Feb. 5, 1929. 1,701,190

B. J. PAULSON

TOY BUILDING CONSTRUCTIONAL OUTFIT

Filed Dec. 1, 1927 2 Sheets-Sheet 1

Fig. 1.

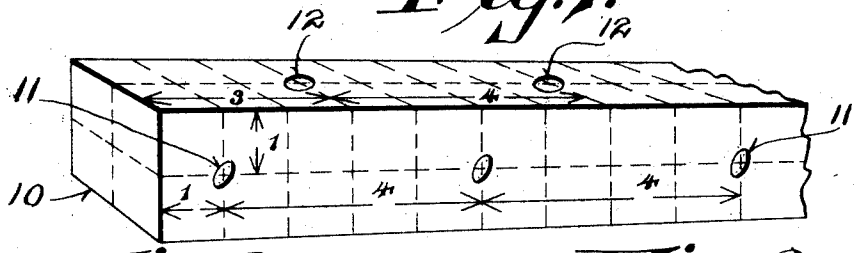


Fig. 2.

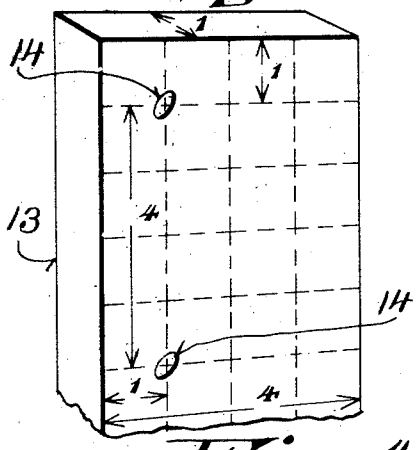


Fig. 3.

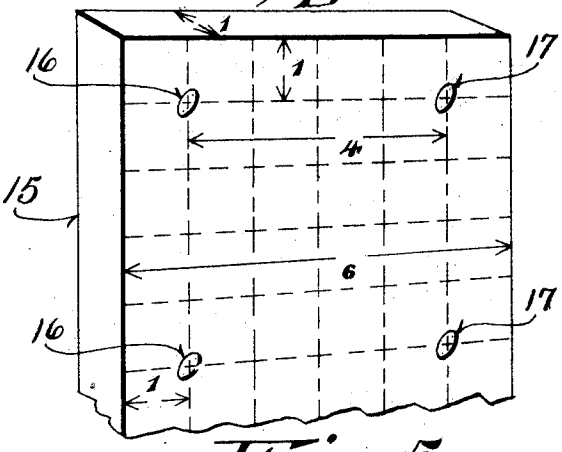


Fig. 4.

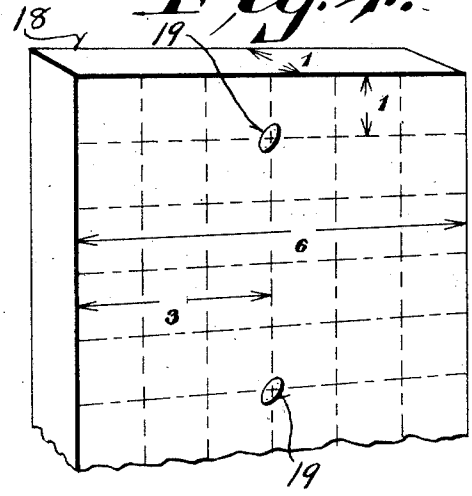
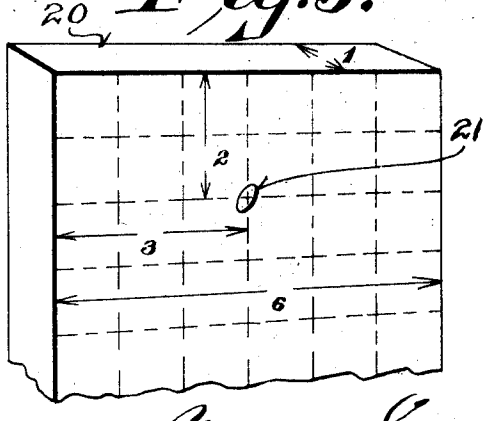


Fig. 5.



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Fig. 6.

