Aug. 13, 1935. E. S. BOYNTON 2,011,266

MAZE PUZZLE

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Fig. 1.

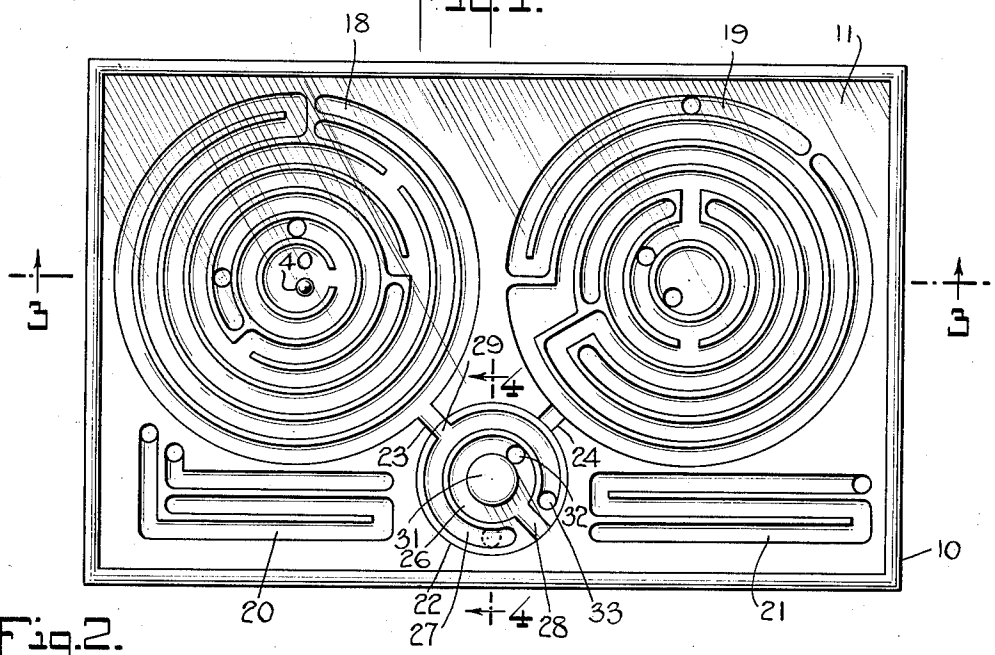


Fig. 2.

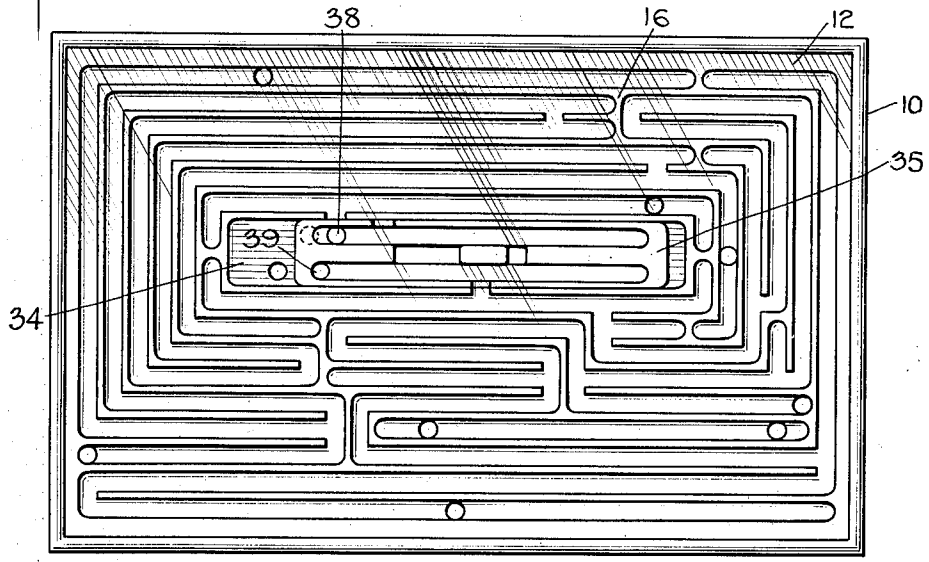


Fig. 3.

