Fig. 6
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FOLDING PICTURE PUZZLE

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6 Sheets-Sheet 6

Fig. 10

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The present invention relates to an amusement device in the form of a foldable flexible sheet constituting a puzzle. The principal object of this invention is to furnish amusement to those who take pleasure in solving puzzles. It is my wish to furnish a puzzle of the type indicated in which dissected pictures may be printed upon or secured to adjoining triangles in which, when the flexible sheet is flattened out, there will not be a complete picture of any object but, when the sheet is folded properly, a picture of any one of two or more objects may be displayed.

In the drawings annexed hereto and forming a part thereof, there is shown a puzzle in which heads of two animals may be formed by properly folding the flexible sheet. In these drawings:

Fig. 1 shows one face of the flexible sheet and Fig. 2 shows the opposite face thereof.

Figs. 3, 4, and 5 show one mode of folding the sheet to produce the picture of a horse's head, while Fig. 6 shows the completed picture.

Figs. 7, 8, and 9 show another mode of folding the flexible sheet, and this results in the production of the picture of a cow's head.

Fig. 10 shows the completed picture of the cow's head when the flexible sheet is properly folded.

In another form of this invention, comprising the same number of triangles arranged in the same way but with part of the triangles separated from neighboring triangles in a different way, a flexible sheet may be folded so as to show pictorial representations of the heads of four different animals. It is of course understood that the pictures are not necessarily those of animal heads but may represent any desired objects for the sake of variety. However, for the sake of ease of explanation, the present form has been selected to illustrate this puzzle. Also, for the sake of ease of explanation, the different triangles have been numbered, those on one face of the flexible sheet being numbered from 1 to 16, inclusive, while those on the opposite face are numbered from 17 to 32, inclusive.

It will be noted that in each of Figs. 1 and 2, part of the segments illustrate parts of a cow's head and part of them illustrate parts of a horse's head, but no group of adjacent segments illustrate a complete head of any animal, in the present instance, either a cow or a horse. However, by properly folding the flexible sheet, segments can be brought into juxtaposition so that either a complete horse's head will be shown or a complete cow's head. There are various solutions to this puzzle but the best method of solving it seems to be to make a list of all the triangles showing part of the horse's head and then pick out the particular triangles representing particular parts of each head.

To illustrate my meaning, triangles 3, 4, 5, 9, 11, 12, 13, 15, 17, 19, 22, 23, 25, 27, and 28 show parts of the horse's head, while triangles 1, 2, 5, 6, 7, 8, 14, 16, 18, 20, 21, 24, 26, 28, 30, 31, and 32 show parts of the cow's head.

Now let us name the parts of the horse's head as ears, nose, lower jaw and back of neck, while the triangles illustrating these various parts are as follows:

- Ears — 8, 11, 22, 23
- Nose — 3, 15, 19
- Jaw — 4, 9, 13, 27
- Neck — 12, 17, 25, 29

Dividing the cow's head in the same way and calling the parts horns, nose, jaw, and neck, the triangles illustrating these various parts are as follows:

- Horns — 2, 16, 20, 30, 32
- Nose — 10, 20, 31
- Jaw — 6, 14, 7, 28
- Neck — 1, 5, 7, 16, 24

Now let us suppose that we wish to solve this puzzle to get a picture of the horse's head. We notice that three parts of the horse's head are shown on each of four triangles, while the nose is shown on only three. Logically, then, we would select either triangle 3, triangle 15, or triangle 19, and try to fold the puzzle so that other parts will come into position so that we would get a complete picture of the horse's head. If we start with triangle 3, we can solve this by folding so that triangles 3, 4, 17, and 23 are up so that triangles 3, 11, 23, and 27 are up, either combination giving us a complete horse's head.

If the face shown in Fig. 1 is up, we can fold triangles 9 to 16, inclusive, down around the vertical center line. Now, we will fold triangles 5 to 8, inclusive, down, and then fold triangle 1 up. This produces the combination 3, 4, 17, and 23, which is a complete horse's head.

