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(54) SPIN MECHANISMS GAME

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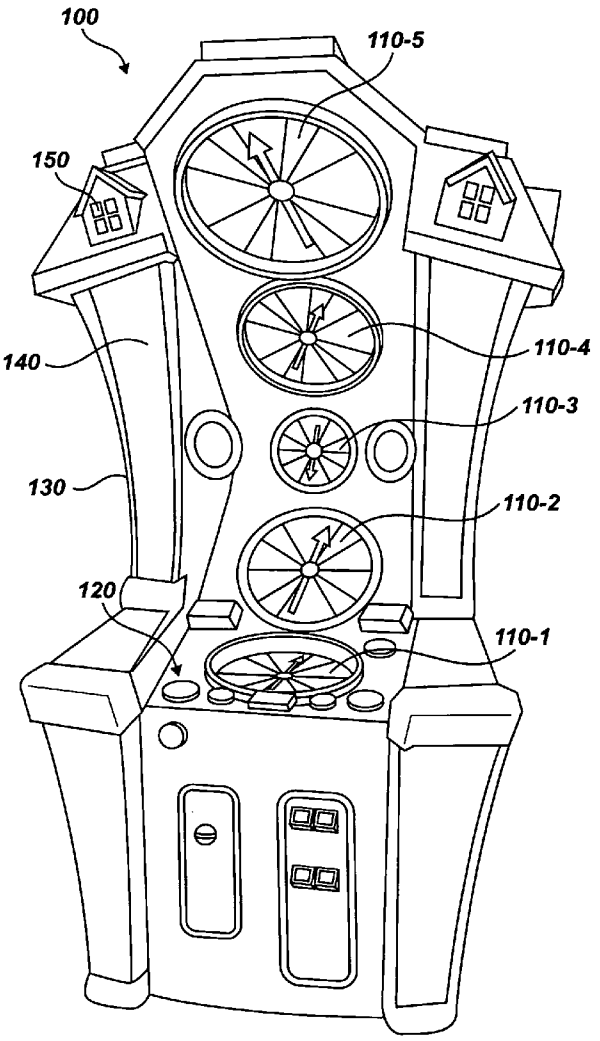
(57) **ABSTRACT**

An exemplary game apparatus includes a plurality of spin mechanisms including at least a first spin mechanism and a second spin mechanism, and a control unit communicatively connected to the spin mechanisms. The control unit is configured to provide a virtual passageway enabling game play to move between the first spin mechanism and the second spin mechanism. In certain implementations, the first spin mechanism includes a plurality of landing zones, one of the landing zones being associated with the virtual passageway. In certain implementations, the control unit is configured to move game play from the first spin mechanism to the second spin mechanism in response to a spin action of the first spin mechanism stopping at the landing zone associated with the virtual passageway.



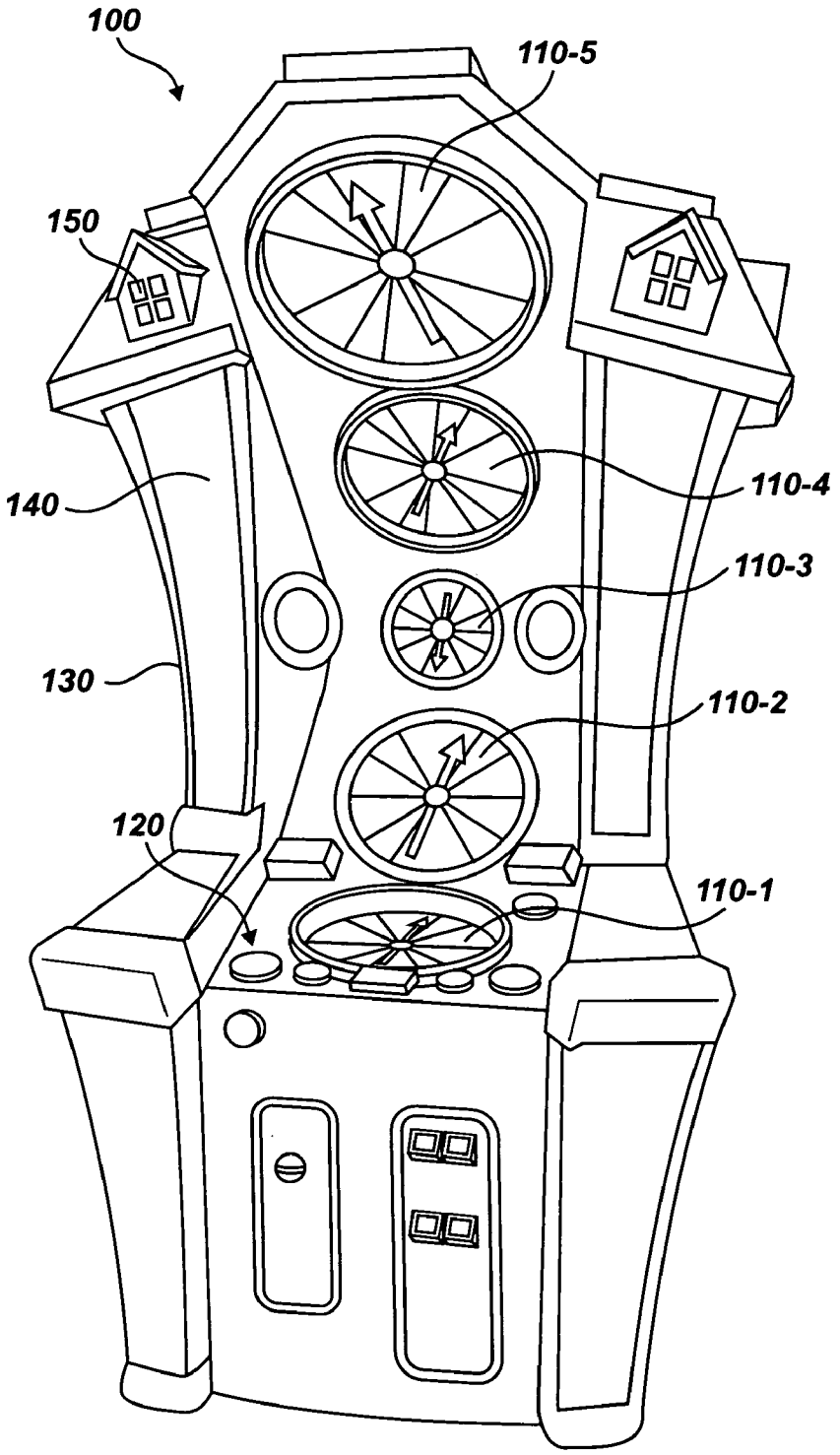


Fig. 1

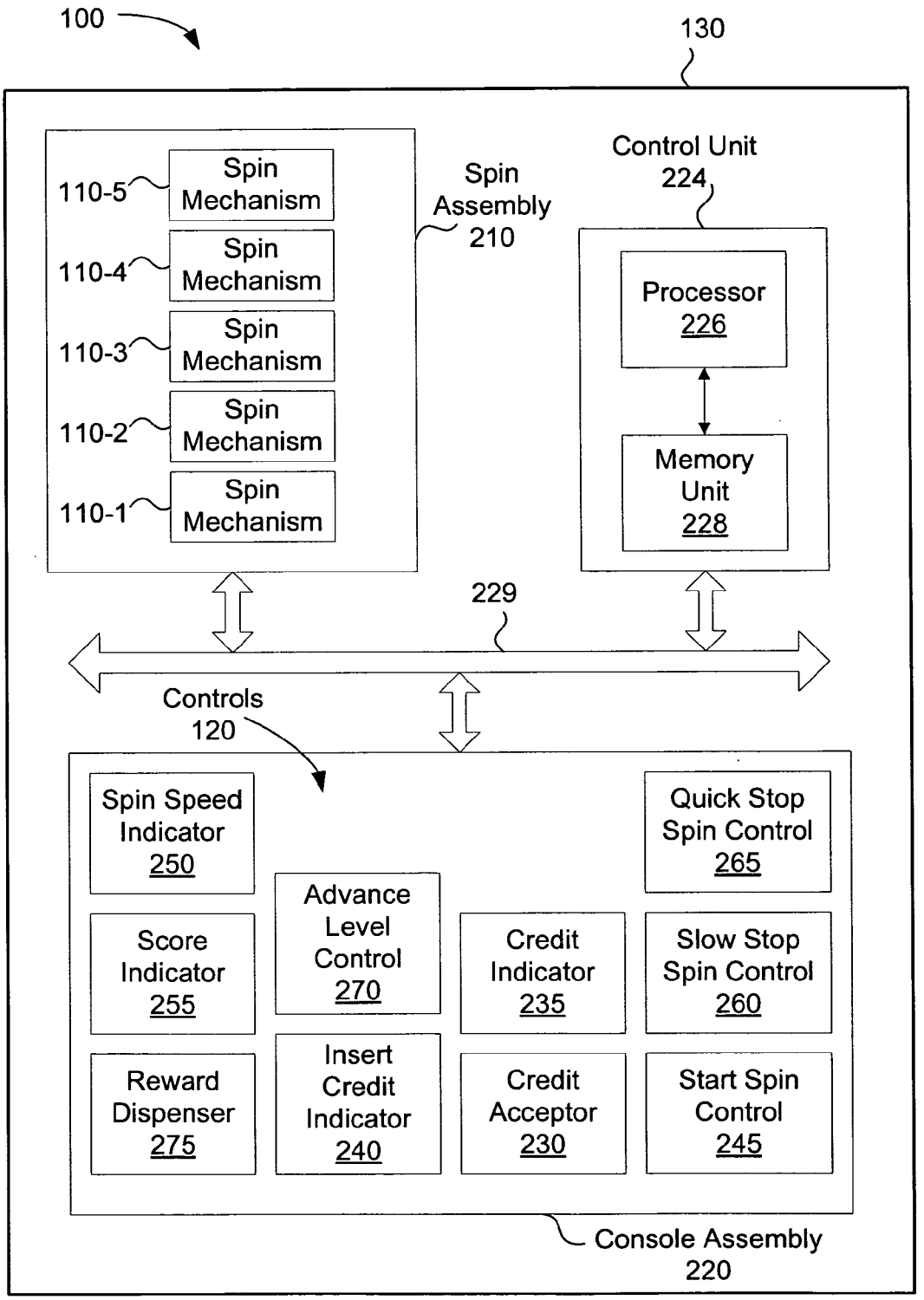

100
130
110-5
Spin Mechanism
110-4
Spin Mechanism
110-3
Spin Mechanism
110-2
Spin Mechanism
110-1
Spin Mechanism
Spin Assembly 210
Control Unit 224
Processor 226
Memory Unit 228
229
Controls 120
Spin Speed Indicator 250
Quick Stop Spin Control 265
Advance Level Control 270
Score Indicator 255
Credit Indicator 235
Slow Stop Spin Control 260
Reward Dispenser 275
Insert Credit Indicator 240
Credit Acceptor 230
Start Spin Control 245
Console Assembly 220

