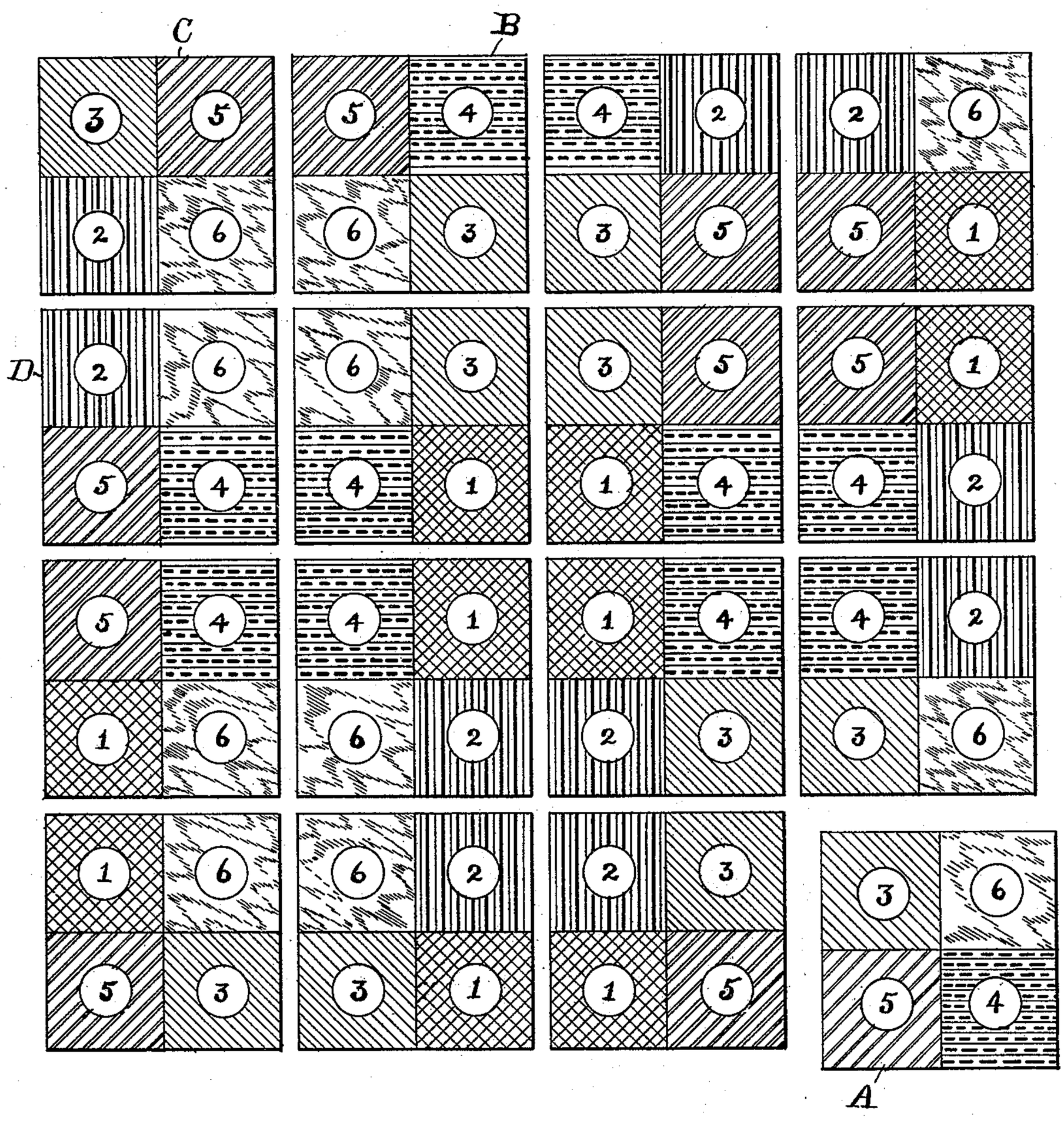
(No Model.) 3 Sheets—Sheet 1.

E. L. THURSTON.

PUZZLE.

No. 487,797. Patented Dec. 13, 1892.

Fig 1.



WITNESSES.

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(No Model.) 3 Sheets—Sheet 2.

