

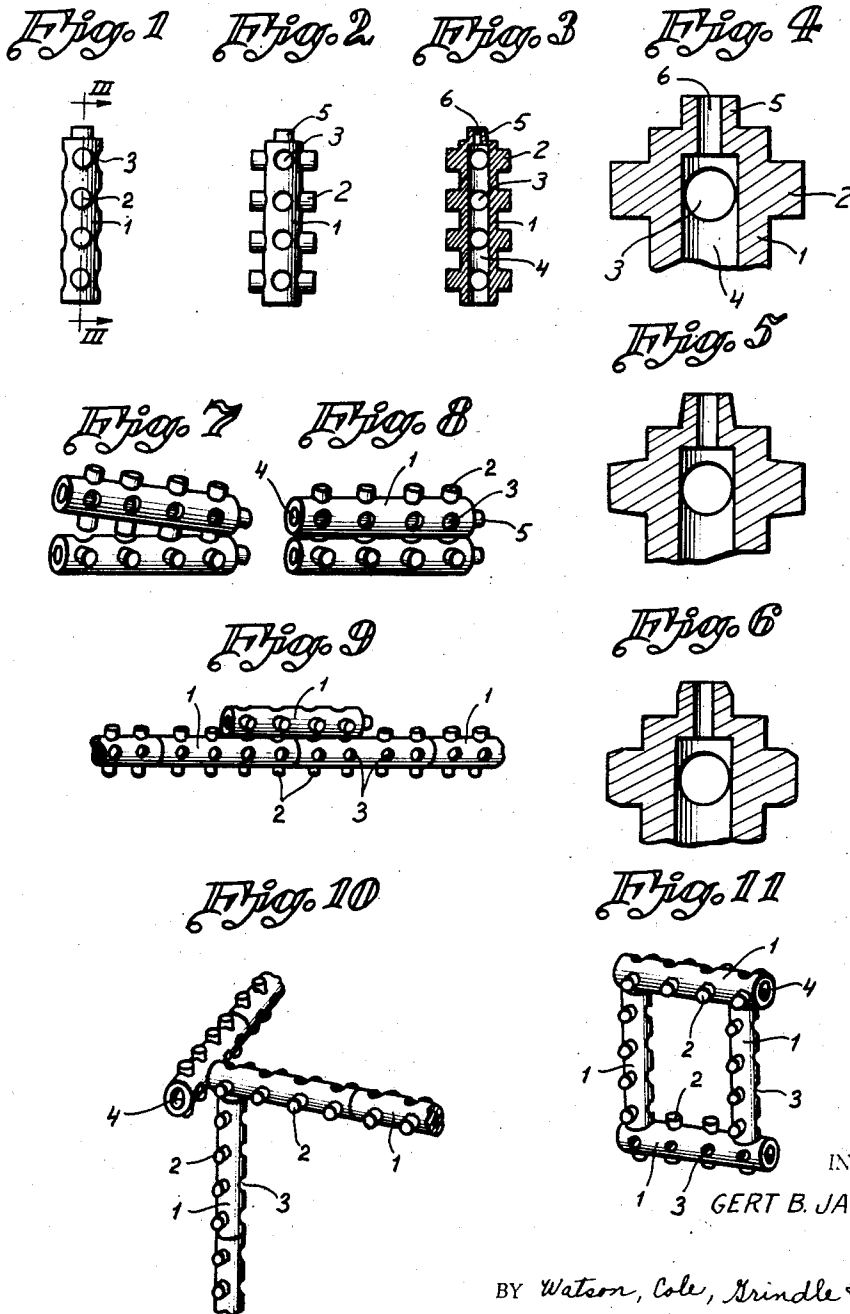
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TOY BUILDING ELEMENTS