Fig. 2

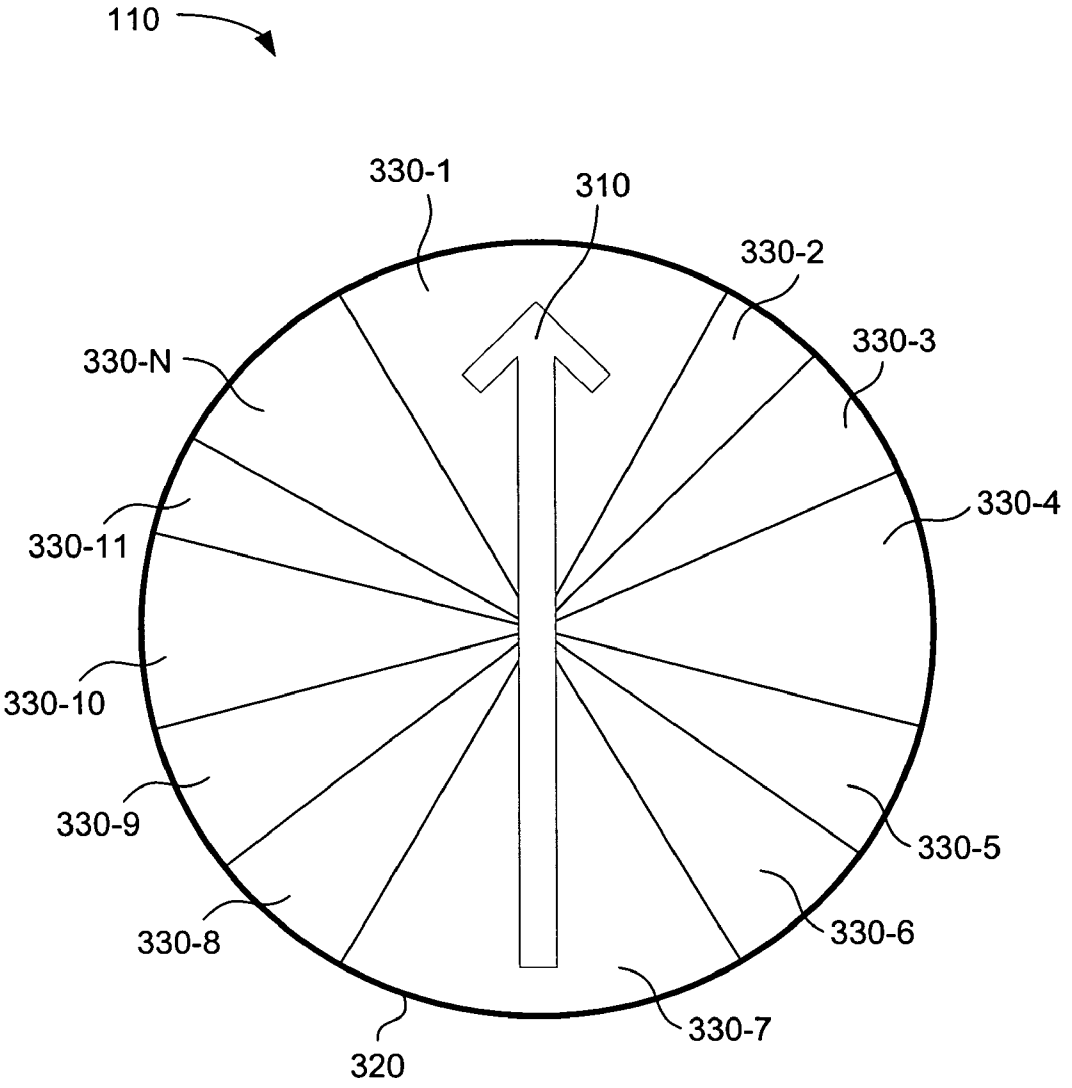

110
330-1
310
330-2
330-3
330-N
330-4
330-11
330-10
330-9
330-5
330-8
330-6
330-7
320

Fig. 3

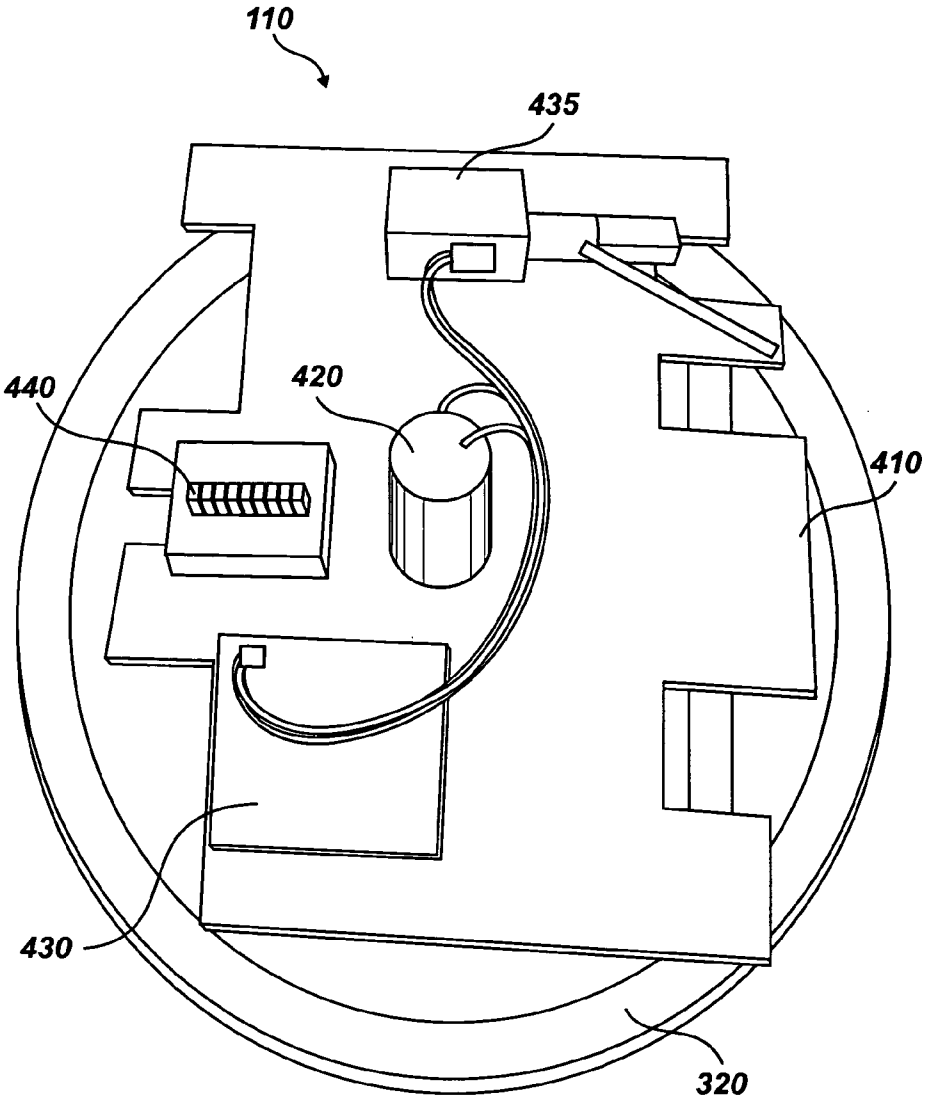


Fig. 4

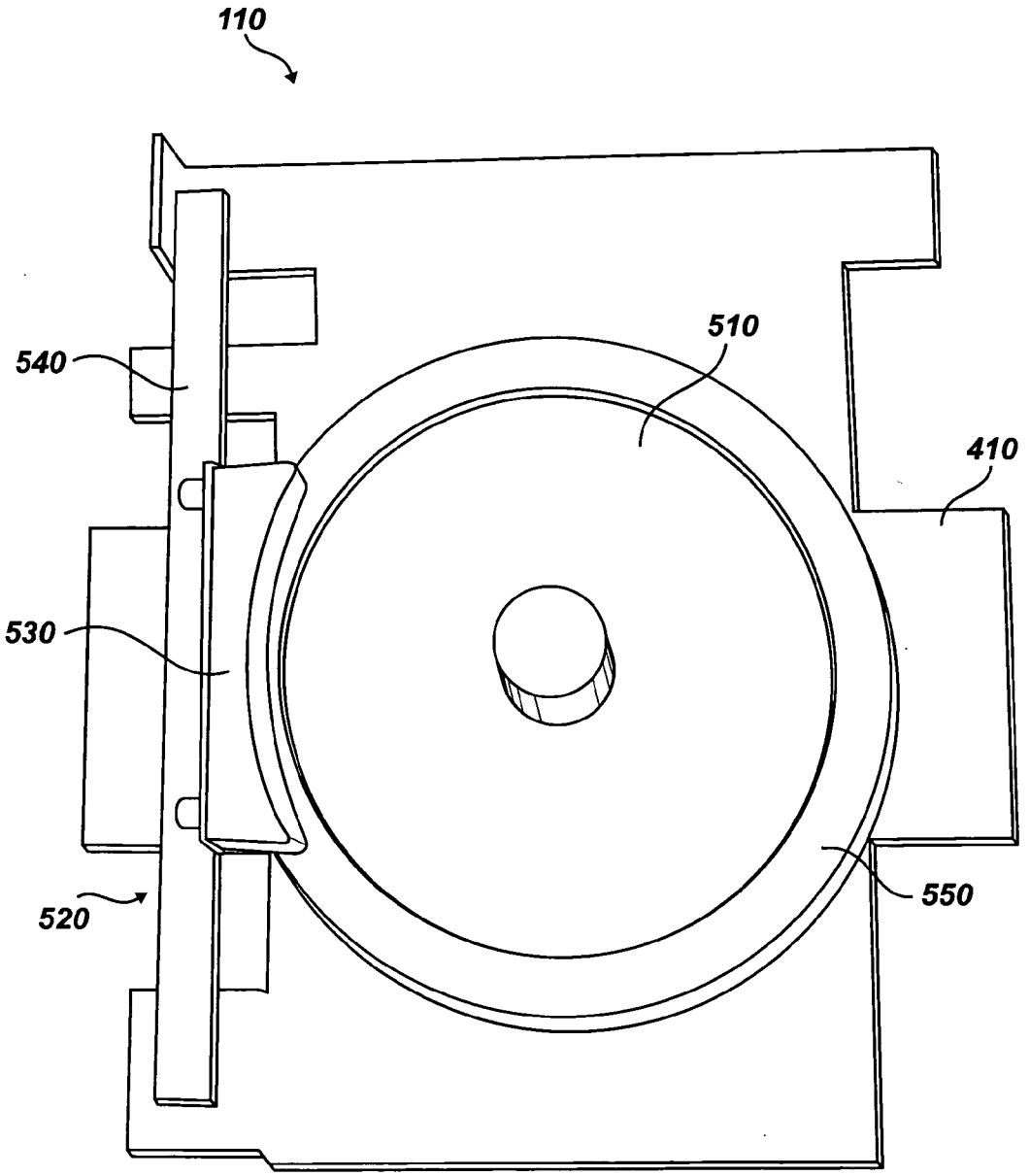


Fig. 5

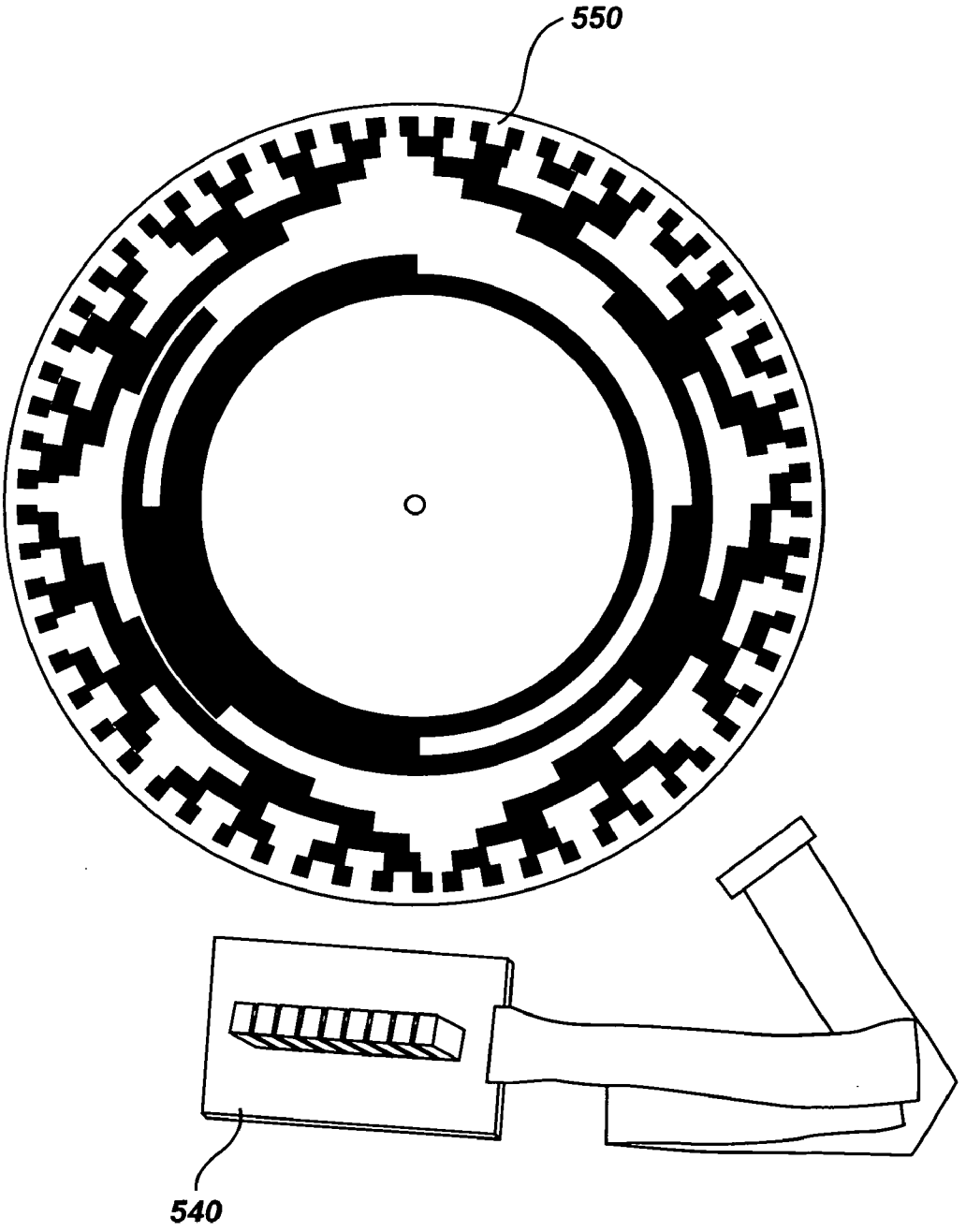


Fig. 6

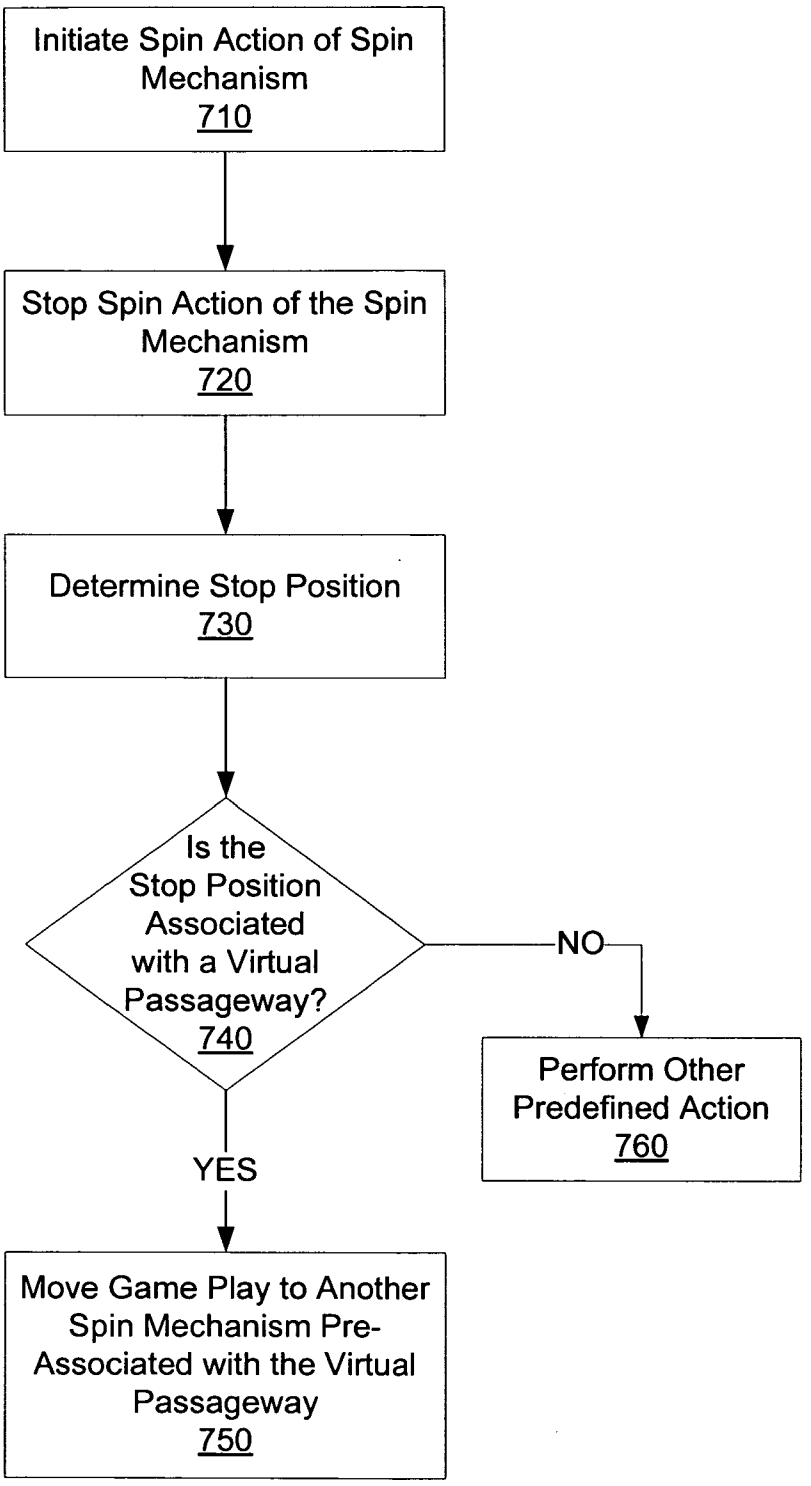

Initiate Spin Action of Spin Mechanism
710
Stop Spin Action of the Spin Mechanism
720
Determine Stop Position
730
Is the Stop Position Associated with a Virtual Passageway?
740
NO
Perform Other Predefined Action
760
YES
Move Game Play to Another Spin Mechanism Pre-Associated with the Virtual Passageway
750

Fig. 7

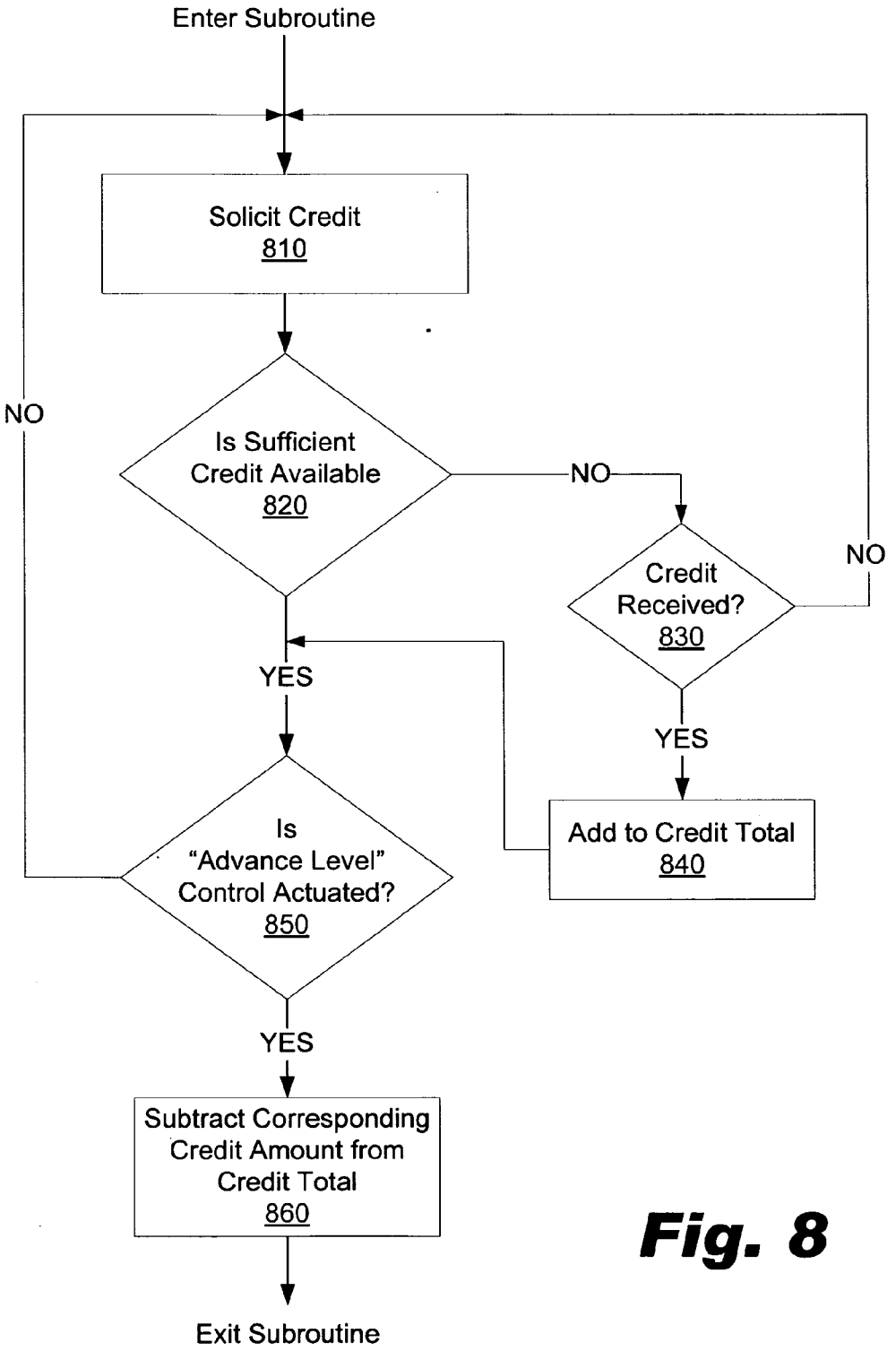

Enter Subroutine
Solicit Credit
810
Is Sufficient
Credit Available
820
NO
NO
Credit
Received?
830
NO
YES
YES
Add to Credit Total
840
Is
"Advance Level"
Control Actuated?
850
YES
Subtract Corresponding
Credit Amount from
Credit Total
860
Exit Subroutine

