

Feb. 15, 1949.

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2,461,535

TOY BUILDING BLOCK WITH CLOSURE PANE

Filed Jan. 24, 1944

2 Sheets-Sheet 2

Fig. 10

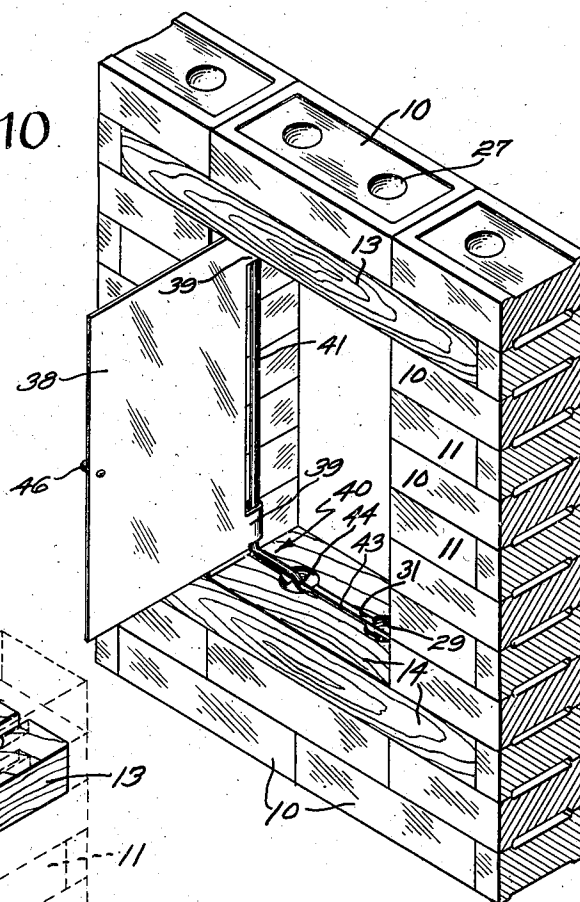
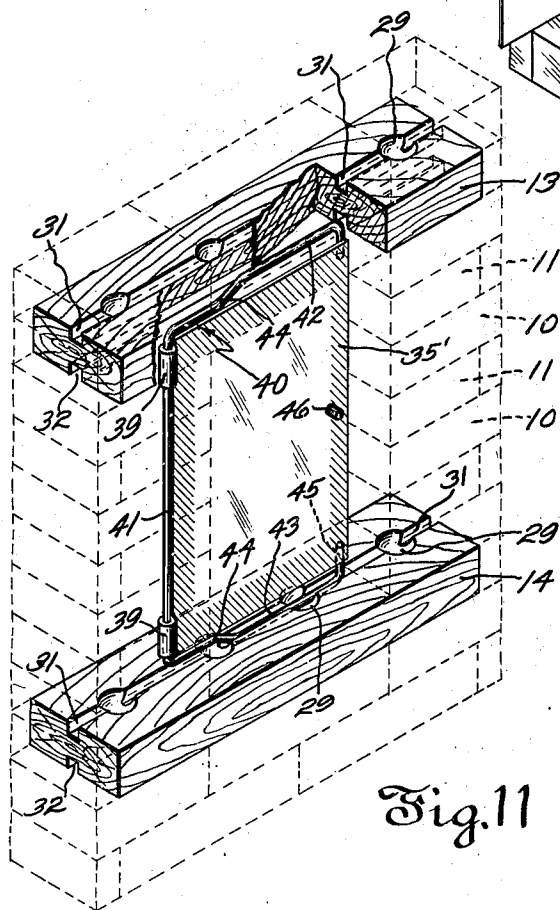


Fig. 11

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2,461,535

TOY BUILDING BLOCKS WITH CLOSURE
PANES

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Application January 24, 1944, Serial No. 519,433

7 Claims. (Cl. 46—25)

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This invention relates to building block toys and to component blocks and pieces of the variety commonly sold in packaged sets to be piled by children into fanciful representations of buildings and related structures.

