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(54) Network gaming system with bonus capability

(57) A bonus controller (207, 215) and method for controlling the award of a bonus at a gaming terminal (202). In one embodiment game play data is monitored and compared to a trigger event. A token is then sent to the triggering gaming terminal (202) dependent on any received response the bonus is immediately awarded, or data defining the bonus and a player identifier is stored to enable subsequent award of the bonus. In another embodiment, the method includes communicating a token over a wide area network (212) and checking whether the gaming terminal (202) is eligible to award the bonus.

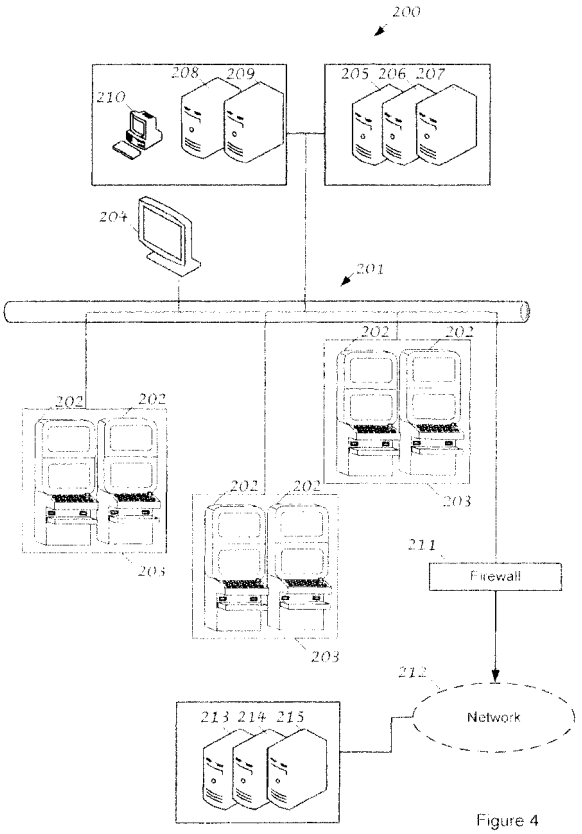

Figure 4

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Description

Background of the invention

[0001] The present invention relates to gaming apparatus and methods of gaming. In particular, the present invention relates to gaming systems implemented using one or more communications networks and having a capability to provide a bonus award.

[0002] A gaming machine is designed to return to players, on average, a fixed percentage of the money bet. The remaining portion of the money bet is retained by the operator. Typically a gaming machine might return to players between 86% and 92% of money bet.

[0003] Bonus awards are often used to increase the attractiveness of a gaming machine so that players are more likely to play that gaming machine and consequently the machine's turnover is increased. A gaming machine may have an average return to player percentage of 90%. A bonus award may be offered on that machine which returns on average a further 2% of the total money wagered. Thus the standard pay schedule and the bonus award on average result in 92% of the total money wagered being returned to players.

[0004] Bonuses have also been provided by gaming systems that have a plurality of linked gaming machines. Traditional linked bonus award systems consist of a number of gaming machines linked by a communications network to a bonus award controller. Bonus award systems were typically one of two types: standard link progressive systems and mystery link progressive systems.

[0005] A standard link progressive system operates by a jackpot server counting the number of a preselected type of event on the link progressive system. Typically a percentage of wagers placed on each gaming machine in the system is used to increase the progressive jackpot. Each gaming machine is able to generate a progressive win combination in its game. When this occurs, the gaming machine informs the jackpot server of this event and the jackpot is awarded to a player at the gaming machine that generated the progressive win combination. The progressive jackpot is then typically reset to a predetermined seed value and increases with play of the gaming machines until the next time one of the gaming machines generates a progressive win combination.

[0006] Mystery link progressive systems also operate by counting the number of a preselected type of event occurring on the mystery link progressive system. The events are typically a type which related to the credits wagered on the linked machines. Typically the type of events counted are either credits wagered or games played on the linked gaming machines. An event counter stored in the bonus controller is used to count the number of the events as they occurred.

[0007] The bonus controller counts the events until the event counter reaches a predetermined event count. When the event counter reaches the predetermined event count, the bonus controller awards the payment of the mystery prize pool to the linked gaming machine which caused the event counter to reach the predetermined event count. The predetermined event count is typically generated by randomly selecting a number within pre-defined upper and lower limits.

[0008] There exists a need in the industry for alternative methods of providing a bonus in a network gaming system.

[0009] A problem with central determination of the awarding of a bonus is that there is a chance that the player that caused the awarding of the bonus by playing a gaming machine may leave the gaming machine in the time it takes for the gaming machine to communicate to a server a message indicating a coin-in event at the gaming machine and for the server to send back a message indicating the award of a bonus. This problem may be more likely to occur when a wide area network is used in the communication path between the gaming machine and the server.

[0010] Any reference in this specification to the prior art does not constitute an admission that such prior art was well known or forms part of the common general knowledge in any jurisdiction.

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Summary of the invention

[0012] According to a first aspect of the invention, there is provided programmed computational bonus controller for controlling the award of a bonus at a gaming terminal, the bonus controller comprising a communication interface and operating to:

receive at the communication interface data sent by a first gaming terminal that comprises data defining a player identifier and data relating to game play of the first gaming terminal, and receive corresponding data from a plurality of other gaming terminals;

store in memory a definition of a trigger event, wherein occurrence of the trigger event is determined dependent on the received data related to game play;

determine when occurrence of the trigger event is attributable to the first gaming terminal;
send via the communication interface a token addressed to the first gaming terminal and await a response from the first gaming terminal;
monitor for receipt at the communication interface of a response to the token and dependent on any received response one of:

a) cause the immediate award of a bonus at the first gaming terminal; and
b) store data defining a bonus and the player identifier received from the first gaming terminal to enable subsequent award of the defined bonus.

[0013] The bonus controller may store data defining a bonus and the player identifier received from the first gaming terminal, subsequently monitor for receipt at the communication interface data defining that player identifier, identify from that data the gaming terminal that generated the data, and in response communicate information relating to the bonus to the identified gaming terminal. In one embodiment, the information relating to the bonus may comprise data defining the bonus so as to allow the identified gaming terminal to award the bonus. In one embodiment, the bonus may be a progressive jackpot and following communication of information relating to the bonus to the identified gaming terminal, the bonus controller awaits acknowledgement from the first gaming terminal that the bonus has been awarded and then one of resets and reduces the value of the progressive jackpot.

[0014] When the bonus controller stores details of a bonus and the player identifier received from the first gaming terminal, it may subsequently output information of use in sending a notification to the player identified by the player identifier that he or she has won a bonus. The information of use in sending a notification to the player may only be output if a certain period of time has elapsed since the details of a bonus and the player identifier received from the first gaming terminal were stored and the bonus controller has not, prior to expiration of the certain period, caused the award of the bonus.

[0015] According to a second aspect of the invention, there is provided a programmed computational bonus controller for controlling the award of a progressive bonus in a gaming system, the bonus controller comprising a communication interface and operating to:

receive at the communication interface data generated by a plurality of gaming terminals that comprises data relating to game play of the terminals and maintain a progressive jackpot;
compare data received from the gaming terminals to a definition of a trigger event;
when the trigger event occurs, select a gaming terminal in a selection process that has comprises a random selection of one of a plurality of eligible gaming terminals;
send via the communication interface a token addressed to the first gaming terminal and await a response from the first gaming terminal;
monitor for receipt at the communication interface a response to the token and dependent on any received response one of:

a) cause the award of a bonus at the selected gaming terminal and reducing the value of the progressive bonus meter; and
b) without causing the award of a bonus at the selected gaming terminal, select another one of the eligible gaming terminals; and

repeat the selection of eligible gaming terminals until the value of the progressive bonus meter falls below a certain value, then ceasing the selection of eligible gaming terminals until the next occurrence of the trigger event.

[0016] At least one of the eligible gaming terminals may comprise a gaming terminal that has received a player identifier from a player and communicated data relating to the player identifier to the bonus controller, wherein if the selected gaming terminal is one that the bonus controller has received a player identifier for, then under certain circumstances the bonus controller stores a bonus award in memory so as to be associated with the player identifier and reduces the balance of the progressive jackpot. The certain circumstances may comprise the response to the token that causes the bonus controller to, without causing the award of a bonus at the selected gaming terminal, select another one of the eligible gaming terminals. In one embodiment the response to the token that causes the bonus controller to, without causing the award of a bonus at the selected gaming terminal, select another one of the eligible gaming terminals, is a response that indicates that a player that was playing the gaming terminal when the gaming terminal was selected is no longer playing the gaming terminal.

[0017] According to a third aspect of the invention, there is provided a gaming network comprising a plurality of gaming terminals in communication with at least one server over a communications network comprising a wide area communi-

cations network, the at least one server maintaining a progressive jackpot by receiving data indicative of game play of the plurality of gaming terminals and incrementing the jackpot in response to receive of said data, and by causing the award of at least a portion of the progressive jackpot to one of the gaming terminals on the occurrence of a trigger event, wherein the process of causing the award of the progressive jackpot comprises:

a) selection of one of the plurality of gaming terminals and sending a token to the selected gaming terminal over the communications network, wherein the token does not cause the gaming machine to make an award of the progressive jackpot;
b) awaiting notification from the selected gaming terminal as to whether the gaming terminal is eligible to award the bonus;
c) if notification is received from the gaming terminal that it is eligible, then communicating to that gaming terminal the amount of the award to be awarded, awaiting acknowledgement from the gaming terminal and then reducing the value of the progressive jackpot; and
d) if notification is received from the gaming terminal that it is not eligible then repeating steps a) to c).

[0018] Selection of one of the plurality of gaming terminals may comprise the server selecting a gaming system within the gaming network that comprises a plurality of gaming terminals and causing a controller in the selected gaming system to select one of the plurality of gaming terminals within that gaming system, and wherein sending a token to the selected gaming terminal over the communications network comprises sending the token to the selected gaming terminal via the controller.

