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PUSH PEG PUZZLE

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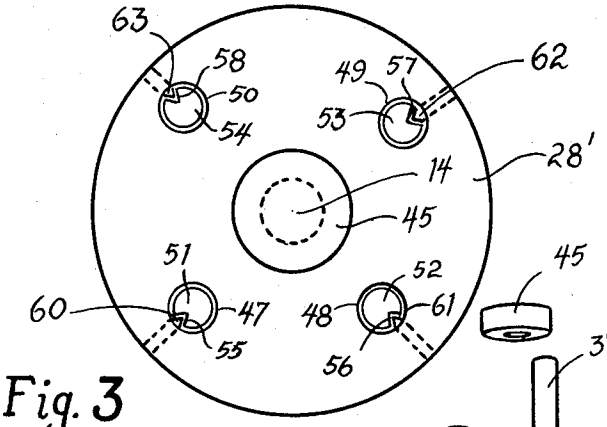


Fig. 3

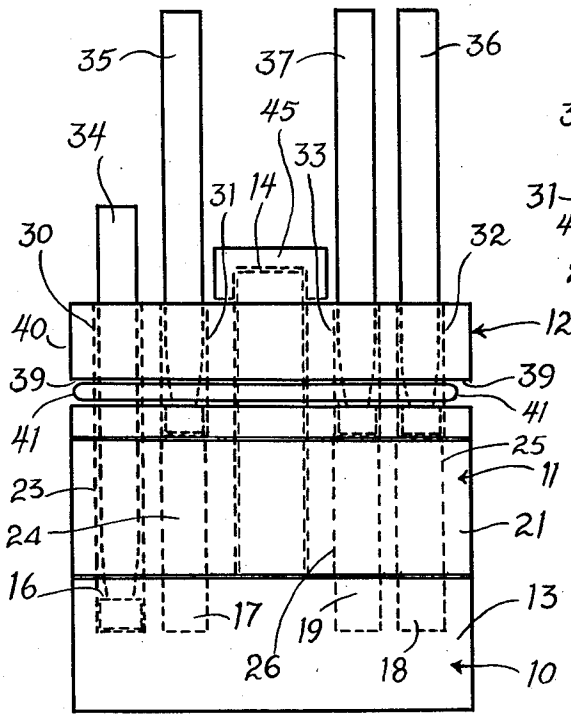


Fig. 1

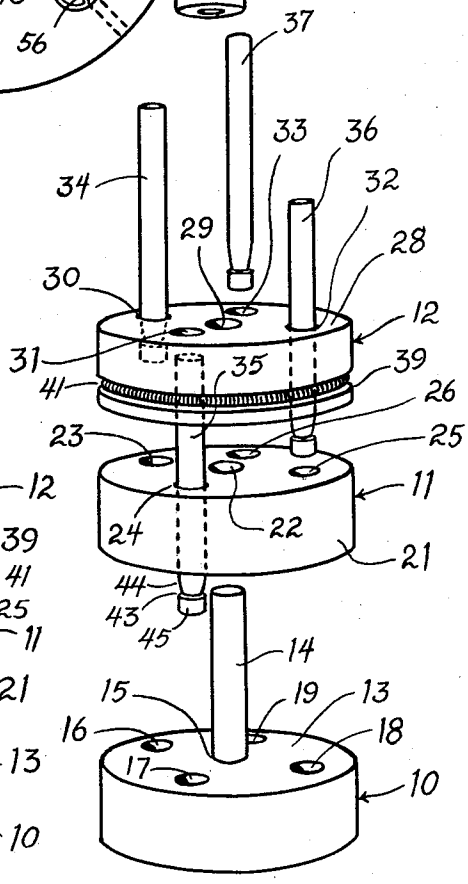


Fig. 2

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PUSH PEG PUZZLE

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This invention relates to a toy puzzle. More particularly the invention concerns an intriguing peg toy puzzle for finger operation in aligning a multiplicity of apertures in off-set relationship to properly position a multiplicity of pegs in the aligned off-set apertures.

