

**GAME DEVICE EQUIPPED WITH MODIFIED CYLINDER FOR
AUTONOMOUSLY MANAGING A FAVOURABLE EVENT**

5 The present invention relates to the field of game devices and refers to a method and to a device for performing such method, to increase the number of possible results, without changing the procedure of the game itself. The invention applies in particular to games which use a cylinder, for example a roulette.

10 The main games which use a cylinder are three, namely the French roulette, the English or European roulette and the American roulette.

15 The French roulette, with numbers from 0 to 36, is different from the other two games due to the sizes of the table where two-three employees are seated and due to the procedure in case number zero appears; in this situation, in fact, the bets on simple chances (red/black, even/odd, manque/passe) are trapped up to the appearance of the following number, when they are freed
20 again or cashed by the bench.

In the English or European roulette with numbers from 0 to 36, but with a smaller game table, the game is managed by a single employer only and, in case number zero appears, bets on simple chances are immediately
25 halved.

The American roulette is characterized by a different cylinder from the two previous ones and, in addition to numbers from 0 to 36 arranged completely differently, has a thirty-eighth box called double zero (00) placed in a diametrically opposite position with respect to the zero: when number zero appears, simple chances lose.

In the three above described games, the cylinder is composed of a fixed part with a concave shape equipped with a launch path for a ball which, due to the force of gravity, will move on a spiral-shaped trajectory towards a central moving disk, divided into 37 or 38 numbered sectors, equipped with as many boxes adapted to house the ball, said disk being rotating around a vertical axis.

Various factors affect the ball path, among which the force of gravity and the centrifugal force, the presence of lozenge-shaped obstacles, the different speed impressed by those who launch the ball, the rotation speed of the central disk, the wear of the game instruments and the change of temperature and humidity degree. Such elements make the appearance of a number totally random.

The chance that an event occurs is given by the number of favourable events divided by the possible cases. In the roulette game, it is given by a favourable

event divided by the 37 or 38 possible events. Therefore, it results that the chance that the ball stops in a certain box is of 1 out of 37 or 1 out of 38.

The problem of overcoming a constraint due to a limited number of available arrival boxes also poses itself in virtual games, in which a pointer, for example a ball displayed on a monitor, at the end of the path, also virtual, towards a plurality of prearranged areas, stops on one of these areas, determining the game result, said result being, also in this case, completely random.

Object of the present invention is overcoming the constraint due to the limited number of arrival boxes, and has been obtained through the use of a method and of a device for performing such method, respectively according to claims 1 and 2.

It is intended that all enclosed claims are an integral part of the present description.

The method for increasing the number of possible results which can be obtained with a game device, wherein a pointer, for example a real or virtual ball, at the end of a path, also real or virtual, towards a plurality of prearranged areas to house said pointer, occupies one of these areas, thereby determining a result, is characterized by adding, inside these areas, well defines and identifiable positions in which this pointer can end

its stroke, this increase of the number of positions being obtained without affecting the movements of the pointer and the way of stopping in one of the areas, preserves the characteristics and the philosophy of the game.

In practice, the change of probability occurs when the pointer, dropped into one of said areas, having already determined the winning number, finds inside the area itself at least two well defined and identifiable spots where it can stop. The stop of the pointer in one of these further drop spots can increase or decrease the advantages deriving from the appearance of the number or create an independent game situation.

The game device according to the invention comprises a first moving part, equipped with a plurality of numbered sectors or boxes adapted to receive a ball, which rotates inside a second fixed part, so that by placing said ball on a track of said second fixed part and launching it towards said first moving part, said ball ends its travel in one of these numbered boxes, thereby determining the winning number, and is characterized in that it provides for means adapted to determine at least one other stop position of the ball, inside the numbered boxes.

According to a preferred embodiment, these means,

adapted to determine at least one other stop position of the ball inside the numbered boxes, comprise a suitable shaping of the boxes.

According to another preferred embodiment, the means, adapted to determine at least one other stop position of the ball inside the numbered boxes, comprise suitably shaped inserts, adapted to be inserted in each of said numbered boxes.

According to the result to be obtained, it is possible to replace the inserts inside the boxes with other ones having different characteristics, or to modify the surfaces of the boxes.

