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Ellman et al.

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[54] **MAGNETIC GAME CONSTRUCTION**

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[52] **U.S. Cl.** ..... **273/153 R,** 35/66, 46/240, 273/1 M, 273/130 A

[51] **Int. Cl.** **A63f 9/08**

[58] **Field of Search** ..... 273/1 R, 1 M, 130 A, 273/153 R; 46/238, 239, 240; 35/61, 66; 40/28 C

[56] **References Cited**

UNITED STATES PATENTS

3,543,146	11/1970	Sherwood	273/137 AE X
2,263,115	11/1941	Winter	273/1 M UX
3,033,573	5/1962	Castle et al.	46/240 X
3,625,516	12/1971	Handweller et al.	273/1 M X
3,615,993	10/1971	French	35/61 X
3,416,231	12/1968	Mercorelli	35/66 X
3,572,719	3/1971	Span et al.	273/1 M X
3,012,369	12/1961	West	46/238
3,384,371	5/1968	Ryan et al.	273/1 R
3,426,453	2/1969	Dingwall et al.	46/239 X
3,365,824	1/1968	Winrow	40/28 C
3,427,029	2/1969	Riva	273/1 M X

OTHER PUBLICATIONS

Knott's Catalogue of Scientific Instruments, copyright 1916, page 279 relied on.

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[57] **ABSTRACT**

A pair of lower and upper members, the latter having an array thereon of enclosures for spacedly containing respective magnet pieces while permitting inversion thereof within the enclosures under the influence of a manually manipulated magnetic control device.

