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(54) **MULTIPLE-STATE DISPLAY FOR A GAMING APPARATUS**

MEHRFACHZUSTANDS-ANZEIGE FÜR EINE SPIELVORRICHTUNG

AFFICHAGE À ÉTATS MULTIPLES POUR APPAREIL DE JEUX DE HASARD

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Description

Background

[0001] This patent is directed to a casino gaming apparatus, which could be either an individual gaming unit or a casino gaming system having a plurality of gaming units, each gaming unit including a display system having a light valve.

[0002] Conventional casino gaming units often included multiple display panels for displaying a variety of images. The gaming unit consisted of three, separately located display panels: the top glass, the bottom (or "belly") glass, and the primary display. The top glass and the belly glass were typically static images that provided game instructions, game information (e.g., paytables), images to attract players to the game, or images otherwise associated with the games that could be played on the gaming unit Sometimes, the top glass and/or the belly glass provided bonus games. The primary display has included active images that may vary as part of a player-attract sequence or as part of the game play. Mechanical moving parts were often used to display a variety of images as part of the game play. For example, in a conventional slot machine, the primary display was a "reel glass" having multiple spinning reels with various images on each reel. In some cases, some or all of the display panels were video display units.

[0003] EP-A-1 282 088 discloses a gaming apparatus comprising a video display and a generally flat panel mounted over the video display. The flat panel is selectively transmissive and alternatively a suspended particle device. Further, there may be provided openings in the panel. The gaming apparatus comprises further a value input device and a controller operatively coupled to the display and said value input device and it comprises a processor and a memory operatively coupled to the processor. The controller is programmed to cause the display to generate a game display on said video display so that the game display is visible through the flat panel. Finally, the controller is programmed to determine a value payout associated with an outcome of a game.

Summary of the Invention

[0004] In one aspect, the invention is directed to a gaming apparatus that may include a display system, a value input device and a controller operatively coupled to the display system and the value input device. The display system may include a first display unit, a second video display unit disposed in front of the first display unit and a light valve disposed between the first and second display unit. The second display unit may include an opening. The light valve may include a suspended particle device. The controller may include a processor and a memory operatively coupled to the processor. The controller may be programmed to cause the display system to generate a player attraction display on the second display unit and to cause the suspended particle device to become substantially opaque if the attraction display is generated on the second display so that the first display unit is obscured through the opening of the second display unit. The controller may also be programmed to cause the display system to generate a game display on the first display unit and to cause the suspended particle device to become substantially transparent if the game display is generated on the first display unit so that the game display is visible through the opening of the second display unit. The game display may relate to poker, blackjack, slots, keno or bingo. The controller may further be programmed to cause the display system to generate a bonus game display on the second display unit and to cause the suspended particle device to become substantially opaque if the bonus game display is generated on the second display unit so that the first display unit is obscured through the opening of the second display unit. The controller may additionally be programmed to determine a value payout associated with an outcome of the game and to cause the suspended particle device to become substantially transparent if a non-zero value payout is determined so that at least a portion of the first display unit is visible through the opening of the second display unit.

[0005] In another aspect, the invention is directed to a gaming apparatus which may include a display system, a value input device and a controller operatively coupled to the display system and the value input device. The display system may include a first display unit, a second display unit disposed in front of the first display unit and a light valve disposed between the first and second display units. The second display unit may comprise a video display unit and may include an opening. The controller may include a processor and a memory operatively coupled to the processor. The controller may be programmed to cause the display system to generate a game display on the first display unit, to cause the light valve to become substantially transparent if the game display is generated on the first display unit so that the game display is visible through the opening of the second display unit, to cause the display system to generate a video display on the second display unit, and to determine a value payout associated with an outcome of the game. The game display may relate to poker, blackjack, slots, keno or bingo.

[0006] In a further aspect, the invention is directed to a gaming method which may include causing a game display to be generated on a first display unit, causing a video display to be generated on a second display unit disposed in front of the first display unit, the second display unit comprising an opening, causing a light valve disposed between the first and second display units to become substantially transparent if the game display is generated on the first display unit so that the game display is visible through the opening of the second display unit, and determining a value payout associated with an outcome of the game represented by the video image. The game display may relate to poker, blackjack, slots,

keno or bingo.

[0007] Additional aspects of the invention are defined by the claims of this patent.

Brief Description of the Drawings

[0008]

Fig. 1 is a block diagram of an embodiment of a gaming system in accordance with the invention;
Fig. 2 is a perspective view of an embodiment of one of the gaming units shown schematically in Fig. 1;
Fig. 2A illustrates an embodiment of a control panel for a gaming unit;
Fig. 3 is an exploded perspective view of an embodiment of a display system for the gaming unit of Fig. 2;
Fig. 4 is a block diagram of the electronic components of the gaming unit of Fig. 2;
Fig. 5 is a flowchart of an embodiment of a main routine that may be performed during operation of one or more of the gaming units;
Fig. 6 is a flowchart of an alternative embodiment of a main routine that may be performed during operation of one or more of the gaming units;
Fig. 7 is a flowchart of an embodiment of a display routine that may be performed during operation of the gaming units;
Fig. 8 is an illustration of an embodiment of a visual display that may be displayed during performance of the display routine of Fig. 7;
Fig. 9 is an illustration of an alternative embodiment of a visual display that may be displayed during performance of the display routine of Fig. 7;
Fig. 10 is an illustration of an embodiment of a visual display that may be displayed during performance of the video poker routine of Fig. 12;
Fig. 11 is an illustration of an embodiment of a visual display that may be displayed during performance of the video blackjack routine of Fig. 13;
Fig. 12 is a flowchart of an embodiment of a video poker routine that may be performed by one or more of the gaming units;
Fig. 13 is a flowchart of an embodiment of a video blackjack routine that may be performed by one or more of the gaming units;
Fig. 14 is an illustration of an embodiment of a visual display that may be displayed during performance of the slots routine of Fig. 16;
Fig. 15 is an illustration of an embodiment of a visual display that may be displayed during performance of the video keno routine of Fig. 17;
Fig. 16 is a flowchart of an embodiment of a slots routine that may be performed by one or more of the gaming units;
Fig. 17 is a flowchart of an embodiment of a video keno routine that may be performed by one or more of the gaming units;
Fig. 18 is an illustration of an embodiment of a visual display that may be displayed during performance of the video bingo routine of Fig. 19; and
Fig. 19 is a flowchart of an embodiment of a video bingo routine that may be performed by one or more of the gaming units.

Detailed Description of Various Embodiments

[0009] Fig. 1 illustrates one possible embodiment of a casino gaming system 10 in accordance with the invention. Referring to Fig. 1, the casino gaming system 10 may include a first group or network 12 of casino gaming units 20 operatively coupled to a network computer 22 via a network data link or bus 24. The casino gaming system 10 may include a second group or network 26 of casino gaming units 30 operatively coupled to a network computer 32 via a network data link or bus 34. The first and second gaming networks 12, 26 may be operatively coupled to each other via a network 40, which may comprise, for example, the Internet, a wide area network (WAN), or a local area network (LAN) via a first network link 42 and a second network link 44.

[0010] The first network 12 of gaming units 20 may be provided in a first casino, and the second network 26 of gaming units 30 may be provided in a second casino located in a separate geographic location than the first casino. For example, the two casinos may be located in different areas of the same city, or they may be located in different states. The network 40 may include a plurality of network computers or server computers (not shown), each of which may be operatively interconnected. Where the network 40 comprises the Internet, data communication may take place over the communication links 42, 44 via an Internet communication protocol.

[0011] The network computer 22 may be a server computer and may be used to accumulate and analyze data relating to the operation of the gaming units 20. For example, the network computer 22 may continuously receive data from each of the gaming units 20 indicative of the dollar amount and number of wagers being made on each of the gaming units 20, data indicative of how much each of the gaming units 20 is paying out in winnings, data regarding the identity and gaming habits of players playing each of the gaming units 20, etc. The network computer 32 may be a server computer and may be used to perform the same or different functions in relation to the gaming units 30 as the network computer 22 described above.

[0012] Although each network 12, 26 is shown to include one network computer 22, 32 and four gaming units 20, 30, it should be understood that different numbers of computers and gaming units may be utilized. For example, the network 12 may include a plurality of network computers 22 and tens or hundreds of gaming units 20, all of which may be interconnected via the data link 24. The data link 24 may be provided as a dedicated hardwired link or a wireless link. Although the data link 24 is shown as a single data link 24, the data link 24 may com-

prise multiple data links.

[0013] Fig. 2 is a perspective view of one possible embodiment of one or more of the gaming units 20. Although the following description addresses the design of the gaming units 20, it should be understood that the gaming units 30 may have the same design as the gaming units 20 described below. It should be understood that the design of one or more of the gaming units 20 may be different than the design of other gaming units 20, and that the design of one or more of the gaming units 30 may be different than the design of other gaming units 30. Each gaming unit 20 may be any type of casino gaming unit and may have various different structures and methods of operation. For exemplary purposes, various designs of the gaming units 20 are described below, but it should be understood that numerous other designs may be utilized.

[0014] Referring to Fig. 2, the casino gaming unit 20 may include a housing or cabinet 50 and one or more input devices, which may include a coin slot or acceptor 52, a paper currency acceptor 54, a ticket reader/printer 56 and a card reader 58, which may be used to input value to the gaming unit 20. A value input device may include any device that can accept value from a customer. As used herein, the term "value" may encompass gaming tokens, coins, paper currency, ticket vouchers, credit or debit cards, smart cards, and any other object representative of value.

[0015] If provided on the gaming unit 20, the ticket reader/printer 56 may be used to read and/or print or otherwise encode ticket vouchers 60. The ticket vouchers 60 may be composed of paper or another printable or encodable material and may have one or more of the following informational items printed or encoded thereon: the casino name, the type of ticket voucher, a validation number, a bar code with control and/or security data, the date and time of issuance of the ticket voucher, redemption instructions and restrictions, a description of an award, and any other information that may be necessary or desirable. Different types of ticket vouchers 60 could be used, such as bonus ticket vouchers, cash-redemption ticket vouchers, casino chip ticket vouchers, extra game play ticket vouchers, merchandise ticket vouchers, restaurant ticket vouchers, show ticket vouchers, etc. The ticket vouchers 60 could be printed with an optically readable material such as ink, or data on the ticket vouchers 60 could be magnetically encoded. The ticket reader/printer 56 may be provided with the ability to both read and print ticket vouchers 60, or it may be provided with the ability to only read or only print or encode ticket vouchers 60. In the latter case, for example, some of the gaming units 20 may have ticket printers 56 that may be used to print ticket vouchers 60, which could then be used by a player in other gaming units 20 that have ticket readers 56.

[0016] If provided, the card reader 58 may include any type of card reading device, such as a magnetic card reader or an optical card reader, and may be used to read data from a card offered by a player, such as a credit card or a player tracking card. If provided for player tracking purposes, the card reader 58 may be used to read data from, and/or write data to, player tracking cards that are capable of storing data representing the identity of a player, the identity of a casino, the player's gaming habits, etc.

[0017] The gaming unit 20 may include one or more audio speakers 62, a coin payout tray 64, an input control panel 66, and a display system 70. Where the gaming unit 20 is designed to facilitate play of a video casino game, such as video poker or video slots, the display system 70 may include color video display units that display images relating to the particular game or games. Where the gaming unit 20 is designed to facilitate play of a reel-type slot machine, the display system 70 may comprise a plurality of mechanical reels that are rotatable, with each of the reels having a plurality of reel images disposed thereon. The audio speakers 62 may generate audio representing sounds such as the noise of spinning slot machine reels, a dealer's voice, music, announcements or any other audio related to a casino game. The input control panel 66 may be provided with a plurality of pushbuttons or touch-sensitive areas that may be pressed by a player to select games, make wagers, make gaming decisions, etc.

[0018] Fig. 2A illustrates one possible embodiment of the control panel 66, which may be used where the gaming unit 20 is a slot machine having a plurality of mechanical or "virtual" reels. Referring to Fig. 2A, if the display system 70 is provided with a video display unit, the control panel 66 may include a "See Pays" button 72 that, when activated, causes the display system 70 to generate one or more display screens showing the odds or payout information for the game or games provided by the gaming unit 20. As used herein, the term "button" is intended to encompass any device that allows a player to make an input, such as an input device that must be depressed to make an input selection or a display area that a player may simply touch. The control panel 66 may include a "Cash Out" button 74 that may be activated when a player decides to terminate play on the gaming unit 20, in which case the gaming unit 20 may return value to the player, such as by returning a number of coins to the player via the payout tray 64.

[0019] If the gaming unit 20 provides a slots game having a plurality of reels and a plurality of paylines which define winning combinations of reel symbols, the control panel 66 may be provided with a plurality of selection buttons 76, each of which allows the player to select a different number of paylines prior to spinning the reels. For example, five buttons 76 may be provided, each of which may allow a player to select one, three, five, seven or nine paylines.

[0020] If the gaming unit 20 provides a slots game having a plurality of reels, the control panel 66 may be provided with a plurality of selection buttons 78 each of which allows a player to specify a wager amount for each pay-

line selected. For example, if the smallest wager accepted by the gaming unit 20 is a quarter ($0.25), the gaming unit 20 may be provided with five selection buttons 78, each of which may allow a player to select one, two, three, four or five quarters to wager for each payline selected. In that case, if a player were to activate the "5" button 76 (meaning that five paylines were to be played on the next spin of the reels) and then activate the "3" button 78 (meaning that three coins per payline were to be wagered), the total wager would be $3.75 (assuming the minimum bet was $0.25).

[0021] The control panel 66 may include a "Max Bet" button 80 to allow a player to make the maximum wager allowable for a game. In the above example, where up to nine paylines were provided and up to five quarters could be wagered for each payline selected, the maximum wager would be 45 quarters, or $11.25. The control panel 66 may include a spin button 82 to allow the player to initiate spinning of the reels of a slots game after a wager has been made.

[0022] In Fig. 2A, a rectangle is shown around the buttons 72, 74, 76, 78, 80, 82. It should be understood that that rectangle simply designates, for ease of reference, an area in which the buttons 72, 74, 76, 78, 80, 82 may be located. Consequently, the term "control panel" should not be construed to imply that a panel or plate separate from the housing 50 of the gaming unit 20 is required, and the term "control panel" may encompass a plurality or grouping of player activatable buttons.

[0023] Although one possible control panel 66 is described above, it should be understood that different buttons could be utilized in the control panel 66, and that the particular buttons used may depend on the game or games that could be played on the gaming unit 20. If the display system 70 is provided with a video display unit, the control panel 66 could be generated by the display system 70. In that case, each of the buttons of the control panel 66 could be a colored area generated by the display system 70, and some type of mechanism may be associated with the display system 70 to detect when each of the buttons was touched, such as a touch-sensitive screen.

Gaming Unit Display System

[0024] Fig. 3 is an exploded perspective view of one possible embodiment of the display system 70. Although the following description describes the display system 70 as a primary display, those of ordinary skill in the art will recognize that the display system 70 is applicable towards other displays, such as a top glass and a belly glass. Referring to Fig. 3, the display system 70 may include a front video display -unit 90. The front video display unit 90 may comprise a flat display screen incorporating flat-panel display (FDP) technology including, but not limited to, a plasma display panel (PDP), a liquid crystal display (LCD), a liquid crystal on silicon (LCOS) display, a light emitting diode (LED) display, a ferroelectric LCD display, a field emissions display (FED), an electroluminescent display (ELD), and a microelectromechanical device (MEM) display, such as a digital micromirror device (DMD) display or a grating light valve (GLV) display, etc. The display screen of the front video display unit 90 may further include organic display technologies such as an organic electroluminescent (OEL) display and an organic light emitting diode (OLED) display, as well as a light emitting polymer display. In addition, the front video display unit 90 may be a touch-sensitive display for control of the game routine by a player. In many of above examples, the display screen may incorporate emissive display technology. That is, the display screen, such as an electroluminescent display, is capable of emitting light and is self-illuminating. However, some FPD technologies, such as a liquid crystal display, are not emissive. In other words, they generally do not emit light or emit only low amounts of light, and are not self-illuminating. In the case of non-emissive displays for the front video display unit 90, the display system 70 may include a backlight 91 to provide additional luminescence to video images displayed on the front video display unit 90, whereas an absence of a back lighting source may cause images on non-emissive displays to be virtually invisible to a viewer. Additionally, some of the display technologies described above, such as electroluminescent displays and LCDs, may be transparent when no video images are displayed thereon. For example, an electroluminescent display may utilize non-organic phosphors that are both transparent and emissive, and addressed through row and column drivers.

[0025] The display system 70 may further include a rear display unit 92. As shown in Fig. 3, the rear display unit 92 may comprise mechanical slot machine reels that are rotatable, each of the reels having a plurality of reel images disposed thereof. Each mechanical reel may further include a light element, such as an electroluminescent light element, to illuminate the reel images or other portions of the mechanical reel. The mechanical reel may comprise a reel strip manufactured from a translucent material, such as plastic, with a light element disposed behind the reel strip. When activated, the light element illuminates the reel strip from behind, allowing all or part of the mechanical reel to be illuminated. An example of a mechanical reel having a light element is disclosed in U.S. Patent No. 6,027,115 which is expressly incorporated by reference herein. Although the rear display unit 92 is shown to include a plurality of mechanical slot machine reels, those of ordinary skill in the art will recognize that the rear display unit 92 may comprise other mechanical displays, and/or the rear display unit 92 may comprise one or more video display units, including a cathode ray tube (CRT) display, a front projection display, or a rear projection display, in addition to the FPD technologies described above. Additional mechanical displays may include mechanical, motion-capable devices. For example, mechanical, motion-capable devices, such as balls, donuts, wheels, etc., may spin in place on the rear display

unit 92. Other mechanical, motion-capable devices, such as "falling" tokens, "bouncing" balls, etc., may follow a predefined motion or predetermined path to give the appearance of movement, such as falling or bouncing.

[0026] A light valve 93 may be disposed between the front video display unit 90 and the rear display unit 92. Various devices may be utilized for the light valve 93, including, but not limited to, suspended particle devices (SPD), electrochromic devices, polymer dispersed liquid crystal (PDLC) devices, etc. Generally, the light valve 93 may switch between being transparent, and being opaque (or translucent), depending on whether a current is applied or not. For example, SPDs and PDLC devices become transparent when applied with a current and become opaque or translucent when little or no current is applied. On the other hand, electrochromic devices become opaque when applied with a current, and transparent when little or no current is applied. Additionally, the light valve 93 may attain varying levels of translucency and opaqueness. For example, while a PDLC device is generally either transparent or opaque, suspended particle devices and electrochromic devices allow for varying degrees of transparency, opaqueness or translucency, depending on the applied current level.

