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(54) **Methods and apparatus for managing stored cash value for use in gaming transactions**

(57) Systems and techniques for managing stored cash value in gaming operations. A server (102) stores patron account information relating to a stored cash value account, with the stored cash value account information being usable for gaming transactions using a gaming machine (118) belonging to a gaming machine network and communicating with the server (102). The server (102) communicates with a stored cash value transaction machine (116) allowing the patron to deposit currency for

credit to the stored cash value account and to make redemptions from the account. The account may be associated with a token that can be presented at gaming machines (118) for play and at the stored cash value transaction machine (116) for deposits and redemptions. In addition, a loyalty account may also be associated with the token, so that presentation of the token allows for identification of the loyalty account for credit based on play and for reward redemption.

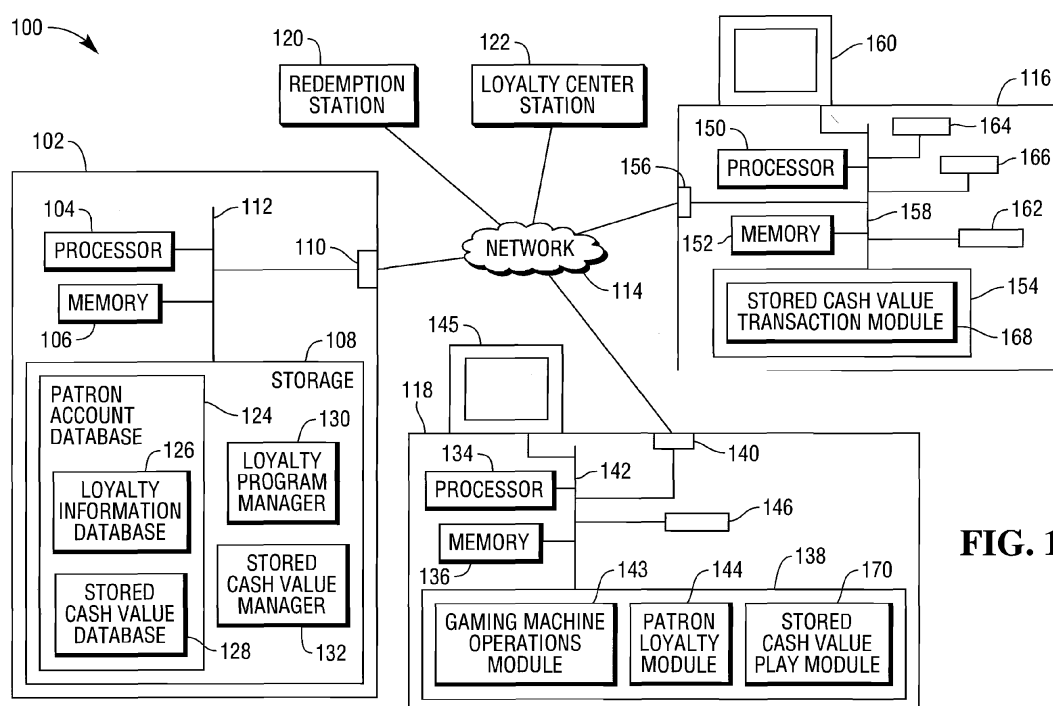


FIG. 1

Description

[0001] The present invention relates generally to improved systems and techniques for management of stored value. More particularly, the invention relates to improved systems and techniques for managing transactions for deposit, redemption, and use of reloadable stored cash value information for use in gaming machines.

[0002] The increased use and acceptance of identification tokens, such as magnetic or smart cards, among consumers has manifested itself in many ways. In the gaming industry, loyalty cards are used to track the play of patrons, particularly gaming machine patrons, and to store value and status information. Patrons may be awarded points or cashback in exchange for gaming activity, with the cashback being redeemable for play at machines or for cash at a redemption station, and with points being convertible to cash, points, meals, prizes, or other benefits.

[0003] A patron typically conducts play at a gaming machine by inserting cash into a cash acceptor of the machine. The machine registers an amount of credit equal to the cash inserted, and the patron is allowed to play using the credit. When the patron wishes to stop or interrupt playing, the patron may redeem the credit, and the machine delivers value to the patron in cash or, more typically in recent years, in the form of a ticket or other token which can be redeemed for cash at a redemption machine.

