

W. S. SHIELDS.
TOY BUILDING BLOCK.
APPLICATION FILED MAR. 8, 1920.

1,385,154.

Patented July 19, 1921.
3 SHEETS—SHEET 1.

Fig. 1.

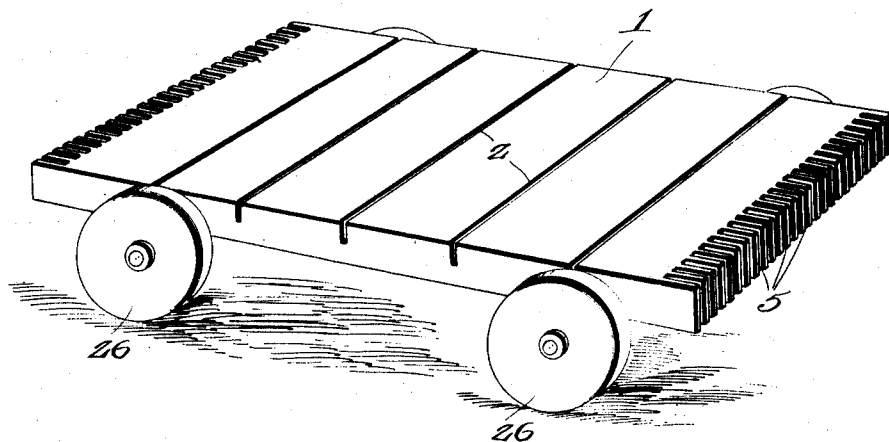
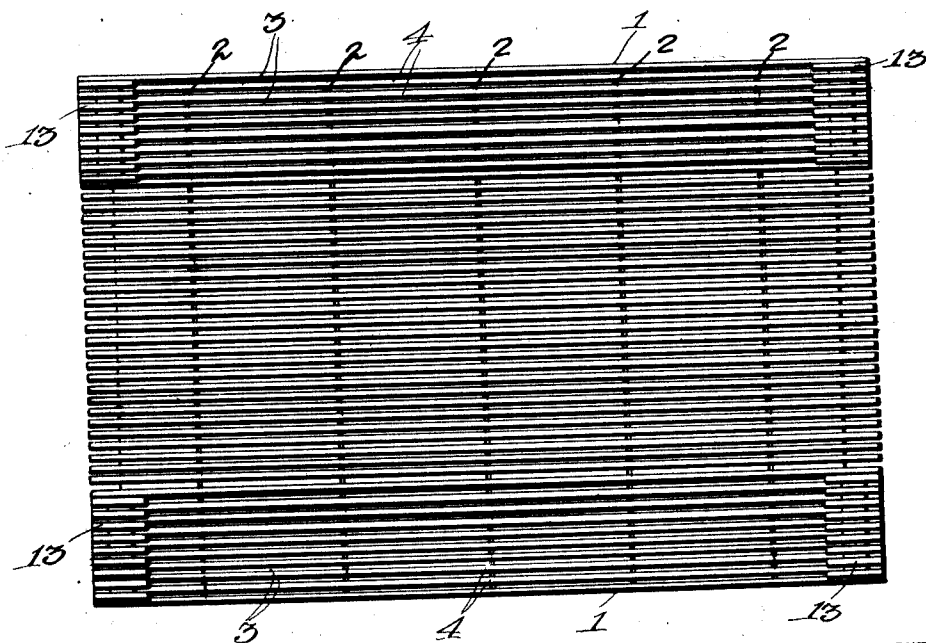


Fig. 2.



