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1,683,014

F. L. BABCOCK

PUZZLE

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Fig. 1.

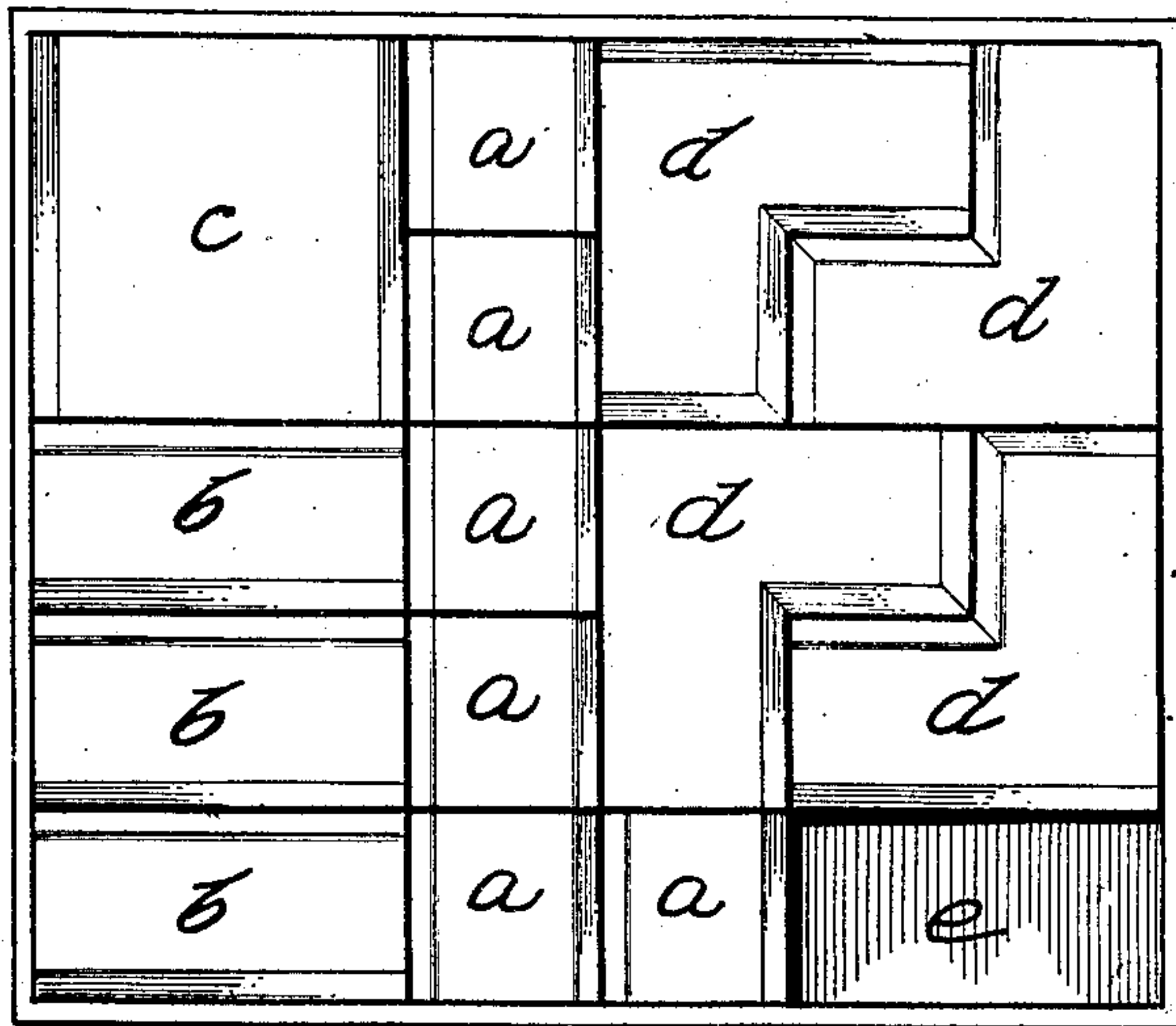


Fig. 3.

1	5	11	
	6		12
2	7	13	
3	8		14
4	9	10	

Fig. 2.

