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㉙ **Gaming and amusement machines.**

㉚ In a gaming or amusement machine of the so-called fruit machine type, and employing not mechanical reels but an array of images on an optically or electronically generated display, e.g. a video screen 1, the images are all mutually independent in their random behaviour and consequently two or more mutually independent games can be played simultaneously by selecting any or each of two or more separate pay-lines. They could be selected by push-buttons 6 or by separate coin input slots, and there could be separate pay-out receptacles for the separate lines. There could also be vertical as well as, or instead of, horizontal pay-lines.

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GAMING AND AMUSEMENT MACHINES

This invention relates to coin-freed or token-freed gaming and amusement machines of the general kind known as "fruit machines" or, in certain parts of the world, "poker machines". In the classic machine of this kind a number of mechanical drums or reels, usually three or four, carrying symbols are set in rotation together and then stopped at random, one after another. If one of a certain group of combinations ("winning combinations") of symbols is displayed in a given position (the "pay-line") by the reels a prize is awarded, or a credit, or the opportunity for a further game.

In the most widely used form of machine there are three reels which rotate in vertical planes side by side about a common axis and carry the symbols, for example twenty of them, on their peripheries. A window in the front face of the machine enables the player to see nine symbols, i.e. three on each reel. The pay-line is the horizontal line of symbols in the middle of the window. It has, however, also been proposed to allow pay-outs on the line above and/or the line below, in the so-called "Double Liner" or "Three Liner" machines. The player then has a chance of a prize if a winning combination appears on any of these three lines. In some cases he has to make a selection, before or during the game, of which line he wishes to count as the pay-line.

For example in our earlier British Patent Specification No. 1 348 309 we disclosed an arrangement which allowed a player to select two or more pay-lines, or each of two or more players to select one or more pay-lines prior to each play of the machine. Selector buttons, operated before the "start" button was pressed, enabled the player or players to select the lines to be

treated as pay-lines, and each selector button pressed deducted a corresponding credit from whatever credit was held in the machine. It was suggested that there could be separate pay-in coin slots associated with the separate pay-lines, in which case the selector buttons would be omitted.

In a recent proposal forming the subject of British Patent Application No. 2078419 filed in April 1981 and published in January 1982 there are five reels and up to nine separate pay-lines, each comprising a combination of three symbols on one of three horizontal lines. The number of pay-lines in operation in a given game is dependent on the number of coins inserted prior to the game.

In all these proposals, however, it should be noted that the multiple pay-lines are mutually inter-dependent, since the sequence of symbols on each reel is pre-set and so, for example, the presence of a bell symbol on the left-hand reel on the winning line is necessarily linked with the presence of a lemon on the line above and a plum on the line below. Thus the existence or otherwise of a winning combination on the principal pay-line is linked inexorably with whether or not there is one on the or each of the other possible pay-lines.

This means that, even though it is possible, in some known machines, for the player to increase his chances by putting in sufficient coins or tokens for the chance of an award on more than one pay-line, he is still only playing a single game.

In recent years proposals have been made for producing what is approximately the equivalent of a set of

rotary reels by projecting optical images of the symbols from behind onto a transparent matt screen that is viewed by the player; the symbols appear to roll in a manner that simulates the rotation of reels. With this so-called "Panoscope" arrangement the inter-dependence is still the same, as the behaviour simulates that of rotating reels which each carry a fixed sequence of symbols.

A still more recent proposal is that which forms the subject of our British Patent Specification No. 1 466 765. In this the symbols are produced electronically on a screen by scanning, for example on a cathode ray tube like a television screen. Here again, the image depicted simulates the appearance and movement of three (or more) mechanical reels moving vertically.

The aim of the present invention is to introduce increased flexibility into the manner of operation of a fruit machine or similar machine, allowing an increased utilisation of the machine.

According to the invention there is now proposed a gaming machine of the kind in which insertion of a coin or token, or the equivalent play unit, initiates, or releases for subsequent initiation by operation of a button, lever or the like, the playing of a game which comprises the display of a changing array of symbols in a display area, the change ceasing after a period to leave a static array of symbols which, if it represents a prize-winning combination, results in the award of a prize or a credit to the player of the machine, distinguished by the features that the display area carries an array of symbols containing the locations of at least two mutually independent potentially prize-winning combinations of symbols ("pay" lines), each of which is

capable of resulting in the award of a prize or credit, independently of the other combination or combinations, the changing of each symbol which takes part in the said combinations being independent of the changing of the other symbols taking part in the combinations, and that means are provided for associating the insertion of separate successive coins, tokens or play units, before initiation of a game, with corresponding said locations of the display area.

Such an arrangement cannot be achieved with mechanical reels, since these do not allow the pay-lines to be truly mutually independent. However, it can be achieved with a "Panoscope" optical display, or, better still, with images of symbols projected onto a television screen.

The invention lies in the appreciation of the fact that, where mechanical reels are no longer used, but separate images of symbols generated optically or electronically, it is possible for each random-generated symbol to be independent not only of the symbol adjacent to it on the left and/or right but also the ones above and below. Therefore it is possible to have two or more pay-lines on each of which the occurrence of a winning combination is truly independent of whether there is one or the other.

This leads to the important distinction over the various previous proposals, referred to above, that in the machine according to the invention two or more separate games are played simultaneously on a single machine and with a single play.

The invention will now be described by way of example with reference to the accompanying drawing,

which shows a general three-quarter front view of the machine.