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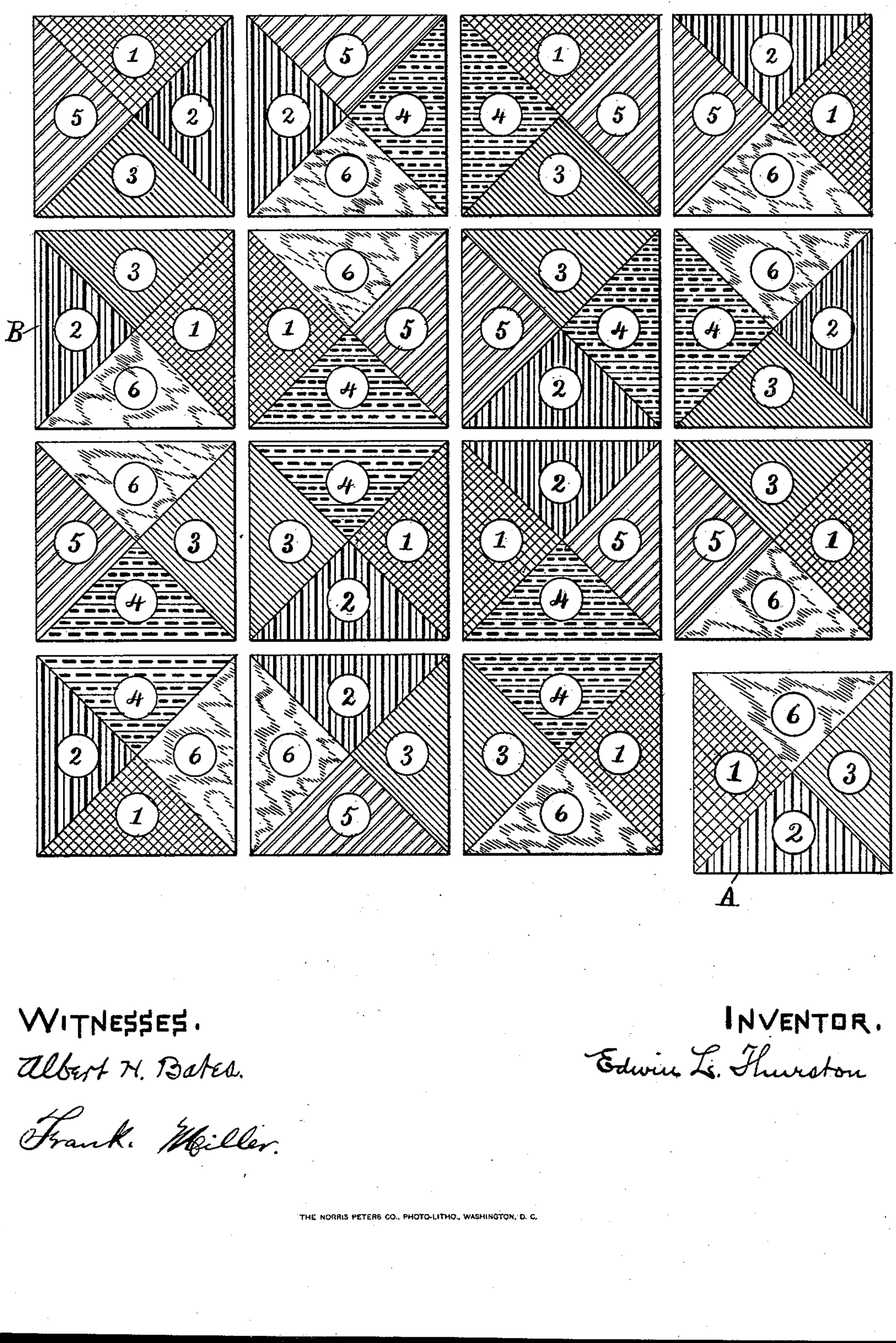
Fig 2.



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(No Model.) 3 Sheets—Sheet 3.

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Fig 3.

