W. J. P. OLSEN.

PUZZLE OR TOY.

APPLICATION FILED SEPT. 21, 1911.

1,038,190.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.

Fig. 4.

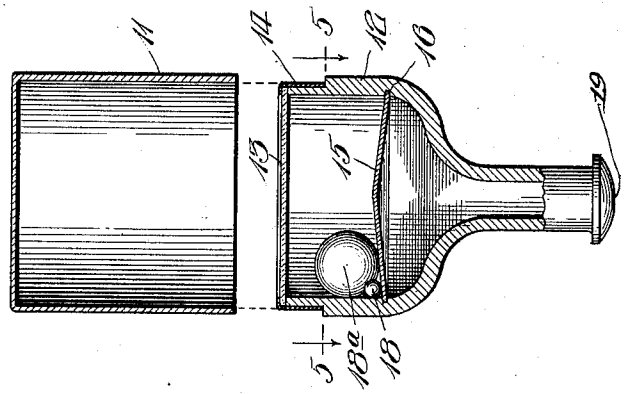


Fig. 5.

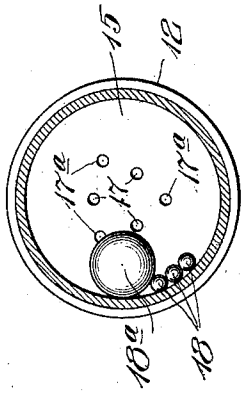


Fig. 2.

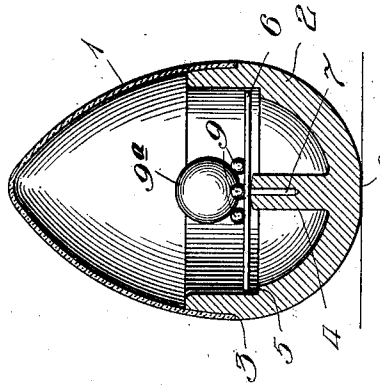


Fig. 6.

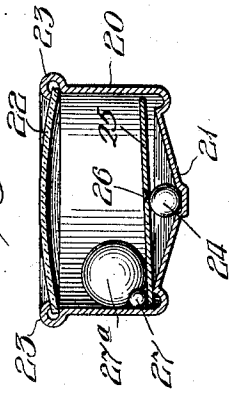


Fig. 1.

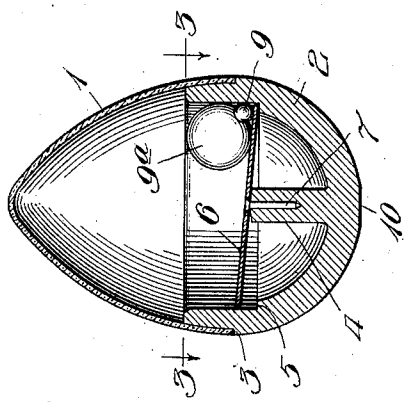
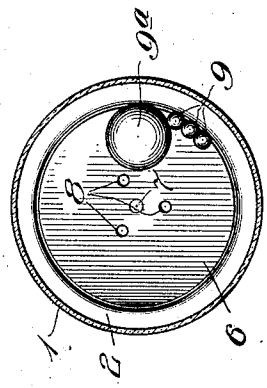


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 11.

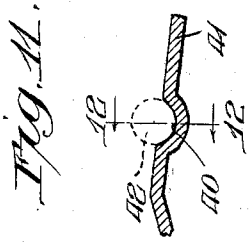


Fig. 12.

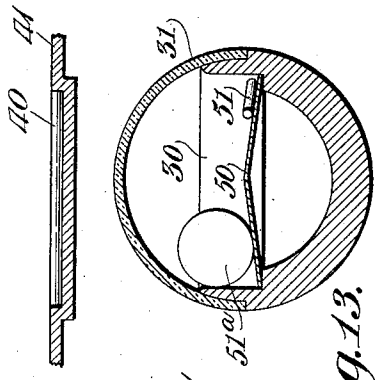


Fig. 13.