[0019] In one embodiment the controller randomly selects one of the gaming terminals that it is in communication with. In another embodiment the controller selects one of the gaming terminals in the gaming system based on a trigger event occurring in the gaming system that is related to operation of the gaming terminals in the gaming system.

[0020] Selection of one of the plurality of gaming terminals may comprise making a selection from a sub-group of the gaming terminals, the sub-group determined by the at least one server dependent on play of the gaming terminals during a period immediately preceding the selection process.

[0021] According to a fourth aspect of the present invention, there is provided a gaming system comprising a plurality of gaming terminals in communication with a programmed computational bonus controller for controlling the award of a bonus at one of the gaming terminals, the bonus controller operating to:

receive data sent by the gaming terminals that comprises data defining a player identifier and data relating to game play of that gaming terminal;
store in memory a definition of a trigger event, wherein occurrence of the trigger event is determined dependent on the received data related to game play;
determine when the trigger event occurs and then send a token addressed to an identified one of the gaming terminals and await a response from the identified gaming terminal;
monitor for receipt at the communication interface of a response to the token and dependent on any received response one of:

a) cause the award of a bonus at the identified gaming terminal; and
b) store data defining a bonus and the player identifier previously received from the identified gaming terminal;
and the gaming terminals operating to:

generate and send to the bonus controller the data comprising data defining a player identifier and data relating to game play of that terminal;
receive the token and in response establish whether that gaming machine is in play by an identified player, wherein if the gaming terminal is in play by an identified player sending a response that results in the bonus server causing the award of the bonus and if the gaming terminal is not in play by an identified player, sending a response that results in the bonus server storing data defining a bonus and the player identifier previously received from the identified gaming terminal.

[0022] In one embodiment the identified gaming terminal may be the gaming terminal that caused the trigger event to occur.

[0023] In another embodiment, the identified gaming terminal may be randomly selected following occurrence of the trigger event.

[0024] According to a fifth aspect of the present invention, there is provided a method of controlling the award of a bonus at a gaming terminal, the method comprising:

receiving at a bonus controller data sent by a plurality of gaming terminals that comprises data defining a player identifier and data relating to game play of that gaming terminal;
within the bonus controller determining when a trigger event has occurred and attributing occurrence of the trigger event to an identified one of the gaming terminals;
using the bonus controller to send a token to the identified gaming terminal; and
dependent on a response from the identified gaming terminal one of:

a) immediately awarding a bonus at the first gaming terminal; and
b) storing in memory data defining a bonus and the player identifier received from the first gaming terminal to enable subsequent award of the defined bonus.

[0025] According to a sixth aspect of the present invention, there is provided a method of controlling the award of a progressive bonus in a gaming system, comprising:

receiving at a bonus controller data generated by a plurality of gaming terminals that comprises data relating to game play of the terminals;
maintaining a progressive jackpot using the received data;
comparing data received from the gaming terminals to a definition of a trigger event;
when the trigger event occurs, selecting a gaming terminal in a selection process that comprises:

a) a random selection of one of a plurality of eligible gaming terminals;
b) sending via the communication interface a token addressed to the first gaming terminal;
and dependent on any received response one of:
c) causing the award of a bonus at the selected gaming terminal and reducing the value of the progressive bonus meter; and
d) without causing the award of a bonus at the selected gaming terminal, selecting another one of the eligible gaming terminals; and

repeating the selection process until the value of the progressive bonus meter falls below a certain value, then ceasing the selection of eligible gaming terminals until the next occurrence of the trigger event.

[0026] According to a seventh aspect of the present invention, there is provided a method of awarding a bonus at a gaming terminal, the method comprising:

establishing a gaming network comprising a plurality of gaming terminals and a bonus controller communicating over a wide area communications network,
maintaining a progressive jackpot by receiving data indicative of game play of the plurality of gaming terminals and incrementing the jackpot in response to receive of said data;
when a predefined trigger event occurs, selecting one of the plurality of gaming terminals and sending a token to the selected gaming terminal over the communications network, wherein the token does not cause the gaming machine to make an award of the progressive jackpot;
at the gaming terminal, in response to receipt of the token, determining if the gaming machine is eligible for award of the bonus;
if the gaming terminal is eligible, then communicating from the bonus controller to that gaming terminal the amount of the bonus to be awarded; and
if the gaming terminal is not eligible then selecting another one of the plurality of gaming terminals and sending a token to the newly selected gaming terminal.

[0027] The present invention also comprises a computer program product or computer media storing a computer program product to, when executed, implement the methods describes herein.
[0028] Further aspects of the present invention will also become apparent from the following description, given by way of example and with reference to the accompanying drawings.

Brief description of the drawings

[0029]

Figure 1: shows diagrammatically, a view of a gaming machine suitable for implementing the present invention.

Figure 2: shows a block diagram of gaming apparatus suitable for implementing the present invention.

Figure 3: shows a block diagram of components of the memory of the gaming apparatus represented in Figure 2.

Figure 4: shows diagrammatically, a network gaming system suitable for implementing the present invention.

Figure 5: shows a flow diagram of a process to be performed by the network gaming system of Figure 4 in accordance with one embodiment of the present invention.

Figure 6: shows a flow diagram of a process to be performed by the network gaming system of Figure 4 in accordance with another embodiment of the present invention.

Detailed description

[0030] In Figure 1 of the accompanying drawings, a gaming machine suitable for use in a network gaming system of the present invention is generally referenced by arrow 10.

[0031] The gaming machine 10 includes a console 12 having a display 14 on which is displayed representations of a game 16, that can be played by a player. A mid-trim 20 of the gaming machine 10 houses a bank of buttons 22 for enabling a player to play the game 16. The mid-trim 20 also houses a credit input mechanism 24 including a coin input chute 24A and a bill collector 24B. A top box 26 may carry artwork 28, including for example, pay tables and details of bonus awards and other information or images relating to the game. Further artwork and/or information may be provided on the front panel 29 of the console 12. A coin tray 30 is mounted beneath the console 12 for cash payouts from the gaming machine 10.

[0032] The display 14 shown in Figure 1 is in the form of a video display unit, particularly a cathode ray tube screen device. Alternatively, the display 14 may be a liquid crystal display, plasma screen, any other suitable video display unit, or the visible portion of an electromechanical device. In this latter respect, if the game 16 is a spinning reel game, the display 14 may use a stepper motor to control the position of physical reels. The top box 26 may also be a display, for example a video display unit, which may be the same type as the display 14, or a different type of display.

[0033] Figure 2 shows a block diagram of a gaming apparatus, generally referenced by arrow 100, suitable for implementing the present invention. The gaming apparatus 100 may operate as a networked gaming machine, communicating with other network devices, such as one or more servers or other gaming machines. The gaming apparatus 100 may have distributed hardware and software components that communicate with each other directly or through a network. Accordingly, different reference numerals have been used in Figure 2 from Figure 1 for components that may be equivalent.

[0034] The gaming apparatus 100 includes a game controller 101, which in the illustrated example includes a microprocessor, microcontroller, programmable logic device or other computational device 102. Instructions and data to control operation of the computational device 102 are stored in a memory 103, which is in data communication with the computational device 102. Typically, the gaming apparatus 100 will include both volatile and non-volatile memory and more than one of each type of memory, with such memories being collectively represented by the memory 103. In addition, the computational device 102 may include two or more computational devices that each perform computational functions and which may be located locally or remotely from each other. The instructions to cause the game controller 101 to implement games will be stored in the memory 103.

[0035] The gaming apparatus may include meters 104 for the purposes of regulatory compliance and also include an input/output (I/O) interface 105 for communicating with the peripheral devices of the gaming apparatus 100. The input/output interface 105 and/or the peripheral devices may be intelligent devices with their own memory for instructions and data.

[0036] In the example shown in Figure 2, the peripheral devices that communicate with the controller are one or more displays 106, user interfaces 107, a card and/or ticket reader 108, a printer 109, a bill acceptor and/or coin input mechanism 110 and a coin output mechanism 111. Additional devices may be included in the gaming apparatus 100 or devices omitted as required. One or more of the peripheral devices may be an intelligent peripheral device, having its own memory containing instructions and data.

[0037] The gaming apparatus 100 includes a communications interface, for example a network card 112, to communicate with a network for such purposes as sending status information, accounting information and the like to a central controller, allowing communication from the central controller to the gaming apparatus 100 or for other purposes. In one embodiment, the functions of the computational device 102 may be split between a remote device and a local device, for example with game outcomes generated remotely and game graphics for the display 106 generated locally. In another embodiment, the peripheral devices only may be provided locally together with a network interface, in which case all, or nearly all intelligent devices may be located remotely of the display 106.

[0038] Figure 4 shows a gaming system 200. The gaming system 200 includes a network 201, which for example may be an Ethernet network. Gaming terminals 202, shown arranged in three banks 203 of two gaming terminals 202 in Figure 3, are connected to the network 201. The gaming terminals 202 may be gaming machines 10, as shown in Figure 1 or form part or all of another gaming apparatus 100. Single gaming terminals 202 and banks 203 containing three or more gaming terminals 202 may also be connected to the network 201.

[0039] One or more displays 204 may also be connected to the network 201. The displays 204 may, for example, be associated with a bank 203 of gaming devices. The displays 204 may be used to display representations associated with game play on the gaming terminals 202, and/or used to display other representations, for example promotional or informational material.

[0040] Servers may also be connected to the network 201. For example, a game server 205 may generate game outcomes for games played on the gaming terminals 202, a database management server 206 may be connected to a database (not shown) containing game programs and associated data for downloading or access by the gaming terminals 202 and a jackpot server 207 may control one or more jackpots associated with the gaming terminals 202.