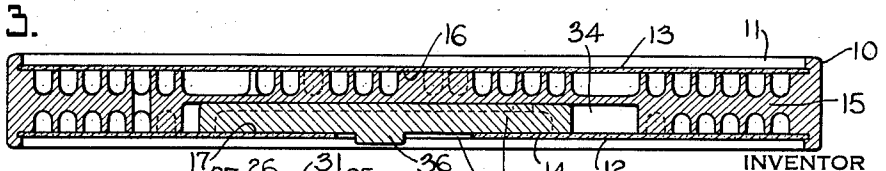
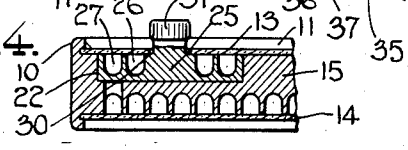


Fig. 4.



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Fig. 5.

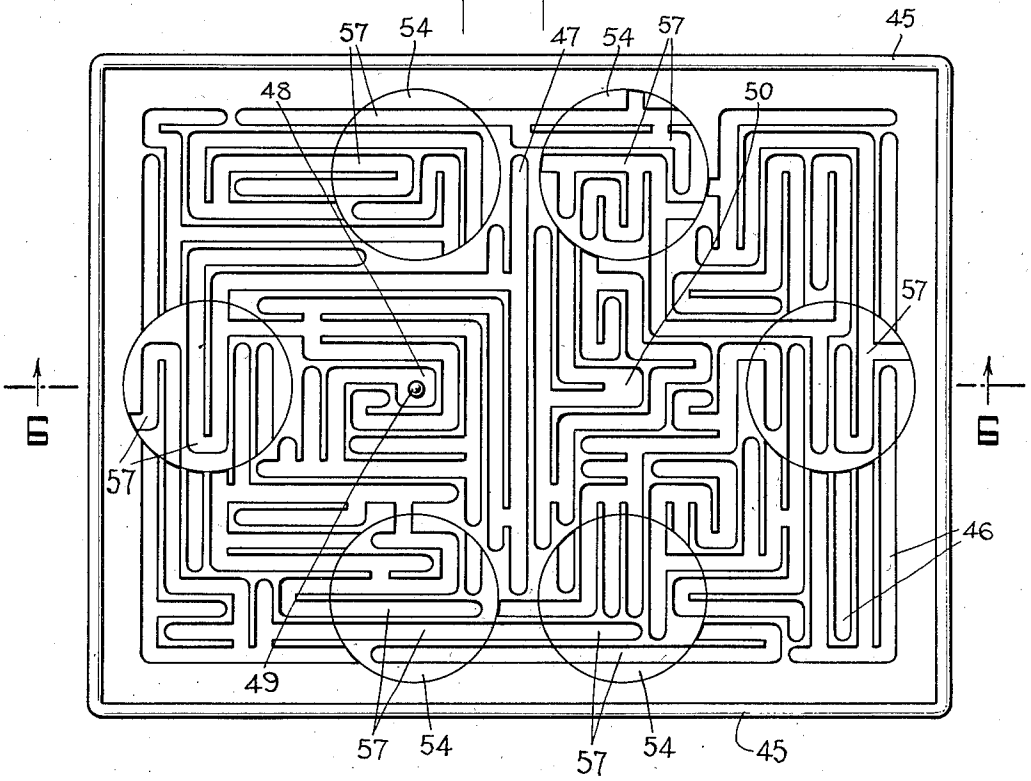
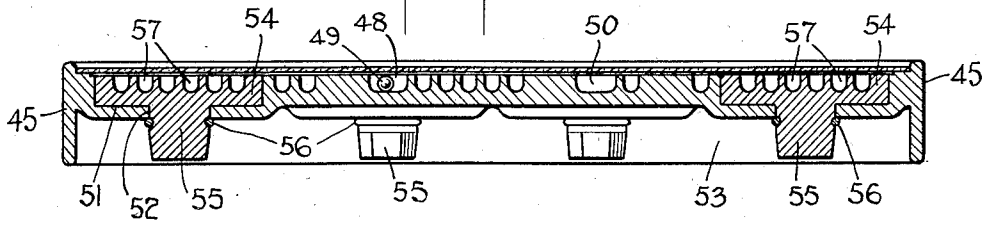


Fig. 6.



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MAZE PUZZLE

Earl S. Boynton, East Orange, N. J.

Application February 8, 1934, Serial No. 710,242

6 Claims. (Cl. 273—153)

My present invention relates to puzzles, and more particularly to an improved labyrinth-puzzle.

A feature of my invention resides in combining, with a labyrinth-puzzle, movable elements for switching the ball, or other travelling element, from one portion of the labyrinth to another.

A further feature of my invention resides in the provision, in a switching element for a labyrinth-puzzle, of a sub-labyrinth formed in and constituting part of the switching element.

