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(54) **Display device for game machine**

(57) A game machine, such as a fruit machine, has a cabinet 1, upon which is located a display unit 15 comprising a globular transparent dome 16, within which is mounted a screen 21, on an arm 20 which is driven for rotation by a motor 18. The screen 21 is adapted to thus to move repeatedly across the unit 15 and can display a range of game-play information.

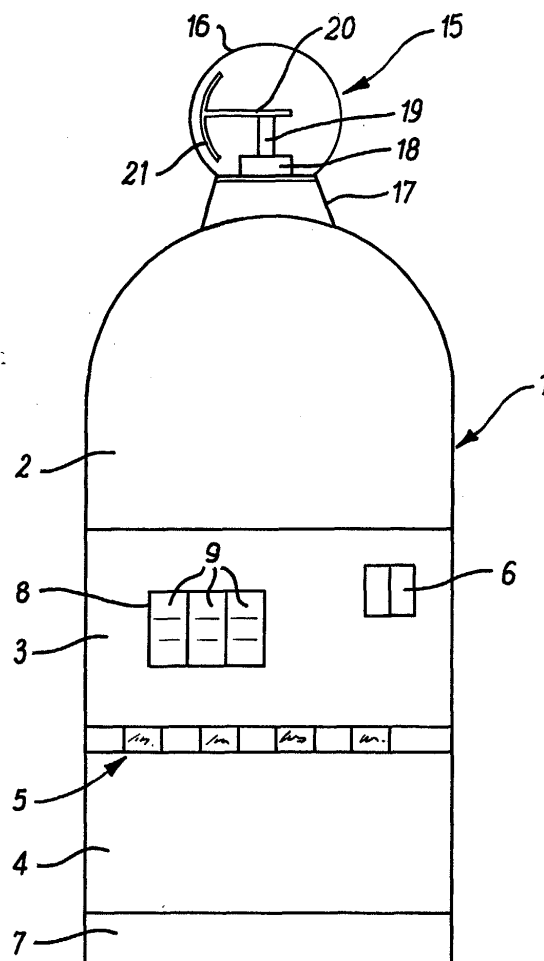


FIG. 1

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Description

[0001] This invention relates to a display device for a coin-operated machine for playing a game. References to 'coin' are intended also to cover other means of supplying monetary value.

[0002] Coin-operated gaming machines of the kind commonly referred to as 'fruit machines' or 'slot machines' typically have symbol-bearing rotatable reels which rotate within a machine cabinet and then come to rest with a selected combination of symbols displayed through a window in the cabinet, a prize being paid out to the player in the event that the selected combination is one of the winning combinations listed on a display panel on the front of the cabinet.

[0003] With such machines there is a requirement to display to players a range of fixed and changeable information concerning game-play operation of the machine. This can be done by use of printing on the cabinet display panel in combination with controlled back illumination and also by use of incorporated video screens and alphanumeric digital display devices.

[0004] However known such information display devices can lack versatility and/or player appeal.

[0005] An object of the present invention is to provide an improved display device capable of enhanced versatility and player appeal.

[0006] According to the invention therefore there is provided a coin-operated machine for playing games, said machine having a cabinet housing, an operating system, and a display device connected to and controlled by the operating system for displaying information relating to games, wherein the display device comprises a unit external to the cabinet having a digital display screen which is movable repeatedly across a display region of the unit.

[0007] With this arrangement, by appropriate control of the digital display screen it is possible to display a range of game-play information, and the movement of the screen can produce an interesting prominent display of the game-play information.

[0008] Accordingly, the display device can provide a versatile and appealing means of displaying game-play information.

[0009] The screen may be movable repeatedly across the display region by motion backwards and forwards or around a closed path. In a preferred embodiment the screen rotates through a closed circular path, particularly about an upright axis.

[0010] Preferably the screen is movable with sufficient speed to give persistence of vision i.e. such that information displayed on the moving screen appears to be static.

