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(54) DISPLAY DEVICE AND DOUBLE DRUM FOR GAMBLING MACHINES

(57) The invention is structured on the basis of two flywheels (14) and (17) which are coaxial and having different diameters, upon which respective annular bands (15) and (18) are assembled, which are concentric and consequently parallel, bearing their respective alignments of images or figures that are collated with

empty and transparent areas permitting the visualization of the inner band through the outer band, said bands having independent actuation by means of respective motors (13) and (19), in turn controlled by respective optic regulators (23) and (24), such that the movement of one of the annular and image-bearing bands (25) is totally independent from the other (28).

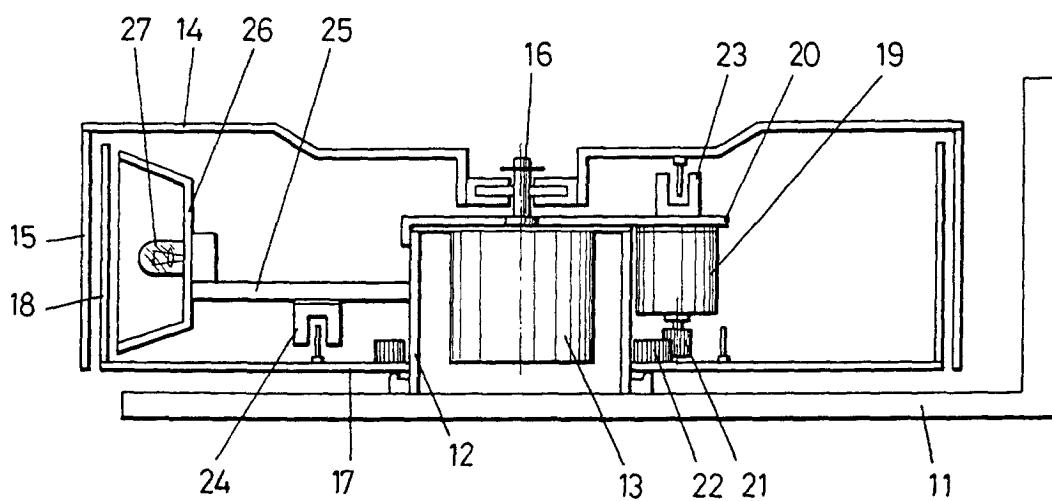


FIG.8

Description**OBJECT OF THE INVENTION**

[0001] The present invention refers to a display for roulette or drums on recreational machines, specifically for recreational machines which give the player cash prizes on the basis of the combination of images or figures obtained on the screen of the machine through a set of displays, more specifically through the winning line established on them.

[0002] The object of the invention is to achieve that said display, in conjunction with its basic function of sequentially showing the figures participating in the game, can give other complementary information at determined times, enhancing the game alternatives of the machine.

BACKGROUND OF THE INVENTION

[0003] In the practical field of application of the invention, that of recreational machines with cash prizes, displays are used that bear a plurality of different images or figures sequentially appearing on the screen of the machine in the development of each play, such that at the end of the play, the images corresponding to the different displays, established on a winning line, produce a determined combination that is susceptible to a prize according to a winning plan also suitably established on the screen of the machine.

[0004] These displays adopt multiple shapes and different types of actuation in practice, but they have the common denominator of showing only a portion of them through the screen of the machine, they are normally comprised of three of the previously mentioned figures, and occasionally part of the immediately prior and subsequent figures, such that in the end phase of the play, when the displays are stabilized, a series of figures are seen through which can establish one or more winning lines, such as an intermediate horizontal line, the intermediate horizontal lines immediately prior and subsequent to that which has been mentioned, and also diagonal lines on occasion, such that when the figures of the valid winning line coincide at all times with one of the winning plan combinations, the machine gives the player the corresponding cash prize.

[0005] Regardless of the general structure of the display, which may vary as previously stated, it is normal that behind the participating figure-bearing mobile plate, specifically in the area that can be visualized through the screen of the machine, a type of reflective screen is established, generally with three frontally opened recesses corresponding to the three figures which normally and simultaneously appear on the screen of the machine within each display, respective lights being established at the bottom of said recesses which can light up separately or all together, and whose evident purpose is to highlight the figure participating in the winning line

or to enhance visualization of all the figures appearing through the screen of the machine.

[0006] In any case, these displays are only capable of showing part of the figures participating in the game, such that the game alternatives offered do not go beyond the possible combinations to be carried out with the figures from the different displays.

[0007] The use of an auxiliary display is known for trying to increase the possibilities of the game, which in turn shows a figure and which in certain circumstances can be moved to any one of the displays of the winning line in order to replace the figure in the latter.

DESCRIPTION OF THE INVENTION

[0008] The display proposed by the invention constitutes a significant advance in this field of increasing the game possibilities of conventional displays, specifically by allowing for a significant increase in the number of figures that can be seen through the screen of the machine at a determined time.

[0009] To do so, two solutions have specifically been foreseen with different levels of structural complexity, which consequently also generate two different levels of services, the most complex one having a larger number of possibilities than the simplest one.

