# PATENT SPECIFICATION

411,515

Application Date: Dec. 7, 1932. No. 34,635/32.

Complete Left: Dec. 2, 1933.

Complete Accepted: June 7, 1934.

PROVISIONAL SPECIFICATION.

## An Improved Puzzle, and Means therefor.

I, JOHN HAROLD FLEMING, British Subject, of Arpley Works, Arpley, Warrington, Lancashire, do hereby declare the nature of this invention to be as follows:—

The invention relates to a puzzle with the use of pieces or members of a certain number, and certain relative dimensions, which are movable in a manner for attaining a result hereinafter described.

For descriptive purposes, drawings are annexed, in which Fig. 1 is a plan view of movable pieces within a casing open at the top part, said pieces being there arranged according to my invention and in position for commencement of the operations to be carried out.

Fig. 2 is a side sectional view of Fig. 1.

Figs. 3 to 7 inclusive, show the device of Fig. 1 but on a reduced scale, with the pieces rearranged at different stages of the solution of the puzzle.

Fig. 8 shows one of the pieces in a modified form, and in plan.

The casing for the pieces is shown at *a*, and may be composed of wood or other suitable substance. It consists of a base portion and upright sides at *b* of a shallow character. There is a clear opening at *c* through the side at one extremity of the casing.

The movable pieces employed as shown at 1 to 10 inclusive. If the piece marked 1 in Fig. 1 be divided by lines as indicated in broken manner thereon merely for explanatory reasons, then the pieces 2, 3, 4, 5 and 10 are each equal in area to one half of piece 1, or to twice one of the quarters into which it is divided, or approximately so. The pieces 6, 7, 8 and 9 are equal in area, in each case, to one of the quarters aforesaid, or approximately. There is preferably a little clearance between the pieces as shown, for facilitating movement of the latter. An extra piece, equal in size or area to piece 10, may be used to fill in the space left in the casing at *d* in Fig. 1, and which may be called "dummy" inserted merely for the purpose of keeping the pieces in place during transit or storage. Said "dummy" is however removed before the puzzle is attempted.

The rules are that: No piece is to be turned round, either wholly or partly during the solution of the puzzle. No piece is to be lifted bodily from the casing during said operation, and no piece is to be moved out of the casing excepting the one marked 1, the puzzle being to bring piece 1 opposite opening *c*, (which latter opening is large enough to allow the passage of piece 1 therethrough), so that piece 1 aforesaid can be so passed or slid through said opening.

The area over which the pieces may be slid or moved during the solution named is that bounded by the inner faces of the sides *b* and the broken line shown across the opening *c* in Fig. 1, said broken line being merely here partly shown at $d^1$ for explanatory purposes, although a line of demarkation may be provided on the base of the casing if desirable.

In the following solution, each piece is referred to by its indicated number, and the direction of movement given means that each piece affected must move as far as it can in said direction, and within the area already stated.

From the position shown in Fig. 1:—

10 left; 9 down; 9 right; 7 down; 8 right; 6 right; 3 right; 2 down; 1 left. This is the position reached according to Fig. 3. Proceeding further:—

6 up; 8 up; 7 up; 9 left; 9 up; 10 right; 2 down; 3 down; 1 down. The position thus far reached is shown in Fig. 4. Proceeding further:—

6 left; 8 up; 8 left; 7 up; 1 right; 2 up; 3 left; 9 left; 9 down; 1 down. The position now reached is shown in Fig. 5. Proceeding further:—

7 down; 7 left; 4 left; 5 up; 1 right; 7 down; 8 down; 6 right; 6 down; 2 up; 3 up; 9 left; 7 down; 6 up; 8 up; 1 left; 5 down; 4 right; 6 right; 8 right; 2 right; 3 up; 1 left; 8 down; 6 down; 4 left; 5 up; 6 right; 8 right; 1 right; 9 up; 7 left; 7 up; 10 left; 8 down; 6 down; 8 left; 6 down; 1 right; 9 right; 7 up; 10 up; 8 left; 6 left; 1 down. The position now reached is shown in Fig. 6. Proceeding finally:—

9 right; 7 right; 10 up; 6 up; 6 left;

l left, and out at aperture *c*. See Fig. 7.