[0011] Movement of the screen may be effected by means of an electric motor or any other suitable device.

[0012] The screen may be of any suitable shape. In a particularly preferred embodiment it is spherically curved and preferably it is rotatable about its centre of

curvature, or about an axis through such centre of curvature, so as to move through a spherical or part spherical display region.

[0013] The display screen may be an LED or LCD or similar screen.

[0014] The display device unit preferably includes a transparent panel or enclosure behind which the screen moves. Especially in the case of spherical or part spherical movement this may comprise a transparent spherical dome.

[0015] The unit may be fixed on top of the game machine cabinet or may be mounted in relation to the cabinet or separately therefrom in any other suitable manner.

[0016] The machine may be of the fruit machine or slot machine kind having reels, as described above, although the machine may alternatively be of any other suitable kind.

[0017] The information displayed with the display device may be of any suitable nature and thus may consist of any one or more of: details of game-play winning outcomes, such as a chart or list of symbol combinations which result in wins; details of special wins such as jackpots, bonuses, etc; information concerning current status of game-play, such as value of game-play credit, value of accumulated prizes, available special game play features, outcome of the current games; machine advertising or notification information, such as the name of the machine, etc.

[0018] The displayed information may change so that different kinds of information can be displayed on different occasions or at different stages in game-play.

[0019] The invention will now be described further by way of example only and with reference to the accompanying drawings in which:-

Figure 1 is a diagrammatic front elevation of one form of a machine according to the invention; and

Figure 2 is a diagrammatic representation of the control system of the machine.

[0020] Referring to Figure 1 this shows a game machine having a cabinet 1 with upper, middle and lower front panels, 2, 3, 4 and a row of push buttons 5 on a forwardly projecting surface between the middle and lower panels 3, 4.

[0021] In one upper corner of the middle panel 3 there is a coin slot 6 and beneath the lower panel 4 there is a pay-out opening 7.

[0022] Within the middle panel 3 there is a window 8 through which can be seen three side-by-side reels 9 mounted for independent rotation about a common horizontal axis within the cabinet!

[0023] Within the cabinet 1 motors 10 for driving the reels 9, a coin mechanism 11 to receive coins from the slot 6, and a pay-out mechanism 12 to deliver awarded prize coins to the payout opening 7, are connected to a

microprocessor control device 13 of the machine operating system.

[0024] The panels 2, 3, 4 are light-transmitting printed glass panels which have regions which can be selectively back illuminated with lamps 14 which are also connected to the control device 13.

[0025] On the top of the cabinet 1 there is mounted a display unit 15 which comprises a transparent plastics spherical dome 16 fixed to a support base 17 which is fixed to the top of the cabinet 1.

[0026] This dome 16 contains an electric motor 18 fixed within the base 17 and projecting upwardly therefrom with a spindle 19 extending vertically from the top of the motor into the dome terminating in the vicinity of the spherical centre of the dome 16.

[0027] Attached to the end of the spindle 19 is a rotor arm 20 which extends horizontally and radially from the centre of the dome. At its outer end the arm 20 supports a curved screen 21. This screen 21 is located very close to, but spaced from the inner surface of the dome 16. The curvature of the screen 21 is spherical and substantially the same as that of the dome 16. The dimensions of the screen 21 are such that it covers a minor proportion of the surface of the dome.

[0028] The screen 21 comprises an LED matrix and the LEDs are connected to a connector 22 in the support base 17 via an appropriate commutator or similar device at the spindle 19.

[0029] The display unit 15 so far described may be a proprietary iBall sold by Spacewriter Ltd.

[0030] The connector 22 within the support base 17 is connected to the control unit 13 of the operating system, as also is the motor 18.

[0031] In use, the motor 18 rotates the screen 21 about a vertical axis. Static and also animated alphanumeric information and graphics can be produced on the screen 21 by appropriate actuation of individual LEDs and the resulting display can be seen clearly from any viewing position around the ball. The speed of rotation of the screen 21 is fast enough to cause the display to be viewed at a fixed position (i.e. not rotating around the ball) due to persistence of vision.