A feature of the present invention is to provide an intriguing toy for children which is easy to understand and simple to operate, yet provides the child with amusement and training in the use of his fingers and exercise of judgment and patience in solving a puzzle toy.

Another feature of this invention is to provide an intriguing finger operable peg toy puzzle with multiple pegs and multiple apertured blocks in cooperative movable relationship as a complete and relatively inseparable unit during and for solution of the puzzle.

An additional feature of this invention is to provide a plurality of pivotal blocks in stacked relationship and each having a plurality of apertures therein aligned therethrough in off-set relation to fully receive a plurality of elongated pegs therein when the blocks are properly turned to align the apertures.

A further feature of this invention is to provide a puzzle toy formed of a plurality of apertured blocks in stacked relation about a pivot point and provided with a plurality of finger operable pegs movable into and out of the apertures when properly aligned but self-locking to prevent complete withdrawal from the apertures in the blocks in their stacked relationship.

Further features, objects and advantages will be apparent from the following description of the accompanying drawings.

Figure 1 is a side elevational view of the toy showing all of the openings in alignment and with the peg 34 extending through aligned openings.

Figure 2 is an exploded perspective of the toy.

Figure 3 is a top plan view of the toy in modified form showing an aligned relationship of the parts thereof.

In the following description like parts will be similarly indicated.

The toy embodied in this description includes a multiplicity of stacking blocks which are illustrated by a base section 10, an intermediate section 11 and a top section 12. Each of the different sections has a plurality of aligned apertures therein in off-set relationship and insertable pegs, as hereinafter described.

The base block section 10 comprises preferably a rounded block 13 having an upright peg 14 formed therewith or seated and wedged or secured in a centered aperture 15. A plurality of spaced apertures 16, 17, 18 and 19 are countersunk in seemingly balanced relationship, from the peripheral edge of base 10, but actually have about one-sixteenth inch side displacement from the outer periphery of base 10 with respect to their independent relationship with one another. These apertures in block 10 are cooperatively aligned with the different apertures in blocks 11 and 12, hereinafter described, and as provided in the arrangement shown in Figure 2.

The intermediate section 11 is representative of one

or more apertured block elements illustrated as preferably the rounded block 21 having the centered aperture 22 therethrough. The aperture 22 permits block 21 to slide over peg 14 and seat on block 13 in a freely pivotal relationship therewith. A plurality of spaced apertures 23, 24, 25 and 26 extend all the way through block 21 and are off-set in the exact manner as the countersunk apertures 16, 17, 18 and 19, in base block 10, so that they are aligned when in the relative position as illustrated in Figure 2.

The top section 12 is preferably a rounded block 28 of the same size and general configuration of the blocks 13 and 21. The block 28 is also provided with a center aperture 29 for pivotally mounting the block 28 on peg 14. A plurality of apertures 30, 31, 32 and 33 extend through the block 28 in a spaced relationship. This relationship exactly corresponds to the spacing and positioning of the like apertures in blocks 13 and 21 when turned into an aligned position for proper entry of the finger operating sliding or reciprocating keys or pegs 34, 35, 36, and 37, in the manner as hereinafter described. A groove 39 is cut into and about the outside peripheral edge 40 of block 28 and holds a peg retaining spring 41. Each of the pegs 34, 35, 36 and 37 are provided with a shoulder 43, as illustrated in Figures 1 and 2. Inasmuch as all the slip pegs, as herein described are provided wtih similar shoulders 43 which operate alike, only one is described in detail. The shoulder 43 is formed by reducing or cutting down, for example, the diameter of the peg 35 at the point 44 adjacent its end 45. The end 45 is of the same diameter as the stem portion of the slip peg 35 so that the whole of the peg slides through the proper apertures 31, 24 and into 17 when they are in proper alignment. As the slip peg 35 and other like pegs are attempted to be withdrawn from block 28, the spring 41 rides into the reduced diameter portions 44 and locks against similar shoulders 43 in each of the slip pegs as herein described.

