



(86) Date de dépôt PCT/PCT Filing Date: 1995/02/21
(87) Date publication PCT/PCT Publication Date: 1995/08/24
(45) Date de délivrance/Issue Date: 2006/08/01
(85) Entrée phase nationale/National Entry: 1996/08/21
(86) N° demande PCT/PCT Application No.: US 1995/001818
(87) N° publication PCT/PCT Publication No.: 1995/022811
(30) Priorité/Priority: 1994/02/22 (US200,121)

(51) Cl.Int./Int.Cl. *G07F 17/32* (2006.01)

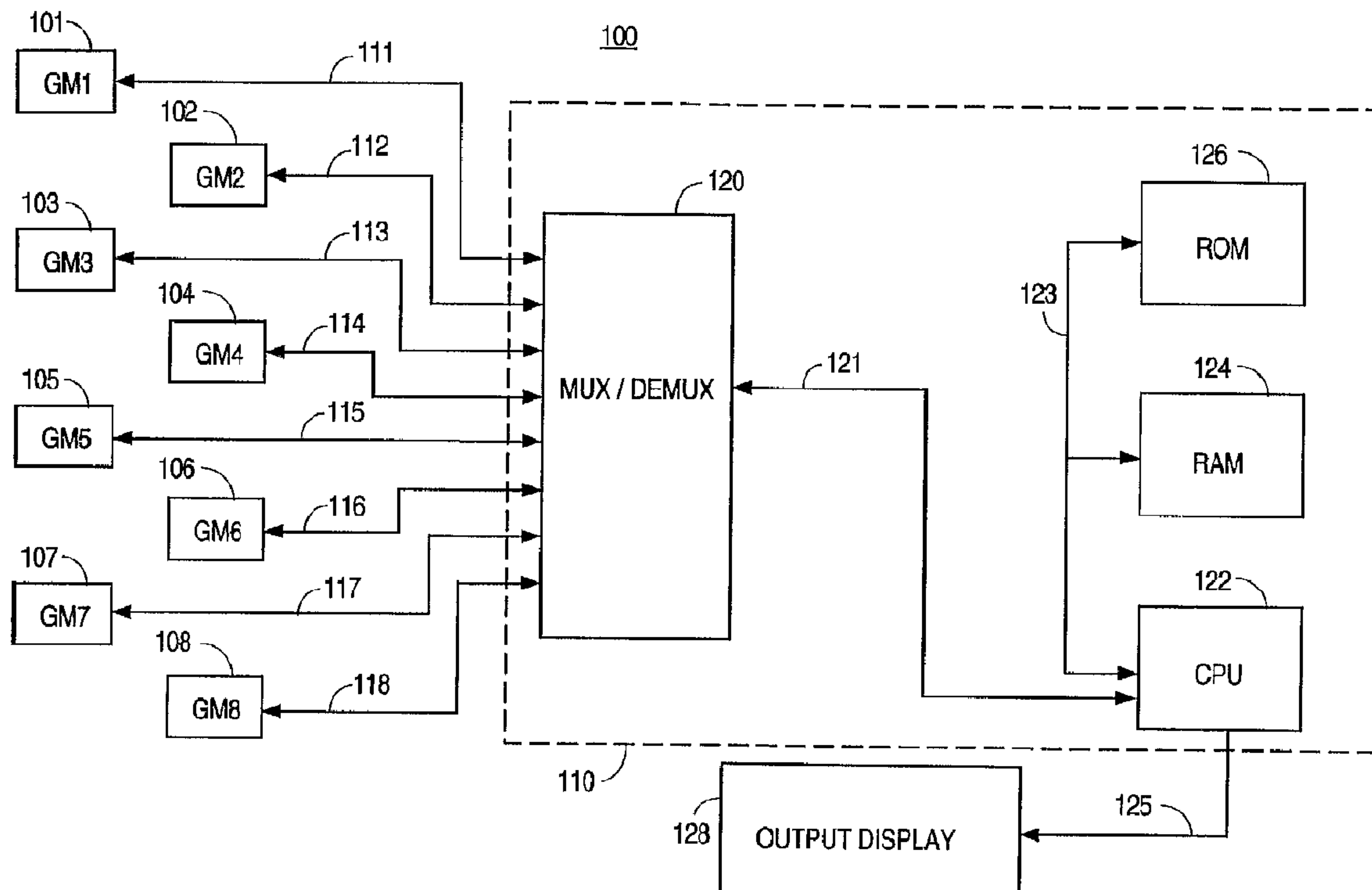
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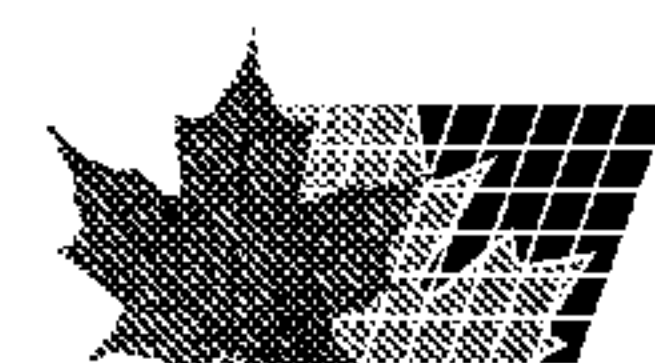
(54) Titre : **MACHINES A SOUS INTERCONNECTEES A CONTROLEUR COMMUN**