[0041] Further servers may be provided to assist in the administration of the gaming system 200, including for example a gaming floor management server 208, and a licensing server 209 to monitor the use of licenses to particular games. An administrator terminal 210 is provided to allow an administrator to run the network 201 and the devices connected to the network.

[0042] The gaming system 200 may communicate with other gaming systems, other local networks, for example a corporate network and/or a wide area network such as the Internet. The communications may be through a firewall 211, particularly where the connection includes a public network. A web server (not shown) or other appropriate communications device for the network 212 may be provided inside the firewall 211 to receive and send communications from and to the network 212 respectively. In Figure 4 the various options for the network outside the firewall 211 are collectively represented by the network 212. A second game server 213, second database management server 214 and second jackpot server 215 may be provided and perform similar functions to the servers 205 - 207, but form a part of a plurality of gaming systems 200, each gaming system 200 connected to the network 212 and having the servers 205 - 207 in common. The other gaming systems may or may not have the same configuration as the gaming system 200 shown in Figure 4.

[0043] The present invention will be described primarily with reference to the gaming system 200 shown Figure 4. However, those skilled in the relevant arts will appreciate that there are numerous alternative configurations of gaming systems that may implement the present invention.

[0044] The gaming system 200 implements at least one bonus. A bonus may be a mystery jackpot, progressive jackpot, initiation of a special feature game that has a high return to player or another enhanced gaming event or characteristic. The bonus is implemented primarily using the gaming machines and one or both of the jackpot servers 207, 215. Each of the jackpot servers 207, 215 may implement separate bonuses, with the jackpot server 207 implementing a bonus that can be won by one of the gaming terminals 202 and the jackpot server 215 implementing a bonus that can be won by any one of the gaming terminals 202 and other gaming machines that form part of another gaming system 200 and that are in communication with the jackpot server 215, either directly or indirectly.

[0045] Figures 5A and 5B show a flow diagram of an example process to be completed by the gaming system 200 to award a bonus. The steps performed by a gaming terminal 202 are located to the left of Figure 5 and the steps performed by a jackpot server 207, 215 are located to the right of Figure 5. For the purposes of illustration, it is assumed that both of the jackpot servers 207, 215 maintain one or more separate bonuses in the form of jackpots. However, in alternative implementations only one of the jackpot servers 207, 215 may maintain a jackpot, or further jackpot servers may be provided.

[0046] Figures 5A and 5B shows a process if a "Mystery Jackpot" is implemented by the gaming system 200. A Mystery Jackpot is of the type where a random number is selected as a trigger threshold and when a monitored value, typically the collective coin-in from the gaming machines eligible to win the Mystery Jackpot reaches the trigger threshold, the jackpot is awarded. However, those skilled in the relevant arts will appreciate that alternative bonus award trigger events may be used, for example at a randomly selected time within a bonus time window, in which case it may not be necessary for the coin-in of the gaming terminals 202 to be monitored.

[0047] The process starts at steps 50 and 70. In step 50, a gaming terminal 202 displays play of a game to a player. The gaming terminal 202 may control the game play, or the game play may be controlled centrally at the game server 205, in which case the gaming terminal 202 may control the images displayed on its display. During play of the game, a player makes wagers and the game machine captures this information and in step 51 sends a message to one or both of the jackpot servers 207, 215. This allows the jackpot servers 207, 215 to award a bonus based on the turnover of the gaming terminals 202 and any other gaming machines that jackpot servers 207, 215 manage a bonus for.

[0048] In step 70, the jackpot servers 207, 215 set their respective mystery jackpot trigger amounts and initial values for any jackpots that have just been awarded or are new.

[0049] Because the server 207 is maintaining a jackpot for fewer gaming machines than the server 215, it may have

a correspondingly smaller possible range of values for the jackpot trigger and a smaller initial value. With each coin-in message received from a gaming terminal 202 (step 71), the value of the actual jackpot is increased (step 72), by incrementing a counter maintained at the jackpot server 207, 215.

[0050] While the gaming terminals 202 may each send coin-in messages onto the network 201 which are detected by the jackpot server 207 and forwarded by the network 201 to the jackpot server 215 for each coin-in event, the coin-in events may alternatively be batched. For example, each gaming terminal 202 may send a coin-in message only for every tenth actual coin-in. In addition or instead, the jackpot server 207 may collect coin-in signals both for itself and for the jackpot server 215 and then send a coin-in message to the jackpot server 215 for every hundredth coin-in message received from a gaming machine. In some implementations, bank controllers or concentrators (not shown) for groups of gaming machines may receive data for a plurality of gaming machines and forward this to the jackpot server 207 and/or jackpot server 205. The gaming system 200 may optionally switch from batch to continuous coin-in messages once the mystery jackpot event is close, which may be indicated to the gaming system 200 by an appropriate message transmitted by the jackpot server 207, 215 over the network 201.

[0051] The jackpot server 207, 215 compares the current jackpot value with the mystery amount selected in step 70 (step 73) and based on the comparison a decision is made (step 74). If the mystery amount has not been reached, the process returns to step 71. If the mystery amount has been reached, then the gaming system proceeds to step 75.

[0052] In step 75, the jackpot server 207, 215 randomly selects a gaming machine from a list of gaming machines that are eligible to win the jackpot. For the jackpot server 207 the eligible gaming machines may be all of the gaming terminals 202, whereas the eligible gaming machines for the jackpot server 215 will also include other gaming machines. The jackpot server 207, 215 then transmits a token that is addressed to the selected gaming machine onto the network 201 (step 76). The jackpot server 207 can do this directly, but the server 215 must send the token as part of a message formatted using the transport protocol of the network 212, which may then be parsed and the token transmitted on the network 201.

[0053] In an alternative embodiment, the jackpot server 215 may in step 75 select a gaming system instead of an individual gaming machine in a gaming system. The selection of the individual gaming machine may then be performed by a jackpot server in the gaming system 200. For example, if the jackpot server 215 selected the gaming system 200, it would send a token to the gaming system 200, which is received by the jackpot server 207. The jackpot server 207 would then randomly select a gaming terminal 202 and transmit onto the network 201 a token addressed to the selected gaming terminal 202. In this alternative embodiment, the jackpot server 215, which could potentially manage a jackpot for hundreds or even thousands of gaming machines need not maintain a list of every single gaming machine.

[0054] For the purposes of explanation, it is assumed that the randomly selected gaming machine is one of the gaming terminals 202, although as explained herein, at least jackpot server 215 is not restricted to selecting one of the gaming terminals 202. The selected gaming terminal 202 receives the token (step 52) and then checks if it is currently being played (step 53). If the gaming machine not currently being played, then the gaming machine sends a message back to the jackpot server 207, 215 (whichever one sent the token to it) that indicates to the jackpot server 207, 215 that the gaming terminal 202 is not currently being played (step 54). The jackpot server 207, 215 receives the message (step 77) and then returns to step 75 to select another gaming machine.

[0055] The gaming terminal 202 may determine that it is not being played in a number of ways. One example of when a gaming terminal 202 will return a message indicating that it is not being played may be when the gaming machine has a zero balance in its credit meter and has not had a positive balance in the credit meter in the last 5 seconds.

[0056] If the gaming terminal 202 determines in step 53 that the game is being played, it then sends a message back to the server 207, 215 indicating this and preferably locks up, so that the player can not continue play of the gaming terminal 202 (step 55). The gaming terminal 202 may display a message to the player informing them that they have won a prize and requesting that the player await notification of the prize amount.

[0057] The jackpot server 207, 215 receives the message from the gaming terminal 202 (step 78) and then determines the amount of the jackpot to award (step 79). The jackpot may optionally have continued to increase up to this point on the receipt of coin-in messages at the jackpot server 207, 215, or alternatively may have frozen once the mystery amount was won, with the subsequent coin-in messages causing an increase in another jackpot to be awarded at a later time. The jackpot server 207, 215 then sends a message to the gaming terminal 202 that contains data indicating the amount of the jackpot that has been won (step 80). The gaming terminal 202 receives the message (step 56) and causes the jackpot to be awarded (step 57), for example by increasing a credit meter, printing a ticket or calling for an attendant. The gaming terminal 202 also sends an acknowledgement to the jackpot server 207, 215 (step 58), which is received by the jackpot server 207, 215 (step 81) and in response the jackpot is reset to its initial value (step 82) and any coin-in messages that were received in the interim between steps 79 and 82 may be added to the initial value. The process then returns to step 70.

[0058] In one embodiment of the present invention, step 75 involves selecting a single gaming machine from all of the gaming machines that contribute to the jackpot that is due to be awarded. In an alternative embodiment, the selection is made from a subset of these gaming machines. For example, in the gaming system 200, the gaming terminals 202

may be separated into groups. If a coin-in message from a gaming terminal 202 in a particular group causes the jackpot to reach the mystery amount, then the step 75 may involve randomly selecting one of the gaming terminals 202 in that particular group. A display 204 associated with a the particular group and/or a display on each gaming terminal 202 in the group may optionally announce that one of the gaming machines 204 is about to win a jackpot immediately prior to the completion of the selection and awarding process. In another example, the selection may be made from a list of gaming machines that have contributed to the jackpot recently, perhaps in the last 10 seconds or alternatively since the mystery amount was reached. If the latter option is used, then step 75 may be delayed to allow a pool of eligible machines to be formed. In this embodiment of the invention it is of course more likely that the gaming machine that is selected will be being played when it receives the token.

[0059] Figures 5A and 5B show a currently preferred form of the present invention in which the award of a jackpot is performed in two stages, namely sending a token (step 76) to find the winning gaming machine and then notifying the gaming machine of the amount won (step 80). Alternatively, the token may also notify the gaming machine of the amount won, in which case the first gaming machine that is being played that receives the token can immediately notify the player of the amount won. However, a disadvantage of this method is that when a gaming machine receives a token it has not yet been established that two way communication between the jackpot server 207, 215 and the gaming machine that received the token has been established. If the gaming machine can not acknowledge receipt of the token, then difficulties may arise in avoiding duplicate award of the same jackpot.

