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71 Applicant: **ARTHUR EDWARD THOMAS LIMITED**  
26 Mill Race Close  
GB-Lisvane, Cardiff, Glamorgan(GB)

72 Inventor: **Thomas, Arthur Edward**  
26 Mill Race Close Lisvane  
Cardiff Glamorgan South Wales(GB)

74 Representative: **Burke, Steven David et al,**  
R.G.C. Jenkins & Co. 12-15, Fetter Lane  
London EC4A 1PL(GB)

54 **Gaming machines.**

57 A gaming machine (2) allows a user to place a stake and play a main game, e.g. using a set of reels (10), which may result in one of several win values. The gaming machine (2) is also operable in a stake gamble mode, in which a mechanism, such as a further reel (30), is used to gamble the user's stake before the results of the main game are made known to the user, and preferably before the main game is started. If the gambling operation is successful, the possible win values are increased. In a preferred embodiment, if the gambling operation is unsuccessful a consolation feature is provided.

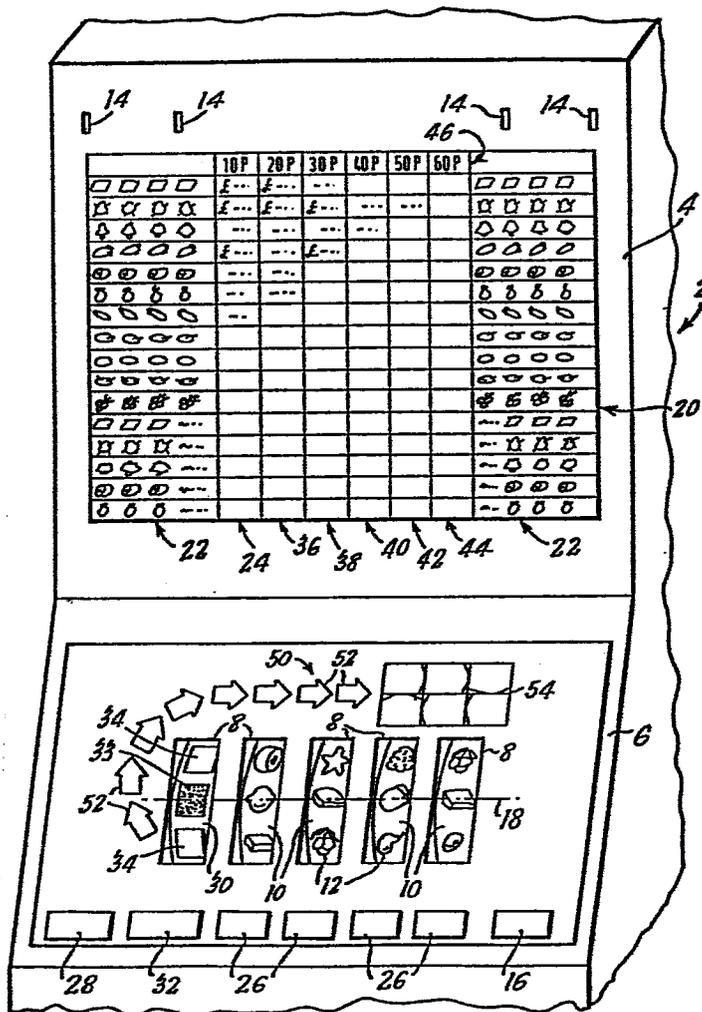


FIG 1

GAMING MACHINES

This invention relates to gaming machines, which term is used herein to refer to any device by means of which a user can play a game and, depending upon the results of the game, obtain a credit value. The machine preferably pays out cash and/or tokens in an amount corresponding to the credit value.

In the art, those machines which pay out only cash are sometimes referred to as "gaming machines". Herein, however, the term gaming machine is used in a generic sense, as the invention is applicable also to other types of machines such as those known as "amusement with prize" machines, which pay out both cash and tokens. The invention is particularly but not exclusively applicable to machines known as "fruit machines", which incorporate symbol-carrying reels which are spun during the playing of a game so as to alter in a random or pseudo-random manner the combination of symbols which can be viewed by the user. The invention is also applicable to machines which incorporate other forms of display, such as a panel carrying symbols which are selectively illuminated during the playing of a game, or a video display screen

which displays simulated reels or other symbols such as playing cards. Patent Specification GB-A-2,117,155, for example, describes a machine to which the present invention can be applied.