[0027] The front video display unit 90 may include one or more openings which may allow a player to view the rear display unit 92 when the light valve 93 is transparent or substantially transparent. When the light valve 93 is opaque, or substantially opaque, a player's view of the rear display unit 92 may be obscured (or obstructed). The light valve 93 may also be translucent and provide varying degrees of visibility of the rear display unit 92 through the opening, thereby varying the visibility of the rear display unit 92 (e.g., gradually "dimming" or "brightening" the visibility of the rear display unit 92). Varying the translucency of the light valve may cause the visibility of the rear display unit 92 to range from allowing the player to view and recognize the images on the rear display unit 92 to merely allowing light and color through without being able to distinguish the images.

[0028] The front video display unit 90 may include multiple openings 94 that are aligned with the mechanical reels of the rear display unit 92. Likewise, if provided with a backlight 91, the backlight 91 may include a plurality of openings 95 that coincide with the openings 94 of the front video display unit 90. The openings 94, 95 may allow a player to see at least a portion of the rear display unit 92 when the light valve 93 is transparent. The rear display unit 92 may also be visible when the light valve 93 is translucent, though this may depend on the degree to which the light valve 93 is translucent. The front video display unit 90 may include additional openings 96, 97, 98, 99, to view additional information displayed on the rear display unit 92. For example, one or more of the reel images may be viewable by a player through the corresponding openings 94, 95, whereas additional display units, such as static displays or video displays, may be included as part of the rear display unit 92 and visible to the player through the openings 96, 97, 98, 99. Corresponding openings (not shown) may be provided in the backlight 91, if provided.

[0029] The openings 94, 96, 97, 98, 99 in the front video display unit 90 may be provided as physical openings in the front video display unit 90. Physical openings may be formed by forming openings in the display screen material and connecting the resulting edges to appropriate video control lines for row and column addressing to display video images on the remaining display screen. Physical openings may also be formed by using multiple smaller, interconnected display screens for the front video display unit 90, which are arranged to leave spacing between the display screens to form the openings. Alternatively, the openings 94, 96, 97, 98, 99 may be provided as virtual openings. For example, if the front video display unit 90 comprises a transparent display screen, such as an electroluminescent display, the front video display unit 90 may appear transparent if a video image is not displayed. By selectively preventing images from being displayed on the front video display unit 90 using row and column addressing, virtual openings may be formed that allow a player to see through the front video display unit 90. If the front video display unit 90 comprises an LCD, or other non-emissive display, with a backlight 91, physical openings may be formed in the backlight 91 causing any image on the LCD in front of the openings 95 to be virtually invisible to the player without lighting from the rear.

[0030] If the light valve 93 is transparent, the player may see through the virtual openings of the display screen to view an image on the rear display unit 92. Video images may also be displayed on portions of the front video display unit that do not correspond to the openings 94, 96, 97, 98, 99, whether physical or virtual. However, if the openings 94, 96, 97, 98, 99 are provided as virtual openings, video images may be displayed on the portions of the front video display unit 90 corresponding to the virtual openings. The video images may be displayed on the virtual openings when the light valve 93 is opaque (or translucent). Video images may also be displayed on the virtual openings when the light valve is transparent, thereby superimposing the video images on an image displayed on the rear display unit 92.

Gaming Unit Electronics

[0031] Fig. 4 is a block diagram of a number of components that may be incorporated in the gaming unit 20. Referring to Fig. 4, the gaming unit 20 may include a controller 100 that may comprise a program memory 102, a microcontroller or microprocessor (MP) 104, a random-access memory (RAM) 106 and an input/output (I/O) circuit 108, all of which may be interconnected via an address/data bus 110. It should be appreciated that although only one microprocessor 104 is shown, the controller 100 may include multiple microprocessors 104. Similarly, the memory of the controller 100 may include

multiple RAMs 106 and multiple program memories 102. Although the I/O circuit 108 is shown as a single block, it should be appreciated that the I/O circuit 108 may include a number of different types of I/O circuits. The RAM(s) 104 and program memories 102 may be implemented as semiconductor memories, magnetically readable memories, and/or optically readable memories, for example.

[0032] Although the program memory 102 is shown in Fig. 4 as a read-only memory (ROM) 102, the program memory of the controller 100 may be a read/write or alterable memory, such as a hard disk. In the event a hard disk is used as a program memory, the address/data bus 110 shown schematically in Fig. 4 may comprise multiple address/data buses, which may be of different types, and there may be an I/O circuit disposed between the address/data buses.

[0033] Fig. 4 illustrates that the control panel 66, the coin acceptor 52, the bill acceptor 54, the card reader 58, the ticket reader/printer 56 and the display system 70 may be operatively coupled to the I/O circuit 108, each of those components being so coupled by either a unidirectional or bidirectional, single-line or multiple-line data link, which may depend on the design of the component that is used. The speaker(s) 62 may be operatively coupled to a sound circuit 112, that may comprise a voice- and sound-synthesis circuit or that may comprise a driver circuit. The sound-generating circuit 112 may be coupled to the I/O circuit 108.

[0034] As shown in Fig. 4, the components 52, 54, 56, 58, 66, 70, 112 may be connected to the I/O circuit 108 via a respective direct line or conductor. Different connection schemes could be used. For example, one or more of the components shown in Fig. 4 may be connected to the I/O circuit 108 via a common bus or other data link that is shared by a number of components. Furthermore, some of the components may be directly connected to the microprocessor 104 without passing through the I/O circuit 108.

Overall Operation of Gaming Unit

[0035] One manner in which one or more of the gaming units 20 (and one or more of the gaming units 30) may operate is described below in connection with a number of flowcharts which represent a number of portions or routines of one or more computer programs, which may be stored in one or more of the memories of the controller 100. The computer program(s) or portions thereof may be stored remotely, outside of the gaming unit 20, and may control the operation of the gaming unit 20 from a remote location. Such remote control may be facilitated with the use of a wireless connection, or by an Internet interface that connects the gaming unit 20 with a remote computer (such as one of the network computers 22, 32) having a memory in which the computer program portions are stored. The computer program portions may be written in any high level language such as C, C++, C#, Java or the like or any low-level assembly or machine language. By storing the computer program portions therein, various portions of the memories 102, 106 are physically and/or structurally configured in accordance with computer program instructions.

[0036] Fig. 5 is a flowchart of a main operating routine 200 that may be stored in the memory of the controller 100. Referring to Fig. 5, the main routine 200 may begin operation at block 202 during which an attraction sequence may be performed in an attempt to induce a potential player in a casino to play the gaming unit 20. The attraction sequence may be performed by displaying one or more video images on the front video display unit 90 and/or causing one or more sound segments, such as voice or music, to be generated via the speakers 62. The attraction sequence may include a scrolling list of games that may be played on the gaming unit 20 and/or video images of various games being played, such as video poker, video blackjack, video slots, video keno, video bingo, etc.

[0037] During performance of the attraction sequence, if a potential player makes any input to the gaming unit 20 as determined at block 204, the attraction sequence may be terminated and a game-selection display may be generated on the display system 70 at block 206 to allow the player to select a game available on the gaming unit 20. The gaming unit 20 may detect an input at block 204 in various ways. For example, the gaming unit 20 could detect if the player presses any button on the gaming unit 20; the gaming unit 20 could determine if the player deposited one or more coins into the gaming unit 20; the gaming unit 20 could determine if player deposited paper currency into the gaming unit; etc.

[0038] The game-selection display generated at block 206 may include, for example, a list of video games that may be played on the gaming unit 20 and/or a visual message to prompt the player to deposit value into the gaming unit 20. While the game-selection display is generated, the gaming unit 20 may wait for the player to make a game selection. Upon selection of one of the games by the player as determined at block 208, the controller 100 may cause one of a number of game routines to be performed to allow the selected game to be played. For example, the game routines could include a video poker routine 210, a video blackjack routine 212, a slots routine 214, a video keno routine 216, and a video bingo routine 218. At block 208, if no game selection is made within a given period of time, the operation may branch back to block 202.

[0039] After one of the routines 210, 212, 214, 216, 218 has been performed to allow the player to play one of the games, block 220 may be utilized to determine whether the player wishes to terminate play on the gaming unit 20 or to select another game. If the player wishes to stop playing the gaming unit 20, which wish may be expressed, for example, by selecting a "Cash Out" button, the controller 100 may dispense value to the player at block 222 based on the outcome of the game(s) played

by the player. The operation may then return to block 202. If the player did not wish to quit as determined at block 220, the routine may return to block 208 where the game-selection display may again be generated to allow the player to select another game.

[0040] It should be noted that although five gaming routines are shown in Fig. 5, a different number of routines could be included to allow play of a different number of games. The gaming unit 20 may also be programmed to allow play of different games.

[0041] Fig. 6 is a flowchart of an alternative main operating routine 230 that may be stored in the memory of the controller 100. The main routine 230 may be utilized for gaming units 20 that are designed to allow play of only a single game or single type of game. Referring to Fig. 6, the main routine 230 may begin operation at block 232 during which an attraction sequence may be performed in an attempt to induce a potential player in a casino to play the gaming unit 20. The attraction sequence may be performed by displaying one or more video images on the front video display unit 90 and/or causing one or more sound segments, such as voice or music, to be generated via the speakers 62.

[0042] During performance of the attraction sequence, if a potential player makes any input to the gaming unit 20 as determined at block 234, the attraction sequence may be terminated and a game display may be generated on the display system 70 at block 236. The game display generated at block 236 may include, for example, an image of the casino game that may be played on the gaming unit 20 and/or a visual message to prompt the player to deposit value into the gaming unit 20. At block 238, the gaming unit 20 may determine if the player requested information concerning the game, in which case the requested information may be displayed at block 240. Block 242 may be used to determine if the player requested initiation of a game, in which case a game routine 244 may be performed. The game routine 244 could be any one of the game routines disclosed herein, such as one of the five game routines 210, 212, 214, 216, 218, or another game routine.

[0043] After the routine 244 has been performed to allow the player to play the game, block 246 may be utilized to determine whether the player wishes to terminate play on the gaming unit 20. If the player wishes to stop playing the gaming unit 20, which wish may be expressed, for example, by selecting a "Cash Out" button, the controller 100 may dispense value to the player at block 248 based on the outcome of the game(s) played by the player. The operation may then return to block 232. If the player did not wish to quit as determined at block 246, the operation may return to block 238.

Display System Operation

[0044] Fig. 7 is flowchart of a display routine 250 which may be executed by the controller 100 in conjunction with or as part of the main routines 200, 230. Referring to Fig. 7, at block 252, the routine may determine whether a game has been initiated, which may be similar to the determination made at block 204 of the main operating routine 200 shown in Fig. 5. If a game has been initiated as determined at block 252, the routine may deactivate the light valve 93 and cause the light valve to become transparent at block 254. Depending on the particular light valve 93 being utilized, deactivating the light valve 93 may involve either applying (or increasing) a current to the light valve 93 or discontinuing (or decreasing) the current being applied to the light valve 93.

[0045] At block 256, the routine may generate graphics on the rear display unit 92 related to the game. If provided with mechanical slot machine reels having an illumination element, the mechanical reels of the rear display unit 92 may be illuminated. Other mechanical, motion-capable devices, if provided, may correspond to the game display and may be activated on the rear display unit 92 as part of the display on the rear display unit 92. Additional graphics related to the game may be generated on the front video display unit 90, which may be superimposed over the graphics of the rear display unit 92. At block 258, the routine may generate graphics such as player information (e.g., player identification, cumulative winnings, a player profile, favorite games, etc.), game information, advertisements, graphics related to the game, etc., which may be displayed on the front video display unit 90. At block 260, a game routine may be performed and the images of the front and rear display units 90, 92 may be updated accordingly as the game routine is performed. The game routine 260 could be any of the game routines disclosed herein, such as one of the five game routines 210, 212, 214, 216, 218, or another game routine.

[0046] The display routine 250 may further determine whether a bonus game has been initiated at block 262. If the bonus game has been initiated as determined at block 262, the routine may activate the light valve 93 at block 264, causing the light valve to become opaque and obscuring the player's view of the rear display unit 92. The routine may then generate graphics to play the bonus game on the front video display unit 90 at block 266 and further generate player information on the front video display unit at block 268. If provided with mechanical slot machine reels having an illumination element, the mechanical reels of the rear display unit 92 may be de-illuminated. At block 270, the bonus game routine may be executed. The bonus game routine 270 may include any one of the game routines disclosed herein, such as one of the five game routines 210, 212, 214, 216, 218, or another game routine.

[0047] The display routine 250 may further determine whether or not an attraction sequence is being performed, such as the attraction sequence shown schematically in Figs. 4 and 5. As described above, the attraction sequence may include a scrolling list of games that may be played on the game unit 20 and/or video images of various games being played, such as video poker, video blackjack, video slots, video keno, video bin-

go, etc. The attraction sequence may further include the activation of the light valve 93 at block 274, thereby causing the light valve 93 to become opaque to obscure the view of the rear display unit 92. Attraction graphics, such as the scrolling list of games and/or video images of various games being played, may be generated on the front video display unit 90 at block 276. If provided with mechanical slot machine reels having an illumination element, the mechanical reels of the rear display unit 92 may be de-illuminated. As above, during performance of the attraction sequence, if a potential player makes any input to the game unit 20 as determined at block 278, the attraction sequence may be terminated and control may return to block 252 to determine whether or not a game has been initiated.

[0048] The display routine 250 may also determine whether a player has won during performance of a game routine at block 280. The win determination may be based on any nonzero payout determination as determined during a game routine, including the game routines 210, 212, 214, 216, 218. In one example, the win determination may relate to a predetermined payout amount such as a jackpot. If the player has won, as determined at block 280, the routine may deactivate the light valve 93, causing the light valve to become transparent and allowing the player to view the rear display unit 92. At block 284, the routine may cause graphics to be generated on the rear display unit 92 and/or the front video display unit 90 corresponding to a value payout display to indicating that the player has won. If provided with mechanical slot machine reels having an illumination element, the mechanical reels of the rear display unit 92 may be illuminated and de-illuminated to appear flashing. Other mechanical, motion-capable devices, if provided, may correspond to the bonus game display and may be activated on the rear display unit 92 as part of the display on the rear display unit 92, such as the falling tokens, or spinning wheel described above. Player information may further be generated on the front video display unit 90 at block 286, including updated graphical information accounting for the payout amount.

[0049] Although the display routine 250 has been described as including various combinations of generating images on the display units 90, 92 and activating/deactivating the light valve 93, based on the occurrence of a game routine, a bonus routine, an attraction sequence, or a winning game, those of ordinary skill in the art will recognize that additional criteria may cause such combinations to be initiated. For example, some game routines may be executed to include a game display on the rear display unit 92, whereas other game routines may be executed to include a game display on the front display unit 90. The game displays on the front and rear display units 90, 92 could be generated as part of any of the game routines disclosed here, such as one of the five game routines, 210, 212, 214, 216, 218, or another game routine. In one example, the rear display unit 92 may be utilized for a mechanical slots game routine 214, whereas the front display unit 90 may be utilized for a video game routine such as video poker, video blackjack, video slots, video keno, video bingo, or any other video game routine. When a video game routine is to be performed, which may result from a player selection of such a game routine, the light valve 93 may be activated, thereby causing the light valve 93 to become opaque to obscure the view of the rear display unit 92. Other combinations that provide specific game routines to be displayed on each display unit 90, 92 may also be provided.

[0050] Additionally, various combinations and permutations of generating images on the display units 90, 92 and activating/deactivating the light valve 93 may be performed for the above occurrences or other criteria. Those of ordinary skill in the art will also recognize that each criteria (e.g., game, bonus game, attraction, win, etc.) may be embodied in its own routine or incorporated into other routines such as the main operating routines 200, 230. The display routine 250 described herein may comprise additional or fewer criteria than indicated.

[0051] Although examples of displays are described herein as comprising particular images on each display unit 90, 92, those of ordinary skill in the art will recognize that the display units 90, 92 are not limited to any particular image. Fig. 8 is an exemplary display 300 that may be shown on the display system 70 during performance of a slots routine utilizing mechanical reels. Referring to Fig. 8, the light valve 93 has been deactivated to allow images on the rear display unit 92 to be visible. As seen in Fig. 8, a player is able to view portions of the mechanical reels through the openings 94 in the front video display unit 90. Additional graphics may also be displayed by the rear display unit 92 and viewed through the various openings in the front video display unit 90. For example, the name of the game routine being played may be viewed through the opening 96, the current bet may be viewed through the opening 97, the number of remaining credits may be viewed in the opening 98, and the minimum bet may be displayed in the opening 99. Additional graphics relating to the game routine may be displayed on the front video display unit 90. For example, the front video display unit 90 may include video images of a plurality of player selectable buttons to allow the player to control the play of the slots game. The buttons may include a "See Pays" button 302, a "Cash Out" button 304, a "Spin" button 306, and a "Max Bet" button 308. Player information may also be generated as a video image 310 on the front video display unit 90. The player information video image 310 may include the player's name, the player's winnings, the player's profile, the player's wagers, the player's favorite games, etc. If provided as virtual openings, additional graphics (not shown) may be generated on the portions of the front video display unit 90 corresponding to one or more of the openings 94, 96, 97, 98, 99 and superimposed over images on the rear display unit 92 that are viewed through the openings 94, 96, 97, 98, 99.

[0052] Fig. 9 is an exemplary display 320 that may be

shown on the display system 70 when the light valve 93 has been activated to obscure the images on the rear display unit 92. As seen in Fig. 9, a player viewing the video display unit 70 is unable to see the rear display unit 92 through the various openings 94, 96, 97, 98, 99 in the front video display unit 90. The display 320 as shown in Fig. 9 may relate to a display shown during an attraction sequence. Attraction graphics may be generated on the front video display unit 90, which may include a video image 322 of a scrolling list of games that may be played on the gaming unit 20, and a video image 324 of instructions for initiating a new game. Although not shown, images may be generated on the openings 94, 96, 97, 98, 99 if provided as virtual openings.

Video Poker

[0053] Where the gaming unit 20 is designed to facilitate play of a video poker game, the rear display unit 92 may comprise a video display unit. Fig. 10 is an exemplary display 350 that may be shown on the display system 70 during performance of the video poker routine 210 shown schematically in Fig. 5. Referring to Fig. 10, the display 350 may include video images 352 of a plurality of playing cards representing the player's hand, such as five cards. The video image 352 of the playing cards may be displayed on the rear display unit 92 and viewed by the player through an opening 353 in the front video display unit 90. To allow the player to control the play of the video poker game, a plurality of player-selectable buttons may be displayed on the front video display unit 90. The buttons may include a "Hold" button 354 disposed directly below each of the playing card images 352, a "Cash Out" button 356, a "See Pays" button 358, a "Bet One Credit" button 360, a "Bet Max Credits" button 362, and a "Deal/Draw" button 364. The display 350 may also include an area 366 in which the number of remaining credits or value is displayed on the rear display unit 92 and viewed by the player through an opening 367 in the front video display unit 90. If the front video display unit 90 is provided with a touch-sensitive screen, the buttons 354, 356, 358, 360, 362, 364 may form part of the video display 350. Alternatively, one or more of those buttons may be provided as part of a control panel that is provided separately from the display system 70.

