United States Patent [19]

Scott

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[54] **SPHERE AND PINS ASSEMBLY PUZZLE**

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[52] **U.S. Cl.** **273/156**
[51] **Int. Cl.** **A63f 9/12**
[58] **Field of Search** ..... 273/1 R, 156

[56] **References Cited**

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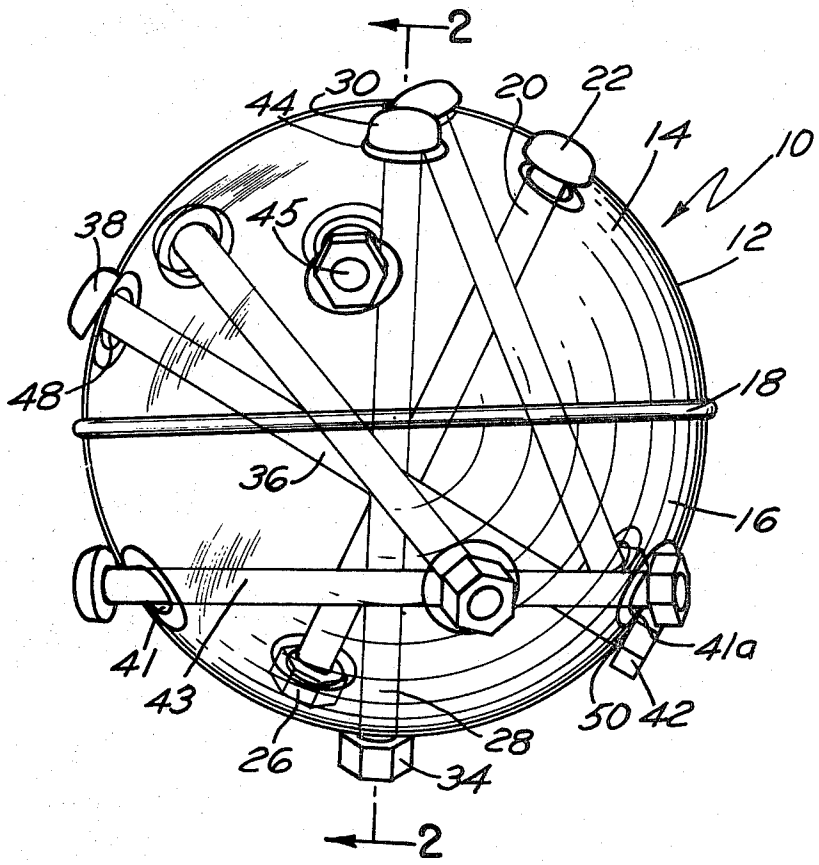
"Straw Balance," Reader's Digest Book of 1000 Family Games, copyright 1971 by the Reader's Digest Assoc., Inc., Pleasantville, N.Y. page 376

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[57] **ABSTRACT**

A puzzle game comprising a hollow sphere having a plurality of openings randomly formed therein, each of the openings being alignable with another opening, and a plurality of pins of predetermined dimensions, each of which is selectively inserted by a player through a pair of aligned openings wherein the puzzle is solved when the length of each pin as inserted through the aligned openings generally corresponds to the dimension of the chord line which is extended just beyond the outer surface of the sphere between the aligned openings.

