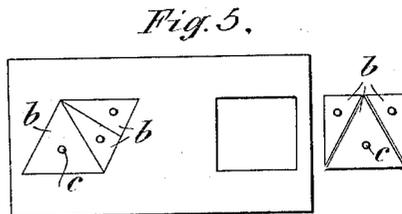
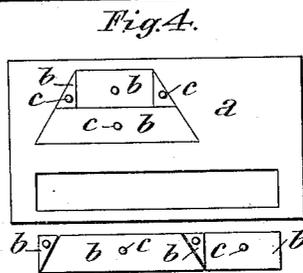
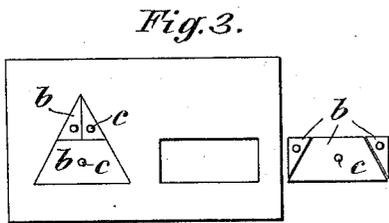
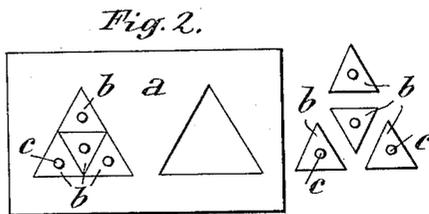
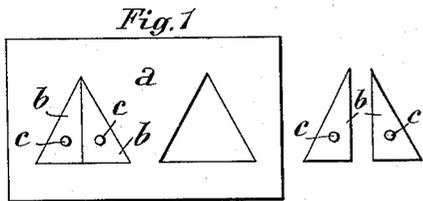


M. MONTESSORI.
 CUT-OUT GEOMETRICAL FIGURE FOR DIDACTICAL PURPOSES.
 APPLICATION FILED MAR. 18, 1913.

1,173,298.

Patented Feb. 29, 1916.



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CUT-OUT GEOMETRICAL FIGURE FOR DIDACTICAL PURPOSES.

1,173,298.

Specification of Letters Patent.

Patented Feb. 29, 1916.

Application filed March 18, 1913. Serial No. 755,148.

To all whom it may concern:

Be it known that I, MARIA MONTESSORI, a subject of the King of Italy, residing at Rome, Italy, (whose post-office address is 5 Via Principessa Clotilde,) doctor of medicine, have invented certain new and useful Improvements in Cut-Out Geometrical Figures for Didactical Purposes, of which the following is a specification.

This invention relates to an improvement in educational devices and more particularly to a device by means of which fundamental principles of geometry may be easily and rapidly taught to young pupils.

The invention broadly consists of a plate or the like provided with a plurality of recesses of geometrical shapes and a plurality of insets adapted to be placed within each of the recesses to exactly fill the same.

In the accompanying drawing illustrating the invention, Figure 1 shows a plate provided with two recesses of equilateral triangular formation and insets adapted to fill the recesses; Fig. 2 shows a plate similar to that shown in Fig. 1, the insets being of a different shape than those shown in Fig. 1; Figs. 3, 4 and 5 each show a plate provided with recesses of different shapes and insets adapted to fill each of the recesses.

Referring to Fig. 1, *a* represents a plate of any suitable material and provided with two similar recesses of equilateral triangular formation. The term "recess" as used herein is intended to include any mechanism which will form a permanent record of the relations between the respective geometric shapes and be provided with boundaries to contain the insets when properly grouped. Insets *b* are provided which are similar to one another in all respects and which are in the shape of scalene triangles. The areas and shapes of the insets *b* are such that two of them placed in the position shown in the figure will exactly fill one of the equilateral triangular recesses in the plate *a*. For convenience in handling the insets *b* they are provided with knobs or handles *c*.

Referring to Fig. 2, the plate *a* is the same as the plate shown in Fig. 1 but the number and form of the insets are different. As shown in Fig. 2 there are four insets *b* of equilateral triangular shape which may be grouped to exactly fill either one of the recesses in the plate *a*. Inasmuch as the recesses in the plate shown in Fig. 2 are the

same shape and size as the recesses in the plate shown in Fig. 1 it will be evident to the pupil that the area of the two scalene triangular insets is equal to the area of the four equilateral triangular insets.

Referring to Fig. 3, the plate *a* is provided with a triangular recess and a rectangular recess, the longer side of which is equal to the base of the triangle and the shorter side of which is equal to one half the altitude of the triangle. A set of three insets is provided which are of such shape and size that by grouping them in one way they will entirely fill the triangular recess and by grouping them in a different way they will entirely fill the rectangular recess, thus teaching the pupil that the area of a triangle is equal to the area of a rectangle having the same base and one half the altitude of the triangle.

In Fig. 4 of the drawing the plate *a* is provided with a recess having the shape of a trapezoid and a second area of rectangular shape, the longer side of which is equal to the sum of the length of the two bases of the trapezoid and the shorter side of which is equal to one half the altitude of the trapezoid. A set of four insets is provided which are of such shapes that they may be arranged in one way to completely fill the trapezoidal recess or they may be arranged in a different way to completely fill the rectangular recess, thus indicating to the pupil that the areas of the two recesses are the same.

In a like manner the form of the apparatus shown in Fig. 5 illustrates the similarity in areas of a rhombus and a square.

It will of course be understood that the shapes and sizes of the recesses in the plate and the number and shapes and sizes of the insets may be varied from those shown in the drawing without in any way departing from the spirit of the invention.

Having described this invention in connection with the illustrative embodiments thereof, to the details of which disclosure the invention is not, of course, to be limited, what is claimed as new and what is desired to be secured by Letters Patent is set forth in the appended claims:

1. In an educational device, in combination, a plate provided with a plurality of geometrically related cavities of different shapes and a plurality of insets adapted to

be grouped together to fill exactly any one of said related cavities.

2. In an educational device, in combination, a plate provided with a plurality of 5 geometrically related cavities of different shapes of geometrical form and a plurality of insets adapted to be grouped together to fill exactly any one of said related cavities.

3. In an educational device, in combination, a plate provided with a plurality of 10 cavities of different shapes but of the same area and a plurality of insets adapted to be grouped together in different ways to fill exactly any one of said plurality of cavities.

4. In an educational device, in combination, a plate provided with a plurality of 15 geometrically related cavities of different shapes and a plurality of insets adapted to be grouped together to fill exactly any one of said related cavities, each of said insets 20 being provided with a handle.

5. In an educational device, in combination, a plate provided with a plurality of 25 recesses of different shapes, said recesses being geometrically related in both volume

and area, and a plurality of insets adapted to be grouped together to fill exactly any one of said related recesses.

6. In an educational device, in combination, a plate provided with a plurality of 30 recesses of different shapes, said recesses being geometrically related in both volume and area, and a plurality of insets adapted to be grouped together to fill exactly any one of said related recesses, each inset being 35 equal in thickness to the depth of each recess.

7. An educational device comprising a plurality of recesses of different shapes, 40 each of said recesses having closed bottom and sides and an open top, said recesses being geometrically related in both volume and area, and a plurality of fillers adapted by appropriately shifting the component 45 parts thereof with respect to each other, to fit exactly any one of said recesses.

In testimony whereof I have affixed my signature.

MARIA MONTESSORI.