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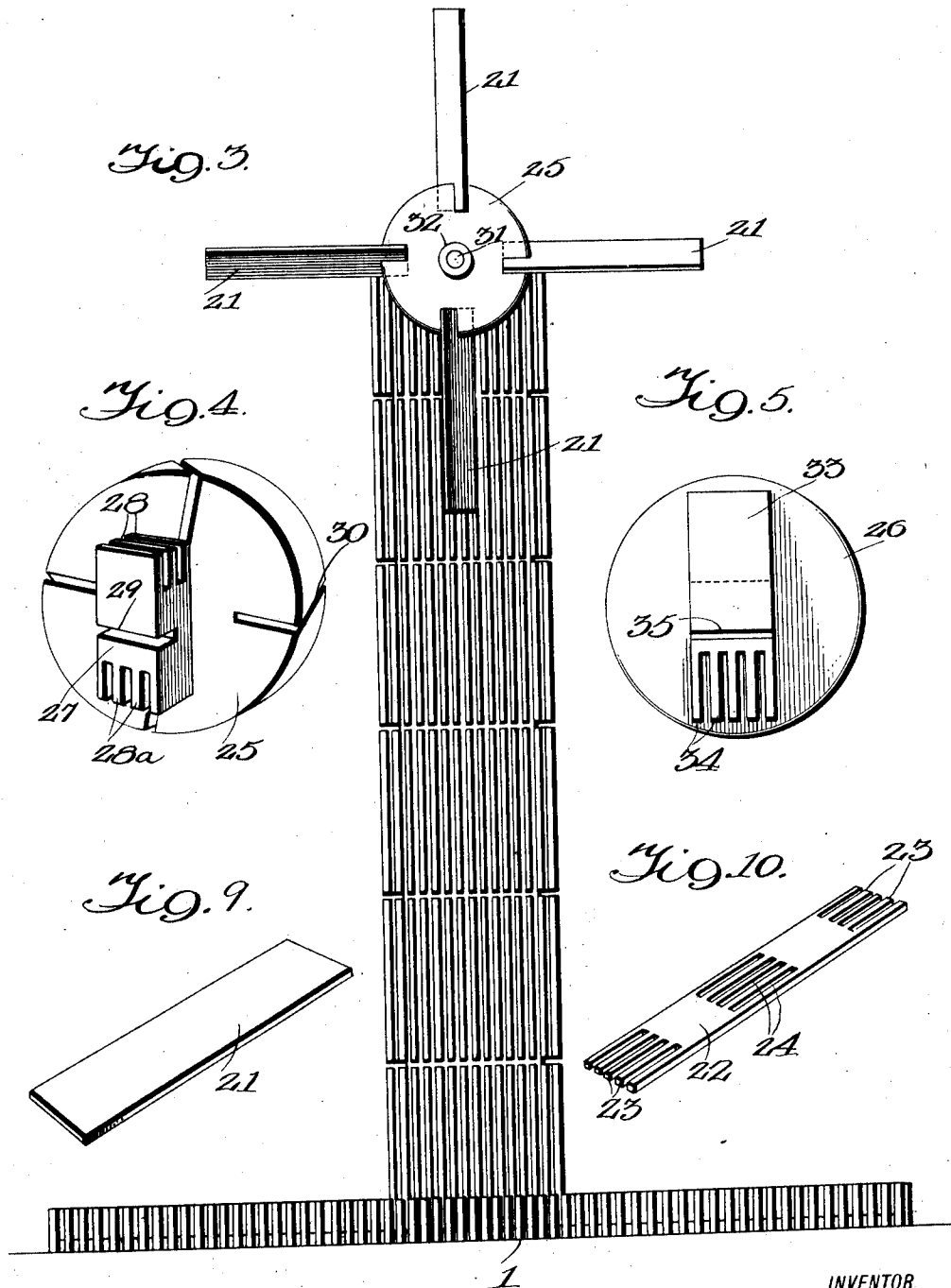
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3 SHEETS—SHEET 3.

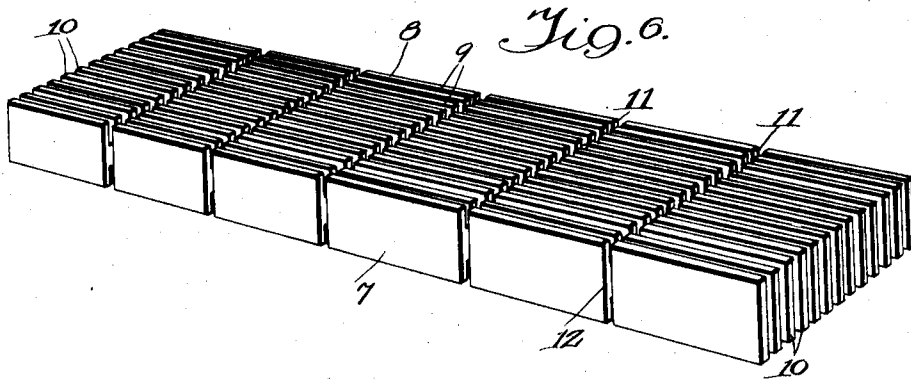


Fig. 7.