4 Claims, 4 Drawing Figures



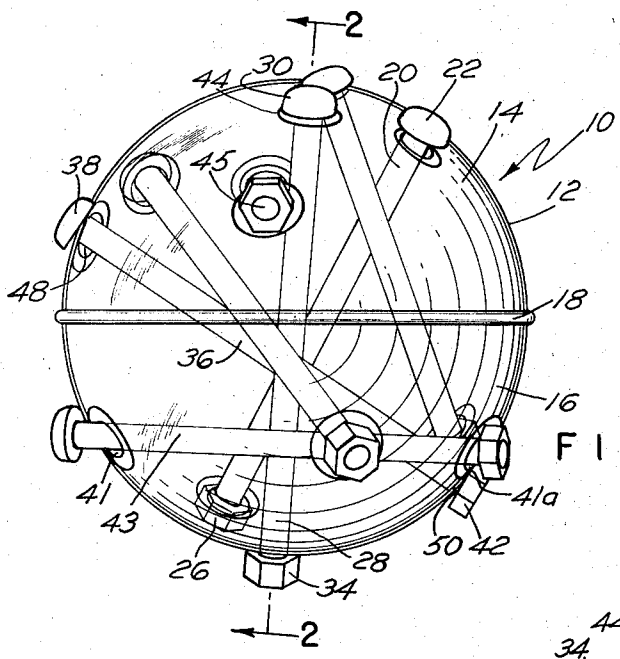


FIG. 1

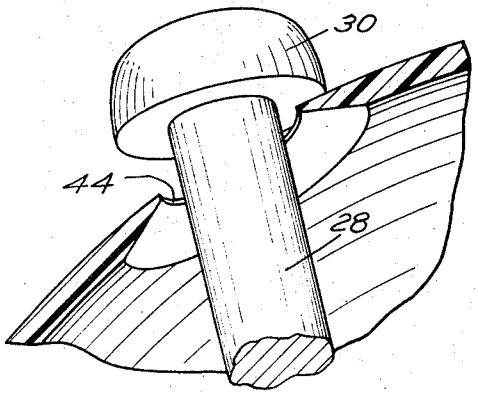


FIG. 3

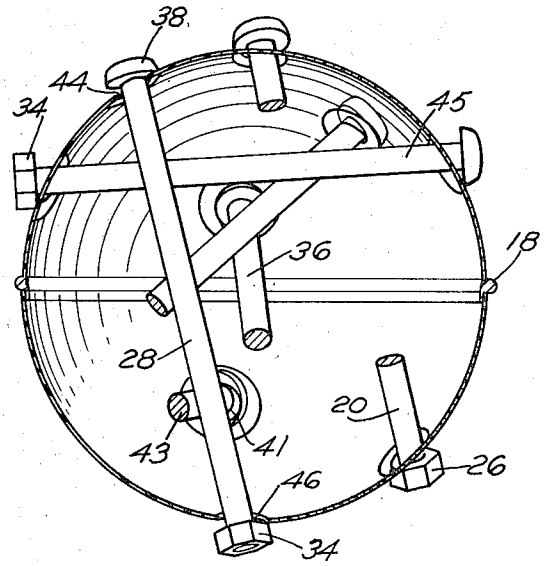


FIG. 2

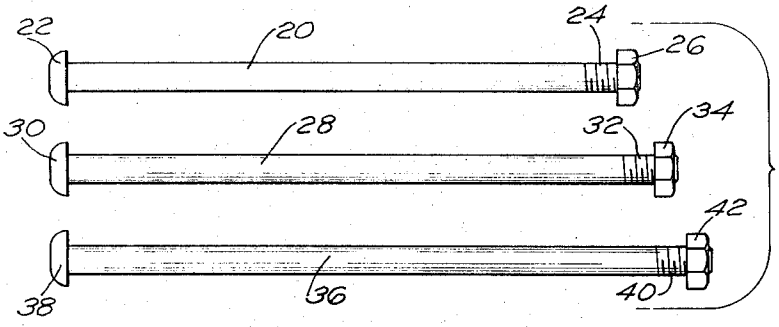


FIG. 4

SPHERE AND PINS ASSEMBLY PUZZLE

BACKGROUND OF THE INVENTION

The present invention relates to a game device and has particular application as a puzzle game, wherein a player by his skill and intelligence attempts to locate components of the game in proper predetermined positions.

Puzzle games have been known heretofore and have taken various forms as determined by the structural embodiments thereof. Some of the heretofore known puzzle games have been rather complicated in structure and, therefore, have been relatively prohibitive in cost for the ordinary consumer. Therefore, as a general rule, the most successful of the heretofore known puzzle games have been uncomplicated, yet have provided sufficient play interest to attract the player in the use thereof. In all such puzzle games the maximum appeal is obtained when the early solution to the puzzle is determined by the skill of the player. Thus, the puzzle game has maximum interest when it can be used to test the intelligence and progress of the user in the play of the game.

SUMMARY OF THE INVENTION

The puzzle game as embodied in the present invention includes a hollow sphere preferably formed of a transparent plastic material and having a plurality of openings formed in random relation therein. The openings are formed such that each may be aligned with another, wherein a line extending through the aligned openings defines a chord of the sphere that when extended just beyond the outer surface of the sphere has a predetermined length. A plurality of pins are provided of varying lengths, but each pin is of a predetermined length that corresponds to the length of one of the chords formed by the aligned openings in the sphere. The object in solving the puzzle is to locate each pin in an appropriate set of aligned openings so that the pin may be firmly secured therein. Each of the pins is formed with a head that defines a stop as the pin is inserted into one of the aligned openings, the other end of the pin having a threaded portion formed thereon. Upon projection of the pin through the other aligned opening of the sphere, a threaded nut is mounted on the threaded portion thereof. When all of the pins have been correctly inserted through the appropriately aligned openings, the end of each pin will protrude from the sphere just enough so that the nut when located on the threaded portion of a pin will fit flush with the end thereof. The solution to the puzzle is to locate all of the pins in the prescribed aligned openings.

Accordingly, it is an object of the present invention to provide a puzzle game by which the skill of the player is required in order to successfully solve the puzzle involved.