It is obvious that the shapes of the pieces referred to may be modified to some extent without interfering with the working out of the puzzle. For example, in Fig. 8, one of the pieces in Fig. 1 is shown having its vertical edges rounded off for facilitating the movement of the same and others similarly made, in the casing *a* as described.

The size of the casing and of the pieces used therewith may also be according to fancy or convenience, and in some cases the pieces may have formed or attached thereon or thereto any desirable figure, ornamentation or otherwise.

Dated this 5th day of December, 1932.

WILLIAM GADD & SONS,
62, Barton Arcade, Manchester,
Agents.

## COMPLETE SPECIFICATION.

## An Improved Puzzle, and Means therefor.

I, JOHN HAROLD FLEMING, British Subject, of Arpley Works, Arpley, Warrington, Lancashire, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to a puzzle with the use of pieces or members of a certain number, and certain relative dimensions, which are movable in a manner for attaining a result hereinafter described.

Movable pieces within a casing or container are employed, said pieces being preferably in the form of blocks which are rectangular when viewed in plan, and which are to be moved for enabling one of said pieces to be withdrawn from the casing or container as hereinafter described.

The rules are that; No piece is to be turned round, for solution purposes either wholly or partly during the solution of the puzzle. No piece is to be lifted bodily from the casing during said operation, and no piece is to be moved out of the casing excepting the one to be eventually removed.

The puzzle comprises 10 operable pieces in a container, the latter having an outlet at one side of sufficient width to allow of the removal of the largest of said pieces therethrough.

A further, or "dummy" piece may be placed within a space for it for keeping the other pieces in their initial positions during transit or storage, but which "dummy" is to be removed before the solution of the puzzle is attempted.

The operable pieces referred to consist of 4 small ones, also 4 intermediary-sized pieces each having the smaller dimension or width equal to that of a small piece, and a length equal to twice that of the latter piece.

There is also a further intermediary-sized piece of width equal to that of a small piece and a length equal to the width of a small sized and intermediary-sized piece combined.

There is also the largest piece first above referred to having a width equal to twice that of a small piece and a length equal to that of one of the four intermediary pieces.

We are aware that it has been proposed to form a puzzle in which a plurality of blocks are provided in a container without an outlet at the side thereof, and the area of one or more of the blocks used is an aliquot part of the area of the base of the container over which they are movable, the areas of the remaining blocks being multiples of the area of the aforesaid block or blocks when set out. When so set out for operation the blocks are arranged as to leave uncovered an area of the base of the container equal to that of one or more of the blocks, to enable the latter to be manœuvred into position.

In the accompanying drawings Fig. 1 is a plan view showing slidable blocks according to my invention housed within the casing or box, the lid of which has been removed, said blocks being in their initial positions prior to the solution of the puzzle being commenced.

Figs. 3, 6, 7, 8 and 9 are similar views but showing the blocks rearranged at different stages of the solution.

Fig. 2 is a side sectional view of Fig. 1 through line A—B of Fig. 4, and including a hinged lid for the box, Fig. 4 is a front view of Fig. 1, and Fig. 5 a cross section of the box, the movable blocks being omitted.

Fig. 10 shows a plan view of what may be termed a "dummy" merely employed within the box for purposes of transit or storage and whereby the remaining blocks forming the puzzle are temporarily retained in position at such periods, but which is removed before the solution is commenced.

Fig. 11 shows one of the pieces in a modified form and in plan.

The pieces shown in the drawings which I employ consist of rectangular blocks 1 to 10 inclusive. An additional or "dummy" block above referred to is shown at 11 (Fig. 10) to occupy the area 12 in Fig. 1 for the purpose referred to.

In the present example the box itself is shown at 13, a hinged lid therefor being indicated at 14.

In Fig. 2 portion of said lid is shown by broken lines in open position.

In the example shown in the drawings the pieces or blocks comprise four small pieces 6, 7, 8, 9, four intermediary-sized pieces 2, 3, 4, 5, each having the smaller dimension or width equal to that of a small piece and a length equal to twice that of a small piece, a further intermediary-sized piece 10 of equal width to that of a small piece and a length equal to the width of a small-sized and intermediary-sized piece combined, and finally a removable piece 1 whose length is that of one of the four intermediary-sized pieces and width equal to twice that of a small piece.