5           Generally, when playing these types of machines, a game can result in any of several different types of wins, and the value of each win, i.e. the credit accorded to the user on achieving the win, depends upon which of the winning results he has achieved. The attractiveness

of such machines to users depends to a large extent on the values of the highest wins which can be achieved, and the number of different types of wins which can result in such high values, for a given stake. In an attempt to  
5 increase their attractiveness, fruit machines in the past have been provided with a "gamble" feature whereby after the user has achieved a winning result using the machine, he can select either to collect his winnings, or to gamble them, or part of them, which could result in his  
10 winnings being either increased or decreased, or lost entirely. This feature has proved popular, but is of limited value because it is found that users are generally unwilling to gamble high-value wins, so that in practice the gamble feature does not provide any  
15 substantial increase in the maximum win value which a user would hope to receive.

According to one aspect of the present invention, there is provided a gaming machine by means of which a user can place a stake and play a game, the machine being  
20 operable to credit to the user a win value if a winning game result is achieved, wherein the machine is also selectively operable to carry out an additional gambling operation on the user's stake, and wherein the win value  
for said winning game result is dependent on whether or  
25 not a winning stake gambling operation has taken place

before the user is informed of the winning game result.

Preferably, the stake gambling operation is carried out in response to instructions from the user, and for this purpose the machine preferably has means such as a push-button for allowing the user to instruct the machine to enter a stake gamble mode. By arranging for the user to have the option of entering the stake gamble mode before he is informed of the game result, the user is no longer deterred from entering the stake gamble mode by having already accumulated a high-value win which could be lost by entering this mode.

However, it is not absolutely essential that the stake gambling operation be conducted in response to instructions from the user. The operation could instead take place on random or pseudo-random occasions.

The machine may have a single display device (such as a plurality of reels) for use in both the game and the stake gambling operation, the device being arranged to display different types of symbols for representing winning game results on the one hand and winning stake gambling operations on the other hand. Alternatively, there may be a first display device for the game, and a separate display device for use in the stake gambling operation.

Preferably, the machine is arranged such that the playing of a game can normally result in a user achieving any of a predetermined set of win values, for respective, different winning game results, and at least some and preferably all of these win values are increased if the user selects the gamble mode and achieves a winning stake gambling operation. Thus, achieving the appropriate result in the gamble mode may be equivalent to increasing the stake of the game played by the machine, with a consequent increase in the potential win values. This effect will therefore be referred to herein as a "stake increase", although it will be appreciated that not all the potential win values need be affected by such a stake increase, and those that are affected need not be altered in a consistent manner.

Although the following description will refer to an arrangement in which a stake increase can be achieved in the gamble mode, it will be appreciated that the gamble mode could additionally be used for other purposes. For example, an appropriate result in the gamble mode may provide the user with one or more free games. Alternatively, the free games could be provided in addition to the stake increase, or the user may have the option of selecting either a stake increase or one or more free games.

Although it would be possible for the machine to be arranged such that the user can select the gamble mode at any time until the results of the game are made known to the user, it is preferred that the arrangement be such that the user has to make his decision as to whether or not to use the gamble mode before the main game is started. Preferably also the user is made aware of the results of the gamble mode before the main game is started. This is particularly desirable in a preferred embodiment of the invention, in which the user can, if he wishes, successively select the gamble mode, and in which if the appropriate results are successively produced, successive stake increases are achieved.

One convenient arrangement for achieving the features referred to above is to arrange for the machine to offer the user, at the beginning of a play, the option of selecting the gamble mode or instead initiating the game. If the user decides to initiate the game, any win values which are achieved are based on a predetermined fixed stake, of for example 10p in U.K. currency. If instead the user selects the gamble mode and achieves the appropriate result, he is then again offered the option of selecting a gamble mode or initiating the game, and if on this occasion he selects the game any win values are calculated on the basis of an increased stake of, e.g.

20p. This procedure can be continued until a predetermined maximum effective stake is reached.

If the machine is arranged to allow successive gamble options, it is preferably arranged so that the effective stake increases in a regular manner if the gamble mode repeatedly results in successful stake gambling operations. One possibility would be for the effective stake to be increased by a fixed value each time. Another possibility would be for the stake to increase by a fixed factor each time, e.g. for each effective stake to be double the preceding one.

It is also possible for the machine to be arranged such that there can be different winning stake gambling operations, each resulting in a different effective stake increase.