[0004] The practice of accepting cash at each gaming machine results in a wide distribution of cash throughout the gaming floor. Cash collection must be conducted by going to each machine and opening the machine to remove the cash. This process requires appropriate security and accountability at each machine and carries significant expense.

[0005] According to a first aspect of the present invention there is provided a server, comprising: a computer memory for storing patron account information relating to a stored cash value account, the patron account information including stored cash value information representing deposits of currency using a stored cash value transaction machine communicating with the server, the stored cash value being increased or decreased by transfers between gaming machine credit and stored cash value based on transactions undertaken at a gaming machine used by the patron and communicating with the server; a communication interface for transmitting and receiving data relating to the stored cash value account; and a processor for examining transaction information relating to the stored cash value and crediting or debiting the stored cash value account of the patron based on patron deposits and redemptions at a stored cash value transaction machine communicating with the server and transfers of machine credit to or from a gaming machine being used by the patron and communicating with the server.

[0006] Optionally, the computer memory further stores patron loyalty account information associated with the patron.

5 **[0007]** Optionally, the processor updates the patron loyalty account information based on information received from gaming machines played by the patron indicating the patron's play.

10 **[0008]** Optionally, the processor is operative to maintain token information associated with a physical token identifying the stored cash value account and the loyalty program account of the patron and to verify authentication information associated with the patron stored cash value account when the patron presents the token to conduct a transaction involving the patron's stored cash value account.

15 **[0009]** Optionally, the processor is operative to request and verify authentication information whenever the patron requests a transfer of stored cash value to machine credit during a session at a gaming machine.

20 **[0010]** Optionally, the processor is operative, upon the patron's request to conclude a gaming session at a gaming machine, to credit the user's stored cash value account with the gaming credit of the gaming machine.

25 **[0011]** According to a second aspect of the invention there is provided a method of stored cash value management, comprising the steps of: creating a stored cash value account for a gaming patron, the stored cash value account being associated with information stored in a computer memory and relating to stored cash value usable for gaming in a network of gaming machines; crediting and debiting the stored cash value account in response to deposit and redemption transactions at a stored cash value transaction machine; and controlling a processor to transfer stored cash value between the stored cash value account and machine credit available for play at a gaming machine in response to patron transactions at a gaming machine belonging to the network.

30 **[0012]** Optionally, the stored cash value account is associated with an identification token issued to the patron and wherein deposit and redemption transactions at the stored cash value transaction machine and patron transactions at the gaming machine require presentation of the identification token.

35 **[0013]** Optionally, the method further comprises a step of controlling the processor to request and verify authentication information before allowing a transaction involving the redemption or use of stored cash value.

40 **[0014]** Optionally, the method further comprises a step of controlling the processor to request and verify authentication information at each request by a patron to transfer stored cash value to machine credit during a gaming session at a gaming machine.

45 **[0015]** Optionally, the method further comprises a step of controlling the processor to suspend the patron's stored cash value account upon failure to verify authentication information following a request to transfer stored cash value to gaming machine credit.

50 **[0016]** Optionally, the method further comprises a step

of controlling the processor to restore the patron's stored cash value account upon verification by a gaming establishment employee of the identity of the patron.

[0017] Optionally, the method further comprises the steps of creating a loyalty account for the patron, the loyalty account being associated with the identification token, and controlling the processor to credit the loyalty account based on the patron's play at gaming machines belonging to the network and debit the loyalty account based on redemptions for loyalty awards.

[0018] According to a third aspect of the present invention there is provided a server comprising: a computer memory for storing patron account information relating to a stored cash value account, the patron account information including stored cash value information representing deposits of currency using a stored cash value transaction machine communicating with the server and available for cash redemptions at the stored cash value transaction machine, the stored cash value being increased or decreased by transfers between gaming machine credit and stored value based on transactions undertaken at a gaming machine used by the patron and communicating with the server; a communication interface for transmitting and receiving data relating to the stored value account, including transmitting data to and receiving data from a stored cash value transaction machine and a gaming machine; and a processor for examining transaction information relating to the stored value and crediting or debiting the stored value account of the patron based on notifications by the stored cash value transaction machine of patron deposits or redemptions and notifications by a gaming machine of transfers between the stored value account of the patron and machine credit available for play at the gaming machine being used by the patron and communicating with the server.