[0054] Fig. 12 is a flowchart of the video poker routine 210 shown schematically in Fig. 5. Referring to Fig. 12, at block 370, the routine may determine whether the player has requested payout information, such as by activating the "See Pays" button 358, in which case at block 372 the routine may cause one or more pay tables to be displayed on the front video display unit 90. At block 374, the routine may determine whether the player has made a bet, such as by pressing the "Bet One Credit" button 360, in which case at block 376 bet data corresponding to the bet made by the player may be stored in the memory of the controller 100. At block 378, the routine may determine whether the player has pressed the "Bet Max Credits" button 362, in which case at block 380 bet data corresponding to the maximum allowable bet may be stored in the memory of the controller 100.

[0055] At block 382, the routine may determine if the player desires a new hand to be dealt, which may be determined by detecting if the "Deal/Draw" button 364 was activated after a wager was made. In that case, at block 384 a video poker hand may be "dealt" by causing the rear display unit 92 to generate the playing card images 352. After the hand is dealt, at block 386 the routine may determine if any of the "Hold" buttons 354 have been activated by the player, in which case data regarding which of the playing card images 352 are to be "held" may be stored in the controller 100 at block 388. If the "Deal/Draw" button 364 is activated again as determined at block 390, each of the playing card images 352 that was not "held" may be caused to disappear from the video display 350 and to be replaced by a new, randomly selected, playing card image 352 at block 392.

[0056] At block 394, the routine may determine whether the poker hand represented by the playing card images 352 currently displayed is a winner. That determination may be made by comparing data representing the currently displayed poker hand with data representing all possible winning hands, which may be stored in the memory of the controller 100. If there is a winning hand, a payout value corresponding to the winning hand may be determined at block 396. At block 398, the player's cumulative value or number of credits may be updated by subtracting the bet made by the player and adding, if the hand was a winner, the payout value determined at block 396. The cumulative value or number of credits may also be displayed in the display area 366 (Fig. 10).

[0057] Although the video poker routine 210 is described above in connection with a single poker hand of five cards, the routine 210 may be modified to allow other versions of poker to be played. For example, seven card poker may be played, or stud poker may be played. Alternatively, multiple poker hands may be simultaneously played. In that case, the game may begin by dealing a single poker hand, and the player may be allowed to hold certain cards. After deciding which cards to hold, the held cards may be duplicated in a plurality of different poker hands, with the remaining cards for each of those poker hands being randomly determined.

Video Blackjack

[0058] Where the gaming unit 20 is designed to facilitate play of a video blackjack game, the rear display unit 92 may comprise a video display unit. Fig. 11 is an exemplary display 400 that may be shown on the display system 70 during performance of the video blackjack routine 212 shown schematically in Fig. 5. Referring to Fig. 11, the display 400 may include video images 402 of a pair of playing cards representing a dealer's hand, with one of the cards shown face up and the other card being shown face down, and video images 404 of a pair of

playing cards representing a player's hand, with both the cards shown face up. The "dealer" may be the gaming unit 20. The video images 402, 404 of the playing cards may be displayed on the rear display unit 92 and viewed by the player through an opening 405 in the front video display unit 90.

[0059] To allow the player to control the play of the video blackjack game, a plurality of player-selectable buttons may be displayed on the front video display unit 90. The buttons may include a "Cash Out" button 406, a "See Pays" button 408, a "Stay" button 410, a "Hit" button 412, a "Bet One Credit" button 414, and a "Bet Max Credits" button 416. The display 400 may also include an area 418 in which the number of remaining credits or value is displayed on the rear display unit 92 and viewed by the player through an opening 419 in the front video display unit 90. If the front video display unit 90 is provided with a touch-sensitive screen, the buttons 406, 408, 410, 412, 414, 416 may form part of the video display 400. Alternatively, one or more of those buttons may be provided as part of a control panel that is provided separately from the display system 70.

[0060] Fig. 13 is a flowchart of the video blackjack routine 212 shown schematically in Fig. 5. Referring to Fig. 13, the video blackjack routine 212 may begin at block 420 where it may determine whether a bet has been made by the player. That may be determined, for example, by detecting the activation of either the "Bet One Credit" button 414 or the "Bet Max Credits" button 416. At block 422, bet data corresponding to the bet made at block 420 may be stored in the memory of the controller 100. At block 424, a dealer's hand and a player's hand may be "dealt" by making the playing card images 402, 404 appear on the rear display unit 92.

[0061] At block 426, the player may be allowed to be "hit," in which case at block 428 another card will be dealt to the player's hand by making another playing card image 404 appear in the display 400. If the player is hit, block 430 may determine if the player has "bust," or exceeded 21. If the player has not bust, blocks 426 and 428 may be performed again to allow the player to be hit again.

[0062] If the player decides not to hit, at block 432 the routine may determine whether the dealer should be hit. Whether the dealer hits may be determined in accordance with predetermined rules, such as the dealer always hit if the dealer's hand totals 15 or less. If the dealer hits, at block 434 the dealer's hand may be dealt another card by making another playing card image 402 appear in the display 400. At block 436 the routine may determine whether the dealer has bust. If the dealer has not bust, blocks 432, 434 may be performed again to allow the dealer to be hit again.

[0063] If the dealer does not hit, at block 436 the outcome of the blackjack game and a corresponding payout may be determined based on, for example, whether the player or the dealer has the higher hand that does not exceed 21. If the player has a winning hand, a payout value corresponding to the winning hand may be determined at block 440. At block 442, the player's cumulative value or number of credits may be updated by subtracting the bet made by the player and adding, if the player won, the payout value determined at block 440. The cumulative value or number of credits may also be displayed in the display area 418 (Fig. 11).

Slots

[0064] Where the gaming unit 20 is designed to facilitate play of a video slots game, the rear display unit 92 may comprise a video display unit. Fig. 14 is an exemplary display 450 that may be shown on the display system 70 during performance of the slots routine 214 shown schematically in Fig. 5. Referring to Fig. 14, the display 450 may include video images 452 of a plurality of slot machine reels, each of the reels having a plurality of reel symbols 454 associated therewith. The video images 452 of the slot machine reels may be displayed on the rear display unit 92 and viewed by the player through an opening 455 in the front video display unit 90. Although the display 450 shows five reel images 452, each of which may have three reel symbols 454 that are visible at a time, other reel configurations could be utilized.

[0065] To allow the player to control the play of the slots game, a plurality of player-selectable buttons may be displayed on the front video display unit 90. The buttons may include a "Cash Out" button 456, a "See Pays" button 458, a plurality of payline-selection buttons 460 each of which allows the player to select a different number of paylines prior to "spinning" the reels, a plurality of bet-selection buttons 462 each of which allows a player to specify a wager amount for each payline selected, a "Spin" button 464, and a "Max Bet" button 466 to allow a player to make the maximum wager allowable.

[0066] Fig. 16 is a flowchart of the slots routine 214 shown schematically in Fig. 14. Referring to Fig. 16, at block 470, the routine may determine whether the player has requested payout information, such as by activating the "See Pays" button 458, in which case at block 472 the routine may cause one or more pay tables to be displayed on the front video display unit 90. At block 474, the routine may determine whether the player has pressed one of the payline-selection buttons 460, in which case at block 476 data corresponding to the number of paylines selected by the player may be stored in the memory of the controller 100. At block 478, the routine may determine whether the player has pressed one of the bet-selection buttons 462, in which case at block 480 data corresponding to the amount bet per payline may be stored in the memory of the controller 100. At block 482, the routine may determine whether the player has pressed the "Max Bet" button 466, in which case at block 484 bet data (which may include both payline data and bet-per-payline data) corresponding to the maximum allowable bet may be stored in the memory of the controller 100.

[0067] If the "Spin" button 464 has been activated by the player as determined at block 486, at block 488 the routine may cause the slot machine reel images 452 to begin "spinning" so as to simulate the appearance of a plurality of spinning mechanical slot machine reels. At block 490, the routine may determine the positions at which the slot machine reel images will stop, or the particular symbol images 454 that will be displayed when the reel images 452 stop spinning. At block 492, the routine may stop the reel images 452 from spinning by displaying stationary reel images 452 and images of three symbols 454 for each stopped reel image 452. The virtual reels may be stopped from left to right, from the perspective of the player, or in any other manner or sequence.

[0068] The routine may provide for the possibility of a bonus game or round if certain conditions are met, such as the display in the stopped reel images 452 of a particular symbol 454. If there is such a bonus condition as determined at block 494, the routine may proceed to block 496 where a bonus round may be played. The bonus round may be a different game than slots, and many other types of bonus games could be provided. If the player wins the bonus round, or receives additional credits or points in the bonus round, a bonus value may be determined at block 498. A payout value corresponding to outcome of the slots game and/or the bonus round may be determined at block 500. At block 502, the player's cumulative value or number of credits may be updated by subtracting the bet made by the player and adding, if the slot game and/or bonus round was a winner, the payout value determined at block 500.

[0069] Although the above routine has been described as a virtual slot machine routine in which slot machine reels are represented as images on the rear display unit 92, actual slot machine reels that are capable of being spun may be utilized instead, in which case the rear display unit 92 could be provided in the form of a plurality of mechanical reels that are rotatable, each of the reels having a plurality of reel images disposed thereon and viewed through the opening 455 in the front video display unit 90.

Video Keno

[0070] Where the gaming unit 20 is designed to facilitate play of a video keno game, the rear display unit 92 may comprise a video display unit. Fig. 15 is an exemplary display 520 that may be shown on the display system 70 during performance of the video keno routine 216 shown schematically in Fig. 5. Referring to Fig. 15, the display 520 may include a video image 522 of a plurality of numbers that were selected by the player prior to the start of a keno game and a video image 524 of a plurality of numbers randomly selected during the keno game. The randomly selected numbers may be displayed in a grid pattern. The video images 522 of the plurality of numbers selected by the player may be displayed on the rear display unit 92 and viewed by the player through an opening 523 in the front video display unit 90. Likewise, the video images 524 of the plurality of randomly selected numbers may be displayed on the rear display unit 92 and viewed by the player through an opening 525 in the front video display unit 90.

[0071] To allow the player to control the play of the keno game, a plurality of player-selectable buttons may be displayed on the front video display unit 90. The buttons may include a "Cash Out" button 526, a "See Pays" button 528, a "Bet One Credit" button 530, a "Bet Max Credits" button 532, a "Select Ticket" button 534, a "Select Number" button 536, and a "Play" button 538. The display 520 may also include an area 540 in which the number of remaining credits or value is displayed on the rear display unit 92 and viewed through an opening 541 in the front display unit 92. If the front video display unit 90 is provided with a touch-sensitive screen, the buttons may form part of the video display 520. Alternatively, one or more of those buttons may be provided as part of a control panel that is provided separately from the display system 70.

[0072] Fig. 17 is a flowchart of the video keno routine 216 shown schematically in Fig. 5. The keno routine 216 may be utilized in connection with a single gaming unit 20 where a single player is playing a keno game, or the keno routine 240 may be utilized in connection with multiple gaming units 20 where multiple players are playing a single keno game. In the latter case, one or more of the acts described below may be performed either by the controller 100 in each gaming unit or by one of the network computer 22, 32 to which multiple gaming units 20 are operatively connected.

[0073] Referring to Fig. 17, at block 550, the routine may determine whether the player has requested payout information, such as by activating the "See Pays" button 528, in which case at block 552 the routine may cause one or more pay tables to be displayed on the front video display unit 90. At block 554, the routine may determine whether the player has made a bet, such as by having pressed the "Bet One Credit" button 530 or the "Bet Max Credits" button 532, in which case at block 556 bet data corresponding to the bet made by the player may be stored in the memory of the controller 100. After the player has made a wager, at block 558 the player may select a keno ticket, and at block 560 the ticket may be displayed on the display 520. At block 562, the player may select one or more game numbers, which may be within a range set by the casino. After being selected, the player's game numbers may be stored in the memory of the controller 100 at block 564 and may be included in the image 522 on the display 520 at block 566. After a certain amount of time, the keno game may be closed to additional players (where a number of players are playing a single keno game using multiple gambling units 20).

[0074] If play of the keno game is to begin as determined at block 568, at block 570 a game number within a range set by the casino may be randomly selected either by the controller 100 or a central computer opera-

tively connected to the controller, such as one of the network computers 22, 32. At block 572, the randomly selected game number may be displayed on the rear display unit 92 and the display systems 70 of other gaming units 20 (if any) which are involved in the same keno game. At block 574, the controller 100 (or the central computer noted above) may increment a count which keeps track of how many game numbers have been selected at block 570.

[0075] At block 576, the controller 100 (or one of the network computers 22, 32) may determine whether a maximum number of game numbers within the range have been randomly selected. If not, another game number may be randomly selected at block 570. If the maximum number of game numbers has been selected, at block 578 the controller 100 (or a central computer) may determine whether there are a sufficient number of matches between the game numbers selected by the player and the game numbers selected at block 570 to cause the player to win. The number of matches may depend on how many numbers the player selected and the particular keno rules being used.

[0076] If there are a sufficient number of matches, a payout may be determined at block 580 to compensate the player for winning the game. The payout may depend on the number of matches between the game numbers selected by the player and the game numbers randomly selected at block 570. At block 582, the player's cumulative value or number of credits may be updated by subtracting the bet made by the player and adding, if the keno game was won, the payout value determined at block 580. The cumulative value or number of credits may also be displayed in the display area 540 (Fig. 15).

Video Bingo

[0077] Where the gaming unit 20 is designed to facilitate play of a video bingo game, the rear display unit 92 may comprise a video display unit. Fig. 18 is an exemplary display 600 that may be shown on the display system 70 during performance of the video bingo routine 218 shown schematically in Fig. 5. Referring to Fig. 18, the display 600 may include one or more video images 602 of a bingo card and images of the bingo numbers selected during the game. The bingo card images 602 may have a grid pattern. The bingo card images 602 may be displayed on the rear display unit 92 and viewed by the player through an opening 603 in the front video display unit 90.

[0078] To allow the player to control the play of the bingo game, a plurality of player-selectable buttons may be displayed on the front video display unit 90. The buttons may include a "Cash Out" button 604, a "See Pays" button 606, a "Bet One Credit" button 608, a "Bet Max Credits" button 610, a "Select Card" button 612, and a "Play" button 614. The display 600 may also include an area 616 in which the number of remaining credits or value is displayed on the rear display unit 92 and viewed by the player through an opening 617 in the front video display unit 90. If the front video display unit 90 is provided with a touch-sensitive screen, the buttons may form part of the video display 600. Alternatively, one or more of those buttons may be provided as part of a control panel that is provided separately from the display system 70.

[0079] Fig. 19 is a flowchart of the video bingo routine 218 shown schematically in Fig. 5. The bingo routine 218 may be utilized in connection with a single gaming unit 20 where a single player is playing a bingo game, or the bingo routine 250 may be utilized in connection with multiple gaming units 20 where multiple players are playing a single bingo game. In the latter case, one or more of the acts described below may be performed either by the controller 100 in each gaming unit 20 or by one of the network computers 22, 32 to which multiple gaming units 20 are operatively connected.

[0080] Referring to Fig. 19, at block 620, the routine may determine whether the player has requested payout information, such as by activating the "See Pays" button 606, in which case at block 622 the routine may cause one or more pay tables to be displayed on the front video display unit 90. At block 624, the routine may determine whether the player has made a bet, such as by having pressed the "Bet One Credit" button 608 or the "Bet Max Credits" button 610, in which case at block 626 bet data corresponding to the bet made by the player may be stored in the memory of the controller 100.

[0081] After the player has made a wager, at block 628 the player may select a bingo card, which may be generated randomly. The player may select more than one bingo card, and there may be a maximum number of bingo cards that a player may select. After play is to commence as determined at block 632, at block 634 a bingo number may be randomly generated by the controller 100 or a central computer such as one of the network computers 22, 32. At block 636, the bingo number may be displayed on the rear display unit 92 and the display systems 70 of any other gaming units 20 involved in the bingo game.

[0082] At block 638, the controller 100 (or a central computer) may determine whether any player has won the bingo game. If no player has won, another bingo number may be randomly selected at block 634. If any player has bingo as determined at block 638, the routine may determine at block 640 whether the player playing that gaming unit 20 was the winner. If so, at block 642 a payout for the player may be determined. The payout may depend on the number of random numbers that were drawn before there was a winner, the total number of winners (if there was more than one player), and the amount of money that was wagered on the game. At block 644, the player's cumulative value or number of credits may be updated by subtracting the bet made by the player and adding, if the bingo game was won, the payout value determined at block 642. The cumulative value or number of credits may also be displayed in the display area 616 (Fig. 18).

Claims

1. A gaming apparatus (20), comprising:

   a display system comprising a first display unit (92), a second display unit (90) having an opening (94,95) and disposed in front of said first display unit (92), and a light valve (93) disposed between the first and second display units, wherein the second display unit (90) comprises a video display unit, and wherein said first display unit (92) comprises a video display unit that is capable of generating video images;
   a value input device;
   a controller (100) operatively coupled to said display system and said value input device, said controller comprising a processor (104) and a memory (102, 106) operatively coupled to said processor (104),
   said controller (100) being programmed to cause said display system to generate a game display on said first display unit (92) relating to one of the following games: poker, blackjack, slots, keno or bingo,
   said controller (100) being programmed to cause said light valve (93) to become substantially transparent if said game display is generated on said first display unit (92) so that said game display is visible through said opening of said second display unit (90),
   said controller (100) being programmed to cause said light valve (93) to become substantially opaque so that said game display on said first display unit (92) is obscured through said opening of said second display unit (90),
   said controller (100) being programmed to cause said display system to generate a video display on said second display unit (90),
   said controller (100) being programmed to determine a value payout associated with an outcome of said game.

2. A gaming apparatus as defined in claim 1,
   wherein said controller (100) is programmed to cause a video image comprising an image of at least five playing cards to be displayed on said first display unit if said game comprises video poker,
   wherein said controller (100) is programmed to cause a video image comprising an image of a plurality of simulated slot machine reels to be displayed on said first display unit if said game comprises video slots,
   wherein said controller (100) is programmed to cause a video image comprising an image of a plurality of playing cards to be displayed on said first display unit if said game comprises video blackjack,
   wherein said controller (100) is programmed to cause a video image comprising an image of a plurality of keno numbers to be displayed on said first display unit if said game comprises video keno,
   wherein said controller (100) is programmed to cause a video image comprising an image of a bingo grid to be displayed on said first display unit if said game comprises video bingo.

3. A gaming apparatus as defined in claim 1, wherein said second display unit (90) comprises one of: a flat-panel video display, an electroluminescent display, or a liquid crystal display.

4. A gaming apparatus as defined in claim 1, wherein said controller is programmed to cause said light valve (93) to become translucent.

5. A gaming apparatus as defined in claim 1,
   wherein said controller (100) is programmed to cause said display system to generate a game display on said second display unit (90) relating to one of the following games:

   poker, blackjack, slots, keno or bingo.
   wherein said controller is programmed to cause said light valve to become substantially opaque when said game display is generated on said second display unit (90).