It is a further preferred feature of the invention that if the gamble mode does not produce a result which is effective to increase a potential win value, then further opportunity to obtain a win is provided. This can be regarded as a consolation feature, so that the game does not necessarily result in the user losing every time he fails to increase his effective stake. The consolation feature can be provided every time the user fails to achieve the correct type of result in the gamble mode, or only at certain times which may be selected

randomly or pseudo-randomly. For example, the gamble feature may be capable of producing any of several different results, only some of which are effective to increase the stake, the other results having other effects. One result may be that the user is allowed to initiate the game using his original or a reduced stake. In a fruit machine type game, another result might cause one or more of the reels to spin, or might allow the user to index or "nudge" one or more of the reels. The user would then stand a chance of obtaining a win value dependent upon the final positions of the reels. These features may be provided in dependence upon the symbols displayed by the reels at the time the gamble mode ends. For example, the gamble mode might result in the display of a symbol which corresponds in some manner to a symbol displayed by a reel, and in this case that reel, and only that reel, is spun or allowed to be nudged.

In an alternative embodiment, the consolation feature is of an "accumulative" type, whereby the user needs to obtain the consolation feature several times before he can obtain a further opportunity to win, or alternatively whereby the likelihood of obtaining a further opportunity increases with the number of times the consolation feature is provided. Thus, if the user repeatedly fails to increase his stake using the gamble

mode, he becomes more likely to obtain a win using the consolation feature. This increases the interest in the game, particularly if the arrangement is such that the desired outcome of the gamble mode varies depending upon  
5 what has happened in previous plays, so that in some circumstances the user may desire that his stake be increased but in other circumstances he may desire that

the consolation feature be provided.

When an "accumulative" type of consolation feature is provided, it is desirable that, if the gamble mode results in a stake increase, the condition of the machine be cleared so that the user has to start afresh in accumulating consolation features in order to increase the possibility of obtaining a win in this manner. Alternatively, there may simply be a decrease in the number of consolation features effectively accumulated so far.

The machine may be arranged so that the value of the consolation feature increases in accordance with the number of successive preceding occasions on which a user has successfully increased his stake. For example, if an "accumulative" type of consolation feature is provided, a win could be achieved by accumulating a "consolation count" of, say, twelve. The machine could then be arranged so that, if the user successfully obtains a single stake increase and then unsuccessfully uses the gamble mode, the consolation count is increased by two. If, on the other hand, the user successfully increases his stake on four successive occasions and then makes an unsuccessful attempt, the consolation count is increased by four.

It is preferred that the machine have a display to indicate the possible win values which can be achieved depending upon whether or not the user has been able to increase his effective stake using the gamble mode. This  
5 may conveniently be in the form of a table which, for each possible winning result, lists those win values which can be achieved at the various possible effective stakes.

An arrangement embodying the invention will now be  
10 described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a gaming machine in accordance with the invention, and

Figure 2 is a block diagram of the circuitry of the  
15 machine.

The specific embodiment to be described is a version of the well-known "fruit machine". Many examples of such machines are readily available, and the way in which they operate is well-known to those familiar with the art.

20 The machine 2 has a vertical facia 4 and an inclined facia 6. The facia 6 has five apertures 8, four of which reveal portions of the circumferences of four reels 10 which are mounted for rotation about a common

horizontal axis. The reels carry symbols such as those shown at 12 on their peripheries, some of the symbols being visible through the apertures 8.

The machine can be played by inserting a coin or  
5 a token through an appropriate one of the slots 14.

After the user has inserted a coin or token, a "permitted game" count is incremented by an amount dependent on the value of the inserted coin or token. This indicates the number of games the user can play  
10 before a further coin or token has to be inserted.

The user may then press a start button 16. This causes the four reels 10 to spin. This is preferably achieved by using a stepper motor for each reel. The reels then stop spinning, their final positions being  
15 determined in a random or pseudo-random manner. If the reels are positioned such that certain symbols are aligned along a win line 18, the user is credited with a win value, which in this machine results in the paying out of coins in an amount corresponding to the win value.

20 The vertical facia 4 carries a display 20 which contains columns 22 in which are displayed the possible winning combinations of symbols. There is also a column 24 which displays the possible win values associated with each winning combination when the game is played in the  
25 manner described above.