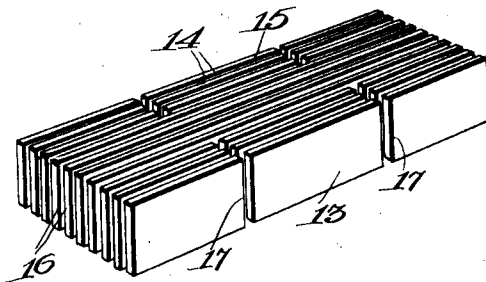


Fig. 8.

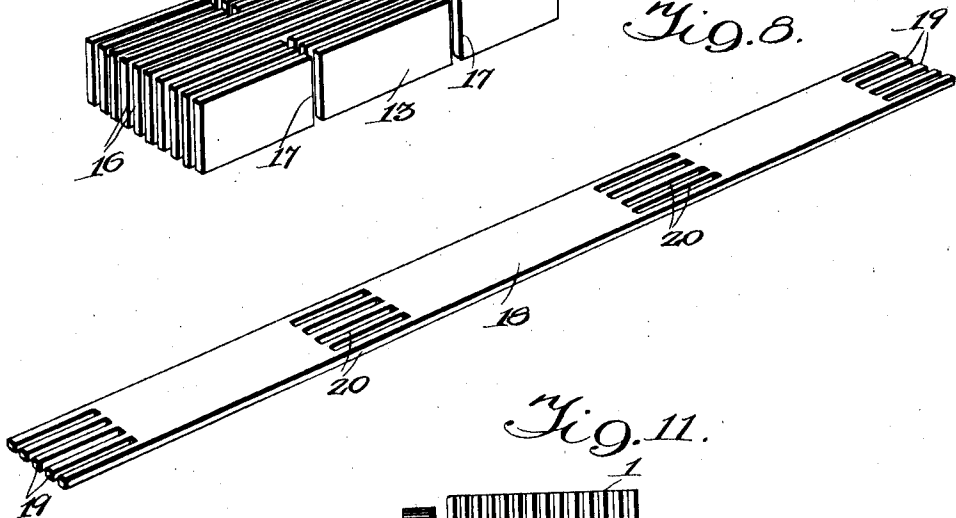
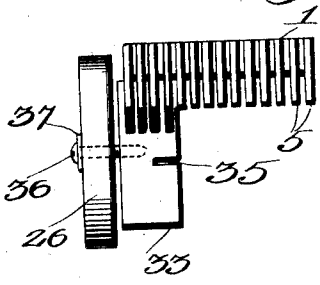


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM SCOTT SHIELDS, OF TRENTON, NEW JERSEY.

TOY BUILDING-BLOCK.

1,385,154.

Specification of Letters Patent.

Patented July 19, 1921.

Application filed March 8, 1920. Serial No. 363,970.

To all whom it may concern:

Be it known that I, WILLIAM SCOTT SHIELDS, a citizen of the United States, and a resident of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Toy Building-Blocks, of which the following is a specification.

My invention is an improvement in toy building blocks, and has for its object to provide blocks of the character specified by means of which many different articles may be constructed, as, for instance, buildings, vehicles, terrestrial, aerial and marine, as well as many other different devices, by merely connecting the blocks, which will be made in various shapes and sizes.

In the drawings:

Figure 1 is a perspective view showing a wagon;

Fig. 2 is a top plan view of the floor and corner posts of a structure;

Fig. 3 is a front view of a windmill;

Fig. 4 is a perspective view of a wheel;

Fig. 5 is a view looking from the inner side of another embodiment of wheel;

Fig. 6 is a perspective view of one form of block;

Figs. 7, 8, 9 and 10 are similar views of other forms of blocks;

Fig. 11 is an end view of a wheel arrangement.

The improved blocks are designed to be marketed in sets, the number and character of the blocks in a set, and the accessories, depending upon the price at which the set is to be sold, and it will be obvious that many different combinations might be formed. In each set there should be a base block or plate 1 of the character shown in Figs. 1 and 2. This plate has upon one face a series of transverse grooves or kerfs 2, which extend through approximately half the thickness of the plate, the said grooves being spaced apart from each other and parallel, as shown, and extending through the side edges of the plate.

On the opposite face there is provided a series of longitudinally extending grooves or kerfs 3 which are arranged close together and which extend the full length of the plate, being of a depth equal to half the thickness of the plate. These grooves or kerfs 3 are of the same width as the ribs 4 which are formed between the grooves or kerfs so that the ribs or tongues on other

blocks to be described will fit in the kerfs or grooves.

