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(54) APPARATUS FOR REVEALING A HIDDEN VISUAL ELEMENT IN A GAMING UNIT

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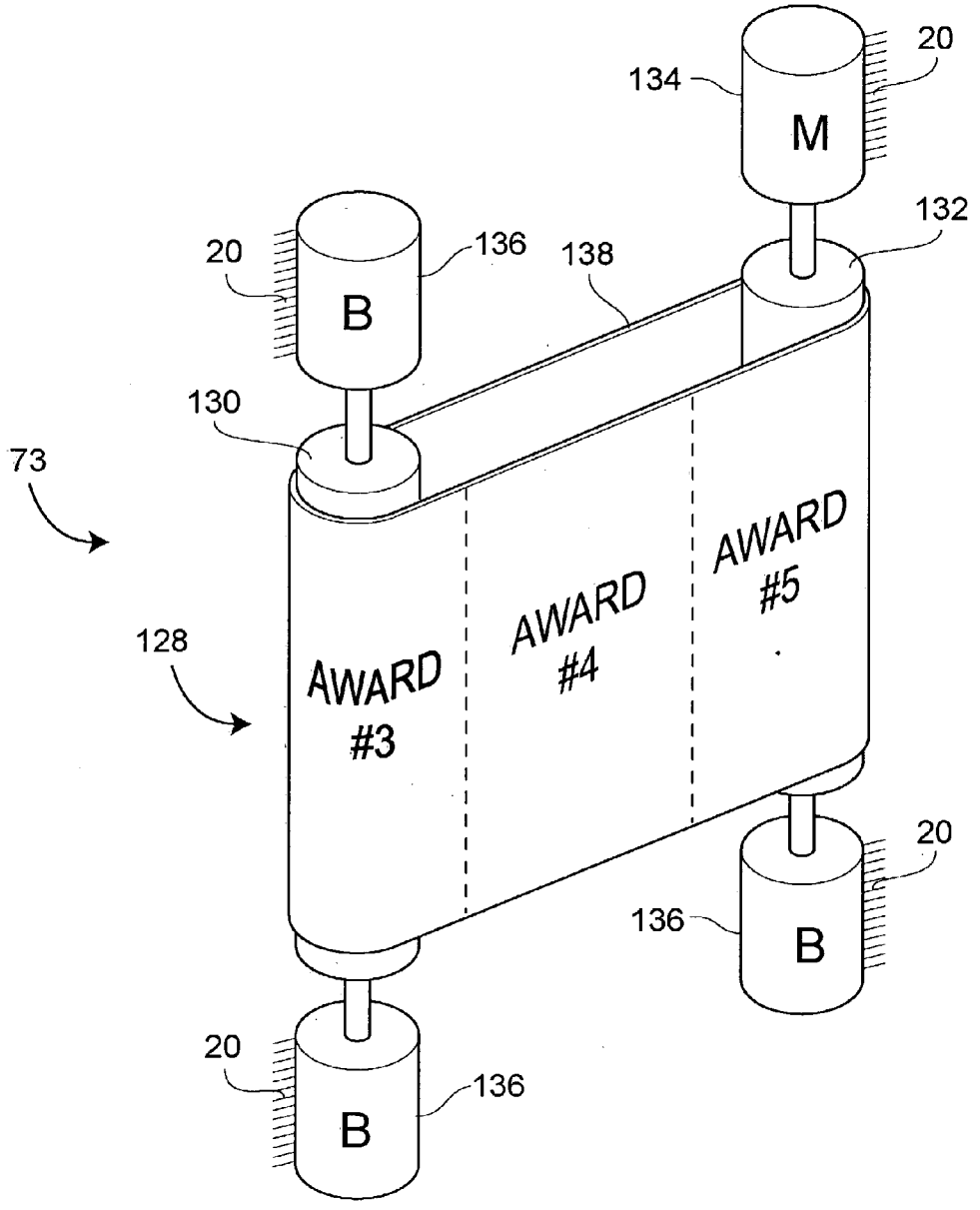
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(52) **U.S. Cl.** **463/31**

(57) **ABSTRACT**

A gaming machine having a second display unit and a light valve coupled to the gaming machine to hide and reveal the second display unit. The gaming machine capable of displaying gaming indicia upon on the second display unit. The gaming machine further capable of controlling the transparency of the light valve so as to hide and reveal the gaming indicia as desired.



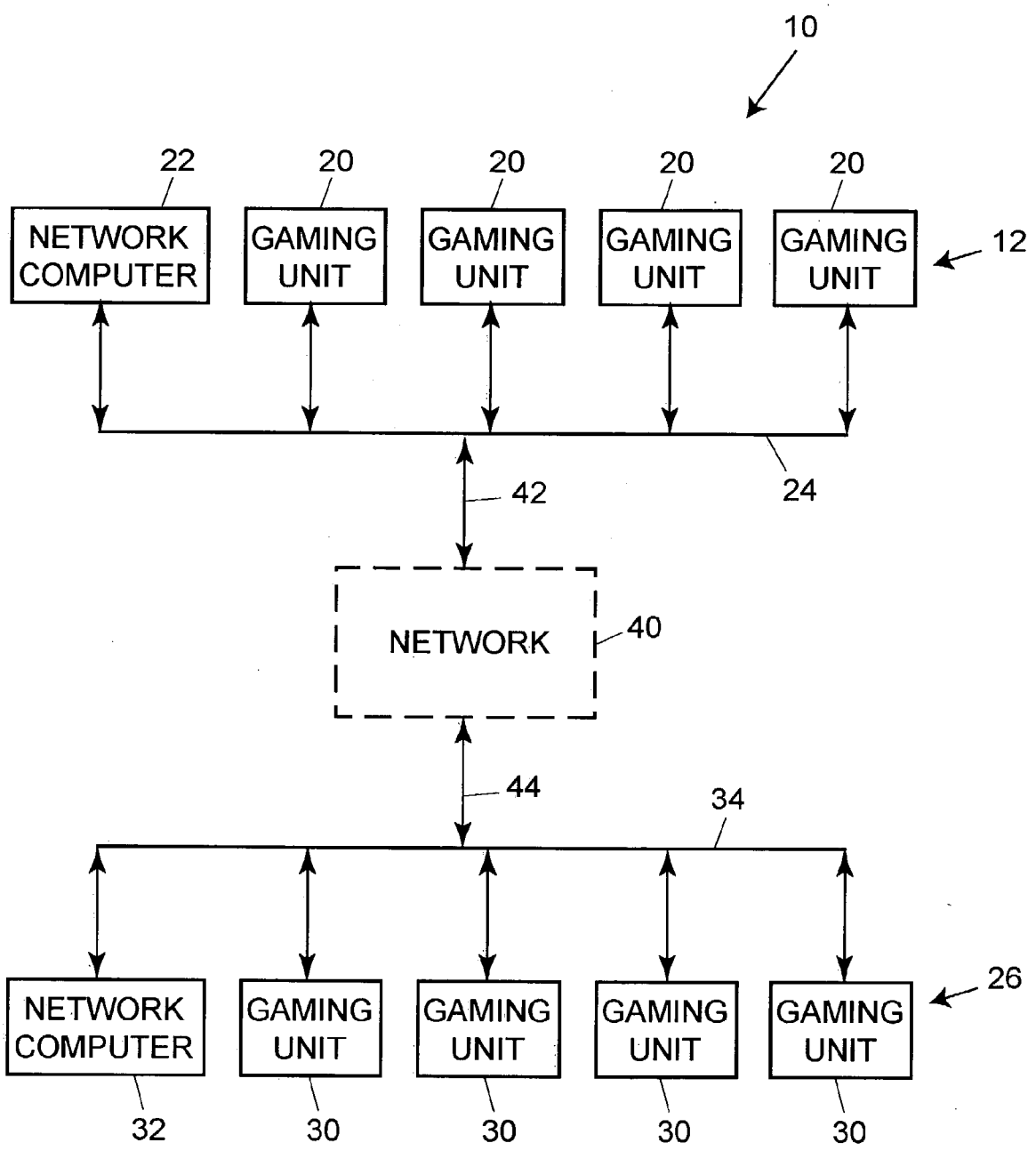

10
22
20
20
20
20
NETWORK COMPUTER
GAMING UNIT
GAMING UNIT
GAMING UNIT
GAMING UNIT
12
42
24
NETWORK
40
44
34
NETWORK COMPUTER
GAMING UNIT
GAMING UNIT
GAMING UNIT
GAMING UNIT
26
32
30
30
30
30