Selecting triangle 3 as a starting point, we might solve this by turning triangle 1 up, 9 to 12, 14, and 15 down, 16 up, 8, 7, and 28 up, and 29 and 32 down. Now, the triangles left showing are numbered 3, 17, 23, and 27, which constitute a complete horse's head.
If, instead of starting to build upon triangle 3, we would select triangle 5, we could solve the puzzle by turning triangles 17 to 20 and 25 to 28 up. Of course, this assumes that the face of the sheet is flat. The solution is shown in Fig. 2. Following this first step, we turn triangles 14 and 15 up, 25 up, 11 up, and 16, 30, and 31 down. We now have triangles 8, 15, 17, and 23 up, thus disclosing a complete horse's head. Doubtless various other modes of folding this puzzle are possible which will result in the showing of the horse's head.

Essentially, Figs. 3, 4, and 5 illustrate the first solution given above. In Fig. 3, the right half of the sheet is shown as being folded down or away from the observer. Fig. 4 shows this fold completed and triangle 1 started on its way to being folded over on triangle 2. Fig. 5 shows this fold completed and the lower half of Fig. 4 started toward being folded under to get it out of sight. When this fold is completed, we have what is shown in Fig. 6, namely, the complete horse's head.

Following the above method to solve for the cow's head, we might use the number 31 as our base number on which to build, since there are only three triangles which show the cow's nose, with four or five triangles show each of the other parts of the head. We now fold triangle 31 down and then fold the lower right hand half of the puzzle up along the diagonal line. Next we fold down along the vertical and horizontal lines the triangles at the right of and below the cow's head. We now have a complete picture of the cow's head.

As shown in Figs. 7, 8, and 9, this puzzle may be solved as follows: First the lower right hand half of the puzzle is turned up along the diagonal. Next, the lower triangle, comprising triangles 5 and 6, is turned up along the horizontal line. The next move is then to turn up the right hand triangle, comprising triangles 8 and 10, along the vertical line and follow this by turning triangle 11 and the one below it, numbered 13, up along the diagonal line, thus placing triangles 8 and 10 over triangle 3. Thus we have triangles 2, 6, 7, and 10 exposed, showing the completed cow's head.

By other solutions, we can form the cow's head by having triangles 1, 2, 5, and 31; or 2, 6, 7, and 31; or 6, 7, 18, and 31; or 2, 7, 10, and 14; or 1, 2, 10, and 14. Doubtless other solutions can be found, and the search to find the greatest number of solutions possible adds zest to the working of this puzzle.

Another embodiment of this puzzle shows dissected pictures of four objects which may be animal heads, complete animals, or any other objects which the publisher of the puzzle may wish to substitute for those in the embodiment of the puzzle which I have worked out. In this embodiment of the puzzle, there are sixteen triangles, just as illustrated in the present drawings, the incisions being made in the same way as shown in Fig. 2 and as illustrated by the double diagonal lines.

In the annexed drawings, dotted lines indicate possible fold lines, double solid lines indicate incisions, and single solid lines represent edges or completed folds.

It will of course be understood that the specific description or structure set forth herein may be departed from without departing from the scope of this invention as set forth in the appended claims.

Having now described my invention, I claim:

1. A picture puzzle comprising a square sheet provided with medial fold lines dividing the sheet into squares, each of said squares being provided with a pair of diagonal fold lines, said sheet being foldable in either direction on each of said fold lines, one of said squares being cut in two along the diagonal from the corner of the sheet to the center thereof, an adjacent square being cut along the diagonal from the center of the respective square to the center of the square, and the remaining two squares being cut from the edges of the sheet at the ends of the medial fold lines dividing said remaining two squares from the first two squares, the last mentioned cuts extending from their origins at the edges of the sheet to the diagonals of the said remaining two squares to the centers thereof, at least some of the triangles formed by the diagonals in said squares being provided with indicia, four of which cooperate to show a visual image of a well known object, the size of one of said squares, when the sheet is properly folded.