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Occasionally, a "hold" feature is provided whereby the user is given the opportunity to press one or more hold buttons 26, which will prevent, during the subsequent reel-spinning operation, the spinning of each reel associated with a hold button which has been pressed. There is a cancel button 28 for cancelling the selection of reels using the hold buttons to permit a different selection before the reel-spinning operation.

The operation of the machine as described so far is conventional.

The machine has a further reel 30 which is referred to herein as the stake gamble reel, which is mounted for rotation about the same axis as the reels 10, and part of which can be seen through one of the apertures 8. The reel 30 could instead be mounted about a different axis of rotation, and indeed it does not even have to be in proximity to the reels 10.

The reel 30 is operated, as will be described, by a "stake gamble" button 32.

Assuming that a coin or token has been inserted, then to begin a play the machine causes flashing lights to illuminate the start button 16 and the stake gamble button 32, to indicate to the user that he has the choice of pressing the start button 16, which would cause a game to be played in the manner described above, or pressing the gamble button 32.

If he chooses the latter option, the reel 30 is spun and then stopped so that its final position is determined in a random or pseudo-random manner. The reel 30 carries about its periphery a number of "win" symbols 33, and a number of "non-win" symbols 34. Assuming that after the reel 30 stops spinning, a win symbol 33 is aligned with the win line 18, the machine 2 again causes the start button 16 and stake gamble button 32 to be illuminated by flashing lights.

10           The user may then press the start button 16 to cause a game to be played by the spinning of the reels 10. If as a result of this the reels come to a stop with a winning combination of symbols on the win line 18, then the value paid out by the machine 2 will be that indicated  
15 in a column 36 of the display 20, instead of the corresponding value in the column 24. In this particular embodiment, the values in the column 36 are all twice

the corresponding values in the column 24. Assuming that the fixed, normal stake for the machine 2 is 10p, this means that the initial operation of the stake gamble reel 30 and the resulting win achieved during that operation has caused the effective stake to be increased from 10p to 20p.

After the operation of the stake gamble reel 30, if the user had elected to operate the stake gamble button 32 again, instead of the start button 16, the stake gamble reel 30 would have spun again. If, again, this results in a win symbol being aligned with the win line 18, then the user is again presented with the option of pressing the button 32 or the button 16. If he presses the button 16 and achieves a winning combination of symbols on the reels 10, the win value is selected from a column 38, in which the values are three times those in the column 24 so that the effective stake for that game was 30p.

If the user repeatedly obtains a "win" using the stake gamble reel 30, he can repeatedly choose to spin the stake gamble reel 30 again instead of pressing the start button 16 to commence the main game. Each time he obtains a win on the stake gamble reel 30, his effective stake is increased. The possible win values for effective stakes of 40p, 50p and 60p are shown in columns

40, 42 and 44, respectively. If the user achieves an effective stake value of 60p, he is no longer permitted to spin the stake gamble reel 30, and must instead press the start button 16 to commence the main game.

5           In order to indicate to the user his progress in using the stake gamble reel 30, the machine may be arranged to illuminate either the present effective stake value, the possible values being shown in a row 46 of the display 20, and/or the possible win values for the  
10 present effective stake, which are listed in a respective one of the columns 24, 36, 38, 40, 42 and 44.

          If the stake gamble reel 30 is spun and a non-winning symbol comes into alignment with the win line 18 at the end of the spinning operation, the machine could  
15 be arranged simply to terminate that play, so that the user loses his stake.

          In the present embodiment, however, a consolation feature is provided. The machine is provided with a consolation feature display 50 which comprises a line of  
20 arrows 52, each of which can be selectively illuminated, and a random win value display 54.

          The arrows 52 are illuminated in succession starting with that furthestmost from the random win value display 54. One further arrow is illuminated each time the spinning  
25 of the stake gamble reel 30 results in a non-winning symbol

being in alignment with the win line 18. Thus, if this happens eight times in succession all the arrows 52 will be illuminated, and this will initiate a consolation prize feature, whereby various portions of the random win display 54 are illuminated repeatedly in succession for a random or pseudo-random period, and the user is then awarded either one of several win values or a free game or an opportunity to "nudge" one or more reels depending on which portion of the display 54 remains illuminated at the end of this operation. Then, the machine ceases to illuminate all the arrows 52 so that the user must start again to accumulate illuminated arrows, by spinning the stake gamble reel 30 and obtaining on the win line a non-winning symbol, before the consolation win is awarded.