2,810,233

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 12

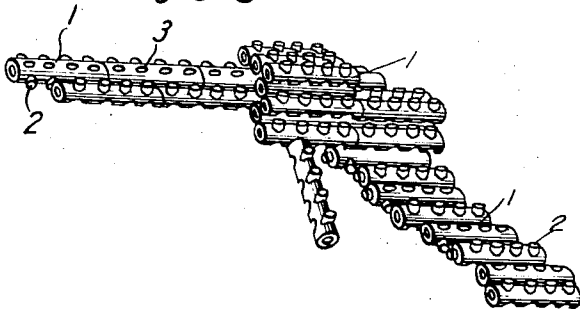


Fig. 13

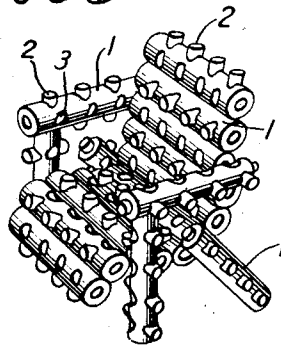
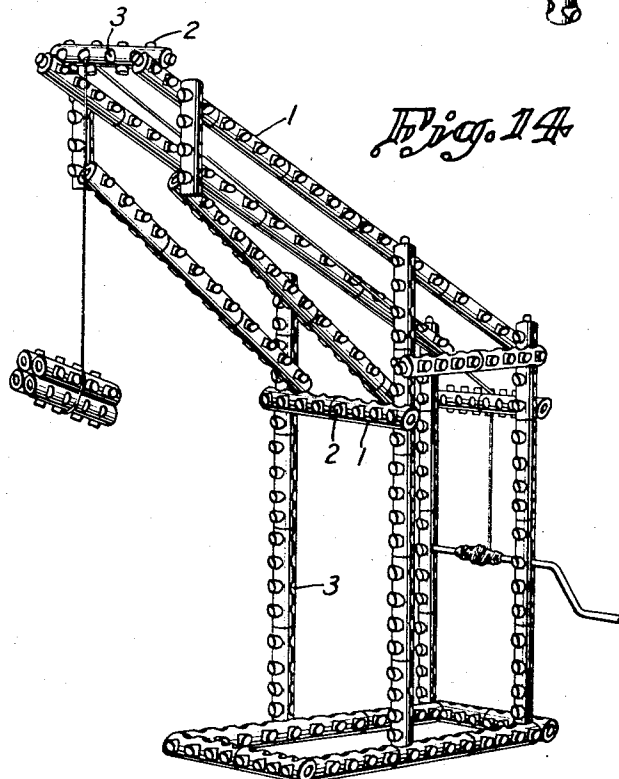


Fig. 14



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1

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TOY BUILDING ELEMENTS

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This invention relates to improvements in structural members that may be used as toy building elements for the building up of more complex structures, such as is usual in building toys and the like.

It is an object of the invention to provide a structural member as aforesaid which lends itself to a greater multitude of variations in the building up of structures from similar elements than is usual with building toys as heretofore known.

It is another object of the invention to construct a building toy element which is easy to manipulate even for small children without requiring the use of tools or accessories, or the combination with elements of substantially different type to complete structures of highly varied configurations.

It is a further object of the invention to construct a building toy element in the form of small sticks of a shape such that a number of identical sticks of this type may be readily joined with one another without accessories of any kind in a multitude of mutual positions whereby structures may be built up having a close resemblance to even relatively complex structures occurring in the real world.

As is a still further object of the invention to provide a structural member which, while having the above mentioned advantages when used as a building toy, can also be used as a stick for carrying parcels, if desired.

With these objects in view, according to one feature of the invention, there is provided a toy building element comprising an elongated member having a series of spaced cylindrical sockets extending into it along its length on one side, a corresponding series of sockets in corresponding positions along its length on the other side, a corresponding series of spaced short pegs extending outwards from the member along its length on one side and a similar series similarly disposed on the other side, a cylindrical socket in one end of the member and a corresponding peg on the other end of the member.

The invention will now be described in further detail with reference to the accompanying drawings, in which

Fig. 1 shows a preferred form of a building toy element according to the invention, in side view,

Fig. 2 the same in a side view at right angles to the view in Fig. 1,

Fig. 3 a section taken on the line III—III of Fig. 1,

Figs. 4, 5, and 6 on an enlarged scale one end of the building toy element of Fig. 1 with slight modifications of the detailed construction of parts of the element,

Fig. 7 is a perspective view illustrating two building toy elements of the type shown in Fig. 1 in the process of being joined in a position alongside one another,

Fig. 8 the same after the joining of the two elements has been completed,

Fig. 9 illustrates the joining of a number of building toy elements in an end to end position, and also illustrates, how one element can be mounted alongside two others in a position such as to overlap the end to end junction between the latter,

2

Fig. 10 illustrates how building toy elements according to the invention can be mounted in a position perpendicular to one another,

Fig. 11 is a perspective view of a simple form of a frame composed of building toy elements according to the invention, and

Figs. 12—14 illustrate examples of some relatively simple structures built up solely from identical building toy elements according to the invention, all having the same shape as the element illustrated in Figs. 1—3.

