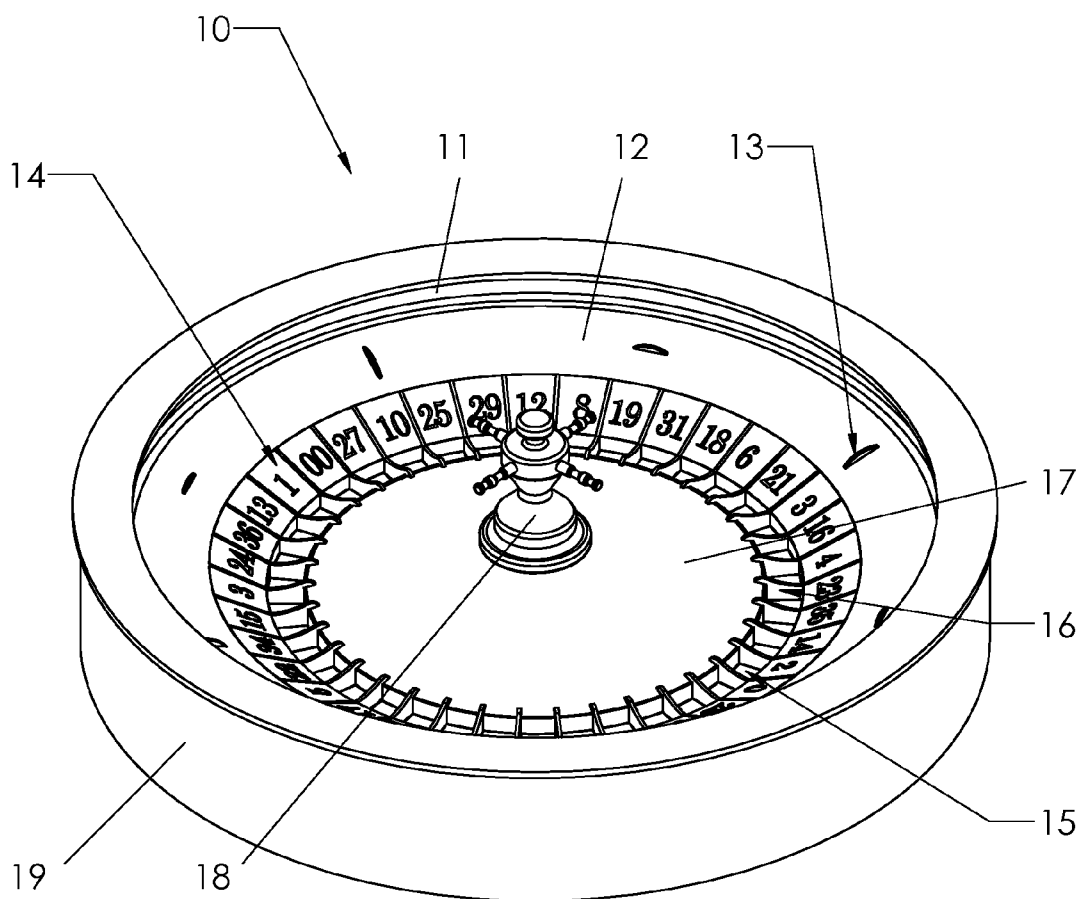




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(19) **United States**(12) **Patent Application Publication**
Zerga(10) **Pub. No.: US 2012/0175840 A1**(43) **Pub. Date: Jul. 12, 2012**(54) **ROULETTE WHEEL HAVING REDUCED BIAS**(52) **U.S. Cl. 273/142 E**(76) **Inventor: Joseph Zerga, Las Vegas, NV (US)**(57) **ABSTRACT**(21) **Appl. No.: 12/986,818**(22) **Filed: Jan. 7, 2011****Publication Classification**(51) **Int. Cl.**
A63F 5/02 (2006.01)

A roulette wheel includes a central spindle, a wheelhead and turret unit freely rotatable around the central spindle, a cone freely rotatable around the central spindle independently of the wheelhead and turret unit, and a lower ball track. The lower ball track can be stationary or can be freely rotatable around the central spindle independently of the wheelhead and turret unit and of the cone.