[0019] Optionally, the communication interface is further operative to receive patron signup information identifying the patron and wherein the processor is operative to establish the patron stored cash value account based on the signup information.

[0020] Optionally, the processor is further operative to establish a patron loyalty account associated with the stored cash value account.

[0021] Optionally, the processor is operative to create an identifier for the stored cash value account based on identification information readable from a physical token and to access the stored cash value account upon receiving the identification information read from the physical token.

[0022] Optionally, the processor is further operative to request authentication information upon receiving the identification information and to allow transactions using the stored cash value account only upon verification of the identification information. Optionally, the authentication information is a personal identification number. Optionally, the authentication information is a biometric input.

[0023] In its several aspects, the present invention addresses stored cash value features, which may be used independently or may be added to the existing gaming loyalty card infrastructure, by establishing a network of stored cash value transaction machines similar to automated teller machines, with the stored cash value transaction machines having access to a central server storing patron and financial information for the gaming establishment. Each gaming machine also has access to the central server and preferably at least some of the gaming machines have no cash acceptance capability, but instead allow gaming based on transfers to or from a stored cash value account associated with the patron's loyalty account. The stored cash value account typically represents cash value which may be used for gaming. The stored cash value account is debited to purchase credit for playing at a machine, and credit remaining on the machine when the patron has finished playing is transferred to the patron's stored cash value account. Stored cash value in the patron's account may be redeemed at appropriate locations at a gaming establishment, and the account may be incremented by making deposits at appropriate locations, such as at one of the stored cash value transaction machines or at an employee assisted station. A patron can also play using stored cash value at a suitably programmed machine that accepts cash, because such machines are typically adapted to accept and read a patron's loyalty card. The same information used to identify the patron's loyalty card account can be used to identify the patron's stored cash value account, and suitable authentication mechanisms, such as a personal identification number (PIN), biometric, or any other desired authentication mechanism for which facilities exist for implementation. The patron's card may be a magnetic stripe card, smart card, or any other form of data storage card, but the stored cash value information is preferably maintained at a central server or other data repository of the gaming establishment in order to provide for convenient and secure deactivation and replacement of lost cards.

[0024] A more complete understanding of the present invention, as well as further features and advantages of the invention, will be apparent from the following specific description, given by way of example, with reference to the accompanying drawings, in which:

Fig. 1 illustrates a system for managing stored cash value in gaming operations according to an embodiment of the present invention; and

Fig. 2 illustrates a process of stored cash value management in gaming operations according to an embodiment of the present invention.

[0025] Reference is first made to Fig. 1, which illustrates a system 100 for management and use of stored cash value in gaming operations according to an embodiment of the present invention. The system 100 includes a server 102 comprising a processor 104, memory 106,

storage 108, and a network interface 110, communicating over a bus 112. The server 102 communicates over a network 114 with a plurality of terminals. An exemplary stored cash value transaction machine 116, gaming machine 118, employee operated redemption station 120, and employee operated loyalty center station 122 are illustrated here. While only a limited number of types of terminals are discussed here for simplicity, and while only a single terminal of each type is discussed, it will be recognized that a wide variety of terminals may be employed, with a large number of terminals of each type, dispersed over a number of geographical locations, such as different gaming establishments operated by the same management or under a common agreement.

[0026] The server 102 maintains a patron account database 124, with each patron record including patron identification information and any other desired information about the patron, such as information about patron preferences, visit frequency, entertainment choices, family details, and other information useful for marketing. The patron account database 124 also includes a loyalty information database 126 and a stored cash value database 128. The patron account database 124 is preferably protected with security measures, such as encryption and access control, appropriate to financial information. If desired, portions of the patron account database, such as marketing information, are less tightly controlled than is access to the more sensitive stored loyalty program information associated with the loyalty information database 126 and the stored cash value database 128. For example, the marketing information may be accessible to more employees than is the loyalty information and stored cash value information. In addition, records in the loyalty information database 126 and the stored cash value database 128 may have their own indexing information, so that a patron identifier must be encoded or otherwise transformed in a secure way to yield information that provides access to the patron's loyalty and stored cash value information.

