so that, said first identical symbol being used for a first play of said game, a second identical symbol being randomly selected, the first identical symbol being replaced by the second identical symbol in said consecutive run of two or more of said symbol containing elements, said second identical symbol being used for a second play of said game.

15 Claims, 7 Drawing Sheets



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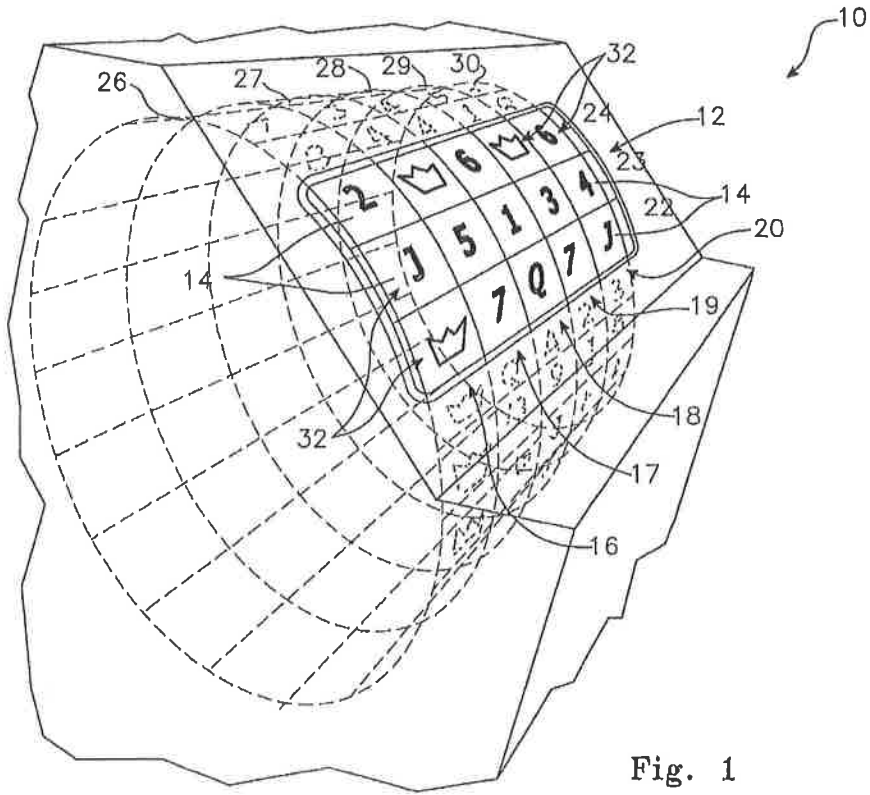


Fig. 1

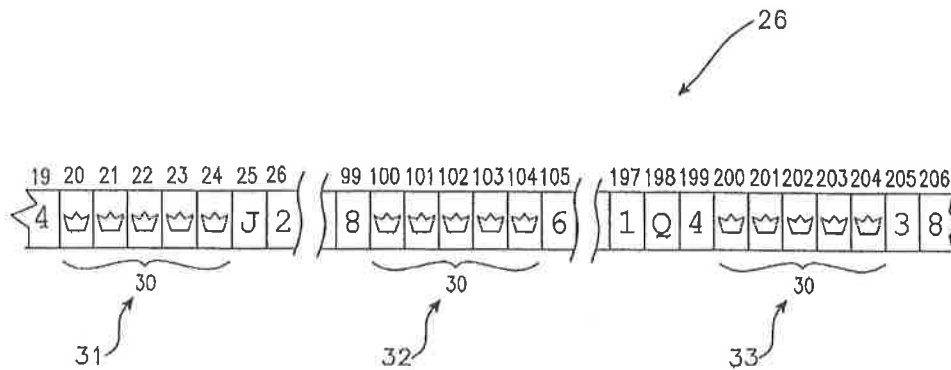
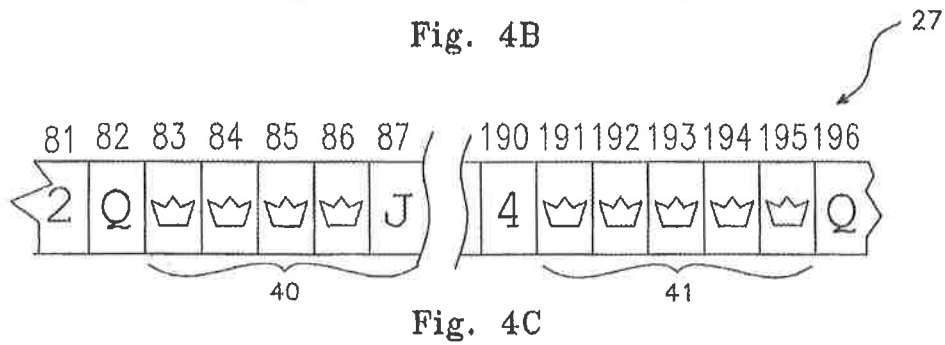
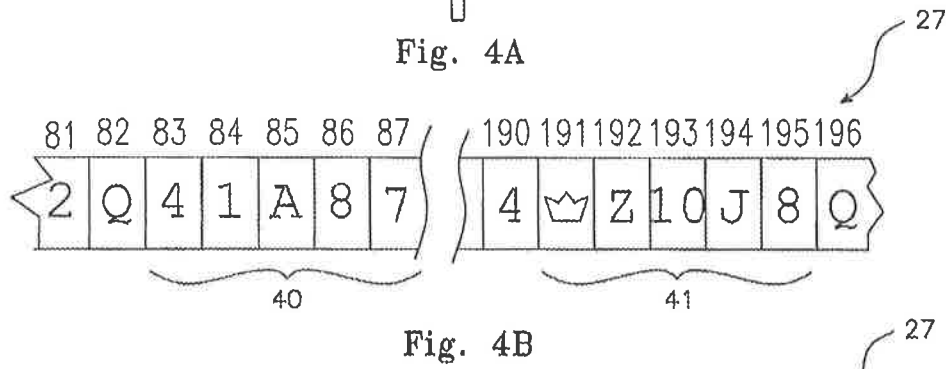
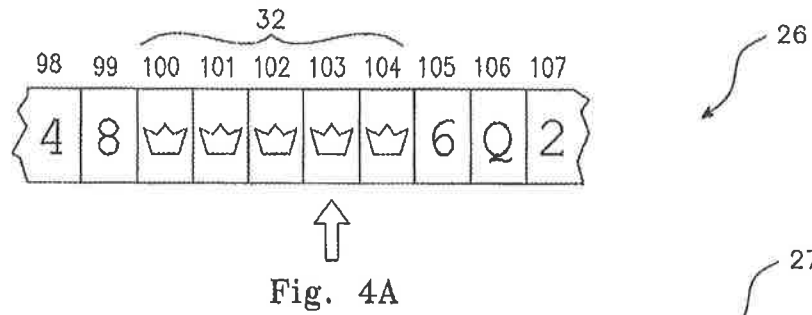
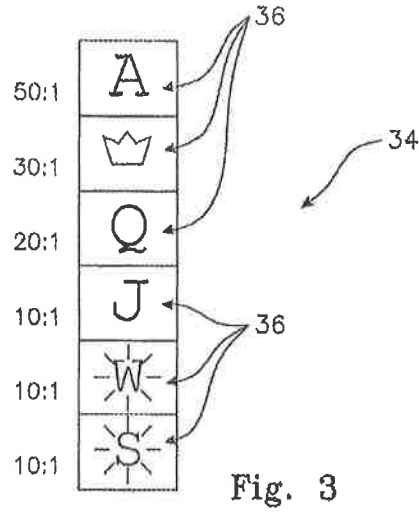