Synthetically, the present invention consists in placing inserts inside the existing boxes or in shaping the boxes in order to obtain different areas inside the box in which the ball can stop.

When actuating the invention, one introduces a plurality of different results, making the game more various and interesting, without minimally modifying its conduction. Should the modification be introduced by using inserts, it is possible to extremely easily intervene on existing devices, by providing suitable transforming kits.

The invention will now be described, as a non-limiting example, according to a preferred embodiment

thereof and with reference to the enclosed drawings, in which:

- figures 1 (a, b) show the cylinder of a roulette with an insert according to the invention;
- 5 • figures 2 to 13 show inserts and shaped boxes in order to obtain different areas inside the box in which the ball can stop; and
- figure 14 shows the procedure of introducing an insert in its related box.

10 With reference to Fig. 1, (1) designates a game device of a known type, which uses a cylinder. According to a preferred embodiment, this game device (1) is a roulette comprising a cylinder composed of a fixed external part (2a), with a concave shape, and an internal
15 part (2b), namely a disk rotating around a vertical axis (3), divided into a plurality of numbered sectors. Next to this axis (3) four arms (4) are usually present, arranged as a cross, for checking the speed and the rotation direction of the central disk. These arms (4)
20 can be missing if different means are used (not shown) for impressing a movement to the central disk (2b), changing its rotation direction or not.

The game rules provides for launching a ball (5) along a path (track) (6), obtained inside an edge

arranged along the circumference of the fixed part (2a).

Following the launch, and due to the force of gravity effect, the ball (5) tends to follow a spirally shaped path towards the disk (2b) which is rotating. To
5 increase the randomness of the game, along the ball part, obstacles are provided, which are adapted to disturb the natural trajectory of the ball (5), for example inserts in relief (7) having usually the shape of a lozenge.

The disk (2b), shown enlarged in Fig. 1b, is divided
10 into a plurality of numbered sectors (8), next to each of which there is a box (9) adapted to house the ball (5), which ends its stroke here.

In compliance with a first preferred embodiment of the invention, the object of increasing the number of
15 positions in which the ball (5) can stop inside the boxes (9) is obtained by suitably shaping the bottom of the boxes (9) themselves, in order to locate at least two stopping spots of the ball (5) in each of said boxes (9).

In compliance with a second preferred embodiment of the invention, the object of increasing the number of
20 positions in which the ball (5) can stop inside the boxes (9) is obtained by placing suitable inserts (10) in the boxes (9) themselves, suitable engaging elements being provided, adapted to fasten these inserts (10) inside the
25 boxes (9).

In particular, the inserts (10), though being able to have different shapes, are adapted to be inserted into the boxes (9); for such purpose, they have common features such as maximum values of length (A), width of the lower part, or base (B), width of the upper part, or top (C) and thickness (D), which are defined as function of the shape and size of the boxes (9) present in the moving cylinder (2b), in order to be able to be adequately placed inside them.

Figures 2 to 13 show inserts (10) and boxes (9) shaped in order to obtain different areas inside the box in which the ball can stop.

The measures mentioned below are compared with a cylinder (2a, 2b) of a standard type, having a diameter of 800 mm, and a ball (5) having a diameter included between 16 mm and 20 mm; therefore, (A) is included between 30 mm and 60 mm, (B) is included between 20 mm and 40 mm, (C) is included between 20 mm and 30 mm, (D) is included between 0,1 mm and 5 mm.

Figures 2a and 3a show inserts (10a, 10a') and a few shaping (9a, 9a') of the boxes (9), which have truncated sections (11, 11'), oriented towards the vertical axis (3), having a curved shape with an amplitude (E) included between 1 mm and 15 mm, and a width (F) included between 5 mm and the maximum width of the upper part (C), so that

the ball (5) can stop in two different positions inside the numbered box (9), these two different positions being (i) outside the truncated section (11, 11') (Figures 2b, 3b), or (ii) inside the truncated section (11, 11') (Figures 2c, 3c).