If, at a stage when one or more of the arrows 52 is illuminated, the stake gamble reel 30 is spun and a winning symbol comes into alignment with the win line 18, then all of the illuminated arrows cease to be illuminated (or in an alternative embodiment the last arrow to be illuminated ceases to be illuminated) so that a greater number of spins of the reel 30 resulting in non-winning symbols on the win line 18 must be accumulated before the consolation win is provided.

In a modified embodiment, the number of arrows 52 which are illuminated if a non-winning symbol 34 appears on the win line depends upon the present effective stake value. Thus, a single further arrow may be illuminated  
5 if the present effective stake is 10p, and four further arrows illuminated if the present effective stake is 40p.

Figure 2 shows one possible construction of the circuitry of the machine of Figure 1. In this construction the machine is controlled by a micro-processor 100, but clearly other arrangements, e.g. using  
10 hard-wired logic, are possible.

The microprocessor 100 is connected to data and address buses 102 and 104, respectively. The way in which the microprocessor 100 operates is determined by a  
15 program stored in a non-volatile memory 106, such as an EPROM, connected to the data and address buses 102 and 104.

The data and address buses 102 and 104 are also connected to a reel mechanism 108, which incorporates the  
20 reels 10 and 30 referred to above.

By applying appropriate addresses on the address bus 104, and by transmitting appropriate data on the data bus 102, the microprocessor 100 can control the number of pulses delivered to the driver motors of each of the  
25 reels and thereby cause the reels to rotate by a

predetermined amount. Also the positions of the reels can be determined by data delivered to the data bus 102 by the reel mechanism 108.

5 The address bus 104 is connected to a device 116 for strobing the inputs 118 of the machine 2. The inputs 118 include the above-mentioned switches 16, 26, 28 and 32, and connections to a coin and token validator which generates signals indicating the value of inserted coins and tokens.

10 Upon actuation of one of the inputs 118, an input device 120 delivers, via an input buffer 122, data to the bus 102 to indicate to the microprocessor 100 that a switch has been actuated or a coin or token has been inserted.

15 A random access memory 124 coupled to the address buses 102 and 104 is operable, during use, to store such information as the positions of the reels 10 and the amount of accumulated credit.

20 An output decode device 130 is coupled to the address bus 104 and transmits data received from the address bus 102 via a data buffer 132 to output device 134, including solenoids which are actuated to dispense coins and tokens, lamps on the machine to indicate different modes of operation, and the displays 20 and 50.

A sound generator 136 is coupled to the buses 102 and 104 so that the microprocessor can cause the generator to generate audio signals which are delivered to an amplifier 138 and then to a speaker (not shown).

5           An address decoder 140 is coupled to the address bus 104, and is arranged to enable the devices selected by the microprocessor 100 for transmission or reception of data by means of enable lines (not shown).

10           The operation and construction of the above arrangement are described merely by way of example, and many other alternatives are possible. For example, there may be a plurality of different non-winning symbols on the reel 30, and each may be associated with a different type of symbol on the reels 10. If the reel 30 is spun, and a  
15 non-winning symbol comes into alignment with the win line 18, this could cause the spinning of any of the reels 10 which have corresponding symbols on the win line 18. Alternatively, the machine could allow the user to "nudge", i.e. index any such reel so that an adjacent  
20 symbol comes into alignment with the win line 18.

          In the arrangement described above, the effective stake was increased by 10p each time the reel 30 was spun and a win symbol came into alignment with the win line 18. Instead, the effective stake could be arranged to  
25 double each time.

Alternatively, the win symbols 33 may bear different markings indicating respective amounts by which the effective stake should be increased, so that the stake increase will depend upon which of the win symbols comes  
5 into alignment with the win line 18.

Further, there need not be any consistent relationship between the possible stake increases for different win results. For example, the increase in the effective stake may apply only to some of the winning combinations  
10 of symbols, the effective stake may change by different amounts for different winning combinations, and the number of winning combinations to which an increase in the effective stake applies may depend upon the level of the effective stake. For example, there may be an  
15 absolute maximum win value, and it is possible that certain winning combinations will provide this win value irrespective of the effective stake.

In the embodiment described above, the user always had the option of pressing the stake gamble button 32 or  
20 the start button 16. In an alternative embodiment, the stake gamble operation is such that on certain occasions, or possibly on all occasions, the user is not given any option, and instead the spinning of the stake gamble reel  
30 is essential. This may happen on random or pseudo-  
25 random occasions, or predetermined occasions. For

example, if at the end of a game a particular symbol or combination of symbols is displayed by the reels 10, the user may be required at the beginning of the next game to spin the stake gamble reel 30, any succeeding spins being optional. The second game could be provided free, in which case the first of the two games and the spinning of the stake gamble reel 30 would together constitute a stake gambling operation to gamble the initially-placed stake.