A still further feature of my invention resides in combining with a double-faced labyrinth, a movable element or elements, functioning as a switch or switches, for transferring the ball, or other travelling element from one face to the other face of the double faced labyrinth.

Further features and objects of the invention will be more fully understood from the following detail description and the accompanying drawings, in which

Fig. 1 is a plan view of one face, of one embodiment of my invention;

Fig. 2 is a plan view of the other face of the embodiment of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a section on the line 4—4 of Fig. 1;

Fig. 5 is a plan view of another embodiment, and

Fig. 6 is a section on the line 6—6 of Fig. 5.

The puzzle consists of a shallow box or frame 10, preferably rectangular in form, the opposite faces of which are recessed, as indicated by the reference characters 11 and 12 respectively. In the recess 11 is secured a cover 13, of glass, celluloid or other suitable material, and a similar cover 14 is secured in the recess 12. Preferably formed integral with the box or frame 10 and lying between the covers 13 and 14, is a diaphragm 15, in the faces 16 and 17 of which are formed labyrinths to be hereinafter described.

In one face of the diaphragm, as the face 16, shown in plan in Fig. 1 and in section in Fig. 3, is a labyrinth comprised of two substantially circular labyrinths or mazes 18 and 19, auxiliary labyrinths 20 and 21, superficially disconnected from the labyrinths 18 and 19, and a circular well 22. The well 22 is connected to the labyrinth 18 by the groove 23 and to the labyrinth 19 by the groove 24.

Rotatably mounted in the well 22 is a cylindrical member 25 having its upper surface—as viewed in Figs. 1 and 4, lying in the same plane as the surface 16 of the diaphragm 15, and in this face are the circular grooves 26 and 27 connected respectively with the outer edge of the member 25 by the radial grooves 28 and 29 respectively. Formed integral with the member 25 and extending upward from its upper surface through a perforation 30, in the cover 13, is a knob 31 and by means of which the member 25 may be rotated. In the groove 26 is a vertical perforation 32, while in the groove 27 is a vertical perforation 33. The function of these holes 32 and 33, and the rotatable cylindrical member 25 is to permit the transfer of the ball or travelling element from the labyrinth or labyrinths on the face 13 to the labyrinth 16 on the face 14, and vice versa.

On the face 17 the labyrinth is shown in the form of a plurality of parallelly arranged grooves, as shown in Fig. 2, and substantially centrally located in the face 17 is a rectangular compartment 34 in which is slidably mounted a grooved plate 35. Extending outwardly from the plate 35 is an operating knob 36 which works in an elongated slot 37 in the cover 14. The plate 35 is provided with perforations 38 and 39 which may be brought into registry with perforations in the diaphragm 15 to permit the transfer of the ball or other travelling member 40 from the labyrinth on the face 14 to the labyrinth 18 on the face 13, or vice versa.

The diaphragm 15 is perforated at various points, as designated by the reference numeral 41, it being noted that such perforations 41 connect the bottoms of the grooves of the labyrinths on one of such faces with the well 22 or the rectangular compartment 34.

The rotatable cylindrical member 25 and the sliding plate 35 have been added to stimulate the interest of the person attempting to solve the puzzle, and renders the puzzle more difficult of solution. In solving this modification of the puzzle both the member 25 and the plate 35 must be utilized, and all of the labyrinths, except the blind labyrinths 20 and 21 must be brought into play. There is a correct path over which the ball, or other travelling member 40 must move to have such member move from the position at the center of the labyrinth 18 to the center of the labyrinth 19, and the finding of this path is rendered more or less difficult by the character of the various labyrinths and by the members 25 and 35.

In the form of the invention shown in Figs. 5 and 6 there is provided preferably a rectangular flat plate 45 on one face of which, as the upper face shown in Fig. 6, is arranged a labyrinth or

maze 46 of any degree of complexity and intricacy desired. It will be noted on reference to Fig. 5 that the labyrinth 46 is divided naturally into two portions by the groove 47, which groove forms part of the labyrinth 46. On one side of the groove 47 is a chamber 48, from which it is usual to start the traveller, such as the ball 49. On the right hand side of the groove 47 and forming part of the labyrinth 46 is a chamber 50 similar to chamber 48 and the object of the puzzle is to move the traveller or ball 49 from the chamber 48 through the labyrinth 46 and into the chamber 50.