6. A gaming apparatus as defined in claim 1,
   wherein said controller (100) is programmed to cause said display system to generate a bonus game display on said second display unit,
   wherein said controller (100) is programmed to cause said light valve to become substantially opaque if said bonus game display is generated so that said first display unit is obscured through said opening of said second display unit.

7. A gaming apparatus as defined in claim 1,
   wherein said controller (100) is programmed to cause said display system to generate a player attraction display on said second display unit,
   wherein said controller (100) is programmed to cause said light valve to become substantially opaque if said player attraction display is generated so that said first display unit is obscured through said opening of said second display unit.

8. A gaming apparatus as defined in claim 1,
   wherein said controller (100) is programmed to cause said display system to generate a first value payout display on said first display unit if a nonzero value payout is determined,
   wherein said controller (100) is programmed to cause said display system to generate a second value payout display on said second display unit if a nonzero value payout is determined,
   wherein said controller is programmed to cause said

light valve to become substantially transparent if a nonzero value payout is determined so that said first display unit is visible through said opening of said second display unit

9. A gaming apparatus as defined in claim 1, wherein said video display on said second display unit (90) relates to one of the following: player information, paytable information or game information.

10. A gaming method, comprising:

causing a game display of one of the following games to be generated on a first display unit (92): poker, blackjack, slots, keno or bingo,
causing a video display to be generated on a second display unit (90) disposed in front of said first display unit, said second display unit comprising an opening (94,95),
causing a light valve (93) disposed between said first and second display units to become substantially transparent if said game display is generated on said first display unit so that said game display is visible through said opening of said second display unit,
causing said light valve (93) to become substantially opaque so that said game display on said first display unit (92) is obscured through said opening of said second display unit (90), and
determining a value payout associated with an outcome of said game represented by said video image.

11. A gaming method as defined in claim 10, additionally comprising:

causing a game display of one of the following games to be generated on said second display unit: poker, blackjack, slots, keno or bingo,
causing said light valve (93) to become substantially opaque when said game display is generated on said second display unit.

12. A gaming method as defined in claim 10, additionally comprising:

causing a bonus game display to be generated on said second display unit,
causing said light valve (93) to become substantially opaque if said bonus game display is generated so that said first display unit is obscured through said opening of said second display unit.

13. A gaming method as defined in claim 10, additionally comprising:

causing a player attraction display to be generated on said second display unit (90),
causing said light (93) valve to become substantially opaque if said player attraction display is generated so that said first display unit is obscured through said opening of said second display unit.

14. A gaming method as defined in claim 10, additionally comprising:

causing a first value payout display to be generated on said first display unit (92) if a nonzero value payout is determined,
causing a second value payout display to be generated on said second display unit (90) if a nonzero value payout is determined,
causing said light valve (93) to become substantially transparent if a nonzero value payout is determined so that said first display unit is visible through said opening of said second display unit.

Patentansprüche

1. Eine Spielvorrichtung (20), umfassend:

ein Anzeigesystem umfassend eine erste Anzeigeeinheit (92), eine zweite Anzeigeeinheit (90), welche eine Öffnung (94, 95) hat und vor der ersten Anzeigeeinheit (92) angeordnet ist, und ein Lichtventil (93), das zwischen den ersten und zweiten Anzeigeeinheiten angeordnet ist, wobei die zweite Anzeigeeinheit (90) eine Video-Anzeigeeinheit umfasst und wobei die erste Anzeigeeinheit (92) eine Video-Anzeigeeinheit umfasst, die Videobilder zu erzeugen vermag;
ein Wert-Eingabegerät;
eine Steuerung (100), die mit dem Anzeigesystem und dem Wert-Eingabegerät operativ gekoppelt ist, wobei die Steuerung einen Prozessor (104) und einen Speicher (102, 106) umfasst, der mit dem Prozessor (104) operativ gekoppelt ist,
die Steuerung (100) programmiert ist, zu bewirken, dass das Anzeigesystem, auf der ersten Anzeigeeinheit (92) eine Spielanzeige erzeugt, die eines der folgenden Spiele betrifft: Poker, Black Jack, Slots, Keno oder Bingo, wobei
die Steuerung (100) programmiert ist, zu bewirken, dass das Lichtventil (93) im Wesentlichen transparent wird, wenn die Spielanzeige auf der ersten Anzeigeeinheit (92) erzeugt wird, sodass die Spielanzeige durch die Öffnung der zweiten Anzeigeeinheit (90) sichtbar ist,
die Steuerung (100) programmiert ist, zu bewirken, dass das Lichtventil (93) im Wesentlichen opak wird, sodass die Spielanzeige auf der ersten Anzeigeeinheit (92) durch die Öffnung der zweiten Anzeigeeinheit (90) verdeckt wird,

die Steuerung (100) programmiert ist, zu bewirken, dass das Anzeigesystem eine Videoanzeige auf der zweiten Anzeigeeinheit (90) erzeugt, die Steuerung (100) programmiert ist, einen Auszahlungswert zu ermitteln, der einem Ergebnis des Spiels zugeordnet ist.

2. Eine Spielvorrichtung nach Anspruch 1, wobei die Steuerung (100) programmiert ist, zu bewirken, dass ein Videobild, mit einem Bild von mindestens fünf Spielkarten, auf der ersten Anzeigeeinheit angezeigt wird, wenn das Spiel Video-Poker umfasst,
wobei die Steuerung (100) programmiert ist, zu bewirken, dass ein Videobild, mit einem Bild einer Mehrzahl simulierter Spielautomatenwalzen, auf der ersten Anzeigeeinheit angezeigt wird, wenn das Spiel Video-Slots umfasst,
wobei die Steuerung (100) programmiert ist, zu bewirken, dass ein Videobild, mit einem Bild einer Mehrzahl von Spielkarten auf der ersten Anzeigeeinheit angezeigt wird, wenn das Spiel Video-Black-Jack umfasst,
wobei die Steuerung (100) programmiert ist, zu bewirken, dass ein Videobild, mit einem Bild einer Mehrzahl von Keno-Nummern, auf der ersten Anzeigeeinheit angezeigt wird, wenn das Spiel Video-Keno umfasst,
wobei die Steuerung (100) programmiert ist, zu bewirken, dass ein Videobild, mit einem Bild eines Bingo-Gitters auf der ersten Anzeigeeinheit angezeigt wird, wenn das Spiel Video Bingo umfasst.

3. Eine Spielvorrichtung nach Anspruch 1, wobei die zweite Anzeigeeinheit (90) eine von umfasst: eine Flachbildschirm-Videoanzeige, eine Elektrolumineszenz-Anzeige oder eine Flüssigkristallanzeige.

4. Eine Spielvorrichtung nach Anspruch 1, wobei die Steuerung programmiert ist, das Lichtventil (93) zu veranlassen, halb durchlässig zu werden.

5. Eine Spielvorrichtung nach Anspruch 1, wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Anzeigesystem eine Spielanzeige auf der zweiten Anzeigeeinheit (90) erzeugt, die eines der folgenden Spiele betrifft: Poker, Black Jack, Slots, Keno oder Bingo,
wobei die Steuerung programmiert ist, zu bewirken, dass das Lichtventil im Wesentlichen opak wird, wenn die Spielanzeige auf der zweiten Anzeigeeinheit (90) erzeugt wird.

6. Eine Spielvorrichtung nach Anspruch 1, wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Anzeigesystem eine Bonusspielanzeige auf der zweiten Anzeigeeinheit erzeugt, wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Lichtventil im Wesentlichen opak wird, wenn die Bonusspielanzeige erzeugt wird, sodass die erste Anzeigeeinheit durch die Öffnung der zweiten Anzeigeeinheit verdeckt wird.

7. Eine Spielvorrichtung nach Anspruch 1, wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Anzeigesystem eine Spielerattraktionsanzeige auf der zweiten Anzeigeeinheit erzeugt,
wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Lichtventil im Wesentlichen opak wird, wenn die Spielerattraktionsanzeige erzeugt wird, sodass die erste Anzeigeeinheit durch die Öffnung der zweiten Anzeigeeinheit verdeckt wird.

8. Eine Spielvorrichtung nach Anspruch 1, wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Anzeigesystem eine erste Auszahlungswertanzeige auf der ersten Anzeigeeinheit erzeugt, wenn ein von Null verschiedener Auszahlungswert bestimmt wird,
wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Anzeigesystem eine zweite Auszahlungswertanzeige auf der zweiten Anzeigeeinheit erzeugt, wenn ein von Null verschiedener Auszahlungswert bestimmt wird,
wobei die Steuerung (100) programmiert ist, zu bewirken, dass das Lichtventil im Wesentlichen transparent wird, wenn ein von Null verschiedener Auszahlungswert bestimmt wird, sodass die erste Anzeigeeinheit durch die Öffnung der zweiten Anzeigeeinheit (90) sichtbar ist.

9. Eine Spielvorrichtung nach Anspruch 1, wobei die Videoanzeige auf der zweiten Anzeigeeinheit (90) eine der folgenden betrifft: Spielerinformationen, Paytable-Informationen oder Spielinformationen.

10. Ein Spielverfahren, umfassend:

Bewirken einer Spielanzeige eines der folgenden, auf einer ersten Anzeigeeinheit (92) zu erzeugenden Spiele: Poker, Black Jack, Slots, Keno oder Bingo,
Bewirken, dass eine Videoanzeige auf einer zweiten, vor der ersten Anzeigeeinheit angeordneten Anzeigeeinheit (90), erzeugt wird, wobei die zweite Anzeigeeinheit eine Öffnung (94, 95) umfasst,
Bewirken, dass ein zwischen den ersten und zweiten Anzeigeeinheiten angeordnetes Lichtventil (93), im Wesentlichen transparent wird, wenn die Spielanzeige auf der ersten Anzeigeeinheit erzeugt wird, sodass die Spielanzeige durch die Öffnung der zweiten Anzeigeeinheit sichtbar ist,
Bewirken, dass das Lichtventil (93) im Wesent-

lichen opak wird, sodass die Spielanzeige auf der ersten Anzeigeeinheit (92) durch die Öffnung der zweiten Anzeigeeinheit (90) verdeckt wird, und
Ermitteln eines Auszahlungswertes, der einem Ergebnis des durch das Videobild repräsentierten Spiels, zugeordnet ist.

11. Ein Spielverfahren nach Anspruch 10, zusätzlich umfassend:

Bewirken, dass eine Spielanzeige eines der folgenden Spiele auf der zweiten Anzeigeeinheit erzeugt wird: Poker, Black Jack, Slots, Keno oder Bingo,
Bewirken, dass das Lichtventil (93) im Wesentlichen opak wird, wenn die Spielanzeige auf der zweiten Anzeigeeinheit erzeugt wird.

12. Ein Spielverfahren nach Anspruch 10, zusätzlich umfassend:

Bewirken, dass eine Bonusspielanzeige auf der zweiten Anzeigeeinheit erzeugt wird,
Bewirken, dass das Lichtventil (93) im Wesentlichen opak wird, wenn die Bonusspielanzeige erzeugt wird, sodass die erste Anzeigeeinheit durch die Öffnung der zweiten Anzeigeeinheit verdeckt wird.

13. Ein Spielverfahren nach Anspruch 10, zusätzlich umfassend:

Bewirken, dass ein eine Spielerattraktionsanzeige auf der zweiten Anzeigeeinheit (90) erzeugt wird,
Bewirken, dass das Lichtventil (93) im Wesentlichen opak wird, wenn die Spielerattraktionsanzeige erzeugt wird, sodass die erste Anzeigeeinheit durch die Öffnung der zweiten Anzeigeeinheit verdeckt wird.

14. Ein Spielverfahren nach Anspruch 10, zusätzlich umfassend:

Bewirken, dass eine erste Auszahlungswertanzeige auf der ersten Anzeigeeinheit (92) erzeugt wird, wenn ein von Null verschiedener Auszahlungswert bestimmt wird,
Bewirken, dass eine zweite Auszahlungswertanzeige auf der zweiten Anzeigeeinheit (90) erzeugt wird, wenn ein von Null verschiedener Auszahlungswert bestimmt wird,
Bewirken, dass das Lichtventil (93) im Wesentlichen transparent wird, wenn ein von Null verschiedener Auszahlungswert bestimmt wird, sodass die erste Anzeigeeinheit durch die Öffnung der zweiten Anzeigeeinheit sichtbar ist.

Revendications

1. Appareil de jeux de hasard (20), comprenant :

un système d'affichage comprenant une première unité d'affichage (92), une seconde unité d'affichage (90) ayant une ouverture (94, 95) et placée à l'avant de ladite première unité d'affichage (92), et une valve de lumière (93) placée entre les première et seconde unités d'affichage, dans lequel la seconde unité d'affichage (90) comprend une unité d'affichage vidéo, et dans lequel ladite première unité d'affichage (92) comprend une unité d'affichage vidéo permettant de générer des images vidéo ;
un dispositif de saisie de valeurs ;
un dispositif de commande (100) couplé fonctionnellement avec ledit système d'affichage et ledit dispositif de saisie de valeurs, ledit dispositif de commande comprenant un processeur (104) et une mémoire (102, 106) couplée fonctionnellement audit processeur (104),
ledit dispositif de commande (100) étant programmé pour amener ledit système d'affichage à générer un affichage de jeu de hasard sur ladite première unité d'affichage (92) concernant l'un des jeux de hasard suivants : poker, blackjack, machines à sous, keno ou bingo,
ledit dispositif de commande (100) étant programmé pour amener la valve de lumière (93) à devenir sensiblement transparente si ledit affichage de jeu de hasard est généré sur ladite première unité d'affichage (92) pour que ledit affichage de jeu de hasard soit visible par ladite ouverture de ladite seconde unité d'affichage (90),
ledit dispositif de commande (100) étant programmé pour amener ladite valve de lumière (93) à devenir sensiblement opaque pour que ledit affichage de jeu de hasard sur ladite première unité d'affichage (92) soit masqué au travers de ladite ouverture de ladite seconde unité d'affichage (90),
ledit dispositif de commande (100) étant programmé pour amener ledit dispositif d'affichage à générer un affichage vidéo sur ladite seconde unité d'affichage (90),
ledit dispositif de commande (100) étant programmé pour déterminer un gain associé à un résultat dudit jeu de hasard.

2. Appareil de jeux de hasard selon la revendication 1, dans lequel ledit dispositif de commande (100) est programmé pour amener une image vidéo, comprenant une image d'au moins cinq cartes à jouer, à s'afficher sur ladite première unité d'affichage si ledit jeu de hasard comprend le poker vidéo,
dans lequel ledit dispositif de commande (100) est

programmé pour amener une image vidéo, comprenant une image d'une pluralité de rouleaux de machines à sous simulées, à s'afficher sur ladite première unité d'affichage si ledit jeu de hasard comprend des machines à sous vidéo,
dans lequel ledit dispositif de commande (100) est programmé pour amener une image vidéo, comprenant une image d'une pluralité de cartes à jouer, à s'afficher sur ladite première unité d'affichage si ledit jeu de hasard comprend le blackjack vidéo,
dans lequel ledit dispositif de commande (100) est programmé pour amener une image vidéo, comprenant une image d'une pluralité de numéros de keno, à s'afficher sur ladite première unité d'affichage si ledit jeu de hasard comprend le keno vidéo,
dans lequel ledit dispositif de commande (100) est programmé pour amener une image vidéo, comprenant une image d'une grille de bingo, à s'afficher sur ladite première unité d'affichage si ledit jeu de hasard comprend le bingo vidéo.

3. Appareil de jeux de hasard selon la revendication 1, dans lequel ladite seconde unité d'affichage (90) comprend l'un des éléments suivants :

un affichage vidéo à écran plat, un affichage électroluminescent ou un affichage à cristaux liquides.

4. Appareil de jeux de hasard selon la revendication 1, dans lequel ledit dispositif de commande est programmé pour amener ladite valve de lumière (93) à devenir translucide.

5. Appareil de jeux de hasard selon la revendication 1, dans lequel ledit dispositif de commande (100) est programmé pour amener ledit système d'affichage à générer un affichage de jeu de hasard sur ladite seconde unité d'affichage (90) concernant l'un des jeux de hasard suivants :

poker, blackjack, machines à sous, keno ou bingo.
dans lequel ledit dispositif de commande est programmé pour amener ladite valve de lumière à devenir sensiblement opaque lorsque ledit affichage de jeu de hasard est généré sur ladite seconde unité d'affichage (90).

6. Appareil de jeux de hasard selon la revendication 1, dans lequel ledit dispositif de commande (100) est programmé pour amener ledit système d'affichage à générer un affichage de jeu de bonus sur ladite seconde unité d'affichage,
dans lequel ledit dispositif de commande (100) est programmé pour amener ladite valve de lumière à devenir sensiblement opaque si ledit affichage de jeu de bonus est généré, de telle sorte que ladite première unité d'affichage est masquée au travers de ladite ouverture de ladite seconde unité d'affichage.

7. Appareil de jeux de hasard selon la revendication 1, dans lequel ledit dispositif de commande (100) est programmé pour amener ledit système d'affichage à générer un affichage d'attraction de joueur sur ladite seconde unité d'affichage,
dans lequel ledit dispositif de commande (100) est programmé pour amener ladite valve de lumière à devenir sensiblement opaque si ledit affichage d'attraction de joueur est généré, de telle sorte que ladite première unité d'affichage est masquée au travers de ladite ouverture de ladite seconde unité d'affichage.

8. Appareil de jeux de hasard selon la revendication 1, dans lequel ledit dispositif de commande (100) est programmé pour amener ledit système d'affichage à générer un premier affichage de gain sur ladite première unité d'affichage si un gain différent de zéro est déterminé,
dans lequel ledit dispositif de commande (100) est programmé pour amener ledit système d'affichage à générer un second affichage de gain sur ladite seconde unité d'affichage si un gain différent de zéro est déterminé,
dans lequel ledit dispositif de commande est programme pour amener ladite valve de lumière à devenir sensiblement transparente si un gain différent de zéro est déterminé, de telle sorte que ladite première unité d'affichage est visible par ladite ouverture de ladite seconde unité d'affichage.

9. Appareil de jeux de hasard selon la revendication 1, dans lequel ledit affichage vidéo sur ladite seconde unité d'affichage (90) concerne l'un des éléments suivants : informations sur le joueur, informations sur la table des gains ou des informations sur le jeu de hasard.

10. Procédé de jeux de hasard, consistant à :

amener un affichage de jeu de hasard de l'un des jeux de hasard suivants à être généré sur une première unité d'affichage (92) : poker, blackjack, machines à sous, keno ou bingo,
amener un affichage vidéo à être généré sur une seconde unité d'affichage (90) placée à l'avant de ladite première unité d'affichage, ladite seconde unité d'affichage comprenant une ouverture (94, 95),
amener une valve de lumière (93) placée entre lesdites première et seconde unités d'affichage à devenir sensiblement transparente si ledit affichage de jeu de hasard est généré sur ladite première unité d'affichage, de telle sorte que le-

dit affichage de jeu de hasard est visible par ladite ouverture de ladite seconde unité d'affichage,
amener ladite valve de lumière (93) à devenir sensiblement opaque si ledit affichage de jeu de hasard sur ladite première unité d'affichage (92) est masqué au travers de ladite ouverture de ladite seconde unité d'affichage (90), et
déterminer un gain associé à un résultat dudit jeu de hasard représenté par ladite image vidéo.