[0032] The nature of the display is controlled by the operating system and relates to games played on the machine.

[0033] In conventional manner, the machine operates to play a game after sufficient game-playing monetary value has been credited by insertion of coins through the coin slot 6.

[0034] Game play commences by pressing a start button 5 and the reels 9 then rotate and come to rest after different respective random periods of time. Symbols on the peripheries of the reels 9 are then displayed to the player through the window 8 on a central horizontal win line. There may be three or four reels 9 so that three or four symbols are shown on the win line. There may also be two symbols shown in the window 8 above and below the win line for each reel.

[0035] The resulting combination of symbols on the central win line and/or on other win lines is assessed against a table of predetermined winning combinations (which may be printed on the upper panel 2) and a payout is made available to the player, and can be obtained by pressing a collect button 5, if the resulting combination is a winning combination.

[0036] In accordance with conventional practice, there may be special winning combinations, such as a jackpot combination, there may be special game features such as surprise awards etc., and provision may be made for the player to seek to influence the symbol combination by using nudge or hold buttons 5 or the like.

[0037] The display unit 15 displays information relating to game play for example as follows:

prior to, or at selected occasions during game play decorative and/or attract information may be displayed e.g. showing the name of the machine, the value of attainable jackpot awards, etc.

during play, information concerning current status or game features may be displayed, such as value of game-play credit, value of awarded prizes available for payout, win or lose game outcome, current availability of game features.

during play, information relating to game-play directions may be displayed, such as 'press start now' etc.

during play, game play displays may be replicated e.g. such that symbols on the reels may also be shown on the LED screen, etc.

[0038] The display unit 15 may be arranged to display any one or more or all of this information on any fixed or changing basis of a predetermined or regular, or random or other basis.

[0039] With this arrangement there is provided an attractive and prominent means for displaying information to the player and also to other persons nearby. This enhances machine appeal and also availability of information.

[0040] It is of course to be understood that the invention is not intended to be restricted to the details of the above embodiment which are described by way of example only.

[0041] Thus, for example, instead of the screen 21 which itself bodily moves over the viewing region (i.e. the surface of the dome 16) it may be possible to use a bodily movable screen which covers the viewing region via projection, or to use a screen which does not bodily move but which has parts which are actuatable in sequence so that the sequence of actuation moves.

[0042] Also whilst reference has been made by way of example to the iBall product of Spacewriter Ltd, other display devices can also be used such as the Magic Ball of Spectra Displays Ltd.

[0043] The display device provides a display which moves repeatedly across a display region, preferably

which rotates through a circular path about a fixed or movable vertical or inclined axis particularly to cover a spherical or part spherical display region.

chine or slot machine of the kind having rotatable reels.

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Claims

1. A coin operated machine for playing games, said machine having a cabinet housing (1) an operating system, and a display device connected to and controlled by the operating system for displaying information relating to games, **characterised in that** the display device comprises a unit (15) external to the cabinet (1) having a digital display screen (21) which is movable repeatedly across a display region of the unit (15). 10
2. A coin operated machine according to Claim 1, **characterised in that** the screen (21) is movable repeatedly across the display region by motion backwards and forwards, or around a closed path. 15
3. A coin operated machine according to Claim 2 **characterised in that** screen (21) rotates through a closed circular path about an upright axis (19). 20
4. A coin operated machine according to Claim 3 **characterised in** the movement of the screen (21) is effected by means of an electric motor (18) and is moved with sufficient speed to give persistence of vision. 25
5. A coin operated machine according to any one of Claims 1 to 4 **characterised in that** the screen (21) is spherically curved and is rotatable about its centre of curvature, or about an axis (19) through such centre of curvature, the display region being correspondingly spherical or part spherical. 30
6. A coin operated machine according to any preceding claim, **characterised in that** the display screen (21) is an LED or LCD Screen. 35
7. A coin operated machine according to any preceding claim **characterised in that** the display device unit (15) includes a transparent panel or enclosure behind which the screen (21) moves. 40
8. A coin operated machine according to Claims 7 **characterised in that** said panel or enclosure comprises a transparent spherical dome. 45
9. A coin operated machine according to any preceding claim **characterised in that** the unit (15) is fixed on top of the game machine. 50
10. A coin operated machine, according to any preceding claim wherein the machine is a fruit ma- 55