10 If desired, an additional, conventional "gamble" mode could be provided, whereby the user may be allowed to perform a gambling operation after he has achieved a win by spinning the reels 10, in an attempt to increase the win value. This additional gamble mode could be carried out using the same reel 30 as is used in the stake gamble mode.

20 In the above embodiment, the stake gamble operation was carried out using a reel. However, this is not necessary; instead, the operation could be carried out using a rotating disc, or a completely different form of display such as sequentially flashing lights, a video display, etc.

25 Furthermore, although such arrangements use for the stake gambling operation a separate display device from that used for the game, this is not essential. For

example, referring again to the accompanying drawing, the reel 30 can be omitted and, for example, the left-most of the reels 10 used instead for the stake gamble operation. In such an arrangement, the left-most reel 10 would be  
5 spun in response to the user pressing the stake gamble button 32. The reel would preferably carry at least one special symbol associated with the stake gambling operation which is separate from or superimposed on symbols used for the ordinary game. If one of these  
10 special symbols is aligned with the win line 18 following the spinning of the reel, a winning stake gambling operation is achieved.

As a development of this idea, the machine could be arranged to use more than one of the reels 10 for the  
15 stake gamble operation. The user may be provided with one or more further stake gamble buttons so that he can select different gambling options. One option may result in a stake increase of, say, 10p if and only if the left-most reel 10 displays a special symbol on the win line 18  
20 following the spinning operation. Another option may result in a stake increase of, say, 20p if and only if the two left-most reels 10 both display special symbols on the win line 18 following the spinning operation.

As a modification of this embodiment, the user's  
25 option of selecting a stake gamble operation can be

omitted, in which case the stake gamble button(s) would be unnecessary. In this case, the machine would operate conventionally until a special symbol appeared on the winning line. This would automatically result in a stake  
5 increase which would be applied to the next game, which could be provided free.

The invention is applicable to any type of gaming machine, irrespective of whether the machine pays out cash and/or tokens, and indeed is applicable to a machine  
10 in which no paying out operation occurs at all, and instead a winner simply accumulates a credit count.

## CLAIMS:

1. A gaming machine by means of which a user can place a stake and play a game, the machine being operable to credit to the user a win value if a winning game result is achieved, wherein the machine is also selectively operable to carry out an additional gambling operation on the user's stake, and wherein the win value for said winning game result is dependent on whether or not a winning stake gambling operation has taken place before the user is informed of the winning game result.
- 5
- 10
2. A machine as claimed in claim 1, including means whereby a user can instruct the machine to carry out the stake gambling operation.
- 15
3. A machine as claimed in claim 1 or claim 2, the machine being selectively operable to carry out a plurality of successive stake gambling operations, the win value for said winning game result being dependent upon how many winning stake gambling operations have taken place before the user is informed of the winning game result.
- 20

4. A machine as claimed in any preceding claim, wherein the machine is operable to credit to the user different win values in dependence on which of a plurality of different winning game results is achieved, each win value being dependent upon whether a winning stake gambling operation has taken place before the user is informed of the respective winning game result.

5. A machine as claimed in claim 4, the machine being operable to display each of the win values which can be credited to the user in response to achieving each of the winning game results.

6. A machine as claimed in any preceding claim, wherein the machine is arranged to inform the user of the results of the stake gambling operation before commencing the game.

7. A machine as claimed in any preceding claim, the machine being arranged to inform the user of winning game results by displaying symbols of a first type, and being operable to inform the user of a winning stake gamble operation by displaying a symbol of a second type.

8. A machine as claimed in claim 7, including a common display device which is operated for the playing of the game and for the stake gambling operation and which is arranged to display both types of symbols.

5

9. A machine as claimed in claim 7, including a first display device operated for the playing of the game for displaying the first type of symbols, and a second display device which is operated for the stake gambling operation and which displays the second type of symbols.

10

10. A machine as claimed in any preceding claim, the machine being operable to inhibit the achievement of a winning game result in response to a non-winning stake gambling operation.

15

11. A machine as claimed in claim 10, wherein the machine is operable to inhibit the playing of a game in response to the non-winning stake gamble operation.

