May 12, 1959 R. COWAN 2,886,324

FIGURE BUILDING PUZZLE

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FIG. 1.

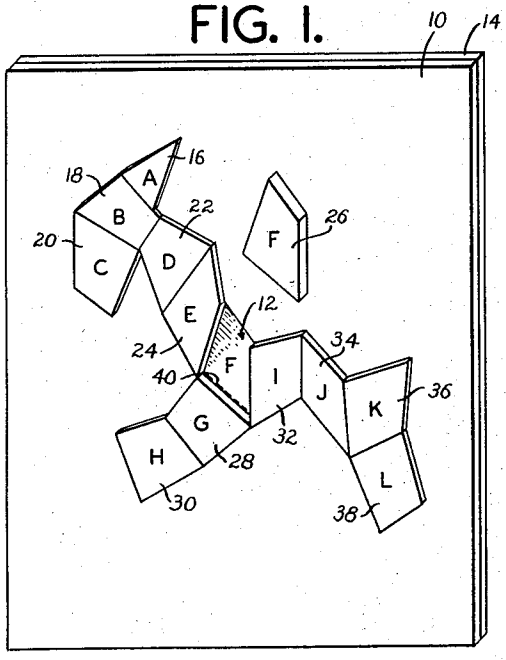
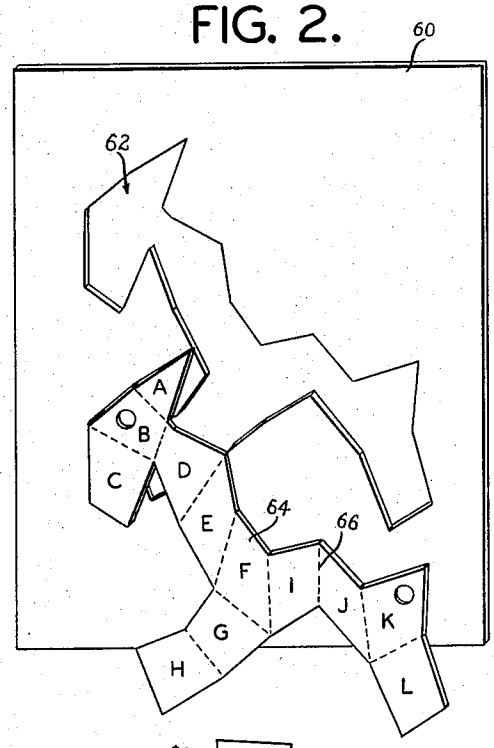


FIG. 2.



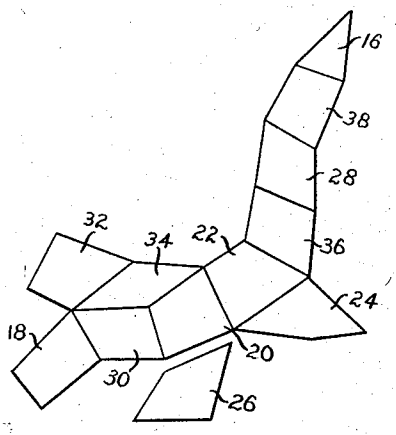


FIG. 3.

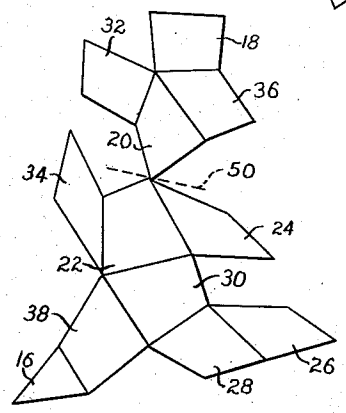


FIG. 4.

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FIGURE BUILDING PUZZLE

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FIG. 5.

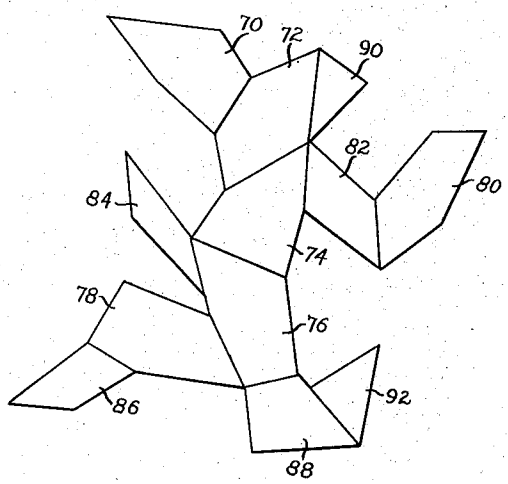


FIG. 6.

