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## ABSTRACT OF THE DISCLOSURE

A gaming machine has a symbol display arrangement for displaying a plurality of symbols necessary for a game, the plurality of symbols being varied in a variation action that is initiated in response to satisfaction of a predetermined condition; a predictive display arrangement for performing a predictive display that predicts an appearance of specific symbol display state upon stopping of the variation action of the symbols displayed by said symbol display arrangement; and a controller for determining whether or not the symbol variation action displayed by said symbol display arrangement is to be stopped so as to display the specific symbol display state, and for selecting a specific predictive display mode among a plurality of predetermined predictive display modes, said controller being arranged to generate the predictive display mode that is predetermined corresponding to a reliability of the appearance of said specific symbol display state, said predictive display mode being changeable in conjunction with a change in the game with passage of time. The predictive display mode is selected among the plurality of predetermined predictive modes, and the generated predictive display is one that is predetermined corresponding to a reliability of the appearance of the specific symbol display state. The predictive display mode is arranged to be changeable in conjunction with a change in the game with passage of time. Because change of the predictive display mode means change of the reliability, player's expectation of appearance of the specific symbol display state is sustained from the start of the variation action to the stopping thereof.

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COMPLETE SPECIFICATION**

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**INVENTION TITLE:**

**Gaming machine**

**The following statement is a full description of this invention, including the best method of performing it known to me/us:-**

## Background of the Invention

### FIELD OF THE INVENTION

The present invention relates to a gaming machine such as a pachinko game machine provided with a symbol display arrangement for variably displaying a plurality of symbols necessary for a game and a controller such as a microcomputer for controlling the variable display.

### RELATED ART

A kind of a ball-shooting gaming machine such as, for example, a pachinko game machine is provided with a symbol display arrangement that is arranged to start variation action of symbols when a predetermined condition is satisfied and gives a profit to a player when the variation action is stopped with showing symbols of a predetermined combination of symbols. In recent years, an electrical display such as a liquid crystal display is popularly used as the symbol display arrangement due to the possibility of various demonstration effects.

By using such electrical displays, it becomes possible to carry out the various indications or demonstrations for increasing interests of a player, for example, a real-time indication of times of open of a variable winning device that is converted into an open state profitable for the player when the variable display is stopped in a specified combination of symbols (e.g. "big hit"), a real-time indication of number of playing balls that entered the variable winning device, an indication of background in different color from usual when the display indicates a specified pattern or symbols in order to demonstrate "big hit" excitingly, an indication of appearance of new characters other than the symbols variably displayed, an indication of pattern with unusual motion when the big hit can be obtained if one more special symbol will be arranged (that is, "reach" state), thereby making player recognize that "big hit" will appear soon, and the like.

In particular, one of useful demonstrations for elevating interest of a player is a pattern or symbol variation display called "reach action" in the "reach state" mentioned above. When the reach action begins, a player pays attention to indication of the

display to expect an appearance of "big hit". The reach action includes, for example, change of speed of pattern or symbol variation display as compared with usual speed, change of time of symbol variation or the like, and sometimes, the "big hit" appears in 100% on a special reach action. Thus, such reach action is an indication to predict the 5 player an appearance of "big hit".

The reach action on a display of conventional gaming machine, however, may convince player to appear the "big hit" by comparatively simple indication such as change of speed or time of pattern or symbol variation. Since the "big hit" may not always appear, it may betray player's expectation and sometimes reduce player's interest on contrary.

10 Further, as mentioned above, it is known that the reach action is carried out by indicating a symbol (or a character) other than the symbols variably displayed. The conventional reach action is only simple symbol indication without any information of possibility of appearance of big hit. In all cases, a player is easily tired of the conventional simple reach action, and thus the game tends to become monotonous.

15 Positive information of reliability to "big hit" may give the player no excessive expectation when "loss" is definitely determined or may not betray the player's expectation for "big hit". If the information of reliability to "big hit" is not only simple information of the reliability but also a display of effective demonstration with variety, it may be expected to enhance the interest of entire game.

20 The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form of suggestion that that prior art forms part of the common general knowledge in Australia.

An object of the present invention is to provide a gaming machine which addresses or ameliorates one or more problems associated with the prior art, or which at least 25 provides a useful alternative thereto.

### **Summary of the Invention**

The present invention provides a gaming machine having:

5 a symbol display arrangement for displaying a plurality of symbols necessary for a game, the plurality of symbols being varied in a variation action that is initiated in response to the satisfaction of a predetermined condition;

a predictive display arrangement for performing a predictive display that predicts an appearance of a specific symbol display state upon a stopping of the variation action of the symbols displayed by said symbol display arrangement; and

10 a controller for determining whether or not the symbol variation action displayed by said symbol display arrangement is to be stopped so as to display the specific symbol display state, and for selecting a specific predictive display mode among a plurality of predetermined predictive display modes, said controller being arranged to generate the predictive display mode that is predetermined corresponding to a probability of the 15 appearance of the specific symbol display state, the predictive display mode being changeable in conjunction with a change in the game with passage of time.

The present invention further provides a gaming machine having:

20 a symbol display arrangement for displaying a plurality of symbols necessary for a game, the plurality of symbols being varied in a variation action that is initiated in response to the satisfaction of a predetermined condition;

a predictive display arrangement for performing a predictive display that predicts an appearance of a specific symbol display state upon a stopping of the variation action of the symbols displayed by said symbol display arrangement; and

25 a controller for determining whether or not the symbol variation action displayed by said symbol display arrangement is to be stopped so as to display the specific symbol display state, and for selecting a specific predictive display mode among a plurality of predetermined predictive display modes, the predictive display mode including a combination of a plurality of predictive display symbols associated with a condition of a display sequence responsive to time, each predictive display symbol included in the 30 combination of the plurality of predictive display symbols being displayed in response to the condition of the display sequence, said controller being arranged to generate the

- 2B -

predictive display mode that is predetermined corresponding to a probability of the appearance of the specific symbol display state, the predictive display mode being changeable in conjunction with a change in the game with passage of time.

A first embodiment of the present invention relates to a gaming machine having a symbol display arrangement for variably displaying a plurality of symbols necessary for a game; a predictive display arrangement for performing a predictive display of appearance of a specific symbol display state on stop of variation action of the symbols displayed by the symbol display arrangement; and a

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controller for judging whether or not the symbol variation action started by satisfying a preset condition is stopped with appearance of the specific symbol display state, and for determining a predictive display mode among a plurality of predetermined predictive display modes, wherein the controller is arranged to generate the predictive display mode that is predetermined corresponding to a reliability of the appearance of the specific symbol display state, the predictive display mode being changeable in conjunction with change of the game with the passage of time.

In the first embodiment, the controller is arranged to select and generate a predictive display mode that is predetermined corresponding to a reliability for appearance of the specific symbol display state. A player watches the predictive display mode, that is changeable in conjunction with the change of the game responsive to the passage of time and expects how much degree of reliability the predictive display mode has, thereby enhancing the interest of the game. On the other hand, a player who has well known the kind of the predictive display mode can estimate the subsequent development of the game.

According to a second embodiment of the present invention, there is provided a gaming machine having a symbol display arrangement for variably displaying a plurality of symbols necessary for a game; a predictive display arrangement for performing a first predictive display reflecting a first probability of appearance of a specific symbol display state upon stopping of variation action of the symbols displayed by the symbol display arrangement, and a second predictive display reflecting a second probability of appearance of the specific symbol display state under satisfying a predetermined condition; and a controller for judging whether or not the variation action started by satisfying a preset condition is stopped with the appearance of the specific symbol display state, and for determining a predictive display mode among a plurality of predetermined first predictive display modes and a predictive display mode among a plurality of predetermined second predictive display modes, respectively. The controller is arranged to select and generate the second predictive display mode that is predetermined corresponding to a reliability for appearance of the specific symbol display state. The second predictive display mode is changeable in conjunction with

the change of the game with the passage of time.

In the second embodiment, the controller executes a first predictive display and a second predictive display, each display being reflecting probability of appearance of a specific symbol display state with the change of the game responsive to the passage of time. The second predictive display executed by indicating a predictive display mode that is predetermined corresponding to the reliability for appearance of the specific symbol display state on satisfaction of a predetermined condition. Therefore, a player who has well known the kind of the predictive display mode can easily estimate the reliability by the indicated predictive display mode. When the reliability of "big hit" is high, the first predictive display can be executed for raising the player's expectation to "big hit", thereby producing a stage effect.

According to a third embodiment of the present invention, there is provided a gaming machine having a symbol display arrangement for variably displaying a plurality of symbols necessary for a game; a predictive display arrangement for performing a first predictive display reflecting a first probability of appearance of a specific symbol display state on stop of variation action of the symbols displayed by the symbol display arrangement, and a second predictive display reflecting a second probability of appearance of the specific symbol display state when a predetermined condition has been satisfied; and a controller for judging whether or not the variation action started by satisfying a preset condition is stopped with the appearance of the specific symbol display state, and for determining a predictive display mode among a plurality of predetermined first predictive display modes and a predictive display mode among a plurality of second predetermined predictive display modes, respectively. The controller is arranged to select and generate the first and second predictive display modes, each of which is predetermined corresponding to a reliability for appearance of the specific symbol display state, and at least one of the first and second predictive display modes are changeable in conjunction with the change of the game responsive to the passage of time.

In the third embodiment, the first predictive display and the second predictive display to be indicated are predetermined corresponding to the reliability of appearance

of the specific symbol display state, respectively. The controller can execute more detailed indication of the reliability by combining the first predictive display and the second predictive display into relevance. For example, when a specified second predictive display can be indicated in a high probability for a combination of the specific symbol display state with a specified first predictive display, a player who has well known the situation can obtain an additional interest of the game to expect appearance of the specified second predictive display. Also, for example, even if the reliability for appearance of the specific symbol display state is low by only a specified second predictive display, if the reliability becomes high by some combinations with a specified first predictive display, expectation to the appearance of the specific symbol display state can be maintained and raised with the passage of time because attention is paid to not only the second predictive display but also the first predictive display.

According to a fourth embodiment of the present invention, there is provided a gaming machine wherein the predictive display mode consists of a combination of a plurality of predictive display symbols.

In the fourth embodiment, reliability for appearance of the specific display state can be indicated by a combination of a plurality of predictive display symbols.

According to a fifth embodiment of the present invention, there is provided a gaming machine wherein the combination of the plurality of predictive display symbols is incorporated with a condition of display sequence depending on time.

In the fifth embodiment, the reliability for appearance of the specific display state can be displayed by a combination of the plurality of predictive display symbols and by display sequence depending on time thereof.

According to a sixth embodiment of the present invention, there is provided a gaming machine wherein the predictive display mode is constructed in that each predictive display symbol included in the combination is indicated under the condition of display sequence depending on time.

In the sixth embodiment, reliability for appearance of the specific display state can be indicated in course of display time of predictive display symbols, so that a predictive display in conjunction with change with the passage of time can be executed.

According to a seventh embodiment, there is provided a gaming machine wherein the reliability for appearance of the specific symbol display state is changed in conjunction with the change of the game responsive to the passage of time, the predictive display symbol being varied depending on the change of the reliability.

In the seventh embodiment, the reliability for appearance of the specific symbol display state is changed in conjunction with change of the game responsive to the passage of time, the predictive display symbol being varied depending on the change of the reliability, thereby giving a change in the degree of the player's expectation to appearance of the specific symbol display state.

According to an eighth embodiment, there is provided a gaming machine wherein the predictive display mode is arranged to indicate a plurality of predictive display symbols successively.

In the eighth embodiment, the predictive display mode is arranged to indicate a plurality of predictive display symbols successively, so that more detailed display can be realized by the symbols regarding change in the reliability for appearance of the specific symbol display state.

According to a ninth embodiment, there is provided a gaming machine wherein the plurality of predictive display symbols depict a story line.

In the ninth embodiment, the change in the reliability for appearance of the specific symbol display state is arranged to depict a story line. Accordingly, the interest of the player for the predictive display is enhanced, thereby enhancing the interest of the entire game.

According to a tenth embodiment, there is provided a gaming machine wherein the controller is provided with a predictive display memory for storing a plurality of predictive display modes, each predictive display mode including a combination of the plurality of predictive display symbols, and the controller is arranged to select and indicate a specified predictive display mode corresponding to the reliability from the plurality of predictive display modes stored in the predictive display memory.

In the tenth embodiment, the controller is provided with a predictive display memory for storing a plurality of predictive display modes, each predictive display mode

including a combination of the plurality of predictive display symbols, and the controller is arranged to select and indicate a specified predictive display mode associated with the reliability from the plurality of predictive display modes stored in the predictive display memory. For example, when the reliability for appearance of the specific symbol display state is high, a predictive display mode constituted by a specified combination of predictive display symbols is arranged to be displayed in a high probability. A player can remember and learn well the reliability corresponding to each predictive display mode to easily estimate the reliability by watching the predictive display indicated.

According to an eleventh embodiment of the present invention, there is provided a gaming machine wherein the predictive display symbol is indicated in response to stop timing of the symbol variation action.

In the eleventh embodiment, the predictive display symbol is indicated in response to stop timing of variation action of the symbols being displayed by the symbol display arrangement. Therefore, the sense of unity can be obtained between the stop display of the variation action and the predictive display. As the result, the player who pays attention to the stop display of the variation action can recognize the predictive display easily.

Further, if the predictive display symbol indicates the reliability, the player, who has already remembered and learned the relation between stop timing of the variation of displayed symbols and timing of change of the reliability, will pay his attention to what is indicated in response to each timing. Also, when the player has already learned and understood how much degree of reliability the indicated predictive display symbol shows, the player will expect "big hit" with a certainty to each predictive display indicated. Thus, an effect may be available to increase player's expectation for the "big hit" in response to indication timing of the predictive display.

In recent years, pachinko game machines, so-called "variable probability machine" and so-called "variation time shortening machine" become popular and are increased in their ratios. The variable probability machine is provided with a variable display being arranged to perform a bonus game, so-called variable provability game, in which probability for the "big hit" is increased during subsequent several games to a

game resulted in the "big hit" associated to a special pattern. The variation time shortening machine is provided with a variable display being arranged to perform a bonus game, so-called time shortening game, in which time of symbol variation is shortened during subsequent several games to a game resulted in the "big hit" associated to a special pattern. In such gaming machines, it is a big problem for the player whether or not he can play such a bonus game after appearance of "big hit".

Usually, transfer to such a bonus game mentioned above is mainly determined by judging the where or not the displayed stop symbols corresponds to a predetermined combination of symbols among combinations of symbols previously determined to associate to "big hit", i. e., "big hit symbols" or "big hit pattern". For example, in the case where the displayed stop symbols correspond to a combination of "3-3-3", "5-5-5", or "7-7-7" among the combinations associated to "big hit", the game is transferred into a bonus game. Therefore, the player expects that such a combination may appear on stop of symbol variation and tends to pay his attention always to stop display of the symbol variation during an ordinary game condition.

According to a twelfth embodiment of the present invention, there is provided a gaming machine wherein the predictive display symbol is indicated one or more times until the variation action of any one of the symbols is stopped one after another.

In the case where the predictive display is arranged to predict a stop state of the symbol variation, the procedure of game is arranged in such order of "start of all symbol variations"→"predictive display"→"stop of one of the symbol variations", it is possible for the player to have expectation "whether the predictive display would lead to big hit", and subsequently to have additional expectation "whether the stopped symbols would correspond to the symbols for transferring to a variable probability game or the time shorting game" so that fun of the game may be further enhanced.

In particular, in the case where three variable symbols are arranged to be displayed, and variations of the three variable symbols are arranged to stop at different time, respectively, second stop symbol fills the role in determining whether the "reach state" is established or not so that the player has a great concern about the second stop symbol. In the present invention, the reliability indicated by the predictive display

symbol may sometimes include two kinds; probability of development into “big hit”, whether the symbol variations are stopped in the specific stop state or not; and probability of development into “reach state” in which the big hit will be established if one more specific symbol is displayed on stop of the variation.

According to a thirteenth embodiment of the present invention, there is provided a gaming machine wherein the predictive display symbol is indicated one or more times until the variation action of any two of the symbols is stopped one after another.

In the case where the predictive display symbol is arranged to indicate the probability of development into “reach”, if the procedure of game is arranged in such order of “start of all symbol variations”→“stop of first one of the symbol variations”→“predictive display”→“stop of second one of the symbol variations”, the player can understand a process in which he is advised “whether the reach is actually established or not” after he doubted “whether the predictive display would be connected to reach state”, thereby increasing interest in finding a relation between the predictive display symbol and development into the “reach state”, in other words, what kind of predictive display symbol has to be indicated for obtaining a high tendency to development into the “reach state”. In addition to the above, when the player has already understood the predictive display symbol which tends to develop into the “reach state”, the player can pay his attention to subsequent course of the game having an expectation such that “possibility of development into reach state will be high because this predictive display symbol was indicated”. This expectation is proofed by a predetermined certainty, and hence the interest for the game may be enhanced much more.

According to a fourteenth embodiment, there is provided a gaming machine wherein the predictive display symbol is indicated one or more times until the variation action of any three of the symbols is stopped one after another.

In a case such that three variable symbols are arranged to be displayed and two symbols among them have already stopped to establish “reach state”, for example, third (last) stop symbol fills the role in determining whether the “big hit” is established or not. By indicating a predictive display symbol to indicate probability of development into “big hit” during “reach state”, there may be added an interest in finding a relation

between the predictive display symbol and development into the "reach state". When a known predictive display symbol is indicated, the player can pay his attention to the game result having an expectation proofed by a predetermined certainty in appearance of "big hit", and hence the interest for the game may be enhanced much more.

According to a fifteenth embodiment, there is provided a gaming machine wherein the predictive display symbol is indicated one or more times until the variation action of any one of the symbols is stopped as well as one or more times until the variation action of any two of the symbols is stopped one after another.

According to a sixteenth embodiment, there is provided a gaming machine wherein the predictive display symbol is indicated one or more times until the variation action of any one of the symbols is stopped as well as one or more times the variation action of any three of the symbols is stopped one after another.

According to a seventeenth embodiment, there is provided a gaming machine wherein the predictive display symbol is indicated one or more times until the variation actions of any two of the symbols is stopped one after another as well as one or more times until the variation action of three of the symbols is stopped one after another.

According to an eighteenth embodiment, there is provided a gaming machine wherein the predictive display symbol is indicated one or more times until the variation action of any one of the symbols is stopped, further one or more times until the variation action of two of the symbols is stopped one after another, and furthermore one or more times until the variation action of three of the symbols is stopped one after another.

#### **Brief Description of the Drawing**

The foregoing and other features and advantages of the invention will become more apparent from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a front view of a specific illustrative embodiment of the present invention in the form of a pachinko game machine;

Fig. 2 is a front view of a liquid crystal display;

Fig. 3 is a table for face prognostic determination;

Fig. 4 is a block diagram of electric circuit portions of the pachinko game

machine;

Fig. 5 is a flowchart showing a determination operation procedure of display by the liquid crystal display;

Fig. 6 is a flowchart subsequent to the flowchart of Fig. 5;

Fig. 7 is a flowchart subsequent to the flowchart of Fig. 6;

Fig. 8 is a table showing range of random number to be extracted;

Fig. 9 is a table for judgement of "big hit";

Fig. 10 is a table for determination of "big hit" symbol;

Fig. 11 is a table for determination of stop symbol;

Fig. 12 is a table for determination of "reach" demonstration for "big hit";

Fig. 13 is a table for determination of "reach" demonstration for "loss";

Fig. 14 is a table for determination of prognostic displays;

Fig. 15 is a time chart of an example of display duration for variation of symbols, prognostic displays, and "reach" demonstration;

Fig. 16 is a time chart of another example of display duration for variation of symbols, prognostic displays, and "reach" demonstration;

Fig. 17 is a time chart of first example of stop timing of variation of symbols and display timing of prognostic display;

Fig. 18 is a time chart of second example of stop timing of variation of symbols and display timing of prognostic display;

Fig. 19 is a time chart of third example of stop timing of variation of symbols and display timing of prognostic display;

Fig. 20 is a time chart of fourth example of stop timing of variation of symbols and display timing of prognostic display;

Fig. 21 is a time chart of fifth example of stop timing of variation of symbols and display timing of prognostic display;

Fig. 22 is a time chart of sixth example of stop timing of variation of symbols and display timing for prognostic display;

Fig. 23 is a time chart of seventh example of stop timing of variation of symbols and display timing for prognostic display;

Fig. 24 is a representation that illustrates a display of "face prognostic 1";  
Fig. 25 is a representation that illustrates a display of "face prognostic 2";  
Fig. 26 is a representation that illustrates a display of "clapping reach";  
Fig. 27 is a representation that illustrates a display of "harite reach";  
Fig. 28 is a time chart of third example of display duration for variation of symbols, prognostic displays, and "reach" demonstration;  
Fig. 29 is a representation that illustrates a display of "dragonfly reach";  
Fig. 30 is a representation that illustrates a display of "fighting reach";  
Fig. 31 is a representation that illustrates a display of "bear reach";  
Fig. 32 is a representation that illustrates a display of "right leg lifting reach";  
Fig. 33 is a representation that illustrates a display of "left leg lifting reach";  
Fig. 34 is a representation that illustrates a display of "small degree left leg lifting reach";  
Fig. 35 is table B for the prognostic display determination;  
Fig. 36 is a flowchart showing an operation procedure of symbol variation display in the liquid crystal display;  
Fig. 37 is a flowchart subsequent to the flowchart of Fig. 36;  
Fig. 38 is a table showing an appearance probability when "big hit" judgement results in "big hit";  
Fig. 39 is a table showing an appearance probability when "big hit" judgement results in "loss";  
Fig. 40 is a representation that illustrates probability of development into "big hit";  
Fig. 41 is a probability of development into "reach";  
Fig. 42 is a flowchart of another example for a determination operation procedure for displays on the liquid crystal display device of the pachinko game machine of an embodiment of the present invention;  
Fig. 43 is a flowchart subsequent to the flowchart of Fig. 42;  
Fig. 44 is a flowchart subsequent to the flowchart of Fig. 43;  
Fig. 45 is a table of another example showing range of random number to be

extracted;

Fig. 46 is a table for determination of face prognostic combination to be referred in a case of "big hit + clapping reach";

Fig. 47 is a table for determination of face prognostic combination to be referred in a case of "big hit + harite reach";

Fig. 48 is a table for determination of face prognostic combination to be referred in a case of "big hit + all rotation reach";

Fig. 49 is a table for determination of face prognostic combination to be referred in a case of "loss + clapping reach";

Fig. 50 is a table for determination of face prognostic combination to be referred in a case of "loss + harite reach";

Fig. 51 is a table for determination of face prognostic combination to be referred in a case of "loss + no reach";

Fig. 52 is a table for face symbol determination.