[0060] Figures 6A and 6B show a flow diagram of a process according to another aspect of the present invention. Again, steps performed by a gaming machine are located to the left and steps performed by the jackpot server 207, 215 are located to the right. Many of the steps in Figure 6 are identical or similar to the steps performed in the process described previously with reference to Figure 5 and these steps are numbered with the same reference numerals.

[0061] The gaming terminals 202 operate in the same way, to play a game and send coin-in messages to the jackpot server 207 or jackpot server 215. The coin-in messages include a unique gaming machine identifier (ID) of the sending gaming machine and a unique player identifier (ID) of the player at the gaming machine that sent the coin-in message. The player ID may be determined by the gaming machine from a smart card, magnetic swipe card or other information carrier that is inserted into or otherwise read by an appropriate reader of the gaming machine, or may be information entered using a user interface of the gaming machine or otherwise. When the mystery jackpot amount is exceeded, the jackpot server 207, 215 in step 90 records the player ID in memory.

[0062] Instead of randomly selecting a gaming machine, in the process shown in Figure 6 the jackpot server sends a token to the gaming machine that is identified by the gaming machine ID in the coin-in message that caused the jackpot to exceed the mystery amount. This may be achieved by looking up the gaming machine ID in a look-up table to find the address of the gaming machine, or the coin-in message may contain the network address. If after sending the token in step 76, the gaming terminal 202 responds that it is still being played by the same player, then steps 78 to 80 at the jackpot server 207, 215 and steps 56 to 58 at the gaming terminal 202 proceed as for the process shown in Figure 5.

[0063] If the player is no longer playing the gaming machine, the previously recorded player ID and the jackpot amount are stored (step 91). The jackpot server 207, 215 may monitor coin-in messages from that gaming machine, other gaming machines and optionally also other devices that it is in communication with for the stored player ID and perform step 76 if the player ID is detected, sending a token to the gaming machine to ensure that the player has not left and attempting again to award the jackpot. If the jackpot has not been awarded within a time limit, as determined in decision step 93, an expired jackpot action (step 94) is taken. Step 94 may involve looking up the player details in a database and mailing notification of the win to the player or otherwise attempting to contact the player, distributing the win to players of gaming machines that were eligible to win the unclaimed jackpot as described in more detail herein below, or some other action.

[0064] In an alternative embodiment, the coin-in messages may be associated with a player ID without the player ID accompanying each message. For example, a gaming machine may communicate the player identifier when it is provided and communicate when the player leaves the gaming machine. In this embodiment the jackpot server 207, 215 has all the information required to associate the coin-in messages with the player ID.

[0065] In another aspect of the present invention, awarding a jackpot may involve distributing the jackpot amongst eligible gaming machines. The award process may take place over a period of time, the only limit being that the balance of the jackpot generally decreases over time during an award event. For example, a jackpot of $100,000 may be separated into ten $10,000 jackpots, each jackpot being awarded in intervals of 15 minutes, so that the jackpot awarding process takes two and half hours.

[0066] In this aspect of the invention, steps 75 to 82 shown in Figure 5 may be repeated multiple times by the jackpot server 207, 215 for a single jackpot, the jackpot being effectively sub-divided into a number of smaller sub-jackpots, each being awarded individually to a randomly selected gaming terminal 202. Again, the selection may be made from all gaming machines that contributed to the jackpot, or a sub-set of gaming machines that are determined to be eligible, for example due to being played recently. In one embodiment, the process may further involve checking that the same identified player is playing the gaming terminal as when that gaming terminal was selected, using a process described in relation to steps 53-58 and 77 to 94 of Figures 6A and 6B.

[0067] Table 1 shows an exemplary header of a packet that may be sent by the jackpot server 207 to the machine communication interface of a gaming machine, which may be the network card 112 described previously herein. The header contains three fields, a "cmd" field, a "id" field and a "anetAddr" field". The "cmd" field identifies the message to the network as a command, specifically a jackpot token, the "id" field identifies the jackpot server 215 that sent the packet and the "anetAddr" field contains the network address of the destination gaming machine. The "id" and "anetAddr" fields are used by the network to route the packet to the destination gaming machine.

Table 1 - header of a token

<head> Tag	Format	Value	Description
cmd	Number	40	Send Jackpot Token
id	Number		Identifier of originating jackpot server.
anetAddr	Number		Identifier of the destination gaming machine on the gaming floor.

[0068] Table 2 shows an exemplary body of a token packet, which also includes three fields. The "cmd" field identifies the packet as a jackpot token to the destination gaming machine, the "tokenId" field provides the gaming machine with the identifier of the token, the identifier having been generated by the jackpot server 215 prior to sending the token, and the "acceptID" field specifies to the gaming machine which algorithm to use to process the token. For example, one "acceptID" value may specify that the process of Figure 5 is to be implemented and another may specify that the process of Figure 6 is to be implemented. There may be several variations of algorithms on or available to each gaming machine, with the jackpot server 215 specifying which one to use in the token.

Table 2 - body of a token

<body> Tag	Format	Value	Description
cmd	Number	1	Send Jackpot Token to EGM
tokenId	Number		Token Identifier
acceptId	Number		Identifier of the algorithm to use to process the token.

[0069] Table 3 shows an exemplary header of a response message from a gaming machine to a token. The response message may be sent as part of step 54 or step 55 of the processes shown in Figures 5 and 6.

[0070] The header includes the same fields as the header of the token, the only difference being that the destination address is now the network address of the jackpot controller and the source address is the network address of the gaming machine.

Table 3 - header of a response message

<head> Tag	Format	Value	Description
cmd	Number	40	Send Jackpot Token
id	Number		Identifier of the destination jackpot server
anetAddr	Number		Identifier of source gaming machine

[0071] Table 4 shows an exemplary body of a response message, which includes four fields. The "cmd" and "tokenId" fields identify to the jackpot server that the message is a response message to a token and the specific token that message relates to respectively. The "acceptStatus" field indicates to the jackpot server whether the gaming machine has accepted the token, or rejected it, and the "rejectReason" field provides the reason for rejection, if any.

[0072] The "rejectReason" field will contain:

- A "0" if the "acceptStatus" filed is a "1";
- A "1" if the gaming machine is already locked up awaiting further action following a previous acceptance of a token with the same identifier (which may occur, for example, if a previous response message was not received by the jackpot server for some reason and therefore the jackpot server retransmitted the token);
- A "2" if the gaming machine is not in play as determined by the gaming machine and the "acceptID" of the token specified that the gaming machine should use its own algorithm to determine whether it is in play;

- A "3" if the gaming machine is not in play and the "acceptID" of the token specified that the gaming machine should report the duration that the machine has remained unplayed, which allows the jackpot controller to take varying action depending on the reported duration;
- A "4" if an identified player is not currently playing the gaming machine, which may be useful where a jackpot is only available to players who have identified themselves.

Table 4 - body of a response message

<body> Tag	Format	Value	Description
cmd	Number	1	Send Jackpot Token to EGM
tokenId	Number		Token ID
acceptStatus	Number		Acceptance result. 0 = No acceptance of token, rejection 1 = Accept Token
rejectReason	Number		Rejection Reason. 0 = no reject reason 1 = already in a jackpot hit for this jackpot ID 2 = EGM not in play 3 = EGM not in play for N seconds 4 = No player identifier available

[0073] Exemplary XML code for sending a token is:

```
<msg>
      <head>
            <cmd>40</cmd>
            <id>2</id>
            <anetAddr>12</anetAddr>
      </head>
      <body>
            <cmd>1</cmd>
            <tokenId>1234456789</tokenId>
            <acceptId>2</acceptId>
      </body>
</msg>
```

[0074] Exemplary XML code for sending a response message is:

```
<msg>
      <head>
            <cmd>40</cmd>
            <id>2</id>
            <anetAddr>12</anetAddr>
      </head>
      <body>
            <cmd>1</cmd>
            <tokenId>1234456789</tokenId>
            <acceptStatus>1></acceptStatus>
            <rejectReason>0</rejectReason>
      </body>
</msg>
```

[0075] If a token is sent by the jackpot server 215, then the message will be contained within a message suitable for transmission over the network 212, for example using TCP/IP if the network 212 includes the Internet.

[0076] While the foregoing description has been provided by way of example of the preferred embodiments of the present invention as presently contemplated, which utilise gaming apparatus and machines, those skilled in the relevant

arts will appreciate that the present invention also may have application to internet gaming and/or have application to gaming over a telecommunications network, where handsets are used to display game outcomes and receive player inputs.

[0077] Where in the foregoing description reference has been made to integers having known equivalents, then those equivalents are hereby incorporated herein as if individually set forth.

[0078] Those skilled in the relevant arts will appreciate that modifications and additions to the embodiments of the present invention may be made without departing from the scope of the present invention.

[0079] It will be understood that the invention disclosed and defined in this specification extends to all alternative combinations of two or more of the individual features mentioned or evident from the text or drawings. All of these different combinations constitute various alternative aspects of the invention.

[0080] It will also be understood that the term "comprises" (or its grammatical variants) as used in this specification is equivalent to the term "includes" and should not be taken as excluding the presence of other elements or features.

Claims

1. A programmed computational bonus controller for controlling the award of a bonus at a gaming terminal, the bonus controller comprising a communication interface and operating to:

receive at the communication interface data sent by a first gaming terminal that comprises data defining a player identifier and data relating to game play of the first gaming terminal, and receive corresponding data from a plurality of other gaming terminals;
store in memory a definition of a trigger event, wherein occurrence of the trigger event is determined dependent on the received data related to game play;
determine when occurrence of the trigger event is attributable to the first gaming terminal;
send via the communication interface a token addressed to the first gaming terminal and await a response from the first gaming terminal;
monitor for receipt at the communication interface of a response to the token and dependent on any received response one of:

a) cause the immediate award of a bonus at the first gaming terminal; and
b) store data defining a bonus and the player identifier received from the first gaming terminal to enable the subsequent award of the defined bonus.