10 Claims, 5 Drawing Figures

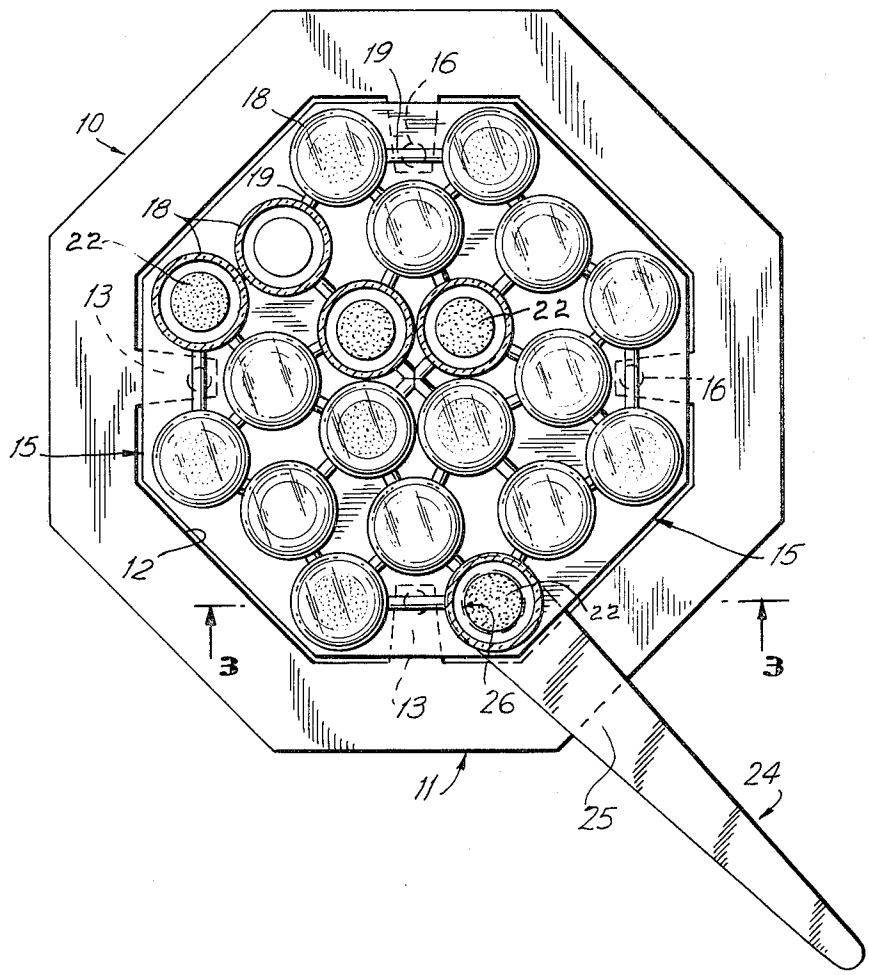


FIG. 1

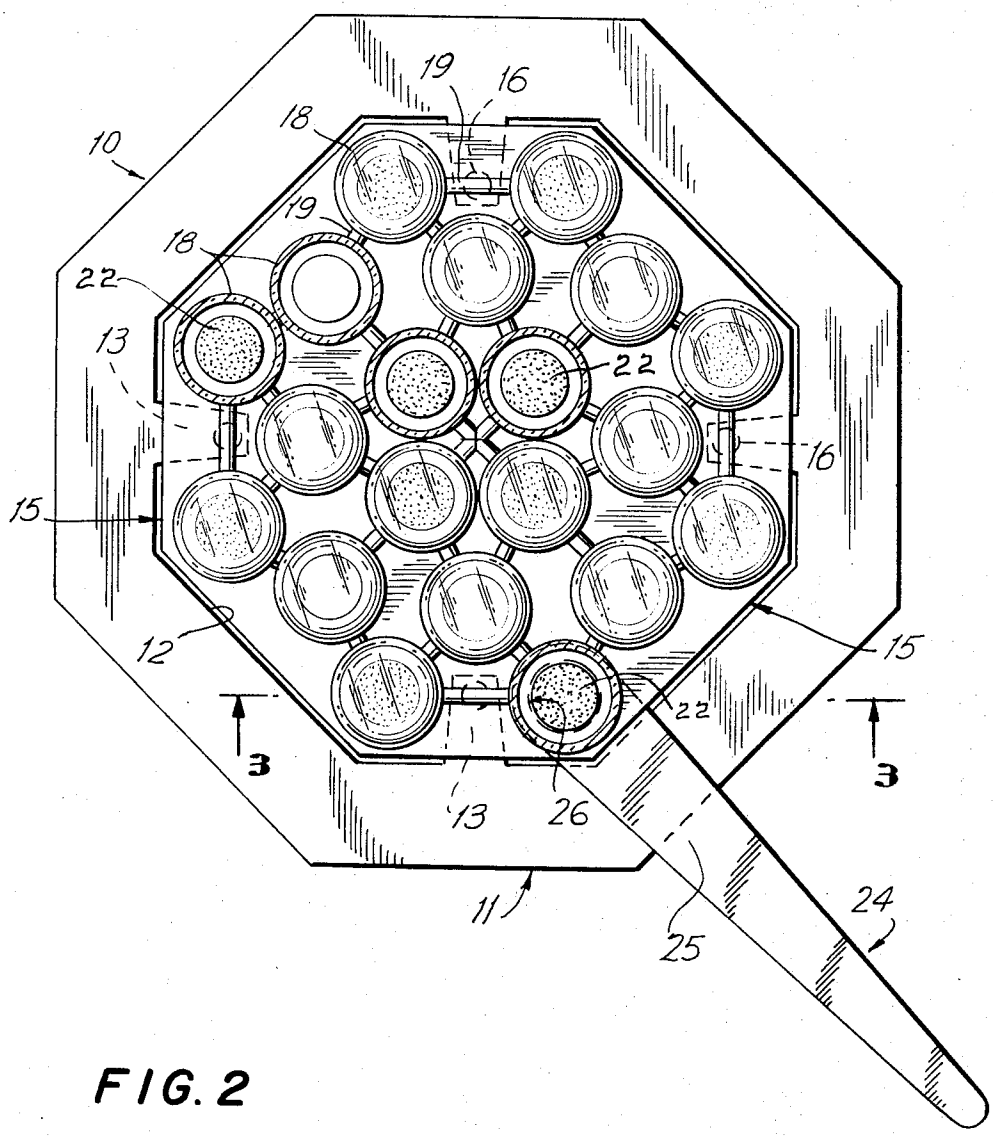
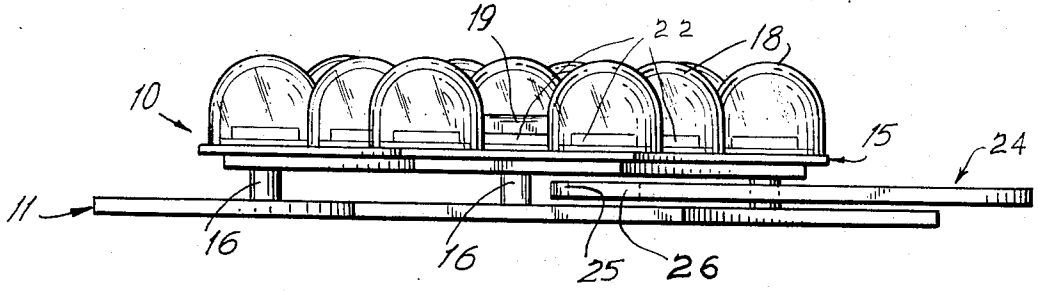