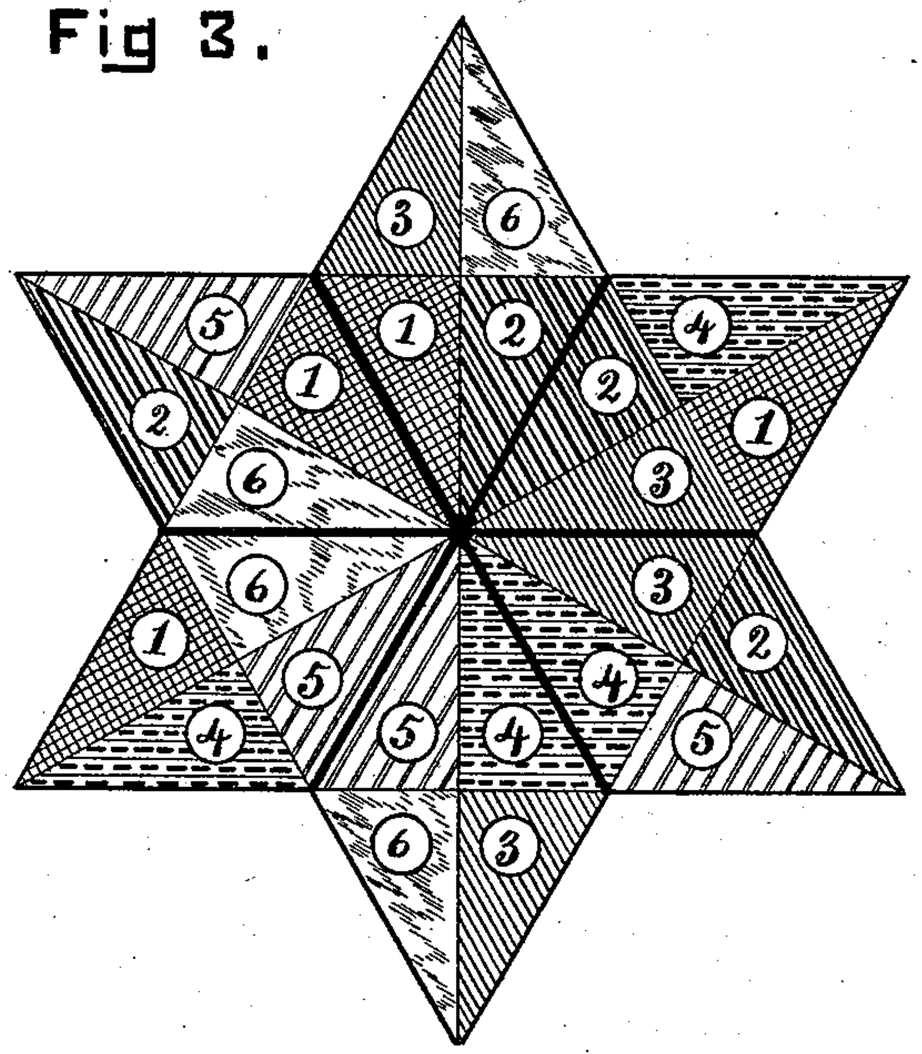
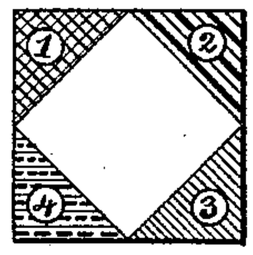


Fig 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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PUZZLE.

SPECIFICATION forming part of Letters Patent No. 487,797, dated December 13, 1892.

Application filed September 30, 1890. Serial No. 366,615. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. THURSTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Puzzles, of which the following is a full, clear, and exact description.

My invention consists, broadly, of a puzzle consisting of a number of tablets having separately and collectively the characteristics hereinafter described, and shown in the drawings—that is to say, separately the surface of each tablet is divided into as many substantially-equal sections as it has sides and each section contains a different designating-symbol and collectively the symbols are arranged in the sections of the several tablets in such manner that all the tablets constituting a puzzle may be laid in contact to form some prescribed outline figure when the touching sections of contiguous blocks contain the same symbol.

In the drawings, Figure 1 is a plan view of that form of my invention which I believe to be the best form and the form upon which the specific claims in this specification are based. Fig. 2 is a plan view of a modification of the broad invention. The puzzle shown in Fig. 2 is described and specifically claimed in a separate application which was filed September 30, 1890, and serially numbered 366,616. Fig. 3 is a plan view of another modification of the broad invention, and Fig. 4 is a view of a modified form of one of the tablets.

I will now proceed to describe the characteristics of the broad invention, referring for greater clearness to the drawings. I will then point out the additional characteristics common to the forms shown in Figs. 1 and 2, and will finally describe in detail the form shown in Fig. 1.

In all of the forms of the puzzle the surface of each tablet at and near the edge is divided into as many substantially-equal sections 1 2 3 4 as it has sides. It is preferable that these divisions should extend over the entire surface, as shown in Figs. 1, 2, and 3; but since it is the edges of the tablets that are to be "matched" the formation of one or more additional interior sections after the manner shown in Fig. 4 is no departure from the invention. Each section contains a symbol, and the sections on the same block contain different symbols. Any symbols may be used.