### Detailed Description

A pachinko game machine that is an embodiment of the present invention will be explained in detail below.

Fig. 1 shows a front view of a game board face 10 of a pachinko game machine 1 of the present invention. A liquid crystal display 2 as a symbol display arrangement is provided in the center of the game board face 10. The display screen thereof is, as shown in Fig. 2, divided into a symbol variation display portion 2a and a predictive display portion 2b. The symbol variation display portion 2a is arranged to variably display a plurality of symbols by simulating images of three rows of rotatable reels of a slot machine. The predictive display portion 2b is arranged to display a first predictive display such as "reach demonstration", that reflects probability of appearance of a specific symbol display state or a special pattern associated to "big hit" if variation of another symbol will be stopped, "big hit" being profitable largely for the player. The predictive display portion 2b is arranged to also display a second predictive display, in other words, a prognostic display, that predicts appearance of "big hit", that reflects probability of appearance of "big hit" under a predetermined condition such as after

"reach state" has been established. The present invention also includes an embodiment in which the first predictive display is not executed. In the explanation hereinafter, the first predictive display is termed "reach demonstration" and the second predictive display is termed "prognostic display".

The "reach demonstration" reflects the probability of the appearance of the specific symbol display state. The "reach demonstration" is executed in "reach state", that is a state, for example, at least one variation display or rotation of at least one reel is stopped, more particularly, rotations of two reels are stopped with displaying same symbols, and the remaining one reel is rotating. The "reach demonstration" may be performed by utilizing various image display techniques such as vibration or swing of the stopped reels, change of the back-ground image, and rotations of all the three reels with displaying same symbols arranged in a line, that is termed "all rotation reach". The display modes of the "reach demonstration" are prepared corresponding to the probabilities of appearance of the specific symbol display state, respectively.

In this embodiment, the symbol variation display portion 2a is provided in a lower portion of the display screen of the liquid crystal display 2, and all remaining display area of the display screen is provided for the predictive display portion 2b. Practically, as shown in Fig. 2, the "reach demonstration" or the prognostic display is displayed by overlapping with the symbols variably displayed on the display screen of the liquid crystal display 2. The symbol variation display portion 2a is arranged to variably display symbols in response to electrical signals, thereby simulating variable display of symbols on the three rows of the rotatable reels of a slot machine. In the symbol variation display portion 2a are displayed three variable symbols, that is, left variable symbol 2L (left symbol), center variable symbol 2C (center symbol), and right variable symbol 2R (right symbol). The predictive display portion 2b is arranged to be possible to display symbols, animations, and characters. In the predictive display portion 2b of Fig. 2, a prognostic display symbol "Kintaro" K is displayed as the prognostic display. "Kintaro" is a famous boy's character in Japan.

This prognostic display is a display for predicting that a symbol combination corresponding "big hit", for example, symbol combination of "7-7-7" may be appeared

when variations of symbols displayed in the symbol variation display portion 2a are stopped through a "reach state". In this embodiment, this prognostic display is arranged to be changeable in its display mode with the lapse of time. With the change of the display mode of the prognostic display, the reliability of prediction for "big hit", that is, reliability of prediction for appearance of the "big hit" can be changed.

Specifically, after initiation of the variation action of displayed symbols of the symbol variation display portion 2a, the prognostic display symbol "Kintaro" K is displayed and the face expression of the prognostic display symbol "Kintaro" K is changed with the lapse of time. This change in the expression indicates change in the reliability for the "big hit". Therefore, the reliability for the "big hit" can be gradually increased or decreased, or changed high or low alternately by preparing combinations of a plurality of different prognostic display symbols. In this embodiment, the prognostic display symbol "Kintaro" K may always be displayed independently of the variation action on the symbol variation display portion 2a. When normal expression K1 and expressions K2, K3 for the prognostic display modes are provided, the face expression of "Kintaro" K may be changed by displaying, for example, K1→K2→K3→K1 or K1→K2→K1→K3→K1 in this order with the lapse of time during execution of the game.

The embodiment mentioned above is realizable by previously storing a plurality of the different predictive display symbols each having different reliability for the "big hit" in a memory, specifically a ROM 50C shown in Fig. 4, by classifying them depending on the reliability thereof. For example, Fig. 3 shows a "face prognostic determination table" in which a plurality of the "Kintaro" symbols to be stored in ROM 50C are classified. The "Kintaro" symbols are classified into four groups A, B, C, and D which are arranged in the order of the highness in the reliability and each group contains two kinds of "Kintaro" symbols with different face expression (face symbols). The face symbol to be displayed as prognostic display (face prognostic) is selected by means of a random number extraction. Specifically, a random number for determination of face prognostic, that will be explained later, is extracted. Values of the random number are previously divided into several ranges, each range being allotted to one of face symbols, for example, the random number range from 0 to 40 is allotted to

the "face symbol 1". A judgement means as to which range of the random number is appropriate for the extracted random number is made by a CPU 50A shown in Fig. 4. The corresponding face symbol is then selected to be displayed as the prognostic display (prognostic facial expression).

As the display device having the symbol variation display portion 2a and the predictive display portion 2b, there may be used electrical display devices such as a display device constituted by a plurality of laterally vertically arranged LEDs, CRT, a plasma display, an electro-luminescence display as well as the liquid crystal display 2.

As shown in Fig. 1, a start winning hole or a starter hole 3 is disposed below the liquid crystal display 2. The symbol variation by the liquid crystal display 2 is started when a playing ball enters the starter hole 3. The starter hole 3 composes a variable winning device that is convertible between a first condition being disadvantageous to the player and a second condition being advantageous to the player. The gaming machine is arranged to payout predetermined numbers of prize balls, for example, 5 balls, when a playing ball enters the starter hole 3.

A playing ball can enter the starter hole 3 even when the variable winning device is in the first condition disadvantageous to the player, because the starter hole 3 has enough winning space for a playing ball to enter even in the first condition.

Four symbol variation memory lamps 15 are disposed above the liquid crystal display 2. The symbol variation memory lamps 15 are arranged to indicate the number of winning time of playing ball entered the starter hole 3 up to four times during symbol variation displayed in the symbol variation display portion 2a. The symbol variation memory lamps 15 serve a real time information of number of times of symbol variation successively displayed by the liquid crystal display 2 to the player. The winning times more than five times are arranged ineffective for the starting condition of the symbol variation display.

Below the starter hole 3 is provided a big winning hole (called "attacker") 4 that can have a closed condition being disadvantageous to the player and an opened condition being advantageous to the player. The big winning hole 4 composes a door open-close type variable winning device, the door being converted into the opened condition

advantageous to the player when the variation action of the symbols displayed in the symbol variation display portion 2a of the liquid crystal display 2 is stopped with displaying a specific symbol combination corresponding to the "big hit". A predetermined number of the prize balls, for example fifteen balls, are paid out when a playing ball enters the big winning hole 4.

A variable display device 5 is disposed in the lower portion of the game board face 10. The variable display device 5 is arranged to start the variation display when a playing ball passes through a variable display actuation gate 6a or 6b disposed at left and right sides, respectively, of the liquid crystal display 2. When the variable display device 5 is stopped with displaying a predetermined specific symbol, the starter hole 3 is converted into the second condition that is advantageous to the player.

Four variable display memory lamps 8 are disposed around the variable display device 5. The variable display memory lamps 8 are arranged to memorize number of passing time of playing ball through a variable display actuation gate 6a or 6b up to four times. The variable display memory lamps 8 serve a real time information of number of times of variation successively displayed by the variable display to the player. The passing times more than five times are not counted and become ineffective.

The game board face 10 is further provided with windmills 11a, 11b each having a lamp with a light emitting portion, normal windmills 12a, 12b, normal winning holes 13a, 13b, 13c, 13d, 13f, 13g, each time when a playing ball enters the normal winning hole, fifteen prize balls being paid out, and game board side lamps 14a, 14b.

The variable display device 5, the starter hole 3, and the big winning hole 4 are integrated together with the normal winning holes 13f, 13g to form an unit for a variable winning ball device 9 that is arranged on the game board face 10.

A game control for the above described pachinko game machine will be described below. The pachinko game machine of this kind is provided with a microcomputer as a controller, thereby entire game procedure being controlled. The controller used in the embodiment mentioned above also substantially consists of a microcomputer as shown in the block diagram of Fig. 4.

The microcomputer 50 consists of CPU 50A, RAM 50B, ROM 50C, and

general-purpose I/O 50D. It can process various kinds of input signals from input circuit 51 according to a program stored in ROM 50C, and send out output signals from output circuit 52 to each drive means at need.

CPU 50A executes various kinds of determination in progress of game such as determination of symbol displayed when the variation display of the symbol variation display portion 2a is stopped (hereafter termed "stop symbol") and determinations of display modes of the "reach demonstration" and the prognostic display to be displayed. In this embodiment, CPU 50A is connected to a random number generating circuit 53 and extracts a random number generated by the random number generating circuit 53. CPU 50A executes each of the various determinations based on value of the random number extracted. In addition to the external random number generating circuit, there may be used a random number generating means incorporated in CPU 50A as an internal means that generates a random number on a program in CPU 50A.

To the input circuit 51 are connected passing ball detection switches 6a', 6b' for generating a signal when a playing ball passes through the variable display actuation gates 6a, and a starting winning switch 3' for generating a signal when a playing ball enters the starter hole 3, and the like. On the other hand, to the output circuit 52 are connected the variable display device 5, the liquid crystal display 2, the variable display memory lamps 8, the symbol variation memory lamps 15, a start winning hole solenoid 30 for actuating the conversion of the starter hole 3, and a big winning hole solenoid 31 for actuating the conversion of the big winning hole 4, etc.

The determination procedure for determination of stop symbol displayed on the liquid crystal display 2 and determination of display mode of the "reach demonstration" or the prognostic display will be described below referring to flowcharts shown in Figs. 5 to 7 and to a table showing ranges of random number to be extracted shown in Fig. 8.

When a playing ball enters the starter hole 3, the start winning switch 3' detects the ball and sends a signal to CPU 50A. As the result, the symbol variation action is started on the symbol variation display portion 2a on the liquid crystal display 2. The microcomputer 50 previously executes procedures for determinations of stop symbol display modes of the "reach demonstration" and of the prognostic display to be displayed

on the liquid crystal display 2.

The above-mentioned random number generating circuit 53 generates random numbers. In Fig. 5, at first, CPU 50A extracts a random number for “judgement of the big hit” in the range from 0 to 255 shown in Fig. 8 (ST1), and extracts random numbers for “determination of the stop symbol” in the range from 0 to 14 which are used for the determination random numbers for three variable symbols to be stopped (ST2) (the left variable symbol 2L, the center variable symbol 2C, and the right variable symbol 2R displayed on the symbol variation display portion 2a shown in Fig. 2). Then, CPU 50A extracts a random number for “determination of big hit symbol” in the range from 0 to 14(ST3) and further extracts a random number for “determination of the reach demonstration” in the range from 0 to 139 (ST4). CPU 50A further extracts random numbers for “determination of prognostic display” depending on numbers of the prognostic displays to be displayed in the range from 0 to 139 (ST5). In this embodiment, the prognostic displays are arranged to be executed two times, and therefore, the random number “a” for “determination of first prognostic display” and the random number “b” for “determination of second prognostic display” are extracted, respectively.

Subsequently, judgement whether a symbol variation action executed should be stopped at the “big hit” or not is executed based on the random number for the “judgement for big hit” extracted in ST1 in Fig. 6 (ST6).

As shown in Fig. 9, because ROM 50C stores a “big hit judgement table” in which the random number range are previously allotted to “big hit”, if “7” is extracted for the random number for “judgement of the big hit”, the judgement results in “big hit”.

When the judgement results in “big hit” in ST6, since stop symbols corresponding to the “big hit” are to be displayed when the variation action on the symbol variation display portion 2a is stopped, a procedure for determining “big hit” symbols to be displayed is subsequently executed.

In this procedure, “big hit” symbols to be displayed are determined from “big hit symbol determining table” shown in Fig. 10 based on the random number for “determination of the big hit symbol” extracted in ST3 (ST7). For example, if the

extracted random number for "determination of big hit symbol" is "6", the stop symbols are determined to "7-7-7". Thus, the "big hit" is judged and the "big hit" symbols are determined, then the procedure of ST12 in Fig. 7 is executed.

In ST6, when the value extracted for the random number for "judgement of the big hit" is a value other than "7" and is judged to be "loss" based on the "big hit judgement table" shown in Fig. 9, the stop symbols displayed on the left symbol 2L, the center symbol 2C, and the right symbol 2R are determined from the "stop symbol determination table" shown in Fig. 11 based on the three random numbers for "determination of the stop symbol" extracted in the step ST2 (ST8).

Among the stop symbols determined, whether the stop symbols of the left symbol 2L and the right symbol 2R are same or not are judged (ST9). When the two symbols are different, procedure of ST13 shown in Fig. 7 is executed, since any "reach demonstration" is no longer necessary. When the above two symbols are same, it is judged whether or not the center symbol 2C is same with the other two symbols (ST10). If the center symbol 2C is different from the other two symbols, the procedure of ST12 shown in Fig. 7 is executed. If all three symbols determined are same with each other, which rarely happens, the symbol determined for the center symbol 2C is changed to adjacent symbol that is a symbol arranged next to the symbol determined (ST 11) not to display three same symbols as stop symbols associated to "big hit" symbols, because judgement of "loss" has been established in ST6.

After determination of the stop symbols to be displayed in the symbol variation display portion 2a, the procedure of ST 12 shown in Fig. 7 is executed.

First, type or kind of the "reach demonstration" to be displayed is determined based on the random number for "determination of the reach demonstration" extracted in the procedure of ST4. If the "big hit" has been judged in the above-mentioned procedure, "table for determination of reach demonstration for big hit" shown in Fig. 12 is selected.

The "reach demonstration" to be displayed may be determined in such manner: "clapping reach" is selected when the value of the random number extracted for the "reach demonstration" belongs to the range from 0 to 24; "harite reach" is selected when the

value belongs to the range from 25 to 64; and "all rotation reach" is selected when the value belongs to the range from 65 to 139.

If the "loss" has been judged in the above-mentioned procedure, "table for determination of reach demonstration for loss" shown in Fig. 13 is selected. The "reach demonstration" to be displayed may be determined in such manner: "clapping reach" is selected when the value of the random number extracted for the "reach demonstration" belongs to the range from 0 to 4; "harite reach" is selected when the value belongs to the range from 5 to 8; and "no reach" is selected when the value belongs to the range from 9 to 139. Each "reach demonstration" will be described in detail hereinafter.

Next, in ST13, a prognostic display to be displayed at first time (termed "first prognostic display") is determined from "prognostic display determination table A" based on the random number "a" for the "first prognostic display determination". Also, a prognostic display to be displayed at second time (termed "second prognostic display") is determined based on the random number "b" for the "second prognostic display determination".

After the determinations mentioned above, the pachinko game machine 1 is arranged to start the variation action of the symbols on the liquid crystal display 2. This action will be described hereinafter with reference to Fig. 36 and Fig. 37.

Fig. 14 shows a determination procedure of the prognostic display by the "prognostic display judgement table A" referred in the previous ST13 and ST14 shown in Fig. 7. The "prognostic display determination table A" contains six face prognostic determination tables of a first face prognostic determination table 101, a second face prognostic determination table 102, a third face prognostic determining table 103, a fourth face prognostic determination table 104, a fifth face prognostic determination table 105, and a sixth face prognostic determination table 106.

The "face prognostic determination table" shown in Fig. 3 corresponds to the first face prognostic determination table 101. Specifically, A, B, C and D in the first face prognostic determination table 101 of Fig. 14 are identical to "A group", "B group", "C group" and "D group" in the table of Fig. 3, respectively. In addition, each of the random number range allotted to each group is further finely divided, and the prognostic

display symbol is allotted to each of the divided random number range. In the example shown in Fig. 3, each random number range is divided into two ranges such that the range of 0 to 80 is divided into two ranges of 0 to 40 and 41 to 80; the range of 81 to 110 is divided into two ranges of 81 to 96 and 97 to 110; the range 111 to 119 is divided into two ranges of 111 to 115 and 116 to 119; and the range of 120 to 139 is divided into two ranges of 120 to 129 and 130 to 139. Face symbols of "Kintaro" with different face expressions as the prognostic display are allotted to the divided random number value ranges, respectively.

The determination of a face prognostic determination table to be used from the above six face prognostic determination tables is executed based on the result of the judgement for the "big hit" or not in ST6 of Fig. 6 together with the result of the judgement of the "reach demonstration" in ST12 of Fig. 7. When the combination of the results of the judgement for the "big hit" or not and the determination of the "reach demonstration" corresponds to "(I) big hit + clapping reach", the first face prognostic judgement table 101 is used; when the above combination corresponds to "(II) big hit + harite reach", the second face prognostic judgement table 102 is used; when the above combination corresponds to "(III) big hit + all rotation reach", the third face prognostic judgement table 103 is used; when the above combination corresponds to "(IV) loss + clapping reach", the fourth face prognostic judgement table 104 is used; when the above combination corresponds to "(V) loss + harite reach", the fifth face prognostic judgement table 105 is used; and when the above combination corresponds to "(VI) loss + no reach", the sixth face prognostic judgement table 106 is used, respectively.

As clear from the random number value range of Fig. 14, when the judgement for the "big hit" results in the "big hit" (the above (I) to (III)), the range of random number value of the A group is arranged broad, therefore, frequency for displaying the face symbols belonging to the A group becomes high. Accordingly, if the face symbol belonging to the A group is displayed, the player may easily recognize the high reliability for the "big hit". Alternately, when the judgement of the big hit results in "loss" (the above (IV) to (VI)), the random number value range of the D group is arranged broad, therefore, frequency for displaying the face symbols belonging to the D

group becomes high. Accordingly, if the face symbol belonging to the D group is displayed, the player may easily recognize the low reliability for the "big hit".

Specifically, as shown in Fig. 3, the "Kintaro" symbols having "laughing face expression" are allotted to the face symbols belonging to the A group. Since the "big hit" corresponds to a winning mode that gives a large profit to the player, the "laughing face expression" reflecting the player's feeling when the "big hit" appears is effective for the player to easily recognize a high reliability for the big hit.

On the other hand, the "Kintaro" symbols having "crying face expression" are allotted to the face symbols belonging to the D group. The "crying expression" reflecting the player's feeling when the "big hit" does not appear is effective for the player to easily recognize a low reliability for the big hit.

The "Kintaro" symbols having "effeminate face expression" and "ordinary face expression" allotted to the face symbols belonging to the B and C groups, respectively, are hardly understandable whether the face expression predicts to the "big hit" or "loss" at a glance. However, when the above face expressions are sometimes displayed as well as the face expression belonging to the A group and the D group, another playability, in which the player may predict how much the reliability for the big hit exists, may be provided. Further, change in reliability for the big hit can provide change in interest of the game.

Fig. 15 shows a time chart of the display timing for the prognostic display performed by changing the facial expression of "Kintaro" mentioned above. Hereinafter, the prognostic display by firstly changing the facial expression of "Kintaro", that is, the first prognostic display mentioned above, is termed "face prognostic 1", and the prognostic display by subsequently changing the face expression of "Kintaro", that is, the second prognostic display mentioned above, is termed "face prognostic 2".

When the variable symbols displayed in the symbol variation display portion 2a are constituted by three symbols of the left symbol 2L, the center symbol 2C, and the right symbol 2R as shown Fig. 2, the "face prognostic 1" is displayed at the time when variation of the left symbol 2L is stopped (t9), and the "face prognostic 2" is displayed at the time when variation of the right symbol 2R is stopped (t14).

Alternatively, as shown in the time chart of Fig. 16, a plurality of the prognostic display symbols may be sequentially displayed until the variation of the symbols are stopped. In Fig. 16, the "face prognostic 1" and the "face prognostic 2" are sequentially displayed during the time after variation of the left symbol 2L is stopped and until variation of the right symbol 2R is stopped next (from t9 to t14).

Although the display of the prognostic display symbol is arranged to execute synchronously with the stop timing of variation of each symbol, the display timing of the prognostic display symbols is not limited thereto.

Examples (1) to (7) of the display timing of the prognostic display symbols will be described below. These examples are based on the viewpoint that the prediction display is provided for predicting a specific symbol display state that will appear when variation of the symbols is stopped by displaying a plurality of the prognostic displays or the "reach demonstration" in sequential timing each other. Although two types of the prognostic symbols are displayed in these examples, there may be displayed least one, to any number, five or ten types of the prognostic symbols.

(1) The time chart in Fig. 17 shows an example in which the prognostic display symbols are displayed during the time when variations of all variable symbols are started to the time when variation of any one of the variable symbols is at first stopped (hereinafter, referred to the first symbol stop; similarly subsequent stop of variation of one of the remaining variable symbols is referred to the second symbol stop; stop of variation subsequent to the second symbol stop is referred to the third symbol stop). The "face prognostic 1" and the "face prognostic 2" are sequentially displayed after variations of the three variable symbols are started until variation of any one of the variable symbols (in this example, left symbol 2L) is stopped.

