June 18, 1957 H. E. VAYO 2,795,893

MAGNETIC TOY BLOCKS

Filed Nov. 17, 1954

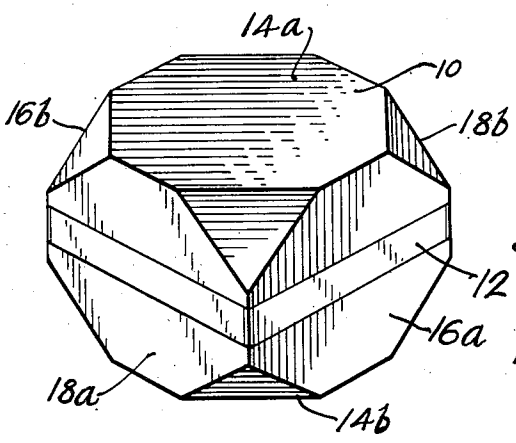


Fig. 1.

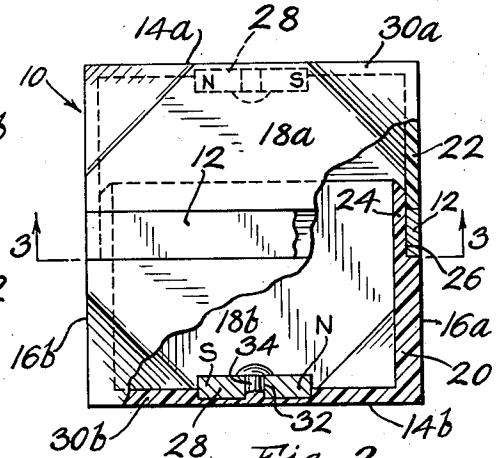


Fig. 2.

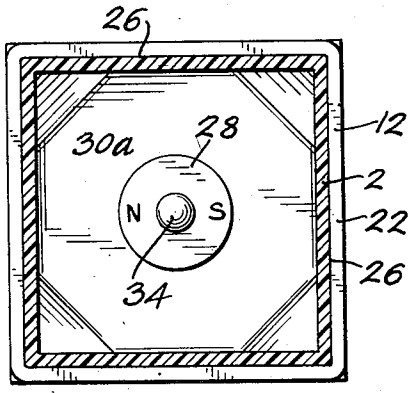


Fig. 3.

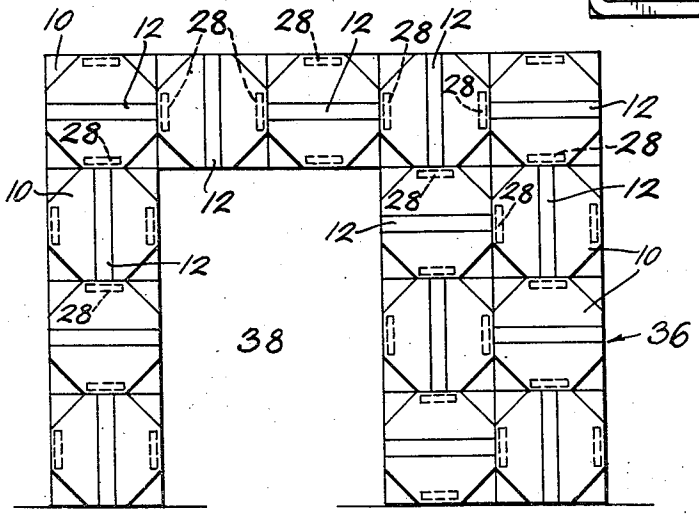


Fig. 4.

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United States Patent Office 2,795,893 Patented June 18, 1957

2,795,893

MAGNETIC TOY BLOCKS

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Application November 17, 1954, Serial No. 469,395

2 Claims. (Cl. 46—24)

This invention relates to toy blocks, and more particularly, to magnetic toy blocks.

One of the most enjoyable and educational children's toys are toy blocks. A child does not tire of them easily and they develop his imagination and dexterity as he attempts to stack them in different ways.

The conventional cube shaped building block is, however, quite limited in the number and type of structures that can be assembled from its as no means are provided for joining one block to another in order to form archways, roofs and the like. Magnetic toy blocks are also known which are held together by bar magnets within the block and opening onto opposite faces thereof. However, a single bar magnet is used which enables only certain of the blocks to be held together by magnetic attraction while others remain unattracted in all but the simplest combinations.

It is, therefore, the principal object of the present invention to provide a magnetic toy block which when used in combination with other like blocks can be assembled to form a structure with each block firmly held in place magnetically.

A second object of the toy block of the present invention is the provision of a magnetic toy which requires the exercise of considerable ingenuity on the part of the child in order to assemble the blocks so that each is magnetically attracted to one or more of the others.

A further object of the invention is to provide magnetic toy blocks which are decorative in appearance, lightweight, sturdy, and safe.