I have in the drawings employed numerals to represent any desired symbols. In addition to the numerals to represent the symbols, I have filled the sections with different kinds of section-lining. This is intended to represent different colors. In other words, in the best form of the invention colors are used as symbols. This use of colors is more than a preferred detail, because when other symbols are employed they will generally, if arranged so that the tops of all are toward the same edge of the tablet, show instantly which is the "top," so to speak, of each tablet. If not so arranged, the different symbols cannot (if they have a top and bottom) be readily selected by the eye. When colors are employed, (or other symbols having no top or bottom,) it cannot be known which part of the tablet is the top or bottom or side. Colors have these further advantages over all other symbols, viz: they are most easily picked out by the eye and make a much prettier puzzle.

The shape of the tablets or the manner in which their surfaces are divided is not material to the broad invention, although these details are material to the different specific forms. In Fig. 1 the tablets are square and the dividing-lines between the tablets extend from the middle of each side to the middle of the opposite side. In Fig. 2 the tablets are square, and in Fig. 3 they are in the form of a rhombus, and in each of the last two forms the lines of division between the sections extend diagonally from angle to angle.

In each of the complete puzzles represented six different symbols are employed, although more or less may be used in other embodiments of the invention. The symbols are so distributed upon the different tablets that all of the tablets may be placed in contact, substantially as shown, and the whole form when so placed some prescribed outline figure when the touching sections on contiguous tablets contain the same symbol. Take, for example, the tablets marked B C and D C. The sections on tablet C which contain the sym-

bols "5" and "6" are next to the sections on the tablet B which contain the same symbols, and the sections containing "2" and "6" on tablet C lie next to sections containing the same symbols on tablet D.

The outline figure formed by all the tablets shown in Figs. 1 and 2 when said tablets are arranged as pointed out is a square. The outline figure formed when the tablets constituting the puzzle shown in Fig. 3 are properly placed is a six-pointed star. The shape of the complete outline figure depends upon the shape and number of the tablets of which it is formed. Figs. 1 and 2 show puzzles having these common characteristics additional to those already described, to wit: Each consists, essentially, of fifteen tablets in the form of parallelograms and when properly arranged form a figure of the same shape from which one tablet is missing. The sixteenth tablet (marked A) to complete the figure may or may not be added, according to the fancy. In the form shown the tablets are square and the figure formed by them when properly arranged is also a square, provided the sixteenth tablet A is used. This square form of the tablets adds to the difficulty of solving the puzzle, because since there is no difference in the length of the sides or size of the angles it cannot be known beforehand which of the four sides of any tablet is to occupy any particular position. In each of these puzzles six symbols are employed, and four are placed on each tablet. It is a well-known mathematical fact that out of six symbols fifteen combinations of four each may be made, and the six symbols employed are so arranged upon the different tablets that each tablet contains one of said fifteen possible combinations. In other words, no two of the tablets bear the same four symbols. The sixteenth tablet (which is marked A in each figure) is added, as before stated, to complete the square and make the puzzle more symmetrical when completed. This tablet is a duplicate of one of the other tablets (that marked B) to the extent that it bears the same four symbols; but the symbols are differently disposed thereon, so that, strictly speaking, it is not a duplicate of any other.

The difference between the separate tablets composing the puzzle shown in Fig. 1 and that shown in Fig. 2 is in the shape of the sections and their disposition relative to the sides of the tablet. In Fig. 1 the sections are square and lie part on one side and part on the adjacent side. In Fig. 2 the sections are triangular and lie only on one side, which is completely filled thereby. This difference produces a different appearance in the puzzle when the tablets are arranged in contact. When the symbols employed are colors, the completed puzzle shows in the form shown in Fig. 1 squares of color each four times as large as the separate sections composing it and nine complete squares are formed. In the form shown in Fig. 2 squares of color twice as large as the component sections are formed and there are twenty-four complete squares formed. The form shown in Fig. 1 is the most easily solved, and I desire to claim, specifically, the form of tablet and combination of tablets constituting the puzzle shown in Fig. 1.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A puzzle composed of a number of four-sided tablets in the form of parallelograms, the surface of each tablet being divided into four substantially-equal sections, each section containing one of the several symbols, of which the same symbol does not appear twice on any tablet, and no two tablets bear the same four symbols, said tablets being adapted to be arranged in contact and form some prescribed outline figure when the touching sections of contiguous tablets contain the same symbol.