Fig. 8

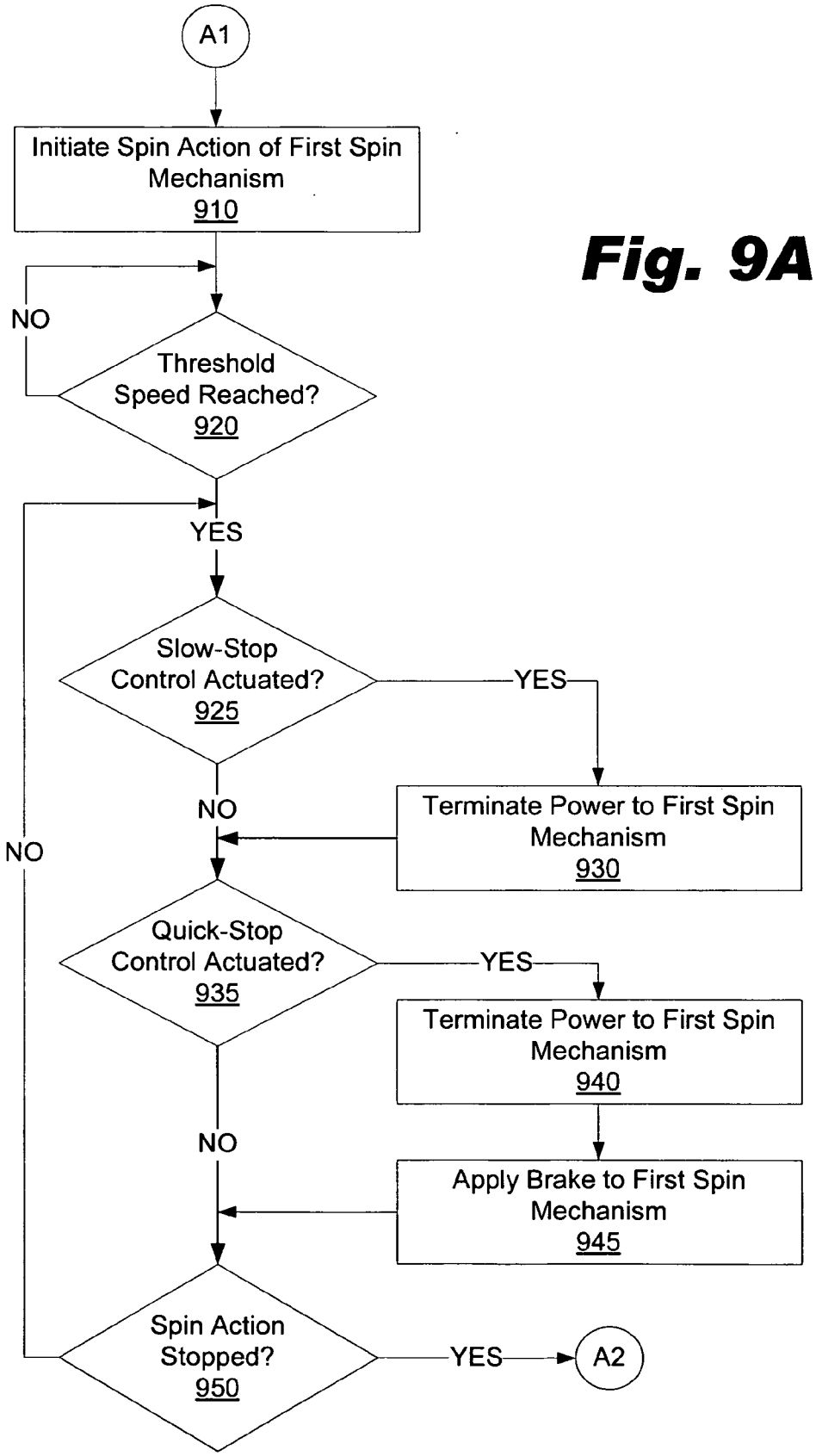

A1
Initiate Spin Action of First Spin Mechanism
910
NO
Threshold Speed Reached?
920
YES
Slow-Stop Control Actuated?
925
YES
Terminate Power to First Spin Mechanism
930
NO
NO
Quick-Stop Control Actuated?
935
YES
Terminate Power to First Spin Mechanism
940
NO
Apply Brake to First Spin Mechanism
945
Spin Action Stopped?
950
YES
A2

Fig. 9A

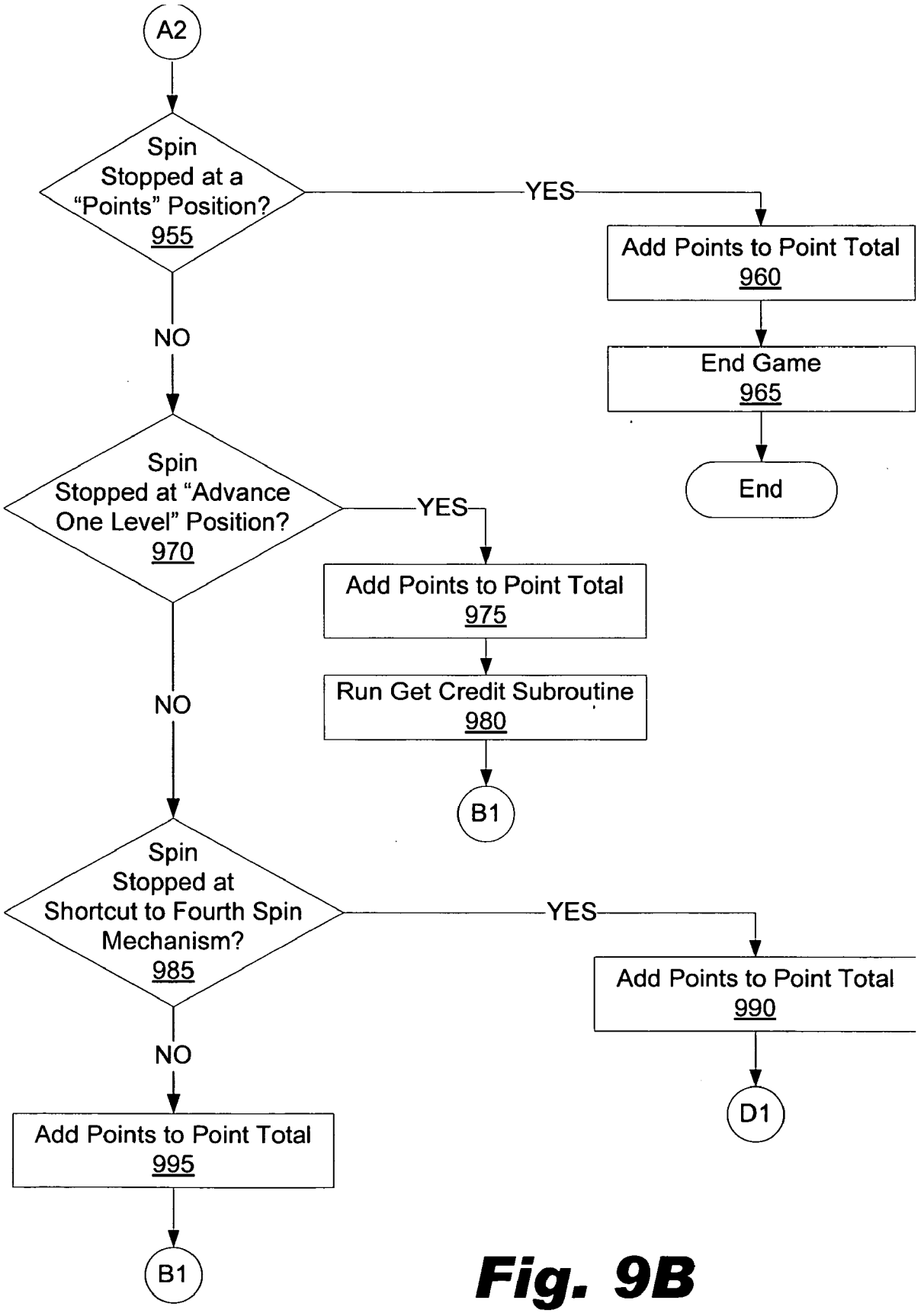

A2
Spin Stopped at a "Points" Position? 955
YES
Add Points to Point Total 960
End Game 965
End
NO
Spin Stopped at "Advance One Level" Position? 970
YES
Add Points to Point Total 975
Run Get Credit Subroutine 980
B1
NO
Spin Stopped at Shortcut to Fourth Spin Mechanism? 985
YES
Add Points to Point Total 990
D1
NO
Add Points to Point Total 995
B1

Fig. 9B

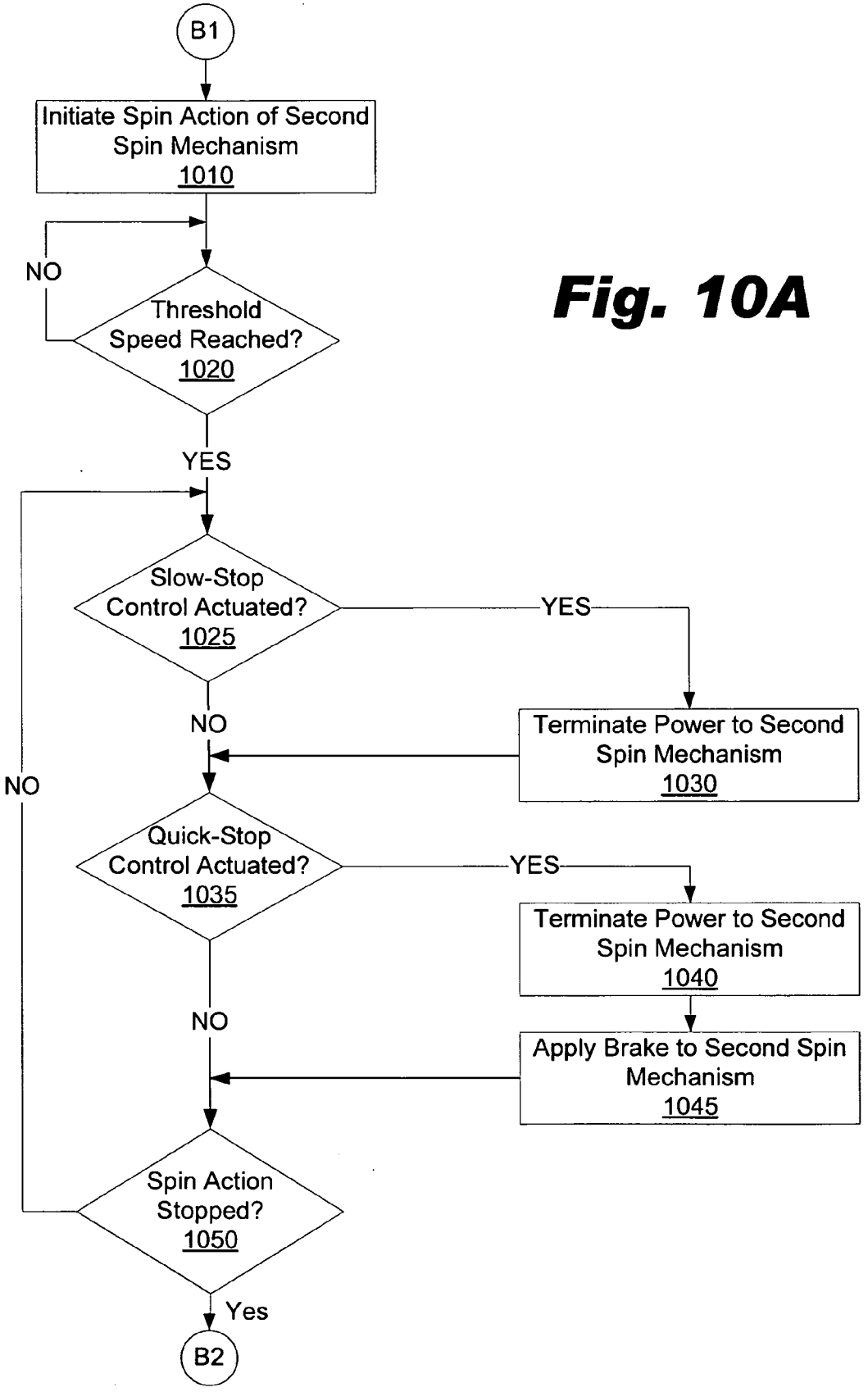

B1
Initiate Spin Action of Second Spin Mechanism
1010
NO
Threshold Speed Reached?
1020
YES
Slow-Stop Control Actuated?
1025
YES
Terminate Power to Second Spin Mechanism
1030
NO
NO
Quick-Stop Control Actuated?
1035
YES
Terminate Power to Second Spin Mechanism
1040
NO
Apply Brake to Second Spin Mechanism
1045
Spin Action Stopped?
1050
Yes
B2

Fig. 10A

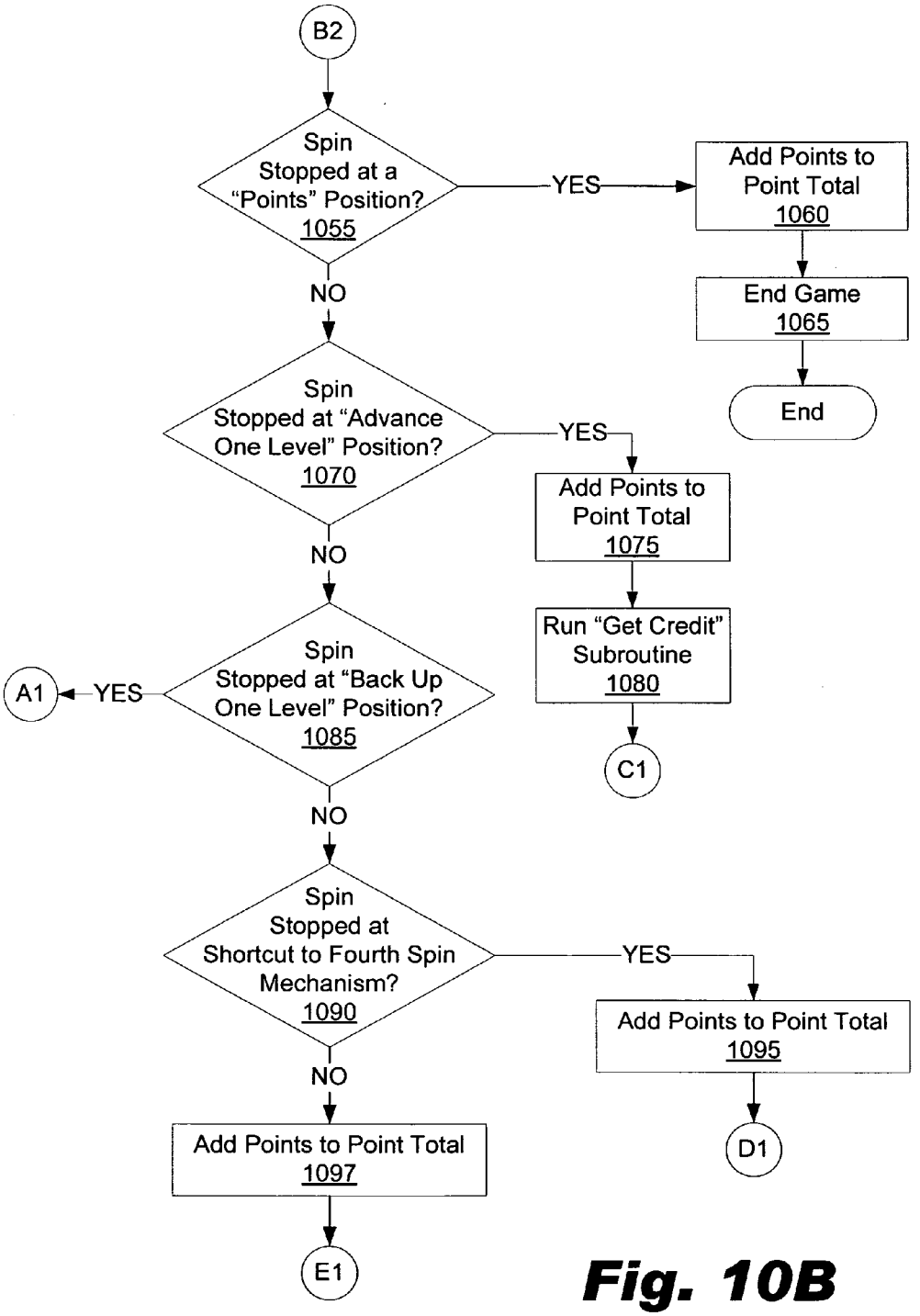

B2
Spin Stopped at a "Points" Position? 1055
YES
Add Points to Point Total 1060
End Game 1065
End
NO
Spin Stopped at "Advance One Level" Position? 1070
YES
Add Points to Point Total 1075
Run "Get Credit" Subroutine 1080
C1
NO
Spin Stopped at "Back Up One Level" Position? 1085
YES
A1
NO
Spin Stopped at Shortcut to Fourth Spin Mechanism? 1090
YES
Add Points to Point Total 1095
D1
NO
Add Points to Point Total 1097
E1