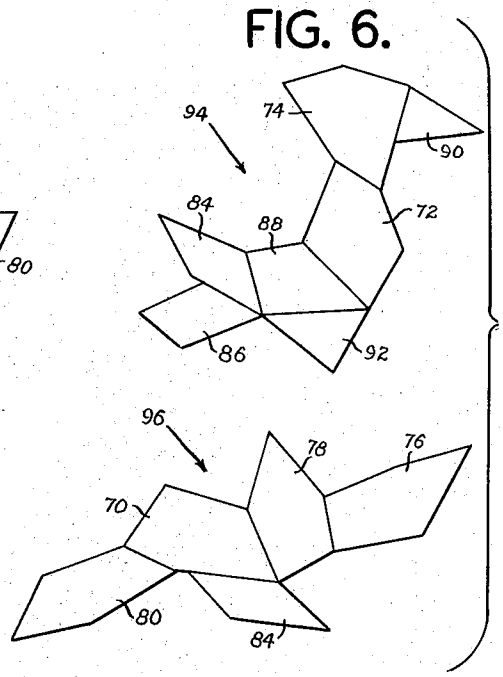
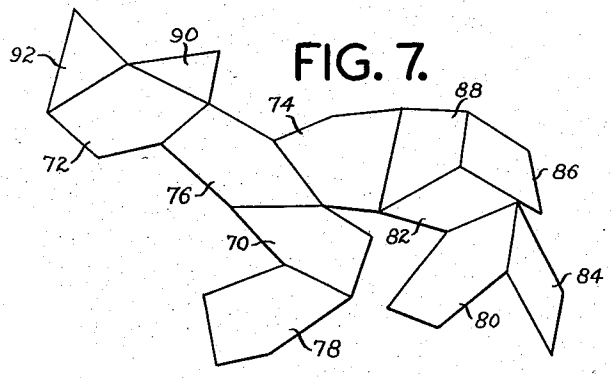


FIG. 7.



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FIGURE BUILDING PUZZLE

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Application August 16, 1954, Serial No. 449,972

2 Claims. (Cl. 273—157)

This invention relates to figure building, outlining and drawing means.

In the main, this invention comprises a puzzle involving a plurality of figure building elements. These elements constitute flat blocks of various polygonal shapes, such as three sided, four sided and five sided figures. They are figure building elements in the sense that they may be placed in abutment with each other on a common plane to form a figure occupying the same plane. Generally this is done on a horizontal plane such as the top of a table. The same elements may be used to build a plurality of figures, such as the figures or representations of animals, human beings, still life, architectural forms and the like. It is not required that all of the elements in a given set be utilized in forming these various figures since it is possible to form some figures with a lesser number of building elements than the set as a whole contains

It is accordingly the principal object of this invention to provide a plurality of relatively flat building elements of various polygonal shapes, which are adapted to be placed into abutment with each other in various positions relative to each other on a common plane to form various figures of the general character above mentioned.

In the preferred form of this invention, these polygons are provided with corner angles of other than 90 degrees. They are provided with matching sides in the sense that at least one side of each building element is equal in length to at least one side of another building element in the same set. Actually, however, in the preferred form of this invention, each side of each building element may be matched with at least one side of several building elements in the same set. Consequently, many variations in the relative positions of the several elements may be had. Further, in the preferred form of this invention, no two sides of any one building element are equal in length, although this is not necessarily so and it may be desired to form building elements in accordance with this invention in which at least two sides of at least some of the elements in a given set are equal in length.

Another object of this invention is the provision of a plurality of building elements of the character described which are colored differently so as to provide striking effects and results from the various arrangements of which they are capable in the formation of the various figures of which mention has above been made. Each element in a given set may be different in color from all of the other elements in the same set or there may be matching colors in groups of two or more elements within the same set. This multi-colored aspect of the invention is, however, not a critical or essential feature or factor therein since it is possible to use or play with like colored building elements in accordance with the principles and purposes of this invention.