2. The bonus controller of claim 1, wherein when the bonus controller stores data defining a bonus and the player identifier received from the first gaming terminal, it subsequently monitors for receipt at the communication interface of data defining that player identifier, identifies from that data the gaming terminal that generated the data, and in response communicates information relating to the bonus to the identified gaming terminal.

3. The bonus controller of claim 2, wherein the information relating to the bonus comprises data defining the bonus so as to allow the identified gaming terminal to award the bonus.

4. The bonus controller of claim 3, wherein the bonus is a progressive jackpot and following communication of information relating to the bonus to the identified gaming terminal, the bonus controller awaits acknowledgement from the first gaming terminal that the bonus has been awarded and then one of resets and reduces the value of the progressive jackpot.

5. The bonus controller of any one of claims 1 to 4, wherein when the bonus controller stores details of a bonus and the player identifier received from the first gaming terminal, it subsequently outputs information of use in sending a notification to the player identified by the player identifier that he or she has won a bonus.

6. The bonus controller of claim 5, wherein the information of use in sending a notification to the player is only output if a certain period of time has elapsed since the details of a bonus and the player identifier received from the first gaming terminal were stored and the bonus controller has not, prior to expiration of the certain period, caused the award of the bonus.

7. A programmed computational bonus controller for controlling the award of a progressive bonus in a gaming system, the bonus controller comprising a communication interface and operating to:

receive at the communication interface data generated by a plurality of gaming terminals that comprises data relating to game play of the terminals and maintain a progressive jackpot;
compare data received from the gaming terminals to a definition of a trigger event;
when the trigger event occurs, select a gaming terminal in a selection process that has comprises a random selection of one of a plurality of eligible gaming terminals;
send via the communication interface a token addressed to the first gaming terminal and await a response from the first gaming terminal;
monitor for receipt at the communication interface a response to the token and dependent on any received response one of:

a) cause the award of a bonus at the selected gaming terminal and reducing the value of the progressive bonus meter; and
b) without causing the award of a bonus at the selected gaming terminal, select another one of the eligible gaming terminals; and

repeat the selection of eligible gaming terminals until the value of the progressive bonus meter falls below a certain value, then ceasing the selection of eligible gaming terminals until the next occurrence of the trigger event.

8. The bonus controller of claim 7, wherein at least one of the eligible gaming terminals comprises a gaming terminal that has received a player identifier from a player and communicated data relating to the player identifier to the bonus controller, wherein if the selected gaming terminal is one that the bonus controller has received a player identifier for, then under certain circumstances the bonus controller stores a bonus award in memory so as to be associated with the player identifier and reduces the balance of the progressive jackpot.

9. The bonus controller of claim 8, wherein the certain circumstances comprise the response to the token that causes the bonus controller to, without causing the award of a bonus at the selected gaming terminal, select another one of the eligible gaming terminals.

10. The bonus controller of claim 9, wherein the response to the token that causes the bonus controller to, without causing the award of a bonus at the selected gaming terminal, select another one of the eligible gaming terminals is a response that indicates that a player that was playing the gaming terminal when the gaming terminal was selected is no longer playing the gaming terminal.

11. A gaming network comprising a plurality of gaming terminals in communication with at least one server over a communications network comprising a wide area communications network, the at least one server maintaining a progressive jackpot by receiving data indicative of game play of the plurality of gaming terminals and incrementing the jackpot in response to receive of said data, and by causing the award of at least a portion of the progressive jackpot to one of the gaming terminals on the occurrence of a trigger event, wherein the process of causing the award of the progressive jackpot comprises:

a) selection of one of the plurality of gaming terminals and sending a token to the selected gaming terminal over the communications network, wherein the token does not cause the gaming machine to make an award of the progressive jackpot;
b) awaiting notification from the selected gaming terminal as to whether the gaming terminal is eligible to award the bonus;
c) if notification is received from the gaming terminal that it is eligible, then communicating to that gaming terminal the amount of the award to be awarded, awaiting acknowledgement from the gaming terminal and then reducing the value of the progressive jackpot; and
d) if notification is received from the gaming terminal that it is not eligible then repeating steps a) to c).

12. The gaming network of claim 11, wherein selection of one of the plurality of gaming terminals comprises the server selecting a gaming system within the gaming network that comprises a plurality of gaming terminals and causing a controller in the selected gaming system to select one of the plurality of gaming terminals within that gaming system, and wherein sending a token to the selected gaming terminal over the communications network comprises sending the token to the selected gaming terminal via the controller.

13. The gaming network of claim 12, wherein the controller randomly selects one of the gaming terminals that it is in communication with.

14. The gaming network of claim 12, wherein the controller selects one of the gaming terminals in the gaming system based on a trigger event occurring in the gaming system that is related to operation of the gaming terminals in the gaming system.

15. The gaming network of any one of claims 11 to 14, wherein selection of one of the plurality of gaming terminals comprises making a selection from a sub-group of the gaming terminals, the sub-group determined by the at least one server dependent on play of the gaming terminals during a period immediately preceding the selection process.

16. A gaming system comprising a plurality of gaming terminals in communication with a programmed computational bonus controller for controlling the award of a bonus at one of the gaming terminals, the bonus controller operating to:

receive data sent by the gaming terminals that comprises data defining a player identifier and data relating to game play of that gaming terminal;
store in memory a definition of a trigger event, wherein occurrence of the trigger event is determined dependent on the received data related to game play;
determine when the trigger event occurs and then send a token addressed to an identified one of the gaming terminals and await a response from the identified gaming terminal;
monitor for receipt at the communication interface of a response to the token and dependent on any received response one of:

a) cause the immediate award of a bonus at the identified gaming terminal; and
b) store data defining a bonus and the player identifier previously received from the identified gaming terminal to enable subsequent award of the defined bonus; and the gaming terminals operating to:

generate and send to the bonus controller the data comprising data defining a player identifier and data relating to game play of that terminal;
receive the token and in response establish whether that gaming machine is in play by an identified player, wherein if the gaming terminal is in play by an identified player sending a response that results in the bonus server causing the award of the bonus and if the gaming terminal is not in play by an identified player, sending a response that results in the bonus server storing data defining a bonus and the player identifier previously received from the identified gaming terminal.

17. The gaming system of claim 16, wherein the identified gaming terminal is the gaming terminal that caused the trigger event to occur.

18. The gaming system of claim 16, wherein the identified gaming terminal is randomly selected following occurrence of the trigger event.

19. A method of controlling the award of a bonus at a gaming terminal, the method comprising:

receiving at a bonus controller data sent by a plurality of gaming terminals that comprises data defining a player identifier and data relating to game play of that gaming terminal;
within the bonus controller determining when a trigger event has occurred and attributing occurrence of the trigger event to an identified one of the gaming terminals;
using the bonus controller to send a token to the identified gaming terminal; and
dependent on a response from the identified gaming terminal one of:

a) immediately awarding a bonus at the first gaming terminal; and
b) storing in memory data defining a bonus and the player identifier received from the first gaming terminal to enable subsequent award of the defined bonus.

20. A method of controlling the award of a progressive bonus in a gaming system, comprising:

receiving at a bonus controller data generated by a plurality of gaming terminals that comprises data relating to game play of the terminals;
maintaining a progressive jackpot using the received data;
comparing data received from the gaming terminals to a definition of a trigger event;
when the trigger event occurs, selecting a gaming terminal in a selection process that comprises:

a) a random selection of one of a plurality of eligible gaming terminals;
b) sending via the communication interface a token addressed to the first gaming terminal;
and dependent on any received response one of:
c) causing the award of a bonus at the selected gaming terminal and reducing the value of the progressive bonus meter; and
d) without causing the award of a bonus at the selected gaming terminal, selecting another one of the eligible gaming terminals; and

repeating the selection process until the value of the progressive bonus meter falls below a certain value, then ceasing the selection of eligible gaming terminals until the next occurrence of the trigger event.

21. A method of awarding a bonus at a gaming terminal, the method comprising:

establishing a gaming network comprising a plurality of gaming terminals and a bonus controller communicating over a wide area communications network,
maintaining a progressive jackpot by receiving data indicative of game play of the plurality of gaming terminals and incrementing the jackpot in response to receive of said data;
when a predefined trigger event occurs, selecting one of the plurality of gaming terminals and sending a token to the selected gaming terminal over the communications network, wherein the token does not cause the gaming machine to make an award of the progressive jackpot;
at the gaming terminal, in response to receipt of the token, determining if the gaming machine is eligible for award of the bonus;
if the gaming terminal is eligible, then communicating from the bonus controller to that gaming terminal the amount of the bonus to be awarded; and
if the gaming terminal is not eligible then selecting another one of the plurality of gaming terminals and sending a token to the newly selected gaming terminal.

22. A computer program product or a computer readable medium containing a computer program product that when executed by a bonus controller causes the bonus controller to impellent the method defined in one of claims 19 and 20.