Other objects will be in part apparent and in part pointed out specifically hereinafter in connection with the description of the drawing which follows; and in which:

Figure 1 is a perspective view of a magnetic toy block made in accordance with the present invention;

Figure 2 is a side elevation of the block, portions of which have been broken away to show the internal structure of the block as well as the position of the permanent magnets and the soft iron band;

Figure 3 is a section taken along line 3—3 of Figure 2; and,

Figure 4 is a diagrammatic view showing the manner in which a number of the blocks might be formed into a wall having an opening with each block securely held to at least one other block magnetically.

Referring now in particular to Figure 1 of the drawing, reference numeral **10** indicates the magnetic toy building block of the present invention in its entirety. The block has been illustrated in the form of a cube with the corners removed to transform the square faces into octagons. It is apparent that the block could also be made in the form of a cube; however, the shape shown is preferred in that it is more decorative in appearance, is somewhat stronger and eliminates the pointed corners which might cause injury. For the purposes of description the upper and lower octagonal face as seen in Figure 1 will be referred to as faces **14***a* and **14***b* respectively. One pair of parallel octagonal side faces in Figure 1 will be designated

faces **16***a* and **16***b* and the other pair faces **18***a* and **18***b*. A soft iron band **12** encircles the block along faces **16***a* and **16***b*, and **18***a* and **18***b*, midway between faces **14***a* and **14***b*.

In connection with Figure 2 is will be seen that the block is hollow and made up of a male section **20** and a female section **22** which are joined together to form the completed block **10**. Terminal portion **24** of the male section is sized to fit within female section **22** as well as provide groove **26** for the reception of soft iron band **12**. A permanent magnet **28** is secured inside the block at the center of walls **30***a* and **30***b* which contain faces **14***a* and **14***b* respectively. Walls **30***a* and **30***b* are preferably somewhat thinner in the center where the magnet is attached in order to increase the magnetic attraction of faces **14***a* and **14***b* of the block. If disc magnets having a central opening **32** are used a projection **34** may be moulded into walls **30***a* and **30***b* in position to extend inward through the central opening in the magnet where they may be spread out as shown to secure the magnets in place. Many other equivalent means may be used to secure the magnets within the block which will vary somewhat depending upon the particular type of permanent magnet used. After the magnets have been secured in place the complete block is assembled by passing the soft iron band **12** over terminal portion **24** of the male section **20** and then cementing the female section **22** to the terminal portion of the male section in abutting relation to the band.

In Figure 3 a small disc magnet has been illustrated with the north and south poles thereof lying on opposite segments of the disc. When a magnet having this type of polarity is used the poles are preferably positioned in a plane parallel to either faces **18***a* and **18***b* or **16***a* and **16***b* in all blocks. Otherwise, the blocks will have a tendency to tip when joined to another block magnetically as the south pole on one magnet tends to align itself with the north pole on the other. With the magnets positioned as shown the faces of the block will be properly aligned when magnets in adjacent walls of adjoining blocks have been placed in their proper lelative positions with respect to the polarity of the magnets. Normally, of course, the blocks will be assembled in such a manner that the soft iron band is attracted to the magnet rather than another magnet. When this is done the position of the poles is of no importance, however, the block should be positioned so that either the band or magnet is attracted by a magnet on an adjoining block whenever possible. A number of other types of magnets having different pole positions and relationships may also be used in this same manner.

Figure 4 is a diagram of a wall **36** with an opening **38** formed therein assembled from the magnetic blocks of the present invention. It will be seen that each block is securely held in position with respect to the adjoining blocks by the attractive force of the magnets. In the particular structure illustrated a magnet-band connection exists between adjoining faces of every block. Although it is not possible to assemble the blocks with this magnet-band relationship existing on all adjacent faces in more complex combinations of the block it is always possible to arrange the blocks so that at least one such relationship exists on each block to maintain the position of the block and in most instances several faces of each block are thus magnetically attracted to one another.

The blocks are preferably moulded of plastic. The particular construction of the blocks permits the magnets to be fastened inside where there is little danger of their being taken out and swallowed by small children once the sections are cemented together. The soft iron band is likewise securely held in place when the sections are cemented together.

From the foregoing description of the drawing it will be seen that the magnetic toy blocks of the present inven-

tion mark a considerable improvement over the building blocks heretofore known and they achieve the many useful objectives for which they were designed; and therefore,

I claim:

1. A toy block comprising: a hollow thin-walled cube-like member having at least three pairs of spaced parallel plane faces, said member being formed in two sections which when joined together provide a groove encircling two of said pairs of parallel faces midway between the third set of said parallel faces; a soft iron band encircling the cube-like member within the groove in flush relation to said two of said pairs of parallel faces; and permanent magnets attached within the cube-like member to the center of the wall portions thereof having said third set of parallel faces, said magnets forming means for attracting and holding another like block when placed in substantial alignment therewith and with any one face in close proximity thereto.

2. In a toy building block, a hollow cube-like member having opposed parallel faces and a groove encircling the cube between two of said opposed faces, a magnetically attractable band positioned in the groove, and permanent magnets attached to the parallel faces that do not have the band, the band and magnets cooperating to hold two or more like blocks together in assembled relation.

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