[0010] The simplest solution consists of arranging an optical signaling device in the cavity of at least one of the recesses defined on said reflective screen accompanied by the conventional light, an optical signaling device such as a display which would occasionally be inoperative but on other occasions would provide complementary information corresponding to the figure placed on it, such as a number or any other symbol, specifically when said signaling device lights up according to the machine's game program.

[0011] According to this structure, the display normally acts as a conventional display, such that together with the remaining displays on the machine, at the end of each play, it will enable obtaining a combination on the winning line that is susceptible to receiving a determined prize according to the winning plan of the machine, but in determined circumstances, the actuation of said signaling device will enable either enhancing the prize, for example multiplying it by two when this figure appears on it, or selecting an auxiliary game when a predetermined symbol, etc., appears on said signaling device.

[0012] It has been complementarily foreseen that the continuous immobile figure-bearing plate, which is generally translucent with a high degree of opaqueness so as to hide the mechanisms established behind it, incorporates areas of greater transparency in the zones that, when in a stopped position, are facing said signaling device, they can even be totally transparent in order to improve visualization of said signaling device when it is lit, i.e. when operative.

[0013] Evidently with this solution it is only possible to incorporate a maximum of three complementary images

to the machine's game system, which are visible through the screen thereof, and when there is only one winning line in said machine, only one display, located under said line, can participate in the final combination. This solution may be enough in certain practical cases, such as when trying to exclusively multiply the prize given by the machine, but this solution is obviously insufficient when, due to the features of the new game, the cooperation of a larger number of complementary figures becomes necessary.

[0014] In the second case, the display has been foreseen with two flywheels, supports for respective flexible image-bearing bands, flywheels actuated by respective autonomous motors that are independent from one another, assisted by respective controls for start up, placement and stopping, which maintain said independence.

[0015] More specifically, a main flywheel and a secondary flywheel are established, the use they are to give in the game of the recreational machine in which they are installed depending on the motor which moves them and the position occupied by their respective bands.

[0016] Both flywheels are coaxially placed on a common chassis, i.e. they rotate on the same theoretical shaft, and such that a flexible band is slightly over-dimensioned in relation to the other one in order to envelope the latter.

[0017] The main flywheel moves the annular band containing a series of figures object of multiple combinations, as well as one or several spans or transparent areas placed against or in replacement of one or several figures, transparent areas which enable seeing the figures or signs contained on the secondary band when it has been assembled inside.

[0018] The secondary flywheel may be assembled with its secondary annular band rotating outside or inside of the main annular band, as per the necessities of the game. When the secondary band moves outside, it partially covers the main band by means of an opaque area, which enables seeing the latter, rotating and being placed in a transparent area, it also being possible to have a stop in intermediate positions which could be provided with figures or signs determining part of a prize combination or situation.

DESCRIPTION OF THE DRAWINGS

[0019] In order to complement the description that is being made and for the purpose of helping to better understand the features of the invention according to a preferred practical embodiment example thereof, a set of drawings accompanies said description as integral part thereof which, with an illustrative and non-limiting character, show the following:

Figure 1.- Shows a frontal-lateral view of a reflective screen participating in a display for recreational machines in accordance with the object of the invention, specifically in accordance with the first embod-

iment variant foreseen for it.

Figure 2.- Shows a front elevational view of the assembly shown in the previous figure, here additionally incorporating the plate bearing the combining images.

Figure 3.- Shows a sectional view of the assembly shown in the previous figure according to the A-B cut line of said figure.

Figure 4.- Shows a perspective view of a conventional reflective screen and a perspective view of a conventional roller or drum incorporating said reflective screen.

Figure 5.- Shows a perspective view of a reflective screen incorporating the improvements object of the invention, and an isolated perspective view of the position of a light and a signaling device on its corresponding printed circuit.

Figure 6.- Shows a perspective view of the display from outside of the machine, wherein there is a prize figure on the winning line next to the signaling device or display operative.

Figure 7.- Shows a perspective view of a disassembled double drum integrated for the multiple hiding/visualizing of superimposed images, carried out in accordance with the other embodiment variant of the present invention, specifically according to a practical embodiment in which the main band is located outside.

Figure 8.- Shows the duly assembled assembly of the previous figure according to a schematic representation in diametric section.

Figures 9 and 10.- Respectively show representations that are similar to those in figures 7 and 8, but corresponding to an embodiment in which the main band is located inside.

PREFERRED EMBODIMENT OF THE INVENTION

[0020] In view of said figures, specifically figures 1 to 6, it can be seen how the invention is applicable to displays in which behind the mobile plate (1) bearing the figures (2) which can participate in a prize-winning combination, there is a fixed reflective screen (3) provided with frontal recesses defining housings for the placement of respective lights (5) which, at the end of each play, i.e. once the mobile plate (1) stops, enhance the visualization of the figures (2) facing them by lighting up the plate (1), which is translucent on its back side, in areas perfectly defined by the opening of said housings or recesses (4).