(54) Title: **LINKED GAMING MACHINES HAVING A COMMON FEATURE CONTROLLER**



(57) **Abrégé/Abstract:**

The preferred embodiment of the present invention operates on a system of interconnected gaming machines. In a normal operation mode, the individual machines provide awards to individual players based on the generation of symbol combinations in a first group of symbol combinations. The linked gaming machines are polled by a feature controller to determine whether symbol combinations in a second group of combinations are generated. These symbol combinations in the second group of combinations are accumulated until a level is reached such that a bonus award will be given to the next player whose machine generates a symbol combination within said second group of symbol combinations. The first machine to generate a winning symbol combination within said second group of symbol combinations is given a bonus award. The feature is then reset. The status of the feature is displayed for all players of the linked gaming machines.



ABSTRACT OF THE DISCLOSURE

The preferred embodiment of the present invention operates on a system of interconnected gaming machines. In a normal operation mode, the individual machines provide awards to individual players based on the generation of symbol combinations in a first group of symbol combinations. The linked gaming machines are polled by a feature controller to determine whether symbol combinations in a second group of combinations are generated. These symbol combinations in the second group of combinations are accumulated until a level is reached such that a bonus award will be given to the next player whose machine generates a symbol combination within said second group of symbol combinations. The first machine to generate a winning symbol combination within said second group of symbol combinations is given a bonus award. The feature is then reset. The status of the feature is displayed for all players of the linked gaming machines.

LINKED GAMING MACHINES HAVING
A COMMON FEATURE CONTROLLER

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FIELD OF THE INVENTION

The present invention relates to electronic gaming devices. More particularly, the present invention
10 relates to controlling features available to linked electronic gaming machines.

BACKGROUND OF THE INVENTION

Modern gaming machines are typically
15 electronically controlled, as opposed to mechanically controlled. For example, U.S. Patent No. 4,095,795 to Saxton et al., incorporated herein by reference, discloses a slot machine having a computer which randomly generates a series of numbers corresponding to
20 stopping positions of each reel in the machine. After causing the reels to rotate for a period of time, the machine then stops the reels at their previously determined stopping positions.

This general type of computer controlled gaming
25 machine allows similar gaming machines to be electronically linked together to share a common jackpot. This is because the final game results and the jackpot award can be electronically communicated between a central jackpot controller and the various
30 linked gaming machines. Progressive jackpot gaming systems, comprised of one or more interconnected gaming machines which award a progressive jackpot award, are well known. By allowing players to win a large progressive jackpot award in addition to the customary
35 payout for winning combinations, the players enjoy a heightened interest and enthusiasm in the gaming machines. This heightened enthusiasm translates into

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higher revenue for gaming machine proprietors. U.S. Patent No. 4,837,728 to Barrie et al., incorporated herein by reference, describes one such progressive gaming system comprised of linked slot machines. The circuitry and software used to fabricate and operate these conventional linked gaming machines are well known to those skilled in the art.