Fig. 2



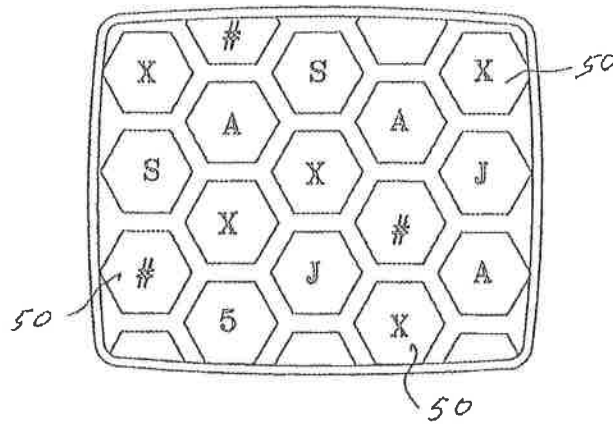


Fig. 5

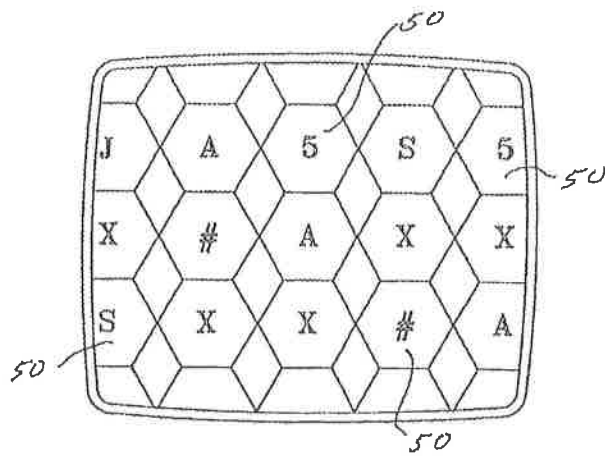


Fig. 6

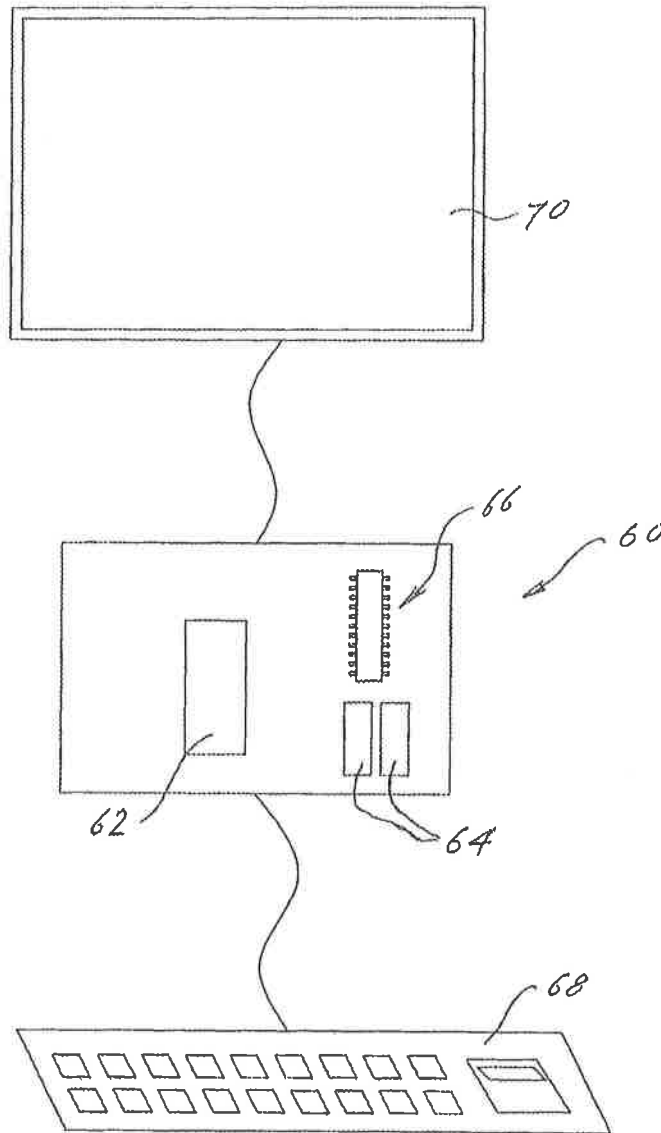


Fig. 7

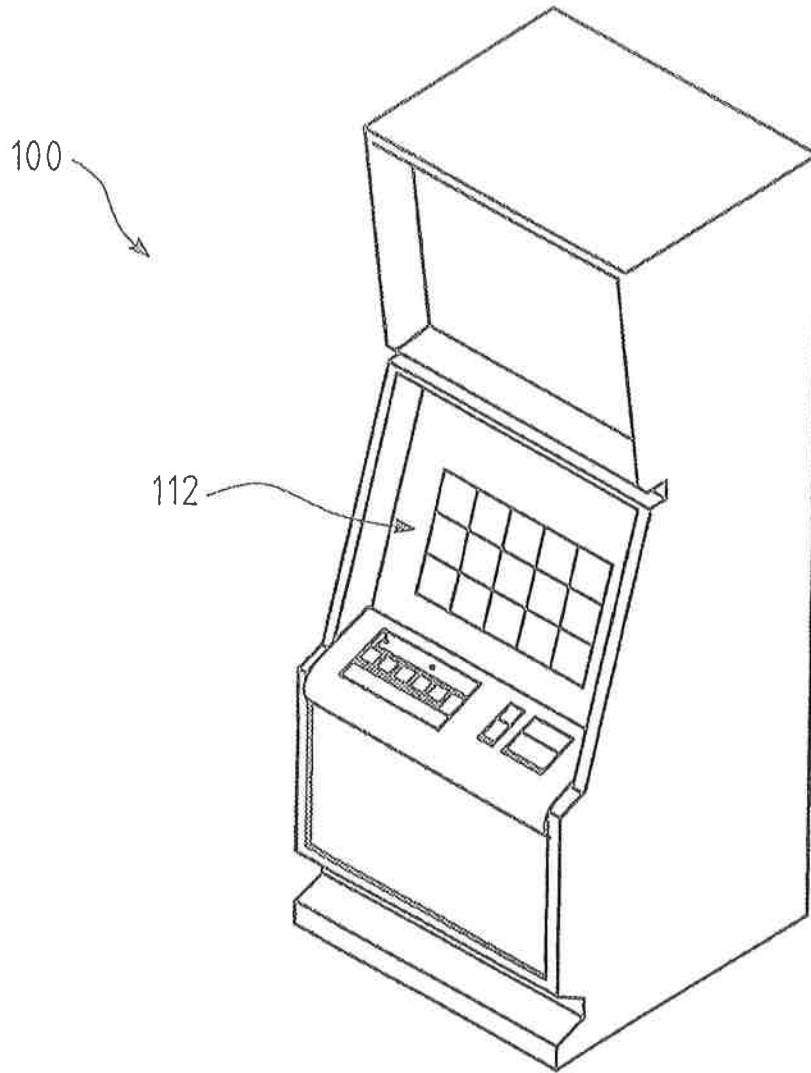


Fig. 8

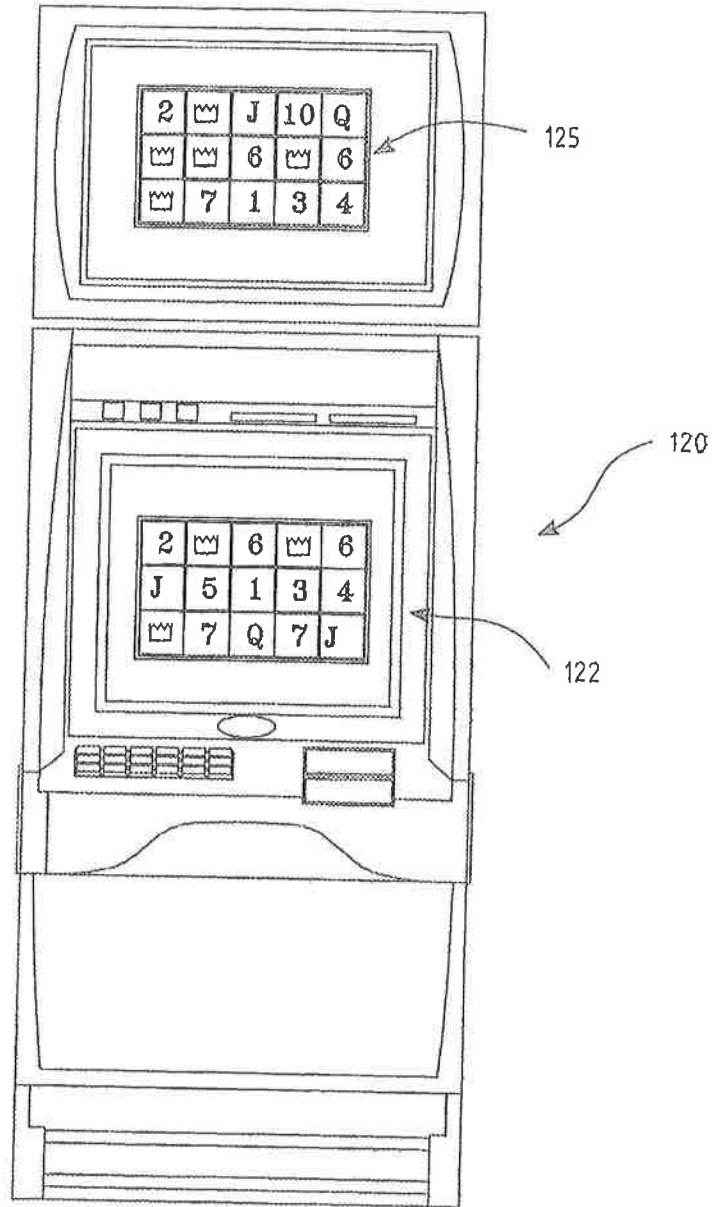


Fig. 9

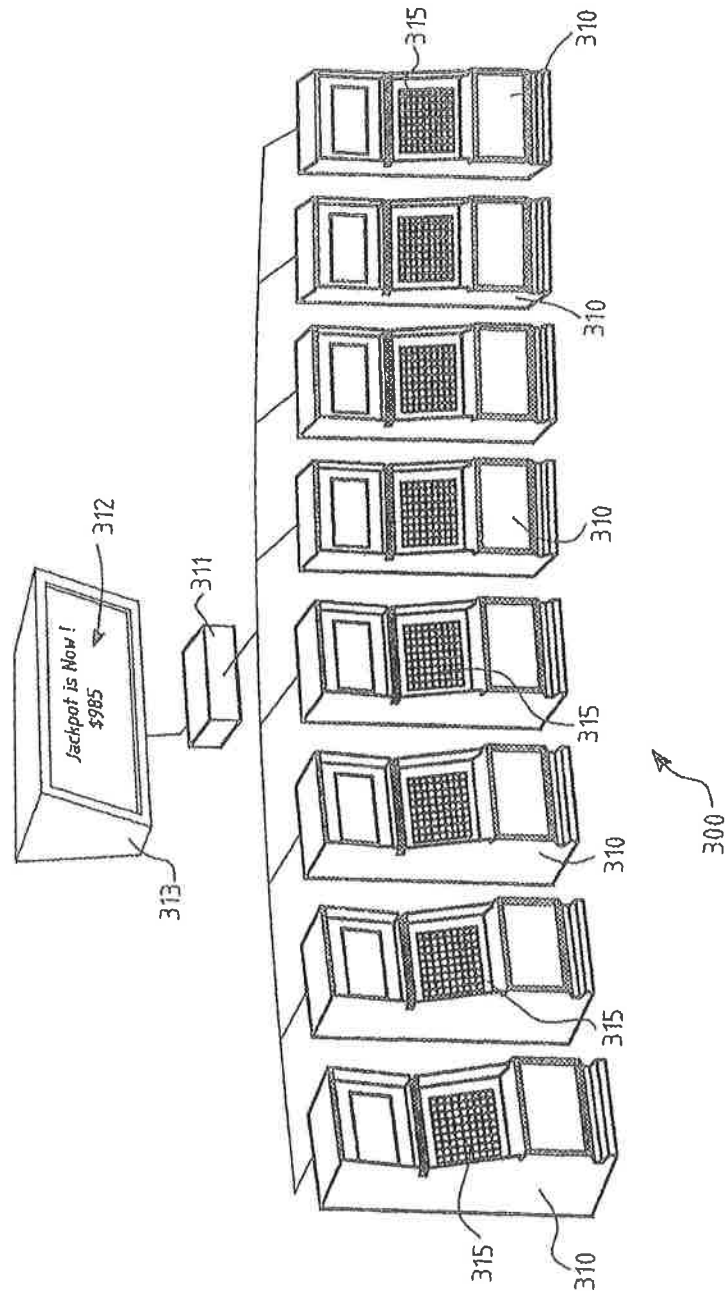


Fig. 10

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**GAMING MACHINE WITH REPLACEMENT
OF RUNS OF SYMBOLS CONTAINING
IDENTICAL SYMBOLS WITH NEW
IDENTICAL SYMBOLS**

CROSS-REFERENCE TO RELATED
APPLICATION

This application is a continuation of U.S. patent applica-
tion Ser. No. 13/316,025 filed on Dec. 9, 2011, now U.S. Pat.
No. 8,366,540, issued on Feb. 5, 2013, which is a continuation
of U.S. patent application Ser. No. 11/299,009 filed on Dec. 5,
2005, now U.S. Pat. No. 8,096,869, issued on Jan. 17, 2012,
which claims priority to Australian Patent Application No.
2005900681, filed on Feb. 14, 2005, the disclosures of which
are hereby incorporated by reference in their entirety.