[0021] In accordance with the improvements of the invention, at least one of said lights (5) is accompanied by a signaling device (6) of any suitable conventional type, such as a display, which is unnoticed when inoperative, but when operative, which is produced in determined plays of the machine and also under determined conditions, shows certain information through the plate (1), such as a number or any other type of symbol or

figure, as previously mentioned, which changes the features of the game, such that in said play and in addition to the direct results derived from the combination of figures (2) on the winning line, this complementary signaling could imply, as previously mentioned, the prize being multiplied or divided, or that the player has the option to access a complementary game, access that is only possible when the signaling device (6) is operative, and which can in turn have variable results, depending on if the signaling device of only one of the displays, or the signaling device of more than one of them, is actuated.

[0022] As a complement and given that the mobile plate (1) is translucent, barely transparent, it has been foreseen that corresponding to each figure (2) thereof, or at least to some of them, there is a window, not shown for greater clarity of the figures, which is transparent or with considerably less opaqueness than the rest of said plate (1), in order to see the signaling device (6) better when it is operating.

[0023] Evidently, the possibilities implied by introducing this complementary image into the display are practically unlimited in terms of the features of the conventional game itself and in terms of the possibilities of introducing complementary games derived from the actuation or non-actuation of said signaling device (6).

[0024] If the features of the convention game itself or of the selected complementary games were to require the participation of a larger number of complementary figures, the embodiment shown in figures 7 to 10 has been foreseen. Figures 7 and 8 specifically show the device in this embodiment that is part of a support chassis (11) to which the casing (12) is fixed containing the electric drive motor (13) of the flywheel (14) corresponding to the main and outer band (15), such that said flywheel (14) supports the band (15) on one of its edges and is fixed by its center to the shaft (16) of said motor (13) from which it receives the movement.

[0025] The inner flywheel (17) is assembled with rotational freedom on the cylindrical support or casing (12), opposite the outer flywheel (14), having a slightly smaller diameter than the latter and constituting the support for the inner band (18), the latter being actuated by a second electric motor (19), assembled on a radial extension (20) of the support casing (12) of the motor (13), such that the output pinion (21) of said motor (19) meshes with a crown (22) operatively established on the inner side of the flywheel (17), as can be perfectly seen in figure 9.

[0026] The extension (20) of the cylindrical support or casing (12) at the same time constitutes the support for the optic regulator (23) positionally controlling the outer band (15), whereas the optic regulator (24) for the inner band (18) is located on another radial extension of the casing-support (12).

[0027] Opposite previously mentioned extension (20), there is the radial extension (25) serving as a support for the reflective screen (26) housing the lighting lights (27) of the area of the bands corresponding to the

displays of the machine.

[0028] As seen in figure 7, it can be deduced from the described structure that when the images (28) of the outer or main band (15) are facing said displays, these will

5 be the images seen by the player, whereas when any of the transparent spans (29) of said main band (15) are facing said displays, the figures (30) of the inner or secondary band (2) are those which will be seen.

[0029] The possibility shown in figures 9 and 10 also exists, wherein, beginning with a structure that is basically identical to that which has been previously described, the main band (15) is located inside whereas the secondary band (18) is outside, therefore modifying the diameters of the respective flywheels (14) and (17),

10 in which case the secondary and outer band (18) will be the band which partially or totally covers the main band (15), said secondary band (18) incorporating transparent areas (31) as in the previous case, which now have the object of allowing the images (28) of the band (15)

15 to be seen, and which in the other case have the object of improving the lighting intensity in certain areas which reaches the observer from the lights (27).

25 **Claims**

1. Display for roulettes or drums in recreational machines, of the type incorporating a mobile plate closed in on itself bearing a plurality of figures, a plate that is partially visible through the screen of the machine, showing at least one image at the end of each play that can be combined with that of the other displays in order to obtain a prize winning combination, displays wherein behind the area of the screen of the machine through which the figures are visible, there is a reflective screen having recesses that are dimensionally and positionally in coincidence with the visible figures on the mobile plate, at the bottom of which there are lights for enhancing the visualization of said figures, **characterized in that** at least one of said lights (5) incorporates a complementary signaling device (6) of any suitable, conventional type, such as a display, which is unnoticed when inoperative and which provides complementary information through the mobile plate (1) when operative, information that is a number or any other type of figure modifying the conditions of the game, changing the value of the prize obtained in the winning line or permitting access to an auxiliary game.
2. Display for roulettes or drums in recreational machines according to claim 1, **characterized in that** the mobile plate (1) bearing the figures (2) that are sequentially visible through the screen of the machine incorporates a transparent or less opaque area in correspondence with each one of said figures (2), which is formally and dimensionally suitable for

permitting better visualization of the information provided by the subsequent signaling device when it is operative.