2. A picture puzzle comprising a square sheet provided with medial fold lines dividing the sheet into rectangular quadrants, each of such quadrants being provided with a pair of diagonal fold lines, said sheet being foldable in either direction on each of said fold lines, one of said quadrants being cut in two along the diagonal from the corner of the sheet to the center thereof, an adjacent quadrant being cut along the diagonal from the corner of the sheet to the center of the quadrant, and the remaining two quadrants being cut from the edges of the sheet at the ends of the medial fold lines dividing said remaining two quadrants from the first two quadrants, the last mentioned cuts extending from their origins at the edges of the sheet to the diagonals of the said remaining two quadrants to the centers thereof, said fold and cut lines dividing said sheet into segments, said segments having thereon partial representations of a known object, most of the adjacent segments, when in non-folded position, showing non-adjacent portions of the object, but the exposed face of the sheet, when properly folded, showing a representation of said known object.

3. A rectangular sheet, its two dimensions being multiples of a common denominator of length, said sheet being foldable along fold lines parallel to the edges of the sheet and spaced therefrom at distances equal to said common denominator whereby the fold lines divide said sheet into a plurality of squares, said sheet also being provided with diagonal fold lines extending from the corners of the sheet and with diagonal fold lines at angles of forty-five degrees (45°) from the intersection of said first mentioned fold lines with the sheet edges, whereby each of said squares is divided by a pair of diagonal fold lines, the sheet being foldable in either direction on all said fold lines, each of said squares being cut along one of the diagonals thereof from the edge of the sheet at least to the center of the respective square, said rectangular sheet, when properly folded, displaying upon its face exposed to view only one-fourth of the area thereof and when so properly folded displaying a representation of a known object.

4. A picture puzzle comprising a square sheet provided with a pair of medial fold lines parallel to the sides of the sheet dividing the sheet into rectangular quadrants, each of which is provided with a fold line diagonally thereof connecting the ends of the medial fold lines, each quadrant also being provided with a diagonal fold
line extending from the center of the sheet and extending at least to the center of the respective quadrant, each quadrant being cut along one of the diagonal fold lines at least to the center of the quadrant, said rectangular sheet, when properly folded, displaying upon its face exposed to view only one-fourth of the area of an entire face thereof and when so properly folded displaying a representation of a known object.

5. A rectangular sheet, its two dimensions being multiples of a common denominator of length, said sheet being foldable along fold lines parallel to the edges of the sheet and spaced therefrom at distances equal to said common denominator whereby the fold lines divide said sheet into a plurality of quadrants, said sheet also being provided with diagonal fold lines extending from the corners of the sheet and with diagonal fold lines at angles of forty-five degrees (45°) from the intersection of said fold lines with the sheet edges, whereby each of said quadrants is divided by a pair of diagonal lines, the sheet being foldable in either direction on all of said fold lines, each of said quadrants being cut along one of the diagonals thereof from the edge of the sheet at least to the center of the respective quadrant, at least one of said diagonal cuts extending from a corner of the sheet to the center thereof, said rectangular sheet, when properly folded, displaying upon its exposed surface a representation of a well known object, the exposed surface comprising a plurality of non-continuous segments in contiguous relationship.

6. A picture puzzle comprising a square sheet provided with a pair of medial fold lines parallel to the sides of the sheet dividing the sheet into rectangular quadrants, each of which quadrants is provided with a fold line diagonally thereof connecting the ends of the medial fold lines, each quadrant also being provided with a diagonal fold line extending from the corner of the sheet toward the center of the sheet and extending at least to the center of the respective quadrant, each quadrant being cut along one of the diagonal fold lines at least to the center of the quadrant, and one of said cuts extending from a corner of said sheet along the fold line therefrom and extending to the center of the sheet, said fold and cut lines dividing said sheet into segments, said segments having thereon partial representations of a known object, most of the adjacent segments, when in non-folded position, showing non-adjacent portions of the object, but the exposed face of the sheet, when properly folded, showing a representation of said known object.

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