BACKGROUND

The present invention relates to gaming machines for the
playing of games of chance and, more particularly, to special
features of games or feature games which may be offered on
such machines.

Gaming, or poker machines, have become a major source
of amusement and diversion in such places as clubs, hotels
and casinos in many parts of the world.

Traditionally such machines were mechanical devices
where a number of reels marked with a plurality of numbers
or symbols could be made to spin randomly by the application
of some mechanical input. If the subsequent patterns of num-
bers or symbols displayed on the reels, when these returned to
a rest state, corresponded to predetermined patterns, the
machine would provide a prize or payout. Generally such
gaming machines have come to be regulated by government
authorities as to their number and in the manner in which the
machines must return a percentage of the monetary turnover
to the players.

The introduction of electronics, computers and electronic
graphical displays, has allowed a continual increase in the
complexity and variations of gaming machines, games and
displays while maintaining the basic concept of the tradi-
tional machine. Nevertheless, in some jurisdictions at least,
government regulations effectively restrict the degree of
variation which may be incorporated in games played on
coin-freed machines.

Machines and games therefore that offer novel and stimu-
lating variations on the basic game theme and environment,
yet comply with these restrictions are eagerly sought by the
gaming industry and there is consequently intense competi-
tion between machine manufacturers to innovate.

Games based on simulated rotatable reels typically display
a matrix of elements each of which displays a symbol. Pre-
determined patterns of symbols, if displayed after the reels
are spun and come to rest, may then award a prize to the player
of the game. Typically also, the symbols are arranged in the
elements of a reel so that adjoining elements do not display
the same symbol.

An exception to this is found for example in Australian
Patent Application number 2004203045 (Aristocrat Tech-
nologies Australia Pty Ltd), in which arrangements are envis-
aged where two special symbols may occur adjacent one to
the other.

A similar exception is found in Australian Patent Applica-
tion number 2002301067 (Stargames Corporation Limited),
in which a specific symbol and the number of its occurrences
in the display at the conclusion of a game sequence, is deter-

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minant of a win. As indicated in FIG. 2 of the specification,
two such symbols may appear in adjoining elements of a reel.

Both these examples of the prior art allow for only a single
predetermined or special symbol to take up such adjacent
positions on a reel.

It is an object of the present invention to address or at least
ameliorate some of the above disadvantages.

BRIEF DESCRIPTION OF INVENTION

Accordingly, in a first broad form of the invention, there is
provided a gaming machine arranged to display a matrix of
symbol containing elements; each column of said matrix
comprising a portion of a simulated rotatable reel of said
symbol containing elements; and wherein each of said sym-
bol containing elements of at least one consecutive run of said
symbol containing elements of at least one said reel is caused
to display an identical symbol.

Preferably, said identical symbol is selected by a game
controller from a subset of available symbols.

Preferably, each symbol of said subset of symbols is
assigned a probability of selection.

Preferably, said matrix of elements is comprised of five
columns and three rows of elements.

Preferably, said at least one said reel is a first left-most reel.

Preferably, each element of said first left-most reel other
than elements of said at least one consecutive run of elements
is populated by a random selection of said available symbols.

Preferably, said game controller selects one potential win
element from each said reel.

Preferably, a prize is awarded to a player of a game on said
gaming machine if a predetermined arrangement of said
potential win elements is displayed on a pre-defined payline
of said matrix of elements when a game sequence is con-
cluded.

Preferably, elements of each of reels two, three, four and
five are populated with a default random selection of said
available symbols.

Preferably, each symbol of at least one pre-defined con-
secutive run of said elements of each of said reels two, three,
four and five is adapted for potential modification from said
default random selection of available symbols to a said identi-
cal symbol.

Preferably, said identical symbol is that symbol populating
said consecutive run of elements of a leftwardly adjoining
reel.

Preferably, said modification from said default random
selection occurs within any one of said reels two, three, four
or five, if a said win element of a preceding reel coincides with
a said element of a consecutive run of elements of said pre-
ceding reel.

Preferably, each said reel, which includes said at least one
consecutive run of identical symbols, is pre-spun at a rela-
tively slow rate when a game sequence is initiated.

Preferably, all symbols of all elements of at least one said
reel are identical.

Preferably, said gaming machine is a single display stand-
alone gaming machine.

Preferably, said gaming machine is a stand-alone gaming
machine provided with an upper secondary display.

Preferably, said gaming machine is one of a plurality of
gaming machine linked to a progressive jackpot controller.

Preferably, said elements are N-sided elements; where N is
a variable and values of N include N=1.

Preferably, said values of N include 4, 5, 6, 7, 8, 9, 10, 11,
12, 13, 14, 15, 16, 17, 18, 19 and 20.

Preferably, said N-sided elements are regular hexagons.

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In a further broad form of the invention there is provided a method for increasing probability of a winning outcome on a gaming machine; wherein said winning outcome is determined by pre-defined arrangements of symbols displayed in a matrix of elements comprising portions of simulated rotatable reels; said method including the steps of:

- (a) arranging at least of said simulated rotatable reels with at least one consecutive run of elements displaying an identical symbol; said identical symbol selected from a subset of available symbols.
- (b) a game controller randomly selecting one element from each one of said simulated rotatable reels as a potential win element.

Preferably, said matrix of elements comprises three rows and five columns of said elements; said columns comprising portions of said rotatable reels.

Preferably, said identical symbol is selected from a look-up table of said subset of available symbols.