3. Display for roulettes or drums in recreational machines according to claim 1, **characterized in that** it comprises two coaxial flywheels (14) and (17) but with independent actuation, having slightly different diameters, each one of which constitutes a support and mobilizer means for an annular band (15-18) bearing a plurality of uniformly distributed images (28-30) which are intercalated with transparent sectors (29-31), such that after the double drum stops and through the corresponding outer screen or window, the images of the band (15-18) adopting the outer position are visible, and where applicable and through the transparent sectors (29-31) thereof, images of the band (15-18) adopting the inner position. 5

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4. Display for roulettes or drums in recreational machines according to claim 3, **characterized in that** the main flywheel (14) is joined to the output shaft (16) of an electric motor (13) assembled in a cylindrical support casing (12) joined to a support chassis (11) for the entire assembly, said motor (13) being coaxial to the drum, whereas the secondary flywheel (17) is assembled with rotational freedom on the cylindrical support (12) and receives the movement through a toothed crown (22) from a second motor (19) that is independent from the motor (13), assembled on a radial extension (20) of the support (12) and whose output pinion (21) meshes with said crown (22). 25

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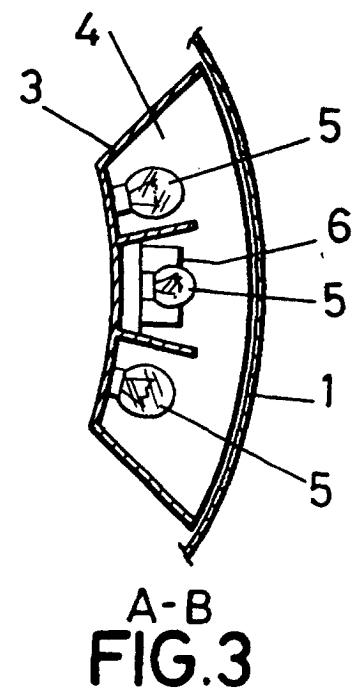
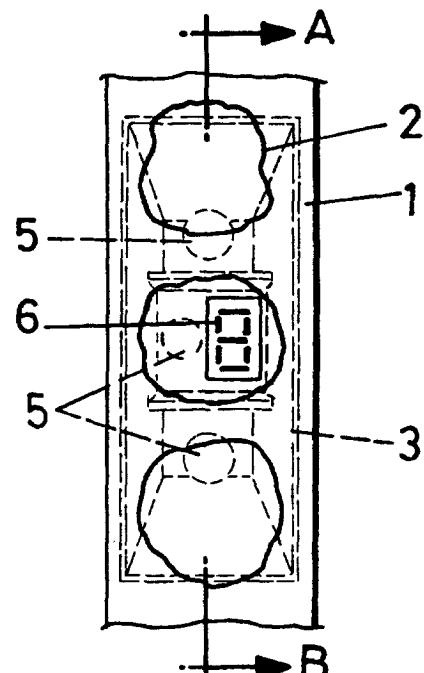
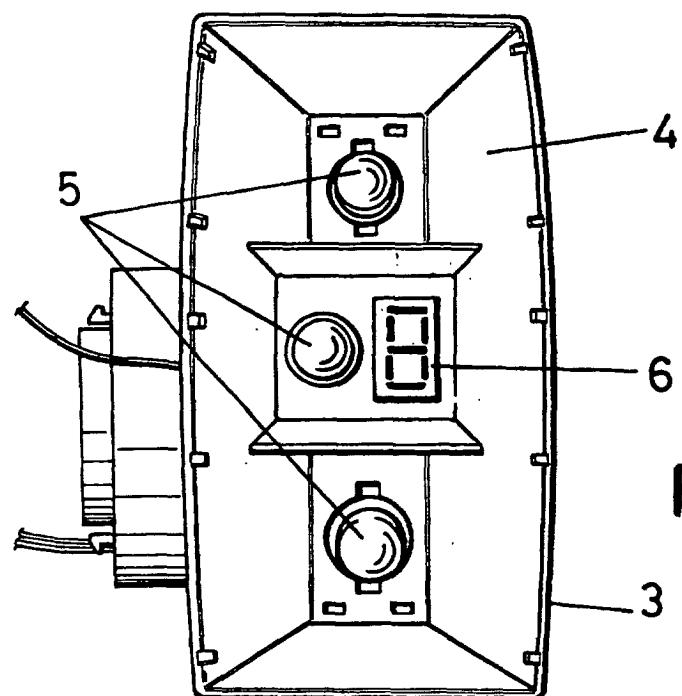
5. Display for roulettes or drums in recreational machines according to claims 3 and 4, **characterized in that** the optic regulator (23) is established on the radial extension (20) for the secondary motor (19) in order to control the main flywheel (14), whereas the optic regulator (24) for the secondary flywheel (17) is established on another radial extension of the cylindrical support (12). 40