The face of the rectangular plate 45 on which is formed the labyrinth 46, is provided at various points about the surface thereof, with preferably cylindrical depressions 51. Centrally arranged with regard to such depressions 51, and in the bottom thereof, are perforations 52. The under face of the rectangular plate 45 is recessed as shown in Fig. 6, and as indicated by the reference numeral 53. Mounted for rotation in the cylindrical depressions 51 are the cylindrical labyrinth switch elements 54, and preferably, though not necessarily, each of switch elements 54 has formed integral therewith and on the under face thereof, an extension 55 which extends through the perforation 52 and is rotatably mounted therein. The lower end of the extension 55 is made non-circular or otherwise fashioned to facilitate the gripping thereof in order to rotate the cylindrical switch member 54 in its associated depression 51. Adjacent the point of emergence of extension 55 is formed a groove in which is situated a snap ring 56 which holds the cylindrical switch element 54 in its associated cylindrical depression 51.

The number of switch elements 54 employed may be as numerous as desired. For the purpose of arranging such elements symmetrically about the face of the rectangular plate 45, I have shown six such switch elements 54, but as stated above, the number is immaterial and does not affect the patentability of my invention.

The upper face of each of the switch elements 54 stands flush with the face of the rectangular plate 45 in which the labyrinth 46 is formed. Also in the face of each switch element 54 are formed grooves 57, which grooves upon rotation of the switch element 54 may be brought into registry with one or more of the grooves forming the labyrinth 46. The grooves 57 of the switch elements 54 may be merely transfer grooves, and by means of which the traveller or ball 49 is passed from a groove of the labyrinth 46 on one side of a switch 54 to a groove of the labyrinth 46 on the other side of such switch 54, or the system of grooves 57 in some or all of the switch elements 54 may be so complex in character as to constitute a labyrinth or sub-labyrinth.

I have found that plurality of switch elements 54 with a labyrinth or sub-labyrinth on the face thereof adds to the interest in the puzzle, as ordinarily there is one path over which the traveller or ball 49 may pass from the chamber 48 into the chamber 50. With the various switch elements 54, it is possible to not only further complicate the labyrinth path including, the labyrinth 46, but also to devise short cuts so that the number of paths over which the traveller or ball 49 may travel is increased.

My device is of such character as to permit it to be made of molded or moldable material, such as bakelite or other similar well known commercial material, and thus may be made in quantities at relatively low costs.

The form and shape of the device and the labyrinths and other elements may be varied as desired without departing from the spirit of the invention.

I claim:

1. A puzzle comprising a box having transparent heads, a diaphragm arranged parallel with said heads and dividing the box into separate compartments and provided on both sides thereof with labyrinths for the guidance of a ball, perforations extending through said diaphragm and a switching device associated with the labyrinths on one face of the diaphragm for permitting the passage of the ball from one face to the other.

2. A puzzle comprising a box having transparent heads, a diaphragm arranged parallel with said heads and dividing the box into separate compartments and provided on both sides thereof with labyrinths for the guidance of a ball, perforations extending through said diaphragm and switching devices associated with the labyrinths on each face of the diaphragm for permitting the passage of the ball from one face to the other.

3. A puzzle comprising a box having transparent heads, a diaphragm arranged parallel with said heads and dividing the box into separate compartments and provided on both sides thereof with labyrinths for the guidance of a ball, a switching device associated with the labyrinths on one face of the diaphragm and perforations extending through said diaphragm and associated with the switching devices whereby the passage of the ball from one face to the other of the diaphragm is permitted.

4. A puzzle comprising a box having transparent heads, a diaphragm arranged parallel with said heads and dividing the box into separate compartments and provided on both sides thereof with labyrinths for the guidance of a ball, a rotatable switching device on one face of the diaphragm associated with said perforations, and means for connecting said switch with the labyrinths on its associated face, whereby passage of the ball from such labyrinths through said latter perforations to the other face of the diaphragm is permitted.

5. A puzzle comprising a box having transparent heads, a diaphragm arranged parallel with said heads and dividing the box into separate compartments and provided on both sides thereof with labyrinths for the guidance of a ball, a reciprocating switching device on one face of the diaphragm associated with said perforations, and means for connecting said switch with the labyrinths on its associated face, whereby passage of the ball from such labyrinths through said latter perforations to the other face of the diaphragm is permitted.

6. A puzzle comprising a plate having a labyrinth or maze formed in one face thereof, a plurality of switching elements rotatably mounted in said plate and having a labyrinth or maze formed in one face thereof, and means for rotating the switch elements to selectively bring the grooves of the labyrinth thereon into registry with the grooves of the labyrinth in the face of the plate.

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