An important feature of this invention is the reversibility of the figure building elements whereby they may

be utilized in accordance with the principles of this invention both when they are placed right side up or right side down. This adds to the versatility of the building elements and to the range of figure building possibilities.

Another important feature of this invention is the fact that the building elements are die cut, in one form of the invention, from a sheet of relatively stiff or heavy cardboard, fiber board, plywood, pressed wood or the like. When the elements are removed from the board from which they were die cut, an outline board remains, that is, a board having an opening formed therein which corresponds to the over-all shape of the several elements which were removed therefrom. This outline board may be used as a template in drawing outlines on a sheet of paper or the like. The assumption is made that the outline corresponds to a shadow view or silhouette of a figure, such as an animal or the like. Once the outline is traced or drawn on a sheet of paper, it may be filled in and colored to form a more detailed representation of said animal or the like.

Still another feature of this invention, in another preferred form thereof, is the provision of an outline board having a back which extends across the outline opening to serve as a support for the building elements when they are mounted within the outline of said board. The elements may be placed therein for storing purposes and they may be removed therefrom in order to be used in the manner above indicated and this procedure may be repeated indefinitely. The back on said board which extends across the outline opening therein may be imprinted with lines indicating and delineating the several elements and their respective positions or locations in said outline opening. It thus becomes a simple matter to replace the elements in said outline opening in proper positions therein.

A useful feature of the invention that flows from the last mentioned feature resides in the fact that in order to produce the outline board last mentioned, it is necessary to die cut therefrom a section corresponding to the outline of the opening sought therein. This section which is removed from the board is adapted to serve as a template in drawing outlines on paper and the like. This template differs from the one which was first above mentioned in that lines are drawn around it rather than within it. The template now under discussion may be marked with lines to indicate the relative locations of the building elements within the outline delineated by said template.

In connection with the foregoing feature, it is to be noted that the building elements are made, preferably, of thicker material than the board in which the outline opening is formed. Consequently, when the building elements are inserted therein, they project above the top surface of the outline board and consequently they may readily be gripped by the fingers for removal from said outline board.

The invention is illustrated in the accompanying drawing in which:

Fig. 1 is a perspective view of a plurality of figure building elements made in accordance with this invention, showing how they are arranged to form a figure of an animal, and showing how they are situated within a board having an outline opening formed therein to receive them and a back secured thereto to support them, one of said elements being removed from said board to show its three-dimensional structure.

Fig. 2 is a plan view showing a board having an outline opening die cut therein to receive a plurality of building elements of the character herein claimed, the cut-out from said board being also shown and adapted to serve as a template, as is the outline board itself.

Fig. 3 shows a plurality of building elements in abutment with each other to form the figure of an animal, one of said elements being slightly removed from the other elements to show its separate and independent identity.

Fig. 4 is a view similar to that of Fig. 3 but showing another figure made from building elements of the character herein claimed.

Fig. 5 is still another similar view showing other building elements than those shown in Figs. 3 and 4, and showing how they form a human figure.

Fig. 6 is an exploded view showing two groups of building elements within the same set, each group forming a different figure, or a different part of the same figure.

Fig. 7 is a view similar to that of Fig. 5 showing how the figure of an animal may be made from the same pieces which formed the figure of a man in Fig. 5.

Referring now to Fig. 1 it will be seen that a board **10** is provided with an opening **12** and a back **14** secured to said board **10** and extending across said opening **12**. Opening **12** constitutes the silhouette outline of a figure, in this case, the figure of an animal. A plurality of figure building elements **16**, **18**, **20**, **22**, **24**, **26**, **28**, **30**, **32**, **34**, **36** and **38** are provided for insertion into opening **12** and upon that portion of back **14** which extends across said opening. When these building elements are arranged in proper order, as shown in Fig. 1, they fit into said opening **12** and form the figure of an animal just as said opening does. The same building elements may also be placed upon a flat surface such as a table top and they may then be placed in abutment with each other to form the figure shown in Fig. 1 or any other figure that these elements may be capable of forming. This is in the nature of a puzzle since the pieces or elements should be scrambled before the task of assembling them to form a figure is commenced. What is important is that these elements are capable of forming not only the one figure shown in Fig. 1 but also other figures as well. See the figure in Fig. 3 which is made of the same elements as the figure in Fig. 1.