Figures 4a and 5a show inserts (10b, 10b') and a few shaping (9b, 9b') of the boxes (9), which have one or more holes (12, 12') having a depth included between 0,1 mm and 3 mm, diameters included between 5 mm and 15 mm and distance (G, G') from the base included between 20 mm and (A) - 5mm so that the ball (5) can stop in different positions inside the numbered box (9), these different positions being (i) outside one of the holes (12, 12') (Figures 4b, 5b), or (ii) inside one of the holes (12, 12') (Figures 4c, 5c).

Fig. 6a shows an insert (10c), and a shaping (9c) of the boxes (9), which have a truncated section (13) of a square shape with an amplitude (H) included between 1 mm and 15 mm and width (I) included between 5 mm and (C) (Fig. 6a), so that the ball (5) can stop in two different positions inside the numbered box (9), these two different positions being (i) outside the truncated section (13) (Fig. 6b), or (ii) inside the truncated section (13) (Fig. 6c).

Fig. 7a shows an insert (10d), and a shaping (9d) of

the boxes (9), which have a recess (14) of a diameter included between 5 mm and 15 mm, a depth included between 0,1 mm and 3 mm, and is surrounded by a crown (14') of a width up to 10 mm and a relief included between 0,1 mm and 2 mm, so that the ball (5) can stop in two different positions inside the numbered box (9), these two different positions being (i) outside the recess (14) (Fig. 7b), or (ii) inside the recess (14) (Fig. 7c).

Fig. 8a shows an insert (10e), and a shaping (9e) of the boxes (9), which have a truncation (15) on the upper part, which is filleted with a radius lower than the insert thickness (D'). The truncation (15) is such that the length (A') can be up to 15 mm lower than the length (A), and the width (C') of the upper part changes consequently. In this way, the ball (5) can stop in two different positions inside the numbered box (9), these two different positions being (i) outside the space left free by this truncation (Fig. 8b), or (ii) inside the space left free by this truncation (Fig. 8c).

Fig. 9a shows an insert (10f), and a shaping (9f) of the boxes (9), which have a truncated section (16) of a triangular shape with an opening angle (i) included between 30° and 150° and an amplitude (L) included between 1 mm and 15 mm, so that the ball (5) can stop in two different positions inside the numbered box (9),

these two different positions being (i) outside the triangular truncated section (16) (Fig. 9b), or (ii) inside the triangular truncated section (16) (Fig. 9c).

Fig. 10a shows an insert (10g), and a shaping (9g) of the boxes (9), which have a recess (17) of a diameter included between 5 mm and 15 mm for a depth included between 0,1 mm and 3 mm and a distance (M) from the base included between 20 mm and (A), the surface of this insert (10g) or of this box (9g) being suitably curved to determine a profile (N), so that the ball (5) can stop in two different positions inside the numbered box (9), these two different positions being (i) outside the recess (17) (Fig. 10b), or (ii) inside the recess (17) (Fig. 10c).

Fig. 11a shows an insert (10h), and a shaping (9h) of the boxes (9), which have a concave section (18) of an amplitude (O) included between 5 mm and 15 mm, a curvature (P) having a depth included between 0,1 mm and 3 mm, the remaining surface with respect to the concave section having different thicknesses with variations included between 0,1 mm and 4 mm, results in a profile (Q), so that the ball (5) can stop in two different positions inside the numbered box (9), these two different positions being (i) outside the concave section (18) (Fig. 11b), or (ii) inside the concave section (18)

(Fig. 11c).

Fig. 12a shows an insert (10i) and a shaping (9i) of the boxes (9) which have inserted therein two spheres (20) horizontally placed at a distance (R) included between 15 mm and (A) - 5 mm, placed at a mutual distance (S) included between 3 mm and 10 mm, so that the ball (5) can stop in two different positions inside the numbered box (9), these two different positions being (i) between the spheres (20) and the external edge of the rotatable plate (2b) (Fig. 12b), or (ii) between the spheres (20) and the internal edge of the rotatable plate (2b) (Fig. 12c).