SUMMARY OF THE INVENTION

A preferred embodiment of the present invention operates on a system of interconnected gaming machines. In a normal operation mode, the individual machines provide awards to individual players based on the generation of symbol combinations in a first group of symbol combinations. The linked gaming machines are polled by a feature controller to determine whether symbol combinations in a second group of combinations are generated. These symbol combinations in the second group of combinations are accumulated until a level is reached such that a bonus award will be given to the next player whose machine generates a symbol combination within said second group of symbol combinations. The first machine to generate a winning symbol combination within said second group of symbol combinations is given a bonus award. The feature is then reset. The status of the feature is displayed for all players of the linked gaming machines.

According to one aspect of the invention, there is provided a method of operating a system of linked gaming machines, said method comprising the steps of: generating and displaying one or more combinations of symbols in a first group of combinations by one or more of said linked gaming machines, a linked gaming machine which displays any

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of said combinations in said first group of combinations providing an award to a player; generating and displaying one or more combinations of symbols in a second group of combinations by one or more of said linked gaming machines, 5 said second group of combinations being different from said first group of combinations; polling said linked gaming machines to receive information from said linked gaming machines regarding the generation of combinations in said second group of combinations by any of said linked gaming 10 machines; displaying a current status of said generation of combinations in said second group of combinations by any of said linked gaming machines; generating and displaying a first combination of symbols within said second group of combinations by a first one of said linked gaming machines; 15 determining whether said current status together with the generation of said first combination meets an award criterion; and providing an award, if said current status together with said generation of said first combination meets said award criterion, by said first one of said linked 20 gaming machines.

There is also provided a system of linked gaming machines comprising: awarding circuitry within each of said linked gaming machines for providing an award to a player of a linked gaming machine which generated a combination of 25 symbols within a first group of combinations; a feature controller coupled to each of said linked gaming machines for polling said linked gaming machines and for communicating a common status to all of said linked gaming machines based upon generation of combinations of symbols 30 within a second group of combinations by any of said linked gaming machines; means for determining whether said status together with a most recent generation of a combination of symbols within said second group of combinations by a linked

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gaming machine meets an award criterion; means for providing
an indication to said linked gaming machine which generated
said most recent generation of said combination of symbols
in said second group of combinations, and which caused said
5 award criterion to be met, to pay an award to a player; and
a display device for displaying said common status to all
players of said linked gaming machines.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates one embodiment of a circuit
10 which may be used to implement the present invention.

Figure 2 is a flowchart which shows the basic

steps used in one embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 illustrates a linked gaming system 100 which incorporates the present invention. Other circuitry for implementing the invention may also be used. The system 100 includes linked gaming machines 101-108 (which may be conventional electronically operated slot machines), multiplexer/de-multiplexer circuit (MUX) 120, central processing unit (CPU) 122, random access memory (RAM) 124, read only memory (ROM) 126, and output display device 128. MUX 120 may be replaced with an address/data bus and suitable decoders within the gaming machines 101-108 so that the gaming machines 101-108 can be addressed using digital codes. The circuit within the dashed line will be referred to as a feature controller 110.

Linked gaming machines 101-108 transmit game information to and receive feature information from feature controller 110 through MUX 120 (or a suitable address/data bus) via bi-directional communication lines 111-118. Such game information may include digital codes representing a final displayed combination of symbols in a slot machine. Such digital codes are normally generated in conventional slot machines for addressing an award table stored in a memory in the slot machine. CPU 122 controls MUX 120 and receives/transmits data from/to the gaming machines 101-108 via communication lines 121.

CPU 122, RAM 124, and ROM 126 are connected together via communication lines 123 and control the operation of gaming system 100. RAM 124 is used to temporarily store data generated by CPU 122. CPU 122 is coupled to and controls output display 128 via lines 125. The operation of feature controller 110 is controlled by a program stored in ROM 126. The

circuitry used in feature controller 110 to carry out the programmed instructions would be known by those skilled in the art after reading this disclosure.