FIG. 1

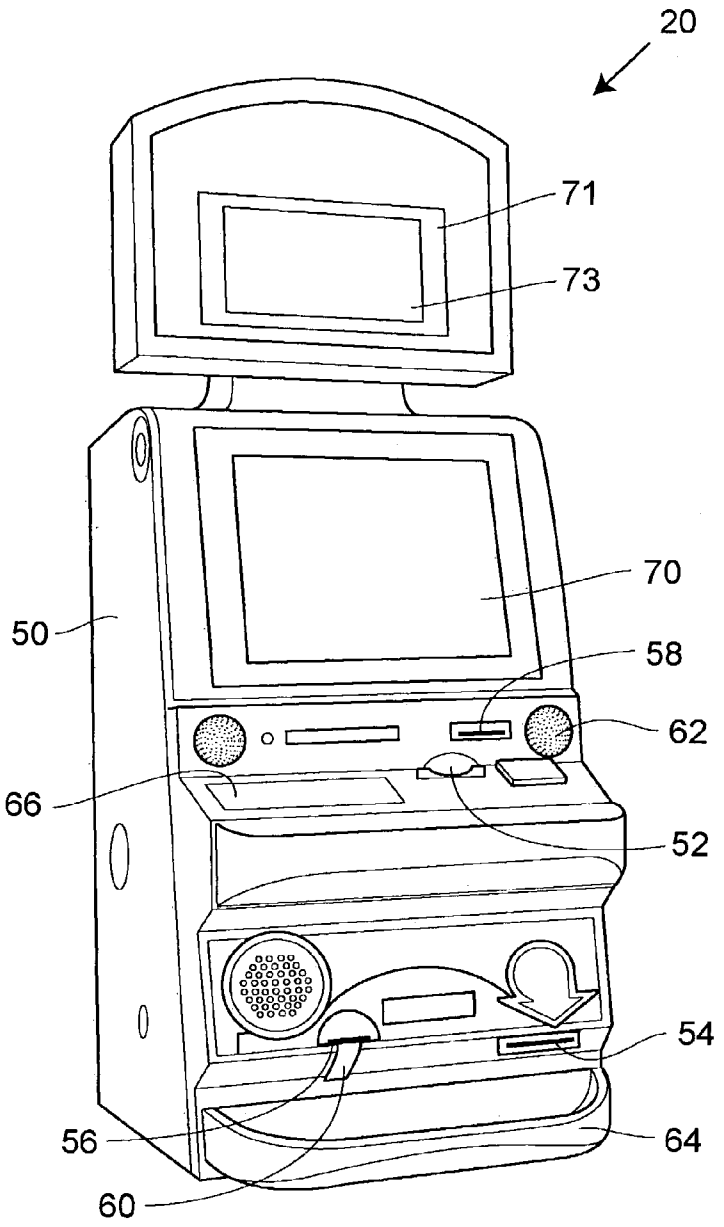

20
71
73
70
50
58
62
66
52
54
56
64
60

FIG. 2

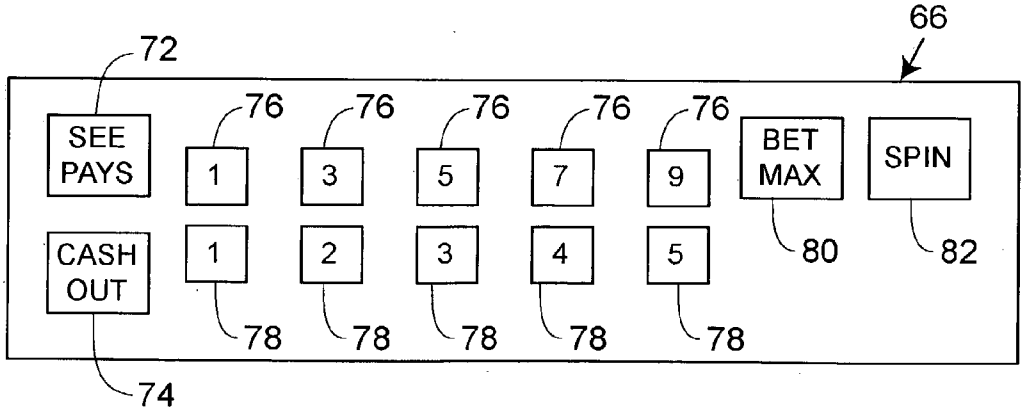

66
72
SEE PAYS
CASH OUT
76
1
3
5
7
9
1
2
3
4
5
78
BET MAX
SPIN
80
82
74

FIG. 2A

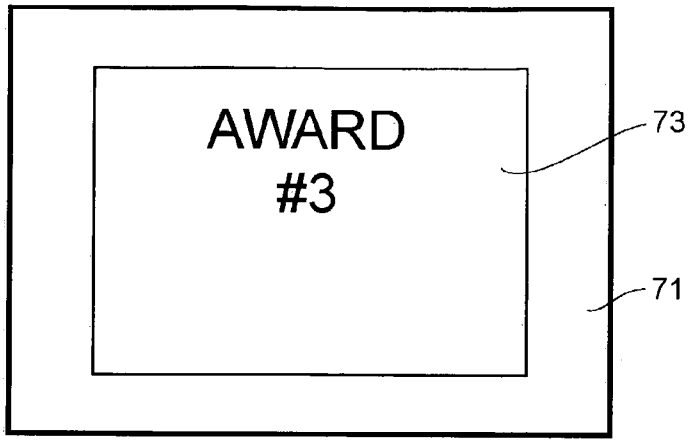


FIG. 2B

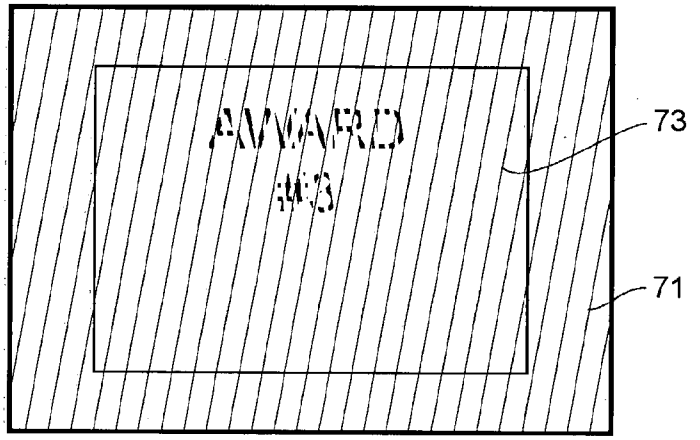


FIG. 2C

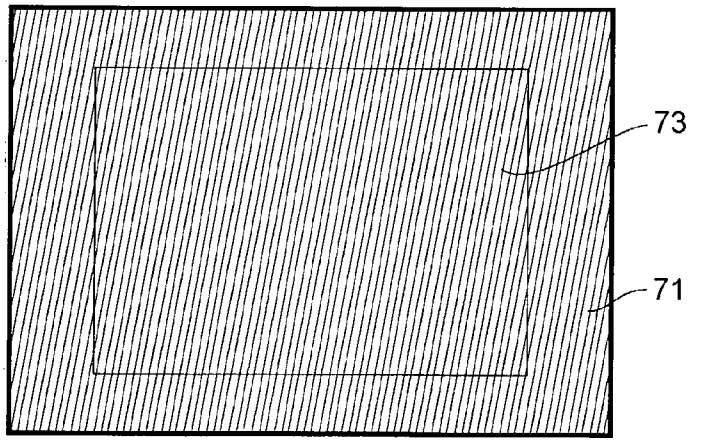


FIG. 2D

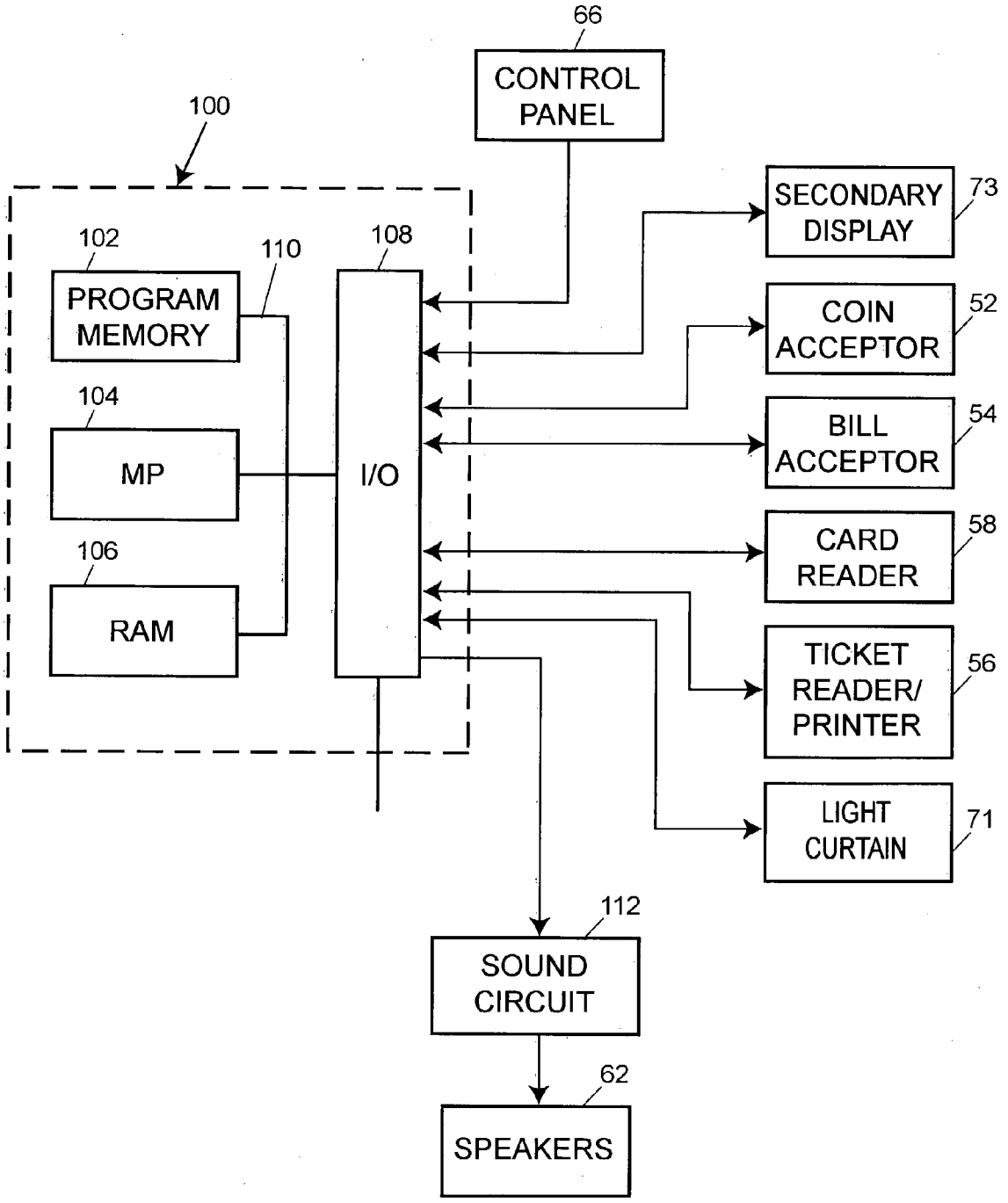

66
CONTROL PANEL
100
SECONDARY DISPLAY
73
102
110
108
PROGRAM MEMORY
COIN ACCEPTOR
52
104
MP
I/O
BILL ACCEPTOR
54
106
CARD READER
58
RAM
TICKET READER/ PRINTER
56
LIGHT CURTAIN
71
112
SOUND CIRCUIT
62
SPEAKERS