In the preferred embodiment illustrated in the drawings, the building toy element according to the invention is constructed in the form of a stick having a cylindrical body 1 provided with transversely extending short cylindrical pegs 2 on two opposite sides, each peg on one side being located directly opposite a peg on the other side.

In a diametrical plane perpendicular to that defined by the two series of transversely extending pegs, the body 1 is provided with a series of holes 3 extending through the body of the stick, each hole being located in a transverse plane defined by a pair of pegs on either side. The holes 3, in the embodiment shown, form sockets on opposite sides of the body 1 to receive the pegs 2 of other similar elements when a number of these are to be joined to build up a structure. The body 1 is provided with a longitudinal bore 4 extending from one end of the element practically to its other end. At the latter end the body is provided with an axially extending peg 5 of a shape corresponding to that of the pegs 2. In the peg 5 there is provided a narrow axial passage 6 communicating with the axial bore 4 of the body 1.

As illustrated in Fig. 4, the pegs 2 and 5 may be of exactly cylindrical shape. It is preferred, however, to modify this shape as illustrated in Fig. 5 by making the pegs of a slightly tapered configuration, or of a rounded configuration at their outer ends, as illustrated in Fig. 6.

A number of toy building elements of the type described can be joined for the purpose of building up a structure by introducing the pegs 2 or 5 of one element into the sockets formed by the holes 3 of another element. The dimensions of the pegs and sockets should be such that the pegs can be introduced into the holes without excessive force and will fit so snugly in the holes that the elements will remain assembled until separated from one another by a positive force. The construction of the pegs as shown in Figs. 5 and 6 will facilitate the joining and separation of the elements, and likewise it will be advantageous to construct the building sticks from a material having a suitable elasticity such as certain modern plastics. It will be noted that owing to the axial bore 4, the axial passage 6 in the pegs 5, and the construction of the sockets of the element in the form of through holes communicating with the axial bore 4 there will not be formed any closed air spaces that might offer undesirable resistance to the joining or separation of the sticks.

Figs. 7 and 8 illustrate how two building sticks according to the invention may be joined in a position alongside one another. By adding more sticks in the same manner it will be seen that these can be combined to form a substantially continuous wall. Instead of being assembled exactly alongside one another, the sticks may also be assembled in staggered relationship as shown in Fig. 9, which also shows how a number of building sticks according to the invention can be assembled end to end by engaging the peg 5 of one stick in the open end of the axial bore 4 of another stick, the bore 4 thus serving a similar function as the sockets formed by the transverse holes 3.

In order that the sticks may be assembled in any staggered position by the side of one another, it is preferable that the pegs 2 and holes 3 be provided at equidistant spacings. It may also be desirable to construct

3

the sticks in such a manner that two sticks joined alongside one another may have their pegs 5 engaged in consecutive holes 3 of a third stick arranged transversely of both first mentioned sticks, so that e. g. a wall composed of a number of sticks assembled side by side may be terminated at its ends by transversely extending sticks. As will easily be seen, an arrangement of this kind will be possible, provided the distance between the axes of consecutive holes 3 is equal to the diameter of the body 1.

Moreover, to keep the standard spacing between consecutive holes or consecutive pegs universal, never mind how the sticks are joined with one another, it will be seen that the sum of the distances between the axes of the endmost holes 3 and the respective end surfaces of the cylindrical body 1 should be equal to the spacing of the holes or pegs along the length of the body 1, i. e. in the preferred embodiment above referred to the sum of the said distances should be equal to the diameter of the body 1. This may conveniently be obtained by making each of the said two distances equal to one half of the spacing of the holes and pegs, i. e. in the specific example equal to one half of the diameter of the body 1.

It has been found in practice that the building stick according to the invention may conveniently be constructed with four pegs on each side and with four holes. By choosing this number, the sticks may be constructed with a conveniently short length, while offering all the various combinations and joining possibilities that can be desired in practice.