(2) The time chart in Fig. 18 shows an example in which the prognostic display symbols are displayed from the first symbol stop to the second symbol stop. Variations of the three variable display symbols are started, and during the time after variation of any one of the variable symbols (in this example, the left symbol 2L) is stopped and until variation of any one of the other two variable symbols (in this example, the right symbol 2R) is subsequently stopped, the "first face prognostic" and the "second

face prognostic" are sequentially displayed.

(3) The time chart in Fig. 19 shows an example in which the prognostic display symbols are displayed from the second symbol stop to the third symbol stop. Variation action of the three variable display symbols are started, after a while, variation of any one of the variable symbols (in this example, the left symbol 2L) is stopped, and during the time after variation of any one of the other two variable symbols (in this example, the left symbol 2R) is stopped and until variation of the last variable symbol (in this example, the right symbol 2C) is stopped, the "fist face prognostic" and the "second face prognostic" are sequentially displayed

(4) The time chart in Fig. 20 shows an example in which at least one prognostic display symbol is displayed from start of the variations of the variable symbols to the first symbol stop, and at least one prognostic display symbol is displayed from the first symbol stop to the second symbol stop. After start of variations of the three variable symbols, the "face prognostic 1" is displayed until variation of any one of the variable symbols (in this example, the left symbols 2L) is stopped, and the "face prognostic 2" is displayed after variation of one variable symbol has been stopped and until variation of any one of the other two variable symbols (in this example, the right symbol 2R) is stopped.

(5) The time chart in Fig. 21 shows an example in which at least one prognostic display symbol is displayed from start of the variations of the variable symbols to the first symbol stop, and at least one prognostic display symbol is displayed from the second symbol stop to the third symbol stop. After start of the variations of the three variable symbols, the "face prognostic 1" is displayed until variation of any one of the variable symbols (in this example, the left symbols 2L) is stopped, and after variation of one of the variable symbol has been stopped, the "face prognostic 2" is displayed until variations of the other variable symbols (in this example, the right symbol 2R and the center symbols 2C) are stopped.

(6) The time chart in Fig. 22 shows an example in which start of the variations of the variable symbols, at least one prognostic display symbol is displayed from the first symbol stop to the second symbol stop, and at least one prognostic display symbol

is displayed from the second symbol stop to the third symbol stop. Variations of the three variable symbols are started, after a while variation of any one of the variable symbols (in this example, the left symbols 2L) is stopped, then the "face prognostic 1" is displayed before any one of the other two variable symbols (in this example, the right symbol 2R) is stopped, and after variations of two variable symbols have been stopped, the "face prognostic 2" is displayed until variation of the last variable symbol (in this example, the right symbol 2R and the center symbols 2C) is stopped.

(7) The time chart in Fig. 23 shows an example for displaying the prognostic display symbol in which at least one prognostic display symbol is displayed from start of variations of all variable symbol display to the first symbol stop, at least one prognostic display symbol is displayed from the first symbol stop to the second symbol stop, and further at least one prognostic display symbol is displayed from the second symbol stop to the third symbol stop. After start of variations of the three variable symbols, the "face prognostic 1" is displayed until variation of any one of the variable symbols (in this example, the left symbols 2L) is stopped, the "face prognostic 2" is displayed until variation of any one of the other two variable symbols (in this example, the right symbol 2R) is stopped, and "face prognostic 3" is displayed until variation of the last variable symbols (in this example, the center symbols 2C) is stopped. In this example, the "face prognostic 3" is used for providing three kinds of face prognostic symbols instead of two kinds of face prognostic symbols.

Figs. 24 and 25 show examples of the prognostic display symbols to be displayed. Fig. 24 shows the display example for the "face prognostic 1". The left symbol 2L is stopped to indicate "7", and the "Kintaro" with "laughing face expression" (the face symbol 2 in Fig. 3) is displayed. Therefore, the player may predict that the reliability for the big hit must be high.

Fig. 25 shows the display example for the "face prognostic 2", and the left symbol 2L and the right symbol 2R are stopped to indicate "7", respectively, and the "Kintaro's with the "effeminate face expression" (the face symbol 4 in Fig. 3) is displayed. If the player who recognizes these displays knows that this face symbol belongs to the lower reliability group than the former "laughing face" group, the player

may predict that the "big hit" reliability must be lowered than the reliability recognized previously. When the "Kintaro" with the "laughing face expression" is displayed repeatedly two times, the player can predict that the reliability for the "big hit" is quite high. When the player recognizes this, he tends to pay his attention to the stop display of the center symbol 2C with large expectation.

As shown in Fig. 25, when the left symbol 2L and the right symbol 2R are stopped to indicate the same symbols each other, display for the "reach demonstration" determined in the previous step ST12 is started simultaneously with display of the "face prognostic 2", and the display for the "reach demonstration" continues until variation of the center symbol 2C is stopped to display stop symbol (t14 to t20 shown in Fig. 15).

For example, the "clapping reach" shown in Fig. 26 is a "reach demonstration" that shows "Kintaro" being clapping. The "harite reach" shown in Fig. 27 is a "reach demonstration" that shows "Kintaro" being slapping by his hand toward the front face of the screen, i. e., an action of slapping a person in the face.

However, when the "all rotation reach" is selected, as shown in the time chart of Fig. 15, after a predetermined time has passed (t5), the three variable symbols (the left symbol 2L, the center symbols 2C, and the right symbol 2R) are arranged to display the same symbols, subsequently all of the symbols are simultaneously started into variation gradually and thereafter the variation of the three variable symbols are stopped simultaneously to display the stop symbols at t20. In this case, there is no execution of stop action such that the left symbol 2L is stopped at t9, and the right symbol 2R is stopped at t14,

Fig. 28 shows the time chart for the display timing of the prognostic display, in which the prognostic displays such as "dragonfly prognostic", "fighting prognostic", "bear prognostic", "left leg lifting prognostic", and "right leg lifting prognostic" are further added. A determination method for these prognostic displays will be explained hereinafter.

Each of "dragonfly prognostic", "fighting prognostic" and "bear prognostic" is a display for predicting the appearance of the "big hit" with a predetermined reliability, and is displayed when the reliability for the "big hit" is quite high. The display timing

is arranged to be displayed for a certain period in a time from the start of the variation action of the symbol variation display portion 2a to the stop of any one of the variable symbols (t1 to t9).

Fig. 29 shows the "dragonfly prognostic" in which a plurality of the "dragonflies" crossing behind the "Kintaro" are displayed.

Fig. 30 shows the "fighting prognostic" in which the "Kintaro" in his "fighting pose" is displayed.

Fig. 31 shows the "bear prognostic" in which a bear crossing behind the "Kintaro" is displayed.

Figs. 32 and 33 show the "right leg lifting prognostic" and "left leg lifting prognostic", respectively, which are displayed after the above "dragonfly prognostic". When these "right leg lifting prognostic" and the "left leg lifting prognostic" may be combined to the "face prognostic 1" and the "face prognostic2", a story line may be provided to the prognostic display.

For example, the "right leg lifting prognostic" includes the movements of the "Kintaro" with lifting his right leg accompanied with a shout of "Haah" like an initial charge of Sumo game (the timing for this display corresponds to t6 in the time chart in Fig. 28), and then returning his leg and hands to the initial posture of Sumo game with a shout of "Dosukoi" as shown in Fig. 24 (the timing for this display corresponds to t9 in the time chart in Fig. 28). At this time, stop of the left symbol 2L and display of the "face prognostic 1" are executed.

After the stop of the left symbol 2L, the "left leg lifting prognostic" is executed and includes the movements of the "Kintaro" with lifting his left leg accompanied with a shout of "Haah" such as an initial charge of Sumo game (the timing for this display corresponds to t11 in the time chart in Fig. 28), and then returning his leg and hands to the initial posture of Sumo game with a shout of "Dosukoi" as shown in Fig. 24 (the timing for this display corresponds to t14 in the time chart in Fig. 28). At this time, stop of the right symbol 2R and display of the "face prognostic 2" is executed.

It may be possible to change the reliability for the "big hit" depending on degree of the lifting of the leg of "Kinrato". For example, as shown in Fig. 34, the "Kintaro"

has the posture in which his left leg is lifted in a small degree, and his posture is unfinished for the initial posture of Sumo game. Such a prediction is displayed when the reliability is low.

It may be possible to combine the degree of lifting the leg of the "Kintaro" with the change of the face expression, thereby the reliability of the "big hit" may be changed. As described above, when the reliability is indicated by each scene within the proceeding story, the player would pay his attention to the prognostic display accompanied with the proceeding of the story and the "reach demonstration" as well as the stop display of the variably displayed symbol so that the variety of the interest for the game may be extended.

The prognostics such as "dragonfly prognostic", "fighting prognostic", "bear prognostic", "left leg lifting prognostic", and "right leg lifting prognostic" other than the "face prognostic" are, for example, determined by using a random number "c" for the prognostic display determination which is extracted independently from the random numbers "a", "b" for the prognostic display determination extracted in ST5 in Fig. 5. By referring the combination of the result ("big hit" or "loss") for the judgement of the "big hit" and the kind of the "reach demonstration", that is predetermined in the prognostic display determination table shown in Fig. 35, there is selected a prognostic display associated to the random number value range which the random number "c" extracted for the prognostic display determination belongs to. Therefore, demonstration of more fine prognostic display may be developed such as a sequential story if prognostic displays other than the "face prognostic" are optionally determined by the random number extraction.

In addition, the random numbers for the determination for the prognostic display may not limited to only two or three, as four or more random numbers may be extracted, thereby executing various prognostic displays with the lapse of time, and further thereby making possible to change the reliability for the "big hit".

Referring to flowcharts of Figs. 36 and 37, the procedure for the symbol variation display on the liquid crystal display 2 will be described below.

In Fig. 36, a variation display of variable symbols is started (ST15), then a

judgement whether or not the "dragonfly prognostic" is selected is executed (ST16). When the judgement is "YES", the "dragonfly prognostic" is displayed (ST17).

Next, a judgement whether or not the "fighting prognostic" is selected is executed (ST 18). When the judgement is "YES", the "fighting prognostic" (ST19) is displayed.

Next, a judgement whether or not the "bear prognostic" is selected is executed (ST 20). When the judgement is "YES", the "bear prognostic" (ST21) is displayed.

Subsequently, as shown in Fig. 37, the judgement whether or not the "right leg lifting prognostic" or "left leg lifting prognostic" is selected is executed (ST 22). When the judgement is "NO", the procedure of ST25 is proceeded. When the judgement is "YES", the "right leg lifting prognostic" (ST23) is displayed and the left symbol 2L is stopped (ST 24).

The judgement whether or not the "face prognostic 1" is displayed is executed (ST 25). When the judgement is "YES", the "face prognostic 1" is displayed (ST26).

Subsequently, the judgement whether or not the "right leg lifting prognostic" or "left leg lifting prognostic" is selected is executed again (ST 27). When the judgement is "NO", the procedure of ST30 is proceeded. When the judgement is "YES", the "right leg lifting prognostic" is displayed (ST28) and the right symbol 2R is stopped (ST29).

The judgement whether or not the "face prognostic 2" is displayed is executed (ST 30). When the judgement is "YES", the "face prognostic 2" is displayed (ST31).

The judgement whether or not the left and right stop symbols become to be same with each other is executed (ST 32). When the judgement is "YES", the selected "reach demonstration" is displayed (ST33), then the center symbol 2C is stopped (ST 34), thereby finishing the display procedure on the liquid crystal display 2.

When the combination of the stopped symbols corresponds to the "big hit", the above-mentioned big winning hole 4 is opened for a predetermined times of game to bring the game condition where the player is easy to obtain a number of the prize balls, and hence, the player's expectation for appearance of this "big hit" is quite high. Therefore, the interest for the game will be significantly enhanced by providing the

prognostic display which changes the reliability for the "big hit" until the gaming reaches to the "big hit" condition.

However, the symbols with the high reliability for the "big hit" may be included in the prognostic display determination table which is selected when the judgement for the "big hit" corresponds to the "loss". Therefore, even if the each face symbol displayed in the above mentioned "face prognostic 1" and "face prognostic 2" belongs to the A group shown in Fig. 3, it may occur that the combination of the symbols displayed in the stopped state corresponds to the "loss".

The present invention may include embodiments in which the prognostic display symbol is not changed with the passage of time, and therefore, the reliability for the "big hit" is not changed.

Also, when the prognostic display symbol is not changed, the symbol display image may be renewed or may not renewed.

In the above described example, since the display mode for the prognostic display is ordered such as "face prognostic1" followed by the "face prognostic 2" and each prognostic display has the predetermined reliability for the "big hit", the reliability for the "big hit" may be changed by displaying the face prognostics in the order such as "face prognostic 1" followed by the "face prognostic 2". In addition, the reliability for the "big hit" is allotted to each of the face prognostic, and therefore, the reliability for the "big hit" is determined for the combination of the face prognostics such as the combination in the order such as "face prognostic 1" followed by the "face prognostic 2". That is, the prognostic display mode is determined in relation to the reliability of the "big hit", correspondingly, and the prognostic display mode is changeable with the change in the game resulting from the passage of time.

The present invention may include embodiments in which the "reach demonstration" as described in the above embodiment is not executed.

In an embodiment described below, the controller is arranged to display a predictive display mode previously determined in correspondence to the reliability for predicting appearance of the specific symbol display state. The predictive display mode is arranged to be changeable with change in the game caused with the lapse of

time.

Further, the embodiment is arranged so that the player can expect an appearance of "big hit" with a degree of certainty, by arranging the prognostic display to predict the appearance of the "big hit with 100% reliability, or to display the reliability for the "big hit" with 0% which certainly reads to the stop symbols corresponding to the "loss".

The present invention may include embodiments in which the reliability for the "big hit" corresponding to 100% or 0% is not provided.

Figs. 38 and 39 show appearance probability tables, in which a predetermined reliability is formed by combining a face symbol of "face prognostic 1" with a face symbol of "face prognostic 2", and an appearance probability is allotted to each combination of the face prognostics. The letters A, B, C, and D in the tables correspond to A group, B group, C group, and D group, respectively, in "face symbol determination table" shown in Fig. 52, which will be explained later.

The appearance probability table of Fig. 38 shows cases where the judgement for "big hit" results in "big hit". As known from the table, the appearance probabilities for combinations of the two face prognostics containing the A group and the B group are high. That is, the face symbols included in the A group and B group are selected from "laughing face expression" and "effeminate face expression", which are easy for the player to recognize that the reliability for the "big hit" is high. On the other hand, the appearance probabilities for combinations of the two face prognostics containing the C group and the D group are low and in some cases the appearance probability is 0%.

The appearance probability table of Fig. 39 shows cases where the judgement for the "big hit" results in "loss". As known from the table, the appearance probabilities for combinations of the two face prognostics containing the C group and the D group are high. That is, the face symbols included in the C group and D group are selected from "ordinary face expression" and "crying face expression", and it is easy for the player to recognize to be "loss". Also, the appearance probabilities for the combination of the two face prognostics including the A group and the B group are low and in some cases the appearance probability is 0%. Fig. 40 shows a table in which the probabilities of development into "big hit", in other words, ratios of development into

“big hit” are arranged in correspondence to each combination of the face prognostics.

For example, when the combination of the face prognostics corresponds to “A-A”, the probability of development into “big hit” is 37.11% and the possibility of appearance of the “big hit” is quite high compared with the other combinations. On the other hand, and the probability of development into “big hit” for the combinations of “C-C”, “C-D”, “D-B”, “D-C”, and “D-D” are extremely close to 0% such as 0.07%, 0.06%, 0.02%, 0.1%, and 0.03%, respectively, and hence, the possibility of appearance of the “big hit” is extremely low. However, even if a face symbol of the A group has appeared as the first “face prognostic 1”, the probability of development into “big hit” becomes 0.17% when a face symbol of the D group appears subsequently as the “face prognostic 2”. As the result, the “big hit” hardly appear. That is, if a face symbol of the A group appears as the first “face prognostic 1”, the player expects a higher probability of development into “big hit” at this time compared with appearance of a face symbol of the B, C or D group, so that reliability for “big hit” may be thought high at this time. However, at the time when the face prognostics of the D group appear as the “face prognostic 2”, the probability of development into “big hit” is changed to a lower value compared with the value at the time of the “face prognostic 1” so that the reliability for the “big hit” becomes lower compared with at the time of the “face prognostic 1”.

On the other hand, even if a face symbol having a low reliability has appeared as the first “face prognostic 1”, the probability of development into “big hit” may be greatly changed depending on a face symbol that will subsequently appear as the “face prognostic 2”. For example, even if the face symbol of the A group has appeared as the first “face prognostic 1”, the probability of development into “big hit” is lowered as low as 3.17% when a face symbol of the B group appears subsequently as the “face prognostic 2”. However, if a face symbol of the B group appears as the first “face prognostic 1” and a face symbol of the B group appears subsequently as the “face prognostic 2”, the probability of development into “big hit” is increased to 18.07%. Thus, even if the face symbols with the low probability of development into “big hit” appears first, the probability of development into “big hit” is increased sometimes

depending on the face prognostics that will subsequently appear. As the result, the player may sustain his expectation for the "big hit" until the last prognostic display symbol appears.

Depending on the combination of the face prognostics, it is determined whether the display will be developed into the "reach demonstration" with the predetermined probabilities. Fig. 41 is a table in which probabilities of development into "reach demonstration" are arranged corresponding to each combination of the face prognostics.

For example, 100% probability of development into "reach" is associated to each three combinations of "A-A", "A-B", and "B-B". When two of the face symbols belonging to the A group and the B group sequentially appear, the possibility of subsequent development into "reach demonstration" is very high. However, even in the combination of the A group and the B group, the probability is decreased to 25% in the combination of "B-A". Even if a face symbol of the A group has appear as the first "face prognostic 1", the probability of development into "reach" may be greatly changed depending on the face symbol that will subsequently appear as the "face prognostic 2". For example, if a face symbol of the A group appears as the "face prognostic 2", the probability of development into "reach" is 100% as mentioned above. However, if a face symbol of the D group appears as the "face prognostic 2", the probability of development into "reach" becomes 2%. As same as the probability of development into "big hit" described above, if a face symbol having a low probability of development into "reach" has appeared, the probability of development into "reach" is sometimes increased depending on the face symbol that will appear subsequently.

Next, a procedure for determination of face prognostics will be described below referring to flowcharts in Figs. 42 to 44 and to a table showing ranges of random number value to be extracted shown in Fig. 45.

The above-mentioned random number generation circuit 53 generates random numbers. In Fig. 42, CPU 50A extracts a random number for the judgement of the "big hit" in the range from 0 to 255 shown in Fig. 45 (ST1'), and then extracts random numbers for "determination of the stop symbol" in the range from 0 to 14 which are used for the determination random numbers for three variable symbols (the left variable

symbol 2L, the center variable symbol 2C, and the right variable symbol 2R each displayed on the symbol variation display portion 2a shown in Fig. 2) to be stopped (ST2'). CPU 50A extracts a random number for "determination for the big hit" in the range from 0 to 14 (ST3') and then extracts a random number for "determination for the reach demonstration" in the range from 0 to 139 (ST4'). CPU 50A further extracts a random number for "determination for combination of prognostic display" in a range from 0 to 39 (ST5').

Subsequently, a judgement whether or not a symbol variation display to be displayed corresponds to the "big hit" is executed based on the random number of determination for the "big hit" extracted in ST1' shown in Fig. 43 (ST6').

The judgement results in "big hit" referring to the "big hit determination table" shown in Fig. 9 when "7" is extracted as the random number for the "big hit".

When the judgement results in "big hit" in ST6', since stop symbols corresponding to the "big hit" are to be displayed when the variation action on the symbol variation display portion 2a is stopped, a procedure for determining "big hit" symbols to be displayed is subsequently executed.

In this procedure, "big hit" symbols to be displayed are determined from "big hit symbol determining table" shown in Fig. 10 based on the random number for "determination of the big hit symbol" extracted in ST3' (ST7'). Thus, the "big hit" is judged and the big hit symbols to be displayed are determined. Thereafter, the procedure of ST12' shown in Fig. 44 is executed.

In ST6', when the value extracted for the random number for "judgement of the big hit" is a value other than "7" and is judged to be "loss" based on the "big hit judgement table" shown in Fig. 9, the stop symbols displayed on the left symbol 2L, the center symbol 2C, and the right symbol 2R are determined from the "stop symbol determination table" shown in Fig. 11 based on the three random numbers for "determination of the stop symbol" extracted in the above-mentioned ST2' (ST8').

Among the stop symbols determined, whether the stop symbols of the left symbol 2L and the right symbol 2R are same or not are judged (ST9'). When the two symbols are different, procedure of ST13' shown in Fig. 44 is executed, since any "reach

demonstration" is no longer necessary. When the above two symbols are same, whether the center symbol 2C is same with the other two symbols is judged (ST10'). If the center symbol 2C is different from the other two symbols, the procedure of ST12' shown in Fig. 7 is executed. If all three symbols determined are same with each other, which rarely happens, the symbol determined for the center symbol 2C is changed to adjacent symbol that is a symbol arranged next to the symbol determined (ST 11')

After determination of the stop symbols to be displayed in the symbol variation display portion 2a, the procedure of ST 12' shown in Fig. 44 is executed.

First, type or kind of the "reach demonstration" to be displayed is determined based on the random number for "determination of the reach demonstration" extracted in the procedure of ST4'. If the "big hit" has been judged in the above-mentioned procedure, "table for determination of reach demonstration for big hit" shown in Fig. 12 is selected to determine the "reach demonstration".