Preferably, said at least one of said simulated rotatable reels is a first left-most reel.

Preferably, all said elements of said reels, except said at least one consecutive run of elements displaying said identical symbol on said first left-most reel, display randomly selected symbols from said available symbols.

Preferably, reels other than said first left-most reels are each provided with at least one potential consecutive run of elements adapted for modification from said randomly selected symbols to a said identical symbol.

Preferably, said modification from said randomly selected symbols within said potential consecutive run of said reels other than said first left-most reel, occurs if said potential win element of a leftwardly preceding reel falls within a said consecutive run of elements of said leftwardly preceding reel.

In yet a further broad form of the invention there is provided a method of implementing a game on a gaming machine; said method including the steps of:

- (c) providing said gaming machine with a control module; said module including a microprocessor, a working memory and a data storage device connection means,
- (d) writing program code to said data storage device,
- (e) connecting said data storage device to said control module.

In still a further broad form of the invention there is provided media for storing enabling digital code for playing games; said media comprising solid state data retaining devices including, read only memory (ROM) and erasable programmable read only memory (EPROM), compact flash cards and PCMCIA cards; said media further including disc-based storage devices.

BRIEF DESCRIPTION OF DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

FIG. 1 is a partial view of a gaming machine with a display showing a matrix of elements and symbols comprising portions of simulated rotatable reels,

FIG. 2 is a schematic representation of the elements and symbols of portions of the first or left-most rotatable reel of FIG. 1,

FIG. 3 is a schematic representation of an "inner reel" or look-up table,

FIGS. 4A to 4C are schematic representations of portions of the reel of FIG. 2 and of the adjoining second reel for a particular game situation,

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FIGS. 5 and 6 show examples of the display of FIG. 1 during play of a game using hexagonal elements,

FIG. 7 is a schematic representation of a control module, input keyboard and display for implementing the game embodiments of FIGS. 3 to 9,

FIG. 8 is a perspective view of a stand-alone gaming machine with a single display unit,

FIG. 9 is a front view of a stand-alone gaming machine with a main display and a secondary display unit,

FIG. 10 is a perspective view of a number of the gaming machines of FIG. 8 or 9 when linked to a progressive jackpot system.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

First Preferred Embodiment

With reference to FIGS. 1 and 2, a gaming machine 10 is provided with a display 12, showing portions of a number of adjoining simulated rotatable reels 26 to 30. Each reel is divided into a given number of elements, for example 256 elements. In this example, when rotatable reels 26 to 30 are at rest, the display shows a matrix of elements 14 in five columns, 16 to 20 and three rows, 22 to 24, so that each column comprises a three-element portion of the respective simulated rotatable reel. Each element 14 of simulated rotatable reels 26 to 30 is arranged to display a symbol 32. With some exceptions, as explained below, the sequence of symbols within the elements of a reel remains fixed for all games played.

A game controller (not shown) pre-selects at random, at the initiation of a game sequence, a potential win element for each reel from the set of elements. That is, the game controller predetermines which element, and therefore which symbol, will be displayed in a pay line position at the end of a game sequence, and may therefore contribute to a winning outcome.

In this first preferred embodiment of the invention, at least one reel, the first left-most reel, is arranged to have at least one run of an identical symbol in each of a number of consecutive elements. The arrangement is shown schematically in FIG. 2 where portions of the left-most reel 26 are shown in strip form and, for example, a run of kings (crown symbol) is arranged for display in runs of five consecutive elements 30 at three locations 31 to 33 respectively. The three runs of consecutive elements in this example are elements 20 to 24, 100 to 104 and 200 to 204, within the 256-element length of the strip. In this preferred embodiment, the number of elements in a run and the location of the consecutive run or runs within the strip are predetermined and remain constant for each game played on the machine. The identical symbol which populates these consecutive run or runs of elements may be considered as one of a set of "inner reel" symbols.

The game controller (not shown) determines the identical symbol to be displayed in each consecutive element of the run or runs of consecutive elements in which the symbol is to be shown. The selection of the identical symbol is through a notional rotation of an "inner reel" 34 shown as a strip of elements and symbols in FIG. 3. This "inner reel" is in effect a look-up table and is not displayed, but its simulated rotation and "coming to rest" determines which symbol will populate the run or runs of consecutive elements of the left-most reel.

The symbols of the "inner reel" or look-up table from which the selection is made, are a sub-set of the set of symbols displayed in the remaining non-"inner reel" elements of the left-most reel. Thus, where the symbols are those of a suit of cards, the "inner reel" symbols may be those of the Ace, King,

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Queen and Jack, sometimes called the trump or court cards. The look-up table could also include a "wild" or "scatter" symbol. As previously noted, the arrangement or ordering of the symbols in the elements of the reel, other than the consecutive run or runs of elements, remain constant for every game, only the selection of the identical symbol from the look-up table is performed anew for each new play of a game.

The symbols 36 of the look-up table 34 need not all have the same probability of selection but may be assigned a hierarchy of probability. Thus for example, those symbols for which a winning combination confers on the player of a game a relatively higher value prize, such as the ace and the king, may have an inversely proportional probability of being selected as an "inner reel" symbol.

The reels are now spun as normal. The player will notice the run or runs of identical symbols passing through the display 12 for each revolution of the left-most reel 26, thereby providing a heightening of interest, since the odds of a winning arrangement of symbols appearing on a pre-defined pay line in the matrix at the conclusion of the game sequence will be increased.