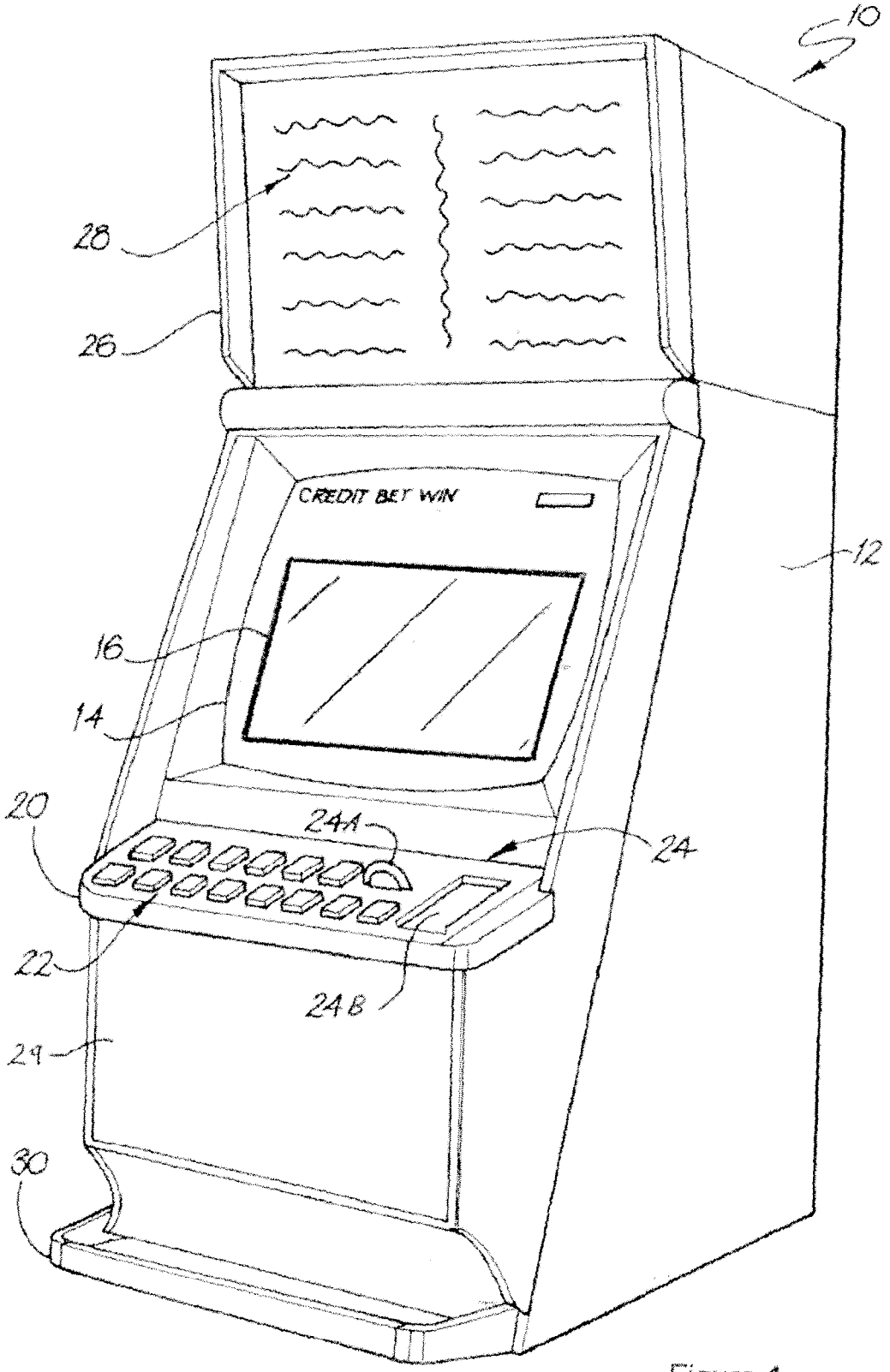

Figure 1

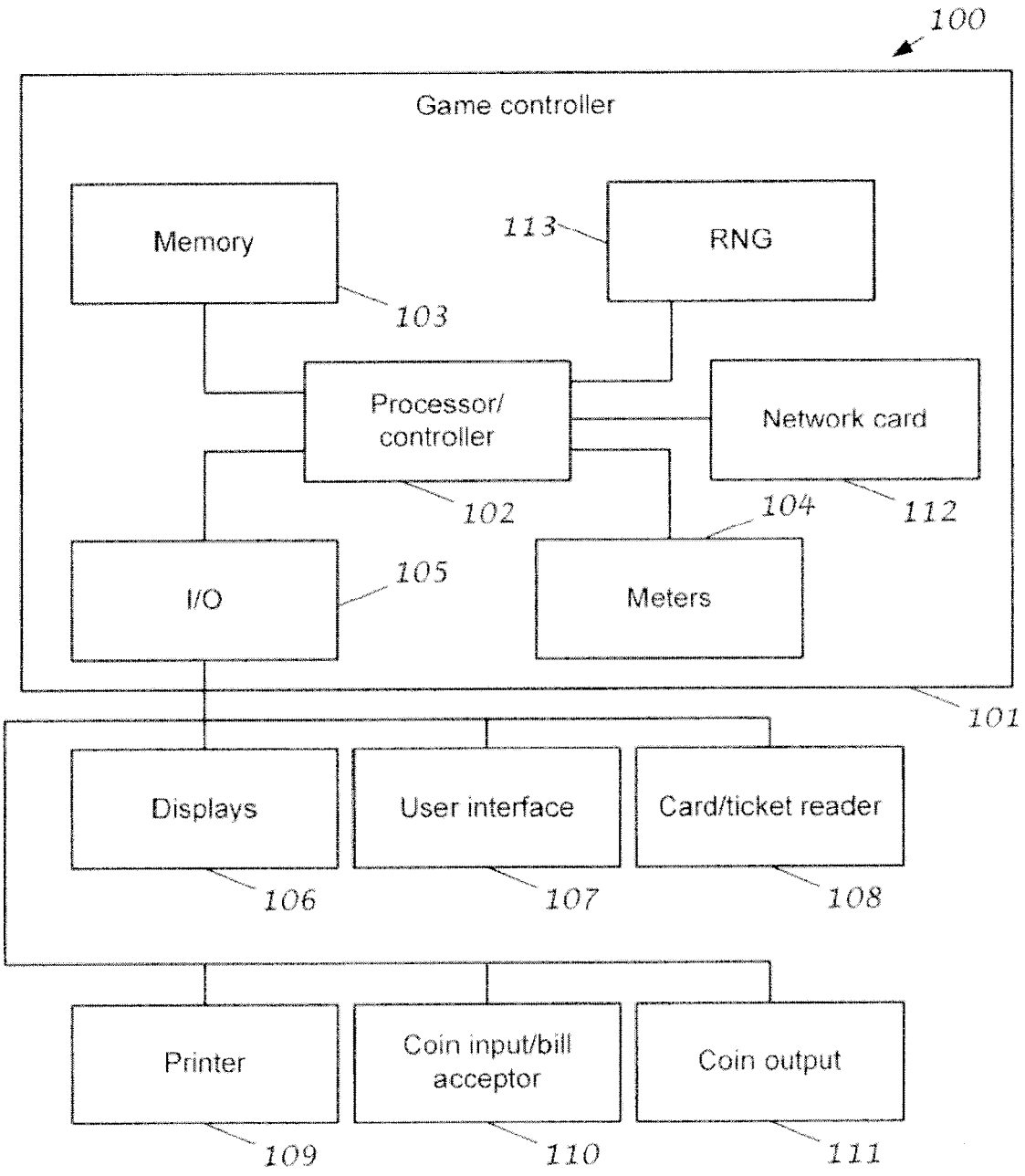

Figure 2

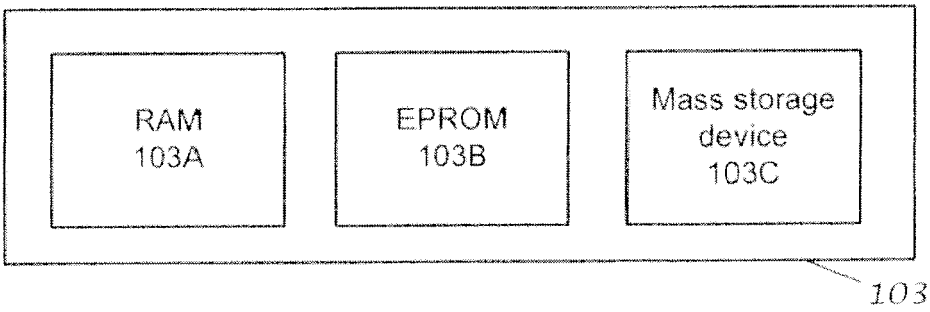

Figure 3

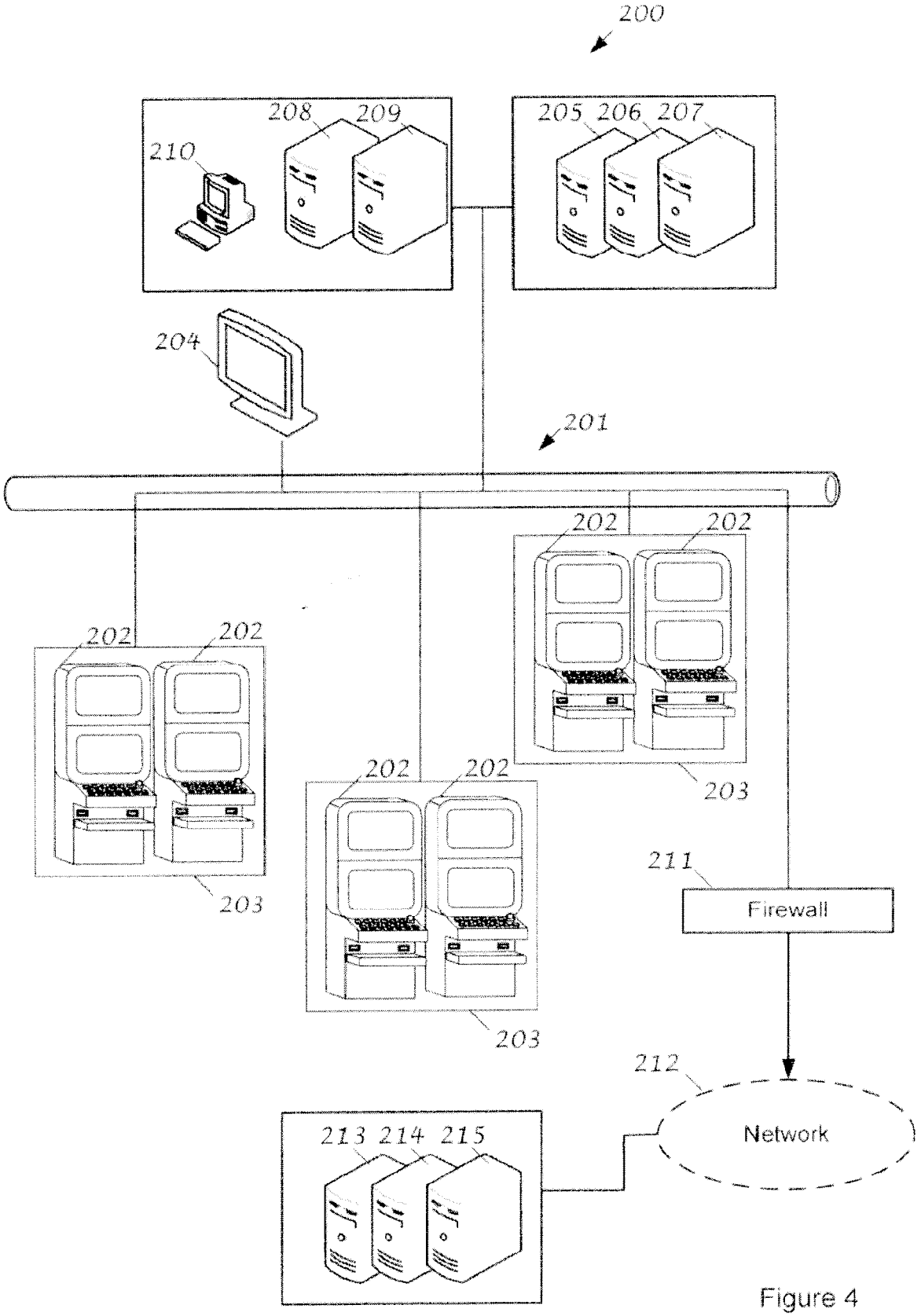
200
208
209
210
205
206
207
204
201
202
202
202
202
203
202
202
203
211
Firewall
212
Network
213
214
215

Figure 4

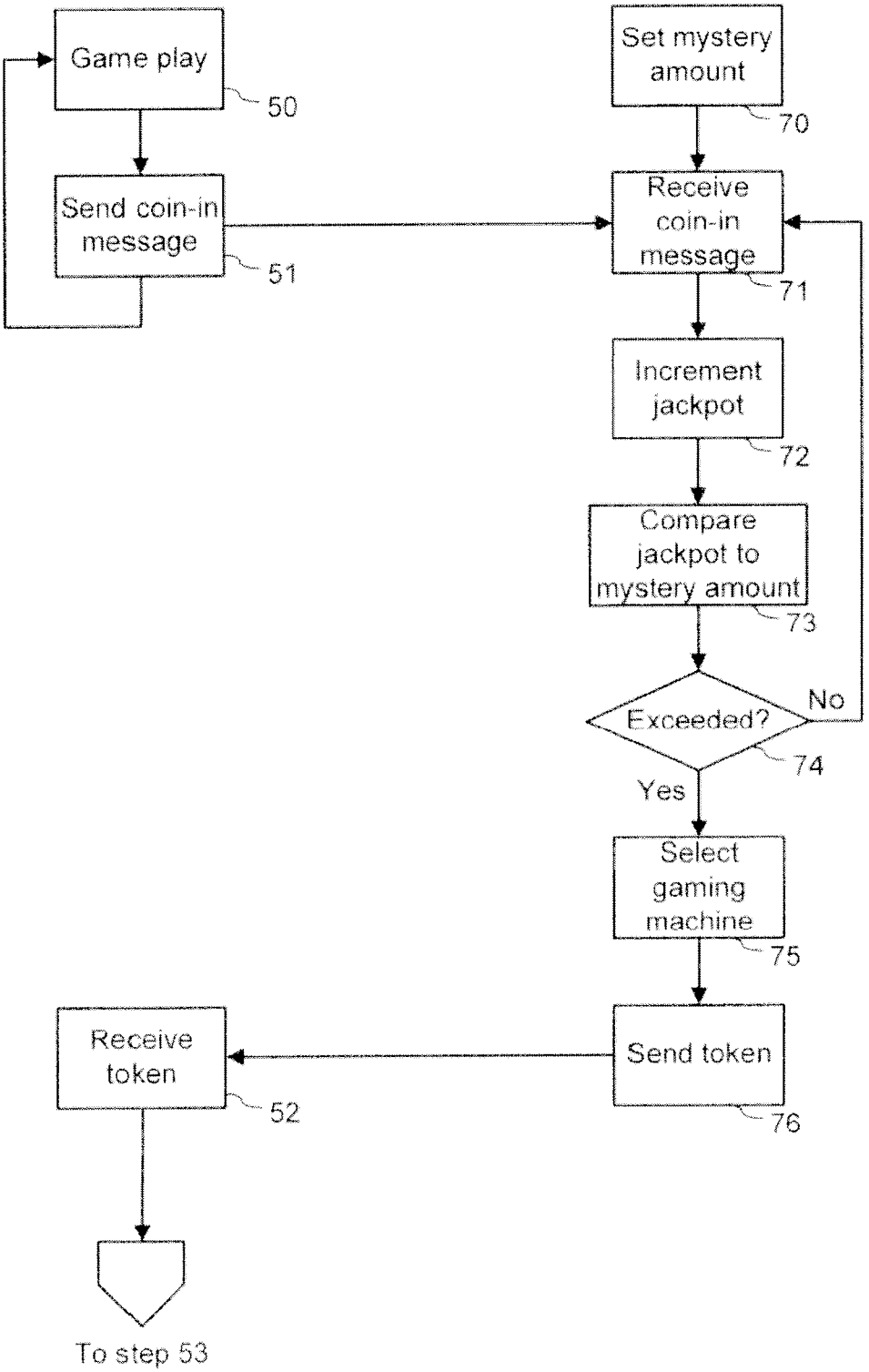
Game play
50
Send coin-in message
51
Set mystery amount
70
Receive coin-in message
71
Increment jackpot
72