Another object of the invention is to provide a puzzle game which is relatively simple in the operation thereof so as to appeal to players of all ages, and is further economical in the manufacture so as to enable the puzzle to be successfully marketed.

Another object of the invention is to provide a puzzle game that includes a transparent sphere having a plurality of randomly located openings formed therein, a plurality of pins being included as part of the puzzle and being insertable through the openings in the sphere by a player in accordance with a prescribed solution so that when correctly located, each of the pins protrudes just beyond the surface of the sphere for receiving a fastener in flush relation thereon.

Other objects, features and advantages of the invention shall become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

DESCRIPTION OF THE DRAWINGS

In the drawings which illustrate the best mode presently contemplated for carrying out the present invention:

FIG. 1 is an elevational view of the puzzle game embodied in the present invention, wherein the pins that are included as components in the game are located in the assembled position thereof;

FIG. 2 is a sections view taken along line 2—2 in FIG. 1;

FIG. 3 is an enlarged fragmentary sections view of a portion of the sphere used in the puzzle game showing a pin inserted in an opening therein; and

FIG. 4 is an elevational view of several of the pins as used in the puzzle game.

DESCRIPTION OF THE INVENTION

Referring now to the drawing and particularly to FIG. 1, the puzzle game as embodied in the present invention is illustrated and is generally indicated at **10**. The puzzle game **10** is generally of that type that requires the player to selectively place components of the game in a prescribed array, and the solution to the puzzle depends upon the skill and intelligence of the player.

As illustrated in FIG. **1**, the puzzle game **10** includes a sphere **12** that is formed of a transparent plastic material and that is divided into hemispheres indicated at **14** and **16**. The hemispheres **14** and **16** are separated by a median line **18** that is preferably formed as a beaded portion extending around the junction of the hemispheres. The hemispheres **14** and **16**, which are preferably molded of a transparent plastic material, are joined together at the beaded median line **18** in some appropriate manner, such as by an adhesive, or the plastic material may be heated to a fusing temperature wherein the hemispheres are joined together by fusing of the mating edges thereof.

Formed in the hemispheres **14** and **16** are a plurality of holes or openings that are located in random relation. As will be described, in the solution of the puzzle each of the holes or openings as formed in the hemispheres **14** and **16** is alignable with another opening, and the line extending through the aligned openings defines a chord of the sphere. The puzzle game **10** also includes a plurality of pins of varying dimension as illustrated in FIG. **4**; and since the chord lines as defined by correctly aligned openings in the sphere have a prescribed dimension, a pin corresponding to the prescribed dimension of the chord line must be inserted by the player through the aligned openings for correct location of the pin. The rules of the puzzle game provide that each pin must extend through a pair of aligned openings such that the ends of the pins just extend or protrude outwardly of the surface of the sphere, and in effect each pin substantially corresponds to the dimension of the chord line between the aligned openings through which it is inserted.

As illustrated in FIG. 4, each of the pins comprises a bolt having a head and a threaded end portion on which a nut is adapted to be mounted. Pins are formed in varying dimension; and as illustrated in FIG. 4, a pin 20 is provided with a head 22 and has a threaded portion 24 formed on an end thereof. A nut 26 is securable on the threaded portion 24 of the pin 20. A second pin 28 is illustrated as having a slightly greater length than the pin 20 and has a head 30 formed on one end and a threaded portion 32 formed on the other end for receiving a nut 34. A third pin 36 is illustrated in FIG. 4 as being of greater length than the pins 20 and 28 and includes a head 30 and a threaded portion 40 that receives a nut 42 thereon. In all, seven pins are utilized in the play of the game, and of the remaining four pins, two are of the same length as pin 20, one is the same length as the pin 36. It is understood that each of the pins as used in the puzzle game 10 is formed with a head on one end and a threaded portion on the other end that receives a nut in threaded relation thereon.

As described hereinabove, the beaded projection 18 divides the sphere 12 into hemispheres 14 and 16; and as presently contemplated and illustrated, an equal number of the openings is formed in each hemisphere. Although the majority of openings as formed in one hemisphere are aligned with openings formed in the other hemisphere, the puzzle is made more interesting by providing at least one pair of aligned openings in each hemisphere. This is represented by the openings 41 and 41*a* formed in hemisphere 16 and through which a pin 43 extends. The hemisphere 14 also includes aligned openings through which a pin 45 extends.

In the play of the game, the player attempts to solve the puzzle by inserting each pin in what he considers to be the correctly aligned openings. If the dimension of the chord line of the selected openings corresponds to the length of the pin selected, the pin will project through the openings, the head of the pin engaging the outer surface of one of the openings and the threaded portion of the pin protruding just beyond the surface of the other opening. The nut is then mounted on the protruding threaded portion of the pin, and the nut when screwed on will fit substantially flush with the end of the pin as it protrudes through the surface of the sphere.

