

No. 653,290.

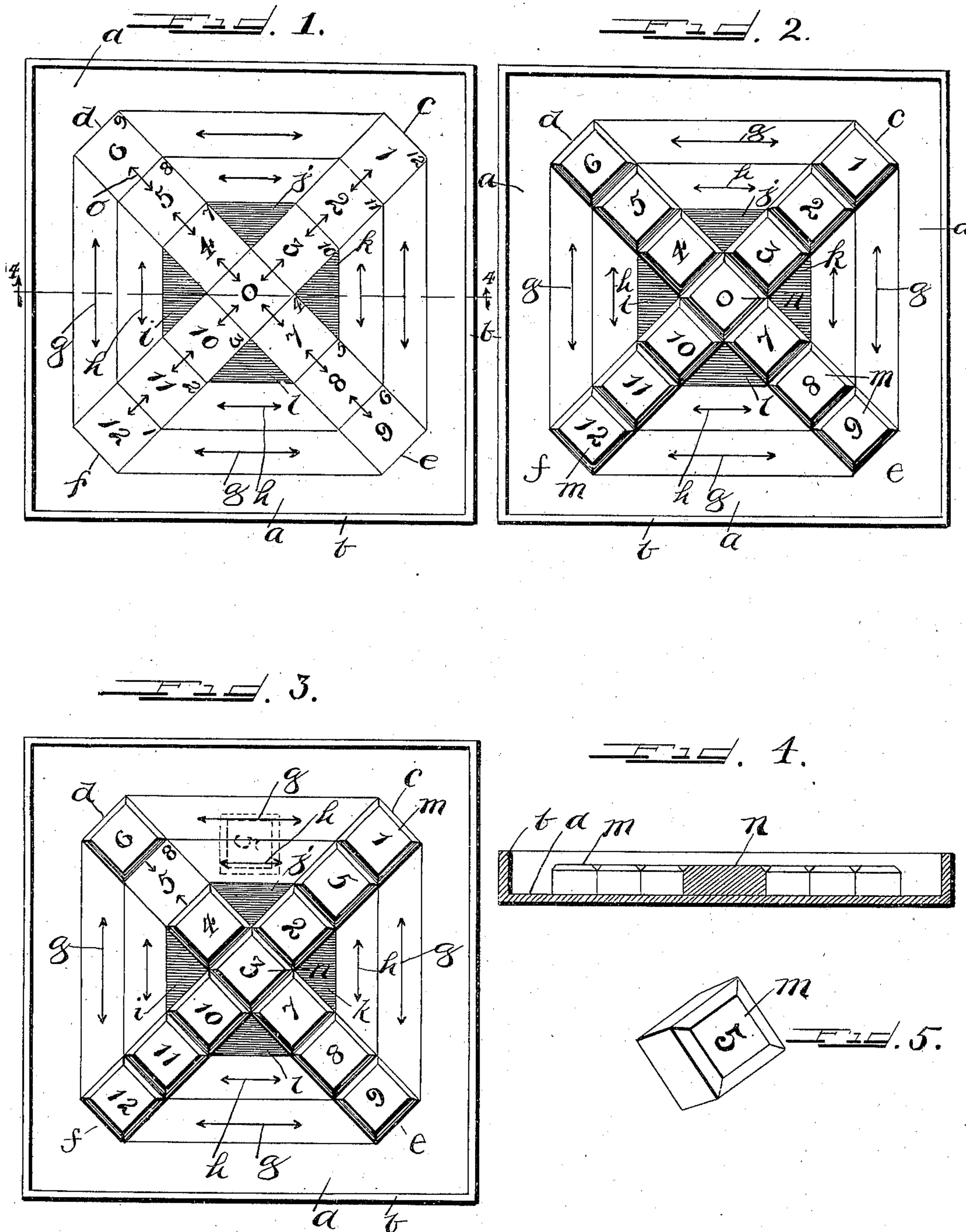
Patented July 10, 1900.

C. T. DUKES.

PUZZLE.

(Application filed Mar. 10, 1900.)

(No Model.)



Witnesses

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# UNITED STATES PATENT OFFICE.

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## PUZZLE.

SPECIFICATION forming part of Letters Patent No. 653,290, dated July 10, 1900.

Application filed March 10, 1900. Serial No. 8,138. (No model.)

*To all whom it may concern:*

Be it known that I, CATHARINE T. DUKES, residing at Huron, in the county of Beadle and State of South Dakota, have invented certain new and useful Improvements in Puzzles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of my improved puzzle as the same would appear with the blocks removed. Fig. 2 is a like view showing the blocks placed in their respective initial positions. Fig. 3 is a similar view showing the manner in which the blocks may be moved in solving the puzzle. Fig. 4 is a vertical sectional view taken upon the line 4 4, Fig. 1; and Fig. 5 is a perspective view of one of the movable blocks.

Corresponding letters and numerals of reference in the different figures indicate like parts.

My invention relates to that class of puzzles in which numbered blocks are moved upon a board the surface of which is provided with spaces adapted to receive them.

The object of my invention is to so arrange a predetermined number of spaces upon a plain surface in the form of a cross that there shall be an equal number of spaces upon each arm, the several spaces, except those adjoining the central one, being connected by means of lateral pathways with correspondingspaces upon the adjacent arms, all of the spaces, except the central one, being designated by two different numbers, one or the other of which is indicated upon some one of the movable blocks, the puzzle consisting in placing said blocks, respectively, upon spaces bearing corresponding numbers of a given series and then rearranging them in accordance with arbitrary rules, so that they shall stand, respectively, upon spaces designated by corresponding numbers of the second series, all of which is hereinafter more particularly described, and definitely pointed out in the claims.