Figure 2 is a flow chart illustrating an operation of a linked gaming system 100 in accordance with an embodiment of the present invention. Such an operation may be controlled by a program stored in ROM 126.

The system 100 is powered up in a start step 200. During normal operation of the gaming system 100, feature controller 110 disables one or more of the particular features under the command of the feature controller 110 (step 202). Gaming machines 101-108 may operate independently of each other during this normal operation mode and award wins based upon a normal payout criteria stored in either ROM 126 of feature controller 110 or in a memory (i.e., an award table) contained within each of the linked gaming machines. Feature controller 110 periodically polls each of the gaming machines 101-108, using MUX 120 (or an address/data bus) and using conventional polling techniques, for game results generated in each of the linked gaming machines (step 204). Polling may be performed by sequentially accessing the gaming machines 101-108 in the system and reading the current game results. If the feature has not yet been enabled (step 206) by the feature controller 110, gaming machines 101-108 continue normal operation (step 208).

In step 210, feature controller 110 compares the game results of each gaming machine 101-108 polled to feature enabling criteria stored in ROM 126 (or elsewhere) to determine whether one or more predetermined features should be enabled. The feature enabling criteria may consist of any of a variety of conditions. For example, in one embodiment, a criterion for enabling the feature may be a specified number of occurrences of a predetermined combination of

indica displayed by the gaming machines 101-108. Thus, for example, the feature may be enabled for a system of linked slot machines when four like symbols have been displayed a total of four times by the linked slot machines.

If the feature controller 110 determines in step 210 that the feature enabling criteria has not been met (e.g., the game results indicate that four-of-a-kind have not yet been generated four times by linked gaming machines 101-108), the feature remains disabled and the linked gaming machines 101-108 are again polled (step 204). Steps 204, 206, 208, and 210 are repeated until the game results generated by one or more of linked gaming machines 101-108 meet the feature enabling criteria.

If the feature enabling criteria has been met (step 210) by the game results, feature controller 110 enables the feature (step 212), and this enabled feature is now prominently displayed (step 213) by output display 128 to attract new players and heighten excitement. At this point, the feature is made available to all linked gaming machines 101-108. The various players now play the gaming machines 101-108 having the enabled features. Feature controller 110 again polls each of linked gaming machines 101-108 (step 204) and, with the feature now enabled (step 206), determines whether the feature award criteria stored in ROM 126 has been met by any of the polled machines (step 214). Feature controller 110 then awards a win, based upon the enabled feature, to the first linked gaming machine to generate a game result which matches the feature award criteria (step 216). In one embodiment, the feature operates to double the award normally associated with a certain game result (e.g., four-of-a-kind).

Instead of the feature controller 110 determining

a win based on the polled game results and communicating the award amount to the gaming machine, feature controller 110 could modify the award table in each of the gaming machines 101-108, via communication
5 lines 111-118, to reflect the enable feature. The gaming machine would then compare its game result to the award table and then provide a corresponding award. In this embodiment, feature controller 110 would still poll the various gaming machines to determine whether
10 the feature should be enabled or disabled in the various award tables.

After a match is found and a win awarded (step 216) in accordance with the feature, the feature is then disabled (step 202) and all linked gaming machines
15 101-108 return to normal operation. Gaming machines 101-108 will remain in normal operation until feature controller 110 again enables the feature (step 212).

If no game result of linked gaming machines 101-108 matches the feature award criteria, steps 204, 206,
20 and 214 are repeated until one of linked gaming machines 101-108 is awarded a win based upon the feature. In another embodiment, the feature is automatically disabled after a period of time. This period of time may be displayed by display 128.

25 In accordance with the present invention, both the feature award criteria and the feature enabling criteria may embody various conditions in addition to those previously discussed. For instance, in some embodiments the feature enabling criteria stored in ROM
30 126 (or elsewhere) may be a predetermined lapse of time between periods during which the feature has been disabled; for example, feature controller 110 may enable the feature 10 minutes after the feature was last disabled.