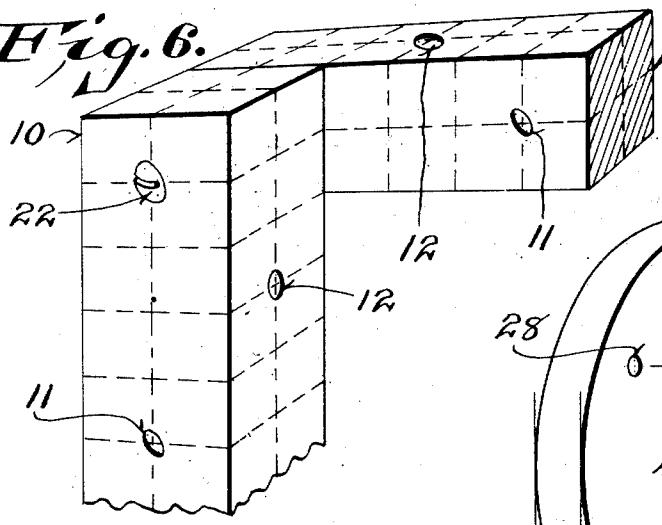


Fig. 8.

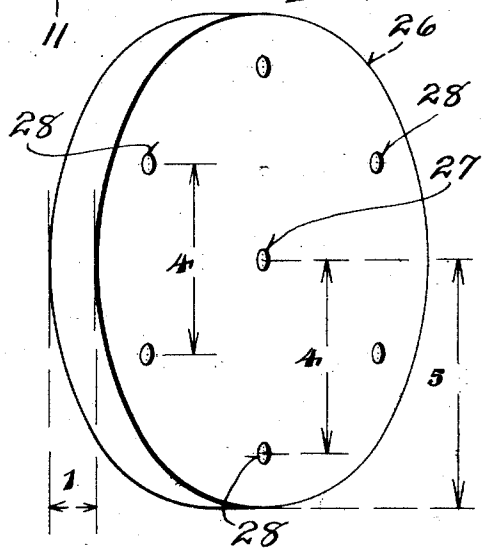


Fig. 7.

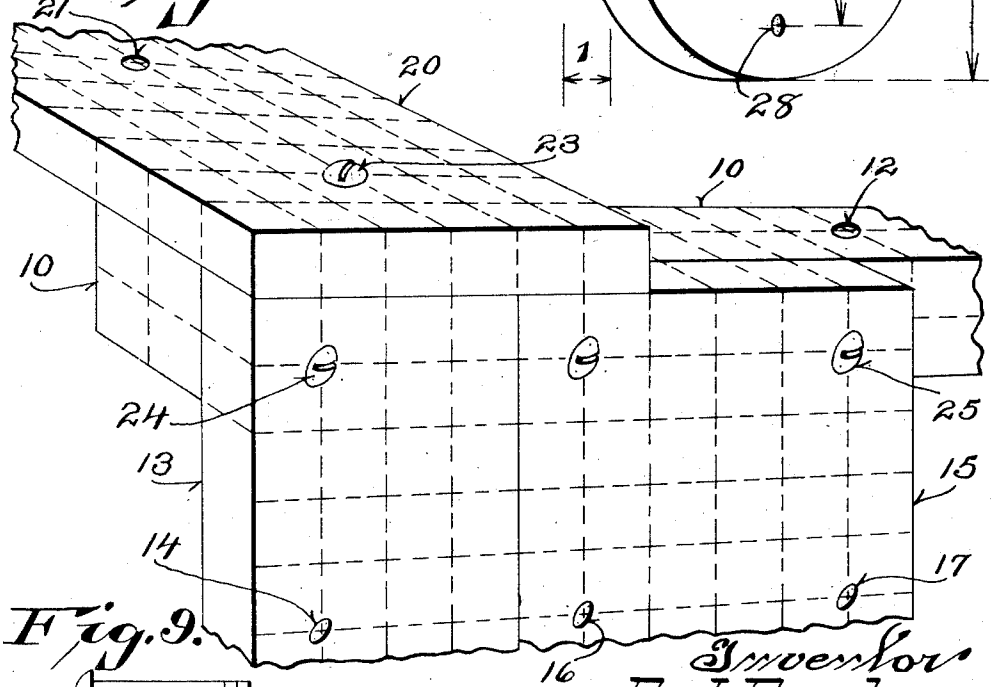
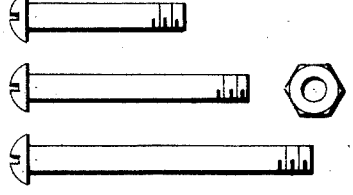


Fig. 9.