Referring again to FIGS. 1 and 2, the pins are shown inserted in appropriately aligned openings; and as illustrated, each of the pins projects just beyond the surface of the sphere for receiving a nut thereon. The openings as formed in the sphere 10 have a diameter that is slightly less than the diameter of the heads of the pins so that the head of each of the pins engages the surface of the sphere and defines a stop. The nut for each of the pins also has a dimension that is greater than the diameter of the openings and, therefore, will define a stop so as to lock the pin in position in the sphere.

After the player has selected what he considers to be the correct aligned openings for a particular pin, he inserts that pin therethrough. As illustrated in FIGS. 1 and 2, the pin 28 has been inserted through aligned openings 44 and 46. With the nut 34 mounted on the portion 32 of the pin 28, the outer surface of the nut 34 fits substantially flush with the end of the pin. This indicates that the pin 28 has been inserted through the correctly aligned openings and that the chord line as defined by the openings 44 and 46 corresponds generally to the length of the pin 28. The pin 36 has been inserted through openings 48 and 50, and the nut 42 has been mounted on the threaded portion of the pin 36, the outer surface thereof fitting substantially flush with the end of the pin. This also indicates that the pin 36 has been inserted through the correctly aligned openings. As further illustrated in FIG. 2, the nut 26 has been mounted on the threaded portion 24 of the pin 20 and fits flush with the outer edge thereof. It is seen that when all of the pins as employed in the play of the puzzle game are inserted through the correctly selected openings, the chord lines of which correspond generally to the length of each of the pins, the puzzle is solved. In this connection the player may check the solution by shaking the sphere. If any of the pins rattle as mounted in the aligned openings, one or more of the pins have been improperly fitted therein. This indicates that the player has not correctly solved the puzzle. The puzzle is solved only after all of the pins have been inserted into the correctly aligned openings so that the nuts as mounted on the threaded portion of each of the pins fits substantially flush with the outer surface of the pins. As described, the pins used in solving the puzzle are of various lengths and each pin must be inserted through an appropriately aligned opening so that all of the pins as fixed in the sphere will be firmly attached in place therein and will not rattle upon shaking of the sphere.

It is contemplated that the shank of each of the pins will be provided with a number thereon for purposes of identification. However, the openings as randomly formed in the sphere 12 will not be so identified, thereby enhancing the play value of the puzzle. The numbers as formed on the shank of the pins may be utilized for describing the solution to the puzzle in any directions that will be provided with the puzzle game; and in the written solution of the puzzle game, each of the aligned openings may be assigned a number that will correspond to the numbers formed on the shanks of the pins. In this manner, the solution to the game will be available to the players by reference to the written material supplied with the game.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except insofar as indicated by the scope of the appended claims.

What is claimed is:

1. A puzzle game, comprising a hollow sphere having a plurality of openings formed at random therein, each of said openings being alignable with another opening, wherein a line extending through the alignable openings defines a chord of said sphere that when extended just beyond the outer surface of the sphere has a preselected dimension, and a plurality of pins, each being of predetermined length that has a corresponding relation to the preselected dimension of a chord, wherein each of said pins is properly securable in said sphere only if it is related in dimension to a preselected chord length after being inserted through a pair of openings, each of said pins having a head on one end thereof and a threaded portion formed on the other end thereof, said head having a diameter that is greater than that of said

openings wherein the head of each pin defines a stop for a pin when it is located in a pair of aligned openings, a threaded nut corresponding in size to the head of a pin and being securable to the threaded portion thereof, said nut cooperating with the head of a pin to secure the pin in a pair of aligned openings.

2. A puzzle game as set forth in claim **1,** a pin being properly securable in said sphere when the threaded portion thereof protrudes just beyond a opening in which the pin is inserted for receiving a nut thereon in substantially flush relation with respect to the end thereof.

3. A puzzle game as set forth in claim **2,** said sphere being formed of a transparent plastic material, wherein said pins as secured therein are externally visible.

4. A puzzle game, comprising a hollow sphere having a plurality of openings formed at random therein, each of said openings being alignable with another opening, wherein a line extending through the alignable openings defines a chord of said sphere that when extended just beyond the outer surface of the sphere has a preselected dimension, and a plurality of pins, each being of predetermined length that has a corresponding relation to the preselected dimension of a chord, wherein each of said pins is properly securable in said sphere only if it is related in dimension to a preselected chord length after being inserted through a pair of openings, said pins being of various lengths so that only one pin is correctly insertable through any selected pair of aligned openings, each pin having a head formed on one end thereof and a threaded portion on the other end, a nut being receivable on the threaded portion after the pin is inserted through the aligned openings to lock the pin in the sphere.

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