One object of the invention is to provide toy building blocks in miniature sizes simulating bricks and cut or artificial stone having structural features making them proof against mis-alignment and accidental displacement when piled upon one another unskillfully by a child.

Another object is so to configure a brick or stone simulating toy building block that it will not tend to rock when laid upon or in abutting contact with a mating block or other flat surface.

A further object is to make use, in a constructional toy, of brick or stone simulating toy blocks of inexpensive, durable, molded material having no grain tending to cause warping and preferably requiring no application of heat to set in shape the material of which the blocks are composed. Preferably also my improved blocks have a granular non-lustrous surface texture colored satisfactorily to resemble in miniature the appearance of a real building brick or a real cut or artificial building stone.

A further object is to combine with toy brick blocks of the above characteristics, bar-shaped toy timber simulating sticks capable of imparting to a miniature house or the like, built of toy blocks, the realistic appearance of frame timbers or ornamental boards as familiarly used in real outside building trim or for sills and casing boards bordering a window or doorway in the wall of a building. I may configure such sticks in mating accordance with the aforesaid blocks so as to help hold in accurately assembled alignment one or more such toy blocks lying in abutting contact with one or more such timber sticks.

A further object is further to configure the above toy timber sticks so that they will function to retain and hold against broadside displacement a closure pane filling the window or doorway opening that is bordered by the timber sticks.

A further object is to provide a closure pane to be used in this connection which in part is composed of transparent material while being in other parts colored or surface ornamented to represent window sash or the paneled sections of a door.

In general an object of the invention is to increase the realism with which toy building pieces may, when piled together, resemble in miniature actual full-sized brick, masonry, or stucco

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buildings incorporating wooden timbers as sills, headers, jambs or outside board trim, with transparent windows and doors that swing open.

The foregoing and other objects of the invention will appear in clearer detail from the following description of preferred embodiments of the invention in which description reference is had to the accompanying drawings wherein:

Fig. 1 is an isometric view of a partially completed toy building structure made by piling together component toy building pieces separately pictured in other figures of the drawings and embodying the present improvements.

Fig. 2 is a view taken in section on a vertical plane at the location 2—2 in Fig. 1 looking in the direction of the arrows.

Fig. 3 is an enlarged view of a portion of Fig. 2.

Fig. 4 is a perspective view of a single one of the longer toy brick blocks incorporated in the built-up structure of Fig. 1 showing its side that contains dowel sockets.

Fig. 5 is a view taken in central vertical section longitudinally through the block of Fig. 4.

Fig. 6 is a perspective view of a shorter toy brick block showing its side that carries a dowel boss.

Fig. 7 is a perspective view of one of the toy timber sticks incorporated in the built-up structure of Fig. 1 showing interengaged therewith a fragment of a toy block like that of Fig. 4.

Fig. 8 is a perspective view of a closure pane as incorporated in the built-up structure of Fig. 1 to simulate a window.

Fig. 9 shows a wedge-shaped piece that may be used to fill in corners for producing sloping surfaces as illustrated in Fig. 1.

Fig. 10 is an isometric view of the outside of a toy brick building wall showing a hinged door.

Fig. 11 is an isometric view of the hinged door in closed position, parts of the building structure appearing broken away or in broken lines.

In constructional toys of the type where blocks are loosely piled upon and beside one another to simulate building exteriors there is sometimes omitted all provision for holding the blocks in accurate alignment, or if locating dowels are provided at all they are commonly of a nature making the blocks slow and troublesome to fit together and take apart. Trouble also arises from the loss of flatness of abutting surfaces of the blocks usually due to their warping or shrinkage with age so that they rock upon one another and make it difficult to pile them stably. Furthermore, constructional house building toys heretofore have commonly been composed of sets of pieces

simulating either all-masonry construction or all-wood construction. This limitation has imposed a lack of variety in the number of different kinds of toy building structures that can be erected by the use of a given set of toy blocks.