FIG. 3

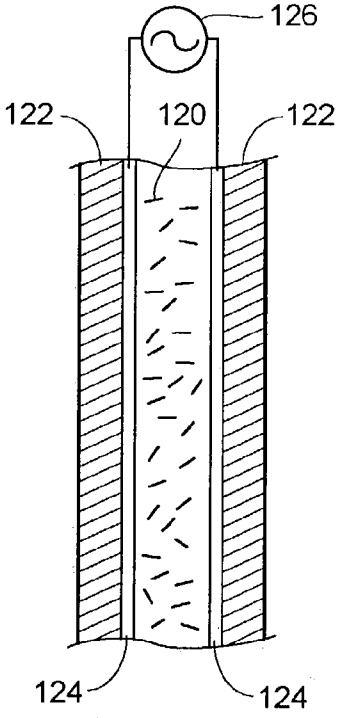


FIG. 3A

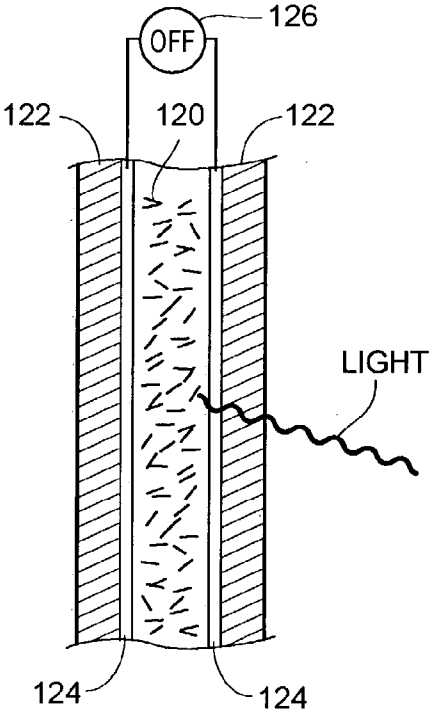


FIG. 3B

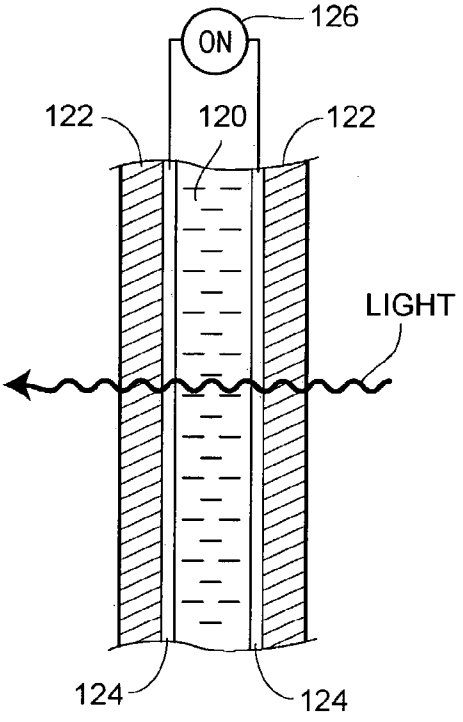


FIG. 3C

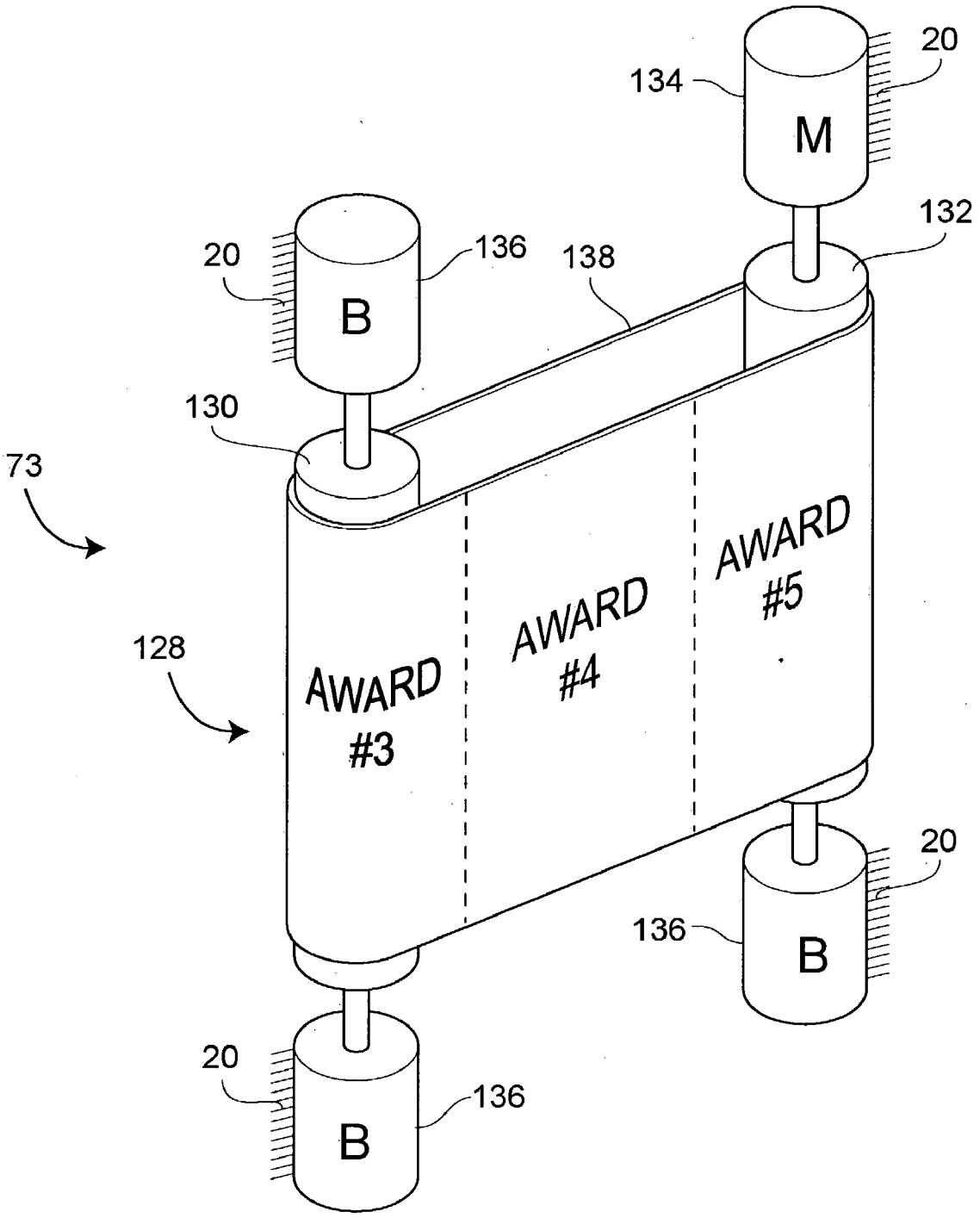

20
134
M
132
20
136
138
B
130
73
AWARD #5
AWARD #4
128
AWARD #3
20
136
B
20
136
B

FIG. 4

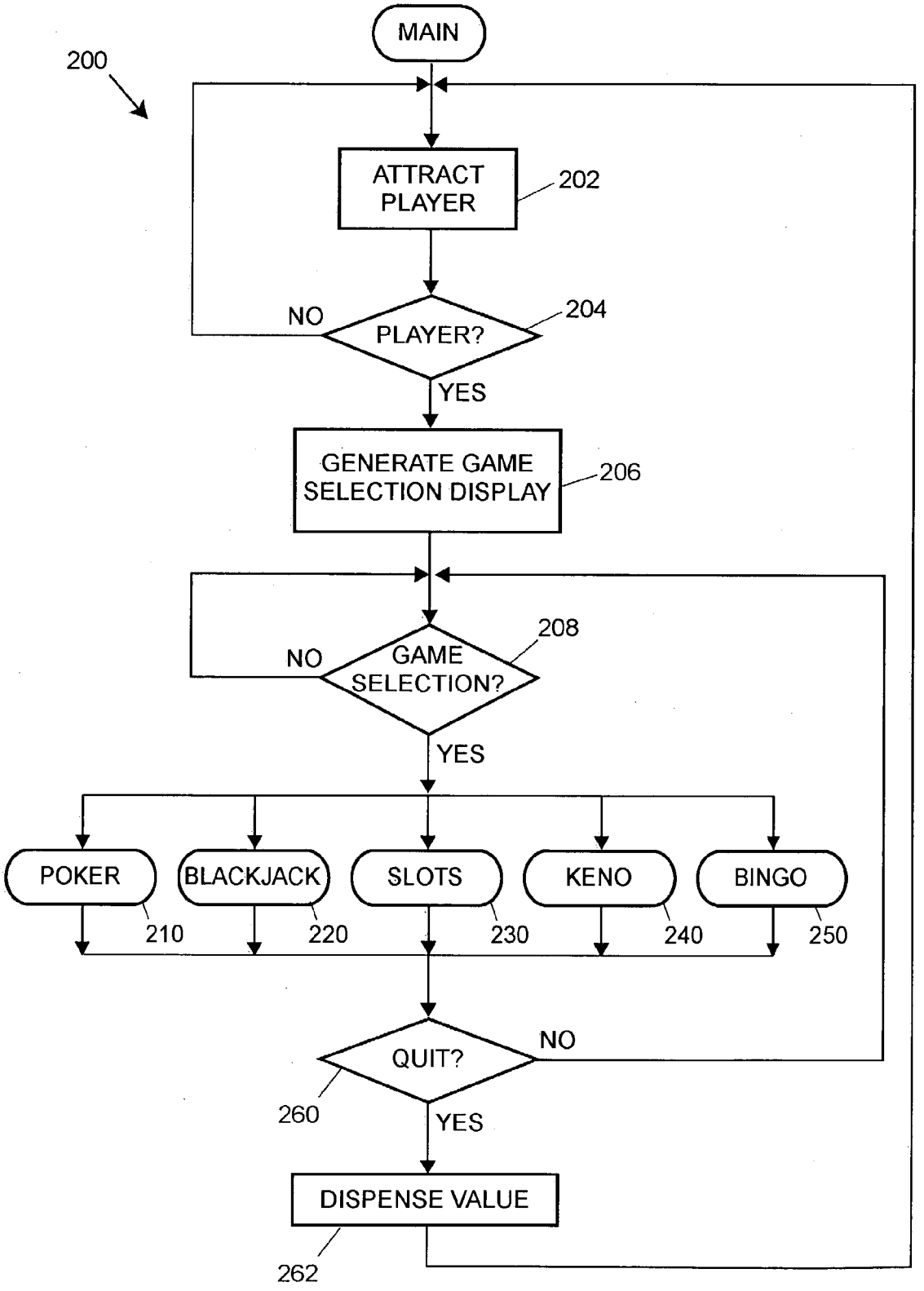

MAIN
200
ATTRACT PLAYER
202
NO
PLAYER?
204
YES
GENERATE GAME SELECTION DISPLAY
206
NO
GAME SELECTION?
208
YES
POKER
BLACKJACK
SLOTS
KENO
BINGO
210
220
230
240
250
QUIT?
NO
260
YES
DISPENSE VALUE
262

FIG. 5

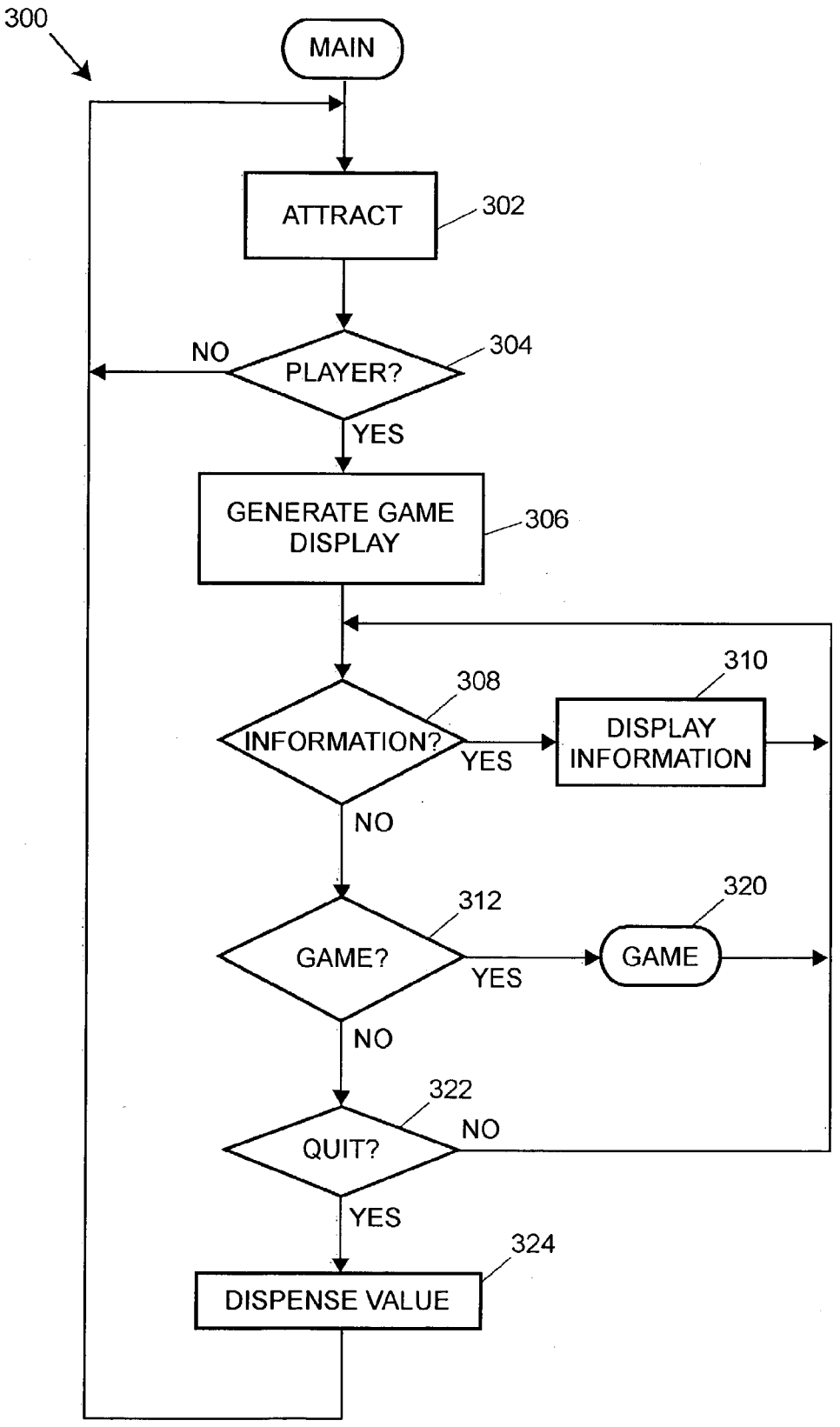

300
MAIN
ATTRACT
302
NO
PLAYER?
304
YES
GENERATE GAME DISPLAY
306
308
INFORMATION?
YES
310
DISPLAY INFORMATION
NO
312
GAME?
YES
320
GAME
NO
322
QUIT?
NO
YES
324
DISPENSE VALUE

FIG. 6

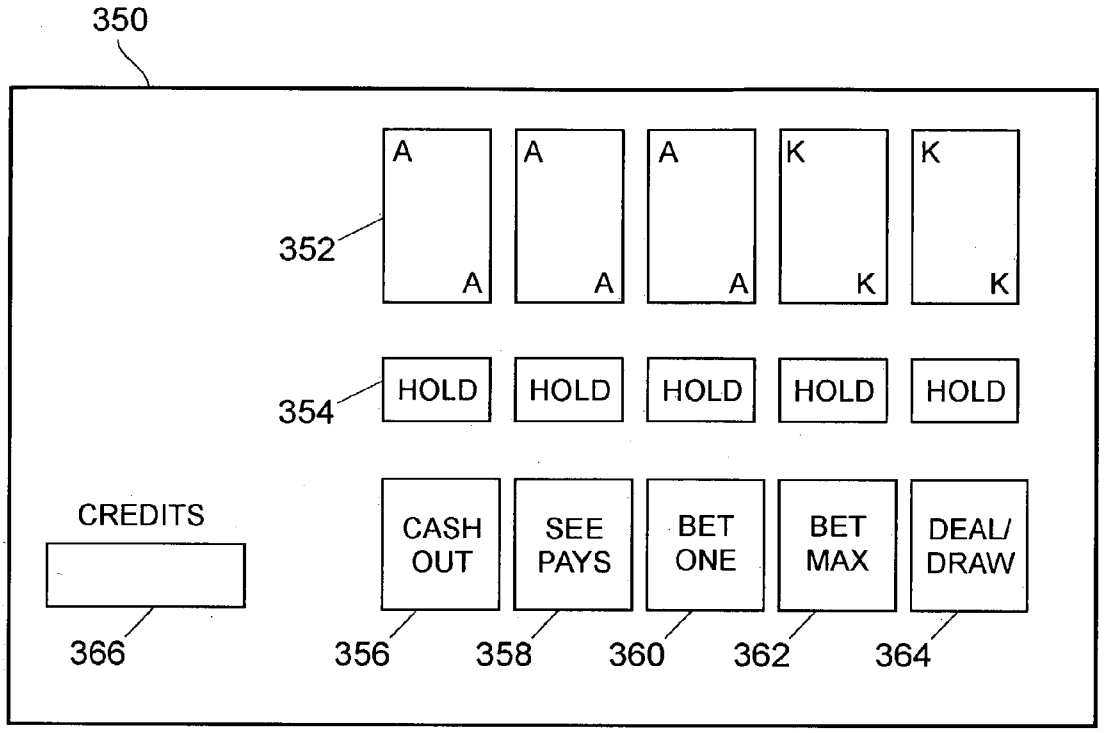

350
A
A
A
K
K
352
A
A
A
K
K
354
HOLD
HOLD
HOLD
HOLD
HOLD
CREDITS
CASH OUT
SEE PAYS
BET ONE
BET MAX
DEAL/ DRAW
366
356
358
360
362
364