35 To attract more non-player interest in the gaming machines, the feature enabling criteria may be a

predetermined lapse of time during which one or more of linked gaming machines 101-108 has not been played. And in yet another embodiment, the feature is enabled in a purely random manner.

5 Similarly, the feature award criteria stored in ROM 126 may take on many forms. For example, the feature award criterion may be the display by one of the linked gaming machines 101-108 of a certain combination of symbols (e.g., four-of-a-kind), in which
10 case the feature will award an enhanced amount (i.e., a bonus). The feature may even offer the gaming machine players a greater variety of winning possibilities, thereby increasing player interest in the linked gaming system 100. Hence, the feature award criteria may be a
15 special or randomly chosen combination of symbols which will incur an enhanced award being given to the player. In another embodiment, the feature may provide a more nonconventional award by the linked gaming device meeting the feature award criteria, such as free game
20 credits or other prizes.

 It is to be understood that the embodiments described above as applied to linked gaming machines which display symbols on drums or reels can also be applied to machines in which the indicia are displayed
25 on video screens, as well as to other video displayed games, including but not limited to poker gaming machines, blackjack gaming machines, and roulette gaming machines.

 While particular embodiments of the present
30 invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects and, therefore, the appended claims are to encompass within their scope all
35 such changes and modifications as fall within the true spirit and scope of this invention.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method of operating a system of linked gaming machines, said method comprising the steps of:

generating and displaying one or more combinations of symbols in a first group of combinations by one or more of said linked gaming machines, a linked gaming machine which displays any of said combinations in said first group of combinations providing an award to a player;

generating and displaying one or more combinations of symbols in a second group of combinations by one or more of said linked gaming machines, said second group of combinations being different from said first group of combinations;

polling said linked gaming machines to receive information from said linked gaming machines regarding the generation of combinations in said second group of combinations by any of said linked gaming machines;

displaying a current status of said generation of combinations in said second group of combinations by any of said linked gaming machines;

generating and displaying a first combination of symbols within said second group of combinations by a first one of said linked gaming machines;

determining whether said current status together with the generation of said first combination meets an award criterion; and

providing an award, if said current status together

with said generation of said first combination meets said award criterion, by said first one of said linked gaming machines.

2. The method of claim 1 wherein said step of polling is performed by a controller common to all of said linked gaming machines.

3. The method of claim 1 wherein said combinations within said second group of combinations have some combinations in common with said combinations in said first group of combinations.

4. The method of claim 1 wherein said combinations within said second group of combinations have no combinations in common with said combinations in said first group of combinations.

5. The method of claim 1 wherein said status is reset upon said award criterion being met.

6. The method of claim 1 wherein said step of displaying said one or more combinations of symbols in said first group of combinations and said step of displaying said one or more combinations of symbols in said second group of combinations are performed by rotating reels in each of said linked gaming machines.

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7. The method of claim 1 wherein each of said linked gaming machines has a video display for displaying said one or more combinations of symbols in said first group and said second group.

5 8. A system of linked gaming machines comprising:

awarding circuitry within each of said linked gaming machines for providing an award to a player of a linked gaming machine which generated a combination of symbols within a first group of combinations;

10 a feature controller coupled to each of said linked gaming machines for polling said linked gaming machines and for communicating a common status to all of said linked gaming machines based upon generation of combinations of symbols within a second group of
15 combinations by any of said linked gaming machines;

means for determining whether said status together with a most recent generation of a combination of symbols within said second group of combinations by a linked gaming machine meets an award criterion;

20 means for providing an indication to said linked gaming machine which generated said most recent generation of said combination of symbols in said second group of combinations, and which caused said award criterion to be met, to pay an award to a player; and

25 a display device for displaying said common status to all players of said linked gaming machines.

9. The system of claim 8 wherein said combinations of symbols within said second group of combinations have some combinations in common with said first group of combinations.

10. The system of claim 8 wherein said combinations of symbols within said second group of combinations have no combinations in common with said combinations in said first group of combinations.