Next, in ST13', a combination of the prognostic displays to be displayed, that is, combination of face prognostics is determined referring to "face symbol determination table" (Fig. 52), that will be explained later, based on judgement result of "big hit", "reach demonstration" determined and extracted random number for the "first prognostic display determination".

The following is a description of a procedure for determining the combination of the face prognostics to be displayed, that is executed referring to face prognostic determination tables shown in Figs. 46 to 51 based on the result of the judgement for the "big hit", the result for the determination for the "reach demonstration", and extracted random number for determination for the prognostic display combination. As mentioned above, the random number for determination for the prognostic display combination is extracted in the range from 0 to 39. In the face prognostic combination determination tables shown in Figs. 46 to 51, predetermined ranges of random number value are allotted to combinations of the two face prognostics (face prognostic 1 + face prognostic 2), respectively.

When the judgement for "big hit" results in "big hit" and the result of the determination for "reach demonstration" corresponds to "clapping reach demonstration",

(I) face prognostic combination determination table shown in Fig. 46 is referred for determining a combination of face prognostics based on the random number extracted for determination of the prognostic display combination. If the extracted random number for determination of the prognostic display combination belongs to the range of 0 to 11, the combination of the face prognostics of "A-A" is determined. Then, referring to face symbol determination table shown in Fig. 52, "face symbol 1-face symbol 1" is selected for the combination of the face prognostics of "A-A" when the extracted random number for the prognostic display combination determination in the range of 1 to 11 is even (0, 2, 4, 6, 8, 10), while "face symbol 2-face symbol 2" is selected when the extracted random number for the prognostic display combination determination in the range from 1 to 11 is odd (1, 3, 5, 7, 9, 11). In (I) the face symbol combination determination table shown in Fig. 46, when the extracted random number for the prognostic display combination determination is 12, the combination of face prognostics is "A-B". Further referring the A group and the B group in the face symbol determination table of Fig. 52, "face symbol 1" is selected as the face prognostic 1 and "face symbol 3" is selected as the face prognostic 2, because the random number for the prognostic display combination determination is even number.

In the face prognostic combination determination tables of Figs. 46 to 51, values of random number are unfairly designated to combinations of the face prognostics accommodated in each table. Specifically, each table accommodates not all combinations of the face prognostics, and some combinations are designated to wider range of random number value compared with the other combinations so that the some combinations may often be selected.

In each face prognostic combination determination table, the random number value range assigned to each of the combination of the face prognostics is not uniform.

For example, the combination of "A-A" is a combination that has a high reliability for "big hit", and hence this combination is accommodated in a large amount in the face prognostic combination determination tables ((I) of Fig. 46 to (III) of Fig. 48) which are referred when the "big hit" judgement results in "big hit". In order words, the sum of the random number value range for all of the "A-A" combinations

accommodated in the face prognostic combination determination table which is referred when the "big hit" judgement results in "big hit" is larger than the sum of the random number value range of all of the "A-A" combinations accommodated in the face prognostic combination determination table which is referred when the "big hit" judgement results in "loss".

In each of the face prognostic combination determination table, the random number value range corresponding to the "A-A" combination of the face prognostics is different from the random number value range for the other combination, and the random number value range associated thereto is also biased (i.e., not uniformly distributed) for each of the face prognostic combinations.

On the other hand, since the combination of "A-A" is not included in the (V) "loss + Harite reach" of Fig. 50 and in the (VI) "loss + no reach" of Fig. 51, if the combination "A-A" appears, it is known that the combination of "loss" and "Harite reach" and the combination of "loss" and "no reach" may not appear.

Since the "big hit + all rotation reach" of (III) in Fig. 48 has quite high probabilities for appearance of "big hit", combinations of the face prognostics having low reliability for "big hit" such as the combination of "D-C" and the combination of "D-D" etc. are not included. Therefore, when the combinations of the face prognostics of "D-C", "D-D" etc. appear, the combination of the "big hit" and the "all rotation reach" never appear.

By providing the above prognostic display, an expert player can infer detail of information of these prognostic displays through his experience. Therefore, by only watching a prognostic display, the expert player can judge in some extents that the prognostic display may develop into what kind of "reach demonstration", and further develop into "big hit" with a certainty.

Further, by displaying the first prognostic display ("face prognostic 1") and the second prognostic display ("face prognostic 2") successively with the lapse of time, the player easily remembers the change of a series of movements or change of face expression.

Furthermore, the display time of two prognostic displays can be extremely

shortened. In such a case, the interest may be enhanced, because the player is requested to concentrate.

Two or more kinds of the prognostic display may be provided and the mode of the combination may be selected optionally. The change of the display may be executed in the manner such as "face prognostic 1" → "face prognostic 2" → "face prognostic 3" → "face prognostic 1".

The above embodiments are directed to the pachinko game machine. However, the present invention can be applied to the other gaming machine such as, for example, a TV gaming machine having a electric display device and an other display device as well.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

**THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:**

1. A gaming machine having:
  - 5 a symbol display arrangement for displaying a plurality of symbols necessary for a game, the plurality of symbols being varied in a variation action that is initiated in response to the satisfaction of a predetermined condition;
  - 10 a predictive display arrangement for performing a predictive display that predicts an appearance of a specific symbol display state upon a stopping of the variation action of the symbols displayed by said symbol display arrangement; and
  - 15 a controller for determining whether or not the symbol variation action displayed by said symbol display arrangement is to be stopped so as to display the specific symbol display state, and for selecting a specific predictive display mode among a plurality of predetermined predictive display modes, said controller being arranged to generate the predictive display mode that is predetermined corresponding to a probability of the appearance of the specific symbol display state, the predictive display mode being changeable in conjunction with a change in the game with passage of time.
2. The gaming machine according to claim 1, wherein said predictive display arrangement is arranged to perform a first predictive display that is indicative of a first probability of the appearance of a specific symbol display state upon a stopping of the variation action of the symbols displayed by said symbol display arrangement, and a second predictive display reflecting a second probability of the appearance of the specific symbol display state upon satisfaction of a predetermined condition, said controller being arranged to select and generate the second predictive display mode predetermined corresponding to the probability of the appearance of the specific symbol display state, the second predictive display mode being changeable in conjunction with the change in the game with the passage of time.
3. The gaming machine according to claim 1, wherein said predictive display arrangement is arranged to perform a first predictive display reflecting a first probability of the appearance of a specific symbol display state upon the stopping of the variation action

of the symbols displayed by said symbol display arrangement, and a second predictive display reflecting a second probability of the appearance of the specific symbol display state upon satisfaction of a predetermined condition; said controller being arranged to select and generate the first and second predictive display modes, each of which 5 corresponds to a predetermined probability of the appearance of the specific symbol display state, at least one of the first and second predictive display modes being changeable in conjunction with the change in the game with the passage of time.

4. The gaming machine according to claim 1, wherein the predictive display mode 10 includes a combination of a plurality of predictive display symbols.

5. The gaming machine according to claim 4, wherein the combination of the plurality of predictive display symbols is associated with a condition of a display sequence responsive to time.

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6. The gaming machine according to claim 4, wherein said predictive display symbol is determined in response to the timing of the stopping of the symbol variation action.

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7. The gaming machine according to claim 4, wherein the predictive display symbol is displayed one or more times until the variation action of any one of the symbols is stopped.

8. The gaming machine according to claim 4, wherein the predictive display symbol is displayed one or more times until the variation actions of any two of the symbols are stopped sequentially.

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9. The gaming machine according to claim 4, wherein the predictive display symbol is displayed one or more times until the variation actions of any three of the symbols are stopped sequentially.

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10. The gaming machine according to claim 4, wherein the predictive display symbol is displayed one or more times until the variation action of any one of the symbols is stopped.

and the predictive display symbol is displayed one or more times until the variation actions of any two of the symbols are stopped sequentially.

11. The gaming machine according to claim 4, wherein the predictive display symbol is  
5 displayed one or more times until the variation action of any one of the symbols is stopped, and the predictive display symbol is displayed one or more times until the variation actions of any three of the symbols are stopped sequentially.

12. The gaming machine according to claim 4, wherein the predictive display symbol is  
10 displayed one or more times until the variation actions of any two of the symbols are stopped sequentially, and the predictive display symbol is displayed one or more times until the variation actions of any three of the symbols are stopped sequentially.

13. The gaming machine according to claim 4, wherein the predictive display symbol is  
15 displayed one or more times until the variation action of any one of the symbols is stopped, the predictive display symbol is displayed a further one or more times until the variation actions of two of the symbols are stopped sequentially, and the predictive display symbol is displayed a still further one or more times until the variation actions of any three of the symbols are stopped sequentially.

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14. The gaming machine according to claim 1, wherein the probability of the appearance of the specific symbol display state is changed in conjunction with a change in the game responsive to the passage of time, the predictive display symbol being varied in response to the change of the probability.

25  
15. The gaming machine according to claim 1, wherein the predictive display mode is arranged to indicate a plurality of predictive display symbols successively.

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16. The gaming machine according to claim 15, wherein the plurality of predictive display symbols depict a story line.

17. The gaming machine according to claim 1, wherein the controller is provided with a predictive display memory for storing a plurality of predictive display modes, each comprising a combination of the plurality of predictive display symbols, the controller being arranged to select and indicate a specified predictive display mode corresponding to 5 the probability, from among the plurality of predictive display modes stored in said predictive display memory.

18. A gaming machine having:

10 a symbol display arrangement for displaying a plurality of symbols necessary for a game, the plurality of symbols being varied in a variation action that is initiated in response to the satisfaction of a predetermined condition;

15 a predictive display arrangement for performing a predictive display that predicts an appearance of a specific symbol display state upon a stopping of the variation action of the symbols displayed by said symbol display arrangement; and

20 a controller for determining whether or not the symbol variation action displayed by said symbol display arrangement is to be stopped so as to display the specific symbol display state, and for selecting a specific predictive display mode among a plurality of predetermined predictive display modes, the predictive display mode including a combination of a plurality of predictive display symbols associated with a condition of a display sequence responsive to time, each predictive display symbol included in the combination of the plurality of predictive display symbols being displayed in response to the condition of the display sequence, said controller being arranged to generate the predictive display mode that is predetermined corresponding to a probability of the appearance of the specific symbol display state, the predictive display mode being 25 changeable in conjunction with a change in the game with passage of time.

19. A gaming machine substantially as hereinbefore described with reference to the accompanying drawings.

5 DATED this 10<sup>th</sup> day of June, 2003

**Aruze Corporation**

by DAVIES COLLISON CAVE  
Patent Attorneys for the Applicant

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FIG. 1

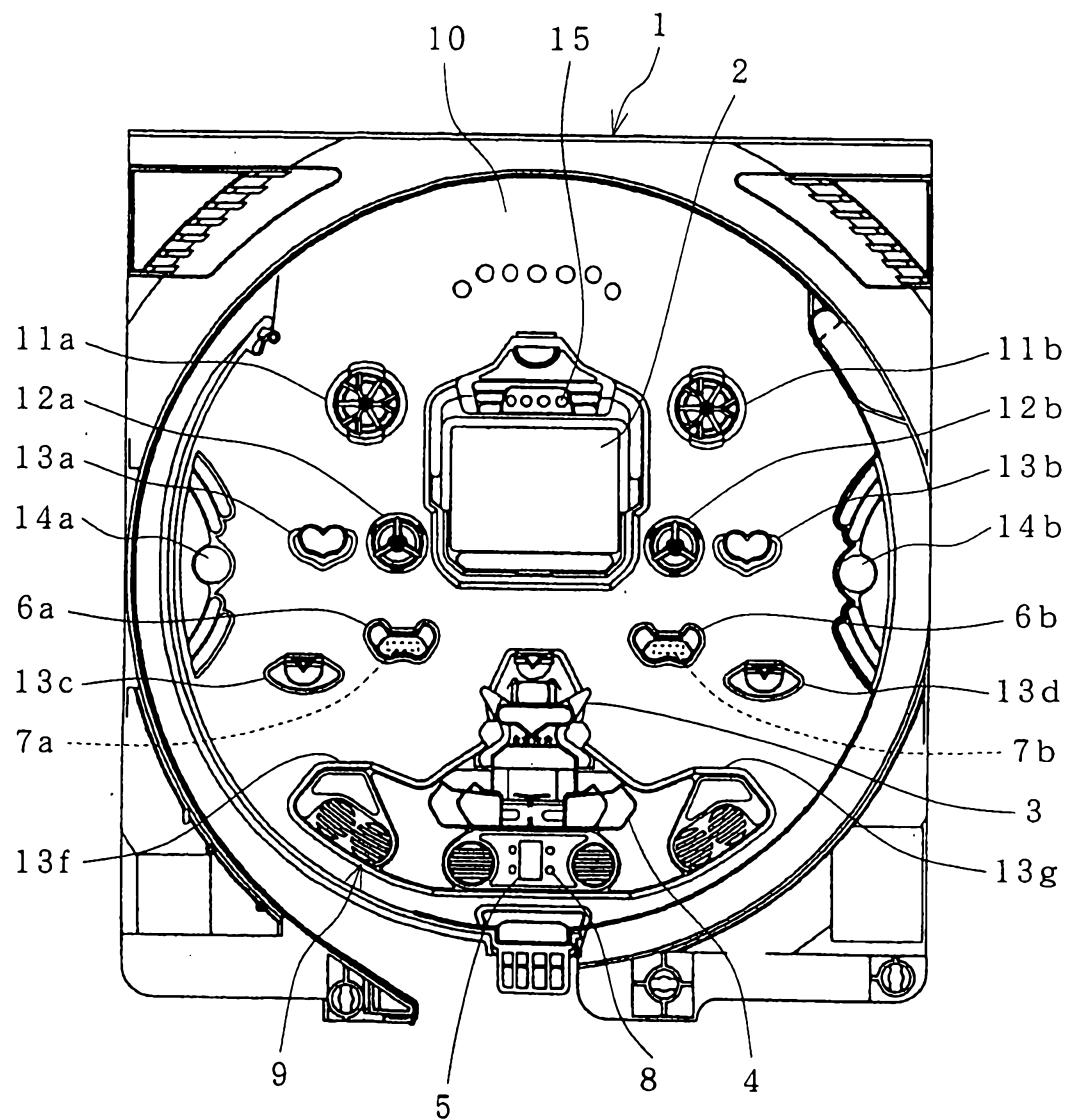
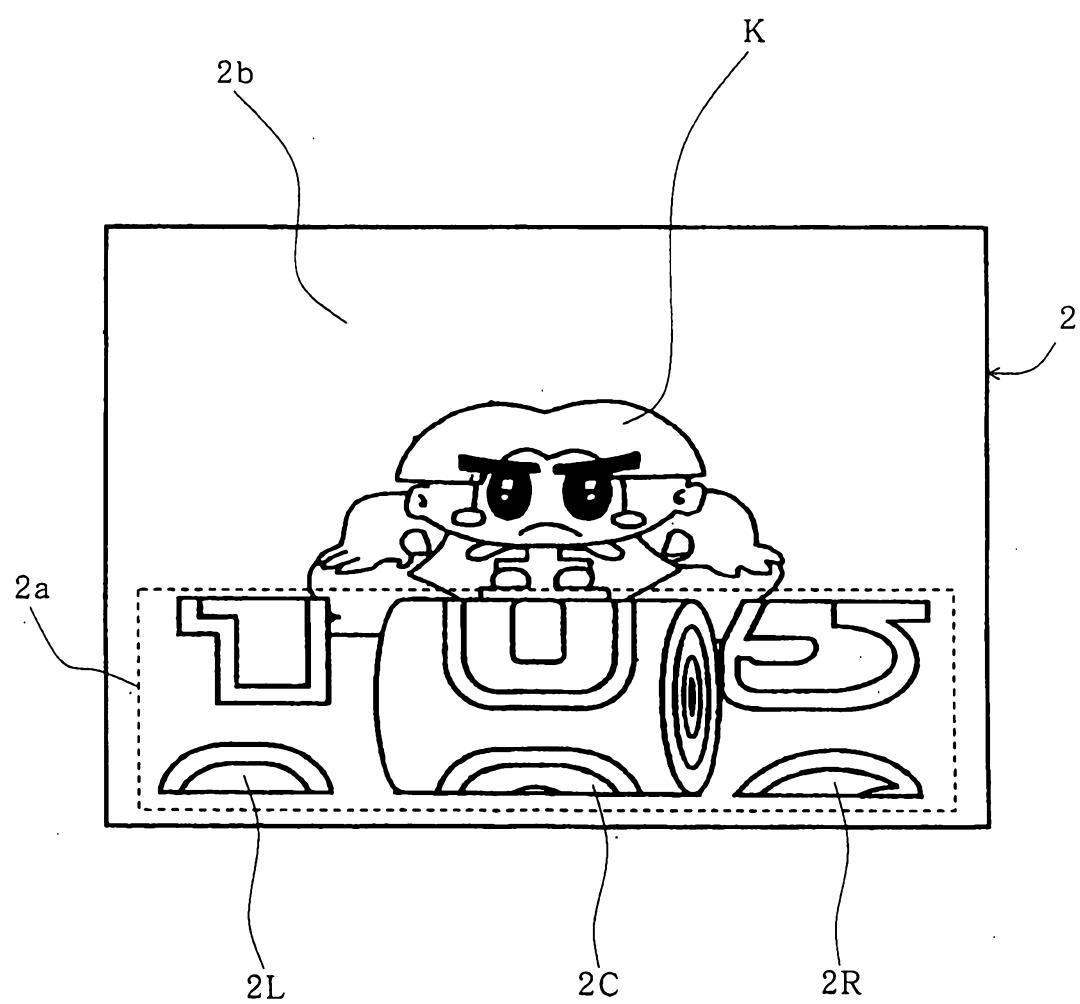


FIG. 2



## FIG. 3

FACE PROGNOSTIC DETERMINATION TABLE  
("BIG HIT + CLAPPING REACH")

PROGNOSTIC GROUP	RANDOM NUMBER FOR PROGNOSTIC DISPLAY DETERMINATION	
	0~40	41~80
A GROUP	FACE SYMBOL 1 	FACE SYMBOL 2 
B GROUP	81~96 	97~110 
C GROUP	111~115 	116~119 
D GROUP	120~129 	130~139 

FIG. 4

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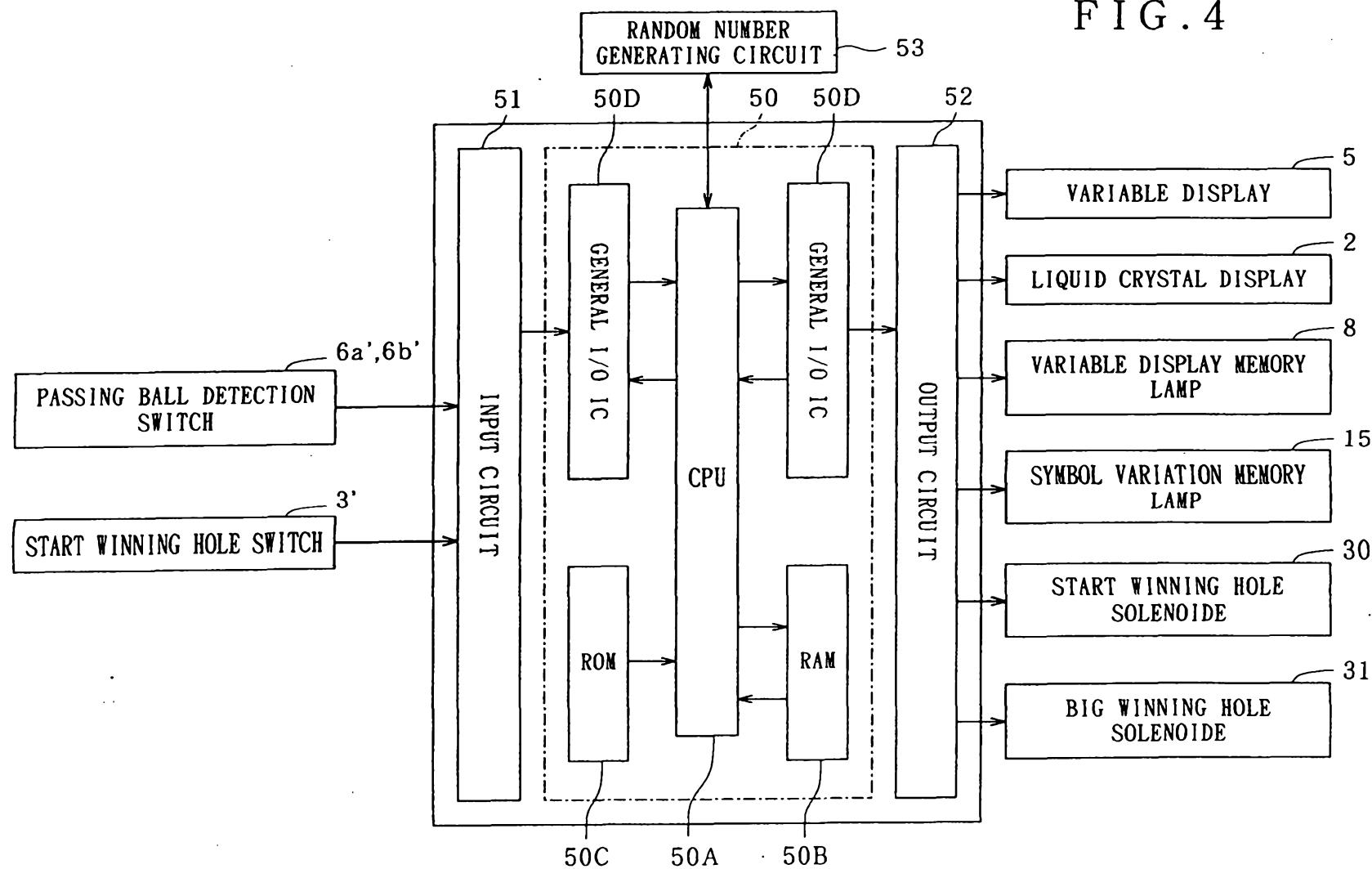