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FIG. 2


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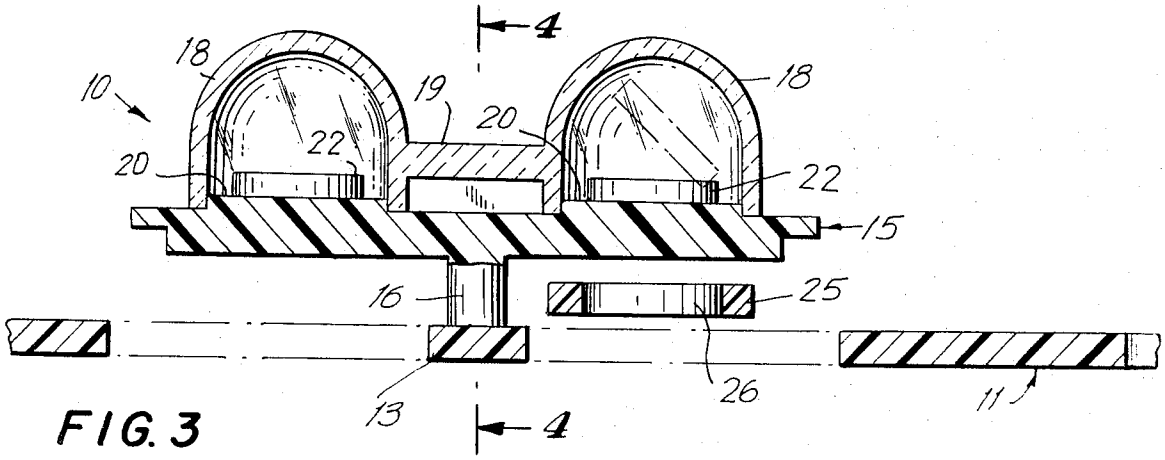