When the blocks 21 and 28 are mounted over upright 14, in the manner shown in Figure 1, a cap 45 is glued, wedged or otherwise secured over the end of upright 14. The cap 45 holds the end sections 10 and 12 in loose fitting or freely pivotal relationship relative to the intermediate section 11. Thus in the illustrated arrangement the respective end sections 10 and 12 can be independently turned relative to the intermediate section 11 when the slide pegs 34, 35, 36 and 37 are mounted in block 28 and withdrawn to the point at which shoulders 43 are locked against complete withdrawal by spring 41. As shown in Figure 1, the slip peg 34 and the balance of the slip pegs, as herein described, are longer than the depth of the aligned apertures in order to provide for finger manipulation.

When the outside block sections 10 and 12 are mounted with an intermediate section 11 on a standard or supporting post 14 with the relative set or group of apertures 30, 23 and 16 in alignment, then the balance of the relative set or group of apertures 31, 24 and 17, set or group 32, 25 and 18, and set or group 33, 26 and 19 are also aligned to properly receive the pegs 34, 35, 36 and 37, respectively. With all the pegs 34, 35, 36 and 37 withdrawn until shoulders 43 are engaged by spring 41 in the manner illustrated by pegs 35, 36 and 37, as shown in Figure 1, the block sections 10, 11 and 12 can be independently rotated to misalign the relative sets or groups of apertures, as described. Thereafter the problem is to realign all the relative sets or groups in order to push the pegs 34, 35, 36 and 37 all the way down into apertures 16, 17, 18 and 19, respectively.

As illustrated in the top view shown in Figure 3, the structure therein, represented by top block section 28', is a similar stacking arrangement, as described, with the

aligned aperture groups or sets represented by the numbers 47, 48, 49 and 50. These aperture sets are drilled as a group in a relatively different off-set relationship. The aperture groups represented by the numbers 47 and 48 are drilled into the body of the block sections at a slightly greater distance from the block peripheries than the aperture groups 53 and 54. The pegs 51, 52, 53 and 54 are constructed in a manner similar to the heretofore described pegs 34, 35, 36 and 37, with the exception of the stem sections being provided with grooves 55, 56, 57 and 58, respectively. These grooves 55, 56, 57 and 58 serve as retaining guides for pin ends 60, 61, 62 and 63 which are driven into the side of top section 28' and act as stops in the path of shoulders (similar to shoulders 43 shown in Figure 2) to prevent complete withdrawal of pegs 51, 52, 53 and 54 from the top block section 28' in a manner similar to the peg stopping action of spring 41. When one or more of the aperture groups 47, 48, 49 and 50 are not in alignment the relative block section or sections must be turned until realignment is obtained to properly push each of the pegs 51, 52, 53 and 54 evenly into the block sections. By preventing the withdrawal of the sliding pegs, as described, the relative positioning of the apertures, as described, cannot be seen. For simplification of the problem of alignment one of the sets or groups of apertures, for example group 47 with its respective peg 51 and pin stop 60, can be dispensed with and only the remaining three sets or groups of apertures 48, 49 and 50 drilled in an offset relationship, to provide the problem of aperture alignment for properly receiving pegs 52, 53 and 54 thereinto in the manner described. Any misalignment of the apertures by rotation of one or more of the apertured block sections will prevent the proper entry of any one or more of the pegs into any one or more of the block sections. Otherwise in the arrangement shown in Figure 2, the block 13 may be a stationary base with an upright 14 upon which the sections 11 and 12 are relatively pivotally mounted for alignment of pegs or keys 34, 35, 36 and 37 in spaced relative apertures 23, 24, 25 and 26. For economy in manufacture the toy structure described herein is preferably formed of wood. However, it will be recognized that the structure can be a molded plastic, metal or a combination of these materials.