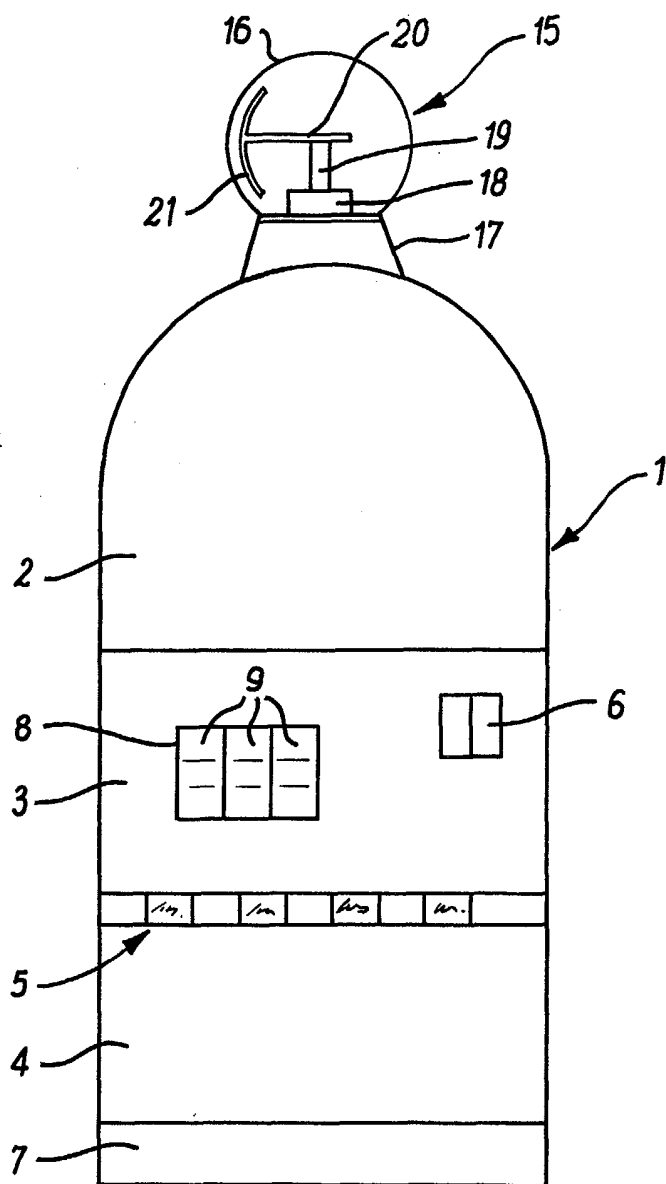


FIG. 1

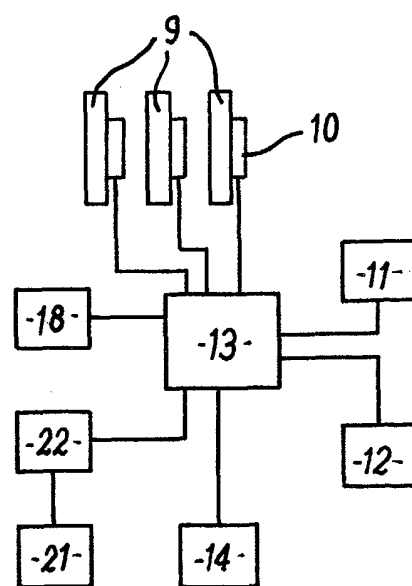


FIG. 2