FIG. 3

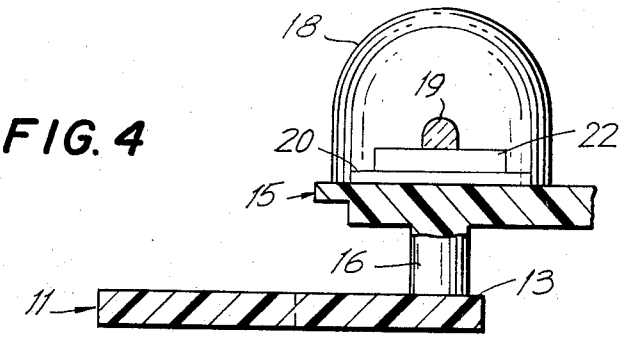


FIG. 4

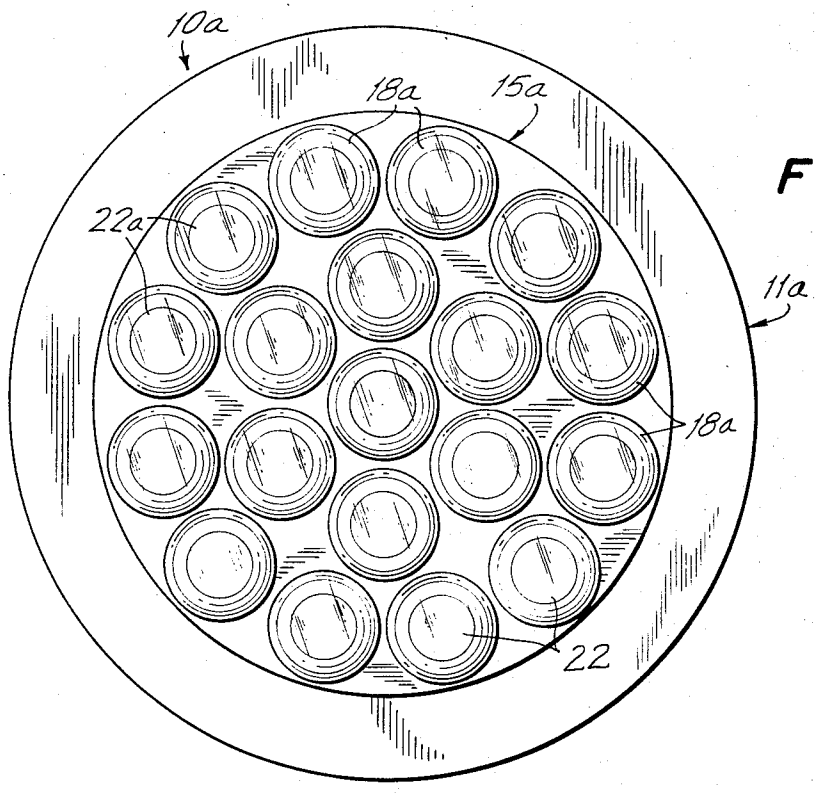


FIG. 5

MAGNETIC GAME CONSTRUCTION

BACKGROUND OF THE INVENTION

While there are in the prior art numerous games, puzzles, and the like, utilizing magnets, such prior art constructions have not resulted in a game or puzzle of the instant general type wherein simple but selective manipulation of a control device serves to develop skill and require mental thought and concentration, which levels of skill and thought are highly variable throughout an extremely wide range, as selected by the manufacturer of the device.

SUMMARY OF THE INVENTION

It is, therefore, an important object of the present invention to provide a game, puzzle, or the like employing magnet pieces, and wherein a control device, such as a wand, or other, may be manipulated with substantial freedom of movement to enhance the user's dexterity, and further wherein the ultimate objective of orienting the magnetic pieces requires thought, so as to be both mentally and physically challenging and educational.

It is another object of the present invention to provide a game construction having the advantageous characteristics mentioned in the preceding paragraph, which is extremely simple so as to be capable of economic manufacture by mass production techniques for economy in manufacture and durability throughout a long useful life.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view showing a game construction of the present invention and partially broken away for clarity of understanding.

FIG. 2 is a side elevational view of the device of FIG. 1.

FIG. 3 is a partial sectional elevational view taken generally along the line 3—3 of FIG. 1, enlarged for clarity of detail.

FIG. 4 is a partial sectional elevational view taken generally along the line 4—4 of FIG. 3.

FIG. 5 is a top plan view showing a slightly modified embodiment of game construction in accordance with the teachings of the instant invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now more particularly to the drawings, and specifically to FIGS. 1 and 2 thereof, a game construction of the present invention is there generally designated 10, and may advantageously be fabricated of plastic or other suitable material, as by molding, or other desired mode of manufacture. The game construction 10 includes a generally flat, normally horizontal, lower support or base member 11, which, for purposes of illustration and without limiting intent, may be of polygonal configuration, say octagonal, as shown in

FIG. 1. The lower support or base member 11 is adapted to rest horizontally on a suitable horizontal surface, such as a tabletop, or other (not shown). Centrally within the lower support or base member 11, there is formed a through opening 12, which may be similar to and smaller than the lower member, say also of octagonal configuration. A plurality of extensions or arms, as at 13, may project generally radially inwardly from the base member 11, substantially coplanar therewith, terminating short of each other, for a purpose appearing presently.

An additional, generally flat, substantially horizontal upper or platform member is generally designated 15 and disposed in parallel spaced relation over the lower support member 11. More specifically, the upper, platform member 15 may be of a configuration similar to that of the lower member 11, say of octagonal configuration as illustrated, or other suitable configuration, and disposed centrally over the lower member, as directly over the central opening 12. The upper, platform member 15 is generally flat, and supported in spaced relation over the lower support member 11 by suitable means, such as a plurality of posts or columns 16 upstanding from nether arms or extensions 13.

Carried on the upper side of the platform member 15 may be a plurality of enclosures or cages 18, each of which may be generally dome-shaped, as best seen in FIGS. 2–4. However, other suitable configurations of enclosures 18 may also be employed, such as openwork constructions, so that the enclosures 18 may be considered as cages, for containing certain elements, as will appear presently.