Compare jackpot to mystery amount
73
Exceeded?
74
No
Yes
Select gaming machine
75
Send token
76
Receive token
52
To step 53

Figure 5A

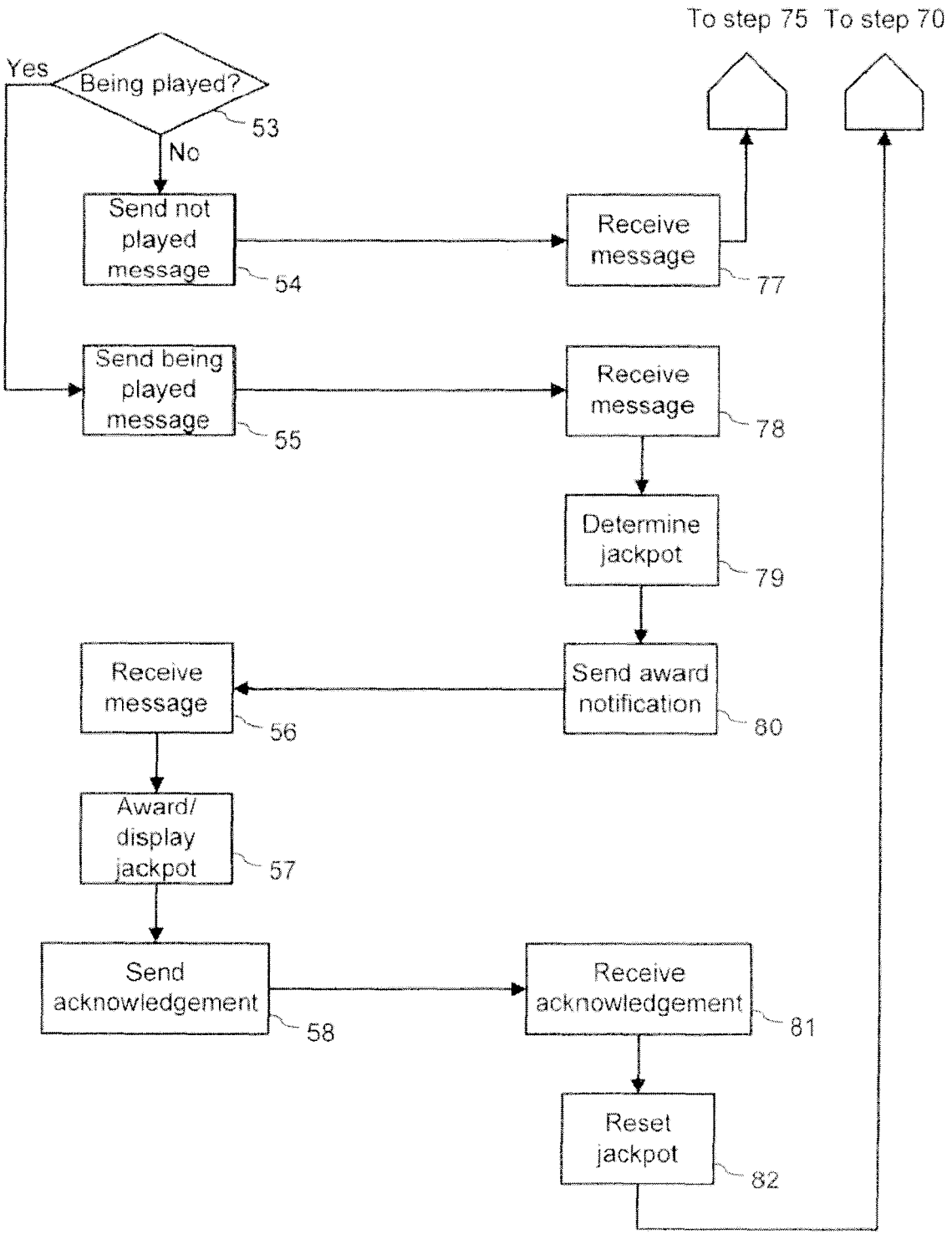
To step 75
To step 70
Yes
Being played?
53
No
Send not played message
54
Receive message
77
Send being played message
55
Receive message
78
Determine jackpot
79
Receive message
56
Send award notification
80
Award/ display jackpot
57
Send acknowledgement
58
Receive acknowledgement
81
Reset jackpot
82