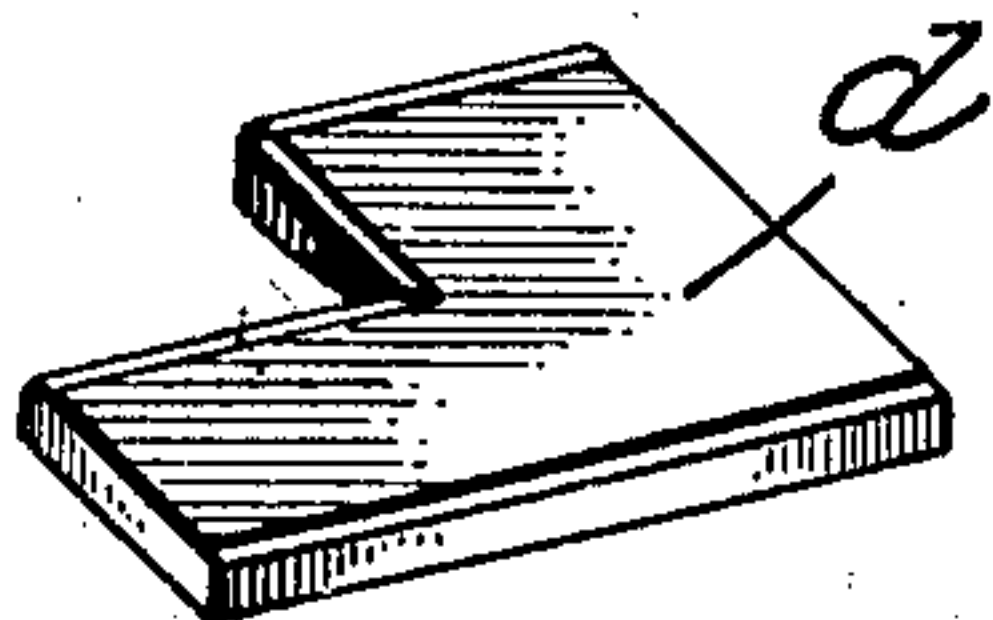


Fig. 4.

11		13	
	12		14
3	5	10	8
2	6		1
4	9		

Fig. 5.

1	11		5
		12	6
13	2	8	7
	3	9	
14	4	10	

Fig. 6.

13	11		5
		12	10
14	8	7	
3	2		1
4	6	9	

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PUZZLE.

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This invention is directed to a puzzle of that type involving a container or box in which are arranged a plurality of relatively flat elements of different sizes, with the elements interfitting to occupy the entire surface within the box except for a space so arranged that selective movement of the elements may be permitted in order that a particular element may be moved from one particular position in the container or box to another selected position.

The primary object of the present invention is the provision of certain of the elements in right angled form to thereby materially increase the difficulty of free movement of the elements with relation to each other to increase the difficulty of a solution of the puzzle.

The invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a plan view showing the box or casing with the contained elements, the elements being arranged in one predetermined position.

Figure 2 is a perspective view of one of the right angled elements by the use of which the solution of the puzzle is rendered more difficult.

Figures 3 and 4 represents diagrammatically an arrangement of the elements in one position at the start of the puzzle and the arrangement of the elements in the final position at the solution of the puzzle.

Figures 5 and 6 are similar views indicating a different position of the elements at the start of the puzzle and a relatively different position of the elements at the solution of the puzzle.

The puzzle comprises a series of elements having a distinct relation to each other and adapted to be arranged in a comparatively shallow box-like casing 1 which may, of course, for the purposes of transportation and housing the puzzle when not in use, be provided with a cover.

A series of relatively movable elements are arranged in the casing, these elements having a distinct relation to the smallest or unit element, with such elements capable, under proper manipulation, to be so moved that the master element can be moved from one predetermined position to another predetermined position.

The elements comprise a series of unitary elements indicated at *a* which are, in the form shown, square in plan and of a surface dimension determined of course by the size of the casing 1. In addition to the elements *a*, there are provided rectangular elements *b*, three in number, and having one surface dimension, that is the shortest, equal to one surface dimension of the unit element *a*, the remaining or longitudinal surface dimension of the element *b* being twice that of the surface dimension of the element *a*. That is to say, while the unit elements *a* are square, the elements *b* are double the square dimension of the units *a*, equaling the units *a* in width but being twice the length of the latter.

A master element *c* is provided which is the key element, that is, the element which is to be moved from one predetermined position to another in order to solve the puzzle. This master element *c* is square in plan, having a surface dimension twice that of the unit element *a*. That is to say, the master element *c* has a surface area which is four times the surface area of the unit element *a*.

Coupled with the elements described are what will be termed interlocking elements *d*. These elements *d* are of right angled formation and bear a distinct relation in their dimensions to the size of the unit element *a*. For example, the elements *d* being of right angled form in plan, have their dimension lengthwise either leg equal to twice the surface dimension of the unit element *a*, so that each leg of the element *d* projects beyond the other leg to an extent equal to the surface dimension of the element *a*. Therefore, elements *d* have a surface area which is three times the surface area of the unit element *a*.

These elements are assembled in the casing with the master element *c* at one corner, say, the upper left hand corner as illustrated, and the object of the puzzle is to move the various units with respect to each other without lifting any unit from the casing, so that the master element *c* may be caused to reach a position at the lower right hand corner of the casing, as illustrated in Figure 1.

In order to permit this relative movement of the elements while maintaining their sliding cooperation with the box or casing, it is of course necessary to provide a space within the interior of the box which is normally

vacant, that is, not occupied by any unit or block. This space, indicated at *e*, is shown, when the units and elements are arranged in the order shown in Figure 1, as appearing at the lower right hand corner of the casing 1 and having a rectangular shape in plan with a major dimension twice the surface dimension of the element *a* and a minor dimension equal to the surface dimension of that element.