Fig. 10 shows how the sticks can be mounted at right angles with one another, and Fig. 11 shows a frame built up from four sticks. From these elementary structures it will easily be understood how more complicated structures can be built up with the use of sticks that are all of identical shape. Thus it is possible to build up houses with walls having windows and doors, and also large and really complex engineering structures may be built having a close resemblance to the structures of the real world. Some examples of relatively simple structures built up in this way are shown in Figs. 12, 13, and 14 which are believed to be selfexplanatory.

Owing to the presence of the longitudinal bore 4 and the passage 6 communicating therewith, the sticks may also be threaded on a string to form a chain.

A stick of the type described can also be used for carrying a parcel by applying a string between the center pegs 2.

The building stick according to the invention may conveniently be sold in the form of sets comprising a number of exactly identical sticks. Such a set may at any time be supplemented by any number of identical sticks. It will be understood that owing to the identity of the sticks, all the sticks available to a child can always be utilized to the full extent in contradistinction to most of the known building sets which are composed of members of different sizes and shapes, and where situations may therefore frequently occur where there will be a shortage of one type of building elements while there is an excess of others.

However, it is of course within the scope of the invention in its broadest aspect to make the sticks in different sizes and with different numbers of holes and pegs etc.

The sticks may be made in different colors, if desired. I claim:

1. A building toy element of permanent integral form for detachable assembly with identically similar elements, comprising an elongated parallel-sided stick member having along each of two diametrically opposite sides a series of longitudinally spaced inwardly extending holes, a series of longitudinally spaced outwardly projecting pegs along each of two other diametrically opposite sides, the two said series of holes lying in a diametric plane through said stick member which is perpendicular to the diametric plane in which lie the two said series of pegs, said stick member having a coaxial hole extend-

4

ing inwardly from one end thereof, and a coaxial outwardly projecting peg at the other end of said stick member, said coaxial hole being at least as deep as the projected length of the pegs, the projected length of all of said pegs being equal and all said holes and pegs being of circular transverse section and of such diameter that any peg is adapted to be engaged with a friction fit in any hole of a like element to a depth corresponding to the projected length of said peg and said element may be rotated with respect to an identically similar element when one peg of one element is engaged in one hole of the other element.

2. A building toy element as claimed in claim 1, in which the diametric dimension of said stick member is the same in both the diametric plane of said holes and the diametric plane of said pegs, in which the longitudinal distance between the axes of two adjacent holes or pegs of a series is substantially the same as said diametric dimension of said stick member, and in which the longitudinal distance between the axes of the endmost holes or pegs at either end and the respective end surface of the stick member is substantially equal to one-half of said diametric dimension of said stick member.

3. The building toy element as claimed in claim 1 in which the holes on opposite sides of the member are divided into pairs, the holes of each pair being coaxial, and the pegs on said other opposite sides are divided into pairs, the pegs of each pair being coaxial and said projected length of the pegs being no greater than half the diametric distance between said pair of opposite sides having said holes.

4. The building toy element as set forth in claim 3 in which the opposite holes of each of said pairs are in communication to provide diametric passages through said stick member and in which said coaxial hole extending from one end of said stick member is in communication with said inwardly extending holes, and in which said peg at the other end of said stick member has a coaxial hole in communication with said coaxial hole in said stick member.

5. A building toy element of permanent integral form for detachable assembly with identically similar elements, comprising an elongated substantially cylindrical stick member having along each of two diametrically opposite sides a series of longitudinally spaced radially inwardly extending holes, a series of longitudinally spaced radially outwardly projecting pegs along each of two other diametrically opposite sides, the two said series of holes lying in a diametric plane through said stick member which is perpendicular to the diametric plane in which lie the two said series of pegs, said stick member having a coaxial hole extending inwardly from one end thereof, and a coaxial outwardly projecting peg at the other end of said stick member, said coaxial hole being at least as deep as the projected length of the pegs, the projected length of all of said pegs being equal, and all said holes and pegs being of circular transverse section and of such diameter that any peg is adapted to be engaged with a friction fit in any hole of a like element to a depth corresponding to the projected length of said peg and said element may be rotated with respect to an identically similar element when one peg of one element is engaged in one hole of the other element.

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