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UNITED STATES PATENT OFFICE.

BERNARD J. PAULSON, OF WAUWATOSA, WISCONSIN.

TOY BUILDING CONSTRUCTIONAL OUTFIT.

Application filed December 1, 1927. Serial No. 236,930.

This invention relates to toy building constructional outfits.

Objects of this invention are to provide a novel form of building or constructional toy outfit which include broadly a multiplicity of sections or pieces of three dimensional materials, preferably wood, provided in assorted lengths, as hereinafter described, and of different thicknesses and sizes and having apertures therethrough at regular intervals, and in which a unit dimension is employed for the spacing of the apertures, for the thickness, width, and length of the material, and in which this unit dimension is adhered to throughout the entire construction so that the thickness, width, and length are either the exact equivalent of the unit or are whole multiples thereof, and so that the spacing of the apertures from each other and from the edges and ends of the material is either the equivalent of one unit or a whole number of multiples of the unit, so that the material will exactly fit and the apertures exactly register with mathematical precision, and permit numerous combinations of the elements with the apertures in register.

Further objects are to provide a building constructional outfit in which the apertures register in widely different forms of construction by the use of the unit dimension, as indicated above, and in which a plurality of bolts of different lengths and of slightly less diameter than the apertures, are provided, so that the several units may be bolted together with the utmost freedom and may be disassembled without injury to the parts, or in any way destroying or affecting the usefulness of the material for subsequent toy building operations.

Further objects are to provide a building construction outfit in which the crossing of the parts or the relatively angular arrangement of the parts, their juxtaposition, or any other grouping desired, may be most easily effected with a mathematically precise coordination of the spacing of the apertures.

Further objects of this invention are to provide a toy building constructional outfit which is neat, sturdy, and exact in its proportions and spacing of the parts, and which is adapted to make approximately miniature replicas of furniture, playground equipment, Ferris wheels, aeroplanes, motor trucks, buildings, and other articles.

A further object of this invention is to provide a building constructional outfit, which, due to its arrangement of length, width, and breadth and the spacing of the apertures as exact multiples of a given unit, permits the ready manufacture and standardization resulting in worthwhile economies of labor and material.

Embodiments of the invention are shown in the accompanying drawings in which:

Figure 1 is one of the elements which is illustrated as of square cross section;

Figure 2 is another element of rectangular cross section and having a single row of apertures;

Figure 3 is a further form of element of rectangular cross section and having a plurality of rows of apertures;

Figure 4 is a still further form of element having a single row of centrally located apertures;

Figure 5 is a further form of element somewhat similar to Figure 4, but showing a different initial spacing of the apertures.

Figure 6 is a view showing one way in which two of the elements may be assembled.

Figure 7 is another view showing the manner in which a plurality of elements may be assembled;

Figure 8 is a view of a disc adapted for use with any of the previously formed elements;

Figure 9 is a view showing a plurality of bolts of different lengths adapted for use in assembling the elements.

In the drawings, each of the elements of the outfit have been shown as divided into squares by imaginary lines, although these lines do not necessarily appear on the elements and are preferably omitted. The squares are each formed of sides having one unit length. They are shown on the several elements so that their thicknesses, widths, or other dimensions, may be apparent at a glance, and so that the position of the several apertures with regard to the unit measure are also apparent.

Referring to Figure 1, it will be seen that an element 10 has been indicated, such element having a square cross section in which its dimensions on any side consist of two units. Further, it will be noted that the element is provided with two series of apertures 11 and 12. The apertures 11 are arranged upon a central line spaced one unit from the upper and lower sides of the ele-

ment, and it will be seen that the initial aperture 11 or first aperture, is spaced one unit from the end of the element.

The other series of apertures 12 are arranged along a central line spaced one unit from either side edge and the initial aperture or first aperture, is spaced three units from the end of the element. Each succeeding aperture in each row is spaced four units from the preceding aperture.

Referring to Figure 2, it will be seen that the element 13 is of rectangular cross section and this element may be one unit thick and four units wide, as indicated. It is provided with a row of apertures 14 spaced one unit from its side edge and the initial aperture of this series is spaced one unit from the top or end of the element.

Figure 3 shows a further form of element 15 which also is of rectangular cross section and which may be, for example, six units wide and one unit thick. It is provided with two rows of apertures 16 and 17. These rows may be spaced one unit from the edges of the element and may be spaced four units apart, as described in connection with Figure 1.