11. The system of claim 8 wherein said feature controller resets said common status upon said award criterion being met.

12. The system of claim 8 wherein each of said linked gaming machines displays rotating reels for generating said one or more combinations of symbols in said first group of combinations and said one or more combinations of symbols in said second group of combinations.

13. The system of claim 8 wherein each of said linked gaming machines has a video display for displaying said one or more combinations of symbols in said first group and said second group.

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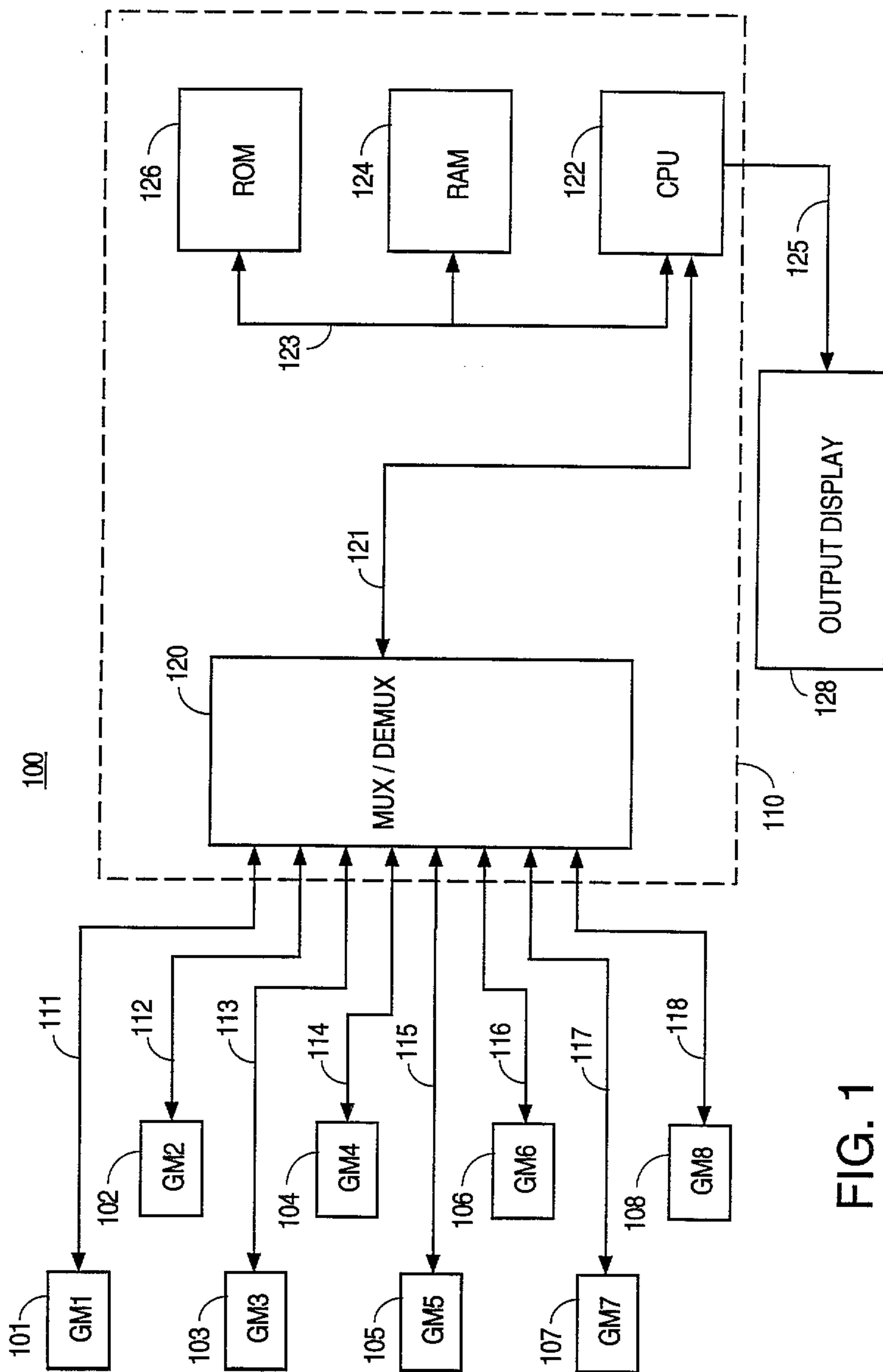