Referring to the drawings, *a* represents the base of my improved puzzle, which may be made of any suitable material, but preferably of pasteboard, so as to form the bottom of a

box having sides *b*, said box serving as a receptacle for a series of movable blocks, as hereinafter stated, which constitute a part of the puzzle.

Upon the base *a* is represented the configuration of a cross having arms *c*, *d*, *e*, and *f*, preferably pointing, respectively, toward the corners of the box. Each arm of the cross is divided into an equal number of spaces, preferably three, as shown, the two outer spaces being connected laterally with corresponding spaces upon the adjacent arms by means of pathways indicated by the double-headed arrows *g h*, respectively. The spaces upon each arm of the cross are designated by means of two series of numbers—viz., a primary series, preferably placed in the center of each space, as shown, and a secondary series placed, for example, in the upper right-hand corner of each space. Each series ranges from "1" to "12," inclusive, the numbers being arbitrarily placed upon the spaces. Upon the arm *c* are shown the numbers "1 2 3" and upon the arm *f* the numbers "10," "11," and "12" of the primary series, the former being arranged consecutively from the outward to the inward and the latter from the inward to the outward space, while the numbers of the secondary series are arranged upon said arms in inverse order. Upon the arms *d* and *e* both the primary and secondary numbers are arranged consecutively from the middle outwardly, no two numbers of like denomination being placed upon the same space, the numbers "4" to "6" and "7" to "9," inclusive, appearing upon the arm *d* and "7" to "9" and "4" to "6," inclusive, upon the arm *e*.

I provide a series of blocks *m*, numbered from "1" to "12," inclusive, as shown, which blocks are intended to be placed upon the several spaces upon the arms of the cross in the order of the primary numerals as represented in Fig. 2. I prefer to designate the central space by "0" and to employ an additional block *n* (designated in like manner by "0") to fill said space, although it is obvious that said additional block may be dispensed with and that said space may be left vacant. The triangular spaces *i j k l*, adjacent to the



central space, are not intended to serve as pathways between the spaces upon the arms adjoining them, and in working the puzzle no block can be placed upon or moved over any of them.

In solving the puzzle the several blocks are placed upon the spaces so that the numbers upon the blocks shall correspond, respectively, to the primary numerals upon the spaces, the block *n* being placed in the center. Said last-named block is then removed, leaving the central space vacant. The blocks are free to be moved laterally over the pathways designated by the arrows *g h* in either direction; but no block can be so moved except there be a corresponding space left vacant upon an adjoining arm of the cross to receive it. Hence it follows that no block can be permitted to rest upon any one of said pathways pending another move; but each movement must be completed from one numbered space to another either upon the lateral pathways or upon the arms of the cross, upon either of which the block may be moved in opposite directions, as indicated by the arrows *g, h, and o*, Fig. 1. From the foregoing it will be manifest that the first block to be moved must be one adjacent to the center—viz., “3,” “4,” “7,” or “10.” Assuming it to be block “3,” as shown in Fig. 3, then the only movement which could occur immediately thereafter would be that of block “2” from primary space 2 to primary space 3. Primary space 2 being thus left vacant, it is obvious that either block “5” or “8” might be moved there to over the pathways *h*. If the former, as shown, the block “11” may be transferred to primary space 5, and so on, until the blocks are entirely transposed, the numbers thereon conforming, respectively, to the secondary numbers upon the spaces, block “1” being transferred from the outer end of the arm *c* to the outer end of the arm *f*, &c. Without attempting to specify further movements, it is obvious that the combinations may be varied indefinitely; but by continuous movement in accordance with the rules hereinbefore specified the blocks may be transposed to conform to the positions of the secondary numbers. This being true, it follows that they may again be transposed from the secondary to the primary positions, and hence it is immaterial which of the two series of ordinals is selected as the primary one, so long as the principle set forth is carried out.

Having thus described my invention, I claim—

1. A puzzle, comprising a cross the arms of which are divided into corresponding spaces, the spaces in each arm, except those next to the center of the cross, being connected by indicated pathways with corresponding spaces upon the adjacent arms, each space upon said arms being designated by two different numerals selected respectively from two sets of ordinals corresponding respectively to the number of spaces upon said arms, and a series of successively-numbered blocks corresponding in the aggregate to the number of spaces upon said arms, whereby said blocks may be placed upon the spaces bearing one set of numbers corresponding therewith and readjusted by movement over said spaces and pathways until they assume the respective positions designated by the second set of numerals, substantially as described.

2. A puzzle, comprising a cross, each arm of which is divided into an equal number of spaces arranged in a single row, said spaces, except those next to the center of the cross, being connected by indicated pathways with corresponding spaces upon the adjacent arms, each space upon said arms being designated by two different numerals selected respectively from two sets of ordinals corresponding respectively to the number of spaces upon said arms, and a series of successively-numbered blocks corresponding in the aggregate to the number of spaces upon said arms, substantially as and for the purposes specified.

3. A puzzle of the class described, in which is combined a base having thereon the configuration of a cross, the arms of which are divided into a corresponding number of spaces respectively, each space bearing primary and secondary numbers arbitrarily placed thereon, a central space, designated pathways connecting the spaces in the several arms, except those next to the center, with corresponding spaces upon the adjacent arms, and a series of movable blocks numbered to conform to said primary and secondary numbers respectively, substantially as and for the purpose set forth.

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