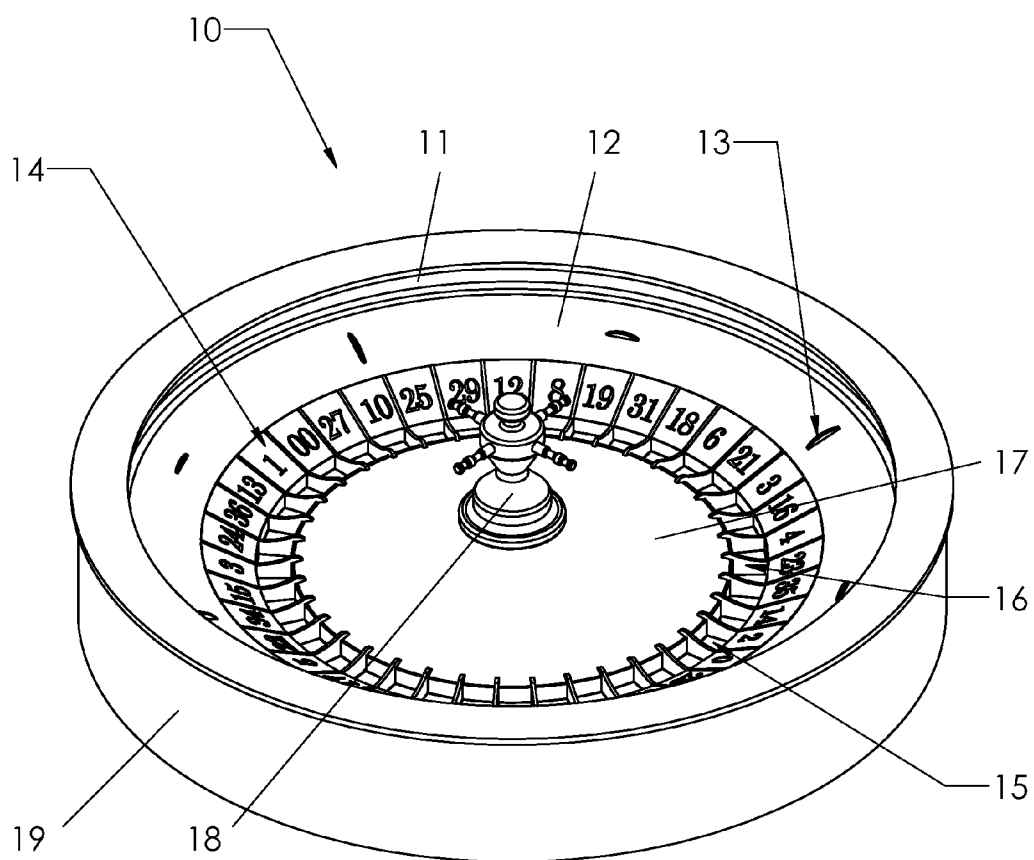


Fig. 1

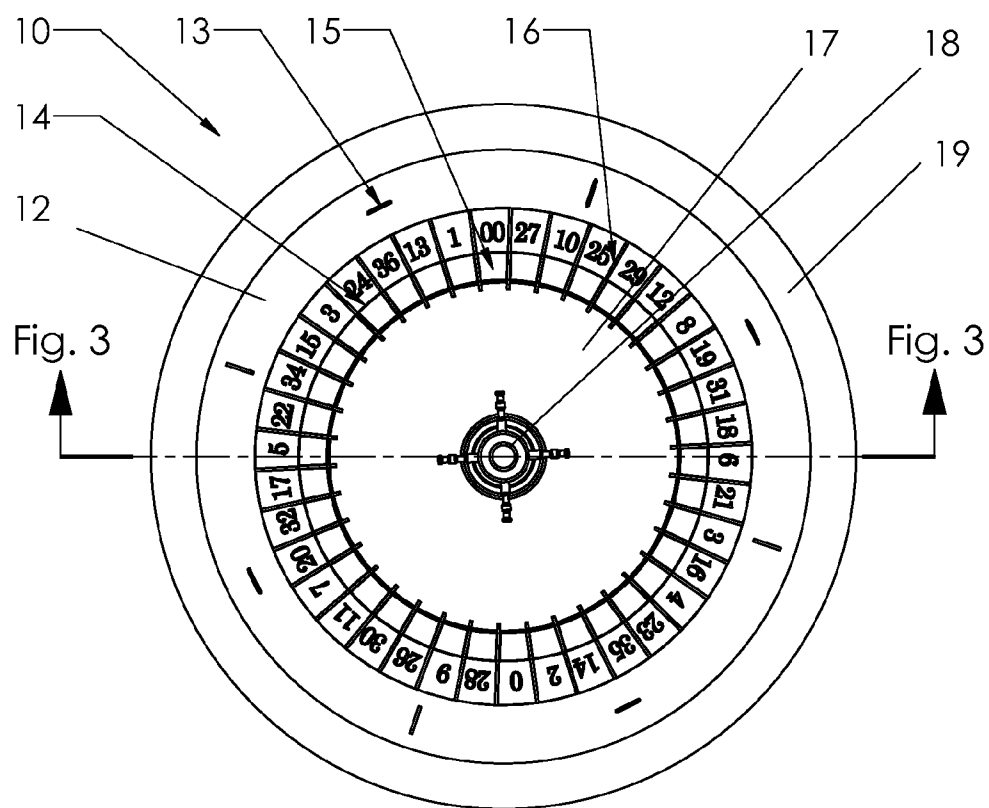


Fig. 2

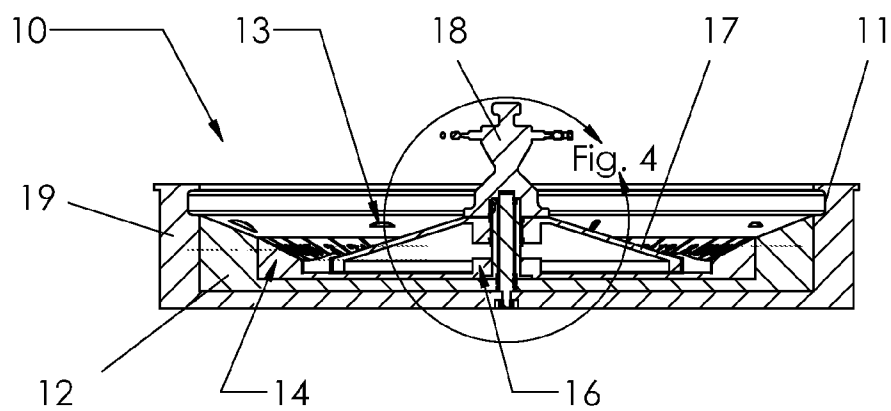


Fig. 3

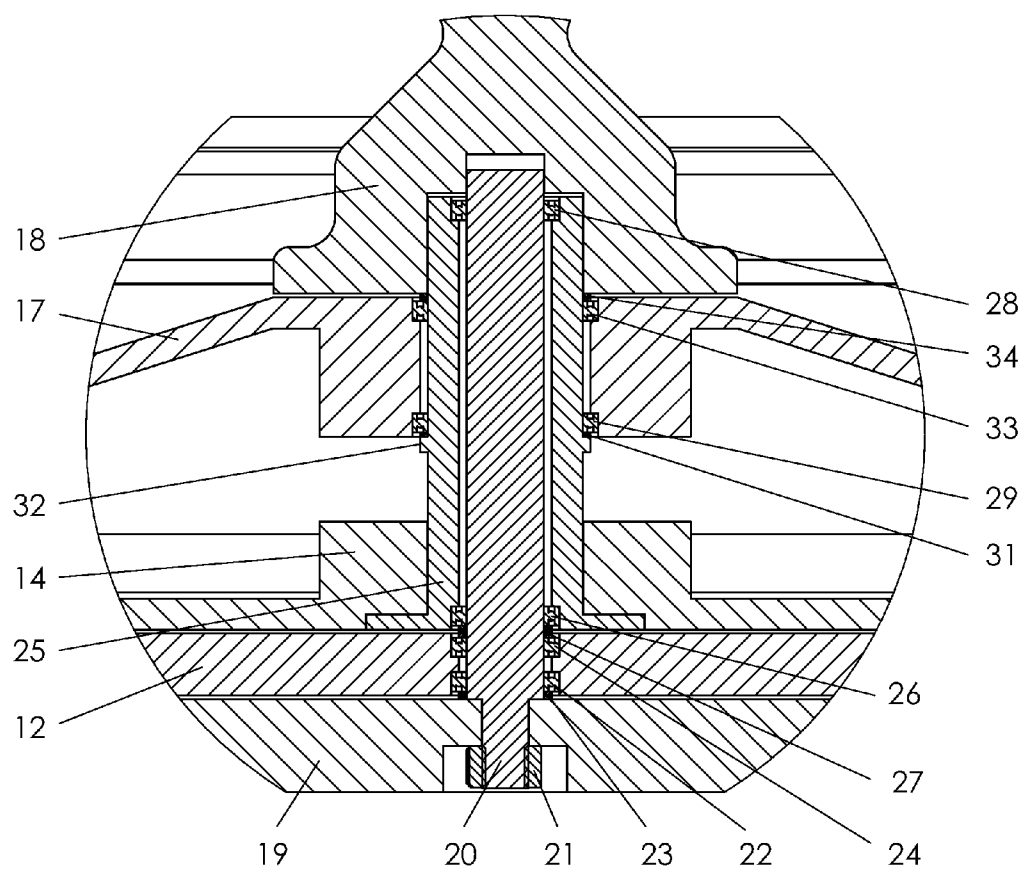


Fig. 4

ROULETTE WHEEL HAVING REDUCED BIAS

BACKGROUND OF THE INVENTION

[0001] The present invention relates generally to an improved roulette wheel with less bias. It has been estimated that about 30% of all roulette wheels will show some bias. That is to say certain numbers will win more times in a given number of spins than statistically predictable. Roulette wheels can have a bias, or develop a bias, due to faulty manufacture, loose pocket dividers and/or wear. Players have been known to clock wheels to identify wheels having a large enough bias to guarantee winning in a reasonable number of spins.

[0002] In order for a roulette wheel to be fair to all players, there is a need for an improved roulette wheel that reduces the probability of bias.

BRIEF SUMMARY OF THE INVENTION

[0003] An improved roulette wheel with less chance of bias in accordance with the present invention includes an independently spinning wheelhead, an independent spinning cone and can also include an independent spinning lower ball track. Adding additional random elements that affect the path of the ball reduces the affect that any single element will have on the outcome.