MAGNETIC BUILDING GAME

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ABSTRACT

The present invention provides a magnetic building game having substantially planar game pieces. Each piece has a plurality of magnets disposed at separate locations on a perimeter of the piece. Pieces are not coupled directly to each other, but are coupled using magnetically receptive connectors.
MAGNETIC BUILDING GAME

FIELD OF THE INVENTION

[0001] The field of the invention magnetic games.

BACKGROUND OF THE INVENTION

[0002] Magnets have been used in games to hold game pieces to each other as well as to hold game pieces to a game board. In a game having a game board, typically the game pieces are magnetic and the board is magnetically attracted. While this may work well to hold pieces to a board, problems occur when magnetized pieces are to be positioned next to each other or connected to each other. One problem is that sides of a magnet having similar polarity repel instead of attract, and it becomes virtually impossible to connect some sides or to place some sides next to others.

[0003] U.S. Pat. No. 4,741,534 to Rogahn teaches a puzzle apparatus in which any side of a cube shaped magnetic game piece can be placed directly next to any other side of any other piece. The ‘534 patent accomplishes this by enclosing a “freely moving” magnetic ball within a spherical chamber in each cube shaped piece. Gravity and magnetic attraction cause the ball to position itself in the middle of the piece and close to the game board. Because the ball is positioned in the middle of the piece, no two magnets are close enough to cause pieces to repel from each other. Although the design taught by Rogahn allows any side of any piece to be placed next to any side of any other piece, having a fully enclosed ball compromises the holding strength of the magnet. Another disadvantage from the standpoint of flexibility is that Rogahn requires a game board.

[0004] U.S. Pat. No. 5,411,262 to Smith teaches a puzzle that does not use a game board. Smith describes magnetized pieces that are “keyed” so that only specific sides can be connected to specific other sides resulting in a particular configuration. While keying the polarity forces a user to construct the puzzle in the desired configuration, the concept of keying is not practical for a building game that is meant to be flexible in the types of configurations that can be made.

[0005] Magnetic Stix & Balls™ by Corners of the World, Inc. is another game that uses balls, however without a game board. The “Stix & Balls” game uses steel balls to connect magnetized pieces. The pieces are all elongated in shape and have a circular cross-section. Each piece is fitted with a magnet on each end thereby allowing pieces to be connected to one another using steel balls. While the game pieces may be used to build a variety of different configurations, the game is limited to stick figures because of the shape and size of the pieces.

[0006] There is a need for a magnetic building game that does not use a board, yet is highly flexible in the types of configurations that can be constructed.

SUMMARY OF THE INVENTION

[0007] The present invention provides a magnetic building game having first and second substantially planar game pieces. The pieces each have a plurality of magnets disposed at separate locations on a perimeter of the piece. Using a connector that is not affixed to either game piece, any one of the magnets on the first game piece can be magnetically coupled to one of the magnets on the second game piece.

[0008] A further aspect includes a magnetic building game having a plurality of game pieces, each having an embedded magnet. The game pieces couple to each other at a point on the magnet using a magnetically attracted connector.

[0009] In yet a further aspect, the invention is directed toward a substantially planar magnetic game piece comprising an embedded magnet that receives a connector at a point.

[0010] Various objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of preferred embodiments of the invention, along with the accompanying drawings in which like numerals represent like components.

BRIEF DESCRIPTION OF THE DRAWING

[0011] FIG. 1 is a side view of a prior art magnetic construction game.

[0012] FIG. 2 is a side view of a game piece.

[0013] FIG. 3 is a perspective view of an alternative game piece.

[0014] FIG. 4 is a perspective view of a plurality of magnetically coupled game pieces.

[0015] FIG. 5 is a perspective view of another alternative game piece.

DETAILED DESCRIPTION

[0016] In FIG. 1, a prior art magnetic construction game 100 includes game pieces 110 and connectors 120. The game pieces 110 all have an elongated shape with a circular cross section and the connectors are all spherically shaped. While configurations can be formed using the elongated pieces and spherical connectors, the prior art game is limited to outlines or stick-figures. Additionally, configurations formed using the elongated game pieces and spherical connectors are not sturdy and are subject to movement about the spherical connectors. For example, four sticks and four connectors can be used to form a square. However, this same square can easily become misshapen by movement of the sticks about the spherical connectors. Such movement can cause the angles at the corners to change from 90° resulting in a generic parallelogram shape instead of a square.

[0017] FIG. 2 depicts a side view of a game piece 200 having a plurality of magnets 210, 220, 230, and 240.

[0018] Magnets 210, 220, 230, and 240 are all positioned diagonally (i.e. elongated in a direction from the middle of the game piece toward a corner of the perimeter). While such positioning of the magnets is not a requirement of the inventive subject matter, it is preferred. In less preferred embodiments, the magnets can be positioned toward any portion of the perimeter of the game piece. It should be understood that by positioning the magnets diagonally, the otherwise substantially square game piece becomes octagonal.

[0019] It is preferred that magnets have a substantially elongated shape with a leading end surface (i.e. exposed portion) of less than 25 mm², a trailing end surface of less than 25 mm², and a length of about 3 cm. In preferred embodiments, leading end surfaces 212, 222, 232, and 242 are the only surfaces of the magnets that are subject to contact to a connector.
Game piece 200 has a connector receiving hole 250 that is sized and dimensioned to snugly receive a connector (not shown). Connector receiving holes are optional, but can be used for connecting game pieces or for simply for adorning a game piece.