FIG. 7

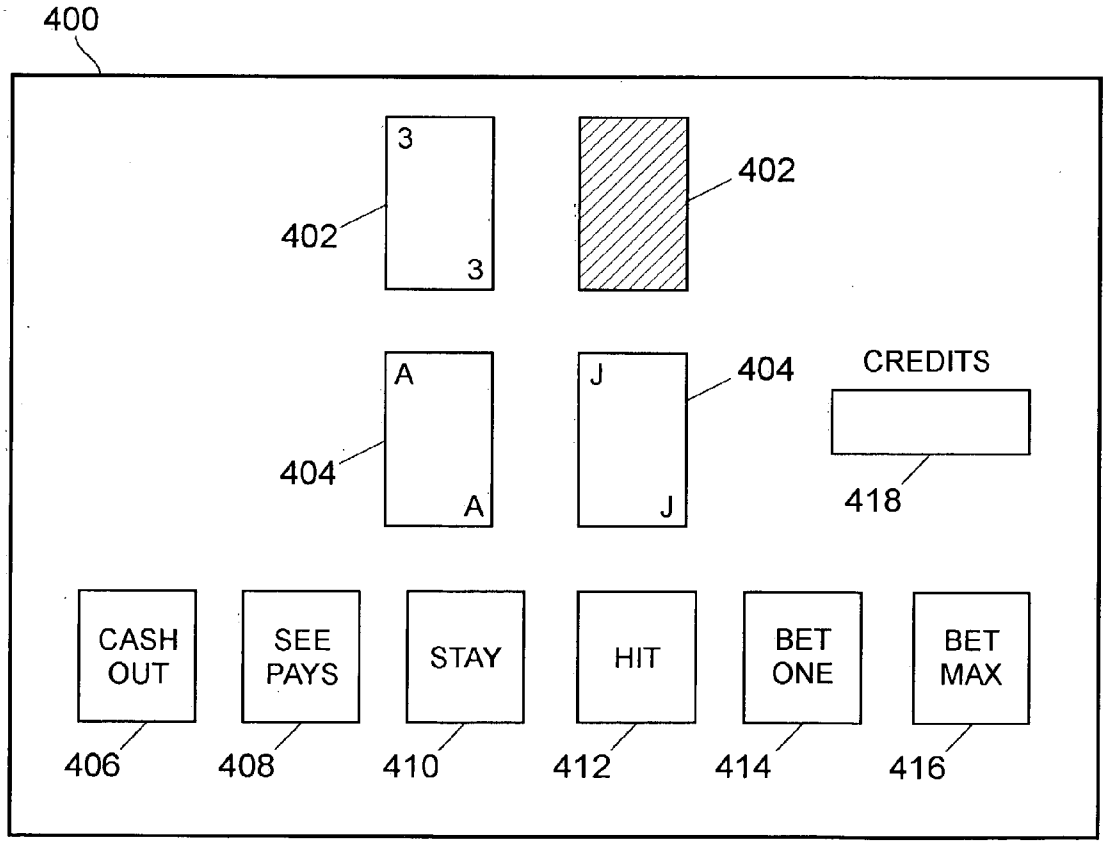

400
3
3
402
402
A
A
J
J
404
404
CREDITS
418
CASH OUT
SEE PAYS
STAY
HIT
BET ONE
BET MAX
406
408
410
412
414
416

FIG. 9

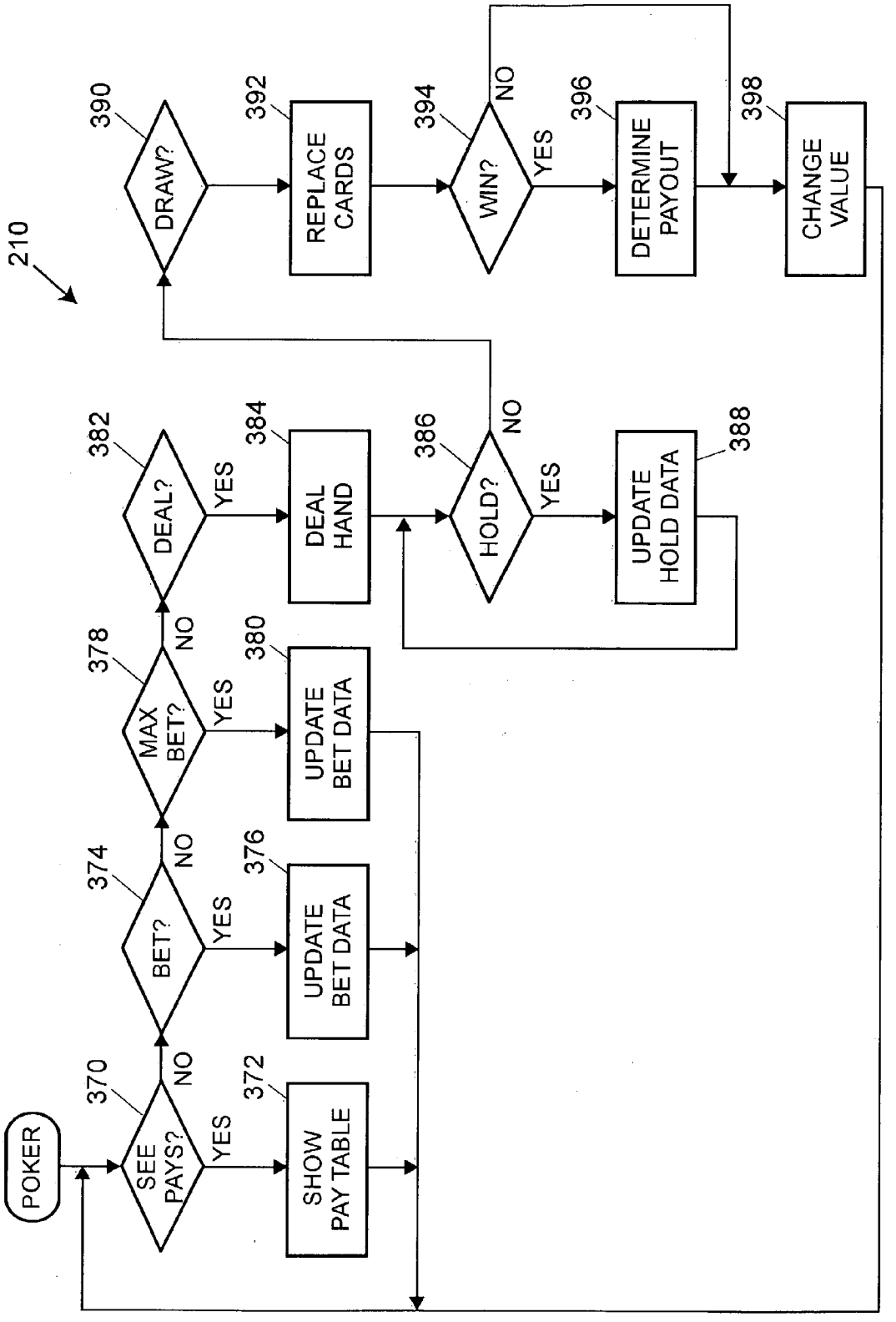

210
POKER
370
SEE PAYS?
YES
NO
372
SHOW PAY TABLE
374
BET?
YES
NO
376
UPDATE BET DATA
378
MAX BET?
YES
NO
380
UPDATE BET DATA
382
DEAL?
YES
384
DEAL HAND
386
HOLD?
YES
NO
388
UPDATE HOLD DATA
390
DRAW?
392
REPLACE CARDS
394
WIN?
YES
NO
396
DETERMINE PAYOUT
398
CHANGE VALUE

FIG. 8

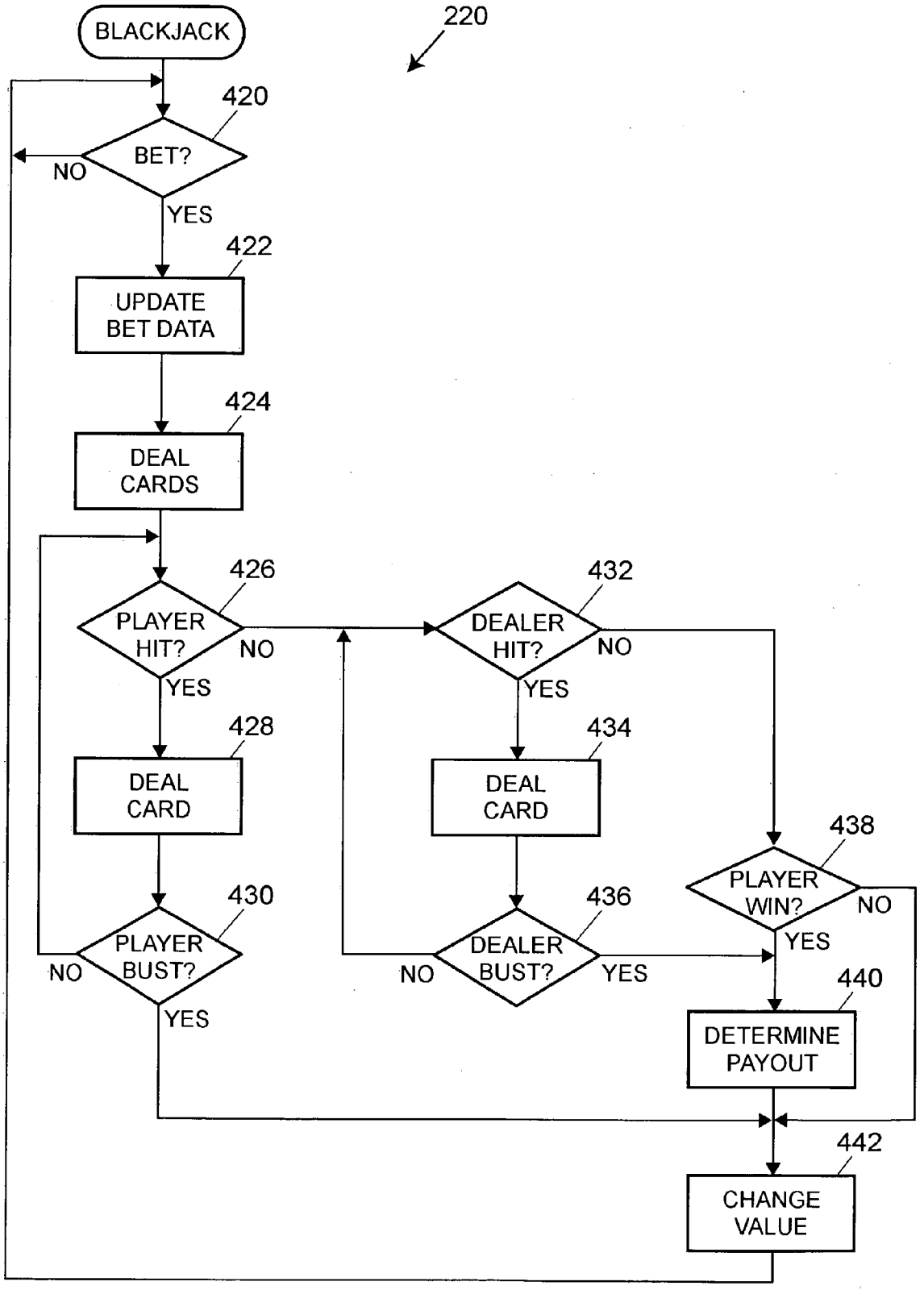

220
BLACKJACK
420
BET?
NO
YES
422
UPDATE BET DATA
424
DEAL CARDS
426
PLAYER HIT?
NO
YES
428
DEAL CARD
430
PLAYER BUST?
NO
YES
432
DEALER HIT?
NO
YES
434
DEAL CARD
436
DEALER BUST?
NO
YES
438
PLAYER WIN?
NO
YES
440
DETERMINE PAYOUT
442
CHANGE VALUE