Convenient "clearance" between the various blocks within the box or casing for them are provided.

The said box is here shown with an opening 15 at the front wide enough for allowing block 1 to be easily slid therethrough when the lid 14 is suitably opened.

The front part of the lid 14 is here shaped so that when in the closed position some portions of blocks 10 and 11 are visible such as in Fig. 4.

For attractive purposes these visible portions may be associated with the teeth of an animal such as a lion, the block 1 also being associated with the tongue of the said animal for which purpose said block 1 may be coloured red, the remaining blocks being white.

In this way the puzzle may be said to consist in the withdrawal of the animal's tongue under the conditions of the puzzle.

A solution of this puzzle is as follows, the statement thereof assuming that each piece is moved as far as it can in the direction named within the area available. Said area being bounded by the inner faces of the box.

From the position shown in Fig. 1:—

Move

10 left; 9 down; 9 right; 7 down; 8 right; 6 right; 3 right; 2 down; 1 left. This is the position reached according to Fig. 3. Proceeding further:—

6 up; 8 up; 7 up; 9 left; 9 up; 10 right; 2 down; 3 down; 1 down. The position thus far reached is shown in Fig. 6. Proceeding further:—

6 left; 8 up; 8 left; 7 up; 1 right; 2 up; 3 left; 9 left; 9 down; 1 down. The position now reached is shown in Fig. 7. Proceeding further:—

7 down; 7 left; 4 left; 5 up; 1 right; 7 down; 8 down; 6 right; 6 down; 2 up; 3 up; 9 left; 7 down; 6 up; 8 up; 1 left; 5 down; 4 right; 6 right; 8 right; 2 right; 3 up; 1 left; 8 down; 6 down; 4 left; 5 up; 6 right; 8 right; 1 right; 9 up; 7 left; 7 up; 10 left; 8 down; 6 down; 8 left; 6 down; 1 right; 9 right; 7 up; 10 up; 8 left; 6 left; 1 down. The position now reached is shown in Fig. 8. Proceeding finally:—

9 right; 7 right; 10 up; 6 up; 6 left; 1 left and out at aperture 15, (see Fig. 9).

The shapes of the pieces employed may be modified to some extent without interfering with the working out of the puzzle.

For example it would be possible to employ pieces the smallest and largest of which were circles and the remainder oblongs, provided the width of each of the latter was equal to the diameter of the least circular piece, and the diameter of the largest piece (corresponding to block 1 herein) was twice that of the smallest aforesaid.

The sizes of the pieces as a whole and their ornamentation, if any, may be as desirable. As shown in Figs. 10 and 11 the blocks are preferably chamfered at their opposite ends.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1: A puzzle comprising 10 operable pieces within a casing or container having an outlet at one side thereof in extent sufficient to allow of the passage therethrough of the largest of said pieces, and provided with an internal space which at the commencement of operations is uncovered by a piece and is capable of being covered by a piece of intermediary-size herein after referred to, said pieces consisting of 4 small ones, 4 intermediary-sized pieces each having the smaller dimension or width equal to that of a small piece and a length equal to twice that of a small piece, a further intermediary-sized piece of equal width to that of a small piece and a length equal to the width of a small-sized and intermediary-sized piece combined, and finally a removable piece whose length is that of one of the 4 intermediary-sized pieces and width equal to twice that of a small piece, all of said pieces being movable as and for the purpose herein described.

2: A puzzle comprising movable rectangular blocks within a casing or container having an aperture therethrough for egress of the largest of said blocks, re-

latively arranged and movable within said casing, substantially as described with reference to the accompanying drawings.

Dated this 1st day of December, 1933.

