Oct. 24, 1933. L. JOHNSON, JR 1,932,074

JOINT FOR TOY BLOCKS

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FIG. 1

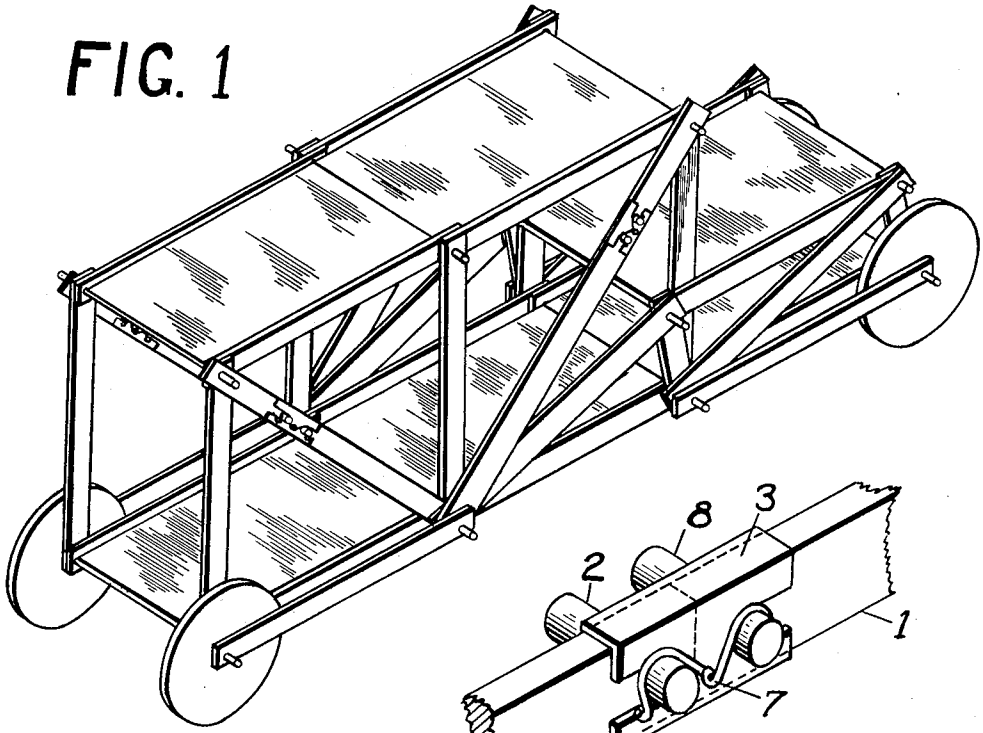
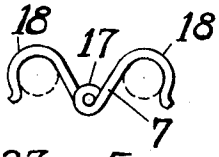


FIG. 2

FIG. 5



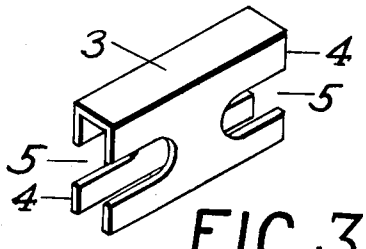


FIG. 3

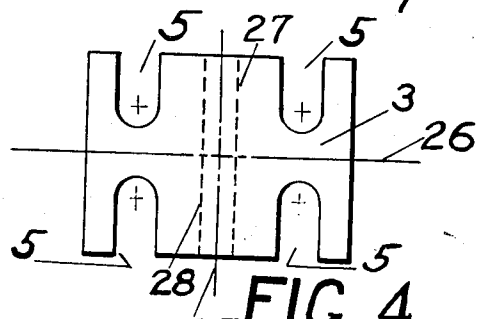


FIG. 4

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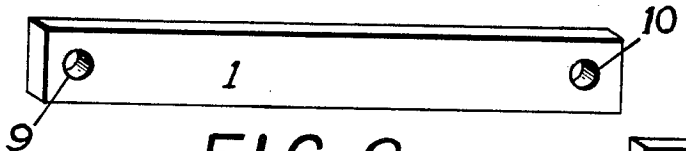