Such shortcomings as the above have long characterized commercially available sets of toy building blocks, and to overcome these prior limitations my present invention contemplates combinations of brick or stone simulating toy blocks and timber simulating toy sticks so cooperatively fashioned alone or in conjunction with certain closure panes as to be relatively anchored when piled together and to be capable of assemblage in a greater variety of fanciful ways than heretofore. Illustrative examples of the novel features of assemblage appear in Fig. 1.

The toy building structure of Fig. 1 is composed in part of red or gray toy full bricks 10, red or gray toy half bricks 11, natural wood finish toy timber sticks 12 to 15, inclusive, and partially transparent toy closure panes 17, 18 and 19. The difference in sizes of the various toy bricks, toy timber sticks, and toy closure panes may reside mainly or solely in the differences of their respective lengths wherefore a description of any exemplary length will suffice to make clear the principles of construction and cooperative interfitting association of all such lengths. 12 and 15 are sills, 13 is a header, and 16 is a jamb.

The brick or stone simulating toy blocks of these improvements may be made of various substances and may have devious appearances but preferably will possess a rather granular, non-lustrous surface appearance resembling in miniature real building bricks or cut or artificial unpolished stone or granite building blocks. It has been found that a satisfactory toy block material for purposes of this invention may include in its composition red slate flour or gray slate flour moistened with water and combined with a miscible adhesive in suitable proportions to serve as a binder substance, the whole being molded to shape under very heavy pressure preferably without application of heat. Material of such composition for making toy brick blocks, while believed to be new, is not claimed in this application but is being claimed in a copending application owned in common by the assignee of the instant application. I prefer to make the full brick 10 and some of the half bricks 11 out of red slate flour because its color more closely resembles the natural color and in miniature fineness the granular surface texture and light reflecting characteristics of the most common variety of real building bricks, while some of the half bricks 11 in a given set of the blocks may incorporate the gray slate flour thereby more closely to resemble blocks of cut or artificial stone contrasting in color with the reddish brick blocks in a finished toy building structure as is the case with stone trimming used for ornamental or structural effect over and about doorways and windows in the construction of real buildings.

By use of the foregoing materials and methods of production, registering dowel recesses and dowel bosses may be shaped in the improved blocks without resorting to machining or other secondary operations after the block is originally pressed into form. In making one preferred form of the toy full brick block 10 illustrated in Figs. 4 and 5, the pressing molds are

so contoured as to form the block with a marginal ridge 24 upstanding from and bordering the remaining or relatively recessed panel portions 25 and 25' alike respectively on the top and bottom larger faces of the block. This insures that the extreme peripheral edge of the block, and never its central panel portion, abuts in contact with a mating companion block or other planar surface so that all tendency of the block to rock about any centrally located "high" spot is avoided. In the bottom panel portion 25' of block 10 there are formed from the material of the block two rounded dowel bosses 26 which project to a greater extent from the face of the panel than does the border ridge 24. In the top panel portion 25 of the same block there are two dowel sockets 27 in direct crosswise alignment with dowel bosses 26, respectively, and these sockets are configured to receive dowel bosses like 26 on a mating block with a fairly snug lateral fit, which however leaves clearance space between the tip of the boss and the bottom of the socket freely permitting the straight marginal ridges 24 of mating blocks abuttingly to contact with each other throughout their panel bordering extent. In other words the dowel bosses sufficiently fit the dowel sockets to maintain said ridges in abutting register.

A toy half brick block 11 is shown in Fig. 6 with its top panel portion 28 containing a single dowel boss 26', like one of the bosses 26, it being understood that a single dowel socket 27', like one of the dowel sockets 27, is carried centrally of the bottom panel 28' of block 11.

In Figs. 3 and 7 one of the novel toy timber sticks or bars 12 is shown in mating relation to a broken off full brick block showing the nesting of one of the block dowel bosses 26 or 26' within one of a row of dowel sockets 29 spaced apart in exact accordance with the spacing of the block bosses 26, 26'. This orients any timber bar relatively to any block or blocks. This distance of spacing also accords with the spacing of a boss 26 from a boss 26' when blocks 10 and 11 abut end to end. Fig. 7 also shows that the stick 12 is provided with a straight lengthwise extending groove 31 which intersects the dowel sockets 29. In the opposite face of stick 12 there is a similar groove 32 coextensive with groove 31 lengthwise of the stick. Sockets 29 are deeper than sockets 27, 27'.