Figure 5B

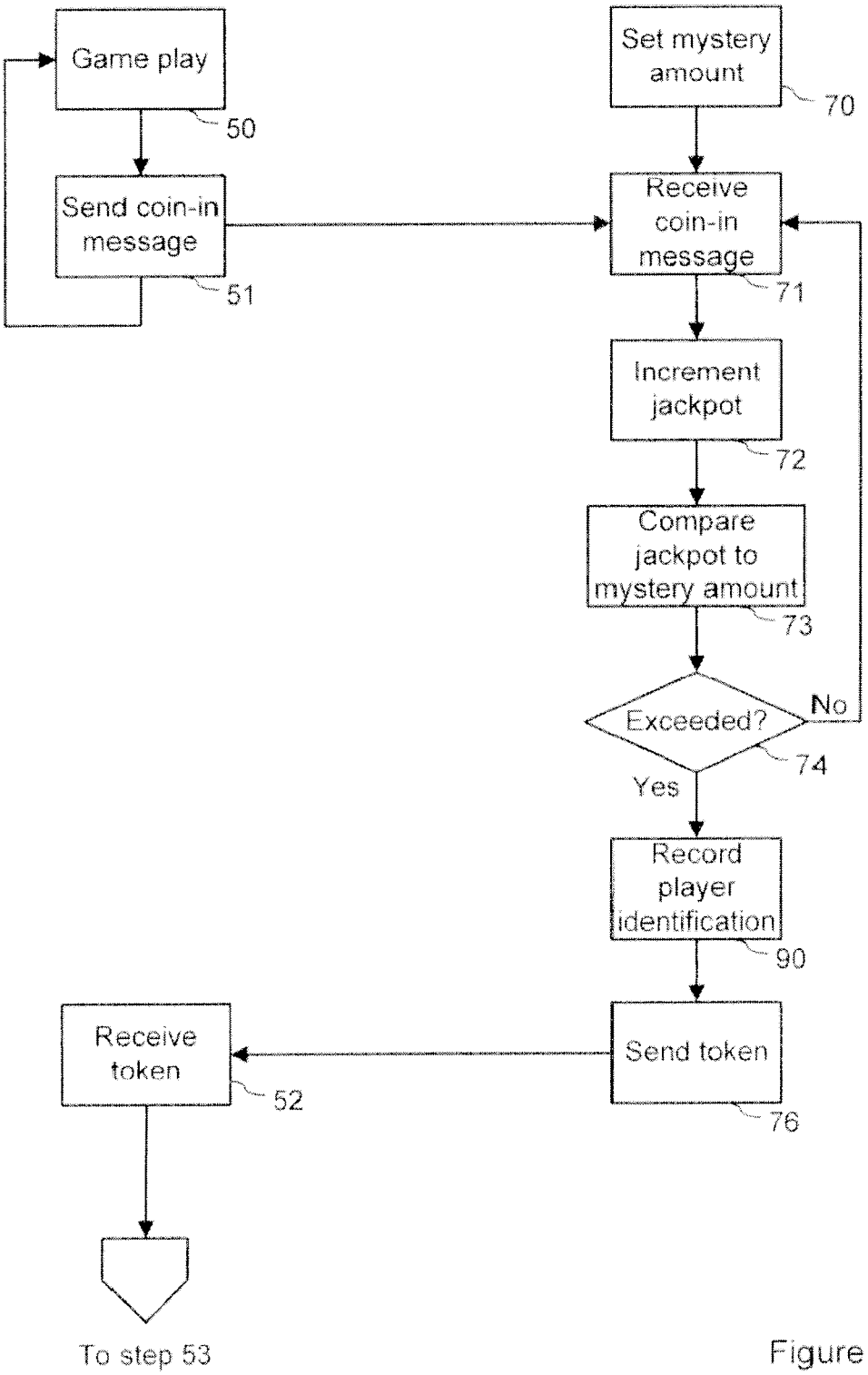
Game play
50
Send coin-in message
51
Set mystery amount
70
Receive coin-in message
71
Increment jackpot
72
Compare jackpot to mystery amount
73
Exceeded?
74
No
Yes
Record player identification
90
Send token
76
Receive token
52
To step 53

Figure 6A

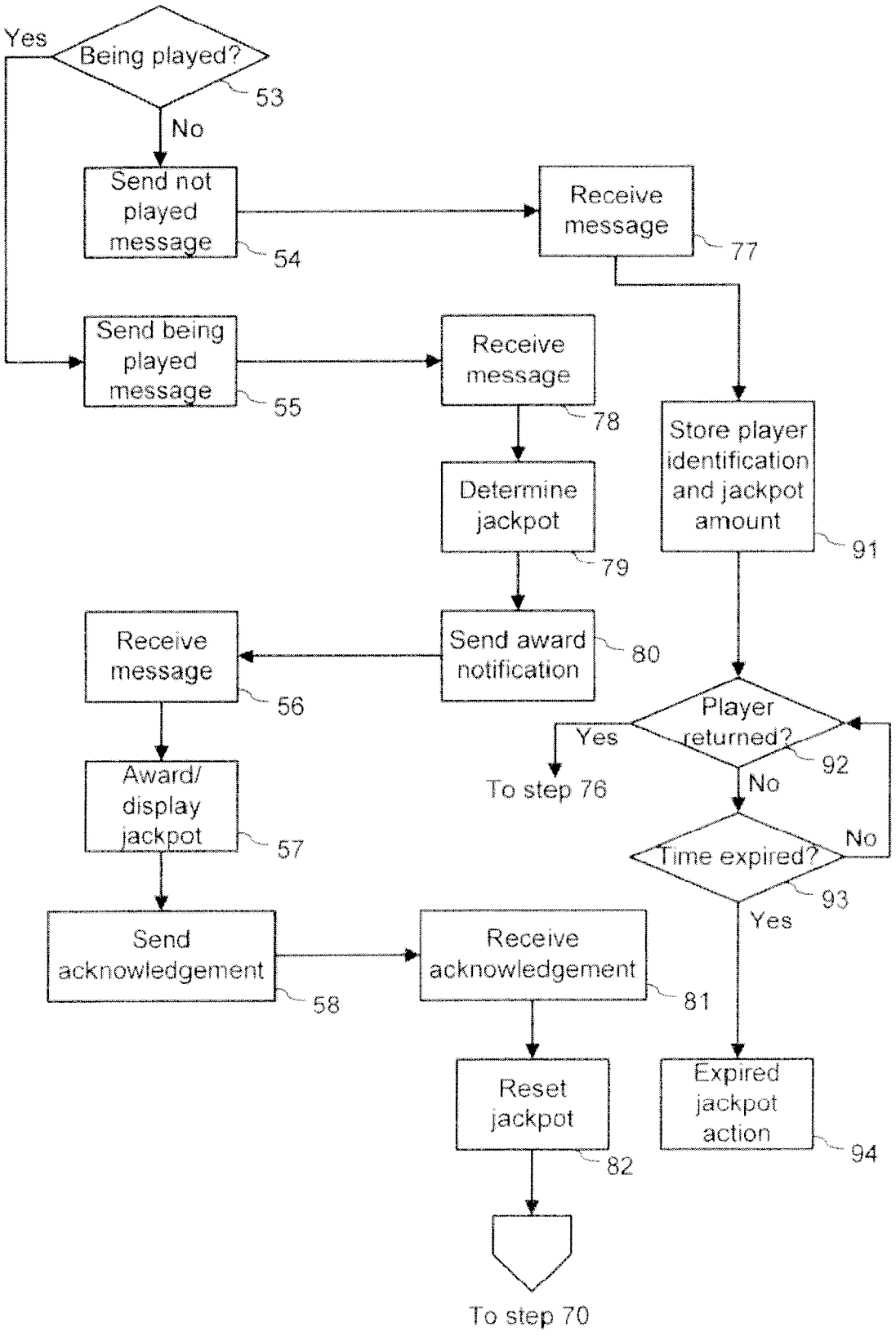
Yes
Being played?
53
No
Send not played message
54
Receive message
77
Send being played message
55
Receive message
78
Store player identification and jackpot amount
91
Determine jackpot
79
Receive message
56
Send award notification
80
Player returned?
92
Yes
To step 76
No
Award/ display jackpot
57
Time expired?
93
No
Yes
Send acknowledgement
58
Receive acknowledgement
81
Reset jackpot
82
Expired jackpot action
94
To step 70

Figure 6B

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 10 6996

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 855 515 A (PEASE LOGAN L [US] ET AL) 5 January 1999 (1999-01-05) * the whole document *	1-22	INV. G07F17/32
X	WO 2004/095383 A (IGT RENO NEV [US]; WELLS WILLIAM R [US]; MATTICE HAROLD E [US]; GRISWO) 4 November 2004 (2004-11-04) * page 6, lines 9-31 * * page 7, lines 1-9 * * page 8, lines 19-22 * * page 14, lines 28-30 * * page 15, lines 30,31 * * page 17, lines 22,23 * * page 19, lines 4-8 * * page 20, lines 8,9 *	1-22	

TECHNICAL FIELDS SEARCHED (IPC)

G07F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	27 July 2007	Verhoef, Peter

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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L : document cited for other reasons

& : member of the same patent family, corresponding document

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 07 10 6996

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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27-07-2007

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		EP 1606776 A1	21-12-2005
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82