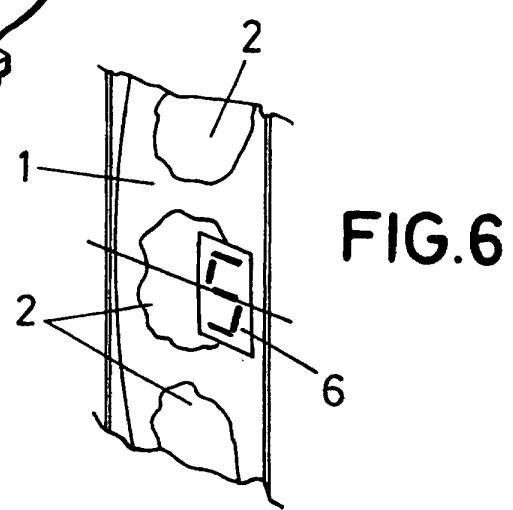
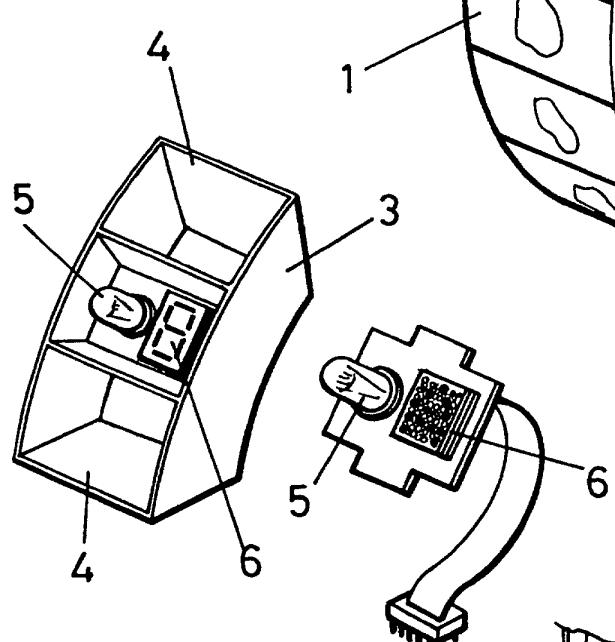
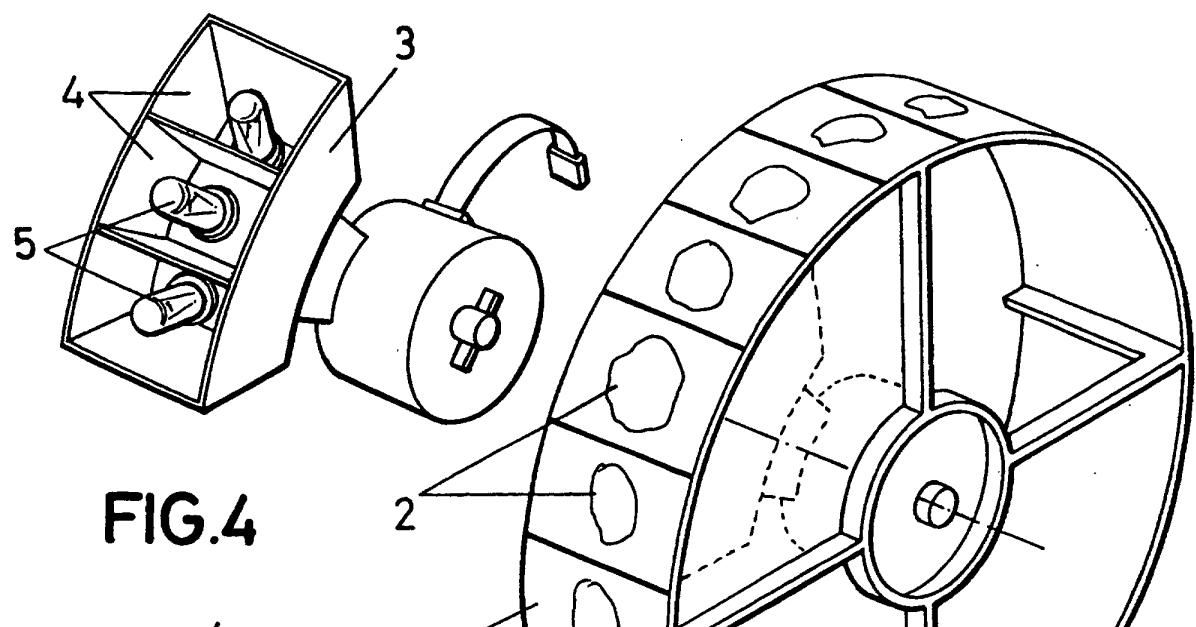
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6. Display for roulettes or drums in recreational machines according to claims 3, 4, and 5, **characterized in that** the main band (15) associated to the main flywheel (14) can be placed inside or outside of the secondary band (18) associated to the secondary flywheel (17). 50

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7. Display for roulettes or drums in recreational machines according to claims 3, 4, 5 and 6, **characterized in that** the radial extension (25) constituting the support for the multiple screen (16) containing the lighting lights (27) is placed opposite the extension (20).