FIG. 5

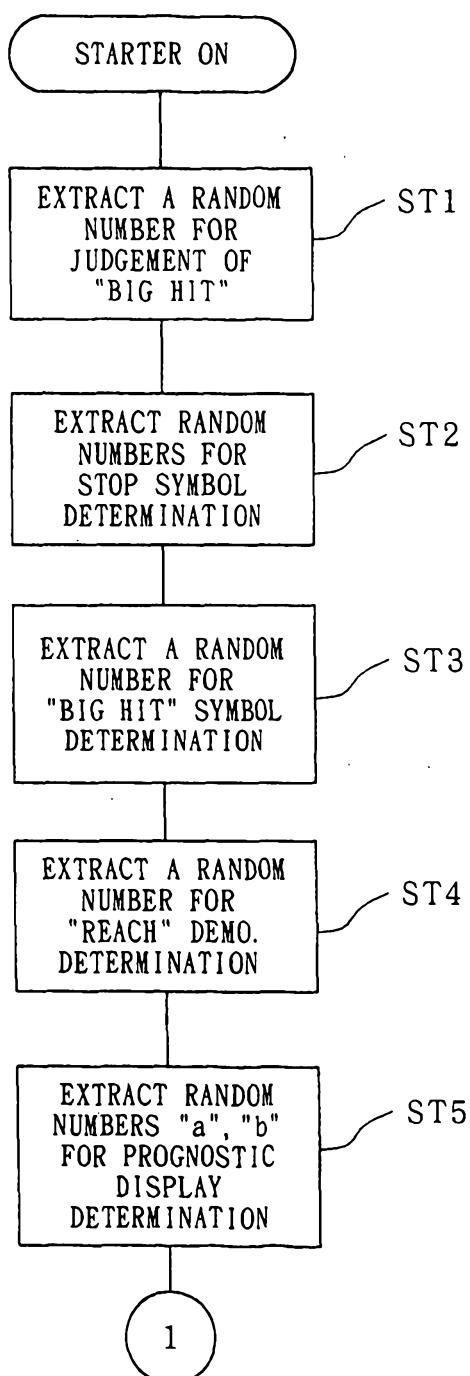


FIG. 6

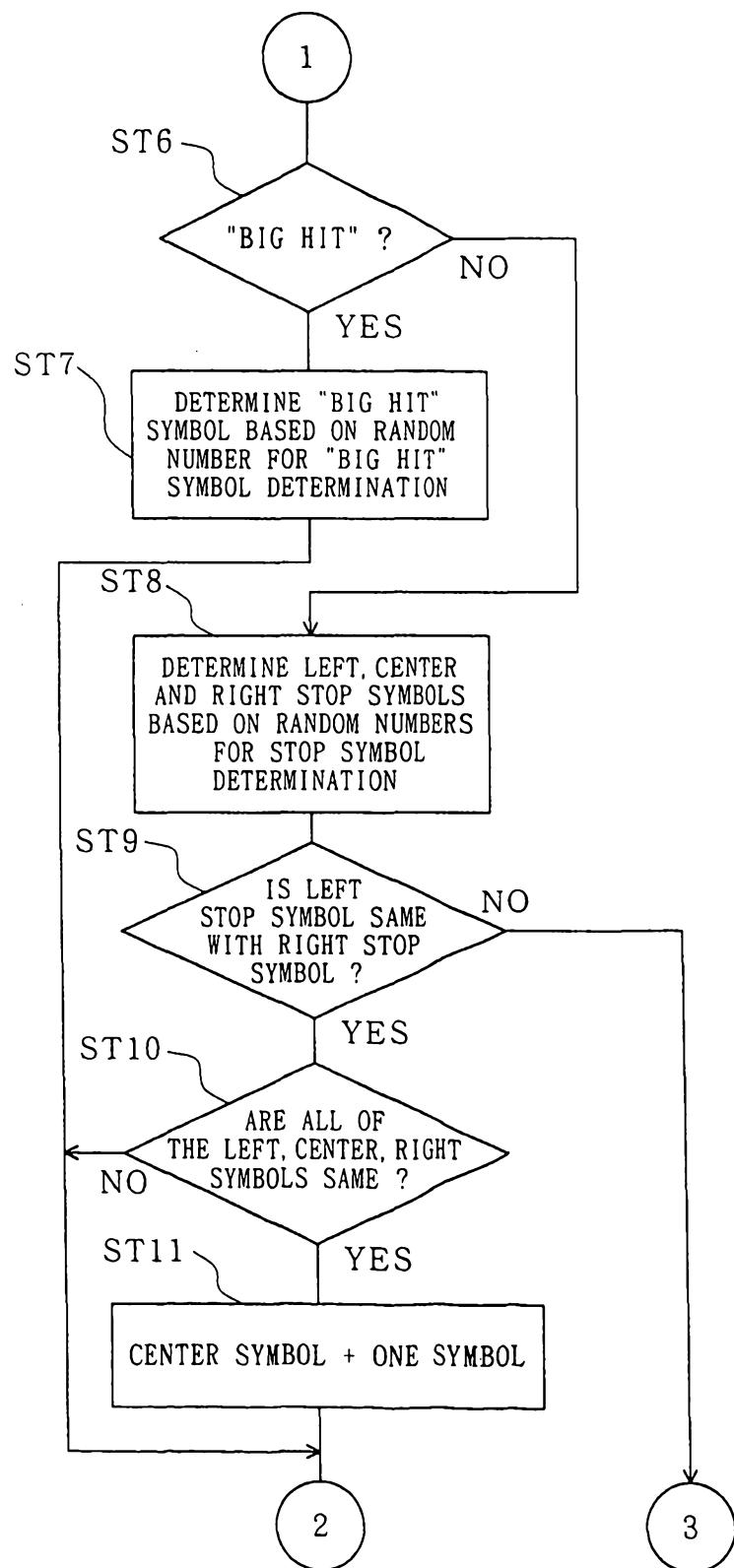
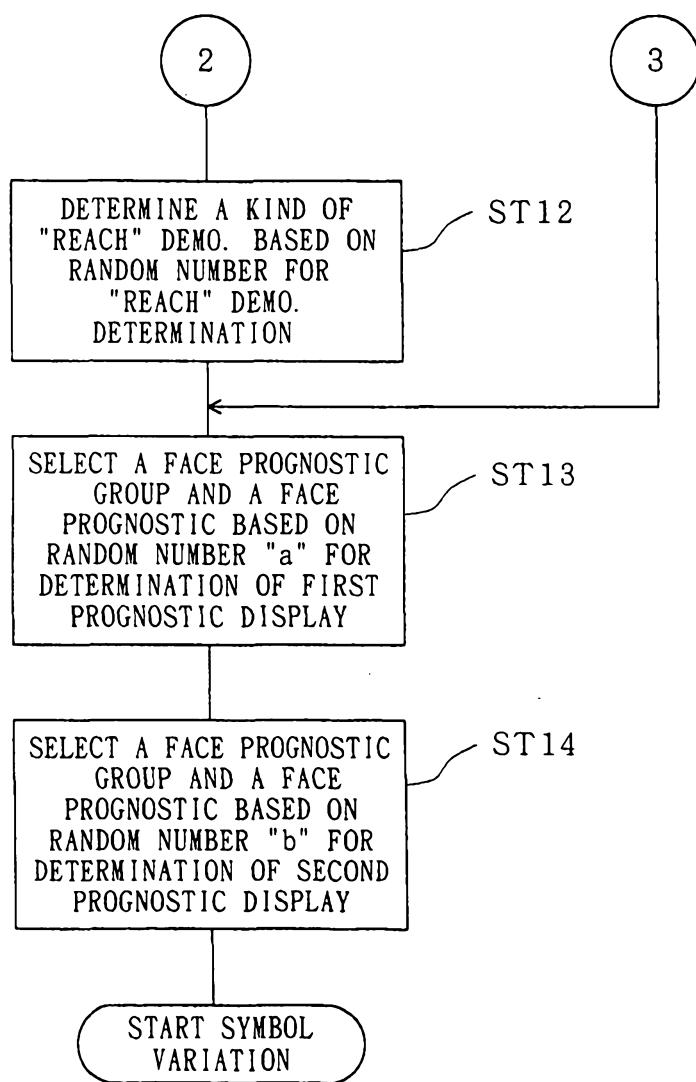


FIG. 7



## FIG. 8

KIND OF RANDOM NUMBER	RANDOM NUMBER VALUE
RANDOM NUMBER FOR JUDGEMENT OF "BIG HIT"	0 ~ 255
RANDOM NUMBER FOR "REACH" DEMO. DETERMINATION	0 ~ 139
RANDOM NUMBER FOR FACE PROGNOSTIC DETERMINATION	0 ~ 139

## FIG. 9

"BIG HIT" JUDGEMENT TABLE

JUDGEMENT OF "HIT"	RANDOM NUMBER FOR JUDGEMENT OF "BIG HIT"	PROBABILITY
"BIG HIT"	7	1/256
"LOSS"	0 ~ 6, 8 ~ 255	255/256

## FIG. 10

TABLE FOR DETERMINATION OF "BIG HIT" SYMBOL

RANDOM NUMBER FOR "BIG HIT" SYMBOL DETERMINATION	"BIG HIT" SYMBOL
0	1-1-1
1	2-2-2
2	3-3-3
3	4-4-4
4	5-5-5
5	6-6-6
6	7-7-7
7	8-8-8
8	9-9-9
9	10-10-10
10	11-11-11
11	12-12-12
12	13-13-13
13	14-14-14
14	15-15-15

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TABLE FOR DETERMINATION OF STOP SYMBOL

RANDOM NUMBER FOR LEFT, CENTER, RIGHT STOP SYMBOL DETERMINATION	STOP SYMBOL
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15

## FIG. 12

TABLE FOR DETERMINATION OF "REACH" DEMO. FOR "BIG HIT"

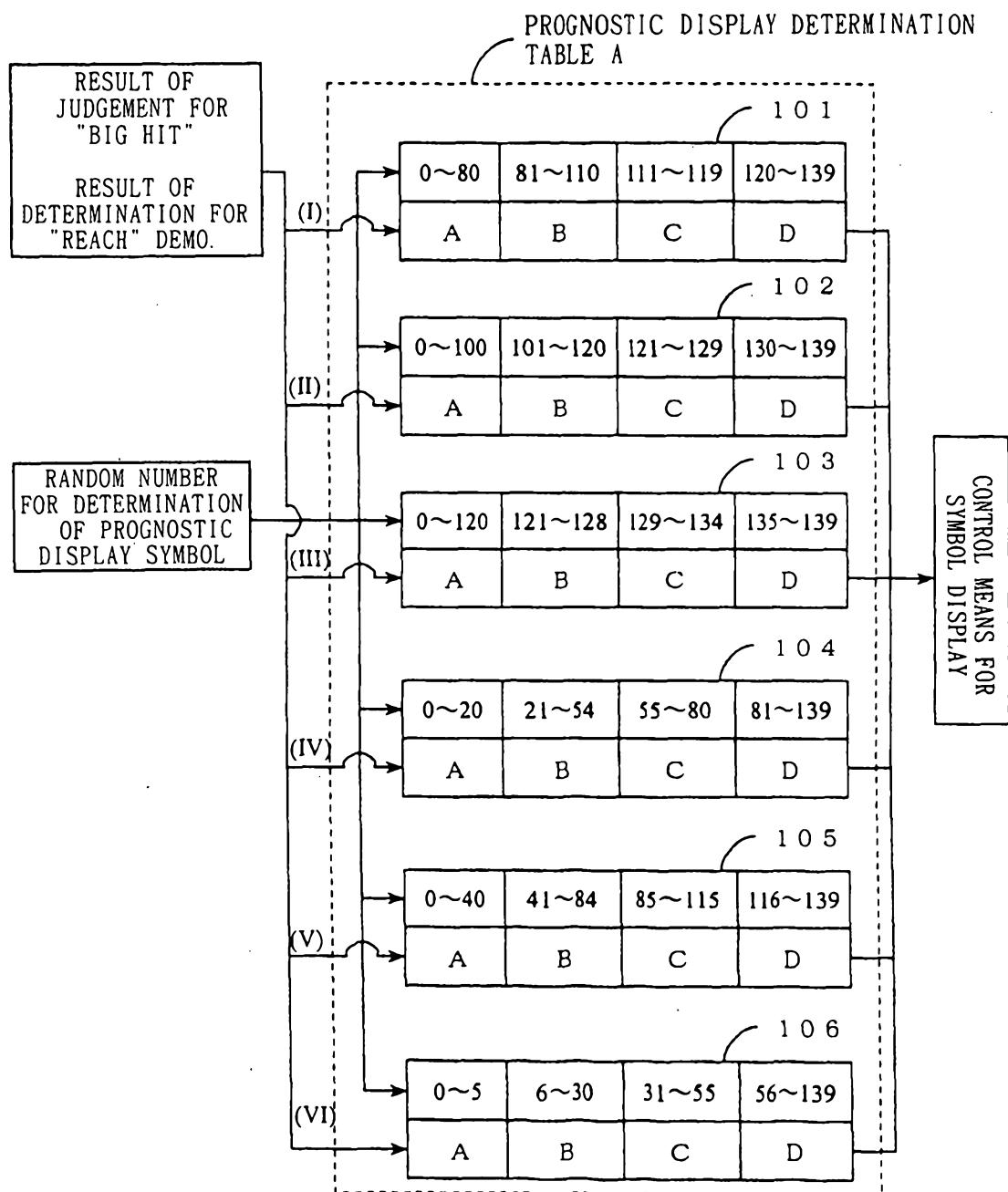
KIND OF "REACH"	RANDOM NUMBER FOR "REACH" DEMO. DETERMINATION	PROBABILITY
"CLAPPING REACH"	0~24	25/140
"HARITE REACH"	25~64	40/140
"ALL ROTATION REACH"	65~139	75/140

## FIG. 13

TABLE FOR DETERMINATION OF "REACH" DEMO. FOR "LOSS"

KIND OF "REACH"	RANDOM NUMBER FOR "REACH" DEMO. DETERMINATION	PROBABILITY
"CLAPPING REACH"	0~4	5/140
"HARITE REACH"	5~8	4/140
NO "REACH"	9~139	131/140

FIG. 14



(I) "BIG HIT + CLAPPING REACH"

(IV) "LOSS + CLAPPING REACH"

(II) "BIG HIT + HARITE REACH"

(V) "LOSS + HARITE REACH"

(III) "BIG HIT + ALL ROTATION REACH" (VI) "LOSS + NO REACH"

FIG. 15

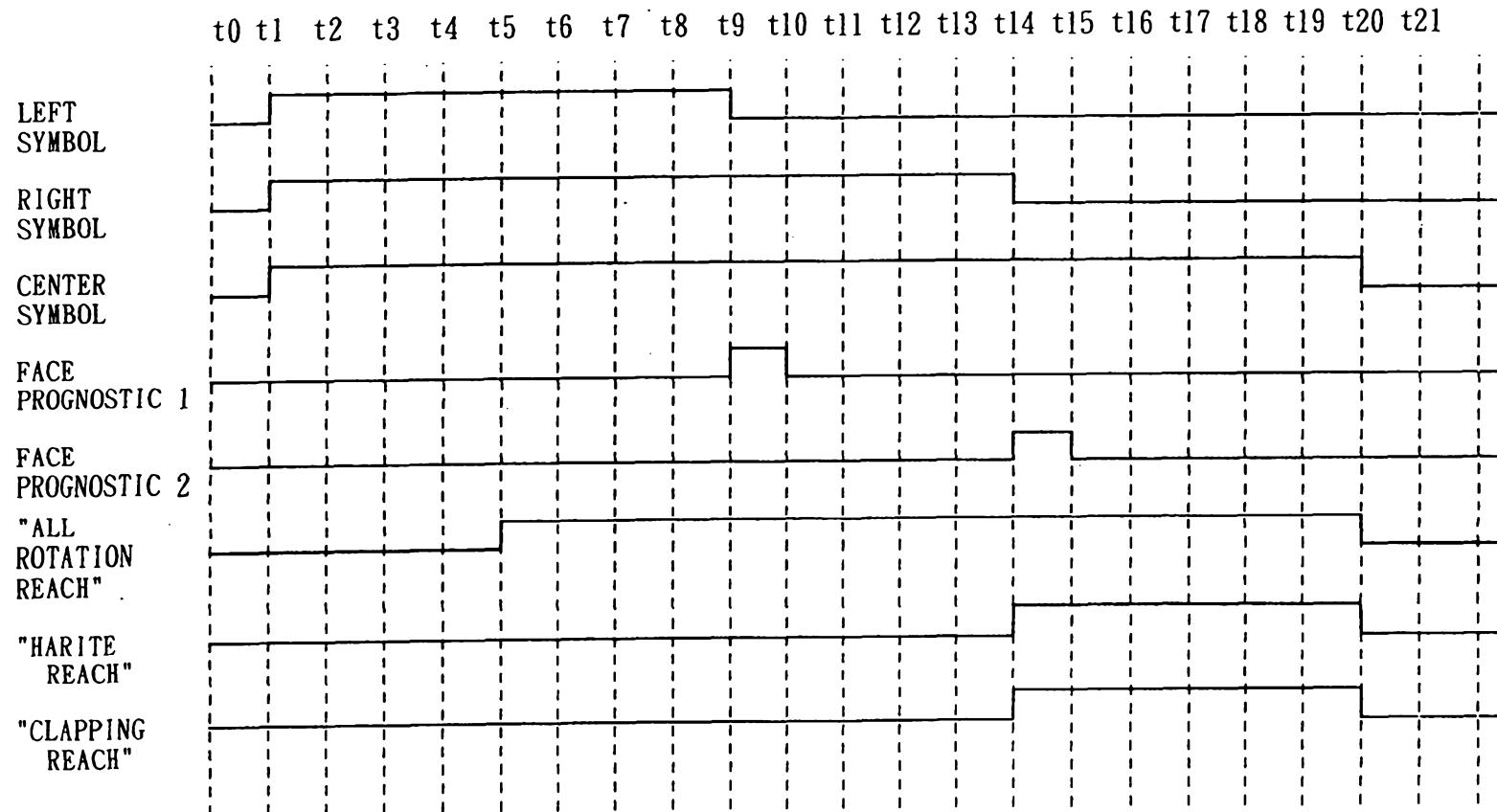
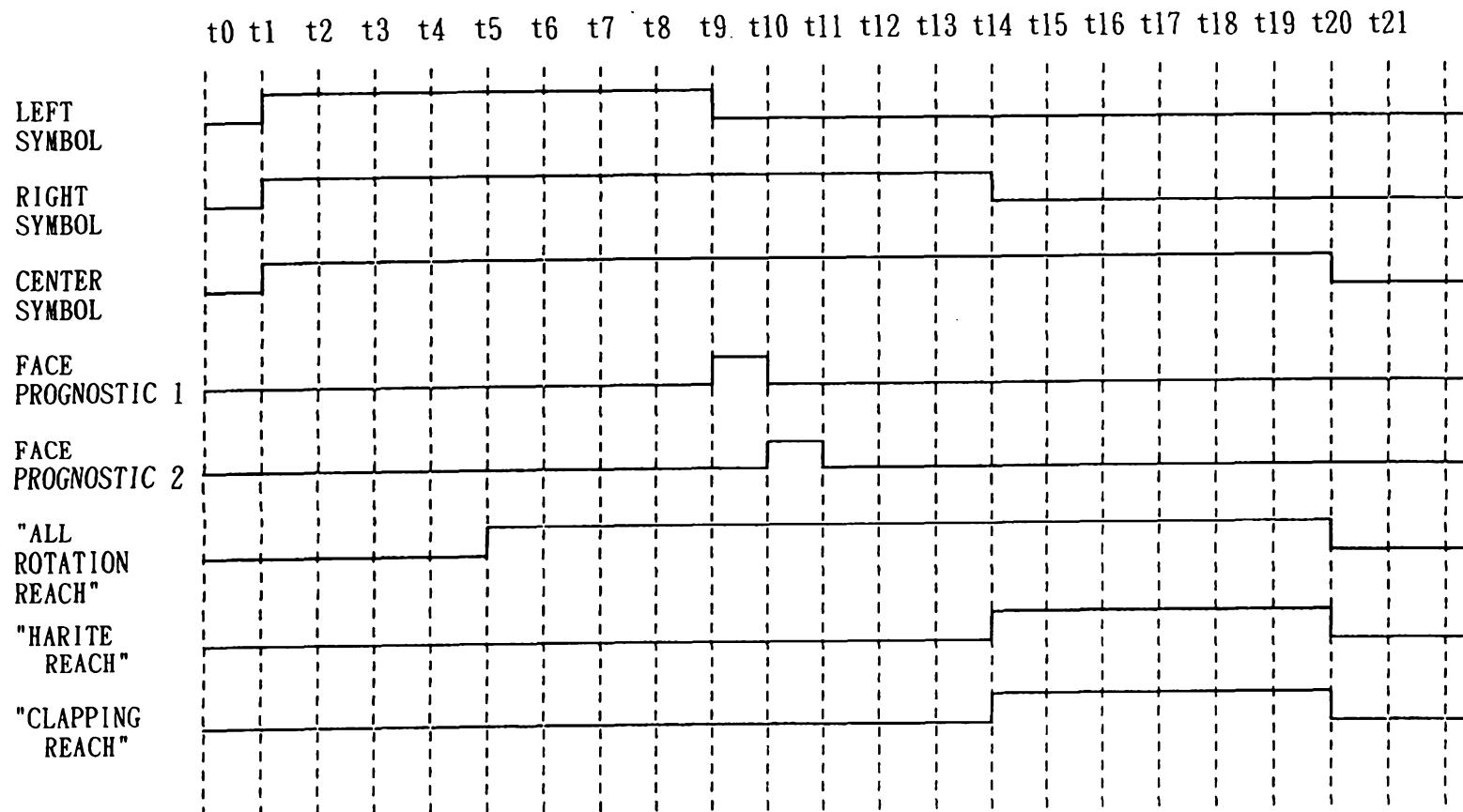
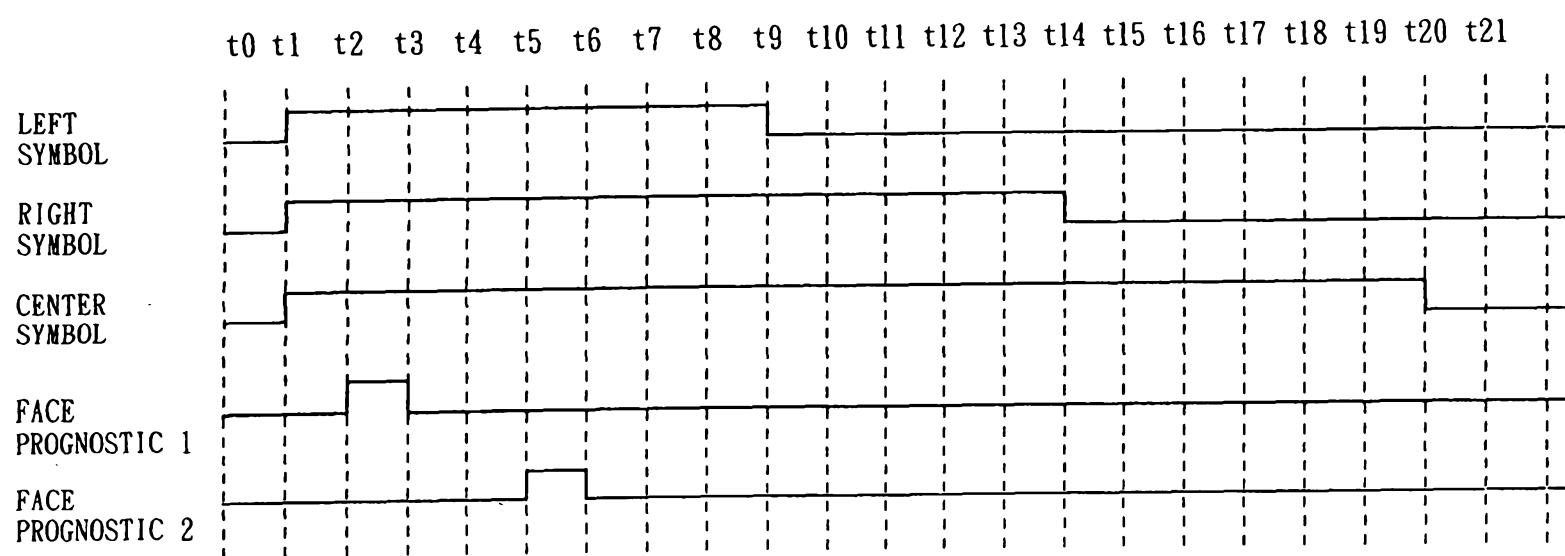