Fig. 10B

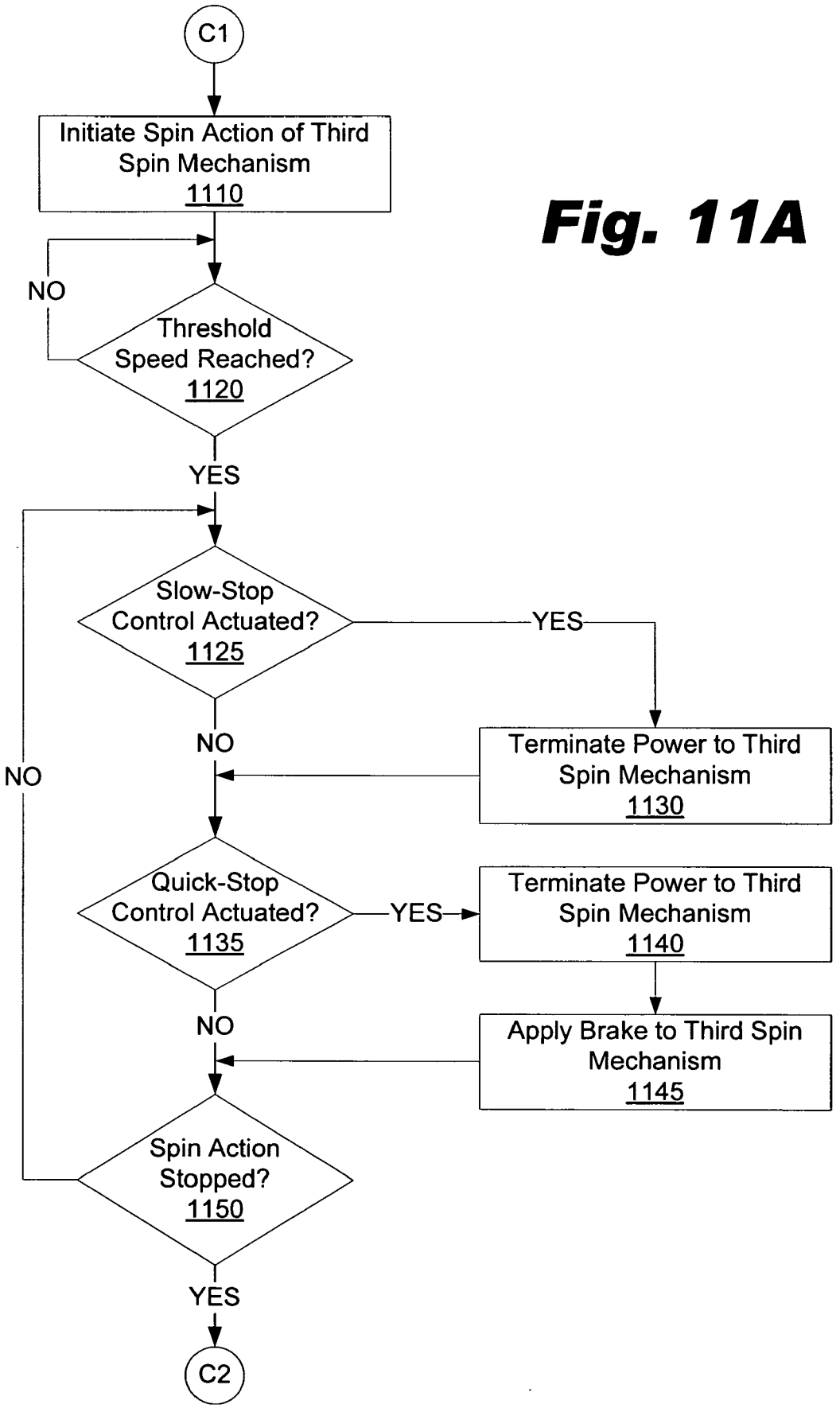

C1
Initiate Spin Action of Third Spin Mechanism 1110
NO
Threshold Speed Reached? 1120
YES
Slow-Stop Control Actuated? 1125
YES
Terminate Power to Third Spin Mechanism 1130
NO
NO
Quick-Stop Control Actuated? 1135
YES
Terminate Power to Third Spin Mechanism 1140
NO
Apply Brake to Third Spin Mechanism 1145
Spin Action Stopped? 1150
YES
C2

Fig. 11A

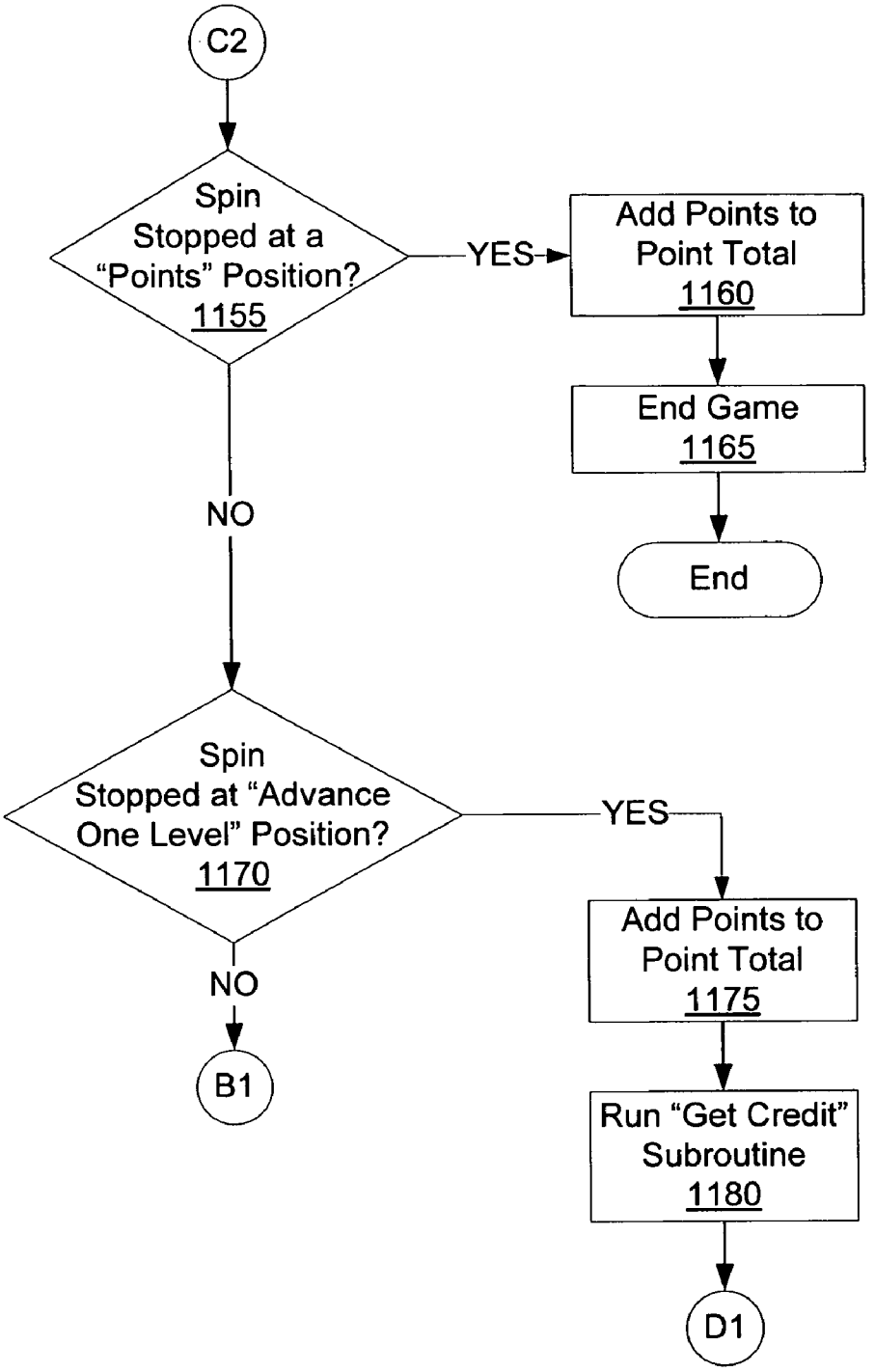

C2
Spin Stopped at a "Points" Position? 1155
YES
Add Points to Point Total 1160
End Game 1165
End
NO
Spin Stopped at "Advance One Level" Position? 1170
YES
Add Points to Point Total 1175
Run "Get Credit" Subroutine 1180
D1
NO
B1

Fig. 11B

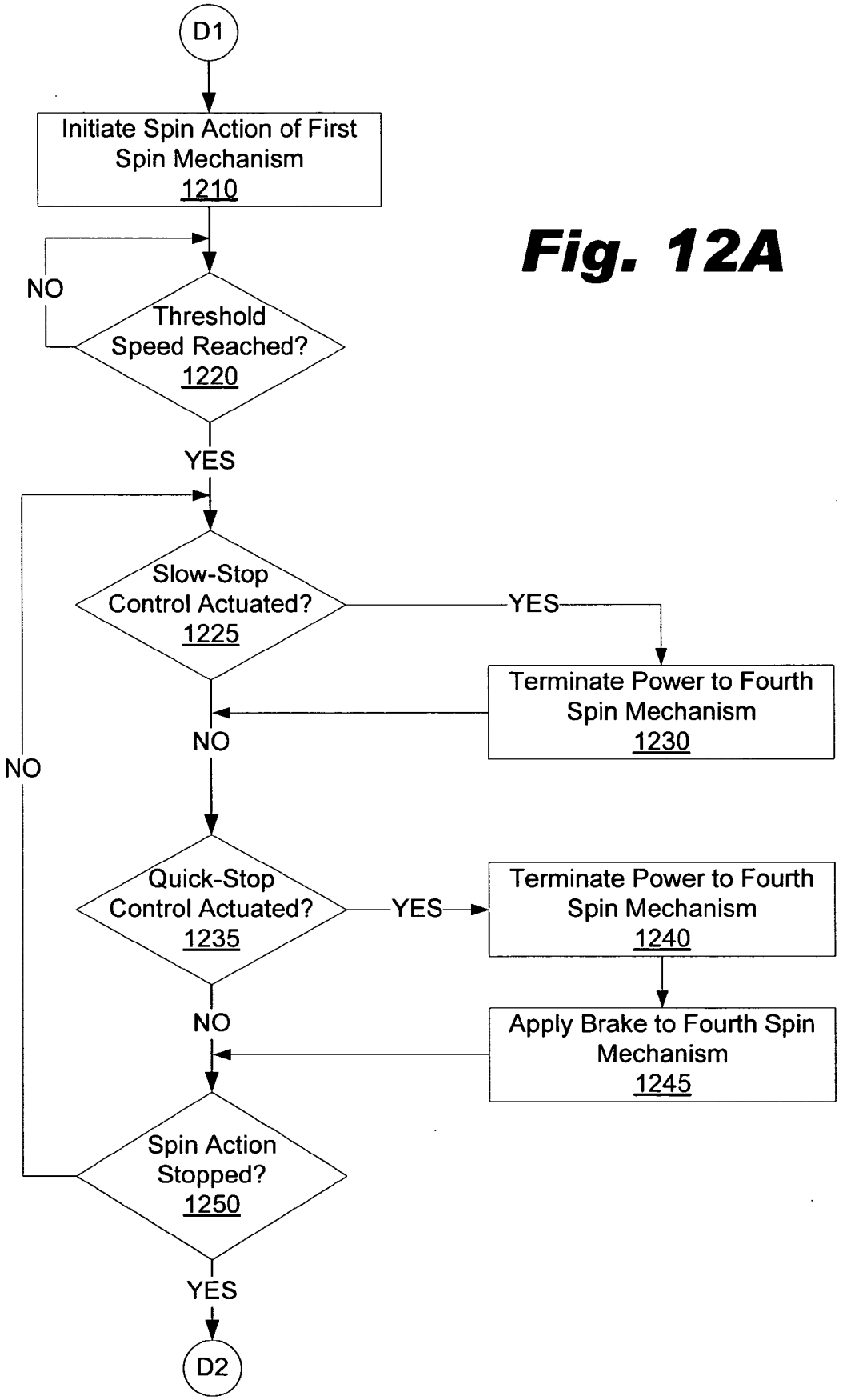

D1
Initiate Spin Action of First Spin Mechanism 1210
NO
Threshold Speed Reached? 1220
YES
Slow-Stop Control Actuated? 1225
YES
Terminate Power to Fourth Spin Mechanism 1230
NO
NO
Quick-Stop Control Actuated? 1235
YES
Terminate Power to Fourth Spin Mechanism 1240
NO
Apply Brake to Fourth Spin Mechanism 1245
Spin Action Stopped? 1250
YES
D2

Fig. 12A

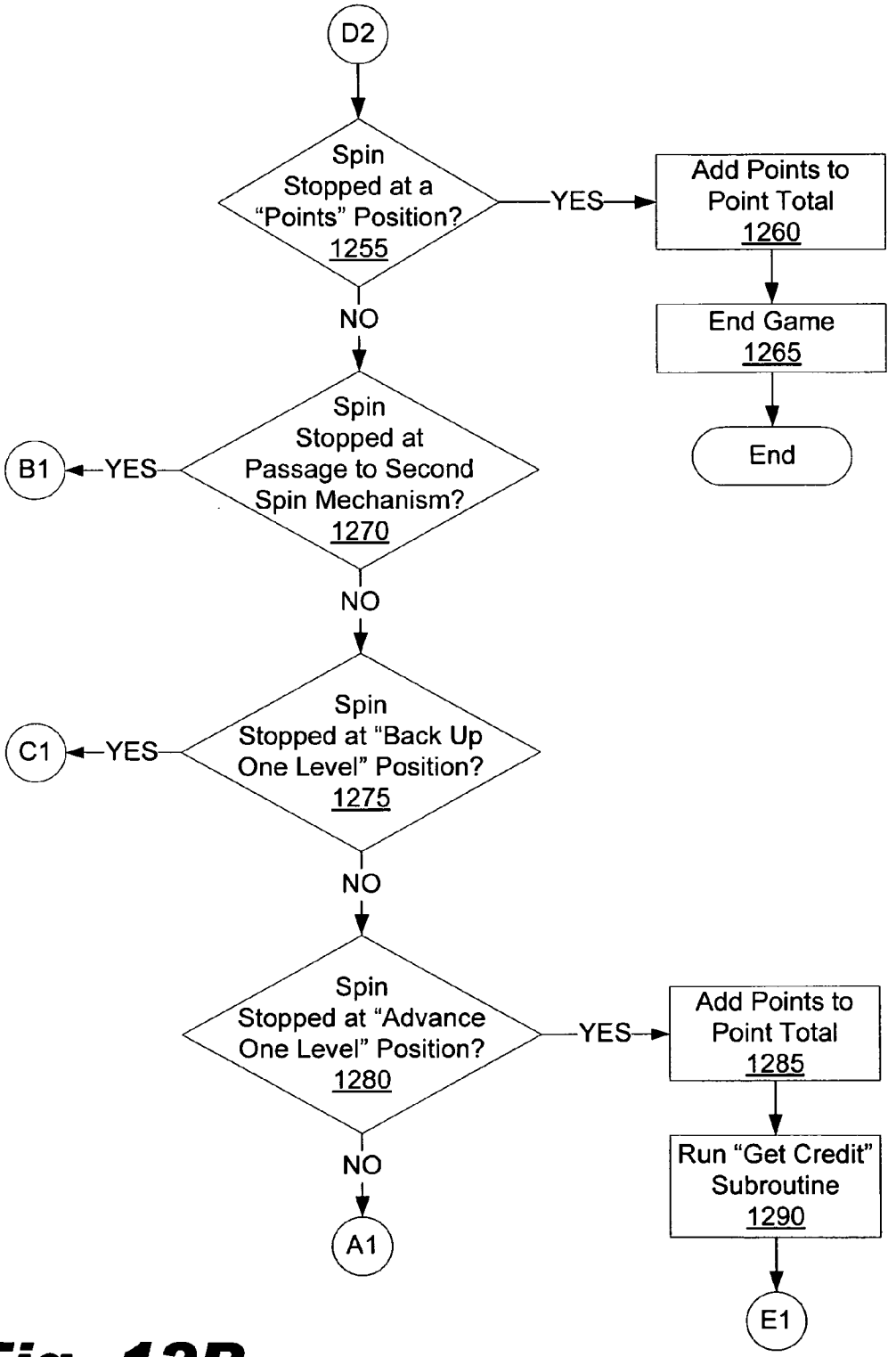

D2
Spin Stopped at a "Points" Position? 1255
YES
Add Points to Point Total 1260
End Game 1265
End
NO
Spin Stopped at Passage to Second Spin Mechanism? 1270
B1
YES
NO
Spin Stopped at "Back Up One Level" Position? 1275
C1
YES
NO
Spin Stopped at "Advance One Level" Position? 1280
YES
Add Points to Point Total 1285
Run "Get Credit" Subroutine 1290
E1
NO
A1