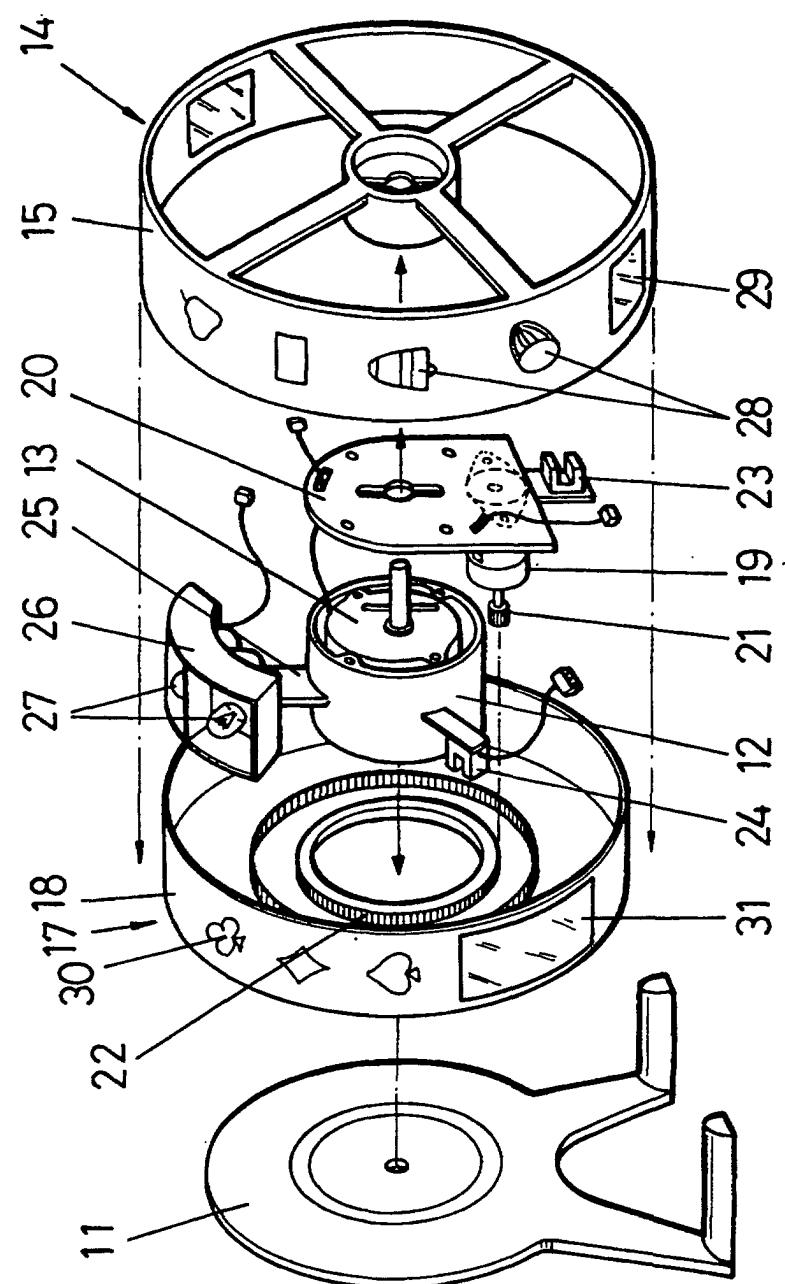


FIG.7

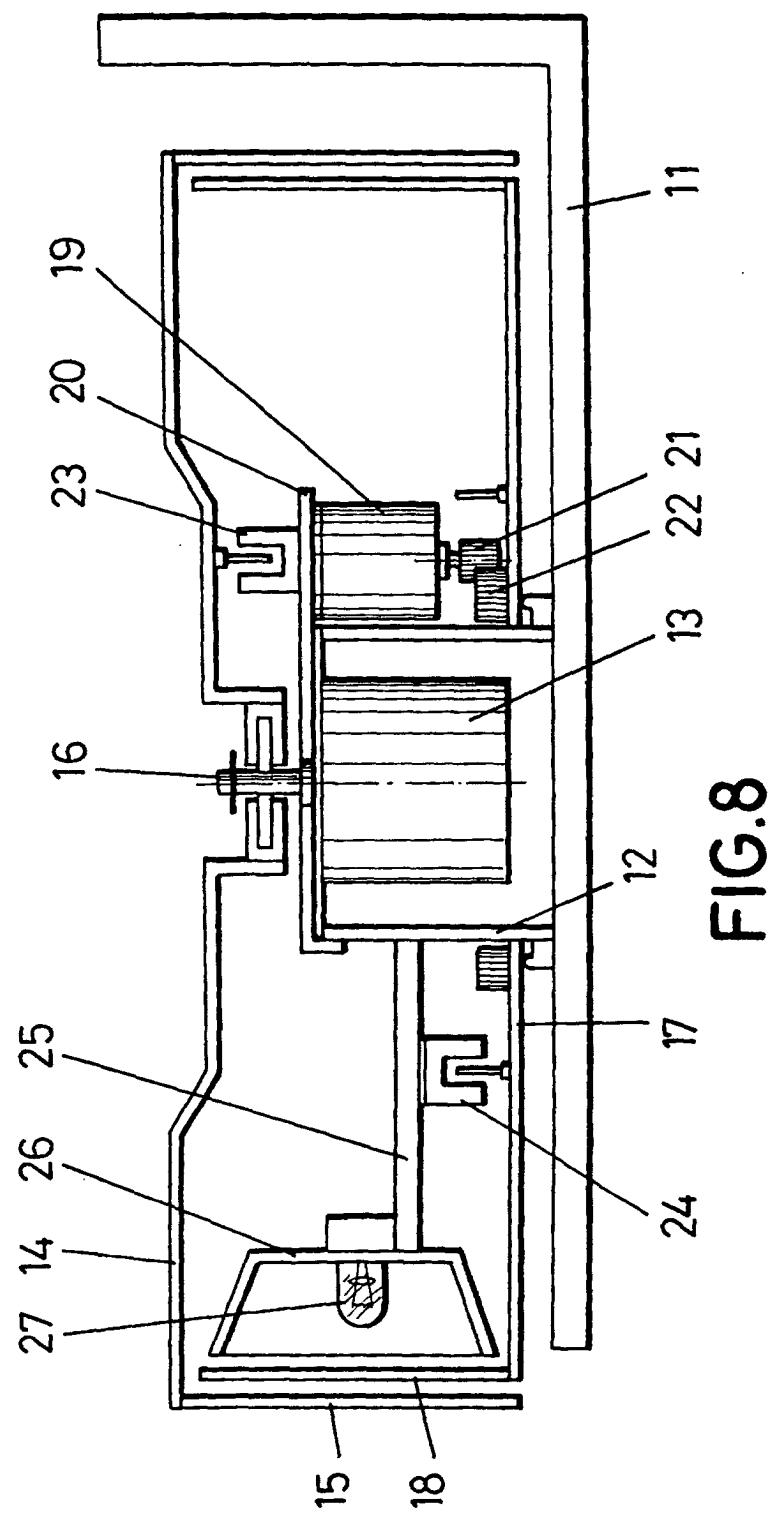


FIG.8

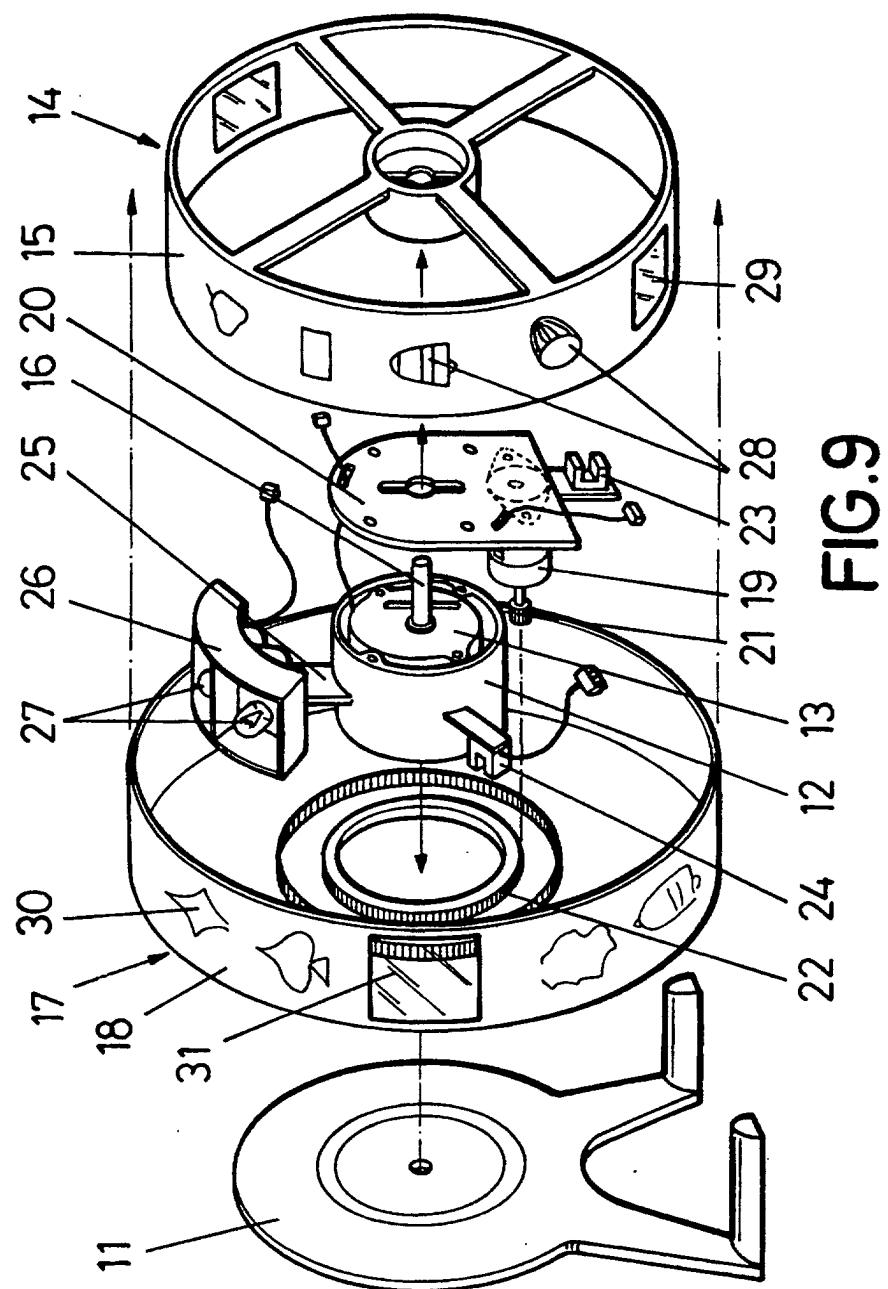


FIG.9

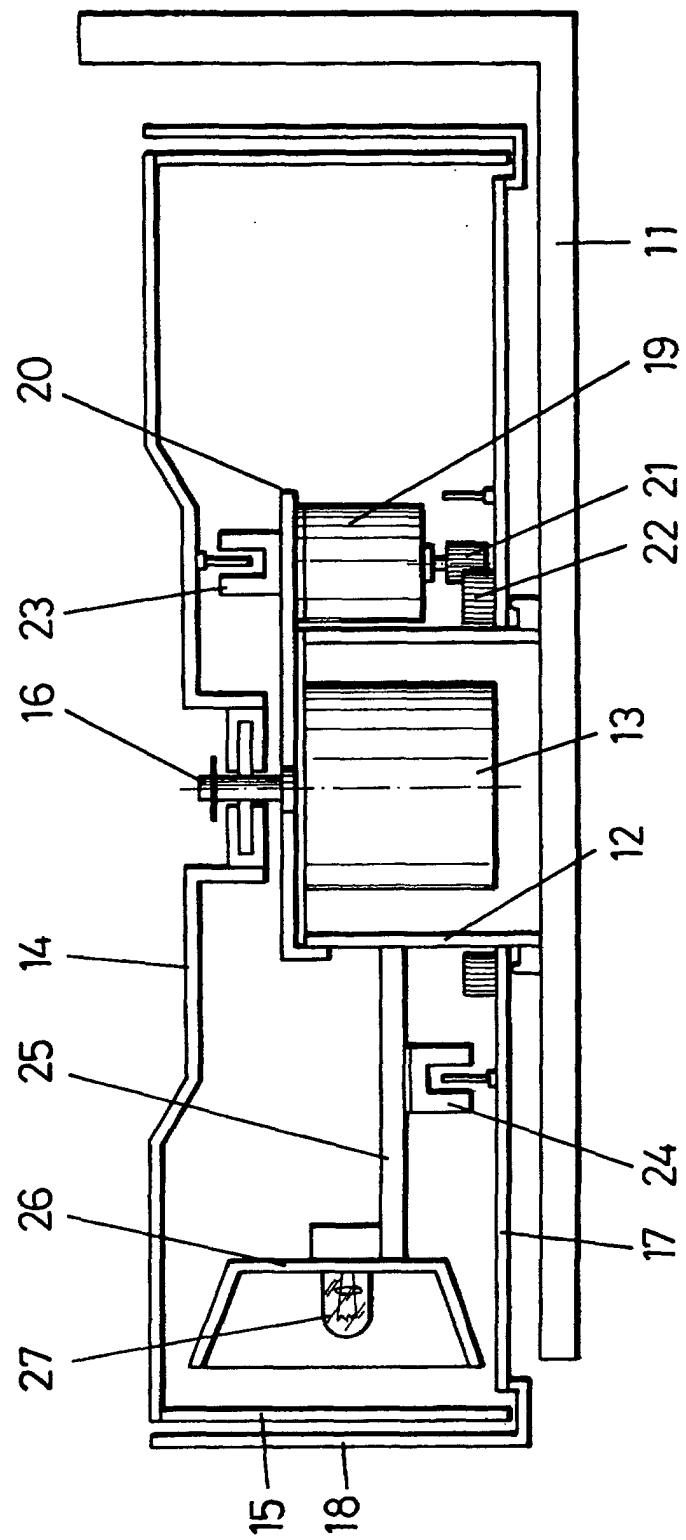


FIG.10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES02/00288

A. CLASSIFICATION OF SUBJECT MATTER

CIP⁷ G 07 F 17/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

CIP⁷ G 07 F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WIPL, PAJ, CIBEPAT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| X Y | Base de datos PAJ en EPOQUE, JP 2000 116 843 A (EVER PROSPECT INT) 25.04.2000, abstract, figures | 1, 2 3 |
| Y A | US 5 395 111 A (INOUE) 07.03.1995, column 2, page 33 - column 4, line 12; figures 1-3 | 3 4, 6 |
| P, X | GB 2 365 191 A (GAMESMAN LIMITED) 13.02.2002, page 8, line 12 - pages 13, 18; figures 1,2 | 1, 2 |
| A | Base de datos PAJ en EPOQUE, JP 8 238 352 A (NICHIKOMU) 17.09.1996, abstract, figures | 1, 5 |

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT
Information on patent family membersInternational Application No
PCT/ES02/00288

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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