FIG. 10

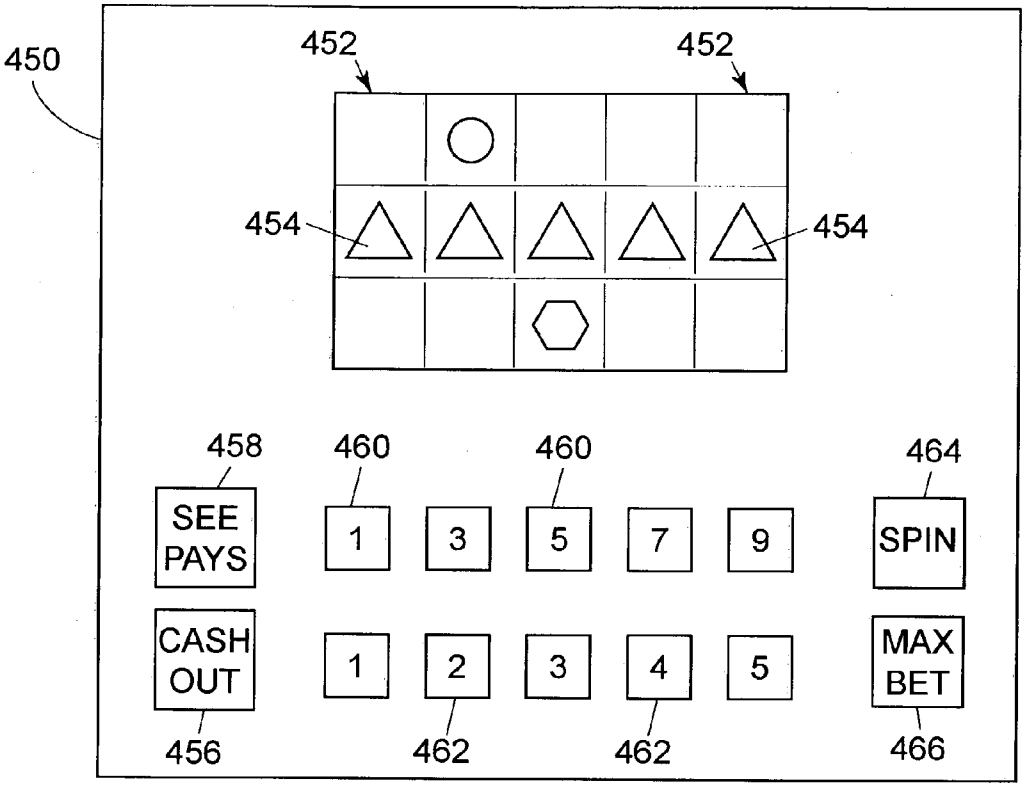

450
452
452
454
454
458
460
460
464
SEE PAYS
1
3
5
7
9
SPIN
CASH OUT
1
2
3
4
5
MAX BET
456
462
462
466

FIG. 11

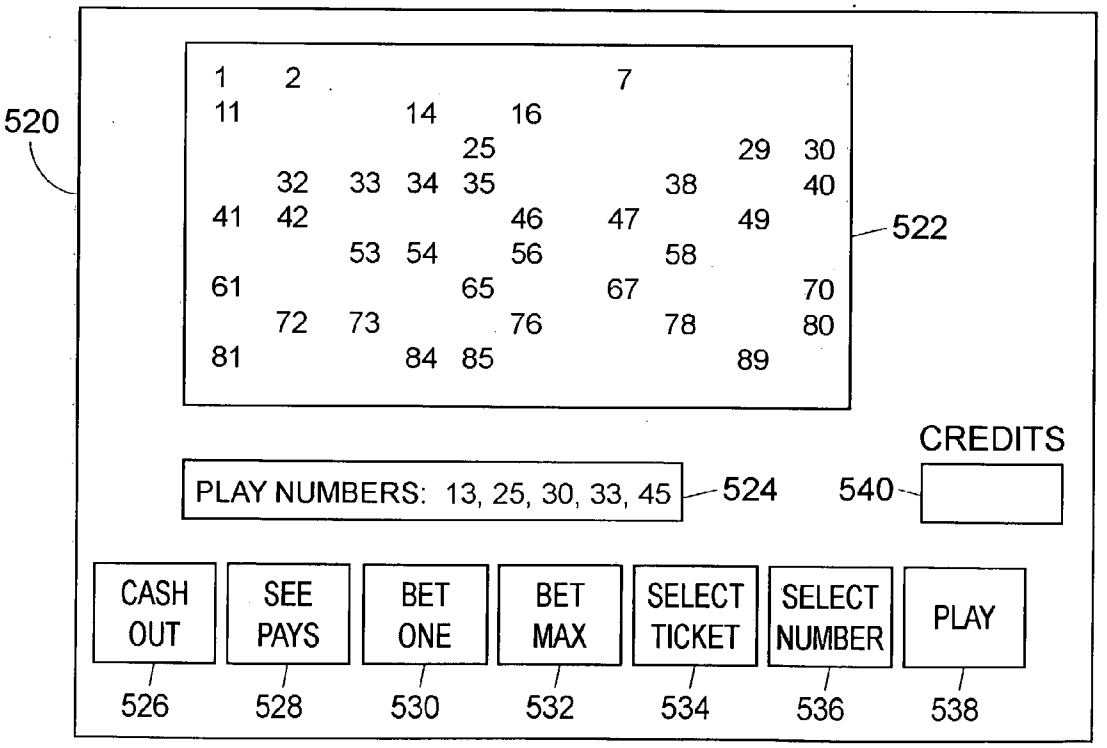

520
1 2 7
11 14 16
25 29 30
32 33 34 35 38 40
41 42 46 47 49
53 54 56 58
61 65 67 70
72 73 76 78 80
81 84 85 89
522
CREDITS
PLAY NUMBERS: 13, 25, 30, 33, 45
524
540
CASH OUT
SEE PAYS
BET ONE
BET MAX
SELECT TICKET
SELECT NUMBER
PLAY
526
528
530
532
534
536
538

FIG. 13

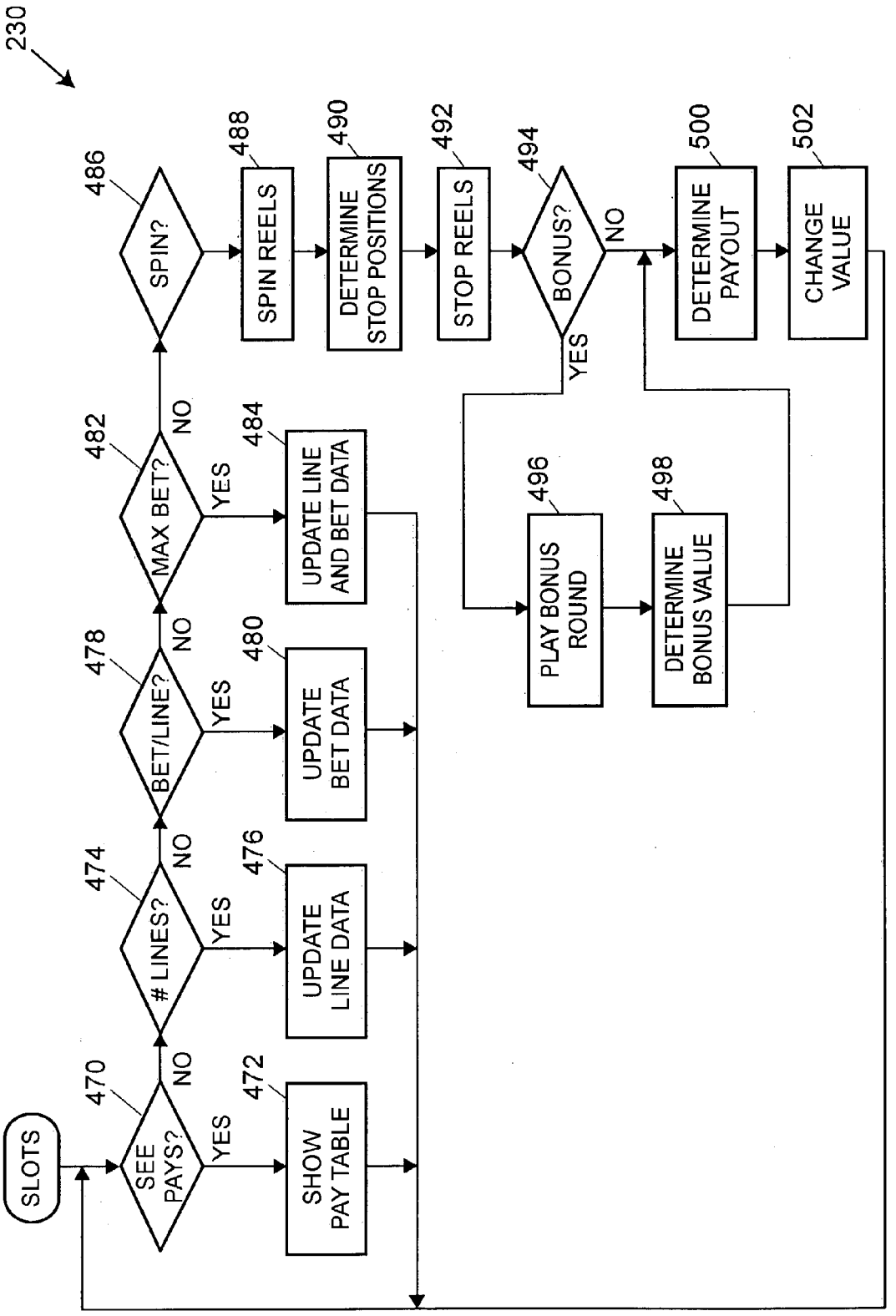

230
SLOTS
SEE PAYS?
470
YES
NO
SHOW PAY TABLE
472
LINES?
474
YES
NO
UPDATE LINE DATA
476
BET/LINE?
478
YES
NO
UPDATE BET DATA
480
MAX BET?
482
YES
NO
UPDATE LINE AND BET DATA
484
SPIN?
486
SPIN REELS
488
DETERMINE STOP POSITIONS
490
STOP REELS
492
BONUS?
494
YES
NO
PLAY BONUS ROUND
496
DETERMINE BONUS VALUE
498
DETERMINE PAYOUT
500
CHANGE VALUE
502

FIG. 12

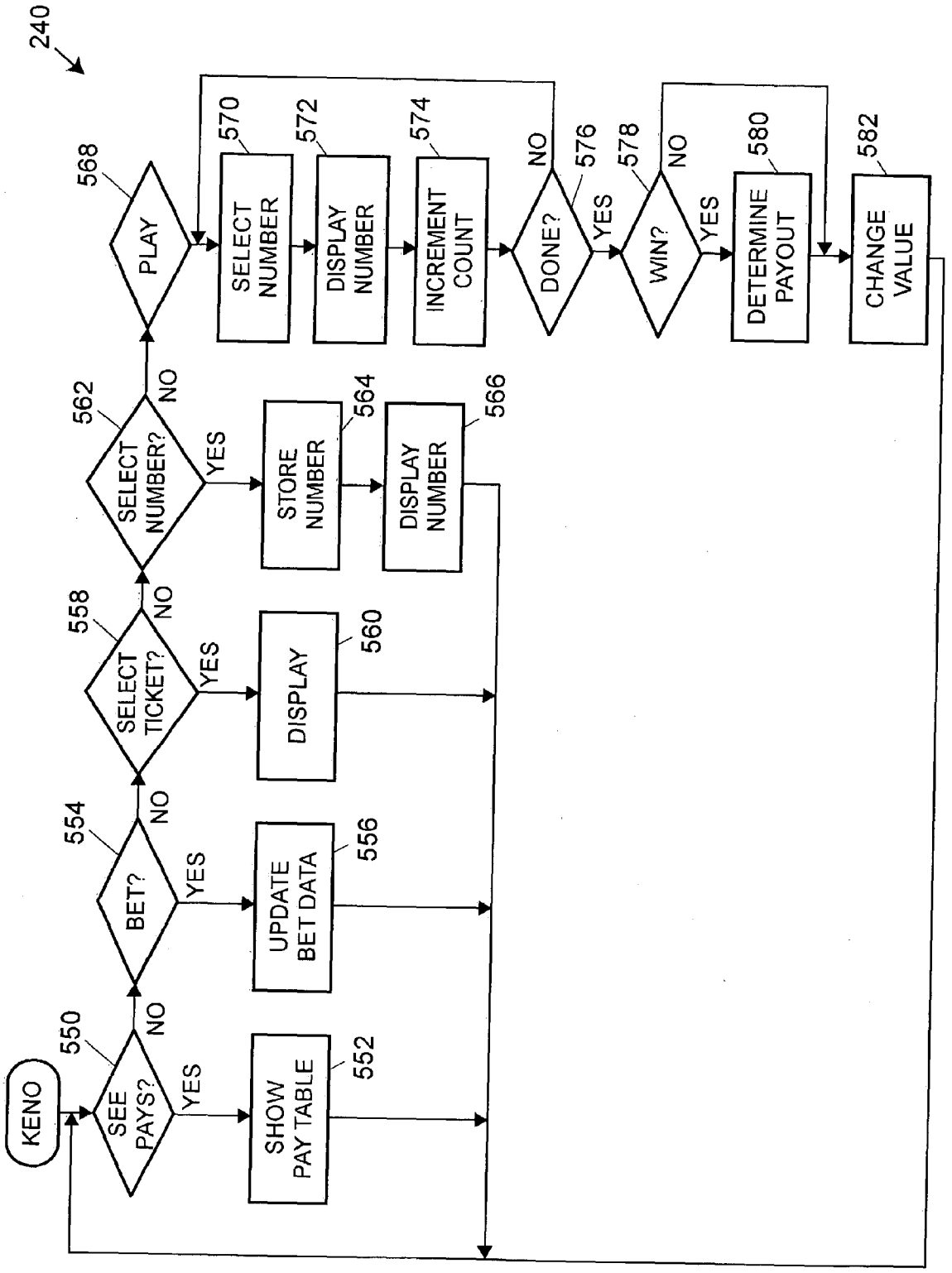

240
KENO
550
SEE PAYS?
YES
NO
SHOW PAY TABLE
552
554
BET?
YES
NO
UPDATE BET DATA
556
558
SELECT TICKET?
YES
NO
DISPLAY
560
562
SELECT NUMBER?
YES
NO
STORE NUMBER
564
DISPLAY NUMBER
566
568
PLAY
570
SELECT NUMBER
572
DISPLAY NUMBER
574
INCREMENT COUNT
576
DONE?
YES
NO
578
WIN?
YES
NO
580
DETERMINE PAYOUT
582
CHANGE VALUE

