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E. C. BREESER

1,878,373

TOY BUILDING CONSTRUCTION

Filed July 16, 1931

FIG. 1

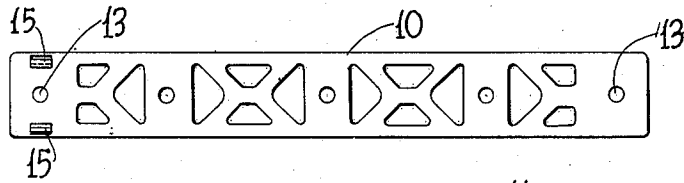


FIG. 2

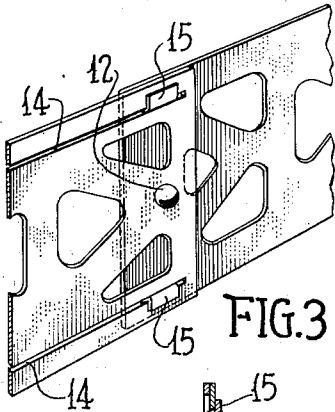
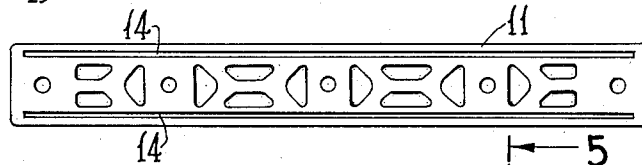


FIG. 3

FIG. 5

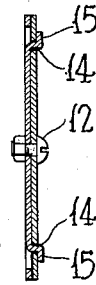


FIG. 12

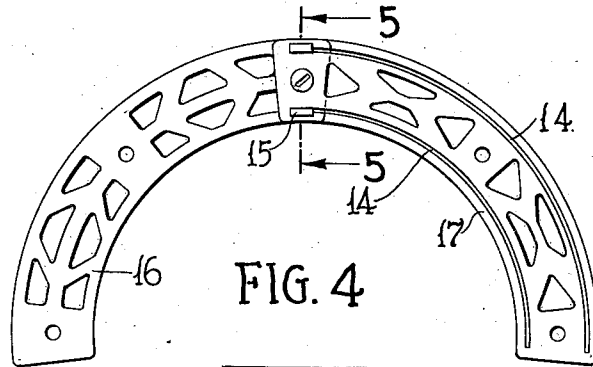
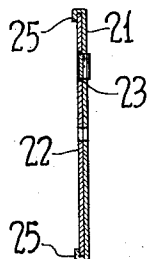


FIG. 4

FIG. 8

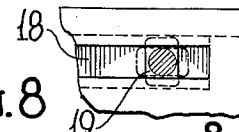


FIG. 6

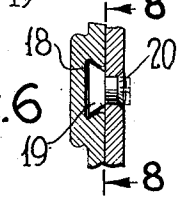


FIG. 7

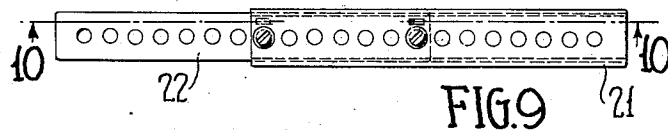
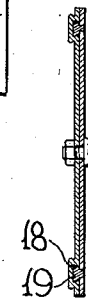


FIG. 9

FIG. 10

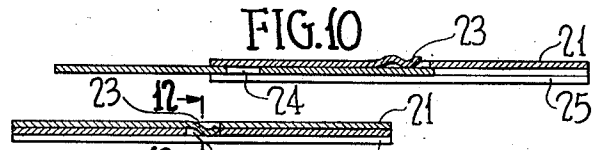


FIG. 11



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TOY BUILDING CONSTRUCTION

Application filed July 16, 1931. Serial No. 551,097.

My invention relates to structural units and it has been my particular object to improve the design of such units as utilized in toy construction sets. Such sets as now sold on the market embody a large variety of metal forms adapted to coact with other metal forms in various ways to produce a desired design. The person desiring to produce a structure of a certain kind therefore chooses the proper complementary units and secures them together in the fabrication of that design. In this connection, however, considerable difficulty is encountered in the attempt to find complementary parts in a container in which a large number of parts are received. The attempt to obtain the desired co-acting couple for a given use is sometimes like hunting for a needle in the proverbial haystack and the object of this invention has been to obviate this difficulty by affording provision for the securement of certain parts which co-act in the finished structures to each other when the structures are disassembled.

The manner in which I have attained this object will be apparent from a reading of the sub-joined specification in the light of the attached drawing, in which

Fig. 1 is an elevation of one of the co-acting structural units formed in accordance with my invention.

Fig. 2 is a similar view of a structural unit adapted to co-act with the unit of Fig. 1.

Fig. 3 is a detailed view illustrating the connection between parts of Figs. 1 and 2.

Fig. 4 is a side elevation illustrating the invention as applied to two co-acting parts of slightly different shapes.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a detailed transverse section illustrating a slightly different type of joint.

Fig. 7 is a transverse section through structural units connected in accordance with the modification of Fig. 6.

Fig. 8 is a section on the line 8—8 of Fig. 6.

Fig. 9 is a side elevation of a slightly different type of connection.

Fig. 10 is a section on the line 10—10 of Fig. 9.