Game pieces can be molded from any suitable any non-magnetically conductive material. Preferably, pieces are made from a thermoplastic such as polyethylene. Alternative constituent materials include polypropylene, polystyrene and other plastics, and also porcelain, ceramics, composites, and so forth. In a particularly preferred class of embodiments, pieces are at least partially translucent and are colored in various colors.

FIG. 3 shows a perspective view of a game piece 300. From this view, it can be seen that a game piece is substantially planar. "Substantially planar" as defined herein means substantially flat—that is, the thickness 335 of the piece 300 at the perimeter 330 (also referred to as the "side wall") is no more than 1 cm. Preferred pieces have a thickness of 5 mm or less and even more preferred pieces have a thickness of 2 mm or less. It should be understood that the thickness can vary depending on the area of the top surface 320 and along those lines it is contemplated that the thickness of a piece will range up to 1 cm for every 5 cm² of area of the top surface 320. A preferred game piece has an top surface area of at least 5 cm².

Magnets 340, 350, 360, and 370 are disposed along the perimeter 330 of the game piece 300. Typically, a game piece will have an aperture in the perimeter 330 through which an exposed portion 342 of the magnet protrudes. It is this exposed portion 342 that is magnetically coupled to a connector. For purposes of this application, "point" means the area of the exposed portion that contacts a connector. In a preferred class of embodiments, the exposed portion of the magnet will have a surface area less than 6 mm² and the point will have a surface area of less than 2.5 mm². Additionally, it is preferred that the point of the magnet be substantially coextensive with the surface of the perimeter. More particularly, the exposed portion of the magnet is advantageously positioned ±1.5 mm of the surface of the perimeter.

FIG. 4 depicts a magnetic building game 400 in which a plurality of magnetically coupled game pieces 410, 420, 430, and 440 are magnetically coupled to each other using connectors 450, 455, 460, and 465. A connector is used to magnetically couple game pieces. Thus, connectors are magnetically attracted to a magnet and typically comprise iron and/or steel. It should be pointed out that a connector can receive either north or south sides of a magnet, and in fact a single connector can receive two or more sides of similar polarity.

Connectors 450, 455, 460, and 465 are all spherically shaped, however, this is not a requirement. The main requirements for a connector are that it be configured to accept the protruding surface of a magnet, and that it be capable of accepting more than one magnetic surface of like polarity. Thus a connector should be capable of accepting two north sides or two south sides.

A connector is not "affixed" to either game piece. This means that the connectors are not embedded in the game pieces or permanently attached to the game pieces. Despite not being affixed, connectors magnetically couple to game pieces.

Some of the advantages of a magnetic building game may be better appreciated if one equates the pieces with walls of a structure. For example, a substantially enclosed cube-shaped structure can be constructed using six square pieces connected using connectors.

FIG. 5 shows a round game piece 500. The game piece has elongated magnets 510, 520, 530, and 540 that extend from the middle of the piece toward the perimeter 550. It can be observed that within the perimeter 550 is an aperture 555 and a portion 522 of magnet 520 protrudes out of the aperture 555.

The shape of game pieces may vary considerably so long as the pieces are all substantially planar as defined herein. Other suitable shapes include square, octagon, triangle, rod, tubes, and so on.

Thus, specific embodiments and applications of a magnetic building game have been disclosed. It should be apparent, however, to those skilled in the art that many more modifications besides those already described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be restricted except in the spirit of the appended claims. Moreover, in interpreting both the specification and the claims, all terms should be interpreted in the broadest possible manner consistent with the context. In particular, the terms "comprises" and "comprising" should be interpreted as referring to elements, components, or steps in a non-exclusive manner, indicating that the referenced elements, components, or steps may be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced.

What is claimed is:

1. A magnetic building game, comprising:
   - first and second substantially planar game pieces, each having a plurality of magnets disposed at separate locations on perimeters thereof;
   - a connector, not affixed to either of the game pieces, which magnetically couples any one of the plurality of magnets on the first game piece with any other one of the plurality of magnets on the second game piece.

2. The game of claim 1, wherein the connector has a spherical shape.

3. The game of claim 1, wherein each game piece has an aperture through which an exposed portion of the magnet protrudes.

4. The game of claim 1, wherein each game piece has a thickness less than 1 cm.

5. The game of claim 1, wherein each magnet is elongated in a direction from the middle of the game piece toward a corner of the perimeter.

6. The game of claim 3, wherein the exposed portion of the magnet has a surface area that is less than 6 mm².

7. A substantially planar magnetic game piece, comprising:
   - a partially embedded magnet that receives a connector at a point.

8. The game piece of claim 7, wherein the connector is a steel ball.

9. The game piece of claim 7, wherein the point has a surface area less than 2.5 mm².
10. A magnetic building game, comprising:
   a plurality of game pieces, each having a partially embedded magnet; and
   a connector that couples any two of the game pieces at a point on the magnet.

11. The game of claim 10, wherein game pieces have a side wall that defines a width of the game pieces, and wherein the point on the magnet forms a substantially continuous surface with the side wall.

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