[0027] The server 102 employs a loyalty program manager 130 and a stored cash value manager 132, both suitably implemented as software residing in storage 108 and transferred to memory 106 as needed for execution by the processor 104. The loyalty program manager 130 sends and receives messages relating to loyalty program information and transactions between the server 102, the stored cash value transaction machine 116, the gaming machine 118, the redemption station 120, and the loyalty station 122. The loyalty program manager 130 receives information relating to account creation and modification, point and reward earning, point and reward redemption, and other information relevant to operating the loyalty program, and updates the patron account database 124 and the loyalty information database 126 as needed based on the interactions between patrons and the various employee operated stations and self service terminals and gaming machines. Typically, a patron provides sign-up information at an employee operated loyalty sta-

tion such as the station 122, and an employee collects and enters personal data relating to the patron and allows the patron to choose or receive an authenticator such as a PIN. The station 122 communicates this information to the server 102, and the loyalty program manager 130 creates an account record, storing patron account information in the database 126.

[0028] A gaming machine such as the gaming machine 118 includes its own processor 134, memory 136, storage 138, network interface 140, and bus 142, and employs a gaming machine operations module 143 and a patron loyalty module 144, managing identification of a patron and crediting of patron loyalty points based on play at the gaming machine 118. The patron loyalty module 144 presents a message on a display 145, inviting a patron to present his or her card. Presentation may be accomplished by inserting a magnetic striped card in a card reader 146, but any number of other mechanisms may be employed. For example, the card may be a contactless card and the reader may detect the card when it is placed within range of the reader. It will also be recognized that numerous other possibilities exist for receiving identification from a patron, such as fingerprint or iris scan recognition, and that such mechanisms may be implemented with or without the accompanying use of a physical token.

[0029] When the card has been read, the patron is invited to enter authenticating information. As the patron plays, the patron loyalty module 144 tracks his or her play and sends point earning information to the server 102. Information may be sent after each transaction, when the patron leaves the gaming machine 118, periodically during play, or as otherwise desired. The loyalty program manager 130 at the server 102 updates the patron's record as appropriate. When the patron's card is removed or the patron otherwise indicates that play is finished, the gaming machine 118 sends information indicating that the play session has been terminated.

[0030] The stored cash value manager 132 allows the server 102 to maintain a stored cash value record, allowing a patron to add value to his or her account at a stored cash value transaction machine such as the machine 116 and to play at machines such as the gaming machine 118 without a need to insert currency into the machine being played. The stored cash value transaction machine 116 suitably includes a processor 150, memory 152, storage 154, network interface 156, and bus 158, as well as a display 160, which may be a touch screen display, and a card reader 162, currency acceptor 164, and currency dispenser 166. The stored cash value transaction machine 116 operates in a way similar to that of an automated teller machine, but does not communicate with the overall banking system. Instead, it facilitates transactions within the gaming establishment or network of gaming establishments implementing the system 100. The stored cash value transaction machine 116 presents an interface inviting a patron to present his or her card, and upon the patron's presentation of the card, a stored

cash value transaction module 168 directs the card reader 162 to read patron identification information from the card. Depending on the design of the system 100, the card reader 162 may be a magnetic stripe or smart card reader, a contactless reader, or any suitable mechanism for reading information from a card or token. It will also be recognized that numerous other possibilities exist for receiving identification from a patron, such as fingerprint or iris scan recognition, and that such mechanisms may be implemented with or without the accompanying use of a physical token.

[0031] The stored cash value transaction module 168 communicates with the stored cash value manager 132 of the server 102 to transmit the card information to the stored cash value manager 132. The stored cash value manager 132 retrieves a patron record associated with the patron identification information, and examines the information to determine if the card is invalid or stolen. If the card is valid, the stored cash value transaction module 168 directs display of a request for the patron to enter or provide authentication information, such as a PIN or biometric input. The stored cash value transaction module 168 directs transmission of the authentication information to the server 102, and the stored cash value manager 132 compares the authentication information against stored information to determine if it is valid. If authentication fails, the patron may be given a specified number of opportunities to submit correct information, and if these fail, the card is invalidated. However, due to the convenience to the patron of obtaining employee assistance in a typically 24 hour gaming establishment, it may be desirable to invalidate the card upon the first failed attempt at authentication and invite the patron to seek assistance from an employee, who would be able to verify the patron's identity and reactivate the card.