Fig. 9.

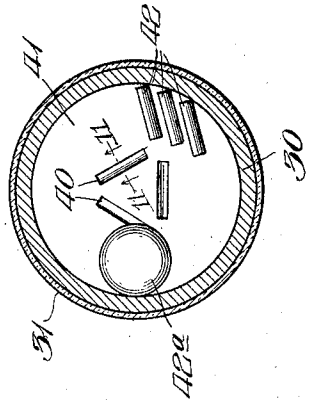


Fig. 10.

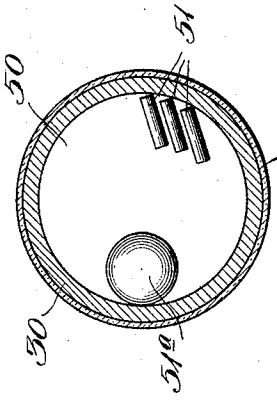


Fig. 7.

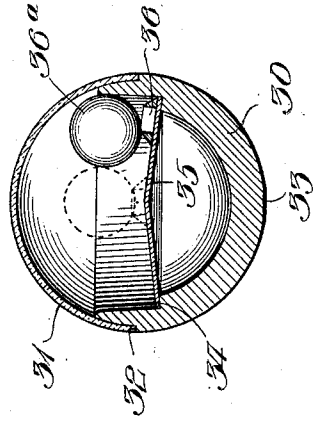
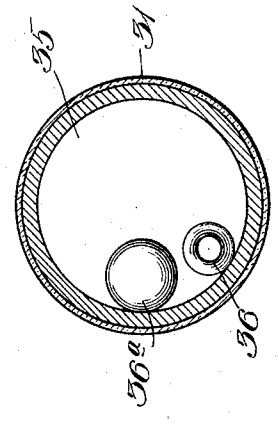


Fig. 8.



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UNITED STATES PATENT OFFICE.

WALDEMAR J. P. OLSEN, OF BROOKLYN, NEW YORK.

PUZZLE OR TOY.

1,038,190. Specification of Letters Patent. Patented Sept. 10, 1912.

Application filed September 21, 1911. Serial No. 650,541.

To all whom it may concern:

Be it known that I, WALDEMAR J. P. OLSEN, a subject of the King of Denmark, having declared my intention of becoming a citizen of the United States, residing at Brooklyn, in the borough of Kings and State of New York, have invented new and useful Improvements in Puzzles or Toys, of which the following is a full, clear, and exact description.

My invention relates to puzzles and toys and more particularly to those of the balancing type which require a certain manipulation of the interior parts to solve the puzzle. Its object is to construct the interior of a suitably shaped object in such manner that under ordinary conditions it is impossible to stand the same upon its end, but when certain prescribed things have been accomplished the object will readily balance upon its end. This I accomplish by the means and in the manner hereinafter fully described and as more particularly pointed out in the claims, reference being had to the accompanying drawings forming a part hereof, in which—

Figure 1 is a central vertical section of my invention showing an ovoid or egg-shaped object with the interior parts arranged in such position that the center of gravity is out of alinement with the axis of said object. Fig. 2 is a similar view, but showing the object in balance and standing upon an end. Fig. 3 is a transverse horizontal section thereof taken on line 3—3, Fig. 1. Fig. 4 is a central vertical section of a slightly modified construction of the exterior and interior of the puzzle. Fig. 5 is a transverse vertical section thereof taken on line 5—5, Fig. 4. Fig. 6 is a central vertical section of another modified construction. Figs. 7 and 8 are respectively central vertical and transverse horizontal sections of still another modification. Figs. 9 and 10 are transverse horizontal sections of other modified forms of my invention. Fig. 11 is a fragmentary vertical section taken on line 11—11, Fig. 9, drawn to a greatly enlarged scale. Fig. 12 is a longitudinal section taken on line 12—12, Fig. 11. Fig. 13 is a central vertical section through the puzzle shown in Fig. 10.