Fig. 12B

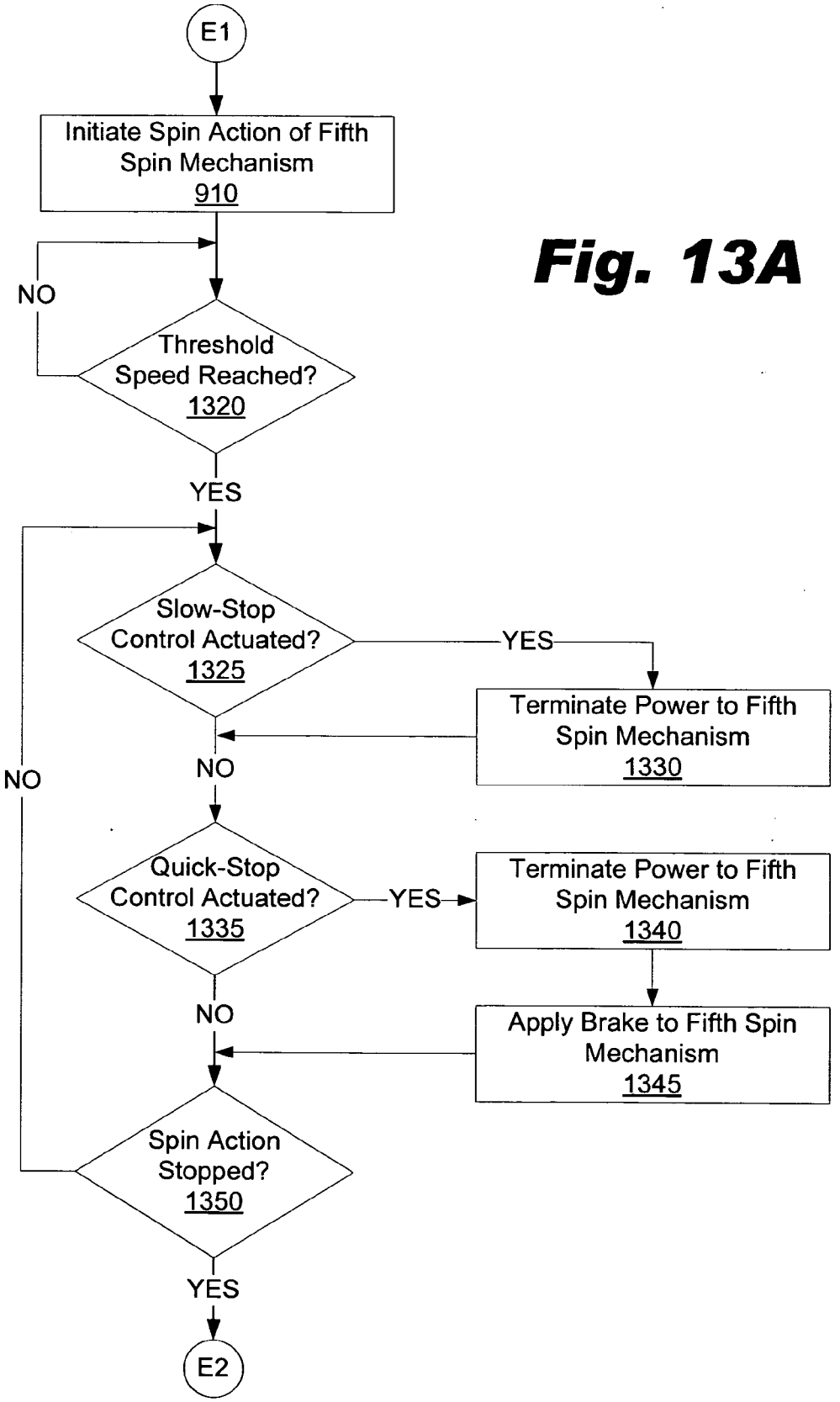

E1
Initiate Spin Action of Fifth Spin Mechanism
910
NO
Threshold Speed Reached?
1320
YES
Slow-Stop Control Actuated?
1325
YES
Terminate Power to Fifth Spin Mechanism
1330
NO
NO
Quick-Stop Control Actuated?
1335
YES
Terminate Power to Fifth Spin Mechanism
1340
NO
Apply Brake to Fifth Spin Mechanism
1345
Spin Action Stopped?
1350
YES
E2

Fig. 13A

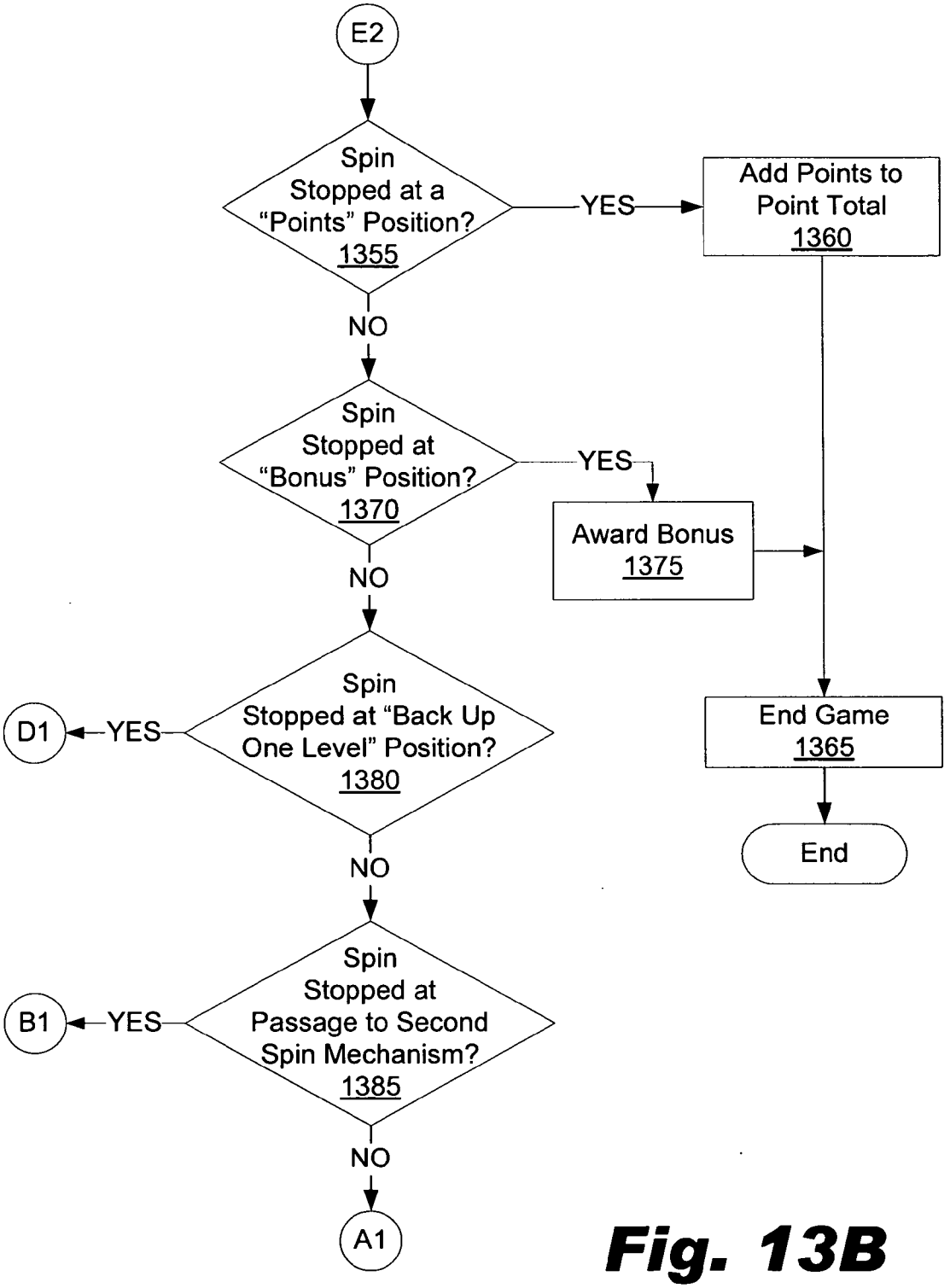

E2
Spin Stopped at a "Points" Position? 1355
YES
Add Points to Point Total 1360
NO
Spin Stopped at "Bonus" Position? 1370
YES
Award Bonus 1375
NO
Spin Stopped at "Back Up One Level" Position? 1380
D1
YES
End Game 1365
End
NO
Spin Stopped at Passage to Second Spin Mechanism? 1385
B1
YES
NO
A1

Fig. 13B

SPIN MECHANISMS GAME

RELATED APPLICATIONS

[0001] The present application claims priority under 35 U.S.C. §119(e) to U.S. Provisional Patent Application No. 60/761,976, by William B. Faith, filed on Jan. 25, 2006, and entitled SPIN MECHANISMS GAME, the contents of which are hereby incorporated by reference in their entirety.

BACKGROUND INFORMATION

[0002] One popular type of arcade game is the redemption game. A redemption game in one in which a player is awarded with points, tickets, tokens or other items redeemable for prizes. Some such conventional arcade-style game units include a single spin mechanism having a graphic display and a pointer. To play a conventional single-spinner game, a player typically buys credits and initiates spins of the single spinner. Points or other rewards are awarded according to the position on the graphic display where the pointer comes to rest after a spin. The player accumulates points by repeatedly initiating spins of the same spin mechanism.

[0003] Such single-spinner games provide very limited amusement quality to players because the games are capable of producing only limited possibilities and outcomes. Moreover, the outcomes are generally random and do not involve the skill of the player. Accordingly, conventional single-spinner games usually fail to entice an average player into playing more than a few times.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The accompanying drawings illustrate various exemplary implementations and are a part of the specification. The illustrated implementations are merely examples and do not limit the scope of the disclosure. Throughout the drawings, identical reference numbers designate identical or similar elements.

[0005] FIG. **1** is a perspective view of an exemplary game apparatus.

[0006] FIG. **2** is a block diagram of exemplary components of the game apparatus of FIG. **1**.

[0007] FIG. **3** illustrates a front view of an exemplary spin mechanism of the game apparatus of FIG. **1**.

[0008] FIG. **4** is a rear view of the exemplary spin mechanism of FIG. **3**.

[0009] FIG. **5** is a front view of the exemplary spin mechanism of FIG. **3** with the face plate removed.

[0010] FIG. **6** illustrates an exemplary position encoder and reader that may be utilized by the spin mechanism of FIG. **3**.

[0011] FIG. **7** is a flowchart illustrating an exemplary process for moving game play from one spin mechanism to another spin mechanism.

[0012] FIG. **8** is a flowchart illustrating an exemplary process for obtaining credit.

[0013] FIGS. **9**A-B illustrate an exemplary spin process for a first spin mechanism.

[0014] FIGS. **10**A-B illustrate an exemplary spin process for a second spin mechanism.

[0015] FIGS. **11**A-B illustrate an exemplary spin process for a third spin mechanism.

[0016] FIGS. **12**A-B illustrate an exemplary spin process for a fourth spin mechanism.

[0017] FIGS. **13**A-B illustrate an exemplary spin process for a fifth spin mechanism.

DETAILED DESCRIPTION

I. Introduction

[0018] Exemplary implementations include game apparatuses comprising a plurality of spin mechanisms. The spin mechanisms of such a game apparatus may be associated with rewards, and a user of the game apparatus may attempt to obtain rewards by initiating successive spin actions of one or more of the spin mechanisms. For example, each of the spin mechanisms may be associated with a different set of rewards corresponding to a set of landing positions. When a spin action stops at a particular landing position, one or more corresponding actions may be performed, such as awarding the user with the corresponding reward. As used herein, the term "rewards" may refer to points, tickets, tokens, credits, credit refunds, coins, currency, prizes, game actions (e.g., movements of game play between the multiple spin mechanisms, bonus spin actions), any suitable consequences of a spin action as may suit a particular application, or any combination thereof.

[0019] A game apparatus may be configured to move game play between multiple spin mechanisms based on spin actions performed by the spin mechanisms. For example, game play may begin at a first spin mechanism. A spin action of the first spin mechanism may be initiated and stopped. When the spin action stops at a landing position associated with a virtual passageway to a second spin mechanism, game play may be moved to the second spin mechanism. In this or similar manner, one or more virtual passageways between various spin mechanisms may be defined and may provide numerous game play possibilities and outcomes to a user of a game apparatus.

[0020] For example, a game apparatus may include multiple spin mechanisms arranged in a hierarchy in which each of the spin mechanisms is associated with a level of the hierarchy. Game play may begin at a first spin mechanism in the hierarchy. A user may attempt to stop spin actions on virtual passageway landing positions that will allow game play to advance to other spin mechanisms in the hierarchy. As game play advances further along the hierarchy, the value of potential rewards may increase. The potential for high value rewards may entice users to provide credits for repeated game play. The various possibilities and outcomes of game play coupled with the potential to earn high value rewards may attract users to repeatedly play a game apparatus. These and other features and benefits of exemplary game apparatuses will now be described in relation to the Figures.

II. Exemplary Apparatus Views

[0021] FIG. **1** illustrates an exemplary game apparatus **100**. As shown in FIG. **1**, game apparatus **100** may include a plurality of spin mechanisms **110-1** through **110-5** (collectively "spin mechanisms **110**"). The number of spin mechanisms shown in FIG. **1** is exemplary only. The plurality of spin mechanisms **110** may include two or more spin mechanisms (e.g., spin mechanisms **110-1** through **110**-N). As described further below, the game apparatus **100** may provide one or more virtual passageways between the spin mechanisms **110**.

[0022] The game apparatus **100** may also include controls **120** enabling a user of the game apparatus **100** to control at least some of its operations, including controlling game play such as spin actions of the spin mechanisms **110**. The controls **120** and spin mechanisms **110** may be configured to enable the user to participate in a game experience that allows the user to attempt to obtain rewards by spinning one or more of the spin mechanisms **110**, as described below.

[0023] The spin mechanisms **110** and controls **120** may be housed in a cabinet **130**. The cabinet **130** shown in FIG. **1** is exemplary only. The cabinet **130** may include any suitable support structure(s) capable of housing the spin mechanisms **110** and controls **120**. The cabinet **130** may comprise any suitable material(s), including metal, fiberglass, glass, wood, plastic, etc.

[0024] The cabinet **130** may include one or more structural components. In certain implementations, all of the spin mechanisms **110** may be housed in a single support structure. In other implementations, more than one structure may be used to house the spin mechanisms **110**. For example, the cabinet **130** may include a base unit **140** housing spin mechanisms **110-1** through **110-4** and an expansion unit **150** housing spin mechanism **110-5**. The expansion unit **150** may be permanently or removably attached to the base unit **140** in any suitable manner.

[0025] The game apparatus **100** shown in FIG. **1** is illustrative only and not restrictive in any sense. Various implementations may include different configurations of spin mechanisms. In certain alternative implementations, game apparatuses may be configured for concurrent play by multiple users (i.e., multi-player game apparatuses). For example, a two-player game apparatus may include two sets of multiple spin mechanisms. The two sets may be positioned adjacent to one another. A three-player game apparatus may include three sets of multiple spin mechanisms, and so on. In certain implementations, at least one of the spin mechanisms is configured to be shared between multiple players.

[0026] FIG. **2** is a block diagram of exemplary components of the game apparatus **100**. As shown in FIG. **2**, the spin mechanisms **110-1** through **110-5** may be included in a spin assembly **210** and the controls **120** may be included in a console assembly **220**. Components of the spin assembly **210** and console assembly **220** may be communicatively connected to a control unit **224**, which may include at least one processor **226** and memory unit **228**. The processor **226** may control operations of the spin mechanisms **110** and controls **120** as directed by instructions (e.g., software and/or firmware) stored in the memory unit **228**. The instructions may be configured to direct the processor **226** to perform, initiate, or control any of the processes described herein.

[0027] Accordingly, the processes described herein may be implemented at least in part as instructions executable by one or more computing devices (processor **226**), as is well known. In general, processor **226** receives instructions, e.g., from memory unit **228**, a computer-readable medium, input mechanism, etc., and executes those instructions, thereby performing one or more processes, including one or more of the processes described herein. Such instructions may be stored and transmitted using a variety of known computer-readable media.

[0028] The exemplary components illustrated in FIG. **2** are not intended to be limiting. Other alternative hardware environments and implementations may be used. The components of the game apparatus **100** may communicate using any suitable communication technologies, including well-known electronic communication technologies such as a data bus **229**.

[0029] The controls **120** in the console assembly **220** may include one or more mechanisms for receiving input from and providing output to a user of the game apparatus **100**. The controls **120** may include any suitable mechanisms, including, but not limited to, switches, displays, LEDs, illuminators (e.g., neon lights), keypads, and any combinations thereof. Exemplary controls **120** may include a credit acceptor **230**, credit indicator **235**, insert credit indicator **240**, a start spin control **245**, a spin speed indicator **250**, a score indicator **255**, a slow stop spin control **260**, a quick stop spin control **265**, an advance level control **270**, and a reward dispenser **275**.

[0030] Credit acceptor **230** may be configured to accept one or more suitable forms of credit from a user of the game apparatus **100**, including, but not limited to, currency (e.g., coins and/or bills), tokens, vouchers, and electronic credit (e.g., by a swipe of card), for example. In certain implementations, the game apparatus **100** may be configured to allow the user to participate in a game experience when at least a predetermined credit amount has been received.