Fig. 13a shows an insert (10l), and a shaping (9l) of the boxes (9), which have two engravings (21, 21') of a rectangular shape with a depth included between 0,1 mm and 3 mm, widths (T, T') included between 5 mm and the width of the box (9), amplitudes (U, U') included between 2 mm and 10 mm and placed at distances (V, V') from the base included between 20 mm and (A) - 5 mm, so that the ball can stop in different positions inside the numbered box (9), these positions being (i) outside the slots (Fig. 13b), or (ii) inside the slots (Fig. 13c).

The above inserts (10) can be made of simple or composite materials with a various nature.

By changing the measures (height, length, width,

thickness) or the materials used, for the inserts (10) or for the boxes (9), the frequency of the supplementary is affected.

5 The manager of the game environment can autonomously replace the inserts (10) inside the boxes (9), as shown in Fig. 14, and from this develop different game modes.

10 The shapes of the inserts (10) and of the boxes (9) described can be used also in virtual games, obtaining on each box, always virtually, different areas in which the ball can stop, without changing the procedure of the game itself.

15 As clearly appears from the previous description, the use of the present invention allows overcoming the probability limits of current roulettes, introducing new game situations, without changing its operation in any way. According to the embodiment which provides for the use of inserts (10), this can be easily adapted also to already existing roulettes.

20 The invention has been described as a non-limiting example, according to two embodiments thereof. The skilled person can devise numerous other embodiments, all falling within the scope of the enclosed claims.

CLAIMS

1. Method for increasing the number of possible results which can be obtained with a game device (1) of the roulette type, such increase being with respect to a basic configuration of the game device (1) wherein a real or virtual ball (5), at an end of its real or virtual path towards a plurality of numbered boxes (9) of the game device (1), said numbered boxes (9) being prearranged to house said ball (5), occupies one of said numbered boxes (9), thereby determining a result, characterized by adding, inside each of said numbered boxes (9), identifiable stop sports where said ball (5) can end its stroke, without performing changes to the operation of the game so that said ball (5) is able to stop in different identifiable positions inside said one of said numbered boxes (9).
2. Game device (1) of the roulette type which comprises a first moving part (2b), equipped with a plurality of numbered boxes (9), adapted to receive a ball (5), and a second fixed part (2a), said first moving part (2b) rotating inside said second fixed part (2a), so that, by placing said ball (5) on a track (6) of said second fixed part (2a) and by launching it towards said first moving part (2b), said ball (5) ends its travel in one of said numbered boxes (9), thereby determining a winning number, characterized in that the game device (1) has means adapted to provide, inside each of said numbered boxes (9), at least two identifiable stop spots where said ball (5) can end its stroke, so that said ball (5) is able to stop in two different identifiable positions inside said one of said numbered boxes (9).
3. Game device (1) according to claim 2, characterized in that said means comprise a suitable shaping (9a, 9a', 9b, 9b', 9c, 9d, 9e, 9f, 9g, 9h, 9i, 9l) of said boxes (9).

4. Game device (1) according to claim 2, characterized in that said means comprises suitably shaped inserts (10a, 10a', 10b, 10b', 10c, 10d, 10e, 10f, 10g, 10h, 10i, 10l), adapted to be inserted into each of said numbered boxes (9).

5. Game device (1) according to claim 3 or 4, characterized in that said inserts (10a, 10a') or said shaping (9a, 9a') of the boxes (9) have truncated sections (11, 11'), oriented towards a vertical axis (3), having a curved shape with an amplitude (E) included between 1 mm and 15 mm, and a width (F) included between 5 mm and a maximum width of an upper part (C), of said inserts (10a, 10a') or said shaping (9a, 9a') of the boxes (9), so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being (i) outside said truncated section (11, 11'), or (ii) inside said truncated section (11, 11').

6. Game device (1) according to claim 3 or 4, characterized in that said inserts (10b, 10b') or said shaping (9b, 9b') of the boxes (9) have one or more holes (12, 12') having a depth included between 0,1 mm and 3 mm, diameters included between 5 mm and 15 mm and a distance (G, G') from a base included between 20 mm and a maximum length (A) of said inserts (10b, 10b') or said shaping (9b, 9b') of the boxes (5) -5mm, so that the ball (5) can stop in different positions inside the numbered box (9), said different positions being (i) outside one of said holes (12, 12'), or (ii) inside one of said holes (12, 12').