In accordance with the patent statutes, I have described the principles of construction and operation of my push peg puzzle, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A peg toy puzzle structure comprising a combination of pivotal block sections arranged in stacked relationship, a plurality of independent apertures in each of said block sections in differently spaced relationship to the edge peripheries thereof, said apertures being in alignment through said block sections when in one position and in an off-set relationship to each other with said block sections in any other position, and a plurality of pegs completely insertable in said alignment of apertures in said one position but not completely insertable in said apertures in any other position.

2. A peg toy puzzle structure comprising in combination a base section, a standard on said base section, an intermediate pivotal section mounted on said standard, a top section mounted on said standard over said intermediate pivotal section, securing means holding said sections in stacked relationship, each of said sections being provided with a plurality of apertures in different offset relationship relative to the edge peripheries of said sections and all in aligned relationship when the said sections are in one relative position and not all in aligned relationship when said sections are in another relative relationship, and finger operable pegs mounted in the apertures of said top section insertable in all of said apertures in the said sections in the one relative relationship but not insertable in all of said apertures when said sections are in another relative relationship.

3. A peg toy puzzle structure comprising in combination a base section having a plurality of spaced apertures therein, a pivot mounted on said base about which said apertures are angularly spaced, an end section mounted on said pivot having a plurality of apertures therethrough angularly spaced about said pivot, an intermediate pivotal section freely encircling said pivot and having a plurality of apertures therethrough angularly spaced about said pivot, the distance between the axes of each pair of adjacent angularly spaced apertures being different from the distance between the axes of other pairs of adjacent angularly spaced apertures in each section, said pluralities of angularly spaced apertures in said base section, end section, and intermediate section being aligned when all of said sections are in one rotated position and misaligned when said sections are in any other relative position, peg means slidably supported in said apertures in said end section and slidable into and out of said apertures in said intermediate section and base section when said sections are in said rotative position, and not insertable into said spaced apertures when said sections are in any other rotative relation, and cooperative stop means on said peg and said end section to prevent complete removal of said peg means from said apertures in said end section.

4. A peg toy puzzle comprising in combination a plurality of independently pivotal blocks mounted in stacked relation for rotation about a common pivot axis and having a plurality of apertures which are angularly spaced about the pivot axis, the distance between the axes of each pair of adjacent angularly spaced apertures being different from the distance between the axes of other pairs of adjacent angularly spaced apertures in each section, the apertures in the individual blocks being aligned when the blocks are pivoted to one relative position about said common axis, at least one aperture of one of the blocks being misaligned with an aperture of another block when said blocks are pivoted to any other position, and peg means slidably insertable into said apertures when the blocks are pivoted to the said one relative position.

5. The structure of claim 4 and including stop means for preventing the complete withdrawal of said peg means from all of said apertures.

6. The structure of claim 4 wherein the said pivotal blocks are mounted in stacked relation on a centered support including said common pivot axis, said centered support including securing means thereon securing said blocks together in pivotal relationship.

7. A peg toy puzzle comprising in combination a plurality of independently pivotal blocks mounted in stacked relationship for rotation about a common axis and having a plurality of spaced aligned apertures which are aligned when the blocks are pivoted to one relative position about said common axis, at least one aperture of one of said blocks being misaligned with an aperture of another block when the blocks are pivoted to any other position, peg means insertable into said apertures when the blocks are pivoted to the said one relative position, and stop means for preventing the complete withdrawal of said peg means from all of said apertures, said stop means comprising cooperative shoulder means on said peg means and a spring means in one of said block means adapted to intercept said shoulder means within each of said apertures.

8. A peg toy puzzle comprising in combination a plurality of independently pivotal blocks mounted in stacked relation for rotation about a common axis and having a plurality of spaced aligned apertures which are aligned when the blocks are pivoted to one relative position about said common axis, at least one aperture of one of the blocks being misaligned with an aperture of another

block when the blocks are pivoted to any other position, peg means insertable into the apertures when the blocks are pivoted to the same one relative position, and stop means for preventing the complete withdrawal of the peg means from all of the apertures, said stop means comprising cooperative shoulder means on the peg means and pin means mounted on one of said block means and adapted to project within said apertures to abut against said shoulder means.

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