11. Procédé de jeux de hasard selon la revendication 10, consistant en outre à :

amener un affichage de jeu de hasard de l'un des jeux de hasard suivants à être généré sur ladite seconde unité d'affichage : poker, blackjack, machines à sous, keno ou bingo,
amener ladite valve de lumière (93) à devenir sensiblement opaque lorsque ledit affichage de jeu de hasard est généré sur ladite seconde unité d'affichage.

12. Procédé de jeux de hasard selon la revendication 10, consistant en outre à :

amener un affichage de jeu de bonus à être généré sur ladite seconde unité d'affichage,
amener ladite valve de lumière (93) à devenir sensiblement opaque si ledit affichage de jeu de bonus est généré, de telle sorte que ladite première unité d'affichage est masquée au travers de ladite ouverture de ladite seconde unité d'affichage.

13. Procédé de jeux de hasard selon la revendication 10, consistant en outre à :

amener un affichage d'attraction de joueur à être généré sur ladite seconde unité d'affichage (90),
amener ladite valve de lumière (93) à devenir sensiblement opaque si ledit affichage d'attraction de joueur est généré, de telle sorte que la dite première unité d'affichage est masquée au travers de ladite ouverture de ladite seconde unité d'affichage.

14. Procédé de jeux de hasard selon la revendication 10, consistant en outre à :

amener un premier affichage de gain à être généré sur ladite première unité d'affichage (92) si un gain différent de zéro est déterminé,
amener un second affichage de gain à être généré sur ladite seconde unité d'affichage (90) si un gain différent de zéro est déterminé,
amener ladite valve de lumière (93) à devenir sensiblement transparente si un gain différent de zéro est déterminé, de telle sorte que ladite première unité d'affichage est visible par ladite ouverture de ladite seconde unité d'affichage.

FIG. 1

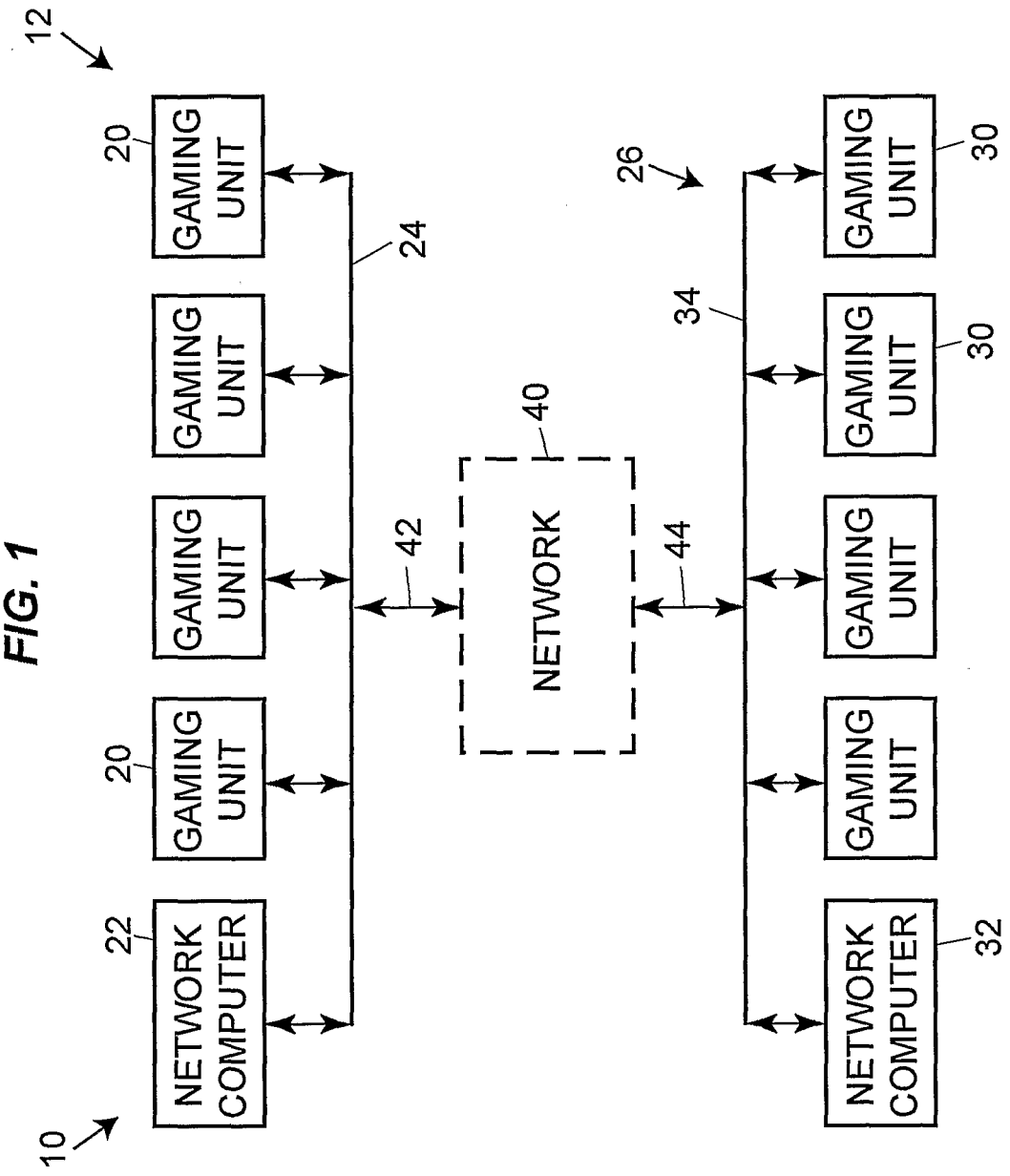

12
10
20
GAMING UNIT
22
NETWORK COMPUTER
24
26
30
32
34
40
NETWORK
42
44

FIG. 2

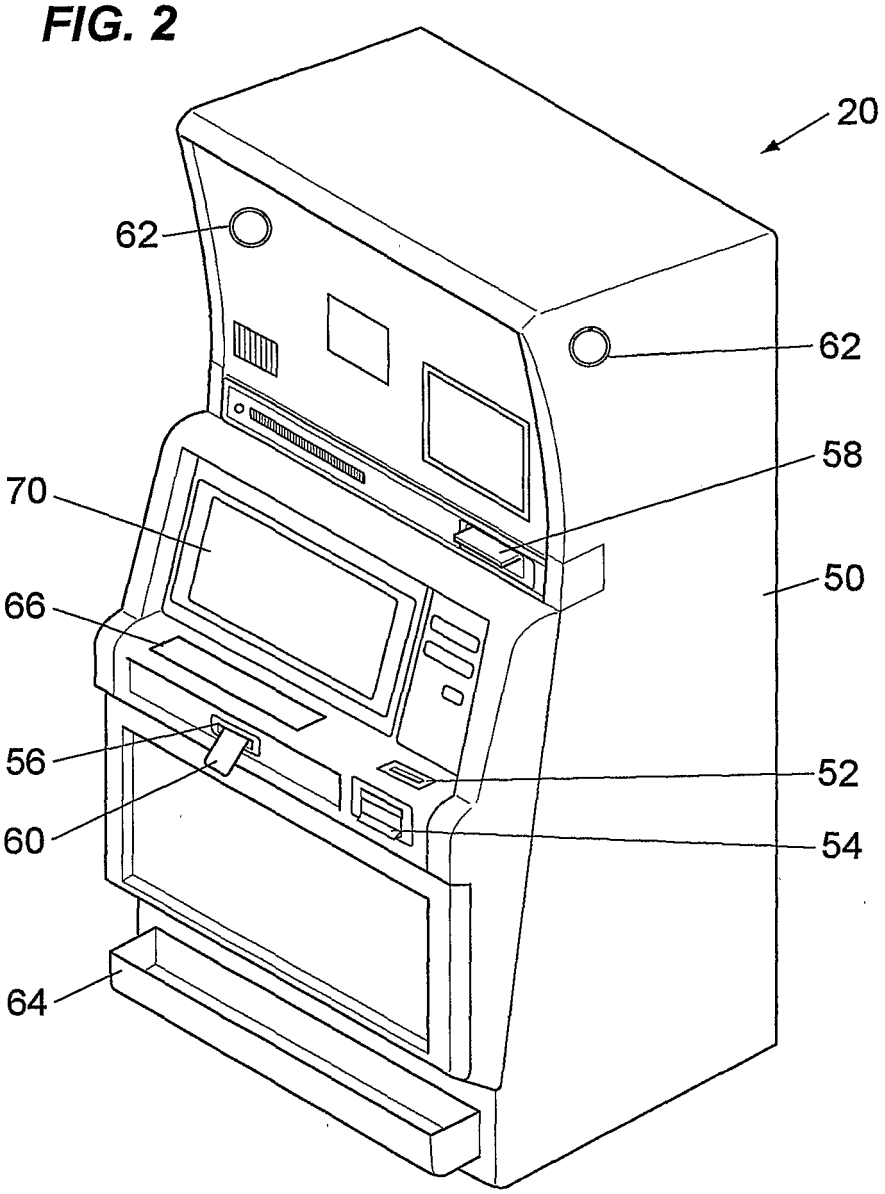
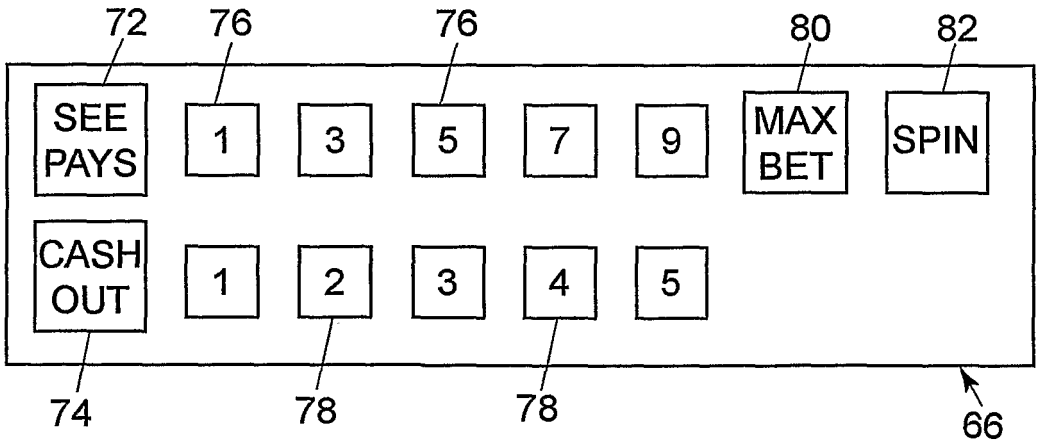

20
62
62
58
70
50
66
56
52
60
54
64

FIG. 2A


72
76
76
80
82
SEE PAYS
1
3
5
7
9
MAX BET
SPIN
CASH OUT
1
2
3
4
5
74
78
78
66

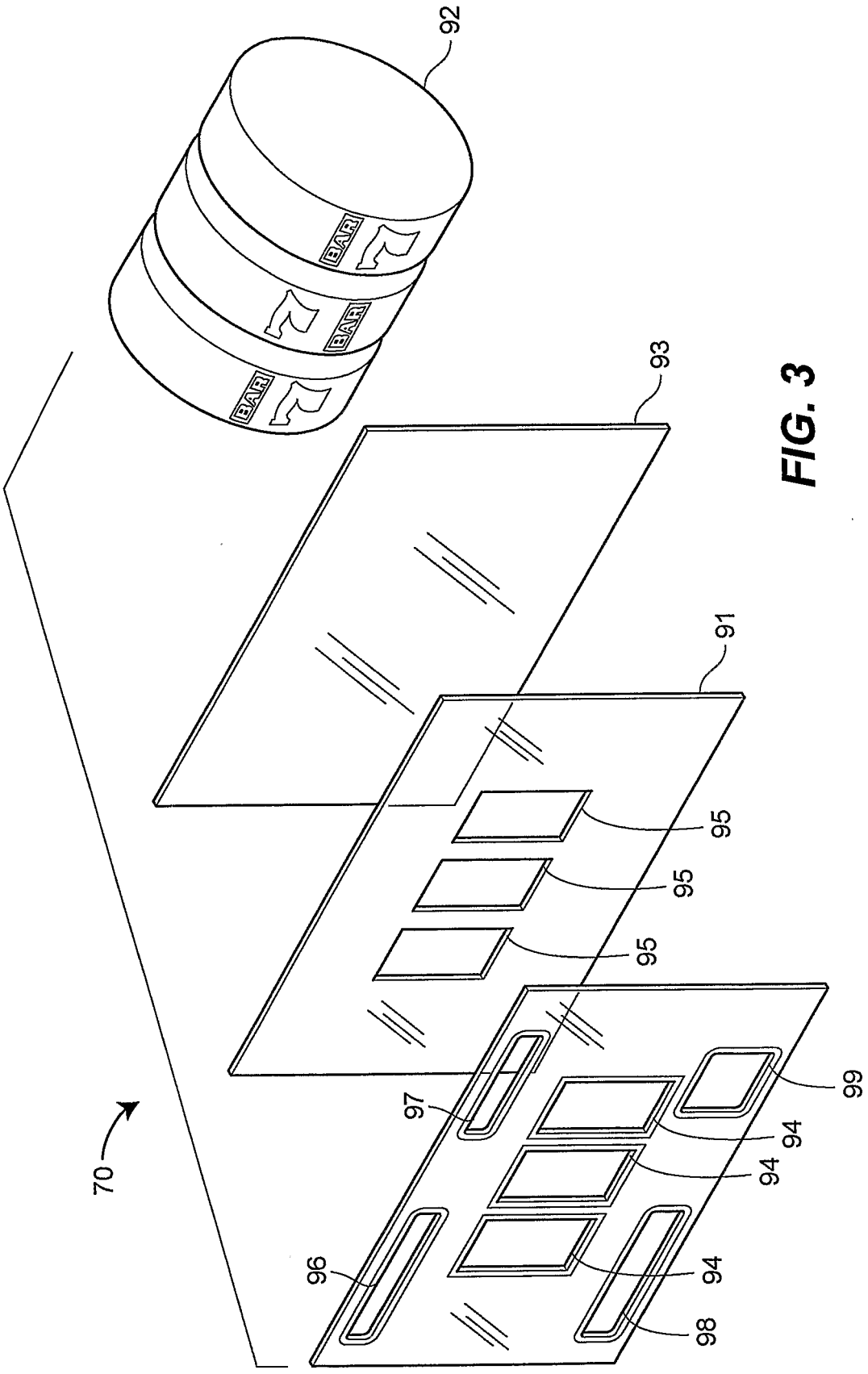


FIG. 3

FIG. 4

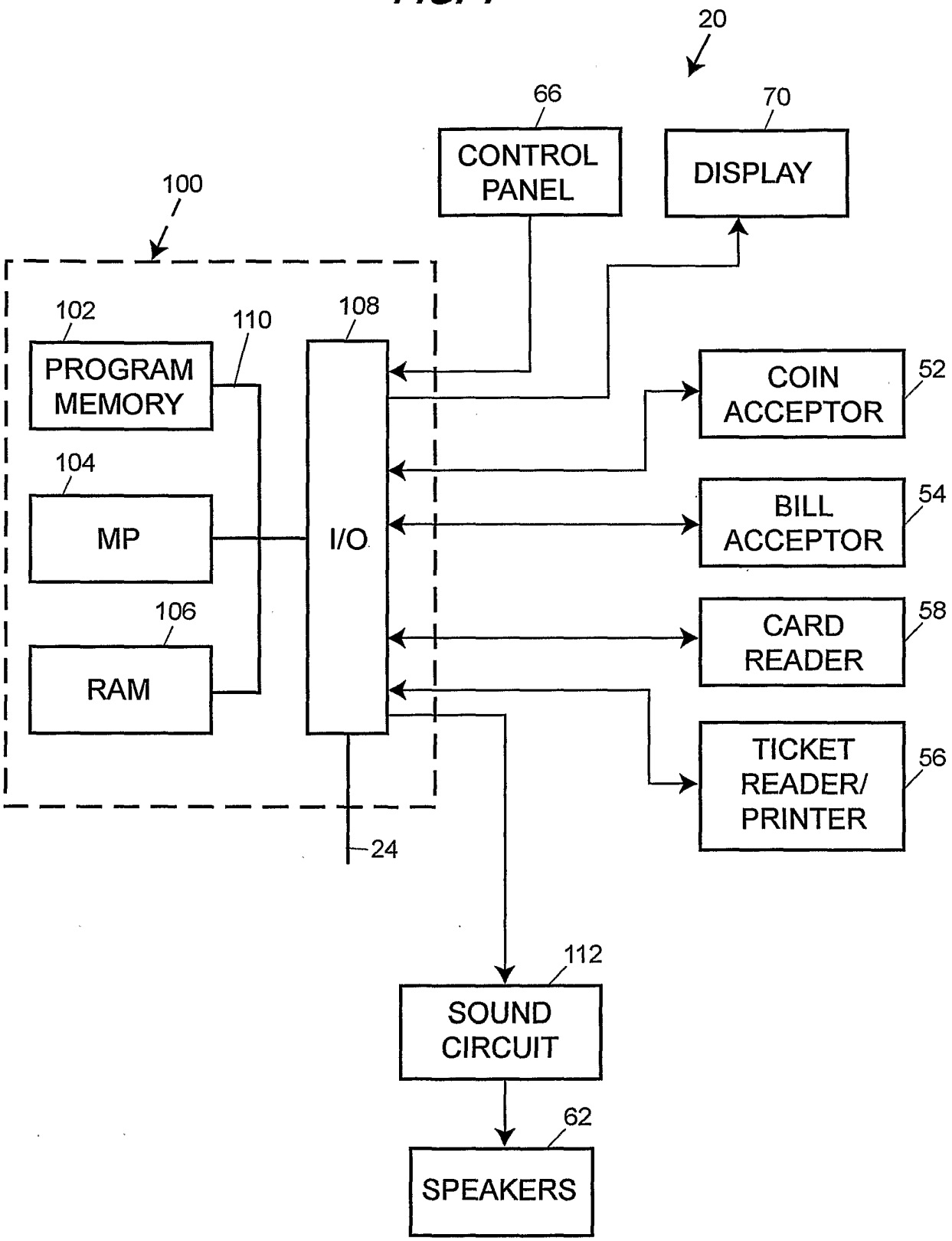

20
66
CONTROL PANEL
70
DISPLAY
100
102
PROGRAM MEMORY
110
108
104
MP
I/O
106
RAM
COIN ACCEPTOR
52
BILL ACCEPTOR
54
CARD READER
58
TICKET READER/ PRINTER
56
24
112
SOUND CIRCUIT
62
SPEAKERS