At each end of the plate 1 the grooves or kerfs 3 are cut through to the upper face, 60 as clearly shown in Fig. 1, to form a series of tongues 5 at each end of the plate, the series extending the full width of the plate and being of a depth about equal to the thickness of the plate. These tongues are 65 of the same thickness as the ribs 4, being, in effect, continuations of the ribs.

The plate 1 may be used as a base or foundation and it will be obvious that a similar plate or plates might be used for 70 end walls and roof in a house structure. Other blocks are provided of the character shown in Figs. 3 and 6. These blocks 7, which are in the form of a bar or beam, are provided upon each face with a series 75 of longitudinally extending grooves or kerfs 8 which form between them ribs 9, the spacing of the grooves or kerfs corresponding to that of the ribs and grooves of the block 1.

At each end the grooves or kerfs 8 on the 80 opposite faces of the block are connected so that tongues 10 are formed at each end of the block, corresponding in size to the tongues 5 of Fig. 1. The block 7 is also provided with a series of transverse grooves 85 11 on each face, the grooves on one face registering with those on the other face, and these registering grooves are connected by grooves or kerfs 12 on the side edges of the block. These grooves or kerfs 12 are of a 90 depth equal to the aggregate width of two tongues, and the groove between them. It will be obvious that the blocks 7 may be of any desired width and length, corresponding, however, preferably in length, to the 95 length of the block 1, and having a width which is preferably contained in the width of the plate 1 an equal number of times. If, for instance, the plate 1 has a width of ten inches, the plate 7 might have a width 100 equal to two inches.

In Fig. 7 there is shown a block 13 having the grooves or kerfs 14 on its opposite faces, forming the ribs 15 between them, and having at its ends the tongues 16 corresponding to the tongues 5. This block 13 105 has transverse cuts or kerfs 17 in its opposite side edges, which are in the present instance of considerable depth, having, in fact, a depth corresponding to the aggregate width 110 of three ribs and three grooves.

In Fig. 8 there is shown a bar 18 of a

width corresponding to the thickness of the blocks 1, 7 and 13, which blocks are of the same thickness and have a thickness corresponding to the thickness of one of the ribs of either block. This bar is provided at each end with tongues 19, which are of a length equal to or a little greater than the thickness of the blocks 1, 7 and 13 and are spaced so that the said tongues will fit into the grooves of the blocks 1, 7 and 13. This bar 18 is provided at regular intervals with series of slots 20 extending longitudinally thereof, and of a length somewhat greater than the width of the bar 18, and which are designed to receive the tongues 5, 10 or 16 of the blocks 1, 7 and 13 or the tongues 19 of other bars 18. It will be understood that the bars 18 may be of any desired length and may be of various lengths.

In Fig. 9 there is shown a plain plate or bar 21 having a width corresponding to the thickness of the plate 1, and a thickness corresponding to that of one of the ribs 4. These plates 21 may be provided in various lengths and it is obvious that they might also be of various widths, being multiples, however, of the width of the plate shown, that is, of the thickness of the block 1.

In Fig. 10 there is shown a bar 22 somewhat similar to the bar 18 in that it has the tongues 23 at its ends and a series of slots 24 intermediate its ends, corresponding in size and arrangement to the slots 20 of the bar 18. This bar 22 is merely a variation of the bar 18, the distance between the tongues 23 and the slots 24 being about equal to the width of the bar 22.

The improved blocks are connected by inserting the tongues 5, 10, 16, 19 or 23, as the case may be, into the kerfs or grooves 3, 18 or 14, or into the slots 20 or 24 or into the spaces between the tongues 5, 10, 16, 19 or 23, and it will be evident that many different structures might be built in this way without the use of any connecting means, other than the tongues, grooves and slots. Wheels form a part of certain combinations, two species of wheels being provided, one of which is shown in Fig. 4, at 25, and the other in Fig. 5, at 26.

The wheel shown in Fig. 4 has secured to one face thereof a block 27 which is provided at one end with a series of longitudinally extending tongues 28, and at the other with another series 28^a, which, however, have their planes at right angles to the series 28. These tongues are of a length corresponding closely to the depth of the grooves 3 and they are designed to engage such grooves. This block 27 also has a transverse kerf or groove 29 intermediate its ends, and on the face remote from the wheel 25 which is designed to receive any of the other blocks which may fit within the same.