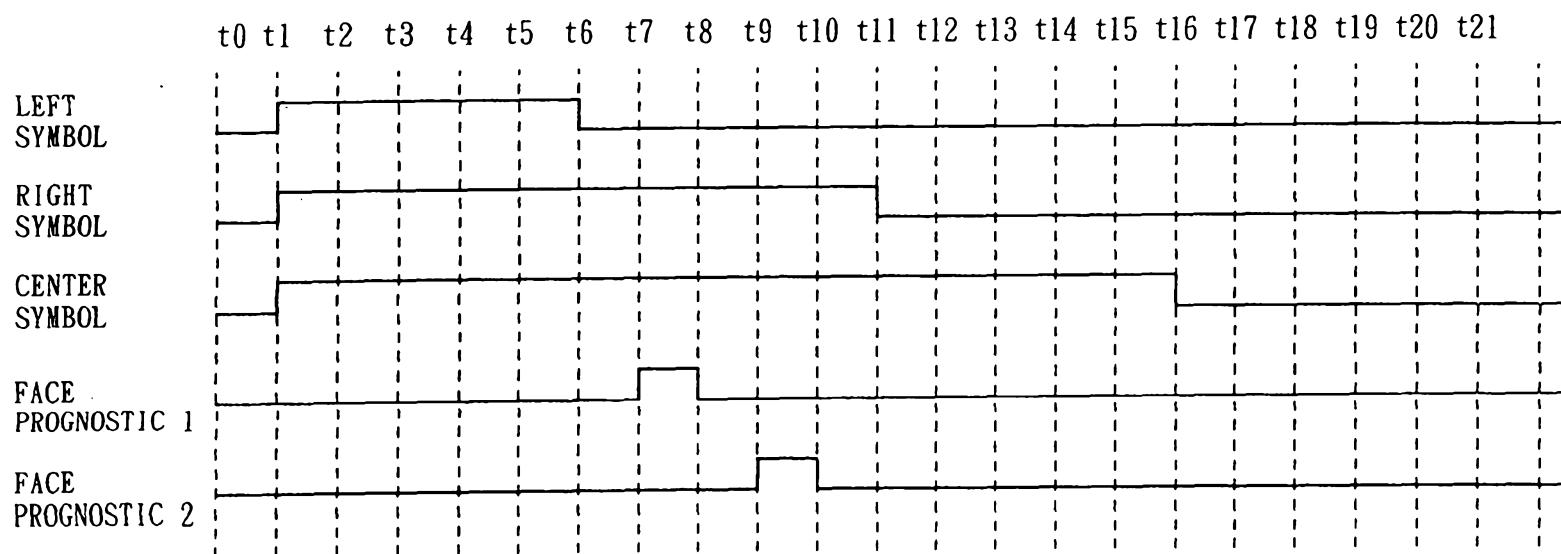
FIG. 16



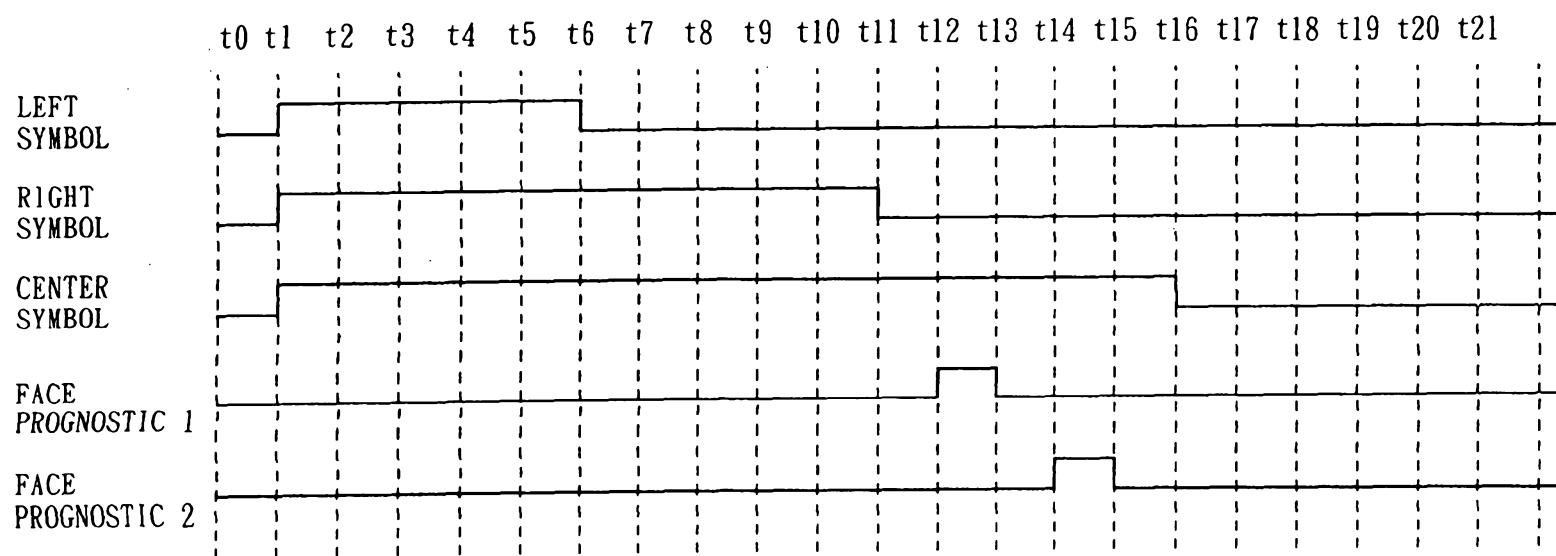
F I G . 1 7



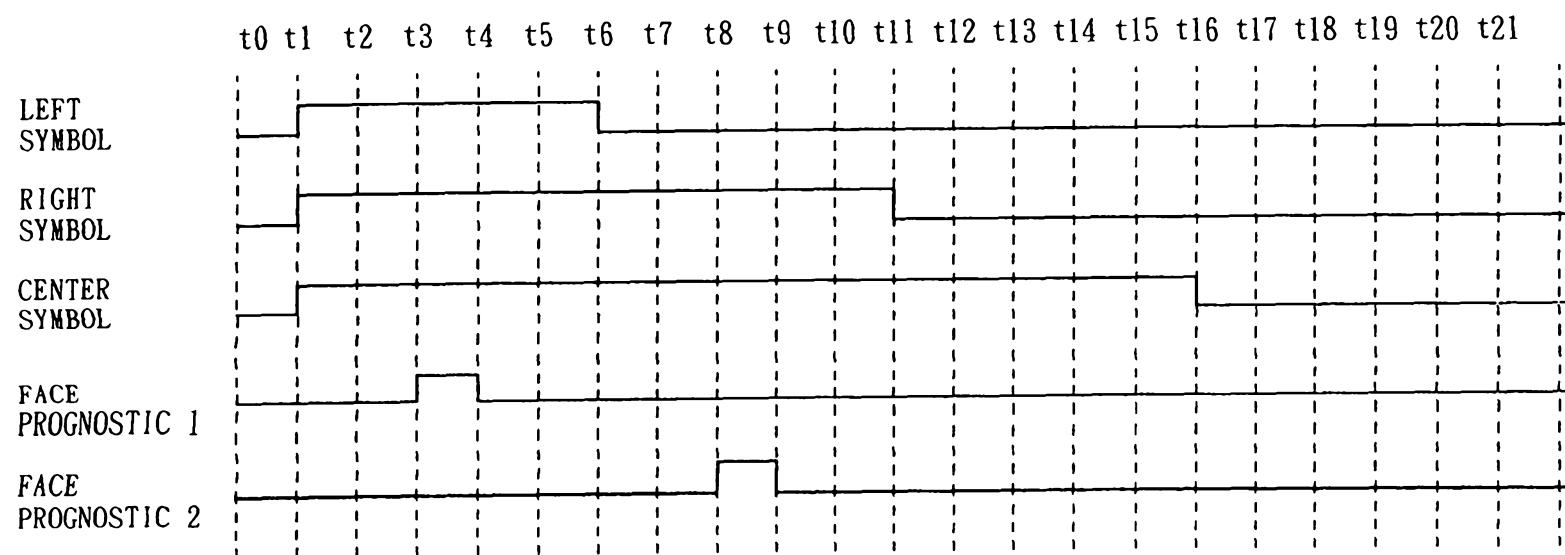
F I G . 1 8



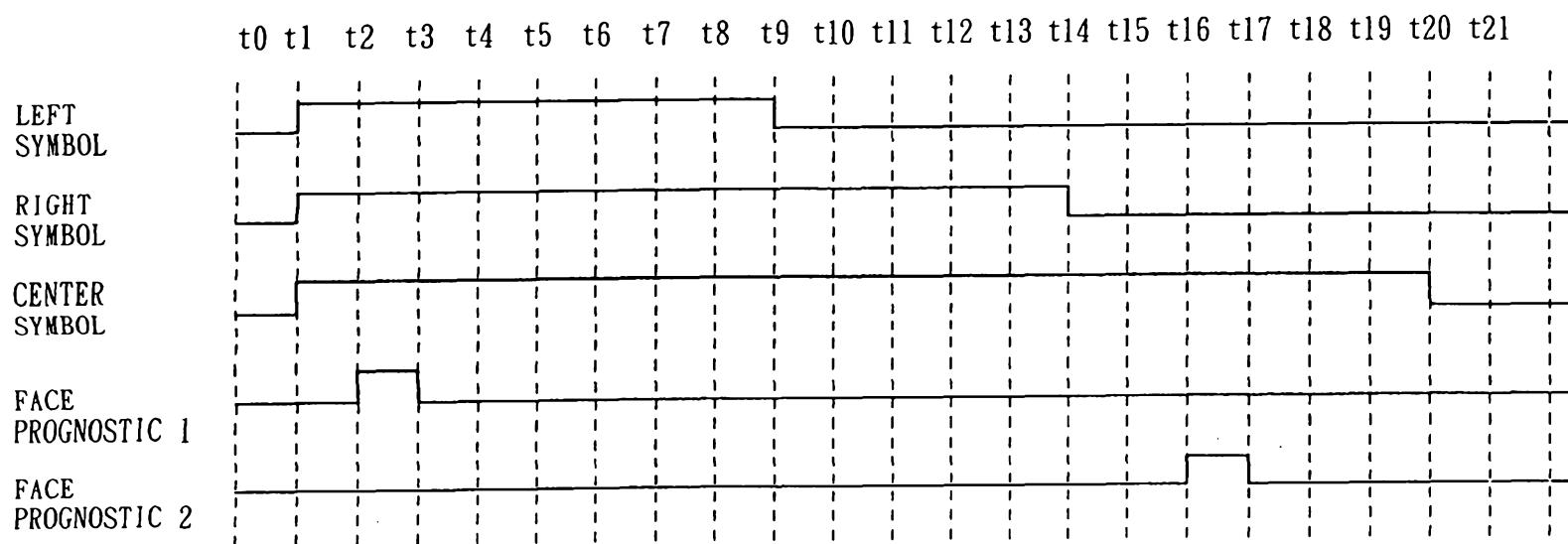
F I G . 1 9



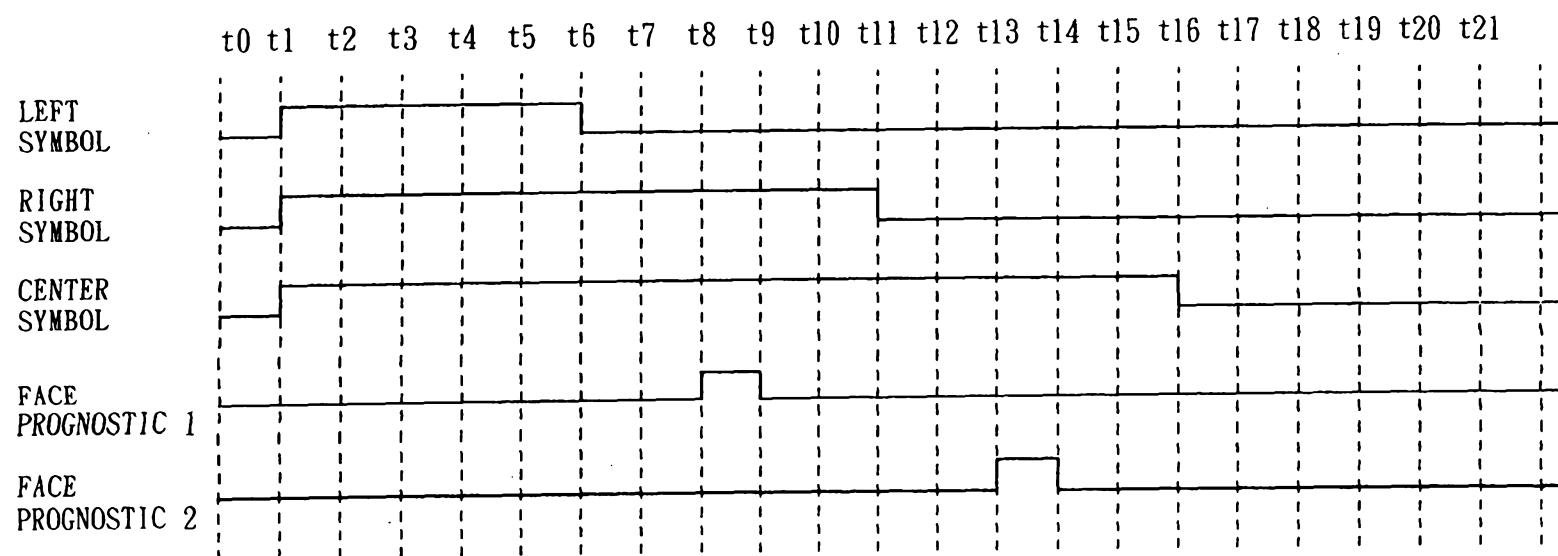
F I G . 2 0



F I G . 2 1



F I G . 2 2



F I G . 2 3

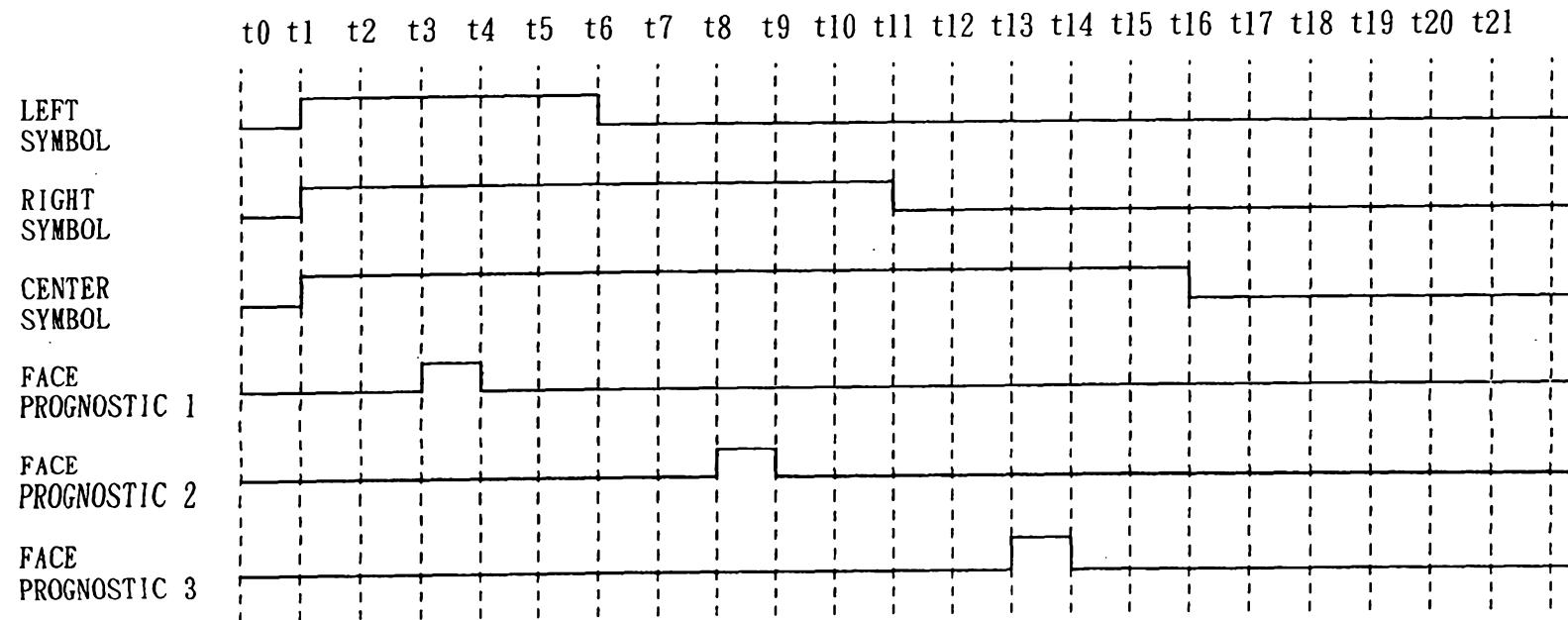


FIG. 24

FACE PROGNOSTIC 1

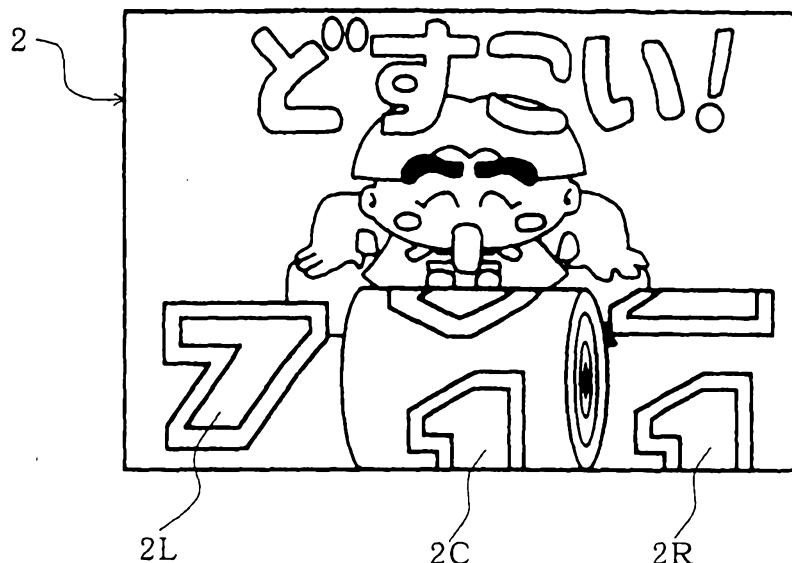
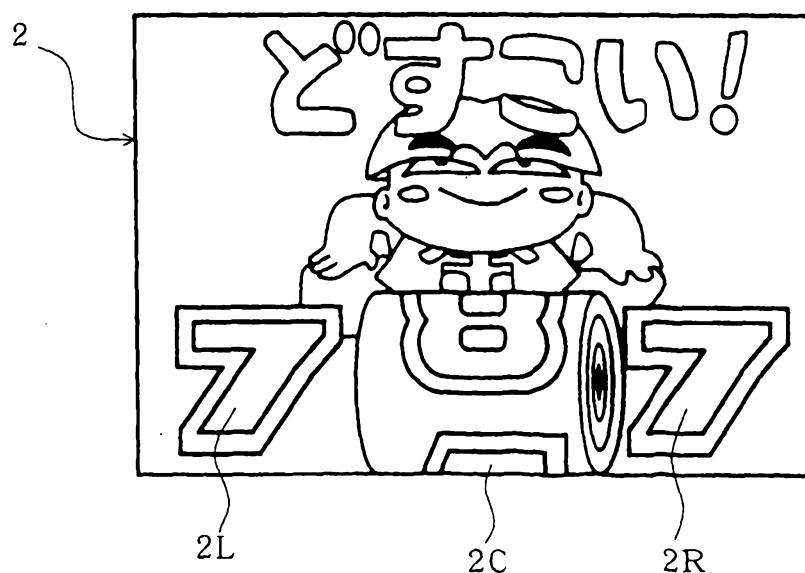