[0032] Once authentication has taken place, the stored cash value transaction module 168 presents a transaction interface to the patron, allowing the patron to load his or her account or to receive cash. The patron makes appropriate selections, either choosing to load his or her account and inserting currency into the currency acceptor 164 or choosing to receive cash and specifying the amount of cash to be received. The stored cash value transaction module 168 communicates with the stored cash value manager 132 to relay the patron selections to the stored cash value manager 132. If the patron has chosen to load his or her account, the stored cash value transaction module 168 transmits information indicating the amount of cash inserted, and the stored cash value manager 132 then updates the patron's account record to reflect the amount inserted. The stored cash value manager 132 then transmits the total in the patron's account to the stored cash value transaction module 168, which directs display of the total.

[0033] If a patron wishes to receive cash, the stored cash value transaction module 168 transmits the request to the stored cash value manager 132, which verifies that the credit in the patron's account is sufficient to meet the

request. The stored cash value manager 132 then sends an authorization message authorizing dispensing of the amount. The stored cash value transaction module 168 dispenses the authorized amount and sends a message to the stored cash value manager 132 that the amount has been dispensed. The stored cash value manager 132 then updates the patron record appropriately.

[0034] When a patron wishes to play using stored cash value, the patron presents his or her card at the gaming machine 118 and indicates that he or she wishes to play using stored cash value. The gaming machine operations module 143 invokes a stored cash value play module 170, which presents an interface requesting the patron to provide authenticating information. Upon submission of the authenticating information, the stored cash value play module 170 transmits the authenticating information to the server 102, where it is verified by the stored cash value manager 132. Upon successful verification, the stored cash value manager 132 provides a notification to the loyalty program manager 130 that verification has been successful and provides patron identification information to the loyalty program manager 130. Because the patron's use of the gaming machine 118 increases the patron's loyalty point balance but does not decrease it, the need for security for the patron's loyalty transactions at the gaming machine 118 is not as great as for the stored cash value transactions. Therefore, the responsibility for security is conveniently borne by the stored cash value manager 132.

[0035] Once authentication has been accomplished, the stored cash value play module 170 presents the patron with an interface allowing the patron to transfer credit from the patron stored cash value account to a local account associated with the gaming machine 118. Suitably, each transfer from the patron stored cash value account to the gaming machine 118 requires submission of the patron's authenticating information, so that if a patron leaves his or her card in the gaming machine 118, a different patron finding the card will not be able to transfer funds from the original patron's account.

[0036] The gaming machine operations module 143 controls play, debiting the machine's local account for wagers and crediting the account for wins. When the patron wishes to receive his or her credit from the gaming machine 118, the gaming machine operations module 143 invokes the stored cash value play module 170, which directs the stored cash value manager 132 to credit the patron's stored cash value account and update the patron record accordingly. For security, the stored cash value play module 170 may be designed so that machine credit resulting from play following a withdrawal from a stored value account can only be returned to the patron in the form of credit to the stored cash value account from which the original withdrawal was made, and such credit can be accomplished whether or not the patron's card is present in the machine.

[0037] Fig. 2 illustrates a process 200 of loyalty program and stored cash value management according to

an embodiment of the present invention. The process 200 may suitably be carried out using a system such as the system 100 of Fig. 1.

[0038] At step 202, a patron account is established for one or more patrons, with the patron account of a patron being associated with information stored in a computer memory relating to loyalty program account information and stored cash value account information associated with the patron.

[0039] At step 204, an identification token associated with the patron account is issued to the patron.

[0040] At step 206, upon an approach of a patron to a stored cash value transaction machine accepting deposits, an interface is presented allowing for presentation of the patron's identification token and submission of authenticating information.

[0041] At step 208, upon submission of patron identification and authentication, an interface is presented inviting the patron to make deposits.

[0042] At step 210, deposits submitted at the stored cash value transaction machine are credited to a stored cash value account of the patron.

[0043] At step 212, upon a patron election to use stored cash value at a gaming machine, the patron is invited to present his or her identification token and to submit authenticating information. If incorrect authentication information is presented, the process proceeds to step 214 and the patron account is suspended.