This wheel 25 is also provided with inclined radial cuts or kerfs 30 in its peripheral edge, the plane of the cuts being inclined to the axis of the wheel in the same direction, and these kerfs or cuts 30 are designed to receive, for instance, the ends of the plate 21 to form a propeller wheel or a wind-wheel of the character shown in Fig. 3.

Referring to Fig. 3, it will be seen that the wheel 25 is pivoted to the block 27 by means of a screw 31 or the like, which passes through an axial opening in the wheel and engages the block. A washer 32 is arranged on the screw beneath the head. In placing the wheel 25 the tongues 28^a are engaged with the tongues 10 of the block 7. This brings the plane of the wheel parallel with the plane of the block 7.

The wheel 26 shown in Fig. 5 is a plain wheel secured to a block 33, which has the tongues 34 and also has the transverse groove 35 corresponding to the groove 29 of Fig. 4. The wheel 26 is pivoted to the block 33 by means of a screw 36 which has a washer 37 arranged between the head of the screw and the wheel. By inserting the tongues 28 or 34, as the case may be, at the ends of the blocks 27 or 33 between the tongues 5, 10 or 16, or within the grooves 3, 8 and 14, the blocks 33 may be connected to the blocks 1, 7 or 13, to form a wagon or other vehicle. This form of construction is shown in Fig. 1, wherein four of the wheels 26 are connected to the block 1, a pair of wheels being arranged at each side edge of the block. The tongues 34 of the blocks are in this instance engaged with the grooves 3.

In Fig. 3 a windmill construction is shown, the block 7 being connected with the block 1 either at one end or on the center. If connected in the center the tongues 10 would engage with the grooves 3, while if connected at the ends the tongues 10 would engage with the tongues 5. The wheel 25 is mounted at the top of the block 7 which forms the tower for the windmill, by engaging the tongues 28 with the tongues 10. It will be understood that the plates 21 will be provided in sets of different lengths and this is true also of the bars or plates 18 and 22. A set, for instance, might consist of one block 1, five blocks 7 which might be packed directly on the upper face of the block 1, enough blocks 12 to make another layer, and the attachments, such as the bars or blocks 18, 21 and 22, and the wheels 25 and 26.

The improved blocks may be cheaply constructed and sold at reasonable price, no metal being necessary except the screws 36, and it is obvious that these might be replaced with wooden journal pins, if desired. Many different combinations may be worked

out from even a few blocks and a set of blocks would furnish endless amusement to a child.

All of the tongues of all of the blocks are flexible and the transverse grooves 2 and 11 intersect the grooves on the opposite face so that openings are provided at these points. This increases the flexibility and elasticity of the block as a whole. The tongues at the ends of the blocks provide for dove-tailing of the blocks together.

I claim:

1. A block of the character specified having upon one face a series of longitudinally extending grooves forming between them ribs of equal thickness and with a thickness equal to the thickness of the grooves, said blocks having at their ends tongues forming continuations of the ribs between the grooves, and having transverse grooves or kerfs on both faces of the block and intersecting said first named grooves, the grooves and tongues being adapted for engagement by similar grooves and tongues on accessories.

2. A block of the character specified having upon one face a series of longitudinally extending grooves forming between them ribs of equal thickness and with a thickness equal to the thickness of the

grooves, said blocks having at their ends tongues forming continuations of the ribs between the grooves, and having transverse grooves or kerfs on both faces of the block and intersecting said first named grooves.

3. A block having longitudinal grooves on one face and tongues at its ends, and having cross grooves on the other face.

4. A block having longitudinal grooves on one face and tongues at its ends, said tongues being continuations of the ribs formed between the grooves, and cross grooves on the other face, said grooves on the two faces meeting at their bottoms.

5. A block having on one face parallel grooves forming ribs between the grooves and having tongues at the ends which are continuations of the ribs and having a series of grooves on the other face extending perpendicular to the first named grooves.

6. A block having longitudinal grooves on one face and tongues at its ends and having on the other face cross grooves, the grooves and the ribs formed between the grooves being of the same width, and the tongues being continuations of the ribs, said tongues and ribs being flexible and resilient.

WILLIAM SCOTT SHIELDS.

Witness:

ARTHUR W. BITTING.