[0031] The game apparatus **100** may be configured to hold received and unused credit in escrow. Credit received from a user may be added to the escrow, and credit may be subtracted from the escrow when certain predefined game events occur. In certain implementations, credit held in escrow or at least a subset of the credit received during a game session may be refunded to the user when a certain predefined game event occurs, such as a spin action of a spin mechanism **110** landing on a predetermined "refund" landing position, as described below.

[0032] Credit indicator **235** may be configured to indicate (e.g., display) the current amount of unused credit that has been received. Credit may be depleted during game play. For example, a spin of a spin mechanism **110** and/or a level advancement (e.g., from one spin mechanism **110** to another) may cost one or more units of credit. The amount of credit charged and the particular actions for which credit will be charged may vary for different implementations and may be configurable by an operator and/or manufacturer. Accordingly, credit charges may be customized as may suit a particular application. In certain implementations, for example, credit may be charged for certain level advancements (e.g., movements between spin mechanisms by certain progressive virtual passageways) but not for other level advancements (e.g., movements between spin mechanisms by progressive "bonus" or regressive virtual passageways). An operator may choose whether to charge and/or the credit amounts to be charged for level advancements and configure the game apparatus **100** accordingly.

[0033] In some examples, costs of game play may vary based on one or more predefined factors. For example, the cost of a game play action (e.g., a spin action or a level advancement) may be less expensive when the game apparatus **100** has received at least predetermined amount of credit. For instance, a deposit of one credit may earn one game play action and a deposit of two credits may earn three game play actions.

[0034] When credit is exhausted, game play may be terminated or suspended, and the game apparatus **100** may

request that additional credit be provided. For example, the insert credit indicator **240** may signal the user to provide credit, such as by flashing a light to illuminate the insert credit indicator **240**. The game apparatus **100** may allow a predefined period of time within which the user may provide sufficient credit to continue a game session. Once the time period expires without sufficient credit being provided, the game session may be terminated.

[0035] In certain implementations, the game apparatus **100** may be configured to allow a user to advance game play to a specific spin mechanism **110** by providing a predetermined amount of credit. For example, a user may begin a game session by providing one unit of credit and actuating the advance level control **270**. As a result, game play will begin at the first spin mechanism **110-1**, i.e., the first spin mechanism **110-1** will be activated for game play. However, the user may advance game play directly to another spin mechanism **110** by providing a predetermined amount of credit and utilizing the advance level control **270**. In some implementations, for instance, four credit units may enable a jump to the second spin mechanism **110-2**, eight credit units may enable a jump to the fourth spin mechanism **110-4**, and fifteen credit units may enable a jump to the fifth spin mechanism **110-5**. Of course, the predetermined amounts of credit may vary and/or may be adjustable by an operator of the game apparatus **100**.

[0036] In certain implementations, game apparatus **100** may include start spin control **245**, slow stop spin control **260**, quick stop spin control **265**, and advance level control **270**, which may enable a user to control game play. During an exemplary mode of play, for example, one of the spin mechanisms **110** is typically active and controllable by the user. Game play may be said to be activated at a game level associated with the active spin mechanism **110**. For instance, the user may begin play at a first level associated with spin mechanism **110-1**, i.e., spin mechanism **110-1** is activated for game play. In certain implementations or game situations, a spin of spin mechanism **110-1** may be initiated automatically by the control unit **224**. In other implementations or game situations, the user may utilize the start spin control **245** to initiate a spin of the spin mechanism **110-1**. The spin speed indicator **250** may be configured to indicate the speed of the spin action to the user. For example, the spin speed indicator **250** may display the spin speed in revolutions per minute ("RPM"). The speed may be determined in any acceptable manner.

[0037] The user may utilize the slow stop spin control **260**, the quick stop spin control **265**, or a combination of spin controls **260** and **265** to stop the spin action of spin mechanism **110-1**. In certain examples, the slow stop spin control **260** and quick stop spin control **265** become active once the spin speed reaches a predetermined threshold (e.g., a predetermined speed). This can prevent users from undesirably manipulating game play by stopping a spin action before a desirable spin speed has been reached. Actuation of the slow stop spin control **260** may instruct the game apparatus **110** to stop providing power to spin mechanism **110-1**, thereby allowing the spin to slowly decelerate until stopped. Actuation of the quick stop spin control **265** may instruct the game apparatus **110** to stop providing power and to apply a brake to spin mechanism **110-1**, thereby causing the spin action to quickly decelerate until stopped.

[0038] While certain implementations may provide a user with control over stopping spin actions, other implementations may stop spin actions in other ways. In some implementations, for example, the game apparatus **100** may be configured to allow a spin action to come to a stop in a random manner. This may be done using any known random number generator, which may be used to randomly determine the period of time power is applied to a spin mechanism **110**. In other implementations, for example, the game apparatus **100** may include logic configured to control the stopping positions of spin actions. This may be performed using a servo motor, for example. The stopping position of the servo motor may or may not be selected randomly.

[0039] In certain implementations, the game apparatus **100** may be configured to automatically cause a spin action to stop after a predetermined length of time. For example, power may be applied to the spin mechanism **110** for no longer than the predetermined length of time, or power to the spin mechanism may be terminated at a predetermined length of time after the spin action reaches a predetermined threshold speed. Components of an exemplary spin mechanism **110** will be described in detail further below.

[0040] The spin mechanism **110-1** may be configured such that a spin action will come to a stop at one of a plurality of possible landing positions. The game apparatus **100** may be configured to determine the stop position and perform at least one action that is associated with the position. As described in more detail below, examples of actions that my be associated with spin landing positions may include, but are not limited to, providing at least one reward, as defined above. Accordingly, predefined actions may include, but are not limited to, awarding points to the user, advancing play to another level, i.e., to another spin mechanism such as spin mechanism **110-2** (e.g., spin mechanism **110-2** becomes active and controllable by the user), reverting game play to another level, i.e., to another spin mechanism, and ending or suspending play. Any of the actions may be made conditional on the user having already provided or providing a predetermined amount of credit, as described above.

[0041] By controlling spin actions of the spin mechanisms **110**, a user of the game apparatus **110** can attempt to accumulate rewards during game play. Each of the spin mechanisms **110** may include a plurality of landing positions associated with a predefined set of rewards. When a spin stops at a landing position, the associated reward(s) is/are awarded and/or performed. Through successive spins of various spin mechanisms **110**, the user can accumulate rewards. The reward dispenser **275** may provide rewards to the user when predetermined reward thresholds are satisfied and/or at the end of a game session. The rewards may be in various forms, including tickets, vouchers, or other items that may be redeemable for prizes, for example.

[0042] The amount and type of rewards may be configurable by a manufacturer and/or an operator of the game apparatus **100**. In certain implementations, the game apparatus **100** is configured to add points to an accumulative score total. The score indicator **255** may indicate to the user the amount of accumulated points. At the end of a game session, the points may be converted to tickets, which can be dispensed to a user by the reward dispenser **275**. Of course, other implementations may utilize different reward options. For instance, some implementations may dispense tickets for each spin that stops at a landing position associated with tickets. In certain implementations, the game apparatus **100** may be configured to provide the user with an option of accepting a reward or foregoing the reward for an alternative

reward. For example, a user may be provided with an option of accepting points or foregoing points (or other reward) for an additional spin action. The values of available rewards may be temporarily increased for the bonus spin action. The bonus spin action may be performed at the same level (i.e., same spin mechanism **110**) or at another level (i.e., another spin mechanism **110**).

[0043] As mentioned previously, the game apparatus **100** (e.g., the control unit **224**) may be configured to provide one or more virtual passageways between spin mechanisms **110** such that game play can move between the spin mechanisms **110** based on the results of spin actions. For example, when game play is at a first level associated with a first spin mechanism **110-1** (e.g., spin mechanism **110-1** is active), a user may start and stop a spin action of the spin mechanism **110-1**, as described above. One of the landing positions may be associated with a particular virtual passageway to the second spin mechanism **110-2**, and when the spin action stops at this particular landing position, the game apparatus **110** (e.g., the control unit **224**) may move game play to the second spin mechanism **110-2** (e.g., spin mechanism **110-2** is activated and spin mechanism **110-1** deactivated). The user may then control spin actions of the second spin mechanism **110-2**.

[0044] This is just one example of a virtual passageway. Other virtual passageways between the various spin mechanisms **110** may also be provided and function in similar fashion. For example, one of the landing positions of the second spin mechanism **110-2** may be associated with a regressive type virtual passageway (e.g., a "booby trap") back to the first spin mechanism **110-1**.

[0045] The spin mechanisms **110** may be arranged to form hierarchical levels of play through which a user can attempt to advance in order to maximize the rewards that can be earned. For example, spin mechanisms **110-1** and **110-2** may be arranged hierarchically such that game play normally begins at spin mechanism **110-1**, which includes a plurality of landing positions associated with a first set of rewards. A spin of spin mechanism **110-1** may result in any reward included the first set of rewards.

[0046] This first set of rewards may have relatively less value as compared to rewards that can be obtained from a spin of the second spin mechanisms **110-2**. Accordingly, it may be desirable to advance game play from the first spin mechanism **110-1** to the second spin mechanism **110-1** so that the relatively more valuable rewards can be obtained. Accordingly, the first and second spin mechanisms **110-1** and **110-2** may be described as forming a hierarchy of spin mechanisms **110** having at least one virtual passageway between them. Of course, other hierarchies may include more than two spin mechanisms **110**. In the game apparatus **100** of FIG. **1**, spin mechanisms **110-1** through **110-5** may form a hierarchy. In certain implementations, the value of available rewards is configured to increase as game play moves toward spin mechanism **110-5** and to decrease as game play moves toward spin mechanism **110-1**.

[0047] Game play including potential for virtual movement between multiple spin mechanisms **110** can provide improved excitement and quality of play as compared to conventional single-spinner arcade games. By way of comparison, multiple spin mechanisms **110** having virtual passageways between them can provide a significant increase in the number of possible outcomes. In addition, relatively higher value rewards can be made available at least because the game apparatus **110** can require a considerable amount of skill, play, luck, and/or credit before game play is advanced to a level at which the higher value rewards may be obtained. For at least these reasons, the game apparatus **100** may attract more traffic in terms of both quantity and quality as compared to conventional single-spinner arcade games.

[0048] FIG. **3** illustrates a front view of an exemplary spin mechanism **110**. As shown in FIG. **3**, the spin mechanism **110** may include a pointer **310** and face plate **320**. The pointer **310** may be rotated about the face plate **320**, which action may be referred to as a "spin" or "spin action" of the spin mechanism **110**.

[0049] The face plate **320** may include a graphic display illustrating a plurality of landing zones **330-1** through **330**-N (collectively "landing zones **330**"). Each of the landing zones **330** may occupy a predetermined area of the face plate **320**. In certain implementations, the number and/or areas of the landing zones **330** may be configurable by an operator of the game apparatus **100**. For example, the area of a particular landing zone **330** may be reduced to reduce the chances of the pointer **310** stopping in that landing zone **330**. This capability of configuring the landing zones **330** may enable an operator to control the odds of a spin stopping at a particular landing zone **330**, and thus the odds of a user obtaining rewards associated with the landing zones **330**. In certain implementations, the game apparatus **100** enables the operator to specify a target winning percentage and adjusts the size of the landing zones **330** based on the target winning percentage.

[0050] In some examples, the landing zones **330** and/or the graphic display illustrating the landing zones **330** may be adjusted by the processor **226** based on changes to software, firmware, or other instructions included in the memory unit **228**. In other examples, the graphic display is an interchangeable element that may be attached to and removed from the face plate **320**.

[0051] Odds of winning rewards may be adjustable in other ways. In certain alternative implementations, for example, the control unit **224** may be configured to perform a micro-adjustment to the pointer **310** as it comes to rest at a stop position. The micro-adjustment may be determined based on a current winning percentage as compared a target winning percentage. Based on these factors, the micro-adjustment may be favorable or unfavorable to a user.

[0052] Each of the landing zones **330** may be associated with one or more rewards, including, but not limited to, any of the rewards listed above. In FIG. **3**, landing zone **330-1** is associated with a predefined virtual passageway to another spin mechanism **110**. In this case, the virtual passageway is a "single level advancement" (i.e., an "advance one level" passageway) to another spin mechanism **110**, which may in general offer more desirable rewards (e.g. larger point amounts) as compared to the current spin mechanism **110**. In addition to the level advancement action, points or other rewards may or may not be awarded when a spin stops at landing zone **330-1**. As mentioned, the game apparatus **100** may or may not charge one or more credits for the level advancement.

[0053] Landing zone **330-7** is associated with another predefined virtual passageway to yet another spin mechanism **110**. In this case, the virtual passageway is a "single level regression" (i.e., a "back up one level" passageway) to either another spin mechanism **110**, which in general offers

less desirable rewards (e.g., smaller point amounts), or to a termination of a game session when the current spin mechanism **110** is associated with the lowest level of the game.

[0054] Landing zones **330-5** and **330-9** are associated with additional, respective virtual passageways to yet other spin mechanisms **110**. The virtual passageways may be to any pre-selected spin mechanisms **110** and may be referred to a "secret passageways." In an exemplary implementation, the spin mechanism **110** shown in FIG. **3** is spin mechanism **110-3**, and the virtual passageway associated with landing zone **330-5** is to spin mechanism **110-5** and the virtual passageway associated with landing zone **330-9** is to spin mechanism **110-4**. In addition to the level advancement action, points or other rewards may or may not be awarded when a spin stops at landing zone **330-5** or **330-9**. Again, the game apparatus **100** may or may not charge one or more credits for the level advancement.

[0055] The remaining landing zones **330**, i.e., landing zones **330-2** through **330-4**, **330-6**, **330-8**, and **330-10** through **330**-N, may be associated with various point amounts. When a spin stops at any one of these landing zones, which may be referred to as "points only" landing zones or "points positions," the corresponding points may be awarded and the game session ended. In certain situations, instead of ending the game session, the game apparatus **100** may provide the user with an option to accept the points and end the game or forego the points for another spin.

[0056] The landing zones **330** in FIG. **3** are associated with a particular set of rewards that may be obtained by spinning the pointer **310**. This exemplary set of rewards is not limiting; any suitable set of rewards may be used. In certain implementations, each spin mechanism **110** is associated with a different set of rewards. The landing zones **330** and corresponding rewards may be configurable, such as by an operator changing the graphic display and software stored in the memory unit **228**. Modifications and variations may include changing the number of landing zones **330**, the sizes of the landing zones **330**, the rewards associated with the landing zones **330**, the position of the landing zones **330** in relation to one another, associated different rewards with the landing zones **330**, and any other suitable changes. In certain alternative implementations, for example, one or more of the landing zones **330** may be associated with a "refund" landing zone **330**. When a spin action stops on a "refund" landing zone, credits held in escrow, or at least a subset of the credits received during a game session, may be refunded to the user. For instance, the reward dispenser **275** or the credit acceptor **230** may refund credits (e.g., coins or tokens) to the user.

[0057] A spin action of a spin mechanism **110** may be performed in any suitable manner, including causing pointer **310** to rotate about the face plate **320**.

[0058] FIG. **4** is a rear view of the exemplary spin mechanism **110** shown in FIG. **3**. As shown in FIG. **4**, the spin mechanism **110** may include a frame **410** providing mechanical support for other components of the spin mechanism **110**, including the face plate **320** and a spin motor **420**. The frame **410** may be connected directly or indirectly to the cabinet **130** and may include any suitable material(s) and be configured in any form capable of supporting the other elements of the spin mechanism **110**. The spin motor **420** may include any motor and/or other mechanism capable of causing the pointer **310** to rotate in relation to the face plate **320**. Examples of motors that may be used include, but are not limited to, DC spindle motors, AC spindle motors, DC brush motors, DC brushless motor with a clutch for smooth stopping, and a stepper motor.

[0059] As shown in FIG. **4**, the spin mechanism **110** may also include circuitry **430** for interfacing with the control unit **224** and controlling components and functions of the spin mechanism **110**. For example, the circuitry **430** may be connected to the spin motor **420** for generating rotational motion (e.g., by providing electrically power) and to a solenoid **435** for controlling a brake assembly such as the brake assembly shown in FIG. **5**.

[0060] As shown in FIG. **4**, the spin mechanism **110** may also include a position reader **440**. As described further below, the position reader **440** may be configured to determine the position at which a spin action stopped (e.g., in which landing zone **330** the pointer **310** came to rest).

[0061] FIG. **5** is a front view of the exemplary spin mechanism **110** of FIG. **3** with the face plate **320** removed. As shown in FIG. **5**, the spin mechanism **110** may include flywheel **510**, which may be attached to a shaft (not shown) of the spin motor **420**. The spin motor **420** and shaft may be configured to cause the flywheel **510** to rotate concurrently with the pointer **310**. The flywheel **510** may facilitate a smooth rotational motion (i.e., spin action).