It is to be particularly noted that in the provision of four of the interlocking elements *d*, such elements interfit one with the other, thus preventing direct line movement of these elements in one direction relative to the other and materially increasing the difficulty of providing for the particular elements in the solution of the puzzle.

The various elements making up the movable parts of the puzzle may be arranged initially in different positions, such for example as illustrated respectively in Figures 3 and 5, though the puzzle is capable of other initial positions and other solutions than those specifically referred to herein. Certain moves of the respective elements are necessary as a result of each of these positions until finally, when the puzzle is solved, the various elements are arranged in the positions shown in Figures 4 and 6 respectively. In order that the movement of the parts may be more readily described in giving a solution of the puzzle, the respective elements have been numbered and the following descriptions of the operation will refer to the elements by such numbers.

First, in assuming the elements arranged initially as shown in Figure 3 and to be moved relative to each other so that the master element is finally arranged in the proper position and the remaining elements as indicated in Figure 4, the various moves of the elements in the order in which said moves are made is as follows: 10, to right, 9 to right, 4 to right, 3 down, 2 down, 7 to left, 8 up and to left, 13 to left, 14 to left, 10 up, 9 to right and up, 4 to right, 3 to right, 2 down, 7 down, 8 down, 1 down, 5 to left, 6 up and to left, 11 to left, 12 to left, 10 up, 9 up, 14 to right, 13 to right, 8 to right and up, 7 to right, 2 up, 3 to left, 4 to left, 14 down, 13 to right, 7 to right and up, 2 to right, 1 down, 6 down and to left, 11 to left, 12 to left, 9 to left and up, 13 up, 14 up, 4 to right, 2 down, 8 down and to right, 1 to right, 6 down, 5 down, 11 to left, 12 to left, 9 to left and down, 10 to left, 13 up, 14 up, 8 to right, 7 down and to right, 9 down, 10 down, 13 to left, 14 up, 10 to right, 9 up and to right, 1 to right, 6 to right and up, 3 up, 2 to left, 4 to left, 7 down and to right, 9 down, 1 to right, 6 to right and down, 5 to right, 3 up, 2 up, 4 to left, 9 to left, 1 down, 10 to left, 8 up and to left, 7 up, and 1 to right.

With the elements originally arranged as

shown in Figure 5, the moves necessary to solve the puzzle and finally dispose the master element and remaining elements in the position shown in Figure 6 are as follows: 9 to right and down, 3 to right, 2 down, 8 to left, 7 to left, 3 up, 10 up and to right, 2 to right, 4 to right, 14 to right, 13 down, 8 to left, 7 to left, 3 to left, 6 down and to left, 5 down, 12 to right, 11 to right, 1 to right, 8 up, 7 to left and up, 13 up, 14 to left, 2 to left, 4 to left, 6 down, 5 to left and down, 12 down, 11 to right, 1 to right, 7 to right and up, 13 up, 14 up, 4 to left, 2 down, 3 down, 1 down, 7 to right, 8 to right, 13 up, 14 up, 3 to left, 1 down, 7 down and to left, 11 to left, 12 up, 5 up and to right, 1 to right, 7 down, 8 down, 11 to left, 12 to left, 5 up, 10 up, 1 to right, 7 to right and up, 2 up, 6 to left, 9 to left, and 1 down.

It is of course to be understood that the illustration and description herein given are merely treating the elements as blocks which may be constructed of wood or any material, but it is to be understood that the puzzle in itself contemplates ornamentation of the various elements in order to add to the pleasure in solving the puzzle. For example, the element *c* may be indicated as an aeroplane, steamship, railway train, automobile, or the like, and the various other elements indicated as hazards in the path of travel of the vehicle or master element, or if desired the elements may be merely picturesque representations of various details of any contemplated journey or trip.

What I claim to be new is:

1. A puzzle comprising an open casing and a series of elements arranged therein in contact and in number to provide an unoccupied space in the casing, the elements comprising a number of unitary elements of square surface form, a number of elements of rectangular form including a surface area twice that of the unit elements, a number of elements of right angled form having a surface area three times that of the unit elements, and a master element having a surface area four times that of the unit elements.

2. A puzzle comprising an open casing and a series of elements arranged therein for relative sliding movement, the elements occupying the interior of the casing except for an area to provide a vacant space to permit initial relative movement of the elements, the elements including six unit elements of square surface area, three rectangular elements of double the surface area of the unit elements, a square master element having a surface area four times that of the unit elements, and four elements of irregular shape having a surface area three times that of the unit elements.

3. A puzzle comprising an open casing and a series of elements arranged therein for relative sliding movement, the elements oc-

cupying the interior of the casing except for
a area to provide a vacant space to permit
initial relative movement of the elements,
the elements including six unit elements of
5 square surface area, three rectangular ele-
ments of double the surface area of the unit
elements, a square master element having a

surface area four times that of the unit ele-
ments, and four elements of L-shape having a
surface area three times that of the unit ele- 10
ments.

In testimony whereof I affix my signa-
ture.

FAY L. BABCOCK. [L. s.]