FIG. 5

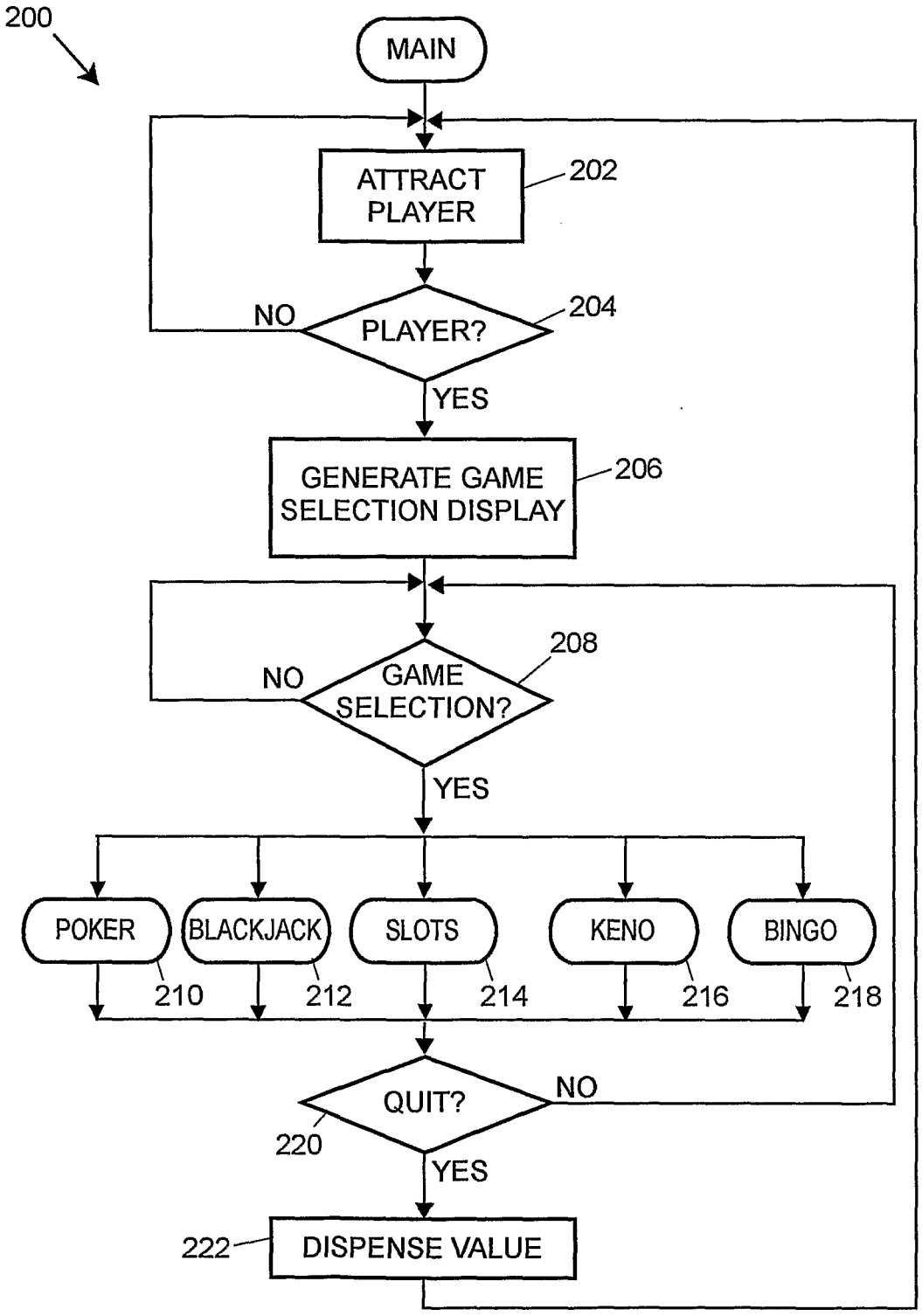

200
MAIN
ATTRACT PLAYER
202
NO
PLAYER?
204
YES
GENERATE GAME SELECTION DISPLAY
206
NO
GAME SELECTION?
208
YES
POKER
BLACKJACK
SLOTS
KENO
BINGO
210
212
214
216
218
QUIT?
220
NO
YES
222
DISPENSE VALUE

FIG. 6

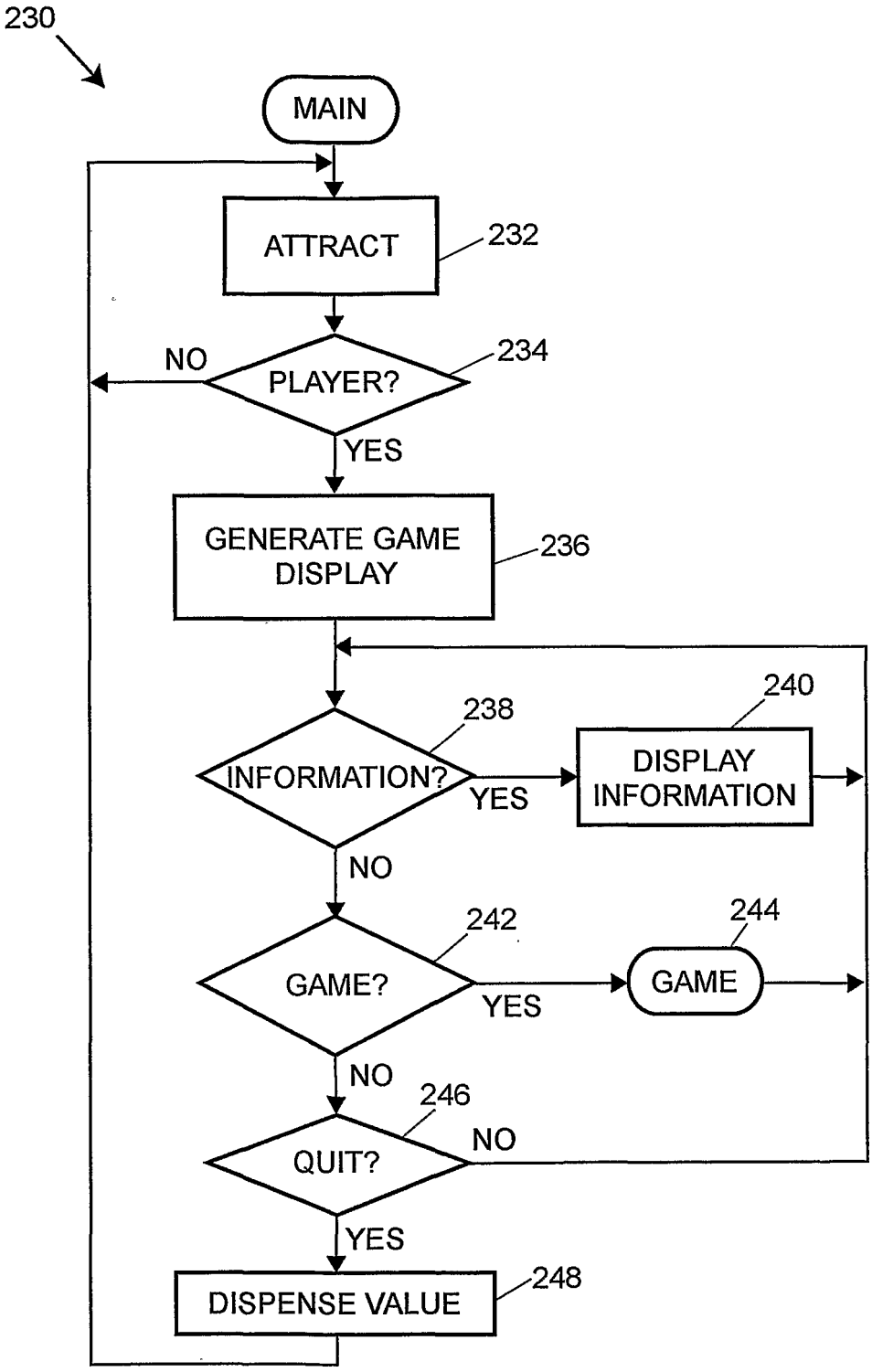
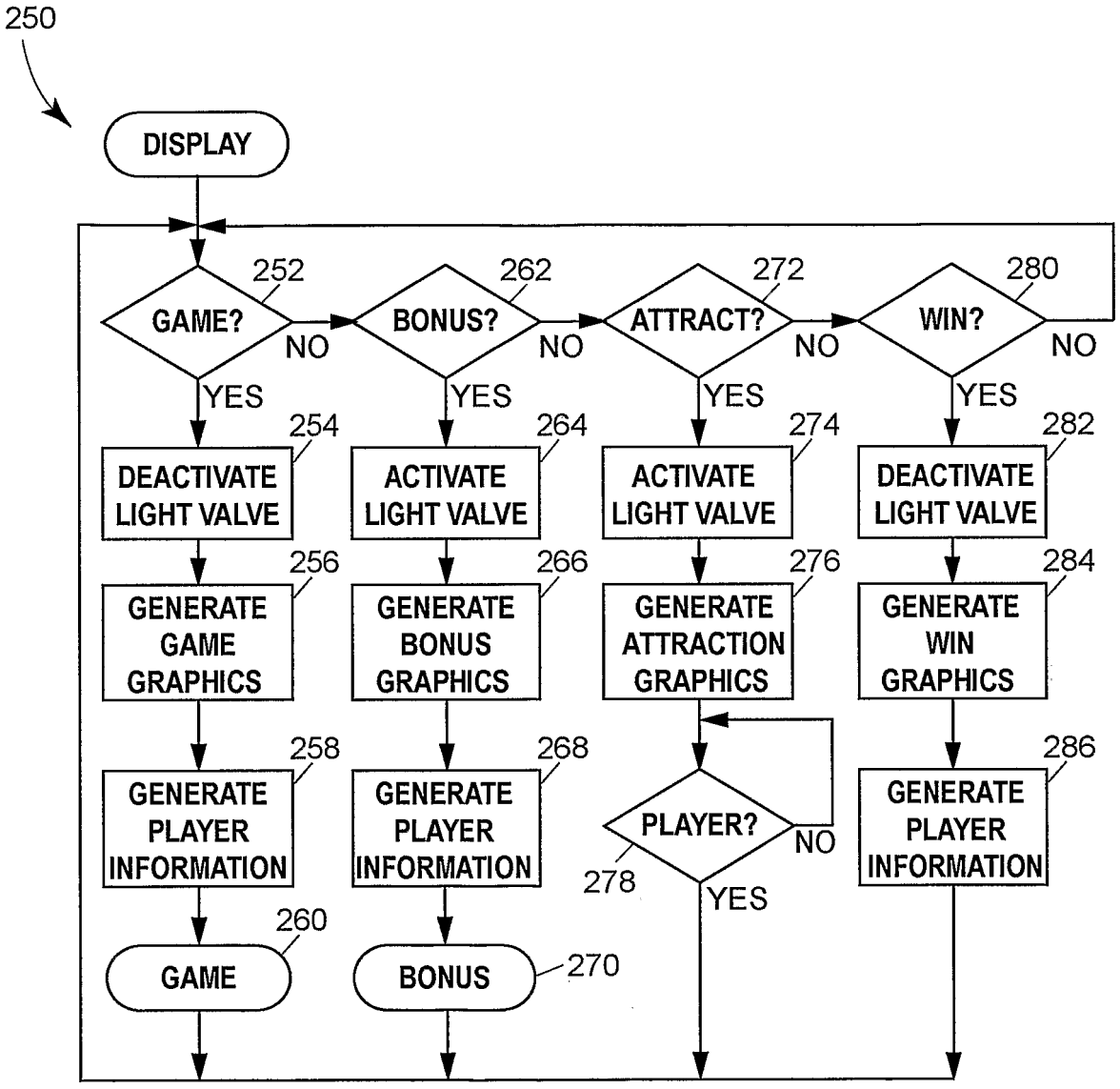

230
MAIN
ATTRACT
232
NO
PLAYER?
234
YES
GENERATE GAME DISPLAY
236
240
238
INFORMATION?
YES
DISPLAY INFORMATION
NO
242
244
GAME?
YES
GAME
NO
246
QUIT?
NO
YES
DISPENSE VALUE
248

FIG. 7


250
DISPLAY
GAME?
252
NO
YES
BONUS?
262
NO
YES
ATTRACT?
272
NO
YES
WIN?
280
NO
YES
DEACTIVATE LIGHT VALVE
254
ACTIVATE LIGHT VALVE
264
ACTIVATE LIGHT VALVE
274
DEACTIVATE LIGHT VALVE
282
GENERATE GAME GRAPHICS
256
GENERATE BONUS GRAPHICS
266
GENERATE ATTRACTION GRAPHICS
276
GENERATE WIN GRAPHICS
284
GENERATE PLAYER INFORMATION
258
GENERATE PLAYER INFORMATION
268
PLAYER?
278
NO
YES
GENERATE PLAYER INFORMATION
286
GAME
260
BONUS
270

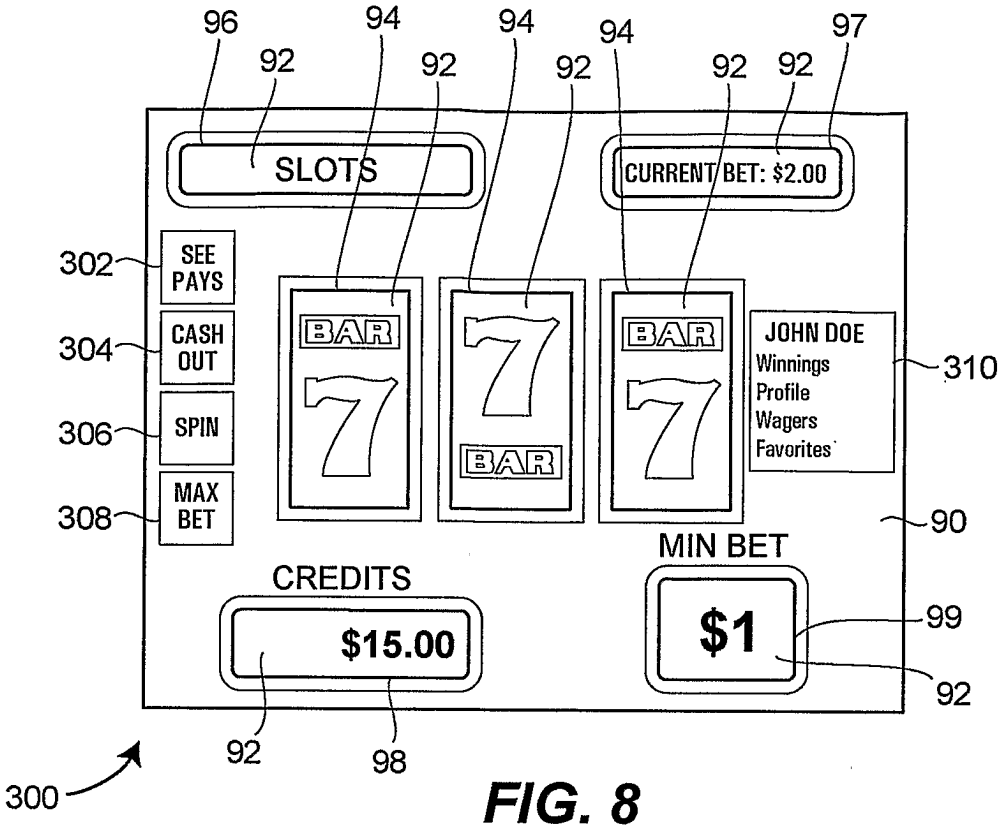

96
92
94
92
94
92
94
92
92
97
SLOTS
CURRENT BET: $2.00
302
SEE PAYS
304
CASH OUT
306
SPIN
308
MAX BET
BAR
7
7
BAR
BAR
7
JOHN DOE
Winnings
Profile
Wagers
Favorites
310
90
MIN BET
CREDITS
$15.00
$1
99
92
92
98
300

FIG. 8

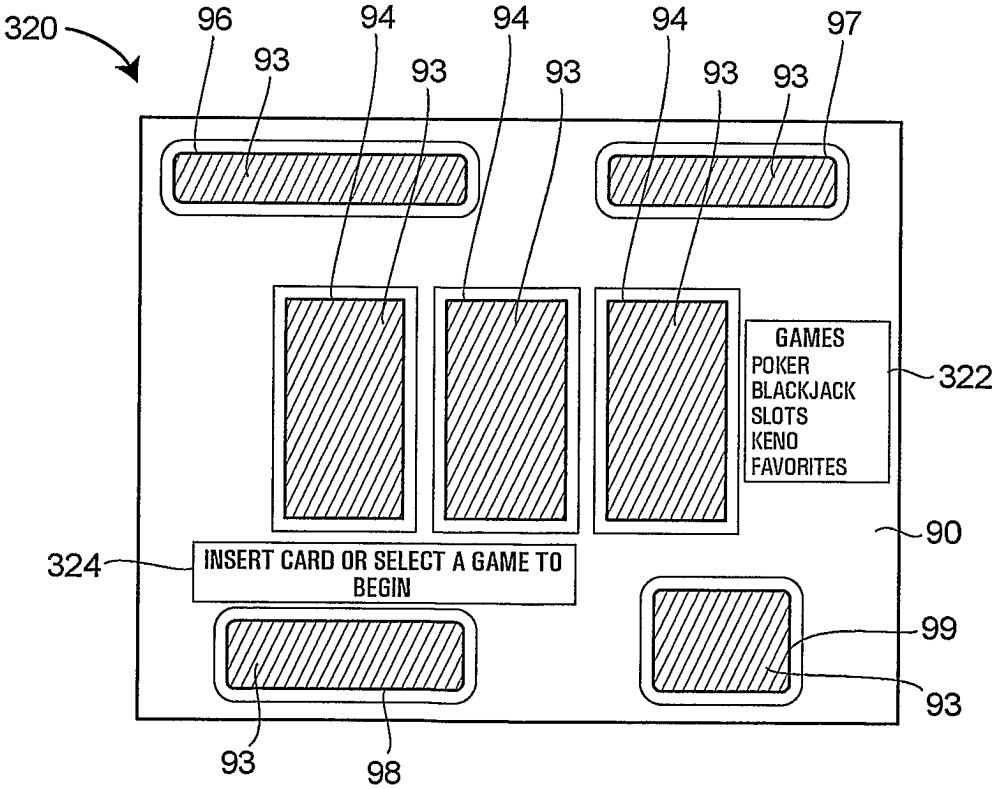

320
96
93
94
93
94
93
94
93
93
97
GAMES
POKER
BLACKJACK
SLOTS
KENO
FAVORITES
322
90
324
INSERT CARD OR SELECT A GAME TO BEGIN
99
93
93
98