Building elements **16** to **38** inclusive are marked with the letters A, B, C, D, E, F, G, H, I, J, K, L respectively so that they may readily be identified. It will be noted in Fig. 1 that the exposed portion of back **14** is marked with dotted lines **40** which correspond to the lines of juncture between the respective elements when properly placed thereon. The same letters A to L inclusive are imprinted upon back **14** in the spaces corresponding to the building elements when properly arranged to form the figure shown in Fig. 1. Back **14** thereby becomes a guide to assist in properly positioning or arranging the elements. It will be understood that it is not always a simple matter to successfully arrange the elements in order to form a figure, especially when it is borne in mind that this puzzle is intended for children as well as adults.

An inspection of the figure building elements thus far mentioned will disclose the fact that they are relatively flat blocks having parallel top and bottom surfaces and at least three sides joining said top and bottom surfaces substantially at right angles thereto. It will thus be observed that each figure building element comprises a block of polygon shape in plan view. It will further be observed that the preference here is to make use of four sided figures rather than three sided figures and none of the figures thus far mentioned have more than four sides. It will further be noted that none of the angles of any of these polygons is exactly 90 degrees. They either exceed 90 degrees or they are smaller than 90 degrees but none are actually 90 degrees.

It will also be observed that no two sides of any one element are equal in length in this preferred form of the invention. Nonetheless, at least one side of each element is of the same length as at least one side of another element and, in the preferred form of this invention, each

side of each element may be matched to at least one side of another element so that all of the sides of all of the elements may be matched to one or more sides of the other elements. More specifically, and purely by way of illustration, three of the sides of element **26** may be matched, respectively, to one side of each of elements **24**, **28** and **32**. Thus, in the preferred form of this invention, each element may be described as a relatively flat block of polygon shape, none of the sides of which are equal in length, and none of the angles of which equal 90 degress.

An interesting and useful feature of this invention is the fact that the building elements thus described are somewhat thicker than the material of which board **10** is made, said board being of approximately the same thickness as back board **14**. More particularly, it is desired, in this preferred form of the invention, that these building elements be about twice as thick as each of the two boards **10** and **14**. Consequently, when these elements are placed in opening **12** of board **10**, they will project above the top surface of said board **10** and it will be an easy matter to grip or engage them with the fingers to remove them from the board. Color is not shown in the drawing to avoid complicating the disclosure but it will be understood that in the preferred form of this invention the individual building elements are made in different contrasting or harmonious colors. For example, the following colors have been found to produce striking results:

Building element **16**–A—Red
Building element **18**–B—Black
Building element **20**–C—Blue
Building element **22**–D—Yellow
Building element **24**–E—Red
Building element **26**–F—Yellow
Building element **28**–G—Black
Building element **30**–H—Red
Building element **32**–I—Red
Building element **34**–J—Blue
Building element **36**–K—Yellow
Building element **38**–L—Black

Each building element may be colored differently on its top and bottom sides so that when all of the elements are used right side up or all of them are inverted or some are used right side up and others inverted, different effects may be had.

As has above been indicated, the same building elements may be used to produce many figures of various animals, human beings etc. and this may be done by placing the elements right side up or inverting them, as desired or required. See Figs. 1, 3 and 4. Turning now to Fig. 4, a dotted line **50** will be noted between two groups of building elements. Each group is intended to constitute a complete set and each set is adapted to be used in the formation of various figures of the character described. Both groups or sets may, however, be utilized together to form a single figure as the drawing clearly shows. This is intended to be illustrative of the various combinations of elements of which the present invention is susceptible.