Fig. 11 is a section similar to Fig. 10 illustrating the parts in their collapsed condition, and

Fig. 12 is a section on the line 12—12 of Fig. 11.

Referring to the drawing by reference characters, I have illustrated a pair of complementary structure units at 10 and 11. Each of these units is provided with a series of openings 13 adapted to register and receive complementary threaded parts 12 to secure the units together in extended relationship as indicated in Fig. 3. In accordance with my invention I provide special means independent of the threaded securing means 12 for holding the parts together when disassembled. I have thus formed a pair of longitudinally extending slots in the opposite sides of the unit 11 and struck out tabs of metal 15 from the body of the strip 10 adapted to register with these slots and afford a sliding fit between the members 10 and 11 and prevent their accidental disconnection. In the manufacture and assembly of the unit of Fig. 3 I first turn the tabs 15 upwardly in a vertical direction and pass them through the slots 14. I thereafter turn the tabs laterally to lock the parts together. Fig. 4 illustrates the application of this same type of joint to a pair of curvilinear members 16 and 17.

In the use of the joint as described above the telescoping structural units need only be extended to the desired adjusted position and a threaded connection 12 established therebetween. When the structure is disassembled the threaded connection will of course be removed, but the complementary parts cannot become completely disassembled because of the tab and groove connection 14, 15. When it is desired to form another structure utilizing the particular pair of complementary parts involved, they will accordingly be found together in the container which receives them when not in use.

In Figs. 6 to 8 I have illustrated a slightly different form of connection involving a dovetail shaped groove 18 co-acting with a dovetail locking member 19. This locking member constitutes a portion of a rivet which is peened over at the end opposite the dovetail head after the parts are assembled. In the

assembly of complementary parts of this type the dove-tail head 19 is inserted within the groove 18 as indicated in dotted lines in Fig. 8 and thereafter rotated to full line position to lock the members together. The rivet may then be peened over as indicated at 20 in Fig. 6.

When it is desired to produce a connection affording a high degree of strength, the modification of Figs. 9 to 12 is preferable. In this form I employ a pair of complementary structural units 21 and 22 and form flanges upon the opposite side edges of the unit 21 which are turned over the edges of the unit 22 as indicated at 25. I also form a resilient tab 23 in the unit 21 which is pressed inwardly and adapted to co-act with a short slot 24 in the unit 22 in securing the members together when not in use. There is no co-action between the resilient tab 23 and the slot 24 when the parts are in use. Before they are placed in the container, however, they are forced to the registering position of Fig. 11 in which the co-action between the tab 23 and slot 24 prevents the parts from being accidentally longitudinally displaced. As the turned-over edges 25 prevent relative lateral movement of the parts they will be yieldably secured to each other as they are received in the container. When it is desired to utilize these parts in the production of a structural design a moderate degree of force will affect the longitudinal displacement and they may be extended as indicated in Figs. 9 and 10 and joined by a screw threaded connection as more particularly illustrated in Fig. 9.

It will thus be seen that in accordance with all of the modifications of my invention I have provided adequate means for preventing the loss of complementary parts as placed in the container which receives them when not in use.

Modifications will be obvious to those skilled in the art and I do not therefore wish to be limited except by the scope of my subjoined claims as interpreted in the light of the generic spirit of my invention.

What I claim is:

1. A structural couple for use in toy building construction including two complementary structural units, means for fixedly securing said units together in operative relationship when in use, and separate means for holding them together when not in use, a portion of said last named means being permanently associated with one of said units.

2. A structural couple for use in toy building construction including two complementary structural units, and means for securing said units together in operative relationship, and separate means for resiliently holding them together when not in use, a portion of said last named means being formed integrally with one of said units.

3. A structural couple for use in toy building construction including two complementary

structural units, one of said units having edges turned about the side edges of the other of said units, whereby to afford a telescoping sliding fit between said units, and means for securing said units against undesired relative longitudinal movement when not in use.

4. A structural couple for use in toy building construction including two complementary structural units, one of said units having edges turned about the side edges of the other of said units, whereby to afford a telescoping sliding fit between said units, and yieldable means for securing said units against undesired relative longitudinal movement when not in use.

5. A structural couple for use in toy building construction including two complementary structural units, one of said units having edges turned about the side edges of the other of said units, whereby to afford a telescoping sliding fit between said units, and a resilient tongue and groove connection between said units for securing said units against undesired relative longitudinal movement when not in use.

6. A structural couple for use in toy building construction including two complementary structural units, and means for securing said units together in operative relationship, one of said units having its edges turned about the longitudinal edges of the other to provide a longitudinal telescoping relationship between said units.

7. A structural couple for use in toy building construction including two complementary structural units, means for securing said units together in operative relationship, and means for securing said units together in inoperative relationship, said last named means constituting a permanent part of one of said units.

8. A structural couple for use in toy building construction including two complementary structural units, one of said units being slotted and the other of said units being provided with a tongue which enters into said slot to afford a sliding relationship between said units.

9. A structural couple for use in toy building construction including two complementary structural units, and a stud secured to one of said structural units, the other of said units being provided with an elongated groove adapted to receive said stud to permanently interconnect said units.

10. A metallic structure comprising a plurality of structural units, means for securing said units together in extended relationship, separate means for securing said units together in collapsed relationship, said last named means being permanently associated with one of said members.

In testimony whereof I hereunto affix my signature.

EDWIN C. BREESER.