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] For a fuller understanding of the present invention reference should be made to the following detailed description taken in connection with the accompanying drawings, not drawn to scale, in which the same reference numerals indicate the same or similar parts.

[0005] FIG. 1 is a perspective view of a conventional roulette wheel.

[0006] FIG. 2 is a top view of an illustrative roulette wheel according to the present invention.

[0007] FIG. 3 is a cross section view of an illustrative roulette wheel according to the present invention.

[0008] FIG. 4 is a close-up cross section view of the bearing and support assembly of an illustrative roulette wheel according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0009] Persons of ordinary skill in the art will realize that the following description of the present invention is illustrative only and not in any way limiting. Other embodiments of the invention will readily suggest themselves to such skilled persons.

[0010] FIG. 1 shows a conventional roulette wheel 10. To play roulette, the croupier (dealer) first spins the wheelhead 14 in one direction and then spins the ball (not shown) in upper ball track 11 in the opposite direction. Upper ball track 11 is slightly tilted toward the middle, so that as the ball slows in the upper ball track 11, gravity will cause the ball to fall out onto the lower ball track 12. Rigidly mounted on the lower ball track are horizontal and vertical ball deflectors 13 designed to disrupt the smooth path of the ball and add a random variable to the path of the ball. As the ball continues to slow, gravity causes it to move toward the wheelhead 14. Mounted as part of the wheelhead are thirty-eight pockets 15 separated by pocket dividers 16. The ball may then fall into any pocket 15, hit a pocket divider 16 and bounce either back

onto lower ball track 12, onto cone 17 or into another pocket 15. Eventually a ball will fall into a pocket and stay there. The winning number is the number associated with the pocket in which the ball finally comes to rest. Turret 18 is primarily decoration that covers internal parts. All of the various parts are supported and contained in bowl 19.