Referring more particularly to Figs. 1, 2 and 3, it will be observed that the puzzle or toy is ovoid or egg-shaped, and comprises separable upper and lower shells 1, 2, the former 1, of which is made of transparent material and is adapted to be seated on a suitable shoulder 3, formed on the exterior of the lower shell 2. This lower shell is preferably made of wood, aluminum or may be of transparent material slightly thicker than the upper shell, and it is provided with an axial stud or standard 4, on its inner surface that projects upwardly to a horizontal plane slightly above the transverse plane of an annular shelf or ledge 5, formed on the inner surface of said lower shell. A suitable rocking or tilting gravity platform 6, circular in outline, is pivotally mounted on the standard 4, by means of a pin 7. This platform is of a diameter slightly less than the interior diameter of the shell 2, above the plane of shelf 5, and a plurality of equi-distant radial recesses or seats 8 are made in the central portion thereof, as shown in Fig. 3 of the drawings. Placed loosely in the chamber above the platform 6, are several metallic balls 9 and a master-ball 9^a that is of considerably greater diameter and weight than the other balls. These balls, when the puzzle is placed in the position shown in Fig. 1 of the drawings, will naturally seek the lowest level to reach a position of rest and will consequently tilt the platform 6, to an oblique angle, which will result in displacing the center of gravity to a plane removed from the major axis of the egg. The balls 9 must be manipulated until each has been placed or seated in its respective recess 8 in the center of platform 6 in which position they will together form a triangular seat into which the master-ball 9^a can be readily placed, and thus the center of gravity will be established along the major axis of the egg so that it may be placed upright on one end, and allowed to stand upright. In order to assist slightly in supporting the egg in this latter position, I prefer to provide it with a small flattened portion 10, which affords a suitable seat therefor.

In the construction shown in Figs. 4 and 5 the object is bottle-shaped and comprises two separate shells, 11 and 12, the latter of which is closed on its end by a transparent plate 13, retained in place by an annular bezel or ring 14. Instead of pivotally mounting the transverse platform 15, on a post or standard, it is made with a convexed upper surface and is seated in an an-

nular groove 16, in the interior of the shell 12. Equi-distant radial recesses 17 are made in the central area, the same as in the first-described form of my invention while suitable baffle recesses 17ª are arranged adjacent thereto. The same number of metallic balls 18, and the larger master-ball 18ª are employed in this construction as are used in the preferred form of my invention, and the end of the bottle is provided with a flattened portion 19. The solution of the puzzle is accomplished in the same manner as in the preferred form.

The modification shown in Fig. 6 comprises a cylindrical cup-shaped box or compartment 20, having a frusto conical shaped bottom 21, and having its upper end closed by a transparent plate 22, that is securely held in position by the annular bearding 23, extending around the upper edge of the body. Seated in the frustum end of the bottom is a loose metal ball 24, the upper segment of which is in a plane slightly above the horizontal plane of the lower corner of the box. A rocking plate 25 having radially disposed equi-distant recesses 26 is placed on this ball so that its central portion is supported thereby. The seating balls 27 and the master-ball 27ª are placed on the upper surface of this plate and when the former have been placed in their respective recesses, and the master-ball 27ª seated on them, the box will be capable of being balanced on its lower end.

In Figs. 7 and 8 still further modified constructions are shown wherein the principle is the same as in the other forms described, namely, a movable seat for the master ball. However, in this construction the shells 30 and 31, are made hemispherical, the latter being transparent and seated in an annular exterior shoulder 32, and the former is provided with a flattened portion 33. A slight shelf 34 is formed on the interior of the shell 30 by increasing the diameter of the bore of the same and a convexed platform or plate 35 is seated thereon. The master-ball 36ª being placed on this platform, it is free to move to the outer edge and will overbalance the same. However, in order to seat the ball, a washer or disk 36, having beveled upper edges is placed on the platform with the master-ball 36ª. One method of balancing the master-ball is to raise the same to the upper edge of the washer, and by lightly tapping the side of the shell the washer and ball are moved along from the wall until the weight of the ball seats the same in the washer. By continuing this tapping, the washer and ball may be gradually moved to the apex or crest of the plate, and while remaining there the shells may be balanced on the flattened portion 33. Another method would be to slide the washer 36 to the central crest of the platform and seat the ball therein by jumping or rolling the latter.