7. Game device (1) according to claim 3 or 4, characterized in that said inserts (10c) or said shaping (9c) of the boxes (9) have a truncated section (13) of a square shape with an amplitude (H) included between 1 mm and 15 mm and a width (I) included between 5 mm and a maximum width of an upper part (C) of said inserts (10c) or said shaping (9c) of the boxes (9), so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being i) outside

said truncated section 13) , or (ii) inside said truncated section (13).

8. Game device (1) according to claim 3 or 4, characterized in that said inserts (10d) or said shaping (9d) of the boxes (9) have a recess (14) of a diameter included between 5 mm and 15 mm, a depth included between 0,1 mm and 3 mm, and is surrounded by a crown (14') of a width up to 10 mm and a relief included between 0,1 mm and 2 mm, so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being (i) outside said recess (14), or (ii) inside said recess (14).

9. Game device (1) according to claim 3 or 4, characterized in that said inserts (10e) or said shaping (9e) of the boxes (9) have a truncation (15) of an upper part of said inserts (10e) or said shaping (9e) of the boxes (9) , which is filleted with a radius lower than the thickness (D') of said inserts (10e) or said shaping (9e) of the boxes (9), the truncation (15) being such that its length (A') can be up to 15 mm lower than the length (A) of said inserts (10e) or said shaping of the boxes (9), and the width of (C') of said upper part of said inserts (10e) or said shaping of the boxes (9) changes consequently, so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being (i) outside the space left free by said truncation (15), or (ii) inside said space left free by said truncation (15).

10. Game device (1) according to claim 3 or 4, characterized in that said inserts (10f) or said shaping (9f) of the boxes (9) have a truncated section (16) of a triangular shape with an opening angle (I) included between 30° and 150° and amplitude (L) included between 1 mm and 15 mm, so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being (i) outside said triangular truncated

section (16), or (ii) inside said triangular truncated section (16).

11. Game device (1) according to claim 3 or 4, characterized in that said inserts (10g) or said shaping (9g) of the boxes (9) have a recess (17) of a diameter included between 5 mm and 15 mm for a depth included between 0,1 mm and 3 mm and a distance (M) from the base included between 20 mm and the maximum length (A) of said inserts (10g) or said shaping (9g) of the boxes (9), the surface of said inserts (10g) or of said shaping (9g) of the boxes (9) being suitably curved to determine a profile (N), so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being (i) outside said recess (17), or (ii) inside the recess (17).

12. Game device (1) according to claim 3 or 4, characterized in that said inserts (10h) or said shaping (9h) of the boxes (9) have a concave section (18) of an amplitude (0) included between 5 mm and 15 mm, and a curvature (P) having a depth included between 0,1 mm and 3 mm, the residual surface with respect to the concave section having different thicknesses with variations included between 0,1 mm and 4 mm and resulting in a profile (Q), so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being (i) outside said concave section (18), or (ii) inside said concave section (18).

13. Game device (1) according to claim 3 or 4, characterized in that said inserts (10i) or said shaping (9i) of the boxes (9) have inserted therein two spheres (20) horizontally placed at a distance (R) from the base included between 15 mm and the maximum length (A) of said inserts (10i) or said shaping (9i) of the boxes (9)-5 mm, placed at a mutual distance (S) included between 3 mm and 10 mm, so that the ball (5) can stop in two different positions inside the numbered box (9), said two different positions being (i) between said spheres (20) and the external

edge of the first moving part (2b), or (ii) between said spheres (20) and the internal edge of the first moving part (2b).

14. Game device (1) according to claim 3 or 4, characterized in that said inserts (101) or said shaping (91) of the boxes (9) have two engravings (21, 21') of a rectangular shape with a depth included between 0,1 mm and 3 mm, widths (T' T') included between 5 mm and the width of the boxes (9), amplitudes (U, U') included between 2 mm and 10 mm and placed at distances (V, V') from the base included between 20mm and the maximum length (A) of said inserts (101) or said shaping (91) of the boxes (9) - 5 mm, so that the ball can stop in different positions inside the numbered box (9), said positions being (i) outside said engravings (21, 21'), or (ii) inside said engravings (21, 21').