Second Preferred Embodiment

In a second preferred embodiment of the invention, the second reel, that is the second reel from the left in this example, may also be modified to include at least one run of consecutive elements displaying the same "inner reel" symbol as that used to populate the elements of the consecutive run or runs of the left-most reel. As for the first, left-most reel, the number and location of the consecutive elements of the potential run or runs within the strip of elements forming the simulated reel, is predetermined and remains constant.

Prior to modification, all the elements of the second reel (and likewise those of the third fourth and fifth reel) are randomly populated with symbols from the set of available symbols. Unless modification is triggered in the manner explained below, the ordering of these symbols within the elements of the reels remains constant for every game; only those symbols of the potential run or runs being displaced should a modifying event occur.

The populating of the potential "inner reel" elements of the second reel, and of any subsequent reels, is dependent on the potential win element for the first, or preceding reel, which was randomly selected by the game controller, lying within a run of consecutive elements of that reel. For example if, as shown in FIG. 4A, in the left-most reel 26, which has consecutive runs comprising the elements as numbered in the First Preferred Embodiment above, the potential win element selected is element number 103, the second reel 27 will be modified. Second reel 27 in this example has two potential runs 40 and 41 of consecutive "inner reel" elements, element numbers 83 to 87 and 191 to 195 respectively, which in a default state are randomly populated from the set of available symbols as shown in FIG. 4B. However, because the selected potential win element 103 of reel 26 falls within run 32, the potential "inner reel" elements 83 to 87 and 191 to 195 of reel 27 are replaced with the same identical symbol as used for the consecutive run or runs of the left-most reel 26 as shown in FIG. 4C.

A player will now discern a bias of symbols, (in our example crown symbols), in both the first, left-most, and second reels as these are spun during the play of a game. The effect is clearly an increase in the probability of a winning combination of symbols appearing along a pre-defined pay line within the matrix and consequently a raised level of interest in the outcome of the game for the player.

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The same process of populating potential "inner reel" elements with the "inner reel" symbol of the preceding reel, may be sequentially applied to the third, fourth and fifth reels. As described for the second reel, the modification of a succeeding reel depends on the selected potential win element of the preceding reel falling within a run of "inner reel" elements of that reel.

Third Preferred Embodiment

In at least one preferred form of this embodiment, a player is made aware of the populating of one or more consecutive runs of the left-most reel with the identical symbol. This may be done prior to the main game sequence, for example, by a slower pre-spin of only the left-most reel. If any further reels are so populated, each may be pre-spun sequentially.

The displayed game rules and experience will alert a player to the fact that the potential winning element for a given reel is positioned somewhere within the run, or one of the runs of consecutive elements populated with the identical symbol if the second and any subsequent reels are also pre-spun to display a run or runs of that symbol. The player will appreciate that the probability of a winning combination occurring increases with each additional reel which is pre-spun to display its run or runs of elements with the same symbol.

Fourth Preferred Embodiment

The above described embodiments may be applied to a main game of a gaming machine or to a feature game offered as a result of some triggering event in a main game.

In a preferred embodiment of the invention as adapted for a feature game, the number of elements comprising a run of identical "inner reel" symbols and the number of such runs in any given reel is not constant but may be determined in a number of ways. Thus, in at least one preferred embodiment, the number of elements comprising a run may be a function of the amount of a bet placed by the player on the main game which triggered the feature game, or as a function of accumulated throughput of bets over a given time period. In one special case, all the elements of the first left-most reel may be populated by the same "inner reel" symbol.

Likewise, the number of runs in a given reel may be a function also of the betting pattern preceding the conferring of the feature game or alternatively, may be a function of the particular triggering event of the main game which led to the feature game.

Fifth Preferred Embodiment

The elements comprising the matrix of elements of any of the above described embodiments may be of conventional rectangular configuration, but in at least one preferred embodiment the delineation of an element, that is, the boundary defining the field containing a symbol, may be any N-sided figure, where N may take the value 1 (thus a circular field) or any value from 3 to 20. In at least one preferred form of N-sided element, as shown in FIGS. 5 and 6, the elements 50 are hexagon shape for the value of N=6.

60 Game Implementation

Any of the above described embodiments may be implemented on any gaming machine or group of gaming machine provided with a control module. As shown in FIG. 7, a control module 60 is provided with a microprocessor 62 and working random access memory (RAM) 64. The program code driving any of the described embodiments may be introduced into the control module 60 by connection of a data storage device

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66. The device may take any of a number of forms, such as read only memory (ROM), erasable read only memory (EPROM), Compact Flash Card, PCMCIA card and the like. Alternatively, control module 60 may incorporate a hard disc drive to which the code may be written via a suitable input device.

Control module 60 acts to implement appropriate elements of the program code according to inputs from a user keyboard 68 and outputs video imagery to at least a main display module 70.

1. Stand-Alone Gaming Machines

As shown in FIG. 8, any of the above described embodiments for use on electronic display gaming machines may be incorporated into a stand-alone gaming machine 100 provided with a single display unit 112. In this implementation of games according to the invention, both main games and feature games (if offered) are displayed on the single display unit.

2. Stand-Alone Gaming Machines with Secondary Display Unit

In a further preferred embodiment of the invention as shown in FIG. 9, a stand-alone gaming machine 120 is provided with a secondary display unit 125 as well as a main display unit 122. In this embodiment the main game played on the primary display unit may take the form of either the first or second preferred embodiments described above. It is then a triggering event in the main game which offers a player a feature game as described in the third preferred embodiment above.