[0062] The flywheel **510** may also be used to stop a spin action. For example, a brake assembly **520** may be configured to engage the flywheel **510**. As shown in FIG. **5**, the spin mechanism **110** may include an exemplary brake assembly **520** having a brake pad **530** and a brake lever **540**. The brake pad **530** may include any material suitable for applying sufficient friction to the flywheel **510** to abruptly stop a spin action. For example, the brake pad **530** may include one or more rubber pads reinforced by one or more metal (e.g., steel) plates.

[0063] Movement of the brake lever **540** may cause the brake pad **530** to engage the flywheel **510**. This may be performed in any suitable manner, including energizing solenoid **435** (see FIG. **4**), which may be attached to and cause the brake lever **540** to translate. Application of the brake pad **530** to the flywheel **510** causes the spin motor **420**, flywheel **510**, and pointer **310** to come to an abrupt stop, thereby stopping the spin action. The brake assembly **520** may include a bias spring (not shown) configured to move the brake pad **530** away from the flywheel **510** when the solenoid is not energized. The brake assembly **520** shown in FIG. **5** is illustrative only. Other brake assemblies having differently configured elements may be employed for stopping spin actions of the spin mechanism **110**.

[0064] The brake pad **530** may be applied in response to any predefined event, including a user actuating the quick stop spin control **265**, the pointer **310** coming to a stop (e.g., decelerating to zero speed), or some other event. When the quick stop spin control **265** is actuated, the control unit **224** of the game apparatus **100** may detect a signal representative of the actuation and instruct the brake assembly **520** to apply the brake pad **530** to the flywheel **510**. The brake pad **530** may disengage the flywheel **510** in preparation for a spin action (e.g., in response to a user actuating the start spin control **245**) or when the particular spin mechanism **110** is inactive.

[0065] The spin mechanism **110** may use any suitable technologies for determining a post-spin landing position (e.g., the landing position of the pointer **310**). In certain implementations, a position encoder and reader are

employed. FIG. **5** illustrates the back side of an exemplary position encoder **550** that may be configured to rotate concurrently with the flywheel **510**. When the position encoder **550** comes to a stop after a spin, position reader **440** may determine the stop position of the position encoder **550**. From this determination, the control unit **224** and/or the spin mechanism **110** may determine at which landing zone **330** the pointer **310** has stopped.

[0066] FIG. **6** illustrates an exemplary front side of position encoder **550** along with position reader **440**. In this particular example, the position encoder **550** comprises an encoded wheel. As shown, the position encoder **550** may include reflective and non-reflective light surfaces arranged such that they can be used to determine the stop position of the position encoder **550** and consequently the pointer **310**. The markings on the position encoder **550** may be configured to represent angular positions. In the example shown in FIG. **6**, the position encoder **550** is partitioned into two-hundred fifty six (256) segments over three-hundred sixty (360) degrees of surface. Each segment may be identified by an encoded pattern printed on the position encoder **550**, and the encoded pattern may include a combination of light reflective and non-reflective surfaces. While the illustrated example includes particular encoded patterns, other implementations may utilize different encodings, including patterns for more segments (finer resolution), less segments (lower resolution), or segments that cover only part of the position encoder **550**.

[0067] The position reader **440** may be configured to read the stop position of the position encoder **550**. Any suitable technologies may be used to take the reading. In certain implementations, for example, the position reader **440** may include one or more optical light transceivers (e.g., nine individual transceiver modules). The transceivers may be configured to emit light toward the position encoder **550** and sense light is reflected back. Based on whether there is a presence or lack of reflective light, the position reader **440** can send corresponding signals (e.g., different voltage or current levels) to the control unit **224**, which may be configured to utilize the signals to determine the position of the position encoder **440** and the pointer **310**.

[0068] The game apparatus **100** may be configured to provide skilled and/or unskilled game play. For example, the game apparatus **100** may be selectively configured to operate in a skilled or unskilled mode. Skilled game play may enable a user to control spin actions, or at least the stopping of spin actions, such as by using the slow stop spin control **260** or the quick stop spin control **265** to cause a spin action to stop. In unskilled game play, the control unit **224** may control spin actions, including the positions at which spin actions stop. This may include full-fledged control of spin actions or micro-adjustments to the stop positions of spin actions. The control unit **224** may determine stop positions and/or micro-adjustments based at least in part on a predefined target winning percentage as compared to the current winning percentage.

III. Exemplary Process View

[0069] With the above-described components and configurations, the game apparatus **100** can be configured to provide users with a wide variety of game play experiences and outcomes. In addition, an operator of the game apparatus **100** can configure various features (e.g., credit amounts, user winning percentages, and reward values) as may suit a particular application.

[0070] In general, the game apparatus **100** provides a game experience that allows a user to attempt to advance game play between multiple spin mechanisms **110** in hopes of obtaining rewards and maximizing the potential rewards that can be obtained. In certain implementations, multiple spin mechanisms **110** are arranged to form a hierarchy. During game play, game play can more between the spin mechanisms **110**, and therefore between levels of the hierarchy, as spin actions stop on virtual passageways between the spin mechanisms **110**.

[0071] FIG. **7** is a flowchart illustrating an exemplary process for moving game play from one spin mechanism **110** to another. During game play, a particular spin mechanism **110** may be active. In step **710**, a spin action of the spin mechanism **110** may be initiated. Step **710** may be performed in any of the ways and in response to any of the events described above, including control unit **224** providing power (e.g., current) to spin motor **420** when brake pad **530** is disengaged from flywheel **510**. The spin action may be initiated automatically (e.g., when the spin mechanism **110** becomes active), in response to a user actuating the start spin control **245**, or in response to any other detectable event.

[0072] In step **720**, the spin action of the spin mechanism **110** may be stopped. Step **720** may be performed in any of the ways and in response to any of the events described above, including turning off power to the spin motor **420** and/or applying brake pad **530** to the flywheel **510**. The spin action may be stopped under the control of the control unit **224** or in response to a user actuating the slow spin stop control **260** and/or the quick stop spin control **265**, or in response to any other detectable event.

[0073] In step **730**, the stop position is determined. Step **730** may be performed in any of the ways described above, including the position reader **440** reading a pattern of the position encoder **550**, and the control unit **224** using one or more signals representative of the reading to identify the stop position of the pointer **310** in relation to the landing zones **330**.

[0074] In step **740**, the control unit **224** determines whether the stop position is associated with a virtual passageway. If it is determined that the stop position is associated with a virtual passageway, processing continues to step **750**.

[0075] In step **750**, game play is moved to another spin mechanism **110** that is associated with the virtual passageway. Step **750** may be performed in any of the ways described above, including deactivating the origin spin mechanism **110** and activating the target spin mechanism **110**. The process of FIG. **7** may be repeated for a spin action of the target spin mechanism **110**.

[0076] If it is determined at step **740** that the stop position is not associated with a virtual passageway, the process continues to step **760**. In step **760**, some other action associated with the stop position is performed. This action may include providing any of the rewards described above, including awarding points, additional spins of the spin mechanism **110**, and terminating a game session.

[0077] FIGS. **8-13**B illustrate exemplary game play processes for an exemplary configuration of five spin mechanisms **110-1** through **110-5** and virtual passageways between the spin mechanisms **110-1** through **110-5**. The exemplary

processes are illustrative only. Other implementations may omit, add to, reorder, and/or modify any of the steps shown in FIGS. **8**-**13**B. Accordingly, other processes may be employed for the same configuration of the spin mechanisms **110-1** through **110-5**. Moreover, other configurations of two or more spin mechanisms **110** and various game play processes may be employed in other implementations.

[0078] FIG. **8** is a flowchart illustrating an exemplary process for obtaining credit. The process of FIG. **8** may be a standalone process or a subroutine that can be called by other processes such as the exemplary processes of FIGS. **9**A-**13**B. In certain implementations, the process of FIG. **8** may be repeatedly performed to attract potential users to provide credit and participate in a game experience.

[0079] The process may begin at step **810**. In step **810**, credit is solicited. This may be performed in any of the ways described above, including illuminating and/or flashing the insert credit indicator **240** and/or the advance level control **270**.

[0080] In step **820**, the control unit **224** determines whether sufficient credit is available. Step **820** may include determining whether received, unused credit is equal to or greater than a predetermined threshold. If it is determined that sufficient credit is not available, the process will continue at step **830**.

[0081] In step **830**, it is determined whether credit is received. Step **830** may include monitoring the credit acceptor **230** or otherwise waiting for credit to be provided for a predetermined length of time. If credit is not received within the time period, credit will continue to be solicited at step **810**.

[0082] If credit is received within the time period, processing will continue at step **840**. In step **840**, the received credit is added to the credit total. Processing then continues at step **850**.

[0083] If it is determined that sufficient credit is available at step **820**, processing moves directly from step **820** to step **850** without steps **830** and **840** being performed.

[0084] In step **850**, it is determined whether the advance level control **270** is actuated. If actuation of the control **270** is not detected within a predetermined time period, processing may continue at step **810**. On the other hand, if actuation of the control **270** is detected, processing will continue at step **860**.

[0085] In step **860**, an appropriate amount of credit (corresponding to an associated action) is subtracted form the credit total. The subroutine process of FIG. **8** is then exited, and control is returned to the calling process. Where the process of FIG. **8** is executed to attract a user to begin a game, processing may move from step **860** to the process illustrated in FIGS. **9**A-B (see step **910** at "A**1**" in FIG. **9**A). In some implementations, processing may move from step **860** directly to step **1010**, **1110**, **1210**, or **1310** in any of the processes in the respective FIGS. **10**A, **11**A, **12**A, or **13**A in response to a user providing sufficient credit to enable, and appropriate input to initiate, a jump to different game play levels (i.e., different spin mechanisms **110**). The process of FIGS. **9**A-B may be performed when game play is at a first level associated with spin mechanism **110-1** (i.e., spin mechanism **110-1** is active), the process of FIGS. **10**A-B may be performed when game play is at a second level associated with spin mechanism **110-2**, the process of FIGS. **11**A-B may be performed when game play is at a third level associated with spin mechanism **110-3**, the process of FIGS. **12**A-B may be performed when game play is at a fourth level associated with spin mechanism **110-4**, and the process of FIGS. **13**A-B may be performed when game play is at a fifth level associated with spin mechanism **110-5**.

[0086] FIGS. **9**A-B illustrate an exemplary spin process for the first spin mechanism **110-1**. The process may begin at step **910**. The beginning of the process at step **910** is represented as "A**1**" in FIG. **9**A. In step **910**, a spin action of the first spin mechanism **110-1** is initiated. Step **910** may be performed in any of the ways and in response to any of the events described herein.

[0087] In step **920**, it is determined whether a threshold speed has been reached. If not, processing loops at step **920** until the threshold speed is determined to have been reached, at which point processing moves to step **925**.

[0088] In step **925**, it is determined whether the slow stop spin control **260** has been actuated. If it has, power to the first spin mechanism **110-1** is terminated at step **930**. As described above, this may allow the spin action to slowly come to a stop. Processing moves from step **930** to step **935**.

[0089] If it is determined at step **925** that the slow stop spin control **260** has not been actuated, processing moves directly from step **925** to step **935**, bypassing step **930**.

[0090] In step **935**, it is determined whether the quick stop spin control **265** has been actuated. If it has, power to the first spin mechanism **110-1** is terminated at step **940** and a brake (e.g., brake pad **530**) is applied to abruptly stop the spin action of the first spin mechanism **110-1** at step **945**. Processing moves from step **945** to step **950**.

[0091] If it is determined at step **935** that the quick stop spin control **265** has not been actuated, processing moves directly from step **935** to step **950**, bypassing steps **940** and **945**.

[0092] In step **950**, it is determined whether the spin action has stopped. Step **950** may be performed in any of the ways described above, including determining whether the spin speed is approximately zero. If the spin action has not stopped, processing continues at step **925**, as shown. If the spin action has stopped, processing continues at step **955** shown in FIG. **9**B. "A**2**," as shown in FIGS. **9**A-B indicates the transition from step **950** to step **955**. In some implementations, if the brake is not already applied when the spin action comes to a stop, the brake may be applied to secure the stop position.

[0093] In step **955**, it is determined whether the spin action stopped at a "points" position. A "points" position may include any landing zone **330** associated only with points (or some other form of reward) but not with a virtual passageway. Landing zones **330-2** through **330-4**, **330-6**, **330-8**, and **330-10** through **330-12** of FIG. **3** may be defined as "points" positions.

[0094] If it is determined that the spin action stopped at a "points" position, processing moves to step **960**. In step **960**, the points associated with the stop position are added to the point total. The game then ends at step **965**. Of course, this is illustrative. In other implementations, other options and/or actions may be performed when a spin stops at a "points" position. For example, a user may be provided with an option to accept the points and end the game or to forego the points for another opportunity to spin the spin mechanism **110-1**, in which case processing may return to step **910** of FIG. **9**A.

[0095] If it is determined at step **955** that the spin did not stop at a "points" position, processing continues to step **970**.

In step **970**, it is determined whether the spin action stopped at an "advance one level" position. An "advance one level" position may include any landing zone **330** associated with a virtual passageway to an adjacent, higher level of game play (i.e., the next higher spin mechanism **110** in a hierarchy of spin mechanisms **110**). In this case, an "advance one level" position would provide a user an opportunity to advance game play from spin mechanism **110-1** to spin mechanism **110-2**.

[0096] If it is determined at step **970** that the spin action has stopped at an "advance one level" position, processing continues at step **975**. In step **975**, any points associated with the "advance one level" position are added to the point total. Processing then moves to step **980**, at which step a "get credit" subroutine such as the one illustrated in FIG. **8** is called. If sufficient credit is provided, processing continues from step **980** to step **1010** of FIG. **10**A, as indicated by "B**1**" in FIGS. **9**B and **10**A. Step **980** may be omitted from other implementations in which credit is not charged for a single level advancement associated with the "advance one level" position of step **970**.

[0097] If it is determined at step **970** that the spin action has not stopped at an "advance one level" position, processing moves from step **970** to step **985**. In step **985**, it is determined whether the spin action has stopped at a shortcut (a type of virtual passageway) to the fourth spin mechanism **110-4**. If it has, processing moves to step **990**, at which step any points associated with the shortcut position are added to the point total. Processing then moves from step **990** to step **1210** of FIG. **12**A, as indicated by "D**1**" in FIGS. **9**B and **12**A.

[0098] If it is determined at step **985** that the spin action has not stopped at the shortcut to spin mechanism **110-4**, processing moves to step **995**. By default based on the available stop positions of spin mechanism **110-1**, it is known that the spin action has stopped at a shortcut to the second spin mechanism **110-2**. Any points associated with this stop position are added to the point total at step **995**. Processing then moves from step **995** to step **1010** of FIG. **10**A, as indicated by "B**1**" in FIGS. **9**B and **10**A.

[0099] From the above description, it can be seen that in the exemplary spin process for spin mechanism **110-1**, several virtual passageways from spin mechanism **110-1** to other spin mechanisms **110-2** and **110-4** are available and can be utilized to cause game play to move from spin mechanism **110-1** to either spin mechanism **110-2** or **110-4**. Of course, this example is not limiting. Other virtual passageways may be employed in other implementations.

[0100] FIGS. **10**A-B illustrate an exemplary spin process for the second spin mechanism **110-2**. The process may begin at step **1010**. The beginning of the process at step **1010** is represented as "B**1**" in FIG. **10**A. The performance of steps **1010-1050** as shown in FIG. **10**A is substantially similar to steps **910-950** of FIG. **9**A except that the steps are applied to spin mechanism **110-2** instead of spin mechanism **110-1**.

[0101] In step **1050**, if it is determined that the spin action has stopped, processing moves to step **1055** of FIG. **10**B, as indicated by "B**2**" in FIGS. **10**A-B. In some implementations, if the brake is not already applied when the spin action comes to a stop, the brake may be applied to secure the stop position.

[0102] In step **1055**, it is determined whether the spin action stopped at a "points" position as defined above. If it is determined that the spin action stopped at a "points" position, processing moves to step **1060**. In step **1060**, the points associated with the stop position are added to the point total. The game then ends at step **1065**. Of course, this is illustrative. In other implementations, other options and/or actions may be performed when a spin of spin mechanisms **110-2** stops at a "points" position. For example, a user may be provided with an option to accept the points and end the game or to forego the points for another opportunity to spin the spin mechanism **110-2**, in which case processing may return to step **1010** of FIG. **10**A.

[0103] If it is determined at step **1055** that the spin did not stop at a "points" position, processing continues to step **1070**. In step **1070**, it is determined whether the spin action stopped at an "advance one level" position as defined above. In this case, an "advance one level" position would provide a user an opportunity to advance game play from spin mechanism **110-2** to spin mechanism **110-3**.

[0104] If it is determined at step **1070** that the spin action has stopped at an "advance one level" position, processing continues at step **1075**. In step **1075**, any points associated with the "advance one level" position are added to the point total. Processing then moves to step **1080**, at which step a "get credit" subroutine such as the one illustrated in FIG. **8** is called. If sufficient credit is provided, processing continues from step **1080** to step **1110** of FIG. **11**A, as indicated by "C**1**" in FIGS. **10**B and **11**A. Step **1080** may be omitted from other implementations in which credit is not charged for a single level advancement associated with the "advance one level" position of step **1070**.

