

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in Toy Bricks.

We, the firm F. AD. RICHTER & CIE., AKTIENGESELLSCHAFT, of Rudolstadt, Thuringia, Germany, a German limited company, Manufacturers of Toy Bricks, 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:—

10 The present invention consists in a toy building element which may be called a roof-tile beam for employment in boxes or sets of bricks for toy building purposes, the elements having a double object, namely to act both as covering and as frame member for the roof.

For the attainment of this object, the roof-tile beam according to the present invention is given the form of a pentagonal prism, of which the section is composed of a right angled triangle and of a rectangle joining on to the hypotenuse of said right-angled triangle. The triangular part here fulfils the constructive function, by providing the necessary basis of support for the rectangular part, which latter forms the roof covering or outer skin and therefore has principally a merely decorative function.

30 Figs. 1 to 7 of the accompanying drawing show one form of the roof-tile beam according to the present invention. The section of the beam is here composed of a right-angled triangle, of which the sides containing the right-angle are of different lengths, and of a rectangle joining on to the hypotenuse of the right-angled triangle. Fig. 1 is a view of two roof-tile beams, whilst Figs. 2 to 7 show different forms of roof built with these roof-tile beams. In Fig. 1 the two composite parts of the beam section are, for better definition, distinguished by different hatching.

45 The roof-tile beam (a) has a section composed of a right-angled triangle

$b e f$ and a rectangle $b c d f$ joining on to the hypotenuse of the triangle, the two sides of the triangle enclosing the right angle having lengths equal to the lengths of two adjoining sides of the section of a building stone of the box of bricks. If the latter are of equal length, that is to say, if the stone has a square section, then the two sides of the triangle containing the right angle will also be equal to one another.

The rectangle $b c d f$ joining on to the triangular section eliminates all acute angles in the section of the beam. Such acute angles or sharp edges are difficult to form out of, for instance, stone-like material, and are very liable to become injured or broken, and also do not permit of an un-interrupted joining together of the roof-tile beams to a closed surface. The surface of the roof-tile forming the roof covering is hereby bounded by right-angled edges.

Neither the triangle nor the rectangle composing the section of the beam would if made separately from one another alone fulfil the above requirements. The hitherto known roof-tiles have been formed by the diagonal division of a square or rectangle, in which case two such triangular sections will always together again occupy the area of said square or rectangle. This was necessary, in order that the sides of the triangle containing the right angle should correspond with the sides of the building stones of the box of bricks. However, none of the materials used for toy building stones permit the corners formed by the two hypotenuse angles $b f e$ and $f b e$ in Fig. 1 to be made so sharp, that the lengths of the sides enclosing the right-angle practically correspond with the side lengths of the free-stone elements. The sharp corners will be blunted or broken, which results in the

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disadvantage, that a gaping aperture ensues between the individual roof tiles, so that the underlying construction of the roof shows through the roof covering.

5 Sharp corners should in any case be avoided, since they would be a source of danger to children using the bricks, and further the material is not tough enough to prevent the corners breaking. The
10 roof covering alone is also unserviceable, since it cannot be brought into organic connection with the right angle stepped top of the gable walls. Such a roof covering would have no support, and for
15 this purpose it would be necessary to provide other auxiliary constructions, which result in a considerable complication of the whole system. In the case of a box
20 of bricks such auxiliary constructive pieces would necessarily have to be made of a material foreign to the system. All these disadvantages are eliminated by the use of the roof-tile beam according to the present invention, as shown in
25 Fig. 1.

The sides e , f , and e , b of the roof-tile beam correspond to the length of the building-stone sides on which they rest, irrespective of the material used in the
30 manufacture of the bricks and beams.

The acute angles of the triangle have been converted into obtuse angles d , f , e and c , b , e by the uniting of two sectional elements.

35 Two adjoining roof-tiles connect with their short sides b , c and f , d and thus conceal the interior entirely from view. By this means a homogeneous roof covering is attained. The otherwise necessary
40 internal construction or frame-work for the roof can be done away with altogether and the roof-tile beam may be laid without intermediate support from one gable wall to the other. If the span
45 exceeds the limit prescribed by the strength of the section, one or more tile beams must be inserted.

The sides e , f and e , h enclosing the right angle afford an excellent rest-surface for the roof-tile and correspond exactly to the horizontal and vertical
50 sides of the steps forming the upper part of the gable walls.

The length of the roof-tile beam (a)
55 is always a multiple of a certain common quantity, which forms the fundamental unit of the box-of-bricks system. If these roof tiles are placed on the horizontally and vertically bounded step-like
60 tops of the gable walls, which latter are built with the building stones of the box of bricks, it will always be possible to achieve a closed inclined roof surface of any desired extent. The roof-tiles can be
65 used in two positions, according to

whether the building stones are laid on their broad or their narrow sides.