FIG. 14

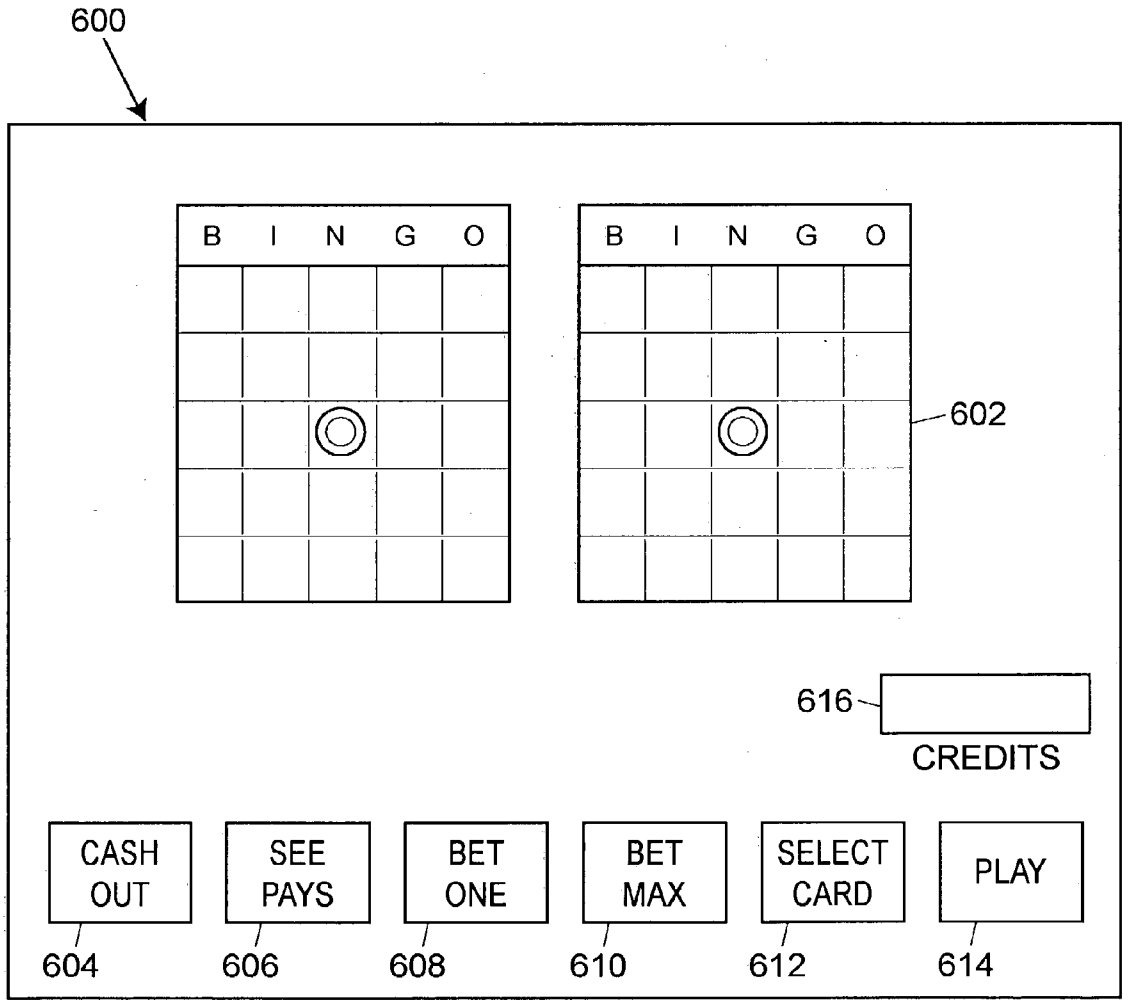

600
B I N G O
B I N G O
602
616
CREDITS
CASH OUT
SEE PAYS
BET ONE
BET MAX
SELECT CARD
PLAY
604
606
608
610
612
614

FIG. 15

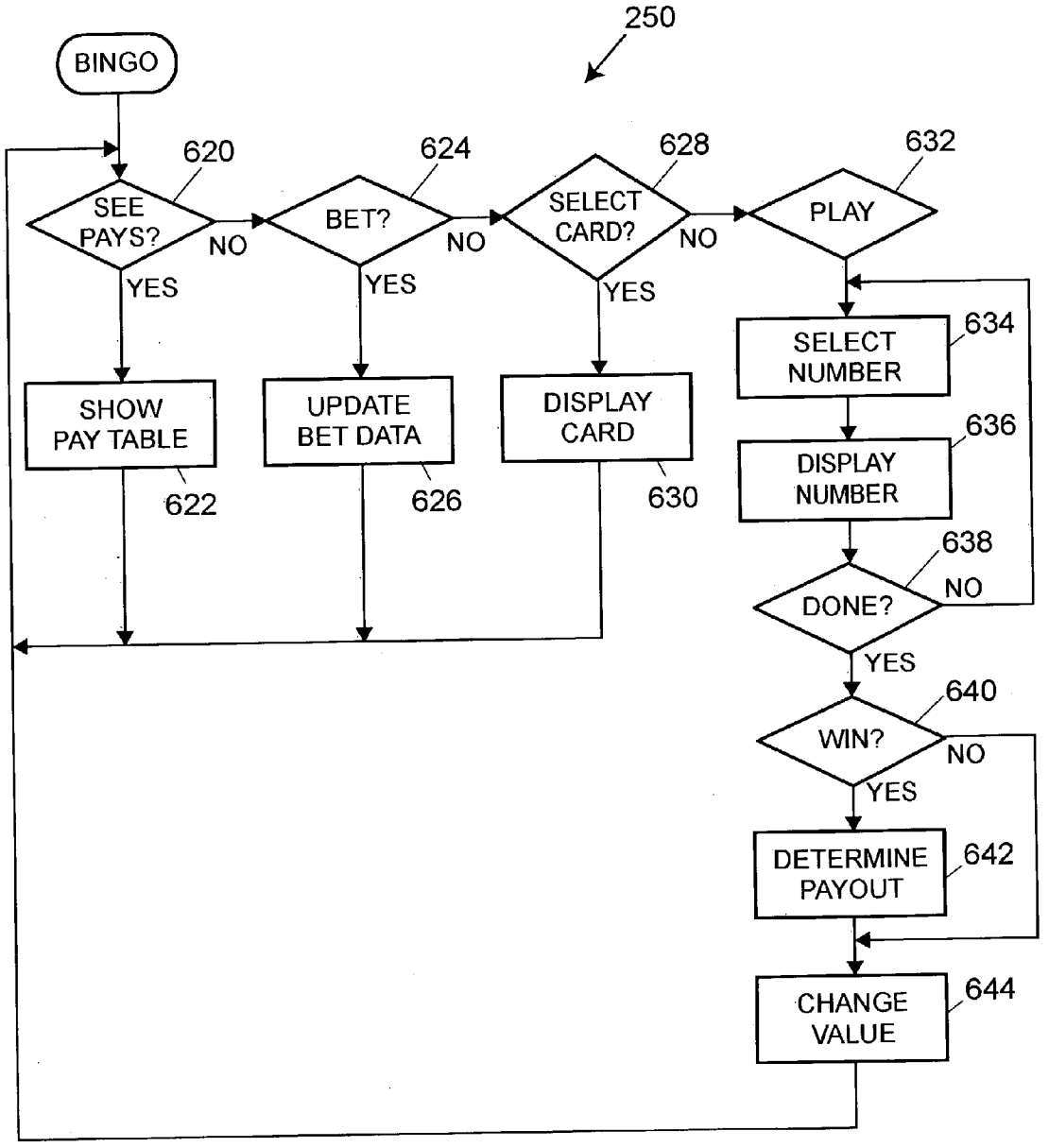

250
BINGO
620
SEE PAYS?
NO
YES
624
BET?
NO
YES
628
SELECT CARD?
NO
YES
632
PLAY
SHOW PAY TABLE
622
UPDATE BET DATA
626
DISPLAY CARD
630
634
SELECT NUMBER
636
DISPLAY NUMBER
638
DONE?
NO
YES
640
WIN?
NO
YES
642
DETERMINE PAYOUT
644
CHANGE VALUE

FIG. 16

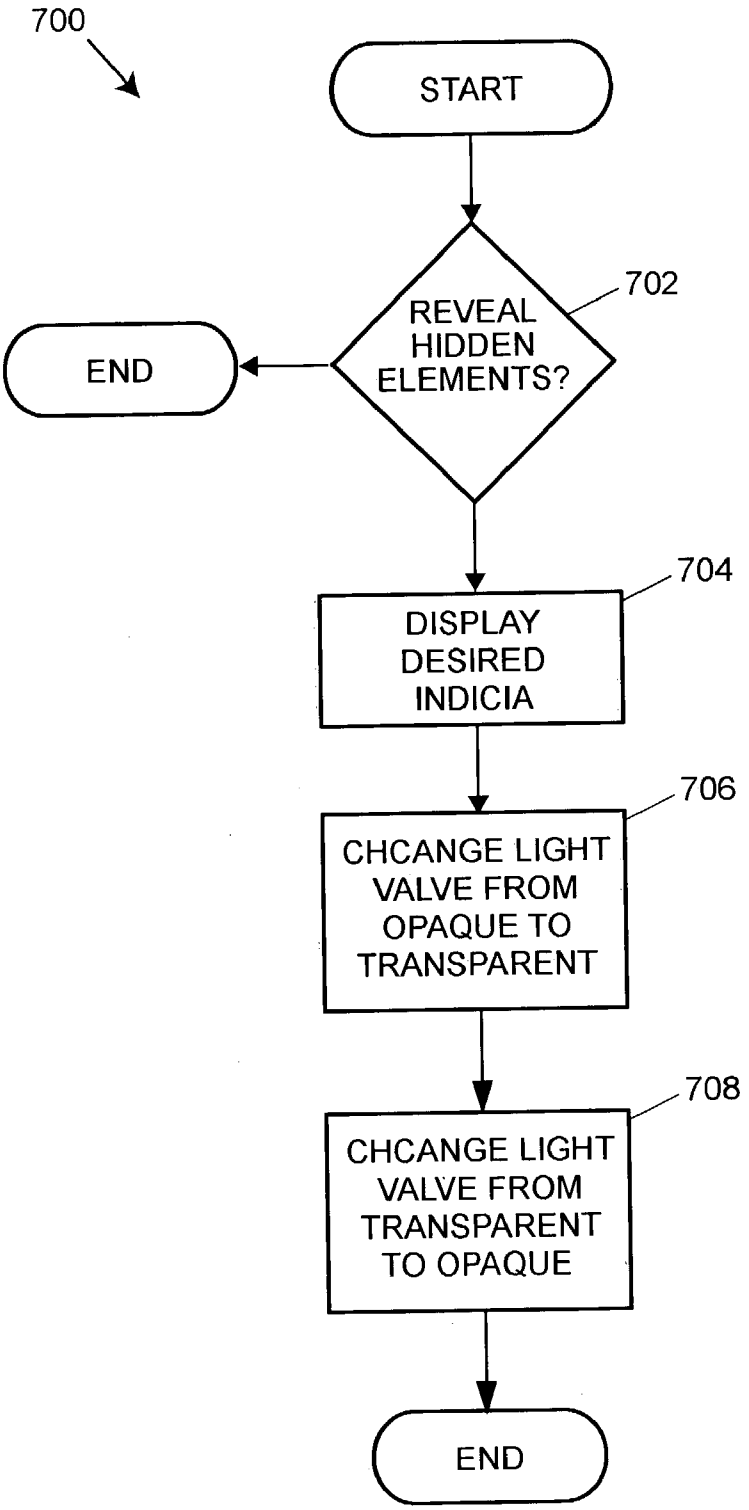

700
START
REVEAL HIDDEN ELEMENTS?
702
END
DISPLAY DESIRED INDICIA
704
CHCANGE LIGHT VALVE FROM OPAQUE TO TRANSPARENT
706
CHCANGE LIGHT VALVE FROM TRANSPARENT TO OPAQUE
708
END

FIG. 17

APPARATUS FOR REVEALING A HIDDEN VISUAL ELEMENT IN A GAMING UNIT

BACKGROUND

[0001] The present disclosure relates to gaming units and, more particularly, to an apparatus for revealing an hidden visual element in a gaming unit.

[0002] Conventional gaming units are typically provided with a cabinet and a gaming display mounted inside the cabinet. The gaming display may be mechanical, such as a series of stepper wheels, may be electronic such as a video display that is capable of generating video images, or may be a combination of the two, such as a stepper wheel with an electronic video display attached thereto. Whether mechanical, electronic, or combination, the gaming display of conventional gaming units has generated images associated with a gaming system, such as poker, blackjack, slots, keno, or bingo.

[0003] While the gaming display is the primary functional component, some gaming units include secondary displays to provide additional game information to a player. Such secondary display elements include, for example, the use of additional video screens and/or the use of additional elctromechanical devices. In some gaming machines, the secondary display is hidden from the player until the game requires the use of the secondary display, at which time the display is revealed to the player. To hide the secondary display, these gaming machines have utilized mechanical masks, such as mechanical doors that open to reveal the secondary display.