The cages or enclosures 18 may be connected together, as by generally horizontal connection pieces or rods 19, so as to form a unitary array, and to simulate the appearance of a molecular structure, if desired. Further, the upper member or platform 15 may be provided on its upper surface with a plurality of lands or bosses, as at 20, see FIGS. 3 and 4, for engagement into respective enclosures or cages 18, to effectively locate the cages and close the lower ends thereof.

The structure thus far described, namely the lower member 11, upper member 15, and the enclosures or cages 18, may all be advantageously fabricated of plastic, such as transparent plastic, or other suitable nonmagnetic material.

Disposed within each enclosure or cage 18, normally resting horizontally therein, as on the respective boss 20, is a magnet piece, which may advantageously be a disc or cylindrical member having its opposite faces of opposite magnetic force. Further, the opposite faces or sides of the magnet pieces 22 are advantageously marked or decorated in different manners, say being of different colors. While the magnet pieces 22 are illustrated as being discs, they may be of other configuration, if desired.

The relationship of the size and configuration of each magnet piece 22 to its containing enclosure or cage 18 is such that the magnet piece may rise vertically and invert or turn completely over, while being laterally limited or restrained against undue horizontal movement. In this manner, the several magnet pieces 22 are maintained in a predetermined array, having their respective locations approximately fixed, as within the limits defined by the enclosures or cages 18. Further, the several enclosures or cages 18 are located in predetermined arrangement with respect to each other, having

spacing and relationship with respect to the outline configuration of the platform as desired to maintain a certain level of skill and competence in play of the game, as will appear presently.

In addition to the above described structure, the game **10** includes a control device generally designated **24,** which may comprise an elongated generally flat bar, handle or wand **25.** The elongate wand or handle **25** is of a thickness permitting of free entry in a generally horizontal condition between the vertically spaced lower and upper members **11** and **15.** This condition is shown in FIGS. **1–3.** It will also there be apparent that the width or lateral dimension of the handle **25** is sufficiently great to prevent axial rotation or inversion of the handle **25** when in the space between the lower and upper members **11** and **15.**

The control device **24** further includes a magnet, as at **26,** carried in one end region of the handle **25** say a disc magnet generally coplanar with the handle. Thus, it will be understood that the control device **24** carries the magnet **26** for entry into the space between the lower and upper members **11** and **15,** the spacing therebetween limiting vertical movement of the handle **25** and its magnet **26,** and preventing axial rotation of the handle and inversion of the magnet **26.**

In practice of the instant invention, the game **10** is played by attempting to arrange the several magnet pieces **22** so as to form a predetermined pattern of color or markings, or the like. For example, in the illustrated embodiment the inner ring or circle of magnet pieces **22** may be of one color, corresponding to one upwardly facing pole, the intermediate or middle ring being of one or the other upwardly facing color, and the outer ring being of a similar predetermined upwardly facing color or magnetic pole. In order to obtain the desired predetermined arrangement of magnet pieces **22,** a player must, with skill and forethought, manipulate the control device **24** so as to move its magnet **26** in the precise predetermined path necessary to magnetically cooperate with certain predetermined magnet pieces **22,** and avoid magnetic coaction with other of the magnetic pieces. By such dexterous and predetermined movement of the control device magnet **26,** certain of the magnetic pieces **22** will be caused to be inverted, while others will remain without being inverted.

Of course, the arrangement of enclosures or containers may be varied to cause the game or puzzle to be difficult or easy, as desired, so that the game of the principles described hereinbefore is capable of being manufactured to interest and absorb persons of widely varying ages, manual skills and powers of thought.