FIG. 6

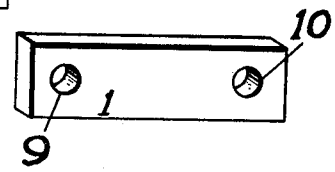






FIG. 7

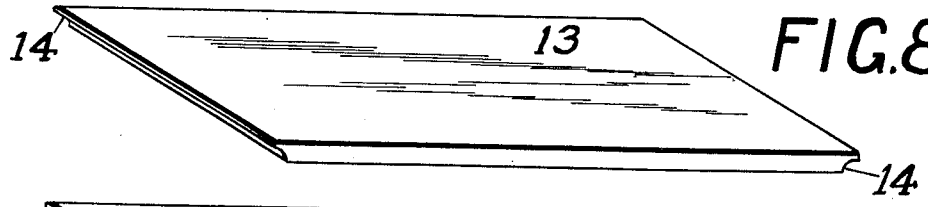


FIG. 8

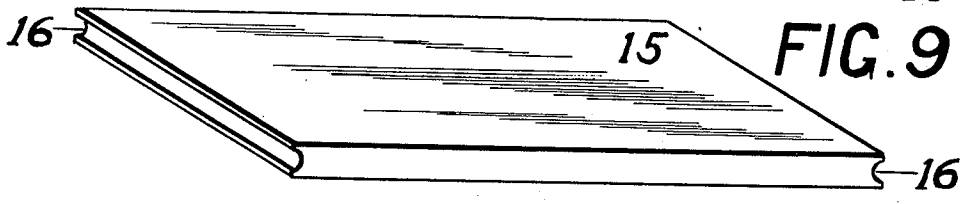


FIG. 9

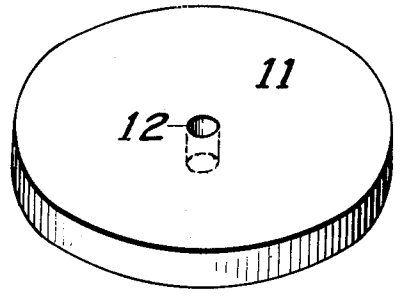


FIG. 10

Inventor
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UNITED STATES PATENT OFFICE

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JOINT FOR TOY BLOCKS

Lane Johnson, Jr., Catonsville, Md.

Application February 24, 1933. Serial No. 658,280

2 Claims. (Cl. 287—108)

The present invention relates to toy blocks and particularly to that type of blocks used in the construction of various forms of trussed structures.

The object of the present invention is to construct a set of blocks consisting of various bars, dowels, discs, and formed parts.

The various figures appended hereto indicate some of the forms, to which uses the blocks may be put, with details of the blocks, dowels, and discs. Like characters of reference are used throughout the following specification and the accompanying drawings to designate corresponding parts.

Referring to the drawings, Figure 1 shows an isometric view of one of the structures formed by the blocks. Figure 2 shows an enlarged view of the proposed connection used in obtaining a lengthened strut. Figure 3 shows an isometric view of the slotted channel shown in Figure 2. Figure 4 is a developed view of the channel shown in Figure 3. Figure 5 shows the details of the spring clip shown in Figure 2. Figures 6 to 10 inclusive show in detail the construction of the blocks, discs and dowels which comprise the remainder of the set.