[0011] FIG. 2 is a top view of an illustrative embodiment of an improved roulette wheel 10 showing the relationship of lower ball track 12, ball deflectors 13, wheelhead 14, pockets 15, pocket dividers 16, turret 18 and bowl 19.

[0012] FIG. 3 is a section view of FIG. 2 showing the construction of the roulette wheel 10. Part of the upper portion of bowl 19 is upper ball track 11. Inside bowl 19 is lower ball track 12. Inside lower ball track 12 is wheelhead 14. Inside wheelhead 14 is cone 17. Mounted on cone 17 is turret 18.

[0013] FIG. 4 shows a detailed section view of the support and bearing assembly shown in FIG. 3. Spindle 20 is rigidly affixed to bowl 19 by nut 21. Lower ball track lower bearing 22 is affixed to lower ball track 12 allowing lower ball track 12 to freely rotate around spindle 20. Lower ball track lower bearing 22 is separated from bowl 19 by shims 23. Shims 23 provide separation between the stationary upper surface of bowl 19 and the lower rotating surface of lower ball track 12. In addition, shims 23 provide lower ball track 12 height adjustment depending on how many shims are installed. Lower ball track upper bearing 24 is rigidly attached to lower ball track 12 allowing lower ball track 12 to freely rotate around spindle 20 and also helps provide stability to lower ball track 12.

[0014] Sleeve 25 is rigidly affixed to wheelhead 14. Sleeve lower bearing 26 is affixed to sleeve 25 allowing sleeve 25 to freely rotate around spindle 20. Shims 27 separate the upper rotating surface of lower ball track 12 from the lower rotating surface of wheelhead 14. In addition, shims 27 provide height adjustment between the upper rotating surface of lower ball track 12 and the lower rotating surface of wheelhead 14 depending on how many shims are installed. Sleeve upper bearing 28 is rigidly attached to sleeve 25 allowing sleeve 15 to freely rotate around spindle 20 and also helps to provide stability to sleeve 25.

[0015] Cone lower bearing 29 is rigidly attached to cone 17 allowing cone 17 to freely rotate around sleeve 25. Cone lower bearing 29 rests on shims 31, which rest on, and are supported by, sleeve shoulder 32. In addition, shims 31 provide height adjustment between lower ball track 12 and cone 17, depending on how many shims are installed. Cone upper bearing 33 is rigidly attached to cone 17 and allowing cone 17 to freely rotate around sleeve 25 and also helps provide stability to cone 17.

[0016] Turret 18 is rigidly attached to sleeve 25. Since wheelhead 14 is also rigidly attached to sleeve 25, when wheelhead 14 rotates, wheelhead 14, sleeve 25 and turret 18 all rotate together. The lower rotating surface of turret 18 is separated from the upper surface of rotating cone 17 by shims 34. Shims 34 also provide height adjustment to turret 18.

[0017] In the roulette wheel 10 of the present invention, the lower ball track 12, wheelhead 14 and turret 18 as a unit, and cone 17 all rotate independently of one another. In another version of roulette wheel 10, lower ball track lower bearing 22, lower ball track upper bearing 24 and shims 23 are removed, and lower ball track 12 is rigidly affixed to bowl 19. In this version only cone 17, and wheelhead 14, sleeve 28 and turret 18 as a unit, rotate independently of one another.

[0018] While embodiments and applications of this invention have been shown and described, it would be apparent to those skilled in the art that many more modifications than mentioned above are possible without departing from the inventive concepts herein. The invention, therefore, is not to be restricted except in the spirit of the appended claims.

1. A roulette wheel including:

a central spindle;

a wheelhead and turret unit freely rotatable around the central spindle;

a cone freely rotatable around the central spindle independently of the wheelhead and turret unit; and

a lower ball track.

2. The roulette wheel of claim 1 wherein the lower ball track is stationary.

3. The roulette wheel of claim 1 wherein the lower ball track is freely rotatable around the central spindle independently of the wheelhead and turret unit and of the cone.

4. The roulette wheel of claim 1 wherein the wheelhead and turret unit is rigidly attached to a sleeve that freely rotates around the central spindle.

5. The roulette wheel of claim 4 wherein the wheelhead and the turret are connected to each other by the sleeve.

6. The roulette wheel of claim 1 wherein the cone is supported by a shoulder formed on the sleeve.

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