SUMMARY OF THE INVENTION

[0004] The invention is directed to a gaming apparatus that may comprise a display unit capable of generating video images, a value input device, a second display unit, and a light valve. The gaming unit controller may comprise a processor and a memory, and may be programmed to allow a person to wager on the outcome of a video poker, video blackjack, video slots, video keno or video bingo game. The gaming unit controller may be further programmed to display gaming indicia on the second display unit and hide the indicia via the use of the light valve. The controller may control the transparency of the light valve to either hide or reveal the indicia as desired.

[0005] Additional aspects of the invention are defined by the claims of this patent.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] **FIG. 1** is a block diagram of an embodiment of a gaming system in accordance with the invention;

[0007] **FIG. 2** is a perspective view of an embodiment of one of the gaming units shown schematically in **FIG. 1**;

[0008] **FIG. 2A** illustrates an embodiment of a control panel for a gaming unit;

[0009] **FIG. 2B** illustrates an embodiment of a light valve in a substantially transparent configuration;

[0010] **FIG. 2C** illustrates an embodiment of a light valve in a semi-opaque configuration;

[0011] **FIG. 2D** illustrates an embodiment of a light valve in a substantially opaque configuration;

[0012] **FIG. 3** is a block diagram of the electronic components of the gaming unit of **FIG. 2**;

[0013] FIGS. **3A-3C** illustrate an embodiment of the components of a light valve for a gaming unit;

[0014] **FIG. 4** is a top-front perspective view of an embodiment of a secondary display unit employing two rollers and an award display belt in tension with such rollers;

[0015] **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;

[0016] **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;

[0017] **FIG. 7** is an illustration of an embodiment of a visual display that may be displayed during performance of the video poker routine of **FIG. 8**;

[0018] **FIG. 8** is a flowchart of an embodiment of a video poker routine that may be performed by one or more of the gaming units;

[0019] **FIG. 9** is an illustration of an embodiment of a visual display that may be displayed during performance of the video blackjack routine of **FIG. 10**;

[0020] **FIG. 10** is a flowchart of an embodiment of a video blackjack routine that may be performed by one or more of the gaming units;

[0021] **FIG. 11** is an illustration of an embodiment of a visual display that may be displayed during performance of the slots routine of **FIG. 12**;

[0022] **FIG. 12** is a flowchart of an embodiment of a slots routine that may be performed by one or more of the gaming units;

[0023] **FIG. 13** is an illustration of an embodiment of a visual display that may be displayed during performance of the video keno routine of **FIG. 14**;

[0024] **FIG. 14** is a flowchart of an embodiment of a video keno routine that may be performed by one or more of the gaming units;

[0025] **FIG. 15** is an illustration of an embodiment of a visual display that may be displayed during performance of the video bingo routine of **FIG. 16**;

[0026] **FIG. 16** is a flowchart of an embodiment of a video bingo routine that may be performed by one or more of the gaming units; and

[0027] **FIG. 17** is a flowchart of an embodiment of a hidden element reveal operating routine that may be performed by one or more of the gaming units.

DETAILED DESCRIPTION OF VARIOUS EMBODIMENTS

[0028] Although the following text sets forth a detailed description of numerous different embodiments of the invention, it should be understood that the legal scope of the invention is defined by the words of the claims set forth at the end of this patent. The detailed description is to be construed as exemplary only and does not describe every possible embodiment of the invention since describing every

possible embodiment would be impractical, if not impossible. Numerous alternative embodiments could be implemented, using either current technology or technology developed after the filing date of this patent, which would still fall within the scope of the claims defining the invention.

[0029] It should also be understood that, unless a term is expressly defined in this patent using the sentence "As used herein, the term '_____' is hereby defined to mean . . . " or a similar sentence, there is no intent to limit the meaning of that term, either expressly or by implication, beyond its plain or ordinary meaning, and such term should not be interpreted to be limited in scope based on any statement made in any section of this patent (other than the language of the claims). To the extent that any term recited in the claims at the end of this patent is referred to in this patent in a manner consistent with a single meaning, that is done for sake of clarity only so as to not confuse the reader, and it is not intended that such claim term by limited, by implication or otherwise, to that single meaning. Finally, unless a claim element is defined by reciting the word "means" and a function without the recital of any structure, it is not intended that the scope of any claim element be interpreted based on the application of 35 U.S.C. §112, sixth paragraph.

[0030] **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**.

[0031] 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.

[0032] 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.

[0033] 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 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 comprise multiple data links.

[0034] **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.

[0035] 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.

[0036] 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**.

[0037] 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.

[**0038**] The gaming unit **20** may include one or more audio speakers **62**, a coin payout tray **64**, an input control panel **66**, a color video display unit **70** for displaying images relating to the game or games provided by the gaming unit **20**, and a light valve **71**, as described below. The light valve **71** may be coupled to the front face of the cabinet **50** and may enclose a secondary display device **73**, which may be, for example, any known video monitor, television screen, dot matrix display, CRT, LED, LCD, physical display, or electro-luminescent display. Moreover, the secondary display device **73** may permanently display fixed gaming indicia, or may be capable of dynamically changing the gaming indicia, as is described below. 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.

[**0039**] **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. 2**A, the control panel **66** may include a "See Pays" button **72** that, when activated, causes the display unit **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**.

[**0040**] 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.

[**0041**] 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 payline 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).

[**0042**] 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.

[**0043**] 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.

[**0044**] 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**. Although the control panel **66** is shown to be separate from the display unit **70**, it should be understood that the control panel **66** could be generated by the display unit **70**. In that case, each of the buttons of the control panel **66** could be a colored area generated by the display unit **70**, and some type of mechanism may be associated with the display unit **70** to detect when each of the buttons was touched, such as a touch-sensitive screen.

[**0045**] Furthermore, although one possible display unit **70** is described above, it should be understood that different embodiments could be utilized in the display unit **70**. For example, the display unit **70** may be a plurality of physical reels controlled by stepper motors as commonly known in the art. In that case, a player initiates spinning of the reels through any number of means, including pushing the spin button **82**. The physical reel may then be rotated and observed by the player through a display glass. The spinning reel may then be stopped and the outcome of the game determined.

[**0046**] FIGS. **2**B-**2**D illustrate an embodiment of the light valve **71** in operation. Specifically, **FIG. 2B** illustrates the light valve **71** in a substantially transparent configuration, **FIG. 2C** illustrates the light valve **71** in a semi-opaque configuration, **FIG. 2D** illustrates the light valve **71** in a substantially opaque configuration, as will be described in detail below. The light valve **71** may be operatively coupled to the front face of the cabinet **50** of the gaming unit **20**, as shown in **FIG. 2**. The light valve **71** may enclose the secondary display unit **73** to form an apparatus for hiding and revealing the secondary display unit **73**.

[**0047**] Specifically, the light valve **71** may be a suspended particle device or similar device. As is known in the art, a suspended particle device may comprise a plurality of light-absorbing microscopic particles that are suspended between two conductive-coated surfaces such as glass or

plastic. When an electric voltage is applied to the light-absorbing particle film via the conductive-coated surfaces, the suspended particles may line up in a straight line to all light to flow through. The light valve **71** thus may appear transparent. Once the electric voltage is removed, however, the suspended particles may move back into a random alignment to block the light, causing the light valve **71** to appear opaque.

[**0048**] By varying the voltage applied to the suspended particle device, the amount of light allowed to pass through the device may be varied, allowing the device to appear transparent, opaque, or any shade in between. For example, **FIG. 2B** illustrates the light valve **71** with a substantially maximum voltage applied to the light valve **71**, allowing the light valve **71** to maintain a substantially transparent orientation and allowing the secondary display **73** to be viewable through the light valve **71**. **FIG. 2C** illustrates the light valve **71** with approximately fifty percent (50%) of the maximum voltage applied, such that the light valve **71** may maintain a semi-opaque orientation, which still allows the textual subject matter and images of the secondary display **73** to be viewed. As illustrated in **FIG. 3**C, when the light valve **71** is in a semi-opaque configuration, the secondary display **73** may have a changed appearance. For example, the secondary display may have a changed color, contrast, brightness, or the like. Finally, **FIG. 2D** illustrates the light valve **71** with a substantially negligible voltage applied such that the curtain device maintains a substantially opaque orientation, which may effectively block the secondary display device **73** from being viewable.

[**0049**] It will be understood that the light valve **71** may be any physical shape and may have any number of light display attributes, including, for example, any number of supported colors, and any number of obtainable contrast and/or brightness settings. Similarly, it will be understood that while the light valve **71** is shown as a separate element from the secondary display **73**, the light valve **71** may be integrated within the secondary display **73**. Furthermore, while the light valve **71** and the secondary display **73** are illustrated as single elements, it will be understood that any number of light valves **71** and displays **73** may be utilized to create any number of display opportunities. Additionally, the light valve **71** may comprise any known or yet to be developed type of light valve, including, by way of example, a liquid crystal light valve or an electrochromic light valve. Still further, although the secondary display **73** is shown to be separate from the display unit **70**, it should be understood that the secondary display could be generated by the display unit **70**, i.e., the secondary display could be a small subportion of the display unit **70**.

Gaming Unit Electronics

[**0050**] **FIG. 3** is a block diagram of a number of components that may be incorporated in the gaming unit **20**. Referring to **FIG. 3**, 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 (P/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 **1/0** circuit **108** is shown as a single block, it should be appreciated that the **1/0** circuit **108** may include a number of different types of **1/0** 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.

[**0051**] Although the program memory **102** is shown in **FIG. 3** 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. 3** 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.

[**0052**] **FIG. 3** illustrates that the control panel **66**, the coin acceptor **52**, the bill acceptor **54**, the card reader **58**, the ticket reader/printer **56** the secondary display **73** and the light valve **71**, may be operatively coupled to the I/O circuit **108**, each component 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. Additionally, 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**.

[**0053**] The components **52**, **54**, **56**, **58**, **66**, **71**, **73**, **112**, as shown, 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. 3** 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**.

[**0054**] **FIG. 3A** illustrates one example of the light valve **71**. Referring to **FIG. 3**A, the light valve **71** may include a plurality of particles **120** suspended between two panes of glass or plastic **122**. The particles **120** may be responsive to electrical charges. The panes **122** may be coated with a conductive material **124**. The conductive material may be connected to an electrical voltage **126**, which may be variable to increase or decrease the amount of electricity applied to the conductive material **124**.

[**0055**] **FIGS. 3B and 3C** illustrate an example of the light valve **71** in operation. Referring to **FIG. 3**B, the electrical voltage **126** may be "OFF" causing the conductive material **124** to carry a negligible charge. The particles **120** may randomly disperse between the conductive material **124** absorbing light and causing the light valve **71** to appear opaque. As a result, the secondary display **73** may be hidden from sight.

[**0056**] Referring to **FIG. 3**C, the electrical voltage may be "ON" causing the conductive material **124** to carry an electrical charge. The particles **120** may align between the conductive material **124** in response to the electric charge. As the particles align, light may pass through the light valve **71**, causing the light valve **71** to appear transparent, thereby revealing the secondary display **73**.

[0057] Turning now to **FIG. 4**, an example of the secondary display **73** is shown. Specifically, **FIG. 4** is an electromechanical display mechanism **128** which may operate in conjunction with the light valve **71**, and the controller **100** to reveal one of a plurality of bonus awards. The secondary display **73** may include two rollers **130** and **132**. At least one roller **132** may be operatively coupled to a motor **134** and a bearing **136**, which may be fixed to the gaming unit **20**. The motor **134** may rotate the roller **132** clockwise or counterclockwise as determined by the controller **100**. The motor **134** may be a stepper motor having a drive (not shown) and programmable indexer (not shown), as are well known in the art, to enable the motor to precisely turn roller **132** and position a belt **138**. The second roller **130** may be a follower roller and may be operatively coupled to two bearings **136** which may be fixed to the gaming unit **20**. The follower roller **130** may be driven by the belt **138** which may be in tension with the roller **130** and **132** such that the belt **138** does not slip along the rollers **130** and **132**. The rotation of the motor **134** may drive the roller **138** which in turn may move the belt **138** and rotate the follower roller **130**.

[0058] The belt **138** may display a plurality of awards, such as the AWARD #3, AWARD #4, and AWARD #5 illustrated by **FIG. 4**. The belt **138** may display any award indicia designed by the game designer, including numerical values, an image is conjunction with a value and a character in conjunction with a value. Moreover, the display may include one or more images and/or characters. The motor **134** may be programmed to rotate the belt **138** in any direction, using variable positions, velocities, and accelerations to stop at any time and display any desired award.

Overall Operation of Gaming Unit

[0059] 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.

[0060] **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 display unit **70** 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.

[0061] 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 unit **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.

[0062] 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 **220**, a slots routine **230**, a video keno routine **240**, and a video bingo routine **250**. At block **208**, if no game selection is made within a given period of time, the operation may branch back to block **202**.