WILLIAM GADD & SONS,

62, Barton Arcade, Manchester 3,
Agents.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.– 1934

Fig. 1

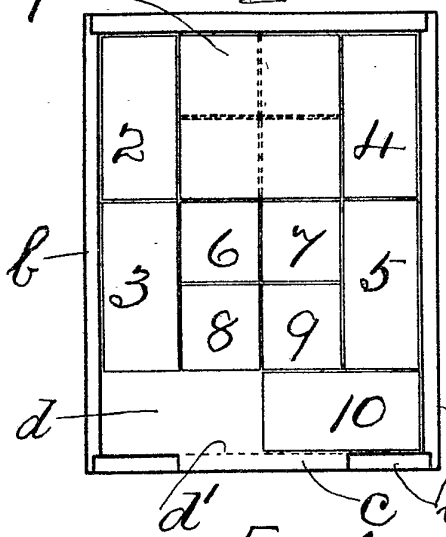


Fig. 2

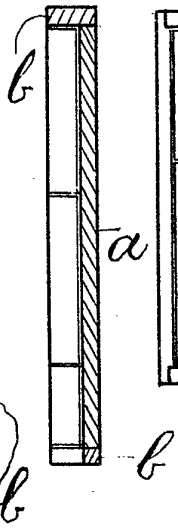


Fig. 3

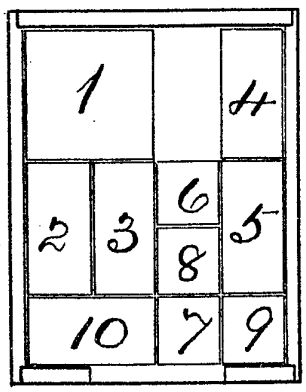


Fig. 4

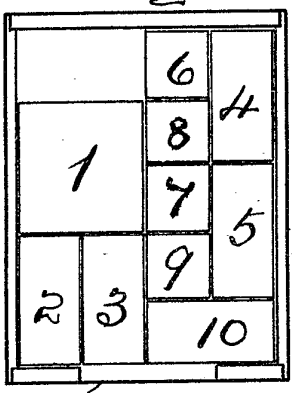


Fig. 5

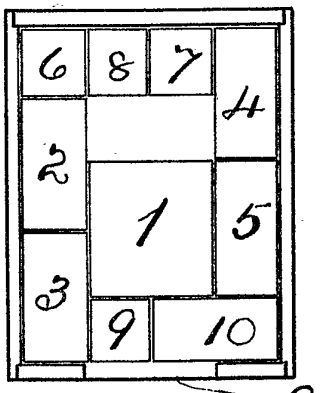


Fig. 6

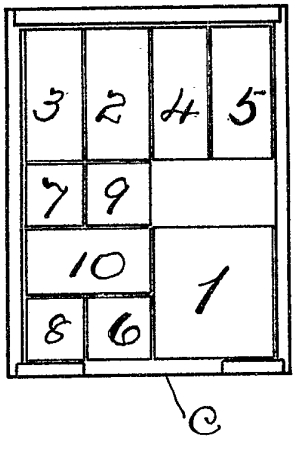


Fig. 7

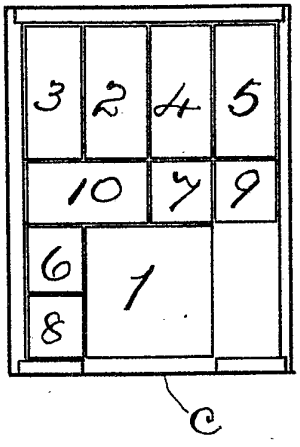


Fig. 8

Malby & Sons, Photo-Litho.