FIG. 25

FACE PROGNOSTIC 2



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FIG. 26

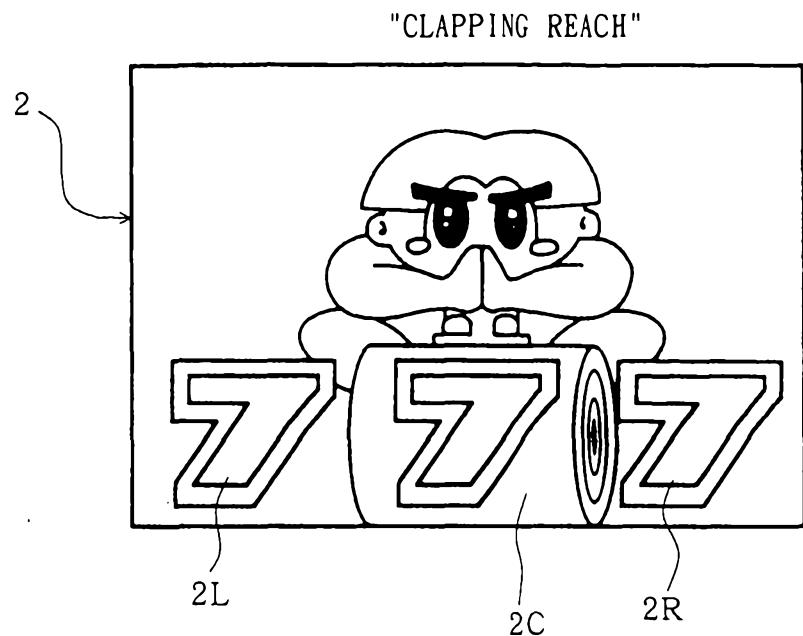


FIG. 27

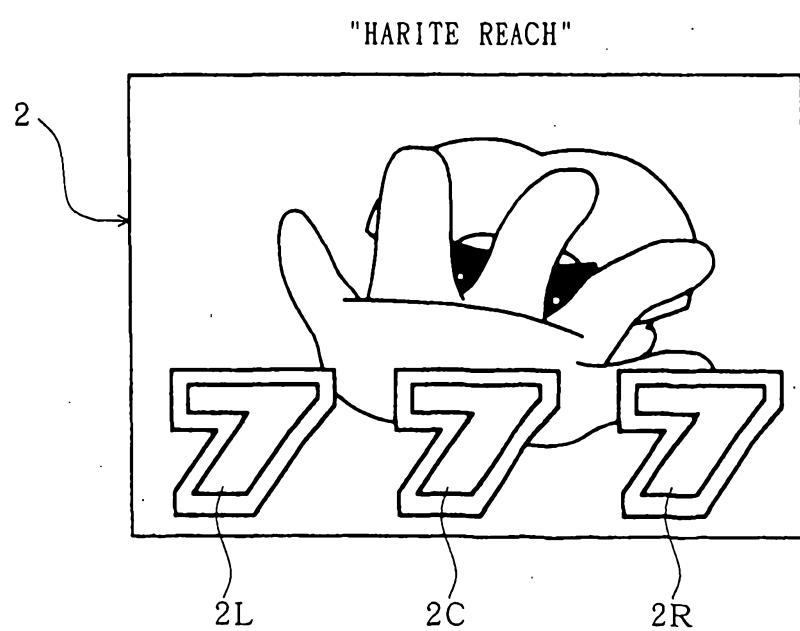
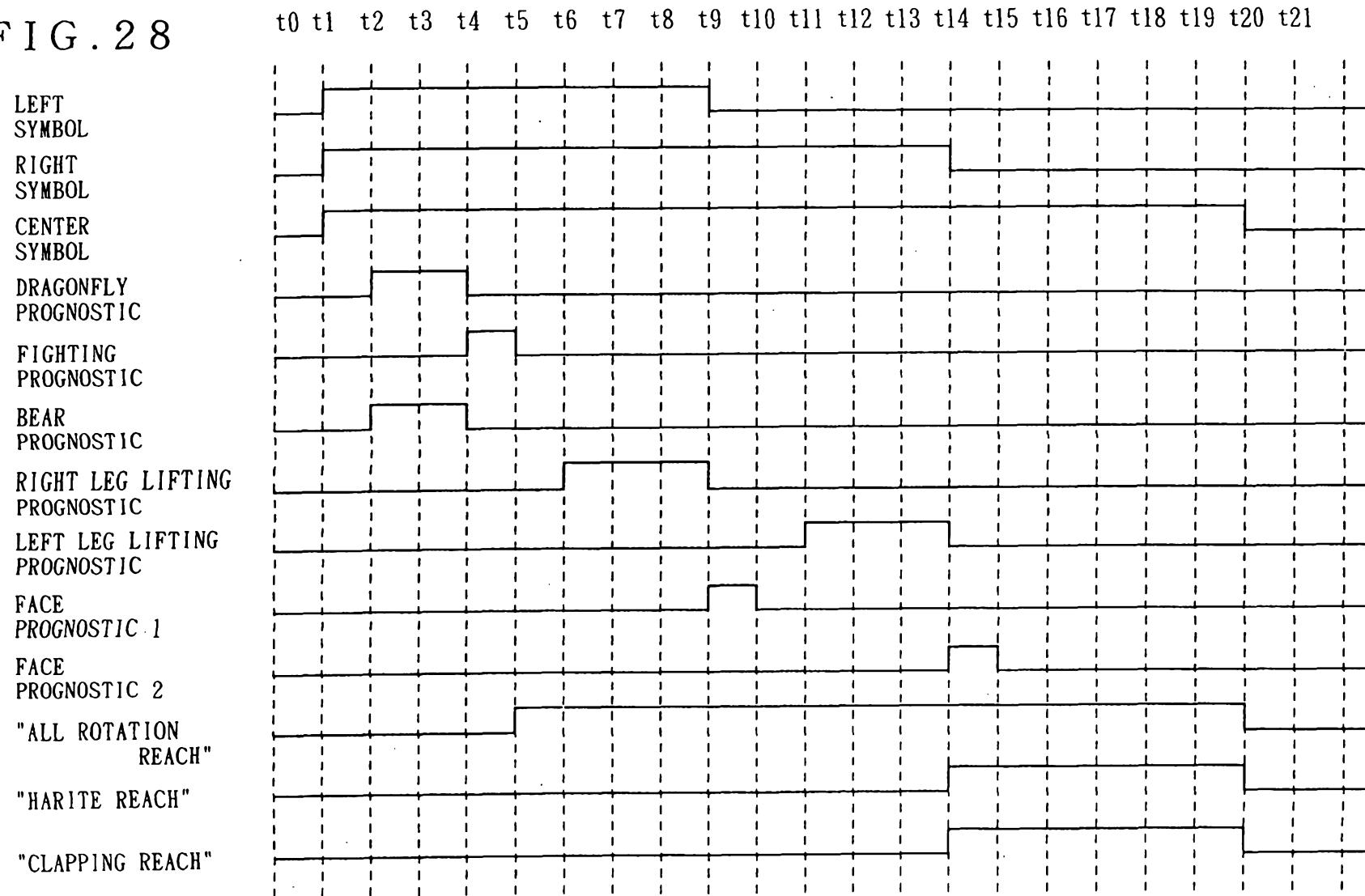


FIG. 28



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FIG. 29

DRAGONFLY PROGNOSTIC

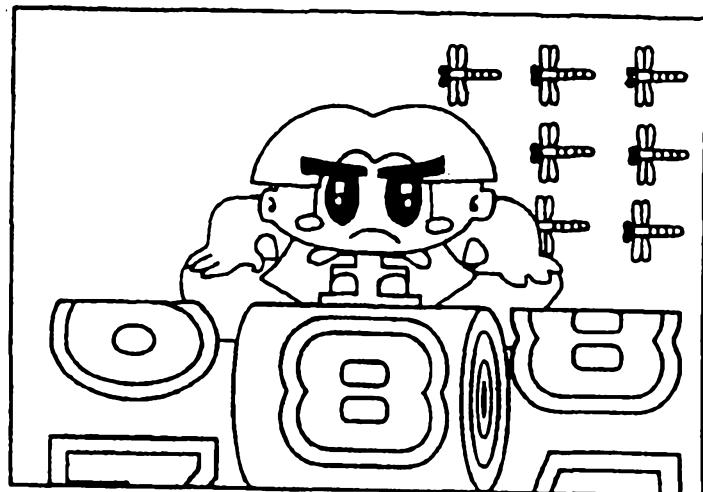


FIG. 30

FIGHTING PROGNOSTIC

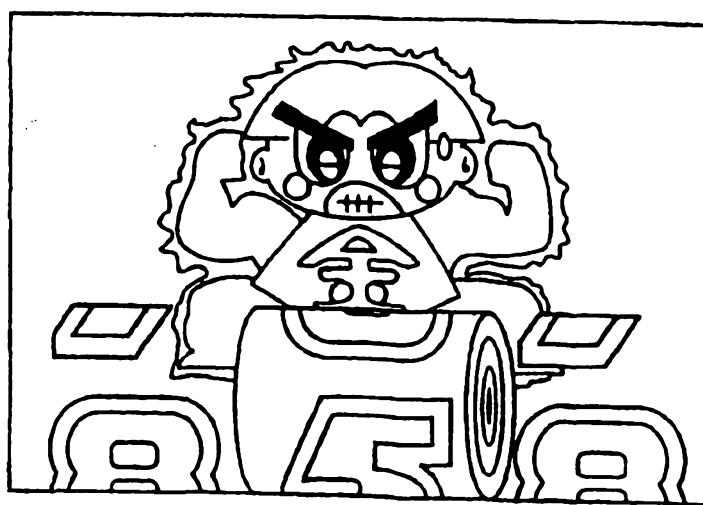


FIG. 31

BEAR PROGNOSTIC

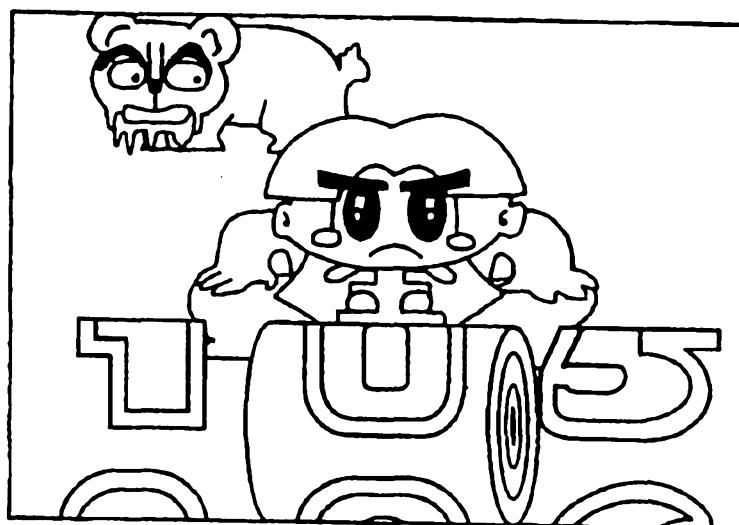


FIG. 32

RIGHT LEG LIFTING PROGNOSTIC

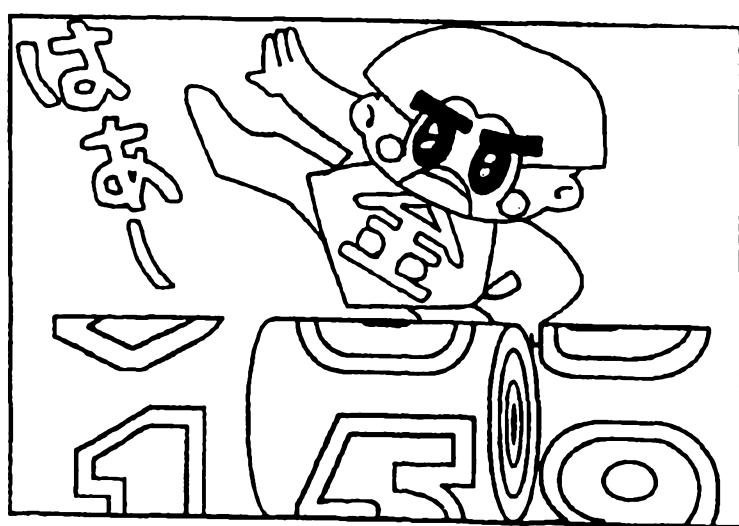


FIG. 33

LEFT LEG LIFTING PROGNOSTIC

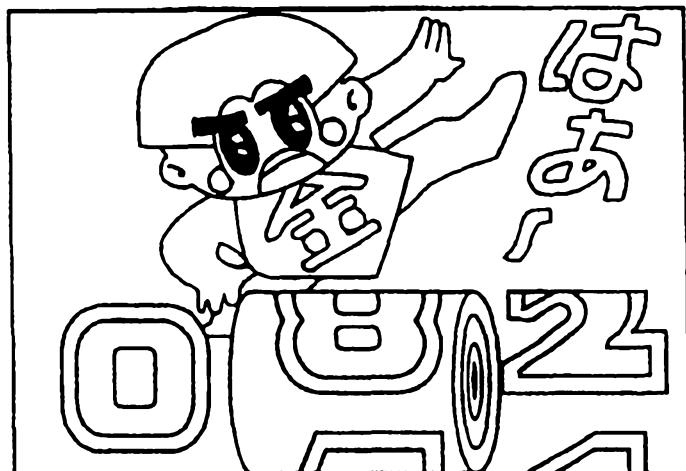
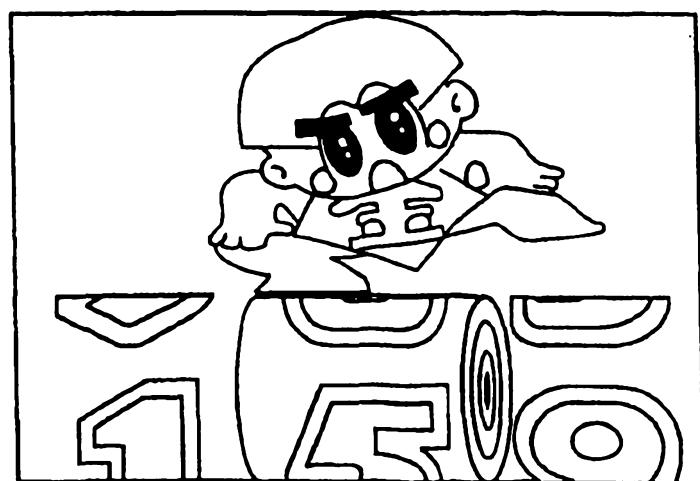


FIG. 34

SMALL DEGREE LEG LIFTING



## FIG. 35

PROGNOSTIC DISPLAY DETERMINATION TABLE B

COMBINATION OF RESULT FOR JUDGEMENT OF "BIG HIT" & KIND OF "REACH"	KIND OF PROGNOSTIC DISPLAY	RANDOM NUMBER C FOR PROGNOSTIC DISPLAY FOR DETERMINATION
(I) "BIG HIT + CLAPPING REACH"	DRAGONFLY PROGNOSTIC	0~20
	FIGHTING PROGNOSTIC	21~70
	RIGHT LEG PROGNOSTIC	71~80
	LEFT LEG PROGNOSTIC	81~89
(II) "BIG HIT + HARITE REACH"	DRAGONFLY PROGNOSTIC	0~20
	FIGHTING PROGNOSTIC	21~40
(III) "BIG HIT + ALL ROTATION REACH"	DRAGONFLY PROGNOSTIC	0~5
	BEAR PROGNOSTIC	6~60
(IV) "LOSS + CLAPPING REACH"	DRAGONFLY PROGNOSTIC	81~85
	FIGHTING PROGNOSTIC	86~90
	RIGHT LEG PROGNOSTIC	91~110
	LEFT LEG PROGNOSTIC	111~130
(IV) "LOSS + HARITE REACH"	DRAGONFLY PROGNOSTIC	81~90
	FIGHTING PROGNOSTIC	91~95
	RIGHT LEG PROGNOSTIC	96~110
	LEFT LEG PROGNOSTIC	111~139
(IV) "LOSS + NO REACH"	DRAGONFLY PROGNOSTIC	91~95
	FIGHTING PROGNOSTIC	96~100

FIG. 36

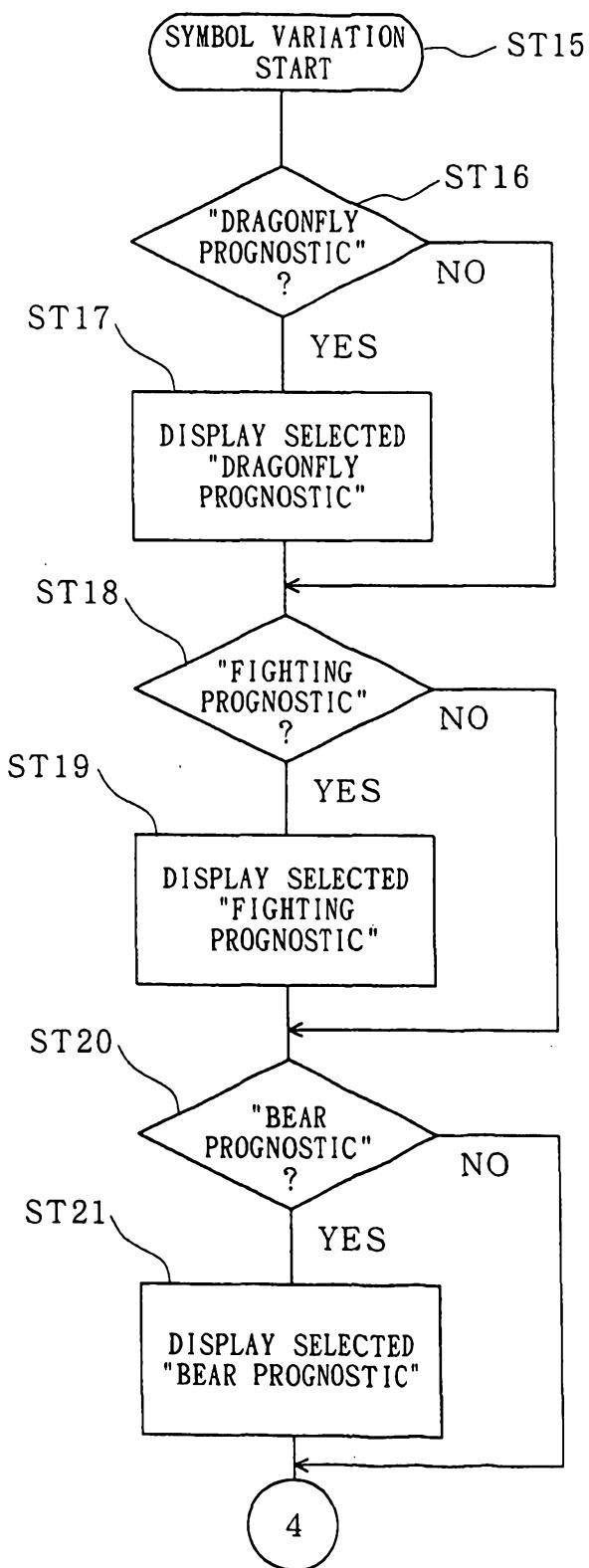
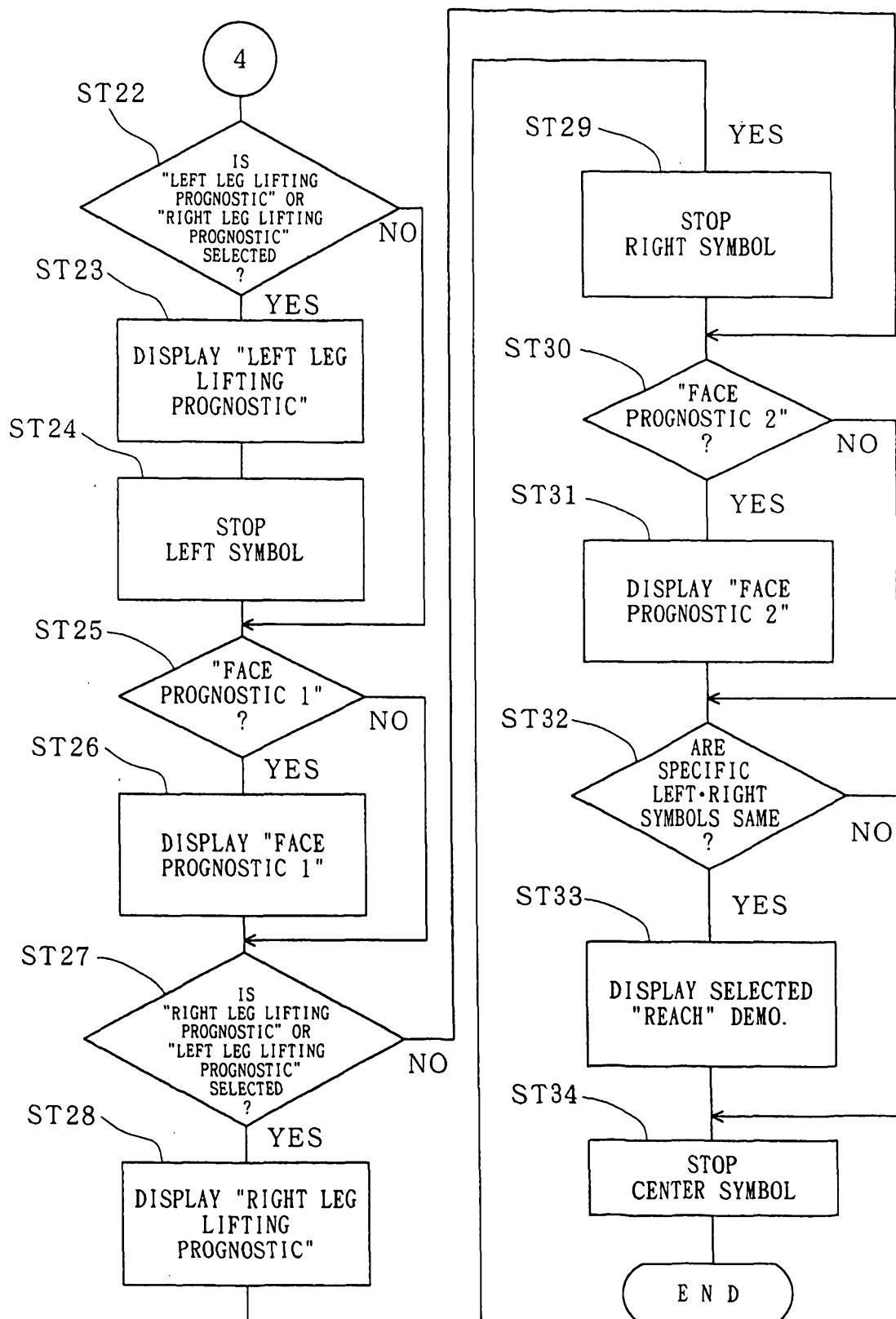