In Figs. 9 and 10, ball or spherical-shaped bodies having a convexed platform similar to that just described, are employed, but instead of employing a washer, suitable metal pins are utilized to form the seat for the master-ball. In Fig. 9 elongated recesses 40 are made in the convex plate or platform 41 and the pins 42 are adapted to be placed therein to form a triangular seat in which the master-ball 42ª must be placed in order to balance the shells. In Fig. 10 the recesses 40 are omitted and the convex plate 50 supports the pins 51 that are magnetized so that they will be attracted to the master-ball 51ª, and when properly arranged equi-distant around the ball and moved to the center of plate 50, the shell will be properly balanced to allow it to stand on its flattened portion.

While I have shown and described a number of modified structures, it will be observed that the same principles are involved in each, *i. e.*, the seating of a master-ball (or weight) in the center of the platform to balance the object, and the use of a movable seat, all of which must be placed so as to bring the center of gravity over a flattened portion of the object to stand the same on one end.

What I claim as new is:—

1. A puzzle comprising a closed shell, a support in one end thereof, a tilting plate the central portion of which rests on said support, a weight movable on said plate, and devices also movable on said plate that are adapted to form a seat for said weight and balance said shell.

2. A puzzle comprising a closed shell, a support in one end thereof, a tilting plate resting on said support and provided with recesses, a weight movable on said plate, and devices adapted to be placed in said recesses and form a seat for said weight and thereby balance said shell.

3. A puzzle comprising a closed shell, a support in one end thereof, a tilting plate resting on said support in one end thereof, a tilting plate resting on said support and provided with recesses, a ball movable on said plate, and devices adapted to be placed in said recesses and form a seat for said ball and thereby balance said shell.

4. A puzzle comprising a closed shell, a support in one end thereof, a tilting plate resting on said support and provided with recesses, a weight movable on said plate, and a plurality of balls adapted to be placed in said recesses and form a seat for said weight and thereby balance said shell.

5. A puzzle comprising a closed shell, a support in one end thereof, a tilting plate resting on said support and provided with recesses, a master-ball movable on said plate,

and a plurality of balls adapted to be placed in said recesses and form a seat for said master-ball and thereby balance said shell.

6. A puzzle comprising a shell, a weight within the same, a platform in said shell upon which said weight is movable and which normally keeps said weight adjacent the edge thereof, and means movable within said shell that forms a seat for said weight and thereby balances said shell.

7. A puzzle comprising a shell, a weight within the same, a platform in said shell upon which said weight is movable and which normally keeps said weight adjacent the edge thereof, and means movable within said shell that forms a seat in the center of said platform for said weight and thereby balances said shell.

8. A puzzle comprising a shell, a weight within the same, a platform in said shell upon which said weight is movable and which normally keeps said weight adjacent the edge thereof, a plurality of recesses in the center of said platform, and devices adapted to be placed in said recesses and form a seat for said weight and thereby balance said shell.

9. A puzzle comprising a shell, a ball within the same, a platform in said shell upon which said ball is movable and which normally keeps said ball adjacent the edge thereof, a plurality of recesses in the center of said platform, and a corresponding number of balls adapted to be placed in said recesses and form a seat for said ball and thereby balance said shell.

In witness whereof I hereunto set my hand this 16th day of September, A. D. 1911.

WALDEMAR J. P. OLSEN.

Witnesses:
FRANK D. THOMASON,
FLORENCE R. MITCHELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."