FIG. 1

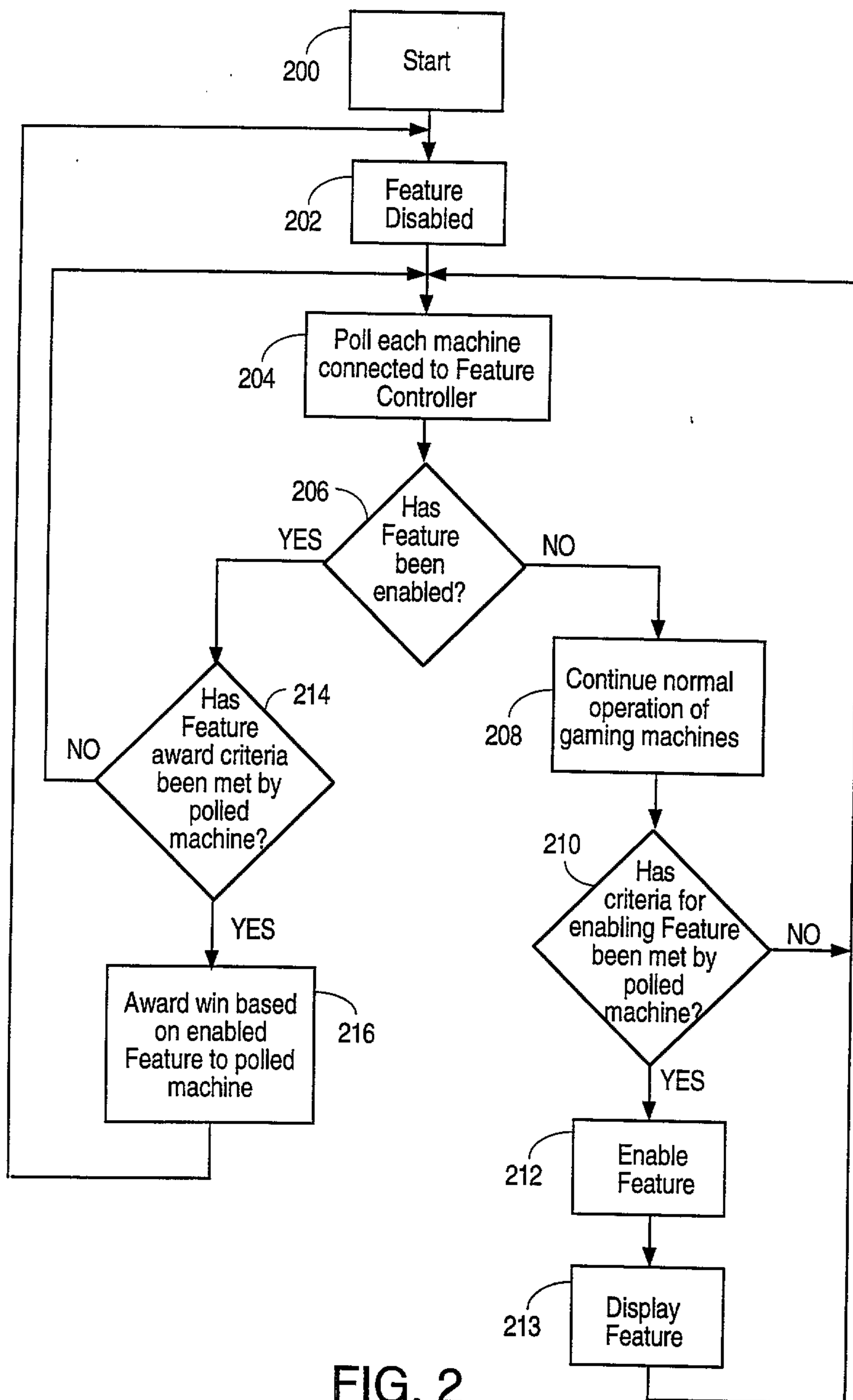


FIG. 2