Further than this, the initial apertures are spaced one unit from the ends of the device. In addition to this, it is of course apparent that the element may be made any width desired, and more rows of apertures than those indicated may be employed and may be spaced preferably four units apart, as indicated.

In the form shown in Figure 4, the element 18 is preferably one unit thick and six units wide. There is preferably a single row of apertures 19 spaced three units from opposite edges. Further, the initial and final apertures are, as previously described, spaced one unit from the ends of the device.

Figure 5 shows an element 20 very similar to that indicated in Figure 4 with the exception, however, that the initial aperture 21 is spaced two units from the end of the device.

Figure 6 shows a pair of elements 10, as shown in detail in Figure 1, joined by means of bolts passing through the apertures 11, such bolts being indicated by the reference character 22. It will be noted that the initial aperture 11 is spaced one unit from the side edges and from the end of the element 10 so that these elements may be arranged at right angles to each other with their edges in exact alignment with mathematical precision.

Figure 7 shows a form of assembly for a corner construction in which the element 20 is attached by means of the bolt 23 passing through the initial aperture 21 of the central series of apertures. This bolt enters the aperture 12 of the element 10 as is obvious from a comparison of Figures 1 and 7. Further, one of the elements 13 may be applied on the side face of the element 10 and secured by means of a bolt 24 passing through the initial aperture 14. Further, the figure shows one of the elements 15 secured to the side face of the element 10 by means of bolts 25 passing through the initial aperture of the series 16 and 17.

Figure 8 shows a circular disc 26 provided with a central aperture 27 and a ring of apertures 28 the central aperture being spaced four units from any of the apertures 28, and the successive apertures 28 being spaced four units apart.

Figure 9 shows a group of bolts of different length which may be employed with the apparatus.

It will be seen that a novel form of building constructional outfit has been illustrated in which three dimensions of the elements are whole multiples of the unit dimension employed in constructing the outfit.

It will be seen further that the spacing of the apertures in the several elements is such that the apertures are registered in the exact manner desired with mathematical precision, such apertures being spaced from the edges and ends of each of the elements and from each other, distances equal to whole multiples of the fundamental unit employed.

It will be seen further that the parts may be assembled and disassembled without any damage whatsoever to the respective elements and may be used over and over as desired.

It will be seen further that the device is very sturdy and is simple in construction and also that due to the standardization of the spacing of the apertures and of the dimensions of the parts, that it may be manufactured with the utmost economy.

Although the invention has been described in considerable detail, such description is intended as illustrative rather than limiting as the invention may be variously embodied and as the scope of such invention is to be determined as claimed.

In the description and claims, it is intended that the expression "whole multiples of the unit" and similar expressions are intended to cover distances which are equal to the unit, twice the unit, three times the unit, or any whole multiple thereof.

I claim:

1. A toy construction set consisting of a plurality of three dimensional rectangular elements, each element having a series of spaced holes parallel to the longitudinal edges of the element, the lengths and the widths of said elements being equal to an even multiple of a basic unit dimension, said basic unit dimension being the smallest actual dimension of the thinnest element of the set, the distance of said holes from one another being four multiples of said basic

unit dimension and the distances of said holes from the edges of said elements being an odd multiple of said basic unit dimension, whereby the elements may be arranged edge to edge with the openings of successive abutting elements spaced four basic unit dimensions apart transversely of said elements.

2. A toy construction set comprising a plurality of groups of elements, each group consisting of rectangular three-dimensional elements, three of the elements of each group being of the same predetermined basic unit thickness, one of the elements having a width equal to four times its basic unit thickness and provided with a series of openings spaced from one longitudinal edge the distance of the basic unit thickness of the element, another of the elements having a width equal to six times its basic unit thickness and provided with a series of openings disposed along the longitudinal center of the element three basic thickness units from its opposite longitudinal edges, another of the elements having a width equal to six times its basic unit thickness and provided with a longitudinal series of openings parallel to each longitudinal edge at a distance of one basic thickness unit from each longitudinal edge, and a fourth element having its thickness and its width equal to twice the basic unit thickness of the other elements and provided with two series of openings at right angles to one another placed one basic unit thickness from all longitudinal edges with the openings of one series staggered with respect to those of the other series, the openings of each element being spaced from one another at intervals of four times the basic unit thickness, and the terminal openings of each element being spaced from the respective ends of the element a multiple of said basic unit thickness.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

BERNARD J. PAULSON.