20

12. A machine as claimed in claim 10 or 11, wherein the machine is operable to permit a further opportunity to obtain a win value in response to a non-winning stake gambling operation.

13. A machine as claimed in claim 12, wherein the further opportunity is provided in response to a plurality of non-winning stake gambling operations.

14. A machine as claimed in any preceding claim, having symbol-bearing reels which are spun for the playing of a game.



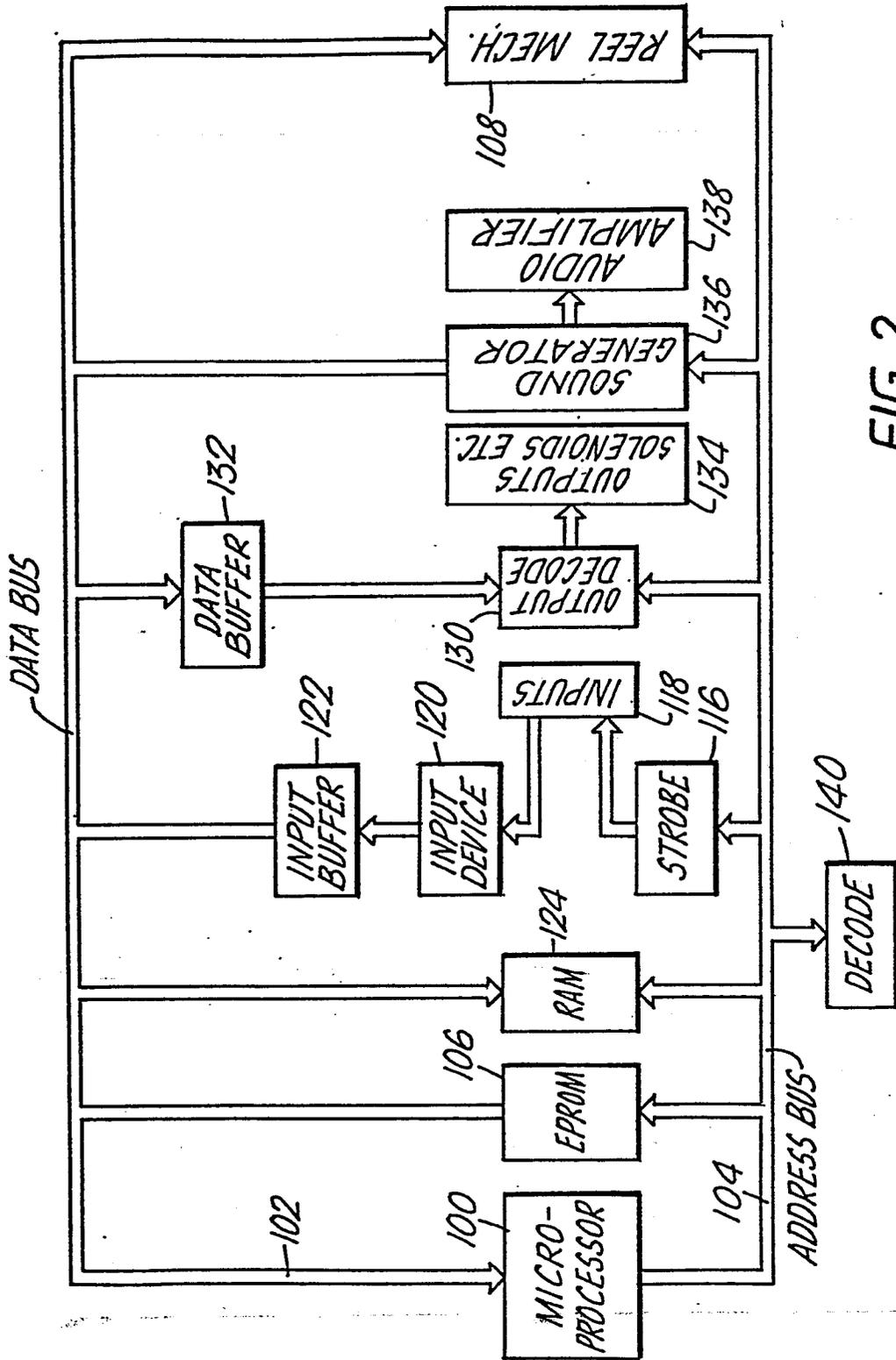


FIG. 2.