[0044] At step 216, upon successful intervention by a gaming establishment employee, the patron account is reinstated and the process returns to step 212.

[0045] Returning now to step 212, if correct authentication is presented, the process skips to step 218 and the patron is presented with an interface allowing the patron to transfer value from the patron's stored cash value account to gaming machine credit for play on the machine. The patron may make additional transfers as desired, preferably with each transfer requiring submission of the patron's authentication information.

[0046] At step 220, credit is transferred for play on the machine based on the patron's selections.

[0047] At optional step 222, upon insertion of currency in a currency acceptor of the machine, machine credit is added based on the amount of currency inserted.

[0048] At step 224, as the patron plays the machine, machine credit is added or deducted based on the patron's wagers and gaming results.

[0049] At step 226, upon a patron selection to redeem the machine credit of the machine, the patron's stored cash value account is credited in the amount of the machine credit.

[0050] At step 228, the patron's loyalty program account is credited based on the patron's play.

[0051] While the present invention is disclosed in the context of a presently preferred embodiment, it will be recognized that a wide variety of implementations may be employed by persons of ordinary skill in the art consistent with the above discussion and the claims which

follow below.

Claims

1. A server (102) comprising:

a computer memory (106) for storing patron account information relating to a stored cash value account, the patron account information including stored cash value information representing deposits of currency using a stored cash value transaction machine (116) communicating with the server (102), the stored cash value being increased or decreased by transfers between gaming machine credit and stored cash value based on transactions undertaken at a gaming machine (118) used by the patron and communicating with the server (102);

a communication interface (110) for transmitting and receiving data relating to the stored cash value account; and

a processor (104) for examining transaction information relating to the stored cash value and crediting or debiting the stored cash value account of the patron based on patron deposits and redemptions at a stored cash value transaction machine (116) communicating with the server (102) and transfers of machine credit to or from a gaming machine (118) being used by the patron and communicating with the server (102).

2. The server of claim 1, wherein the computer memory (106) further stores patron loyalty account information associated with the patron.

3. The server of claim 1 or 2, wherein the processor (104) updates the patron loyalty account information based on information received from gaming machines (118) played by the patron indicating the patron's play.

4. The server of any preceding claim, wherein the processor (104) is operative to maintain token information associated with a physical token identifying the stored cash value account and the loyalty program account of the patron and to verify authentication information associated with the patron stored cash value account when the patron presents the token to conduct a transaction involving the patron's stored cash value account.

5. The server of any preceding claim, wherein the processor (104) is operative to request and verify authentication information whenever the patron requests a transfer of stored cash value to machine credit during a session at a gaming machine (118).

6. The server of any preceding claim, wherein the processor (104) is operative, upon the patron's request, to conclude a gaming session at a gaming machine (118) and to credit the user's stored cash value account with the gaming credit of the gaming machine. 5
7. A method of stored cash value management, comprising the steps of:
- creating a stored cash value account for a gaming patron, the stored cash value account being associated with information stored in a computer memory (106) and relating to stored cash value usable for gaming in a network of gaming machines (118); 10
- crediting and debiting the stored cash value account in response to deposit and redemption transactions at a stored cash value transaction machine (116); and 15
- controlling a processor (104) to transfer stored cash value between the stored cash value account and machine credit available for play at a gaming machine (118) in response to patron transactions at a gaming machine (118) belonging to the network. 20 25
8. The method of claim 7, wherein the stored cash value account is associated with an identification token issued to the patron and wherein deposit and redemption transactions at the stored cash value transaction machine (116) and patron transactions at the gaming machine (118) require presentation of the identification token. 30
9. The method of claim 7 or 8, further comprising a step of controlling the processor (104) to request and verify authentication information before allowing a transaction involving the redemption or use of stored cash value. 35 40
10. The method of any of claims 7 to 9, further comprising a step of controlling the processor (104) to request and verify authentication information at each request by a patron to transfer stored cash value to machine credit during a gaming session at a gaming machine (118). 45
11. The method of claim 10, further comprising a step of controlling the processor (104) to suspend the patron's stored cash value account upon failure to verify authentication information following a request to transfer stored cash value to gaming machine credit. 50
12. The method of claim 11, further comprising a step of controlling the processor (104) to restore the patron's stored cash value account upon verification by a gaming establishment employee of the identity of the patron. 55
13. The method of any of claims 7 to 12, further comprising the steps of creating a loyalty account for the patron, the loyalty account being associated with the identification token, and controlling the processor (104) to credit the loyalty account based on the patron's play at gaming machines (118) belonging to the network and debit the loyalty account based on redemptions for loyalty awards.