Referring to Fig. 2, it will be seen that a board **60** is provided with a hole **62** die cut therein. This hole or opening **62** is in the form or shape of a figure, such as an animal as shown in Fig. 2. Board **60** corresponds to board **10** above described but no back is secured to it corresponding to back **14**. Consequently, board **60** may be considered in the nature of an outline board constituting a template or stencil through which an outline drawing may be made corresponding to the outline or figure defined by opening **62**. The outline may be drawn on paper and then colored in or filled in as desired. Cut-out **64** is the piece which was die cut out of board **60** to form opening **62**. Cut-out **64** may also serve as a template

for the purpose of drawing an outline on paper or the like.

Cut-out **64** may also serve another function. It may be utilized to illustrate a form or figure into which the building elements herein described may be assembled. To assist the person who attempts to assemble the elements into this form, dotted lines **66** may be provided on cut-out **64** to indicate the lines of juncture between the various building elements. Letters may also be provided on cut out **64** corresponding to the letters on the building elements.

Referring now to Figs. 5, 6 and 7 it will be observed that the building elements herein claimed may be formed in other shapes than those shown in Figs. 1, 3 and 4. The elements in Figs. 1, 3 and 4 are mainly four sided polygons. One is a three sided polygon. In Figs. 5, 6 and 7 most of the elements are five sided polygons, some are four sided polygons and two are three sided polygons. More particularly, the five sided polygons are designated by the reference characters **70**, **72**, **74**, **76**, **78** and **80**. The four sided polygons are designated as **82**, **84**, **86** and **88**. The two three sided polygons are designated as **90** and **92**. It will thus be apparent that polygon-shaped elements having three, four or five sides may be employed for the purposes of this invention. It should not be understood that polygons with more than five sides are outside of the scope of this invention. However, increasing the number of sides increases the complexity of the puzzle and renders it somewhat difficult to solve. Although the puzzle is intended for both adult and child use, it is expected that in the main it will be used by children and it is essential that it be kept relatively simple.

Figs. 5, 6 and 7 show how the same building elements may be arranged to form different figures. Fig. 5 shows the figure of a human being and Fig. 7 the figure of an animal. Fig. 6 is intended to show that more than one figure may be formed from a single set of building elements. Thus group **94** represents a bird while group **96** represents a baby chick. Fig. 6 is also intended to illustrate the proposition that the building elements may be made in relatively small groups or sets which may be employed separately and independently of each other. By the same token, these small groups or sets may be combined to form a single relatively large group or set capable of building larger figures such as are shown in Figs. 5 and 7.

It will be understood that what has above been said with regard to the elements in Figs. 1, 3 and 4 as to the material of which they are made and their dimensions and proportions is equally true of the elements in Figs. 5, 6 and 7. In the preferred form of this invention, no two sides of any one element are identical in length and none of the angles of said elements equals 90 degrees. The sides of the various elements are intended to be matched to the sides of other elements so that they may be joined to form the figures above described.

The foregoing is illustrative of preferred forms of this invention and it will be understood that variations and modifications may be incorporated therein within the broad spirit of the invention and the broad scope of the claims.

For example, the specific figures shown in the drawing are purely illustrative of the many figures that may be built with the figure building elements herein described and claimed. As the invention is not limited to the specific figures shown in the drawing, so is the purchaser and user of these building elements not limited to the building of figures formed in accordance with die cut boards provided by the manufacturer. The figures designed by the manufacturer merely illustrate some of the possibilities of the building elements herein described and claimed. The creative ability of the ultimate purchaser and user constitutes the only practical limitation upon the figure building variations of which these building elements are capable.

I claim:

1. A figure-building puzzle, comprising a plurality of figure-building elements, each element comprising a straight-sided flat block having parallel top and bottom surfaces, of which at least the top surfaces are blank, said block having at least three straight sides joining said top and bottom surfaces, the sides of each block being unequal in length but each side of each block being equal in length to at least one side of another block, so that the block may be matched to at least one other block by arranging them with their equal sides in abutment with each other, the several blocks of said puzzle being of various geometrical configurations in plan view and capable, when arranged in various relative positions with at least some of their matching sides in abutment with each other, of forming recognizable figures.

2. A puzzle in accordance with claim 1, wherein a board is provided with an opening formed therein defining a recognizable figure, whereby it is possible to arrange said blocks within said opening to fill the opening and at the same time to form said recognizable figure, a second board being secured to the back of the first board and extending across the opening formed therein, thereby serving as a support for the blocks arranged within said opening.

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