In carrying out my invention, I provide a plurality of bars 1 of varying length. Each bar is provided adjacent each end with an aperture 9, 10 for the reception of cylindrical bars, or dowels 2. The cylindrical bars or dowels 2 are likewise of varying length to provide versatility in the construction of the toy structures. The bars 1 are of rectangular cross-section of approximately $\frac{1}{4}'' \times \frac{3}{4}''$. The apertures 9, 10 are approximately $\frac{5}{16}''$ in diameter. The cylindrical bars, or dowels 2 are complementary in form to the apertures 9, 10 in the bars 1. In order to connect the bars 1 together to provide struts of varying length, an abutment joint is made therebetween. This joint is formed by abutting two like members 1, or members the same form as 1 of different length, end to end, and placing over said abutting ends the clamp member 3. The details of the clamping member are shown in Figures 3 and 4, wherein 3 represents a piece of flat sheet metal which has four apertures 5 punched therefrom by a die stamp. These apertures 5 are of general U-shape. The distance between the curved portions of each U in a side 4 is less than twice the distance between the outermost part of aperture 9 or 10 and the end of the bar. This arrangement ensures a tight abutment of the two members 1, when they are in assembled relation. These apertures 5 are symmetrically located relative to the longitudinal and transverse axes 26, and 25 of the flat sheet. The sheet metal is then bent along dotted lines 27, and 28 to form two sides 4, 4, and a joining portion. The distance between the sidewalls 4, 4, is equal to the thickness of the elements, 1, so as to provide a snug fit thereon. The inside depth of the formed clamp 3 is equal to the height of the bar 1. Dowels 2, or 8 are then inserted through the two apertures within the clamping member 3. The length of said dowels 8 are such as to cause them to protrude beyond the sides 4, 4, to receive a spring clip 7. Two spring clips are used on each joint, one on the outside of each wall 4, and in contact therewith. The details of the clip are illustrated in Figure 5, wherein 7 represents a piece of wire formed to provide two hooks 18, 18, to receive dowels 2, 2, 8, 8. Between these two hooks, is a loop 17 providing resiliency in the clip keeping the hooks in firm contact with dowels 2, 2, 8, 8. From an inspection of this joint it is obvious that there are three degrees of restraint imposed. The fact that the spring clips 7 engage dowels 2, 2, 8, 8, which are inserted in apertures 9, 10, of bar 1, ensures a close fitting abutment of said bars. By virtue of the clamp 3 engaging the abutting ends of the bars 1, insurance is provided against rotation or weaving of the joint about the major axis of the rectangular section of bar 1. Due to the fact that the abutting bars 1 have the clamp 3 thereon with dowels 2, 8 passing through adjacent apertures 9, 10, thereof and are held by spring clips 7, insurance is provided against any rotation or weaving of the joint about the minor axis of the rectangular section of bar 1.

In the construction of various toys such as carts, bridges, etc., it is often necessary to provide means for constructing a flooring or/and roofing. As shown in Figure 1, flooring and roofing consists in a plurality of chamfered boards 13 of a width less than the length of the dowels 2, and corresponding in length to the distance between the centers of the apertures 9, 10 of each of the bars 1. The chamfer 14, is of a radius equal to that of the bars 2. In order to increase the variation of type of structure which might be constructed, provision is made for an additional type of flooring member, said member being illustrated in Figure 9. A plurality of boards 15 are provided each of which is of a width less than the length of the dowels 2, and corresponding in length to the distance between the centers of the apertures 9, 10 of each of the bars 1. The chamfer 16 is of a semi-circular nature, the center of which lies on the line which corresponds to the

centerline of the apertures 9, 10, and of a radius equal to that of the dowel 2, the thickness of said board being slightly greater than the diameter of the dowel. This construction prevents the dislodging of the boards when a structure is assembled in a position other than horizontal.

For purpose of mobility, inclusion is made of discs 11 represented in Figure 10. These discs are apertured at the center to receive dowels 2, and are of conventional form for use as wheels.

It is to be understood that the above described structure illustrates only the preferred embodiment of the invention and I do not intend that it should be limited to this use only, but may be varied within the scope of the appended claims.

What I claim, and desire to protect by Letters Patent, is as follows:

1. A connection comprising a plurality of bars, each bar having an aperture adjacent an end thereof; a connector therefore consisting of a channel shaped clamp formed to receive abutting ends of said bars, said clamp having U-shaped apertures aligned with the apertures of said bars when in assembled relation; dowels passing thru all of said apertures; spring clips engaging said dowels to complete a connection which ensures three degrees of restraint.

2. A connection comprising a plurality of bars, each bar having an aperture adjacent an end thereof; a connector therefore consisting of a channel shaped clamp formed to receive abutting ends of said bars, said clamp having elongated apertures alinged with the apertures of said bars when in assembled relation; dowels passing thru all of said apertures; spring clips engaging said dowels to complete a connection which ensures three degrees of restraint.

LANE JOHNSON, JR.