[0105] If it is determined at step **1070** that the spin action has not stopped at an "advance one level" position, processing moves from step **1070** to step **1085**. In step **1085**, it is determined whether the spin action has stopped at a "back up one level" position. A "back up one level" position may include any landing zone **330** associated with a virtual passageway to an adjacent, lower level of game play (i.e., the next lower spin mechanism **110** in a hierarchy of spin mechanisms **110**). In this case, a "back up one level" position would move game play from spin mechanism **110-2** to spin mechanism **110-1**. This may be performed by moving processing from step **1085** of FIG. **10**B to step **910** of FIG. **9**A, as indicated by "A**1**" in FIGS. **9**A and **10**B.

[0106] In it is determined at step **1085** that the spin action has not stopped at a "back up one level" position, processing moves from step **1085** to step **1090**. In step **1090**, it is determined whether the spin action has stopped at a shortcut to the fourth spin mechanism **110-4**. If it has, processing moves to step **1095**, at which step any points associated with the shortcut position are added to the point total. Processing then moves from step **1095** to step **1210** of FIG. **12**A, as indicated by "D**1**" in FIGS. **10**B and **12**A.

[0107] If it is determined at step **1090** that the spin action has not stopped at the shortcut to spin mechanism **110-4**, processing moves to step **1097**. By default based on the available stop positions of spin mechanism **110-2**, it is known at step **1097** that the spin action has stopped at a shortcut to the fifth spin mechanism **110-5**. Any points associated with this stop position are added to the point total at step **1097**. Processing then moves from step **1097** to step **1310** of FIG. **13**A, as indicated by "E**1**" in FIGS. **10**B and **13**A.

[0108] From the above description, it can be seen that in the exemplary spin process for spin mechanism **110-2** shown

in FIGS. **10**A-B, several virtual passageways to different spin mechanisms **110-1**, **110-3**, **110-4**, and **110-5** are available and can be utilized to cause game play to move from spin mechanism **110-2** to spin mechanism **110-1**, **110-3**, **110-4**, or **110-5**. Of course, this example is not limiting. Other virtual passageways may be employed in other implementations.

[0109] FIGS. **11**A-B illustrate an exemplary spin process for the third spin mechanism **110-3**. The process may begin at step **1110**. The beginning of the process at step **1110** is represented as "C**1**" in FIG. **10**A. The performance of steps **1110-1150** as shown in FIG. **11**A may be substantially similar to steps **910-950** of FIG. **9**A as described above except that steps **1110-1150** are applied to spin mechanism **110-3** instead of spin mechanism **110-1**.

[0110] Further, in step **1150**, if it is determined that the spin action has stopped, processing moves to step **1155** of FIG. **11**B, as indicated by "C**2**" in FIGS. **11**A-B. In some implementations, if the brake is not already applied when the spin action comes to a stop, the brake may be applied to secure the stop position.

[0111] In step **1155**, it is determined whether the spin action stopped at a "points" position as defined above. If it is determined that the spin action stopped at a "points" position, processing moves to step **1160**. In step **1160**, the points associated with the stop position are added to the point total. The game then ends at step **1165**. Of course, this is illustrative. In other implementations, other options and/or actions may be performed when a spin of spin mechanism **110-3** stops at a "points" position. For example, a user may be provided with an option to accept the points and end the game or to forego the points for another opportunity to spin the spin mechanism **110-3**, in which case processing may return to step **1110** of FIG. **11**A.

[0112] If it is determined at step **1155** that the spin did not stop at a "points" position, processing continues to step **1170**. In step **1170**, it is determined whether the spin action stopped at an "advance one level" position as defined above. In this case, an "advance one level" position would provide a user an opportunity to advance game play from spin mechanism **110-3** to spin mechanism **110-4**.

[0113] If it is determined at step **1170** that the spin action has stopped at an "advance one level" position, processing continues at step **1175**. In step **1175**, any points associated with the "advance one level" position are added to the point total. Processing then moves to step **1180**, at which step a "get credit" subroutine such as the one illustrated in FIG. **8** is called. If sufficient credit is provided, processing continues from step **1180** to step **1210** of FIG. **12**A, as indicated by "D**1**" in FIGS. **11**B and **12**A. Step **1080** may be omitted from other implementations in which credit is not charged for a single level advancement associated with the "advance one level" position of step **1170**.

[0114] If it is determined at step **1170** that the spin action has not stopped at an "advance one level" position, by default based on the available stop positions of spin mechanism **110-3**, it is known that the spin action has stopped at a "back up one level" position. In this case, processing moves from step **1170** to step **1010** of FIG. **10**A, as indicated by "B**1**" in FIGS. **11**B and **10**A.

[0115] From the above description, it can be seen that in the exemplary spin process for spin mechanism **110-3** shown in FIGS. **11**A-B, several virtual passageways to different spin mechanisms **110-2** and **110-4** are available and can be utilized to cause game play to move from spin mechanism **110-3** to spin mechanism **110-2** or **110-4**. Of course, this example is not limiting. Other virtual passageways may be employed in other implementations.

[0116] FIGS. **12**A-B illustrate an exemplary spin process for the fourth spin mechanism **110-4**. The process may begin at step **1210**. The beginning of the process at step **1210** is represented as "D**1**" in FIG. **12**A. The performance of steps **1210-1250** as shown in FIG. **12**A may be substantially similar to steps **910-950** of FIG. **9**A as described above except that steps **1210-1250** are applied to spin mechanism **110-4** instead of spin mechanism **110-1**.

[0117] Further, in step **1250**, if it is determined that the spin action has stopped, processing moves to step **1255** of FIG. **12**B, as indicated by "D**2**" in FIGS. **12**A-B. In some implementations, if the brake is not already applied when the spin action comes to a stop, the brake may be applied to secure the stop position.

[0118] In step **1255**, it is determined whether the spin action stopped at a "points" position as defined above. If it is determined that the spin action stopped at a "points" position, processing moves to step **1260**. In step **1260**, the points associated with the stop position are added to the point total. The game then ends at step **1265**. Of course, this is illustrative. In other implementations, other options and/or actions may be performed when a spin of spin mechanisms **110-4** stops at a "points" position. For example, a user may be provided with an option to accept the points and end the game or to forego the points for another opportunity to spin the spin mechanism **110-4**, in which case processing may return to step **1210** of FIG. **12**A.

[0119] If it is determined at step **1255** that the spin did not stop at a "points" position, processing continues to step **1270**. In step **1270**, it is determined whether the spin action has stopped at a shortcut (a regressive type of virtual passageway) to the second spin mechanism **110-2**. If it has, processing moves to step **1010** of FIG. **10**A, as indicated by "B**1**" in FIGS. **12**B and **10**A.

[0120] If it is determined at step **1270** that the spin action has not stopped at the shortcut to spin mechanism **110-2**, processing moves to step **1275**. In step **1275**, it is determined whether the spin action has stopped at a "back up one level" position, as defined above. In this case, a "back up one level" position would move game play from spin mechanism **110-4** to spin mechanism **110-3**. This may be performed by moving processing from step **1275** of FIG. **12**B to step **1110** of FIG. **11**A, as indicated by "C**1**" in FIGS. **11**A and **12**B.

[0121] In it is determined at step **1275** that the spin action has not stopped at a "back up one level" position, processing moves from step **1275** to step **1280**. In step **1280**, it is determined whether the spin action stopped at an "advance one level" position, as defined above. In this case, an "advance one level" position would provide a user an opportunity to advance game play from spin mechanism **110-4** to spin mechanism **110-5**.

[0122] If it is determined at step **1280** that the spin action has stopped at an "advance one level" position, processing continues at step **1285**. In step **1285**, any points associated with the "advance one level" position are added to the point total. Processing then moves to step **1290**, at which step a "get credit" subroutine such as the one illustrated in FIG. **8** is called. If sufficient credit is received, processing continues from step **1290** to step **1310** of FIG. **13**A, as indicated by "E**1**" in FIGS. **12**B and **13**A. Step **1290** may be omitted from

other implementations in which credit is not charged for a single level advancement associated with the "advance one level" position of step **1290**.

[0123] If it is determined at step **1280** that the spin action has not stopped at an "advance one level" position, by default based on the available stop positions of spin mechanism **110-4**, it is known that the spin action has stopped at a regressive shortcut (e.g., a "booby trap") to the first spin mechanism **110-1**. Processing then moves from step **1280** to step **910** of FIG. **9**A, as indicated by "A**1**" in FIGS. **9**A and **12**B.

[0124] From the above description, it can be seen that in the exemplary spin process for spin mechanism **110-4** shown in FIGS. **12**A-B, several virtual passageways to different spin mechanisms **110-1**, **110-2**, **110-3**, and **110-5** are available and can be utilized to cause game play to move from spin mechanism **110-4** to spin mechanism **110-1**, **110-2**, **110-3**, or **110-5**. Of course, this example is not limiting. Other virtual passageways may be employed in other implementations.

[0125] FIGS. **13**A-B illustrate an exemplary spin process for the fifth spin mechanism **110-5**. The process may begin at step **1310**. The beginning of the process at step **1310** is represented as "E**1**" in FIG. **13**A. The performance of steps **1310-1350** as shown in FIG. **13**A may be substantially similar to steps **910-950** of FIG. **9**A as described above except that steps **1310-1350** are applied to spin mechanism **110-5** instead of spin mechanism **110-1**.

[0126] Further, in step **1350**, if it is determined that the spin action has stopped, processing moves to step **1355** of FIG. **13**B, as indicated by "E**2**" in FIGS. **13**A-B. In some implementations, if the brake is not already applied when the spin action comes to a stop, the brake may be applied to secure the stop position.

[0127] In step **1355**, it is determined whether the spin action stopped at a "points" position as defined above. If it is determined that the spin action stopped at a "points" position, processing moves to step **1360**. In step **1360**, the points associated with the stop position are added to the point total. The game then ends at step **1365**. Of course, this is illustrative. In other implementations, other options and/or actions may be performed when a spin of spin mechanisms **110-5** stops at a "points" position. For example, a user may be provided with an option to accept the points and end the game or to forego the points for another opportunity to spin the spin mechanism **110-5**, in which case processing may return to step **1310** of FIG. **13**A.

[0128] If it is determined at step **1355** that the spin did not stop at a "points" position, processing continues to step **1370**. In step **1370**, it is determined whether the spin action has stopped at a "bonus" position. The fifth spin mechanism **110-5** may include one or more "bonus" positions, which may provide a special level of reward, such as a top prize or high number of points.

[0129] If it is determined that the stop action has stopped at a "bonus" position, processing moves to step **1375**. In step **1375**, the "bonus" reward(s) associated with the "bonus" position are awarded. For example, "bonus" points may be added to the point total. The game then ends at step **1365**.

[0130] If it is determined at step **1370** that the spin action has not stopped at a "bonus" position, processing moves from step **1370** to step **1380**. In step **1380**, it is determined whether the spin action has stopped at a "back up one level" position, as defined above. In this case, a "back up one level" position would move game play from spin mechanism **110-5** to spin mechanism **110-4**. This may be performed by moving processing from step **1380** of FIG. **13**B to step **1210** of FIG. **12**A, as indicated by "D**1**" in FIGS. **12**A and **13**B.

[0131] If it is determined at step **1380** that the spin action has not stopped at a "back up one level" position, processing moves from step **1380** to step **1385**. In step **1385**, it is determined whether the spin action has stopped at a regressive shortcut to the second spin mechanism **110-2**. If it has, processing moves to step **1010** of FIG. **10**A, as indicated by "B**1**" in FIGS. **13**B and **10**A.

[0132] If it is determined at step **1385** that the spin action has not stopped at the shortcut to spin mechanism **110-2**, by default based on the available stop positions of spin mechanism **110-5**, it is known that the spin action has stopped at a regressive shortcut to the first spin mechanism **110-1**. Processing then moves from step **1385** to step **910** of FIG. **9**A, as indicated by "A**1**" in FIGS. **9**A and **13**B.

[0133] From the above description, it can be seen that in the exemplary spin process for spin mechanism **110-5** shown in FIGS. **13**A-B, several virtual passageways to different spin mechanisms **110-1**, **110-2**, and **110-4** are available and can be utilized to cause game play to move from spin mechanism **110-5** to spin mechanism **110-1**, **110-2**, or **110-4**. Of course, this example is not limiting. Other virtual passageways may be employed in other implementations.

[0134] FIGS. **8-13**B and the above corresponding description are illustrative of one of many possible configurations of multiple spin mechanisms **110** and associated rewards, including one of many possible configurations of virtual passageways between the spin mechanisms **110**. Other implementations may include different configurations.

[0135] By providing multiple spin mechanisms **110** and virtual passageways between them, a game apparatus such as game apparatus **100** can provide a variety of possibilities and outcomes. Such entertainment value can attract repeat players and facilitate extended game play, which can lead to significant returns on investment.

IV. Alternative Embodiments

[0136] The preceding description has been presented only to illustrate and describe exemplary implementations with reference to the accompanying drawings. It will, however, be evident that various modifications and changes may be made thereto, and additional implementations may be implemented, without departing from the scope of the invention as set forth in the claims that follow. The above description and accompanying drawings are accordingly to be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

1. A game apparatus, comprising:

a plurality of spin mechanisms including at least a first spin mechanism and a second spin mechanism; and

a control unit communicatively connected to said plurality of spin mechanisms, said control unit being configured to provide a virtual passageway enabling game play to move between said first spin mechanism and said second spin mechanism.

2. The game apparatus of claim **1**, wherein said first spin mechanism includes a plurality of landing zones, one of said landing zones being associated with said virtual passageway.

3. The game apparatus of claim **2**, wherein said first spin mechanism is configured to perform a spin action and to stop the spin action at any one of said landing zones.

4. The game apparatus of claim **3**, wherein said control unit is configured to

determine when the spin action has stopped on said one of said landing zones associated with said virtual passageway, and

move game play from said first spin mechanism to said second mechanism in response to the determination.

5. The game apparatus of claim **4**, wherein said second spin mechanism includes a plurality of other landing zones, one of said other landing zones being associated with another virtual passageway.

6. The game apparatus of claim **5**, wherein said second spin mechanism is configured to perform a spin action and to stop the spin action at any one of said other landing zones.

7. The game apparatus of claim **6**, wherein said control unit is configured to

determine when the spin action of said second spin mechanism has stopped on said one of said other landing zones associated with said another virtual passageway, and

move game play from said second spin mechanism to said first mechanism in response to the determination.

8. The game apparatus of claim **1**, further comprising at least one control communicatively connected to said control unit, said at least one control enabling a user of said game apparatus to initiate and stop a spin action of an active one of said spin mechanisms.

9. The game apparatus of claim **8**, wherein said at least one control includes a slow stop spin control and a quick stop spin control.

10. The game apparatus of claim **9**, wherein said control unit is configured to activate said quick stop spin control when the spin action of said active spin mechanism reaches a predetermined speed.

11. The game apparatus of claim **10**, wherein said control unit is configured to terminate power to said active spin mechanism in response to the user actuating the slow stop spin control.

12. The game apparatus of claim **10**, wherein said control unit is configured to terminate power and apply a brake to said active spin mechanism in response to the user actuating the quick stop spin control.

13. The game apparatus of claim **8**, further comprising a cabinet housing said plurality of spin mechanisms, said control unit, and said at least one control.

14. The game apparatus of claim **13**, wherein said cabinet includes a base unit and an expansion unit removably attached to said base unit, said expansion unit housing one of said spin mechanisms and said base unit housing the remaining said spin mechanisms.

15. The game apparatus of claim **1**, wherein each of said spin mechanisms includes a plurality of landing zones associated with a set of rewards.

16. The game apparatus of claim **1**, wherein each of said spin mechanisms is associated with a level of a hierarchy, each said level being associated with a different set of available rewards.

17. A game apparatus, comprising:

a cabinet;

a plurality of spin mechanisms housed in said cabinet, each of said spin mechanisms including a plurality of landing zones associated with a set of rewards, each of said spin mechanisms being configured to perform a spin action and to stop the spin action at any one of said landing zones; and

a control unit housed in said cabinet and communicatively connected to said plurality of spin mechanisms, said control unit being configured to communicate with and control each of said spin mechanisms, including

activating game play at one of said spin mechanisms,

initiating the spin action of said spin mechanism,

initiating the stop of the spin action of said spin mechanism,

identifying one of said landing zones of said spin mechanism at which the spin action stopped, and

initiating at least one action associated with said landing zone.

18. The game apparatus of claim **17**, wherein said at least one action includes moving game play from said spin mechanism to another of said spin mechanisms when said landing zone is associated with a virtual passageway between said spin mechanism and said another spin mechanism.

19. A method, comprising:

activating game play at a spin mechanism included in a plurality of spin mechanisms;

initiating a spin action of the spin mechanism;

stopping the spin action;

determining a stop position of the spin action; and

moving game play to another spin mechanism included in said plurality of spin mechanisms when the stop position of the spin action is associated with a virtual passageway between the spin mechanism and the other spin mechanism.

20. The method of claim **19**, further comprising providing a reward when the stop position of the spin action is associated with the reward.

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