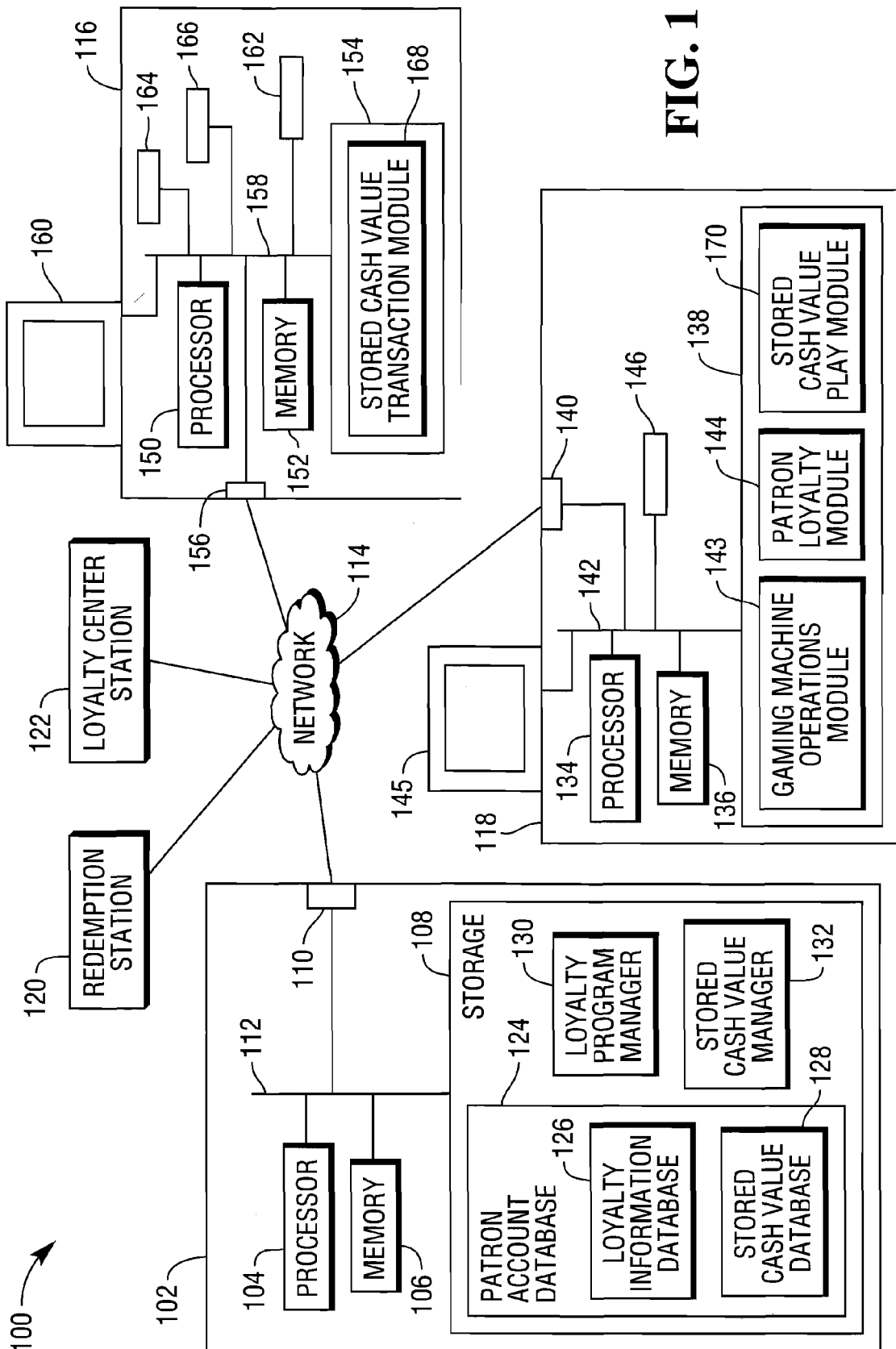


FIG. 1

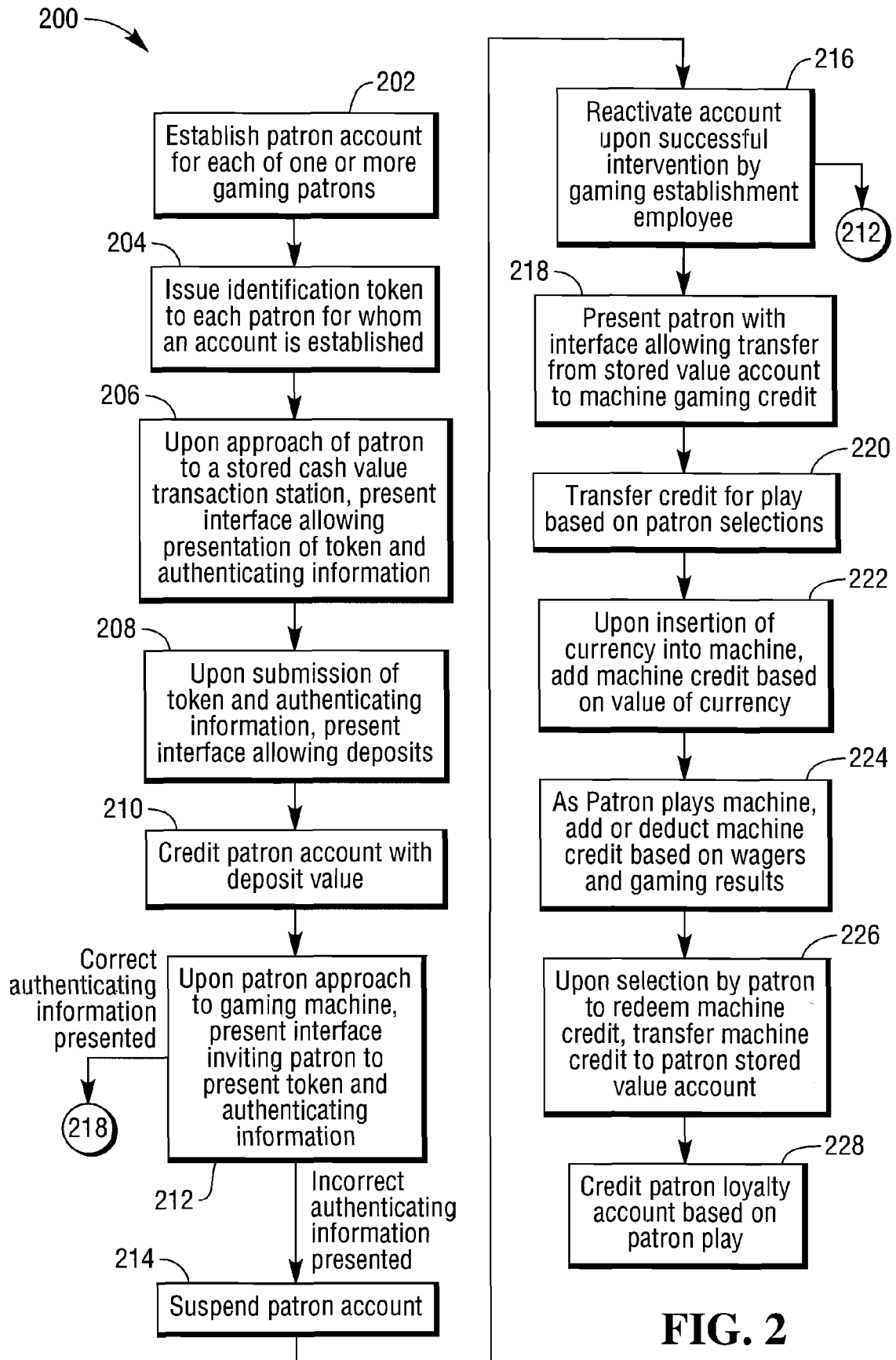


FIG. 2



EUROPEAN SEARCH REPORT

Application Number
EP 10 19 3477

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 March 2011	Examiner Heselius, Per
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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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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