[0063] After one of the routines **210**, **220**, **230**, **240**, **250** has been performed to allow the player to play one of the games, block **260** 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 **262** 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 **260**, the routine may return to block **208** where the game-selection display may again be generated to allow the player to select another game.

[0064] 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.

[0065] **FIG. 6** is a flowchart of an alternative main operating routine **300** that may be stored in the memory of the controller **100**. The main routine **300** 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 **300** may begin operation at block **302** 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 display unit **70** and/or causing one or more sound segments, such as voice or music, to be generated via the speakers **62**.

[0066] During performance of the attraction sequence, if a potential player makes any input to the gaming unit **20** as

determined at block **304**, the attraction sequence may be terminated and a game display may be generated on the display unit **70** at block **306**. The game display generated at block **306** 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 **308**, 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 **310**. Block **312** may be used to determine if the player requested initiation of a game, in which case a game routine **320** may be performed. The game routine **320** could be any one of the game routines disclosed herein, such as one of the five game routines **210**, **220**, **230**, **240**, **250**, or another game routine.

[**0067**] After the routine **320** has been performed to allow the player to play the game, block **322** 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 **324** based on the outcome of the game(s) played by the player. The operation may then return to block **302**. If the player did not wish to quit as determined at block **322**, the operation may return to block **308**.

Video Poker

[**0068**] **FIG. 7** is an exemplary display **350** that may be shown on the display unit **70** during performance of the video poker routine **210** shown schematically in **FIG. 5**. Referring to **FIG. 7**, the display **350** may include video images **352** of a plurality of playing cards representing the player's hand, such as five cards. To allow the player to control the play of the video poker game, a plurality of player-selectable buttons may be displayed. 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. If the display unit **70** 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 unit **70**.

[**0069**] **FIG. 8** is a flowchart of the video poker routine **210** shown schematically in **FIG. 5**. Referring to **FIG. 8**, 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 display unit **70**. 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**.

[**0070**] 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 display unit **70** 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**.

[**0071**] 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. 7**).

[**0072**] 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

[**0073**] **FIG. 9** is an exemplary display **400** that may be shown on the display unit **70** during performance of the video blackjack routine **220** shown schematically in **FIG. 5**. Referring to **FIG. 9**, 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**.

[**0074**] To allow the player to control the play of the video blackjack game, a plurality of player-selectable buttons may be displayed. 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. If the display unit **70** 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 unit **70**.

[0075] **FIG. 10** is a flowchart of the video blackjack routine **220** shown schematically in **FIG. 5**. Referring to **FIG. 10**, the video blackjack routine **220** 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 display unit **70**.

[0076] 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.

[0077] 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.

[0078] If the dealer does not hit, at block **438** 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. 9**).

Slots

[0079] **FIG. 11** is an exemplary display **450** that may be shown on the display unit **70** during performance of the slots routine **230** shown schematically in **FIG. 5**. Referring to **FIG. 11**, 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. 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.

[0080] To allow the player to control the play of the slots game, a plurality of player-selectable buttons may be displayed. 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.

[0081] **FIG. 12** is a flowchart of the slots routine **230** shown schematically in **FIG. 5**. Referring to **FIG. 12**, 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 display unit **70**. 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**.

[0082] 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.

[0083] 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**.

[0084] Although the above routine has been described as a virtual slot machine routine in which slot machine reels are represented as images on the display unit **70**, actual slot machine reels that are capable of being spun may be utilized instead.

Video Keno

[0085] **FIG. 13** is an exemplary display **520** that may be shown on the display unit **70** during performance of the video keno routine **240** shown schematically in **FIG. 5**. Referring to **FIG. 13**, 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.

[0086] To allow the player to control the play of the keno game, a plurality of player-selectable buttons may be displayed. 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. If the display unit **70** 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 unit **70**.

[0087] **FIG. 14** is a flowchart of the video keno routine **240** shown schematically in **FIG. 5**. The keno routine **240** 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.

[0088] Referring to **FIG. 14**, 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 display unit **70**. 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**).

[0089] 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 operatively 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 display unit **70** and the display units **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**.

[0090] 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.

[0091] 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. 13**).

Video Bingo

[0092] **FIG. 15** is an exemplary display **600** that may be shown on the display unit **70** during performance of the video bingo routine **250** shown schematically in **FIG. 5**. Referring to **FIG. 15**, 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.

[0093] To allow the player to control the play of the bingo game, a plurality of player-selectable buttons may be displayed. 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. If the display unit **70** 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 unit **70**.

[0094] **FIG. 16** is a flowchart of the video bingo routine **250** shown schematically in **FIG. 5**. The bingo routine **250** 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.

[0095] Referring to **FIG. 16**, 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 display unit **70**. 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**.

[0096] After the player has made a wager, at block **628** the player may select a bingo card, which may be generated

randomly and displayed on the display unit **70** at a block **630**. 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 display unit **70** and the display units **70** of any other gaming units **20** involved in the bingo game.

[**0097**] 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. 15**).

Revealing a Hidden Visual Element

[**0098**] During performance of the main operating routine **200** or the alternative main operating routine **300** as described above, the controller **100** may initiate a hidden element reveal sequence utilizing the secondary display **73** and the light valve **71**. For example, the controller **100** may initiate the hidden element reveal sequence during the bonus round played at the block **496** of **FIG. 12**.

[**0099**] **FIG. 17** is a flowchart of a main hidden element reveal operating routine **700** that may be stored in the memory of the controller **100** to initiate the hidden element reveal sequence. Referring to **FIG. 17**, the main routine **700** may begin operation at a block **702** during which the controller I**100** may determine whether the hidden element should be revealed. If the controller **100** determines that the hidden element should not be revealed, the routine **700** may be terminated. If, however, the controller **100** determines that the hidden element should be revealed, at a block **704**, the controller **100** may cause the secondary display **73** to display the desired indicia. For example, if the desired indicia is AWARD #3, the controller **100** may instruct the motor **134** to rotate the belt **138** to the correct location. It will be appreciated, that the secondary display **73** may be appropriately instructed to display the correct indicia as may be required by the physical display. For instance, if the secondary display **73** is an electronic display, such as a CRT video display, the controller **100** may instruct the secondary display to produce an appropriate electronic indicia. Furthermore, as mentioned above the indicia display by the secondary display **73** may be any image, such as, for example, bonus prizes, bonus credit, or the like.

[**0100**] Once the correct indicia is displayed on the secondary display **73**, at a block **706**, the controller **100** may instruct the light valve **71** to change from opaque to transparent (see FIGS. **2**B-**2**D), thereby revealing the secondary display element to the player. The controller **100** may delay for a predetermined time, or delay until the player performs some action, before changing the light valve from transparent to opaque at a block **708**. The secondary display **73** may thereby be hidden from the player.

[**0101**] It will be understood that although the main hidden element reveal operating routine **700** is described in relation to bonus rounds, the routine **700** may be performed at any time before, during, and after gameplay. Furthermore, it will be understood that the steps involved in revealing and concealing the hidden element may be performed in any order. For example, to offer a different visual stimulation and game excitement, the main hidden element reveal operating routine **700** may perform the step of revealing the secondary display **73** before the display actually displays the correct indicia, thereby providing a level of excitement to the player as the award indicia is revealed.

What is claimed is:

1. A gaming apparatus, comprising:

a value input device;

a first display unit that is capable of generating video images;

a second display unit capable of displaying gaming indicia;

a light valve operatively mounted over said second display unit, said light valve being capable of changing between a substantially opaque configuration wherein said second display unit is substantially hidden from the view of a gaming player and a substantially transparent configuration wherein said second display unit is revealed to the view of said gaming player; and

a controller operatively coupled to said first display unit, said value input device, said second display unit, and said light valve, said controller comprising a processor and a memory operatively coupled to said processor,

said controller being programmed to allow a person to make a wager,

said controller being programmed to cause a video image representing a game to be generated on said first display unit, said video image representing one of the following games: video poker, video blackjack, video slots, video keno or video bingo,

said video image comprising an image of at least five playing cards if said game comprises video poker,

said video image comprising an image of a plurality of simulated slot machine reels if said game comprises video slots,

said video image comprising an image of a plurality of playing cards if said game comprises video blackjack,

said video image comprising an image of a plurality of keno numbers if said game comprises video keno,

said video image comprising an image of a bingo grid if said game comprises video bingo,

said controller being programmed to determine a value payout associated with an outcome of said game,

said controller being programmed to cause said gaming indicia to be displayed by said second display unit, and

said controller being programmed to cause said light valve display unit to change between said substantially opaque configuration and said substantially transparent configuration.

2. A gaming apparatus as defined in claim 1, wherein said light valve comprises a suspended particle light valve, a liquid crystal light valve, or an electrochromic light valve.

3. A gaming apparatus as defined in claim 1, wherein said second display unit is capable of generating video images and wherein said gaming indicia comprises a video image.

4. A gaming apparatus as defined in claim 1, wherein said second display unit comprises an electromechanical display comprising:

a motor;

at least one rotatable roller operatively coupled to said motor;

a belt operatively coupled to said rotatable roller, said belt having a plurality of gaming indicia imprinted thereon; and

wherein said controller is programmed to cause said motor to rotate, thereby causing said display of said gaming indicia.

5. A gaming apparatus as defined in claim 1, said controller being programmed to initiate a bonus game, and said controller being programmed to cause said light valve to change between said substantially opaque configuration and said substantially transparent configuration during said bonus game.

6. A gaming system comprising a plurality of gaming apparatuses as defined in claim 1, said gaming apparatuses being interconnected to form a network of gaming apparatuses.

7. A gaming system as defined in claim 6, wherein said gaming apparatuses are interconnected via the Internet.

8. A slot machine, comprising:

a plurality of slot machine reels, each of said slot machine reels having a plurality of symbols thereon;

a value input device;

a display unit capable of displaying gaming indicia;

a light valve operatively mounted over said display unit, said light valve being capable of changing between a substantially opaque configuration wherein said second display unit is substantially hidden from the view of a player, and a substantially transparent configuration wherein said second display unit is revealed to the view of said player; and

a controller operatively coupled to said slot machine reels, said value input device, said display unit, and said light valve, said controller comprising a processor and a memory operatively coupled to said processor,

said controller being programmed to allow a person to make a wager on a game,

said controller being programmed to cause said slot machine reels to rotate and stop,

said controller being programmed to determine a value payout associated with an outcome of said game, and

said controller being programmed to cause said light valve display unit to change between said substantially opaque configuration and said substantially transparent configuration.

9. A slot machine as defined in claim 8, wherein said light valve comprises a suspended particle light valve, a liquid crystal light valve, or an electrochromic light valve.

10. A slot machine as defined in claim 8, wherein said display unit comprises capable of generating video images and wherein said gaming indicia is a video image.

11. A slot machine as defined in claim 8, wherein said display unit is an electromechanical display comprising:

a motor;

at least one rotatable roller operatively coupled to said motor;

a belt operatively coupled to said rotatable roller, said belt having a plurality of gaming indicia imprinted thereon; and

wherein said controller being programmed to cause said motor to rotate, thereby causing said display of said gaming indicia.

12. A slot machine as defined in claim 8, said controller being programmed to initiate a bonus game, and said controller being programmed to cause said light valve to change between said substantially opaque configuration and said substantially transparent configuration during said bonus game.

13. A gaming system comprising a plurality of slot machines as defined in claim 8, said slot machines being interconnected to form a network of slot machines.

14. A gaming system as defined in claim 13, wherein said slot machines are interconnected via the Internet.

15. A slot machine, comprising:

a plurality of slot machine reels, each of said slot machine reels having a plurality of symbols thereon;

a value input device;

gaming indicia capable of being viewed by a player of said slot machine;

a light valve operatively mounted over said gaming indicia, said light valve being capable of changing between a substantially transparent state wherein said gaming indicia are visible to said player, a semi-opaque state wherein said gaming indicia are visible to said player and wherein said gaming indicia have a changed appearance, and a substantially opaque state wherein said gaming indicia are substantially hidden from the view of said player; and

a controller operatively coupled to said slot machine reels, said value input device, and said light valve, said controller comprising a processor and a memory operatively coupled to said processor,

said controller being programmed to allow a person to make a wager,

said controller being programmed to cause said slot machine reels to rotate and stop, representing a game,

said controller being programmed to determine a value payout associated with an outcome of said game, and

said controller being programmed to cause said light valve display unit to change between said substantially transparent state, said semi-opaque state, and said substantially opaque state.

16. A slot machine as defined in claim 15, wherein said light valve is a suspended particle light valve, a liquid crystal light valve, or an electrochromic light valve.

17. A slot machine as defined in claim 15, said controller being programmed to initiate a bonus game, and said controller being programmed to cause said light valve to change between said substantially transparent state, said semi-opaque state, and said substantially opaque state during said bonus game.

18. A gaming system comprising a plurality of slot machines as defined in claim 15, said slot machines being interconnected to form a network of slot machines.

19. A gaming system as defined in claim 18, wherein said slot machines are interconnected via the Internet.

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