FIG. 37



## FIG. 38

APPEARANCE PROBABILITY TABLE

JUDGEMENT FOR "BIG HIT"	"REACH" DEMO.	(a)	(b)	(c)	(d)	(e)
"BIG HIT" APPEARANCE PROBABILITY =1/256	"CLAPPING REACH" APPEARANCE PROBABILITY =25/140	A	A	12/40	300/1433600	0. 021%
			B	2/40	50/1433600	0. 003%
			C	4/40	100/1433600	0. 007%
			D	0	0/1433600	0%
		B	A	2/40	50/1433600	0. 003%
			B	9/40	225/1433600	0. 016%
			C	2/40	50/1433600	0. 003%
			D	1/40	25/1433600	0. 002%
		C	A	4/40	100/1433600	0. 007%
			B	1/40	25/1433600	0. 002%
			C	0	0/1433600	0%
			D	0	0/1433600	0%
		D	A	0	0/1433600	0%
			B	0	0/1433600	0%
			C	1/40	25/1433600	0. 002%
			D	2/40	50/1433600	0. 003%
"HARITE REACH" APPEARANCE PROBABILITY =40/140	"HARITE REACH" APPEARANCE PROBABILITY =40/140	A	A	2/40	80/1433600	0. 006%
			B	3/40	120/1433600	0. 008%
			C	4/40	160/1433600	0. 011%
			D	1/40	40/1433600	0. 003%
		B	A	9/40	360/1433600	0. 025%
			B	0	0/1433600	0%
			C	2/40	80/1433600	0. 006%
			D	2/40	80/1433600	0. 006%
		C	A	2/40	80/1433600	0. 006%
			B	6/40	240/1433600	0. 017%
			C	2/40	80/1433600	0. 006%
			D	1/40	40/1433600	0. 003%
		D	A	1/40	40/1433600	0. 003%
			B	1/40	40/1433600	0. 003%
			C	2/40	80/1433600	0. 006%
			D	2/40	80/1433600	0. 006%
"ALL ROTATION REACH" APPEARANCE PROBABILITY =75/140	"ALL ROTATION REACH" APPEARANCE PROBABILITY =75/140	A	A	15/40	1125/1433600	0. 078%
			B	3/40	225/1433600	0. 016%
			C	0	0/1433600	0%
			D	1/40	75/1433600	0. 005%
		B	A	1/40	75/1433600	0. 005%
			B	12/40	900/1433600	0. 063%
			C	0	0/1433600	0%
			D	0	0/1433600	0%
		C	A	8/40	600/1433600	0. 042%
			B	0	0/1433600	0%
			C	0	0/1433600	0%
			D	0	0/1433600	0%
		D	A	0	0/1433600	0%
			B	0	0/1433600	0%
			C	0	0/1433600	0%
			D	0	0/1433600	0%

(a)FACE PROGNOSTIC 1  
(b)PROBABILITY DATA

(c)FACE PROGNOSTIC 2  
(d)APPEARANCE PROBABILITY

(e)RATE OF APPEARANCE

## FIG. 39

APPEARANCE PROBABILITY TABLE

JUDGEMENT FOR "BIG HIT"	"REACH" DEMO.	(a)	(b)	(c)	(d)	(e)
"LOSS" APPEARANCE PROBABILITY =255/256	"CLAPPING REACH" APPEARANCE PROBABILITY =5/140	A	A B C D	2/40 3/40 4/40 1/40	2550/1433600 3825/1433600 5100/1433600 1275/1433600	0.18% 0.27% 0.36% 0.09%
		B	A B C D	2/40 4/40 1/40 0	2550/1433600 5100/1433600 1275/1433600 0/1433600	0.18% 0.36% 0.09% 0%
		C	A B C D	0 4/40 13/40 1/40	0/1433600 5100/1433600 16575/1433600 1275/1433600	0% 0.36% 11.60% 0.09%
		D	A B C D	1/40 1/40 3/40 0	1275/1433600 1275/1433600 3825/1433600 0/1433600	0.90% 0.09% 0.27% 0%
		A	A B C D	0 8/40 2/40 0	0/1433600 8160/1433600 2040/1433600 0/1433600	0% 0.60% 0.14% 0%
		B	A B C D	8/40 0 0 3/40	8160/1433600 0/1433600 0/1433600 3060/1433600	0.60% 0% 0% 0.21%
		C	A B C D	0 3/40 3/40 2/40	0/1433600 3060/1433600 3060/1433600 2040/1433600	0% 0.21% 0.21% 0.14%
		D	A B C D	2/40 4/40 0 5/40	2040/1433600 4080/1433600 0/1433600 5100/1433600	0.14% 0.28% 0% 0.36%
		A	A B C D	0 0 2/40 2/40	0/1433600 0/1433600 66810/1433600 66810/1433600	0% 0% 4.66% 4.66%
		B	A B C D	1/40 0 2/40 2/40	33405/1433600 0/1433600 66810/1433600 66810/1433600	2.33% 0% 4.66% 4.66%
		C	A B C D	1/40 1/40 3/40 2/40	33405/1433600 33405/1433600 100215/1433600 66810/1433600	2.33% 2.33% 6.99% 4.66%
		D	A B C D	1/40 7/40 3/40 13/40	33405/1433600 233835/1433600 100215/1433600 434265/1433600	2.33% 16.31% 6.99% 30.29%

(a)FACE PROGNOSTIC 1  
(d)PROBABILITY DATA(b)FACE PROGNOSTIC 2  
(e)APPEARANCE PROBABILITY

## PROBABILITY OF DEVELOPMENT INTO "BIG HIT"

## F I G . 4 0

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	① CASE OF DEVELOPMENT INTO "BIG HIT" (I) "BIG HIT + CLAPPING REACH" (II) "BIG HIT + HARITE REACH" (III) "BIG HIT + ALL ROTATION REACH"	② CASE OF DEVELOPMENT INTO "LOSS" (IV) "LOSS + CLAPPING REACH" (V) "LOSS + HARITE REACH" (VI) "LOSS + NO REACH"	PROBABILITY OF DEVELOPMENT ①/(①+②)
		1505/1433600	2550/1433600	37.11%
A	A	395/1433600	11985/1433600	3.19%
	B	260/1433600	73950/1433600	0.35%
	C	115/1433600	68085/1433600	0.17%
	D	485/1433600	44115/1433600	1.09%
B	A	1125/1433600	5100/1433600	18.07%
	B	130/1433600	68085/1433600	0.19%
	C	105/1433600	69870/1433600	0.15%
	D	780/1433600	33405/1433600	2.28%
C	A	265/1433600	41565/1433600	0.63%
	B	80/1433600	119850/1433600	0.07%
	C	40/1433600	70125/1433600	0.06%
	D	40/1433600	36720/1433600	0.11%
D	A	40/1433600	239190/1433600	0.02%
	B	105/1433600	104040/1433600	0.10%
	C	130/1433600	439365/1433600	0.03%

## PROBABILITY OF DEVELOPMENT INTO "REACH"

## F I G . 4 1

PROGNOSTIC 1 FACE	PROGNOSTIC 2 FACE	① CASE OF DEVELOPMENT INTO "REACH"		PROBABILITY OF DEVELOPMENT ①/(①+②)
		(I) "BIG HIT + CLAPPING REACH" (II) "BIG HIT + HARITE REACH" (III) "BIG HIT + ALL ROTATION REACH" (IV) "LOSS + CLAPPING REACH" (V) "LOSS + HARITE REACH"	② CASE OF DEVELOPMENT NOT INTO "REACH" (VI) "LOSS + NO REACH"	
A	A	4055/1433600	0	100%
	B	12380/1433600	0	100%
	C	7400/1433600	66810/1433600	10%
	D	1390/1433600	66810/1433600	2%
B	A	11195/1433600	33405/1433600	25%
	B	6225/1433600	0	100%
	C	1405/1433600	66810/1433600	2%
	D	3165/1433600	66810/1433600	5%
C	A	780/1433600	33405/1433600	2%
	B	8425/1433600	33405/1433600	20%
	C	19715/1433600	100215/1433600	16%
	D	3355/1433600	66810/1433600	5%
D	A	3355/1433600	33405/1433600	9%
	B	5395/1433600	233835/1433600	2%
	C	3930/1433600	100215/1433600	4%
	D	5230/1433600	434265/1433600	1%

FIG. 42

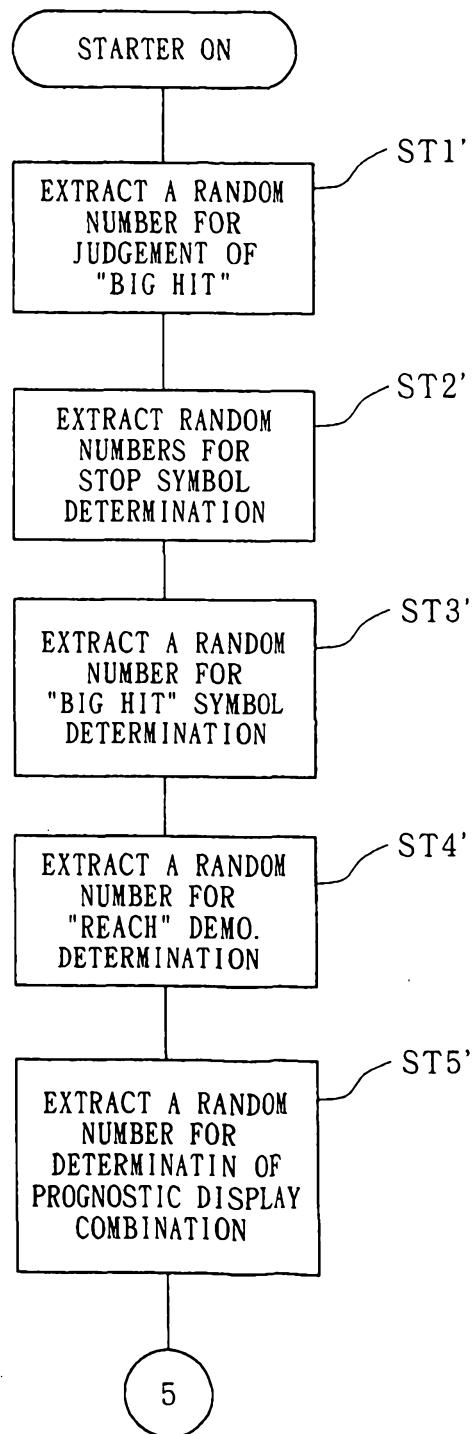


FIG. 43

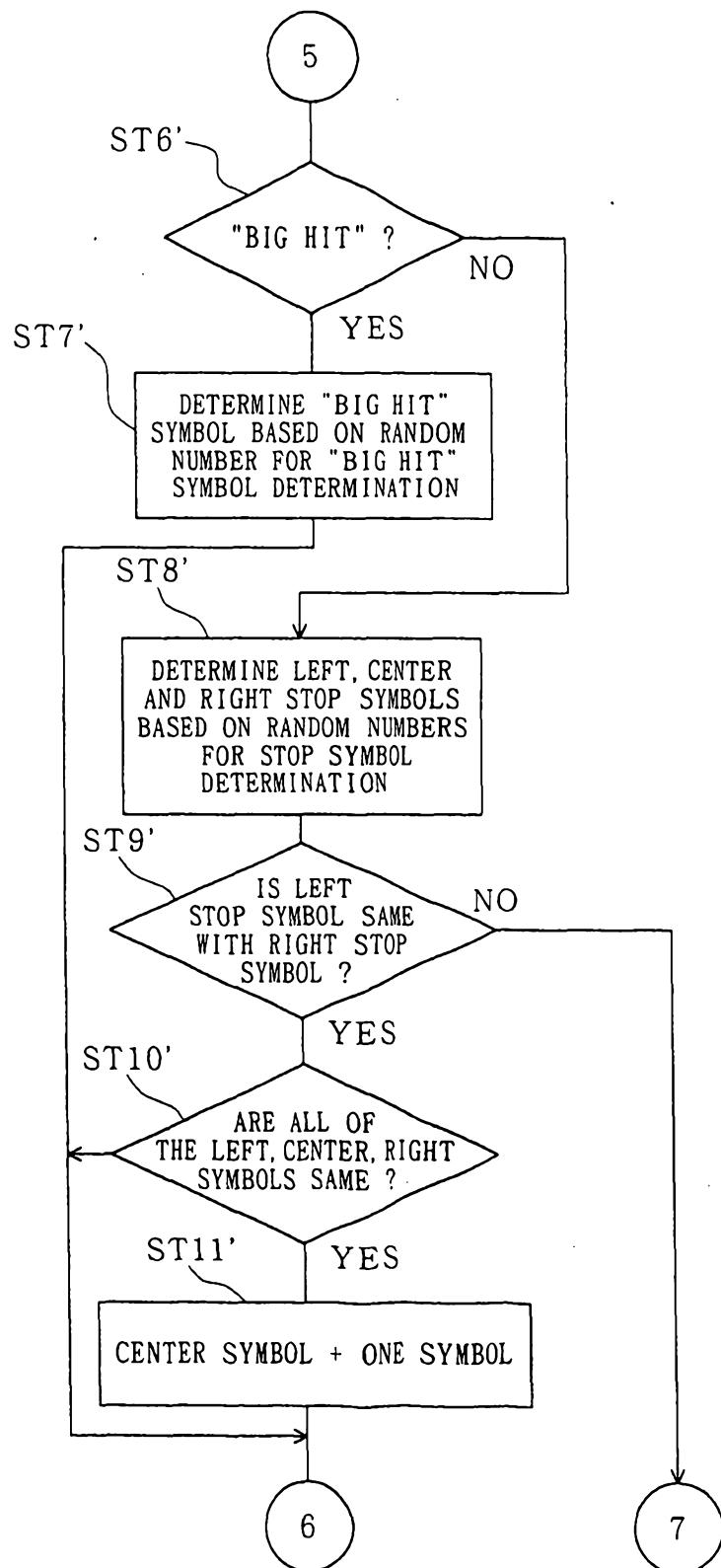
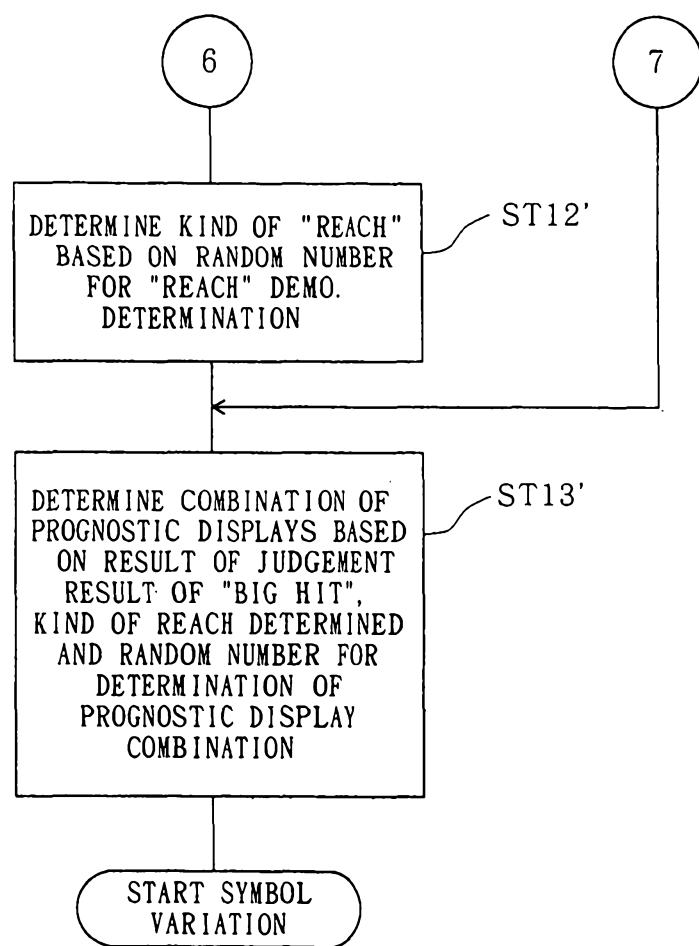


FIG. 44



## FIG. 45

KIND OF RANDOM NUMBER	RANDOM NUMBER VALUE
RANDOM NUMBER FOR JUDGEMENT OF "BIG HIT"	0~255
RANDOM NUMBER FOR "REACH" DEMO. DETERMINATION	0~139
RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION	0~39

## FIG. 46

(I) "BIG HIT + CLAPPING REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION
A	A	0
		1
		2
		3
		4
		5
		6
		7
		8
		9
		10
	B	11
	B	12
		13
		14
		15
B	C	16
		17
		18
		19
	A	20
		21
		22
		23
		24
		25
		26
		27
C	B	28
		29
		30
		31
	A	32
D	A	33
		34
	B	35
D	C	36
	D	37
		38
		39

## FIG. 47

(II) "BIG HIT + HARITE REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION
A	A	0
		1
	B	2
		3
		4
	C	5
		6
		7
		8
	D	9
B	A	10
		11
		12
		13
		14
		15
		16
		17
		18
		19
C	C	20
		21
	D	22
		23
	A	24
		25
		26
		27
		28
		29
		30
		31
D	B	32
		33
		34
		35
	C	36
	D	37
		38
		39

## FIG. 48

(III) "BIG HIT + ALL ROTATION REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION
A	A	0
		1
		2
		3
		4
		5
		6
		7
		8
		9
		10
		11
		12
		13
	B	14
		15
		16
		17
	D	18
B	A	19
		20
		21
		22
		23
		24
		25
		26
		27
		28
		29
		30
		31
	B	32
		33
		34
		35
		36
		37
		38
		39
C	A	

## FIG. 49

(IV) "LOSS + CLAPPING REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION
A	A	0
		1
	B	2
		3
	C	4
		5
		6
		7
		8
	D	9
B	A	10
		11
	B	12
		13
	C	14
		15
C	B	16
		17
		18
		19
	C	20
		21
		22
		23
		24
		25
		26
		27
		28
		29
D	B	30
		31
		32
	C	33
		34
	A	35
	B	36
	C	37
		38
		39

## FIG. 50

(V) "LOSS + HARITE REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION
A	B	0
		1
		2
		3
		4
		5
		6
		7
	C	8
		9
B	A	10
		11
		12
		13
		14
		15
		16
		17
	D	18
		19
		20
C	B	21
		22
		23
	C	24
		25
	D	26
D	A	27
		28
	A	29
		30
	B	31
		32
		33
		34
	D	35
		36
		37
		38
		39

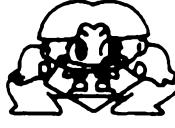
## FIG. 51

(VI) "LOSS + NO REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION
A	C	0 1
	D	2 3
	A	4
	C	5 6
B	D	7 8
	A	9
	B	10
	C	11 12 13
C	D	14 15
	A	16 17
	B	18 19 20 21 22 23
	C	24 25 26
D	D	27 28 29 30 31 32 33 34 35 36 37 38 39

## FIG. 52

## FACE SYMBOL DETERMINATION TABLE

PROGNOSTIC GROUP	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION	
	CASE OF EVEN RANDOM NUMBER	CASE OF ODD RANDOM NUMBER
A GROUP	FACE SYMBOL 1 	FACE SYMBOL 2 
B GROUP	FACE SYMBOL 3 	FACE SYMBOL 4 
C GROUP	FACE SYMBOL 5 	FACE SYMBOL 6 
D GROUP	FACE SYMBOL 7 	FACE SYMBOL 8 