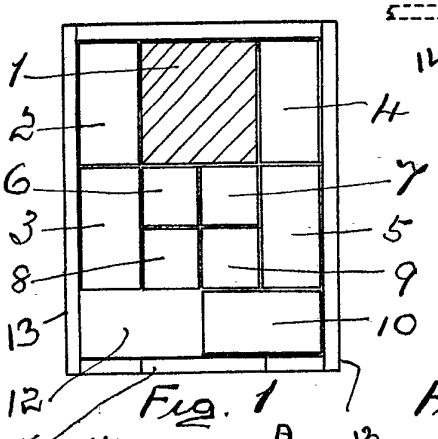


Fig. 1

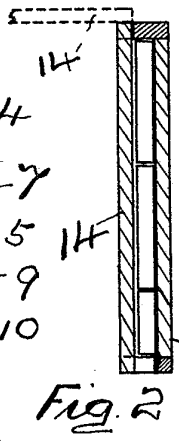


Fig. 2

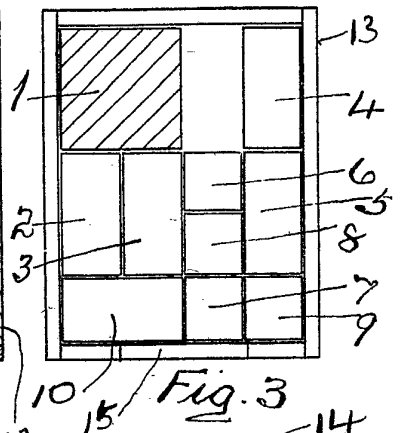


Fig. 3

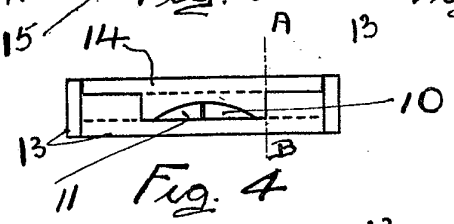


Fig. 4

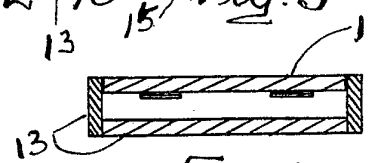


Fig. 5

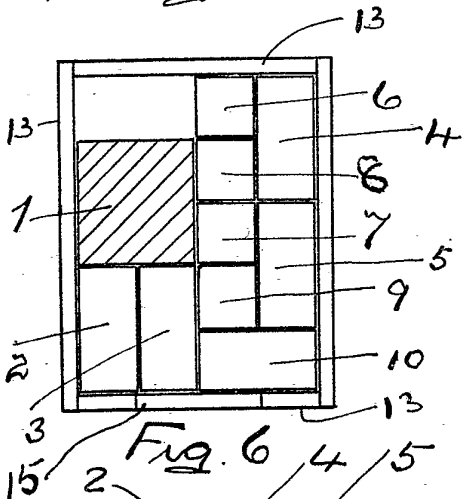


Fig. 6

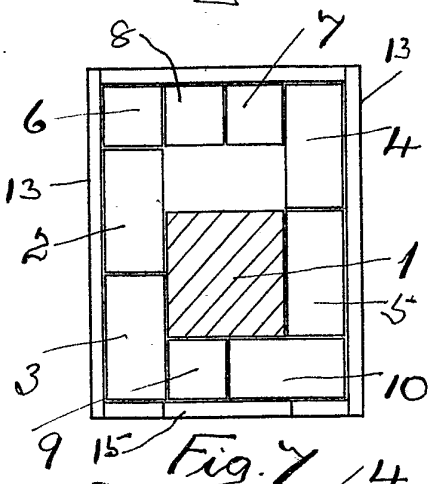


Fig. 7

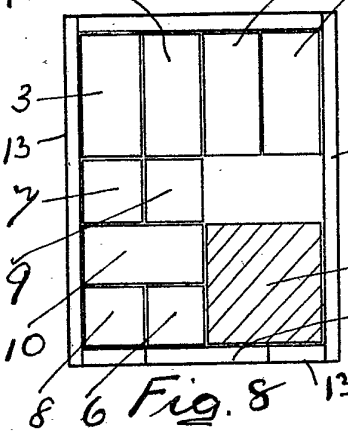


Fig. 8

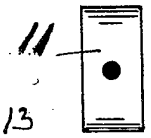


Fig. 10

Fig. 11

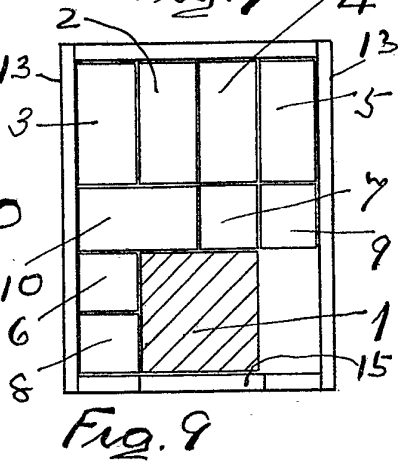


Fig. 9

Malby & Sons, Photo-Litho.