While the upper or platform member **15** has been illustrated as being fixed relative to the lower or base member **11,** the platform member may be rotationally mounted, if desired, or may be integral with the lower member or fabricated separately therefrom and fixedly secured thereto. Also, the enclosures or cages **18** may be of other suitable configuration, say reticulate or open-work structure, or cylindrical having their upper end open, and sufficient to prevent escape of the contained magnet piece **22.**

By way of illustration, there is shown in FIG. **5** a slightly modified form of game **10a** in accordance with the instant invention, including a lower or base member **11a** which is, for purposes of illustration, shown as generally circular, and an upper or platform member **15***a*, also generally circular and disposed centrally of and in spaced relation above the support member. On the upper surface of the platform member **15***a* are provided a plurality of enclosures or cages **18***a* arranged in a desired configuration, and each containing therein a magnet piece **22***a* adapted to be raised vertically for inversion within the containing enclosure, while being limited against undue lateral or sideways movement within the enclosure. The embodiment of game **10a** shown in FIG. **5** may be employed with a magnetic control device such as that described in connection with FIGS. **1–4,** utilized in essentially the same manner. Also, as noted hereinabove, the platform member may, if desired, be rotatably mounted with respect to the base member. For example, in FIG. **5,** the platform member **15***a* could rotate about its axis, suitably mounted about a centrally disposed post or column (not shown).

From the foregoing, it is seen that the device of the present invention provides a game or puzzle which is extremely simple in construction, so as to be capable of economic manufacture and sale, while being uniquely attractive to persons of wide physical and mental range, and which otherwise fully accomplishes its intended objects.

It will also be appreciated that the control device may be equipped with a plurality of magnets, such as two so that the game or puzzle can be provided with further complexity in solution and offer additional challanges to the player.

When in operation, it should also be noted that the sideward magnetic forces of one magnet reacting on the other adjacently disposed magnets appears to cause an unstable relationship between such magnets, so that the slightest disturbance by either a movement of the entire platform or of the bringing the magnetic control device or wand in close poximity or relationship with the platform may not only cause one magnet to change its North, South position but actually such magnets in turn will react on the other near-by magnets in a haphazard or random manner so that an uncontrolled "Chain Reaction" will result and disrupt any predetermined array a player may have previously achieved with the magnets.

The dimensional arrangement of the enclosures and/or spacings between same determines whether or not the game will be difficult or easy to solve or whether it is impossible to solve because as the magnets are disposed further apart, the magnetic side forces which repel the magnets have less force and effect on each other and therefore create a more stable balance or relationship between the magnets and thus it would be easier to activate one magnet at a time without the magnets having any effect on acting on each other; and conversely by bringing the magnets closer together and increasing the instability of the magnets, it becomes more difficult to solve the game because then the magnets react with greater force on each other.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention.

What is claimed is:

1. A game construction comprising: a base having a plurality of at least partially transparent cages disposed thereon, said base and said cages being fabricated of

nonmagnetic material, a magnet piece having a pair of visually distinguishable flat sides resting freely in each of said cages and being capable of moving sideways and of flipping over in any direction in said cage, a magnetic control device adapted to be selectively movable in proximity to said cages so as to magnetically communicate with said magnet pieces for orienting them in a desired pattern; said cages located on said base at predetermined distances from each other such that any one magnet piece will constantly exhibit and effectuate magnetic force relationships between other adjacently disposed magnet pieces, and be capable of disturbing the attitude of and causing an unstable and unpredictable condition of said other magnet pieces, upon any movement in any direction of any one of said magnet pieces by said magnet control device; and said magnet pieces exhibiting varying magnetic lines of force in a constantly changing plurality of directions as said magnets vary in distance from each other in a side by side relationship and as said magnets vary in attitude towards each other as they lift off said base and are turned or flipped over, whereby any array previously achieved with said magnet pieces may be subjected to an uncontrolled reaction and reorientation depending upon the skill in which said control device is manipulated among said cages.

2. The game according to claim **1,** wherein said magnet pieces are shaped in the form of a disk.

3. The game according to claim **1,** wherein said pair of flat sides of each of said magnet pieces are marked differently.

4. The game according to claim **3,** wherein one side of said pair of flat sides of each of said magnet pieces is marked by color.

5. The game according to claim **4,** wherein the other side of said pair of flat sides of each of said magnet pieces is maked by another color.

6. The game according to claim **1,** wherein one side of said pair of flat sides of each of said magnet pieces is provided with the same markings.

7. The game according to claim **6,** wherein the other side of said pair of flat sides of each of said magnet pieces is provided with a marking different from said marking on said one side of said magnet piece.

8. The game according to claim **1,** wherein said cages form a complete closure or housing about said magnet pieces and said material is a plastic.

9. The game according to claim **8,** wherein said plastic material is transparent.

10. The game according to claim **9,** wherein said plastic material is clear in color.

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