FIG. 9

FIG. 10

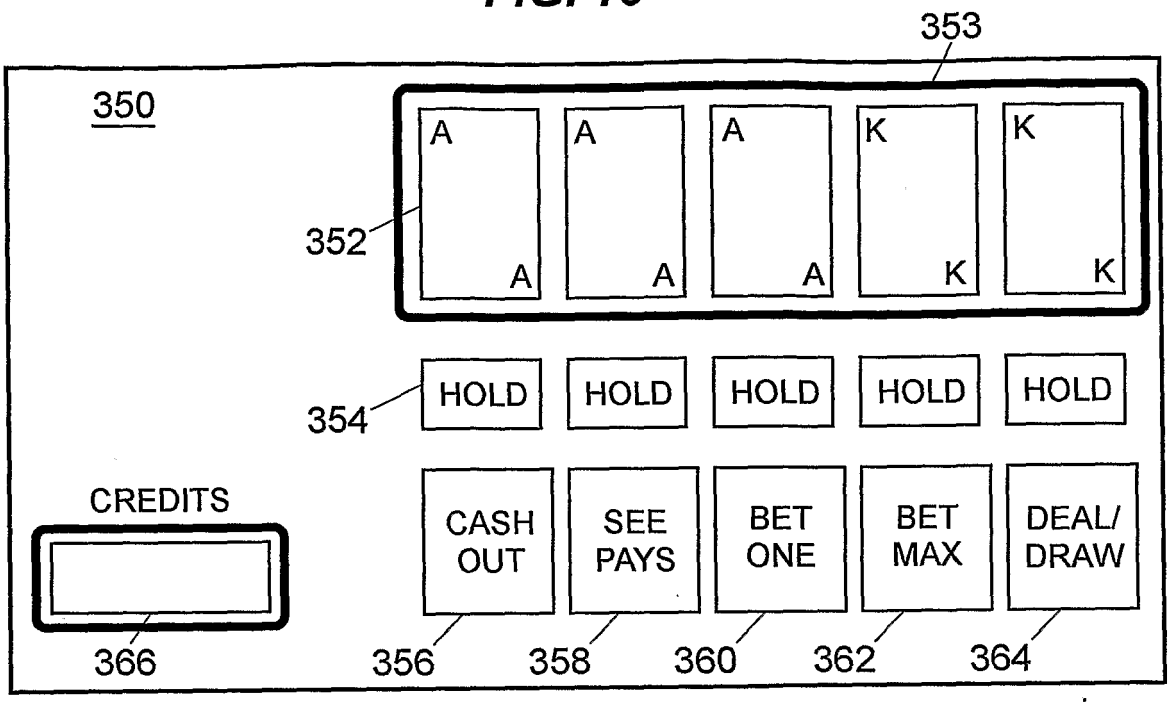

350
353
352
A
A
A
K
K
A
A
A
K
K
354
HOLD
HOLD
HOLD
HOLD
HOLD
CREDITS
CASH OUT
SEE PAYS
BET ONE
BET MAX
DEAL/ DRAW
366
356
358
360
362
364

FIG. 11

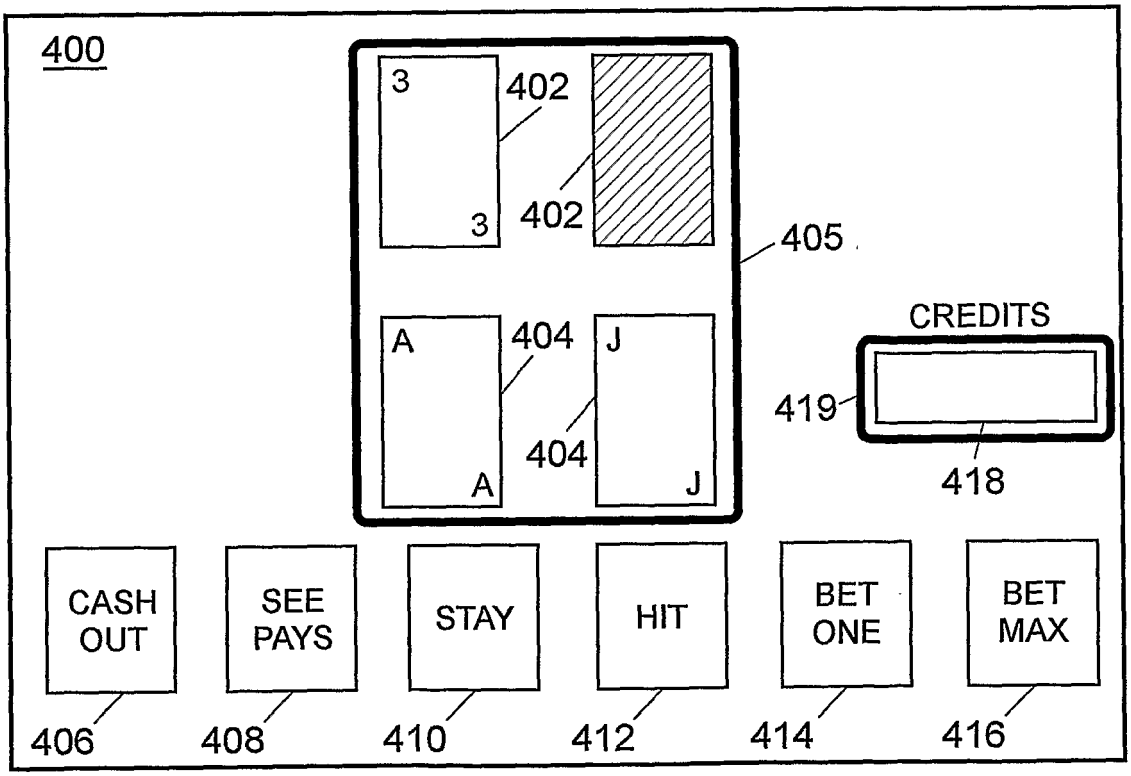

400
3
402
3
402
405
A
404
J
404
A
J
CREDITS
419
418
CASH OUT
SEE PAYS
STAY
HIT
BET ONE
BET MAX
406
408
410
412
414
416

FIG. 12

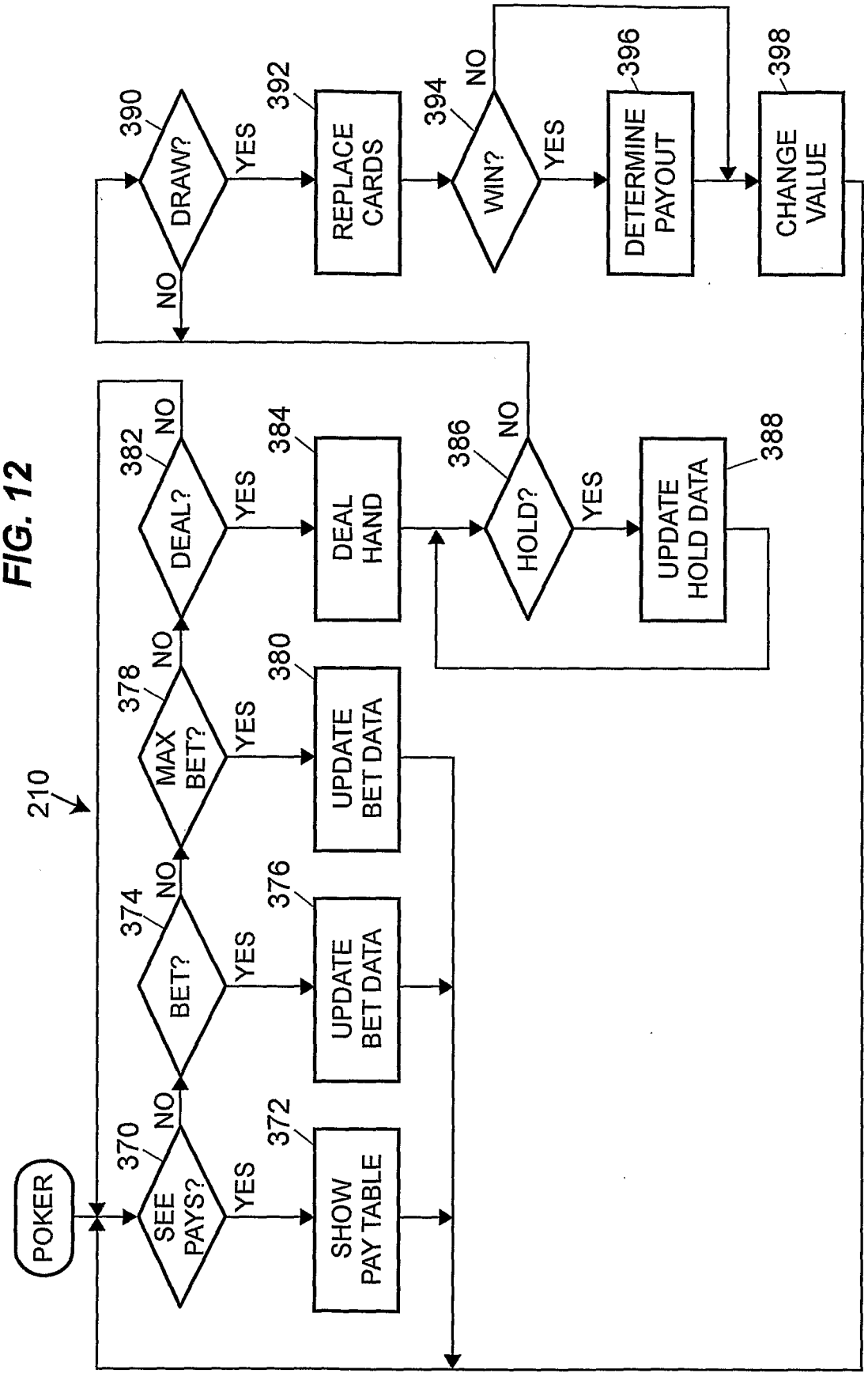

POKER
210
SEE PAYS?
370
YES
NO
SHOW PAY TABLE
372
BET?
374
YES
NO
UPDATE BET DATA
376
MAX BET?
378
YES
NO
UPDATE BET DATA
380
DEAL?
382
YES
NO
DEAL HAND
384
HOLD?
386
YES
NO
UPDATE HOLD DATA
388
DRAW?
390
YES
NO
REPLACE CARDS
392
WIN?
394
YES
NO
DETERMINE PAYOUT
396
CHANGE VALUE
398

FIG. 13

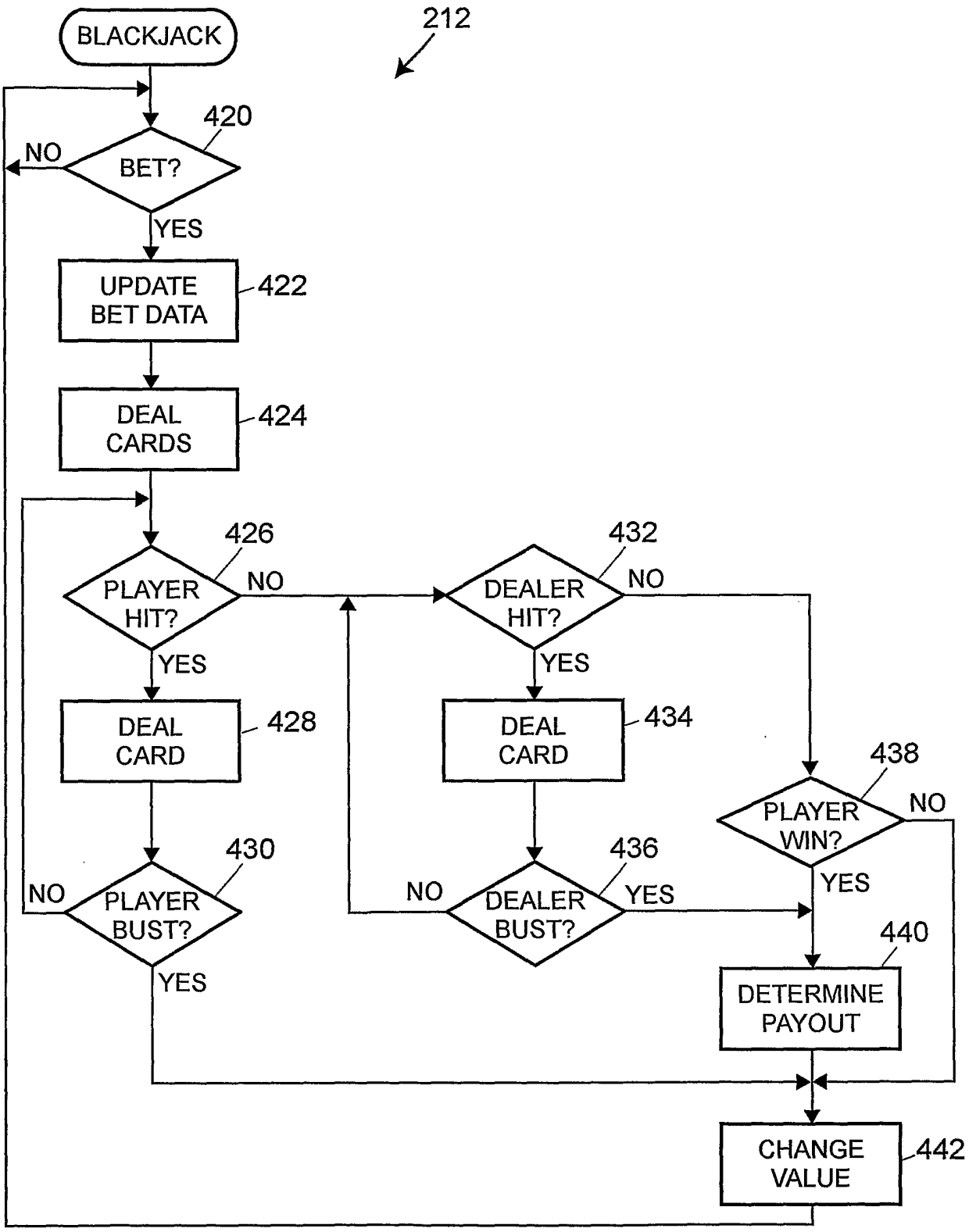

212
BLACKJACK
420
BET?
NO
YES
UPDATE BET DATA
422
DEAL CARDS
424
426
PLAYER HIT?
NO
YES
DEAL CARD
428
430
PLAYER BUST?
NO
YES
432
DEALER HIT?
NO
YES
DEAL CARD
434
436
DEALER BUST?
NO
YES
438
PLAYER WIN?
NO
YES
440
DETERMINE PAYOUT
CHANGE VALUE
442