In this manner it is possible to build roofs of different inclination and shape. Fig. 2 shows a steep roof, Fig. 3 a low
70 roof, Fig. 4 a mansard or curb roof, Fig. 5 a hipped roof, Fig. 6 a shed roof and Fig. 7 a shed roof consisting of a single roof-tile beam, in which latter case the beam rests on its hypotenuse.
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In order that the different lengths of roof beam should not mar the appearance of the outer surface of the roof, the outside surface of the beams can be provided with sham or blind joints, equidistant
80 and parallel to each other. These blind joints may also be arranged cross-wise. In any case they serve to divide the outer surface of the roof into a number of equal sized elements.
85

A considerable advantage of the roof-tile beam according to the present invention as compared with the roof-tiles hitherto used in toy boxes of bricks is contained in the fact that it can be
90 carried without intermediate support from one gable wall to the other, without requiring any internal constructive elements. The section of the roof-tile is therefore constructively and statically
95 utilised and the roof-tile beam fulfils a double function namely:

1.) It forms the outer roof covering, and

2.) It undertakes the function of the
100 roof frame or roof construction.

In the case of large roof surfaces the roof-tile beam extends from one tie piece to the next, so that it is here only necessary to add these tie pieces to the outer
105 walls at certain distances.

With the roof-tile sections hitherto known and used in boxes of bricks the above described constructional utilisation has not been possible, since the elimination of the structure underlying the individual roof-tiles would cause a gaping aperture to appear at the longitudinal joints of the roof tiles, which completely
110 mars the appearance of a closed roof surface. The roof tile according to the present invention therefore fulfils not only a decorative purpose, but has also a constructional function in consequence of its peculiar sectional form and of its sectional dimensions corresponding to the
115 building stones, and also in consequence of its longitudinal dimension compared with this stone.

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

1. A roof-tile beam for toy boxes of
130

bricks characterized by its section consisting of a right-angled triangle and a rectangle joining on to the hypotenuse of said triangle for the purpose of eliminating all acute angles, and by the sides of the triangle enclosing the right-angle forming the support surfaces, whilst the side parallel to the hypotenuse of the triangle forms the roof covering, and the sides lying at right angles or approximately at right angles to the roof covering form the joints of the single roof-tiles.

2. A roof-tile beam for toy boxes of bricks as under Claim 1, characterized by the lengths of the sides closing the right angle of the triangle of the beam section and also the total length of the

beam corresponding with or forming a multiple of the fundamental quantity or dimension of the box of bricks system. 20

3. A roof-tile beam for toy boxes of bricks as in Claim 1 or 2 characterized by the dimensions being so chosen, that when it is placed on the corresponding steps of two spatially removed gable walls, it will connect the latter and span over the intervening space, and at the same time fill out the said steps of the gable walls. 25 30

Dated this 28th day of August, 1923.

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[This Drawing is a reproduction of the Original on a reduced scale]

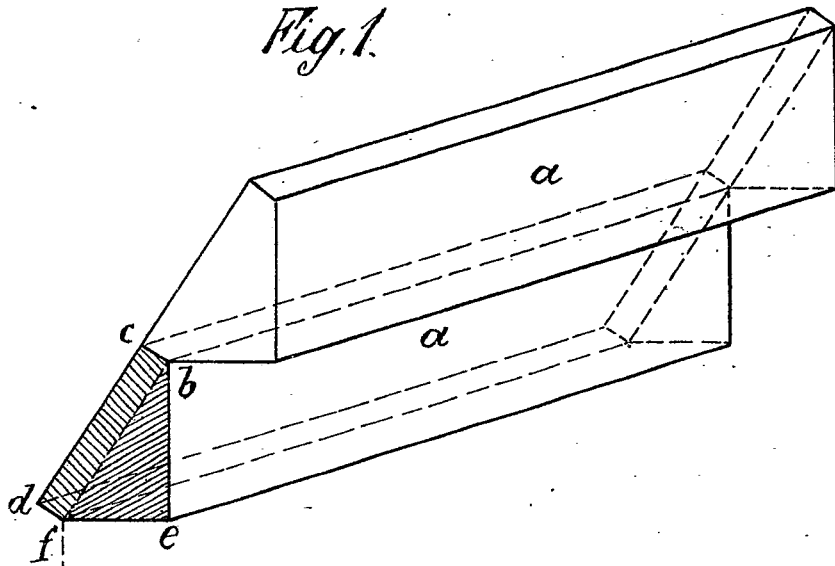


Fig. 2.

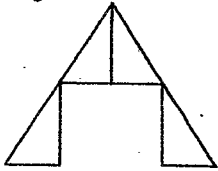


Fig. 3.



Fig. 4.

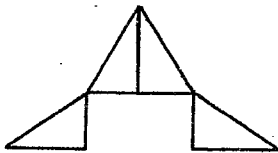
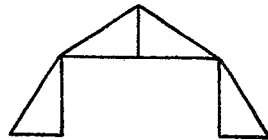


Fig. 5.

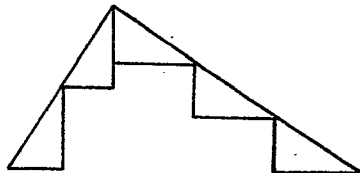


Fig. 6.



Fig. 7.