Either of grooves 31 or 32 will receive and retain against broadside displacement an edge of a closure pane such as 17, 18 or 19 hereinbefore referred to. Such closure panes may be surface ornamented as at 35 by imprinting in colors a representation of window sash. In a similar manner the closure pane 18 in Fig. 1 is seen to be surface ornamented to represent the panel sections of a door. Portions of the closure pane which are not ornamented can be transparent if the pane or plate be composed of transparent material such as celluloid, Cellophane, glass or transparent plastics. Thus it will be seen that closure panes such as 17, 18 and 19 may be incorporated in the built-up housing structure of Fig. 1 with two, three or all of their marginal edges lodged retainingly in the stick grooves 31 or 32 and retained thereby against broadside displacement or warping.

For incidental use where sloping surfaces are desired the wedge-shaped block 33 may be employed to fill in corners, as illustrated in Fig. 1, or in devious other ways.

The relative disposition of any full brick block 10, half brick block 11, or timber stick 12, 13, 14, 15, 16, etc., is entirely unrestricted and at the user's free choice because the distances between the centers of every boss and every socket from the nearest end of every block and stick as well as from each of the side edges of every block and stick are exactly equal while the distances between every two adjacent bosses or dowels in each block and stick are likewise equal. Thus in whatever evenly aligned edgewise abutting relation the blocks and stick may be placed the distances between the centers of all dowel sockets and between the centers of all dowel bosses are equal.

It will be understood that one or both sides of all of the different lengths of timber sticks 12, 13, 14, 15 and 16 may be provided with grooves like 31, 32 and with sockets like 29, and that the vertical sides of the window openings may be bordered by upright timber sticks as in the case of the doorway. The length of each timber stick preferably is an even multiple of the length, the breadth or the thickness of blocks 10 or 11, or an even multiple of some sum of such block dimensions. These sticks may be natural wood.

Figs. 10 and 11 show how a closure pane representing a door 38, much like door 18, may be mounted in the same timber stick grooves 31 or 32 in sill 14 and header 13 in a manner to swing open and closed. Door 38 can be made of bendable metal so that two or more tabs 39 forming continuations of such metal and projecting from one upright edge of the door can be bent into hinge loops pivotally surrounding a vertical hinge pin section 41 of the complete bent wire door holder 40. This door holder and door combined are referred to in some of the appended claims as a closure pane structure since holder 40 consists of a springy wire bent to C-shape whose pane holding function takes the place of directly anchoring the edge of the pane proper. Thus the top and bottom horizontal free arms 42 and 43 of holder 40 flank the top and bottom edges of the door and serve the same holding purposes as the top and bottom edges of door 18 by being receivable and lodged in the grooves 31 and 32 of sill 14 and header 13, respectively, and thereby oriented in fixed lateral relation to said sill, header and the spaced tiers of blocks at the upright edges of the door. Preferably the door holding wire 40 will be bent to such shape and dimensions in relation to the height of the doorway between sill 14 and header 13 that wire arms 42 and 43 may be pressed slightly toward each other for passing into a completely constructed doorway and then automatically spring slightly apart to enter and be retainingly lodged in grooves 31 or 32. Sockets or cavities 29 in the sill or header being wider and deeper than grooves 31, 32 will make it easy to reach under and pry loose the holder arms 42 and 43 for removing them from the doorway without tearing down the surrounding toy building wall structure whenever desired. In this connection it may be mentioned that closure panes such as 17, 18 and 19 may be flexible and resilient enough to permit their being momentarily forced into a bowed shape for entering and removing them with respect to the window openings and doorways without disturbing surrounding wall structure. They can then spring back into flat shape with two of their edges anchored in two of the timber slots.