FIG. 14

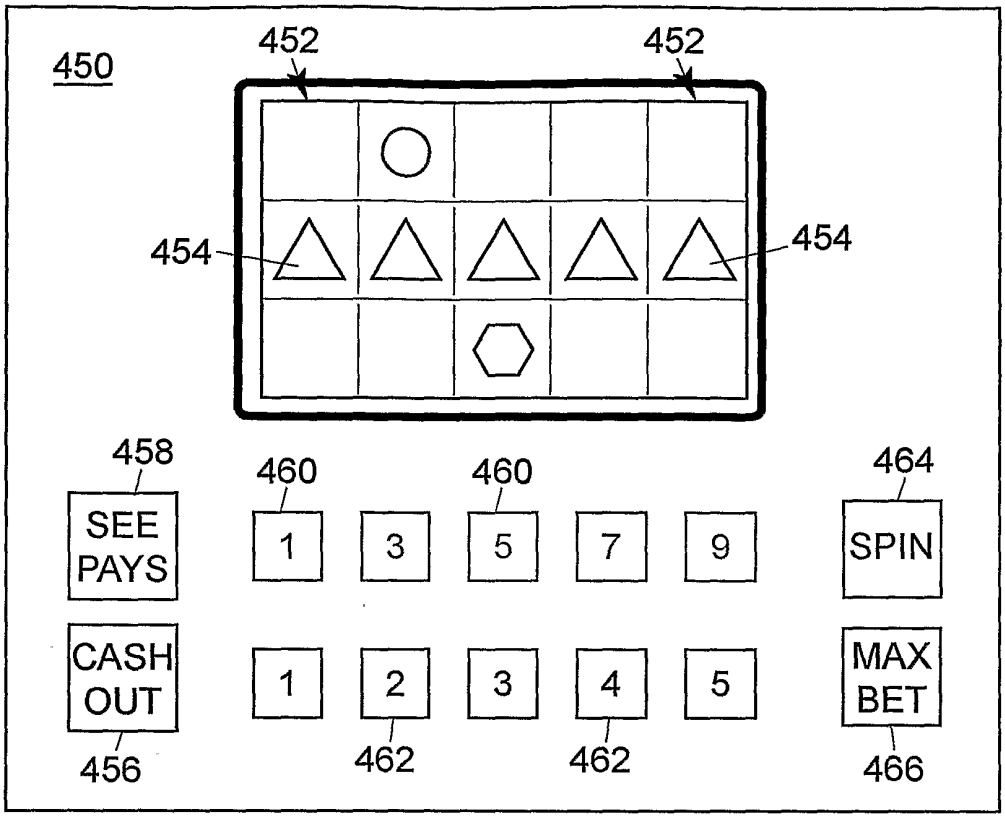

450
452
452
454
454
458
460
460
464
SEE PAYS
1
3
5
7
9
SPIN
CASH OUT
1
2
3
4
5
MAX BET
456
462
462
466

FIG. 15

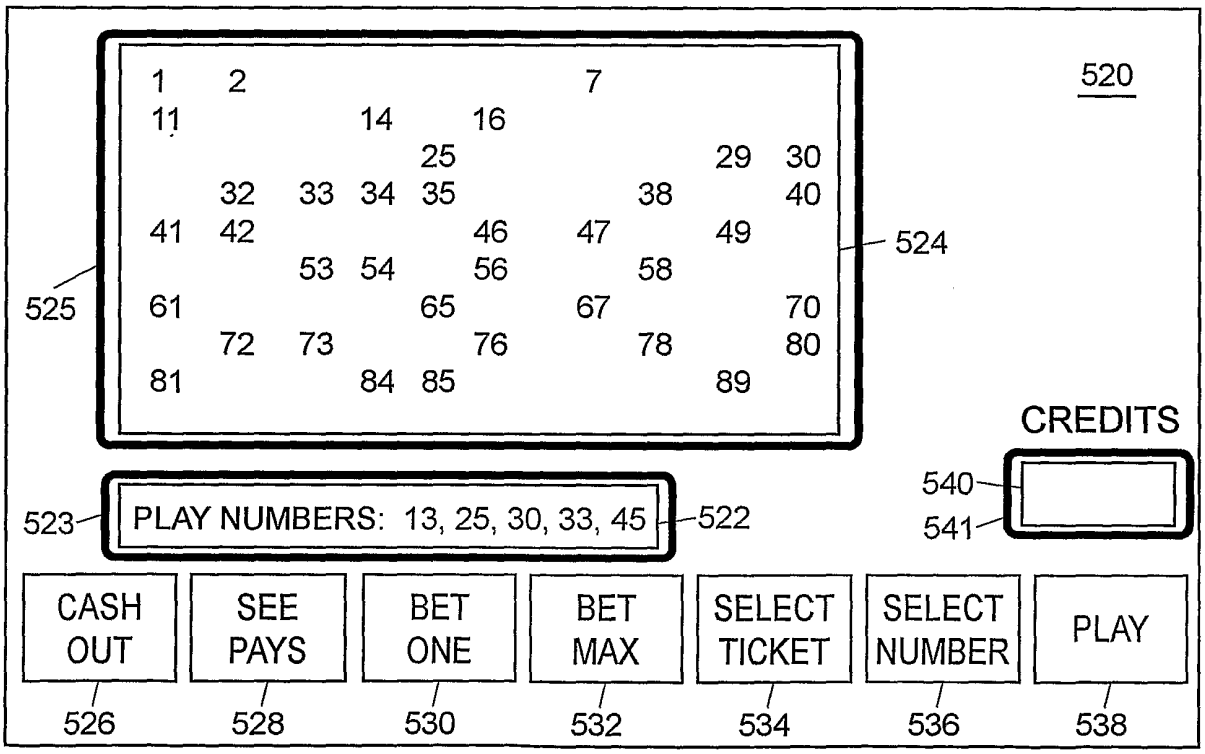
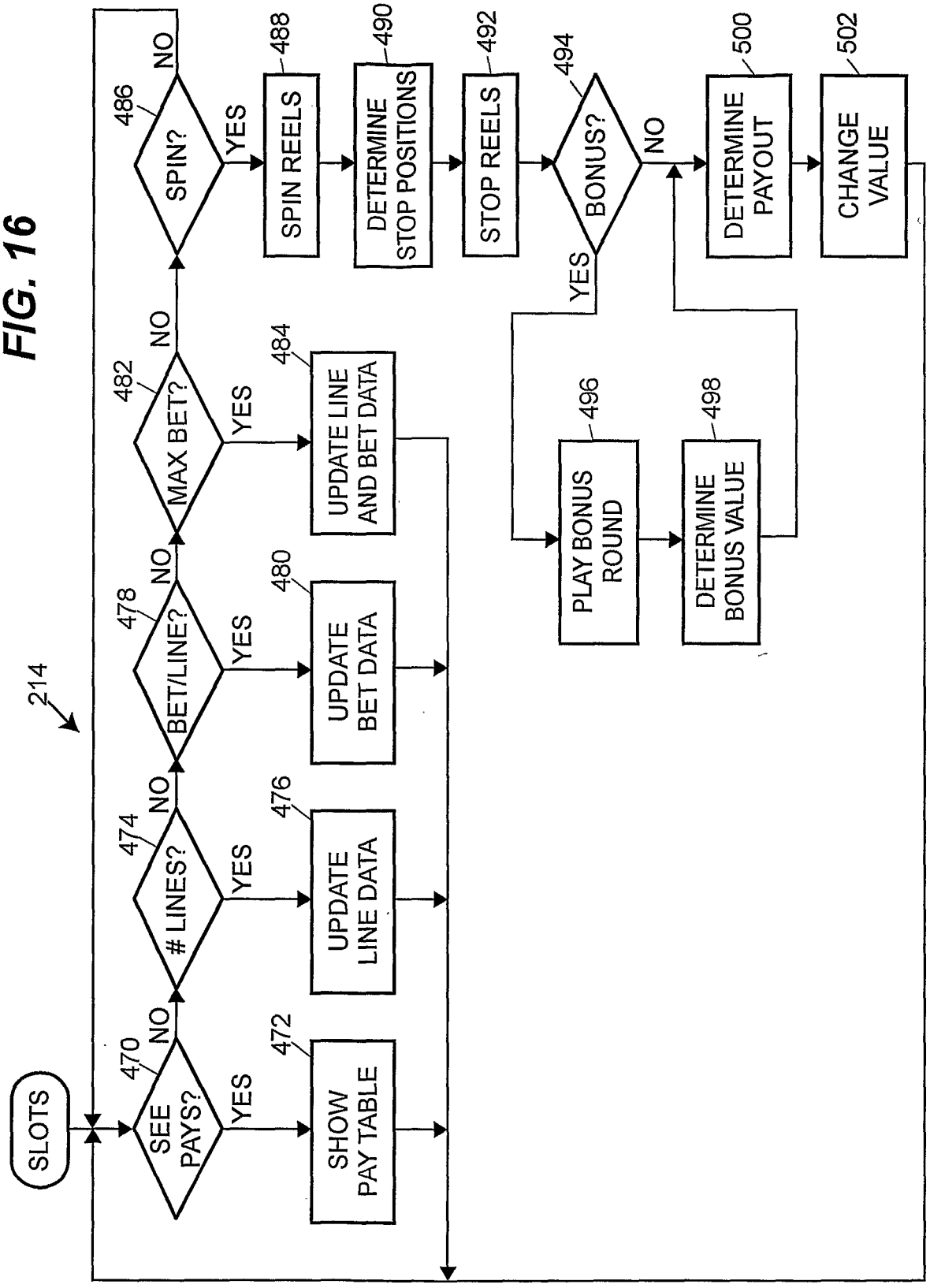

520
1 2 7
11 14 16
25 29 30
32 33 34 35 38 40
41 42 46 47 49
53 54 56 58
61 65 67 70
72 73 76 78 80
81 84 85 89
524
525
CREDITS
540
541
523
PLAY NUMBERS: 13, 25, 30, 33, 45
522
CASH OUT
SEE PAYS
BET ONE
BET MAX
SELECT TICKET
SELECT NUMBER
PLAY
526
528
530
532
534
536
538

FIG. 16


214
SLOTS
SEE PAYS?
470
NO
YES
SHOW PAY TABLE
472
LINES?
474
NO
YES
UPDATE LINE DATA
476
BET/LINE?
478
NO
YES
UPDATE BET DATA
480
MAX BET?
482
NO
YES
UPDATE LINE AND BET DATA
484
SPIN?
486
NO
YES
SPIN REELS
488
DETERMINE STOP POSITIONS
490
STOP REELS
492
BONUS?
494
YES
NO
PLAY BONUS ROUND
496
DETERMINE BONUS VALUE
498
DETERMINE PAYOUT
500
CHANGE VALUE
502

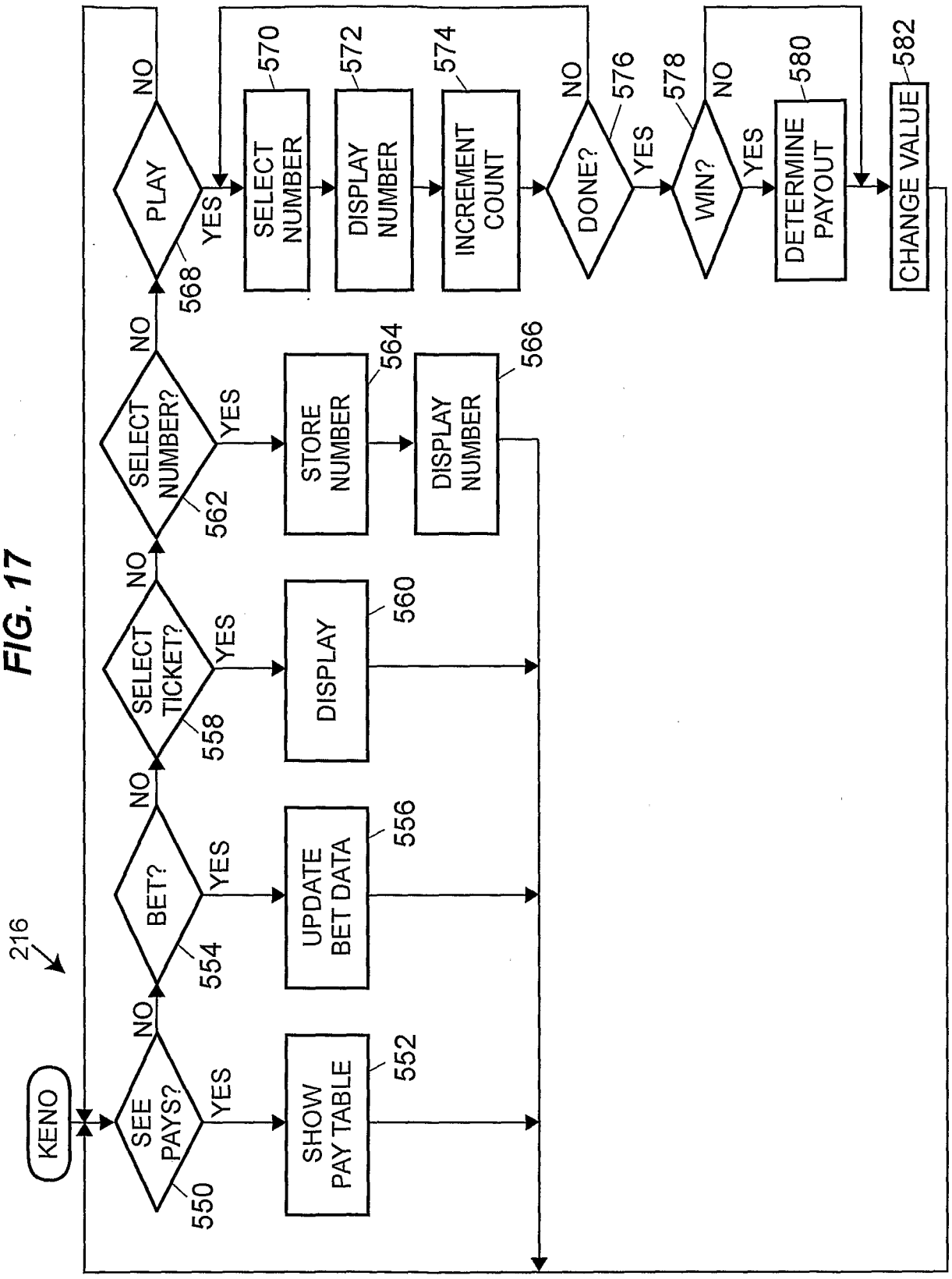

216
KENO
SEE PAYS?
550
YES
SHOW PAY TABLE
552
NO
BET?
554
YES
UPDATE BET DATA
556
NO
SELECT TICKET?
558
YES
DISPLAY
560
NO
SELECT NUMBER?
562
YES
STORE NUMBER
564
DISPLAY NUMBER
566
NO
PLAY
568
YES
SELECT NUMBER
570
DISPLAY NUMBER
572
INCREMENT COUNT
574
NO
DONE?
576
YES
WIN?
578
YES
NO
DETERMINE PAYOUT
580
CHANGE VALUE
582

FIG. 17

FIG. 18

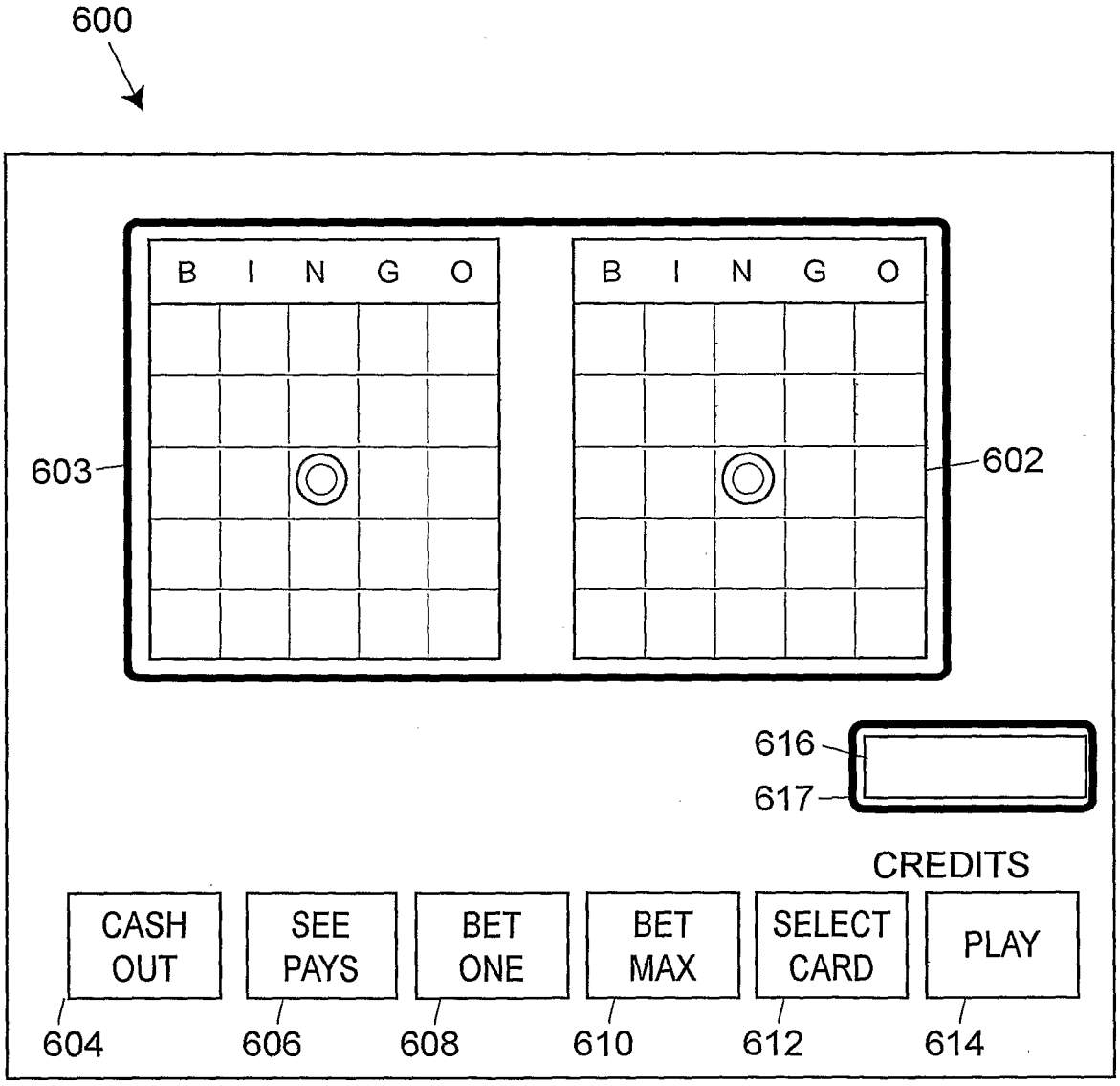
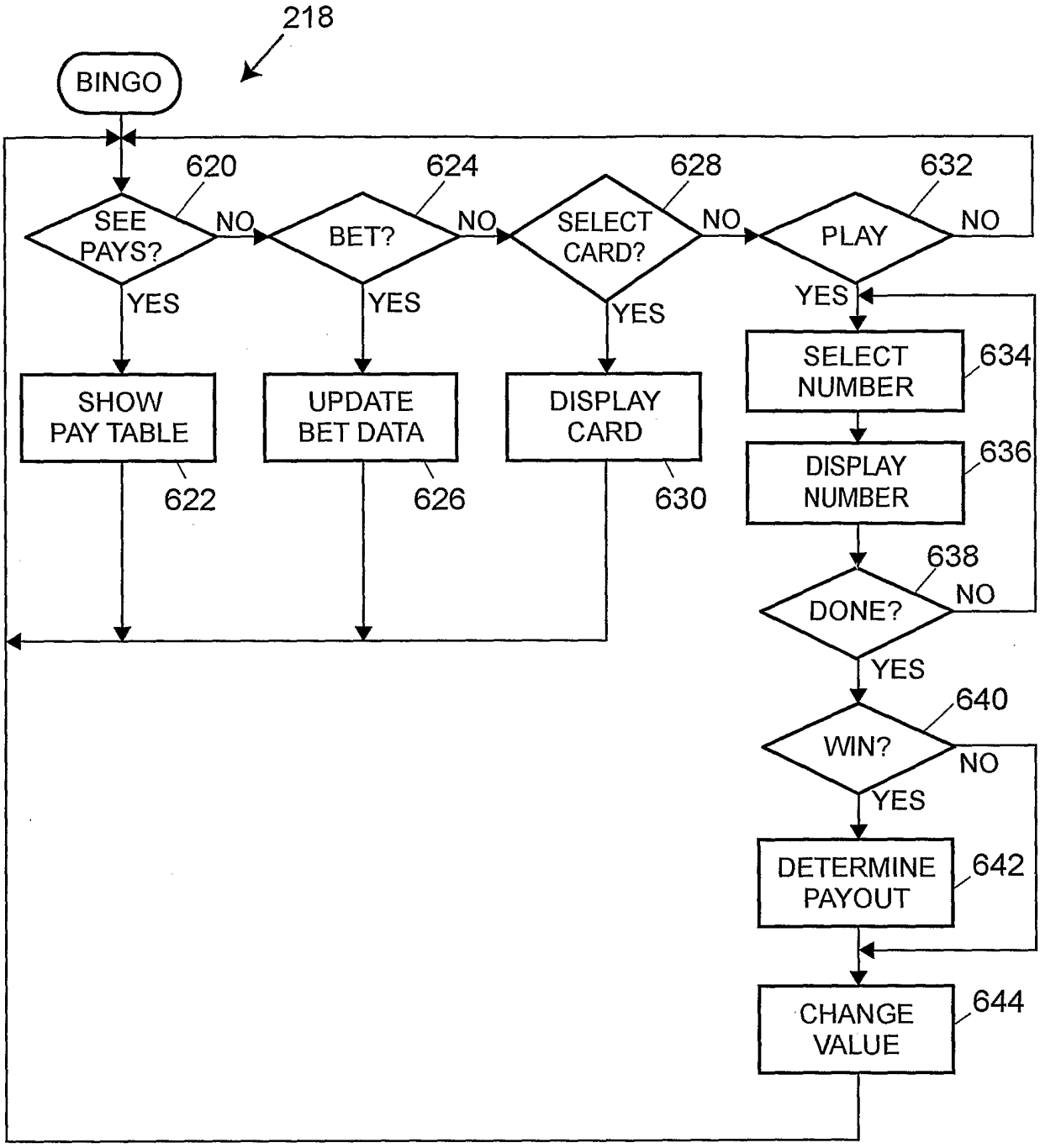

600
B I N G O
B I N G O
603
602
616
617
CREDITS
CASH OUT
SEE PAYS
BET ONE
BET MAX
SELECT CARD
PLAY
604
606
608
610
612
614

FIG. 19


218
BINGO
620
SEE PAYS?
NO
YES
624
BET?
NO
YES
628
SELECT CARD?
NO
YES
632
PLAY
NO
YES
SHOW PAY TABLE
622
UPDATE BET DATA
626
DISPLAY CARD
630
SELECT NUMBER
634
DISPLAY NUMBER
636
638
DONE?
NO
YES
640
WIN?
NO
YES
DETERMINE PAYOUT
642
CHANGE VALUE
644

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1282088 A **[0003]**
- US 6027115 A **[0025]**