3. Gaming Machines Linked to Progressive Jackpot System

In yet a further preferred embodiment of the invention as shown in FIG. 10, a plurality of gaming machines 300 are arranged side by side in a line or arc so as to allow each of the players (not shown) of the machines to view a common jackpot prize display unit 313. Each individual machine 310 is provided with at least a main game display unit 315 for the playing of a main game according to the above described first and second embodiments.

Each of machines 310 of the embodiment illustrated in FIG. 7 is electronically linked to a jackpot control module 311 which monitors the volume of play on each of the linked machines and displays an incrementing jackpot value 312 determined according to the combined volume of play on the linked machines.

A win of the jackpot prize may be triggered by specific outcomes of either a main game or of a feature game. If the jackpot trigger is dependent on an outcome of the feature game, players on adjoining machines may be made aware by means of the common display that a potential triggering of the jackpot is to commence on the machine offered the feature game, thus adding interest for all the players.

It will be appreciated that the linked machines may form part of Local Area Networks (LAN) or Wide Area Networks (WAN).

What is claimed is:

1. A gaming machine comprising:

- a memory device configured to store data representing a reel, the reel having a predetermined number of symbol positions, wherein each symbol position has an associated symbol from a set of symbols, the reel having a run of consecutive symbol positions, the run of consecutive symbol positions being initially populated with a first identical symbol from the set of symbols prior to initiation of a first instance of a game;
- a display device configured to display a matrix having a plurality of display elements arranged in a column, the number of display elements in the column being less

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than the predetermined number of symbol positions in the reel, and the display device being further configured to display a portion of the reels such that the symbols associated with some of the symbol positions of the reel are displayed in the matrix when the reel is in a stop position; and

a game controller configured to (i) initiate the first instance of a game using the reel, (ii) randomly select a second identical symbol from the set of symbols, (iii) replace each of the first identical symbols in the run of consecutive symbol positions of the reel with the second identical symbol, and (iv) initiate a second instance of the game using the reel having the run of consecutive symbol positions populated with the second identical symbol.

2. The gaming machine, as set forth in claim 1, wherein the second identical symbol is randomly selected by the game controller from a subset of the set of symbols.

3. The gaming machine, as set forth in claim 2, wherein each symbol of the subset of symbols is assigned a probability of selection.

4. The gaming machine, as set forth in claim 1, wherein the first identical symbol is randomly selected.

5. The gaming machine, as set forth in claim 1, wherein the reel is a first reel, the memory device further configured to store data representing second, third, fourth and fifth reels, wherein the matrix of elements is comprised of five columns and three rows of elements, each of the five columns being associated with a respective one of the reels.

6. The gaming machine, as set forth in claim 5, wherein the first reel is a left-most reel.

7. The gaming machine, as set forth in claim 1, wherein the reel is a virtual reel.

8. A method comprising:

storing data, in a memory device, representing a reel, the reel having a predetermined number of symbol positions, wherein each symbol position has an associated symbol from a set of symbols, the reel having a run of consecutive symbol positions, the run of consecutive symbol positions being initially populated with a first identical symbol from the set of symbols prior to initiation of a first instance of a game;

displaying, via a display device, a matrix having a plurality of display elements arranged in a column, the number of display elements in the column being less than the predetermined number of symbol positions in the reel, and display, via the display device, a portion of the reel such that the symbols associated with some of the symbol positions of the reel are displayed in the matrix when the reel is in a stop position;

initiating, via a game controller, the first instance of the game using the reel;

randomly selecting, via the game controller, a second identical symbol from the set of symbols;

replacing each of the first identical symbols in the run of consecutive symbol positions of the reel with the second identical symbol; and

initiating a second instance of the game using the reel having the run of consecutive symbol positions populated with the second identical symbol.

9. The method, as set forth in claim 8, wherein the second identical symbol is randomly selected from a subset of the set of symbols.

10. The method, as set forth in claim 9, wherein each symbol of the subset of symbols is assigned a probability of selection.

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11. The method, as set forth in claim 8, wherein the first identical symbol is randomly selected.

12. The method, as set forth in claim 8, wherein the reel is a first reel, the game further including second, third, fourth and fifth reels, wherein the matrix of elements is comprised of five columns and three rows of elements, each of the five columns being associated with a respective one of the reels.

13. The method, as set forth in claim 12, wherein the first reel is a left-most reel.

14. The method, as set forth in claim 8, wherein the reel is a virtual reel.

15. A non-transitory computer readable medium recording a program for controlling a computer to function as a:

a memory device configured to store data representing a reel, the reel having a predetermined number of symbol positions, wherein each symbol position has an associated symbol from a set of symbols, the reel having a run of consecutive symbol positions, the run of consecutive symbol positions being initially populated with a first identical symbol from the set of symbols prior to initiation of a first instance of a game;

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a display device configured to display a matrix having a plurality of display elements arranged in a column, the number of display elements in the column being less than the predetermined number of symbol positions in the reel, and the display device being further configured to display a portion of the reels such that the symbols associated with some of the symbol positions of the reel are displayed in the matrix when the reel is in a stop position; and

a game controller configured to (i) initiate the first instance of a game using the reel, (ii) randomly select a second identical symbol from the set of symbols, (iii) replace each of the first identical symbols in the run of consecutive symbol positions of the reel with the second identical symbol, and (iv) initiate a second instance of the game using the reel having the run of consecutive symbol positions populated with the second identical symbol.

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