The bent-over stretches of hinge pin 41 of door holder wire 40 are formed with jogs 44, 44 providing top and bottom thrust for the door so that

it is held to swing clear of the bottom wire arm 43 and clear of the sill stick 14. The free end of wire arm 43 is bent up at 45 to project out of the stick groove and act as a stop against which door 38 abuts in its closed position in Fig. 11. A stud 46 carried by the door may serve as a toy door knob.

Many other modifications will be suggested to workers in this art by the disclosure hereof and the blocks and timbers may be made of machined wood, pressed paper stock, plastics, cast metals, molded clays, or any suitable materials whatever. The appended claims are intended to cover all obvious substitutes and equivalent for the parts, shapes and arrangements defined thereby:

I claim:

1. In a toy constructional set, a plurality of rigid toy building blocks adapted to be piled one upon the other in horizontally oriented relation, each of said blocks comprising a rigid solid body having miniature brick-like shape and proportions and each of whose broadside faces consists in major part of a relatively depressed hard panel surface, straight marginal ridges standing in relief with respect to and bordering each of said panel surfaces along the edges of each of said blocks, at least two spaced apart block orienting dowel sockets sunk in one of said panel surface of each of said blocks, and a plurality of block orienting dowel projections outstanding from the other panel surface of each of said blocks receivable in and sufficiently fitting said dowel sockets respectively when said blocks are laterally aligned to maintain said straight marginal ridges of different blocks in abutting register with one another whereby said panel surfaces are kept separated and spaced apart when one block is piled upon another block.

2. In a toy constructional set, at least two rigid toy building blocks as defined in claim 1 in which the said dowel projections have rounded tips and are of such height and girth relative to the depth and girth of the said dowel sockets respectively that said projections nest freely in and fill the girth of said sockets when the said marginal ridges of different blocks are in abutting contact.

3. In a piled arrangement of toy constructional pieces, rigid blocks imitative of bricks and extending in the same direction spaced apart on a common level, dowel bosses carried on a horizontal face of each of said spaced blocks, a horizontal toy timber bar overlapping said spaced blocks and spanning the space therebetween, at least one horizontal face of said bar containing a groove extending lengthwise thereof and also containing a row of spaced dowel sockets engageable simultaneously by said dowel bosses of different blocks thereby to orient said bar relatively to said blocks as well as to determine and maintain the spacing of the latter, and a closure pane including mounting structure therefor receivable in said groove between said spaced blocks for orienting and holding said mounting structure in fixed lateral relation both to said bar and to said spaced blocks.

4. In a brick house constructional toy, the combination defined in claim 3, in which the said holder for the said closure pane comprises a resilient wire bent to C-shape whose upright section is adapted to function as a stationary hinge pin and is pivotally engaged by the said closure pane, the horizontal arms of said C-shaped wire being lodged in the said grooves in a manner to be freed therefrom when one of said arms is flexed toward the other of said arms.

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5. In a brick house construction toy, the combination defined in claim 3, in which the said holder for the said closure pane comprises a C-shaped wire terminating in top and bottom horizontal arms lodged in the said grooves, at least one of said arms being resilient and having a jog offsetting the free end of said arm from a resilient portion of said arm, said resilient arm portion being free and clear from the groove in which said free end of the arm is lodged.

6. The combination of, a toy constructional element having a groove, a closure element having an elongated resilient mounting rod removably lodged in said groove, and a cavity in said constructional element intersected by and deeper than said groove, said mounting rod passing through said cavity in a manner to leave a space below said rod in said cavity for the insertion of a tool in a manner to pry said rod out of said groove.

7. In a constructional toy, the combination of, spaced rows of rigid toy blocks imitative of bricks and bordering a wall aperture, orienting projections carried by said blocks spaced lengthwise of said rows and facing toward said aperture, toy timber bars flanking said rows of blocks and bordering said aperture having orienting recesses facing said blocks and occupied respectively by said block carried projections and containing grooves disposed lengthwise of said bars facing

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said wall aperture, a closure pane occupying said wall aperture, and a holder on which said pane is hinged removably having longitudinal portions lodged in said bar contained grooves.

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