The machine is of basically conventional appearance, and has a video screen 1 forming the display area, a coin input slot 2, a credit display 3, a "start" button 4 and a pay-out receptacle 5 from which the players can collect their winnings. The screen carries, in this particular example, images of three rows of three symbols, making nine in all. The symbols are of the conventional kind, comprising fruit such as lemons, cherries, plums and oranges and the usual special symbols such as bells. Each image changes, separately from all the eight others, in a random manner. Although it would be possible, at each image position, for a symbol to be suddenly wiped out as a whole and instantly replaced by a fresh symbol appearing as a whole, we preferably arrange that each symbol appears to roll downwards, to be replaced progressively by a fresh symbol rolling down from above, as if the symbols were carried on the periphery of a miniature reel specific to that image position.

On the left of the screen there are three push-buttons 6, each aligned with one of the horizontal rows of images. Pressing of one of these buttons selects the associated line as a pay-line, and at the same time illuminates an associated lamp, which could be formed by the button itself. It also automatically deducts one game credit from the total shown on the credit display 3. Anything from one to three pay-lines can therefore be selected before the start-button 4 is pressed, and it will be noted that they can be selected in any order, and by one player or by three separate players. As soon as the start button is pressed, the images in all nine positions change at random and independently in

the manner described, and, also at random, they cease changing and ultimately all display a fixed symbol. If there is a winning combination on any of the three horizontal lines which has been previously selected as a pay-line there will be an appropriate pay-out into the receptacle 5, or credits will be added to the credit display 3. If all three selector buttons 6 have been pressed, three separate games will thus have been played simultaneously, any or all of which could result in a win.

In a modification there could be three separate pay-out receptacles 5, one associated with each row, and/or there could be separate credit displays 3, so that each of three players can keep a separate account of his winnings. There could even be three separate coin slots, each associated with a separate row, in which case the buttons 6 could be omitted since the insertion of a coin in a given slot would automatically be taken as selecting the associated row.

To the right of the screen 1 there are three "hold" buttons 7. These behave in a manner similar to conventional "hold" buttons on a mechanical reel machine but whereas conventional "hold" buttons act on a given reel, and therefore by analogy on the whole of a given vertical column of symbols, the buttons act instead on the horizontal rows. Moreover, it is arranged that, instead of holding the symbols in the entire row fixed during a subsequent game, they only hold fixed those two symbols in the row, if any, which are identical at the end of the previous game; then in the subsequent game these two symbols remain fixed and all the other seven change in a random manner. If, at the end of the previous game, no two symbols in a given row were the same, the hold button associated with that row has no

effect; its use only arises when two are the same and the "hold" facility gives the user the chance of trying to obtain the same symbol in the remaining image position on that row. As in conventional machines, the "hold" facility may be offered at random, indicated by illumination of the "hold" button or of an adjacent lamp.

In a further development of the invention it would be possible to have pay-lines which are vertical instead of, or in addition to, the horizontal pay-lines. This is again something that is offered by the realisation that each of the nine image symbols is independent of the other eight. Taken together with the possibility of diagonal pay-lines this gives a total possibility of up to eight different pay-lines simultaneously, any one or more of which can be selected at will and in any order; however it must be said that all eight are not truly independent of one another since some of the pay-lines have a symbol in common with some of the others.

It will be understood, of course, that the invention is not limited to three rows of three symbols; there could be three rows of four, or four rows of three, or four rows of four, or indeed any convenient array that allows the existence of at least two mutually independent pay-lines to be selected. Also instead of a video screen, separate Panoscope optical projectors could be used to project the individual images onto the display area. Also other forms of video screen, for example involving a matrix of electro-luminescent elements, could be used.

It will also be understood that instead of fruit symbols, images of other things, e.g. playing cards or dice could be used.



The invention lies in the choice of the manner of operation of the machine. With this disclosed above and in the claims which follow, it is believed that the manner in which it is to be put into effect will be readily understood by a person well versed in current fruit machine technology and in the generation of video images as in current video fruit machines of the kind which form the subject of our earlier British Patent No. 1 466 765. It is therefore not necessary, for putting the invention into practice, for the present specification to include detailed or even block circuit diagrams.

CLAIMS

1. A gaming or amusement machine of the kind in which insertion of a coin or token, or the equivalent play unit, initiates, or releases for subsequent initiation by operation of a button, lever or the like, the playing of a game which comprises the display of a changing array of symbols in a display area, the change ceasing after a period to leave a static array of symbols which, if it represents a prize-winning combination, results in the award of a prize or a credit to the player of the machine, distinguished by the features that the display area carries an array of symbols containing the locations of at least two mutually independent potentially prize-winning combinations of symbols ("pay" lines), each of which is capable of resulting in the award of a prize or credit, independently of the other combination or combinations, the changing of each symbol which takes part in the said combinations being independent of the change of the other symbols taking part in the combinations, and that means are provided for associating the insertion of separate successive coins tokens or play units, before initiation of a game, with corresponding said locations of the display area.

2. A machine according to claim 1 in which the display area comprises a video screen.

3. A machine according to claim 1 in which the display area comprises an array of Panoscope optical projectors.

4. A machine according to any one of claims 1 to 3 in which the display area comprises an array of at least three rows of at least three columns of images, and in which the said selected locations comprise separate rows of images.

5. A machine according to any one of claims 1 to 4 in which the means for associating certain coins, tokens or play units with corresponding locations comprise selector buttons aligned with the corresponding locations and, on operation, deducting a game credit from a stored credit total.

6. A machine according to any one of claims 1 to 4 in which the means for associating certain coins or tokens with corresponding locations comprise separate coin or token input slots.

7. A machine according to any one of claims 1 to 6 including "hold" facilities which, on completion of a play of the machine, allow the holding, during a subsequent play, in certain associated locations of potential winning combinations, of any two symbols in that location which are identical.