2. A puzzle composed of fifteen parallelogrammatic tablets, each having its upper surface at and near the edges divided into four substantially-equal sections, each section containing one of six symbols which are disposed upon said tablets in the following manner, viz: the same symbol does not appear twice on any tablet and no two tablets bear the same four symbols, all of said tablets being adapted to be arranged in contact to form a parallelogrammatic outline figure (having one vacant space) when the touching sections of contiguous tablets contain the same symbols.

3. A puzzle composed of fifteen parallelogrammatic tablets, each having its upper surface at and near the edges divided into four substantially-equal sections, each section containing one of six symbols which are disposed upon said tablets in the following manner, viz: the same symbol does not appear twice on any tablet and no two tablets bear the same four symbols, all of said tablets being adapted to be arranged in contact to form a parallelogrammatic outline figure (having one vacant space) when the touching sections of contiguous tablets contain the same symbols, combined with a sixteenth tablet similar to the others in shape and in having its surface similarly divided into sections which contain four of said symbols, said tablet being adapted to fill said vacant space and to match in the described manner with the adjacent tablets.

4. A puzzle composed of fifteen square tablets, each having its upper surface at and near the edges divided into four substantially-equal sections, each section containing one of six symbols which are disposed upon said tablets in the following manner, viz: the same symbol does not appear twice on any tablet and no two tablets bear the same four symbols, said tablets being adapted to be arranged in contact to form a square (having one vacant space) when the touching sections

of contiguous tablets contain the same symbols.

5. A puzzle composed of fifteen square tablets, each having its upper surface at and near the edges divided into four substantially-equal sections, each section containing one of six symbols, which are disposed upon said tablets in the following manner, viz: the same symbol does not appear twice on any tablet and no two tablets bear the same four symbols, said tablets being adapted to be arranged in contact to form a square (having one vacant space) when the touching sections of contiguous tablets contain the same symbols, combined with a sixteenth square tablet similar to the other tablets in that its surface is similarly divided into sections which contain four of said symbols, said tablet being adapted to fill said vacant space and to match in the described manner with the adjacent tablets.

6. A puzzle composed of fifteen square tablets, each having its upper surface at and near the edges divided into four equal sections, each of which extends from the middle of one side to the middle of an adjacent side, each section containing one of six symbols which are disposed upon the tablets in the following manner, viz: the same symbol does not appear twice on any tablet and no two tablets bear the same four symbols, said tablets being adapted to be arranged in contact to form a square (having one vacant space) when the touching sections of contiguous tablets contain the same symbols.

7. A puzzle composed of fifteen square tablets, each having its upper surface at and near the edges divided into four equal sections, each of which extends from the middle of one side to the middle of an adjacent side, each section containing one of six symbols which are disposed upon the tablets in the following manner, viz: the same symbol does not appear twice on any tablet and no two tablets bear the same four symbols, said tablets being adapted to be arranged in contact to form a square (having one vacant space) when the touching sections of contiguous tablets contain the same symbols, combined with a sixteenth square tablet similar to the others in that its surface is similarly divided into sections which contain four of said symbols, said tablet being adapted to fill said vacant space and to match in the described manner with the adjacent tablets.

8. A puzzle composed of fifteen square tablets, each of which is divided into four equal sections by lines which extend from the middle of one side to the middle of the opposite side, each section being colored in one of six different colors which are disposed upon said tablets in the following manner, viz: no tablet has two sections of the same color and no two tablets have four similarly-colored sections, said tablets being adapted to be arranged in contact to form a square (having one vacant space) when all of the touching sections of contiguous tablets are similarly colored.

9. A puzzle composed of fifteen square tablets, each of which is divided into four equal sections by lines which extend from the middle of one side to the middle of the opposite side, each section being colored in one of six different colors which are disposed upon said tablets in the following manner, viz: no tablet has two sections of the same color and no two tablets have four similarly-colored sections, said tablets being adapted to be arranged in contact to form a square (having one vacant space) when all of the touching sections of contiguous tablets are similarly colored, combined with a sixteenth square tablet similar to the others in that its surface is similarly divided into sections which are colored in four of said colors, said tablet being adapted to fill said vacant space and to match in the described manner with the adjacent tablets.

EDWIN L. THURSTON.

Witnesses:
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FRANK. MILLER.