

Sept. 1, 1936.

E. P. O'DONNELL

2,052,841

TOY

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2 Sheets-Sheet 1

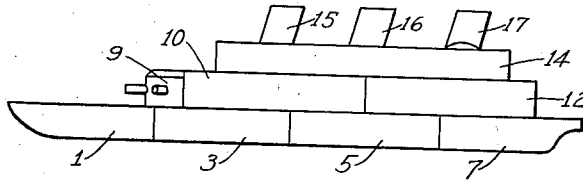


Fig. 1

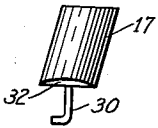


Fig. 2

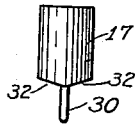


Fig. 3

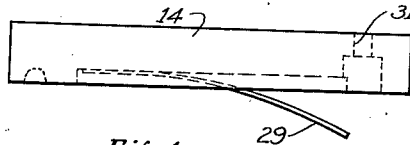


Fig. 4

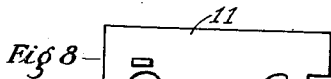


Fig. 8

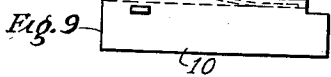


Fig. 9

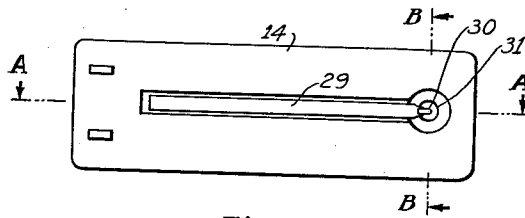


Fig. 5

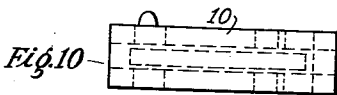


Fig. 10



Fig. 11



Fig. 12

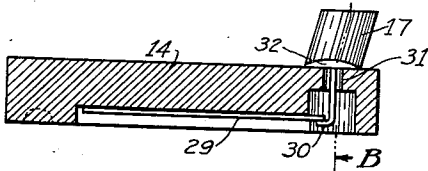


Fig. 6

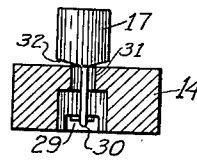


Fig. 7

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2 Sheets-Sheet 2

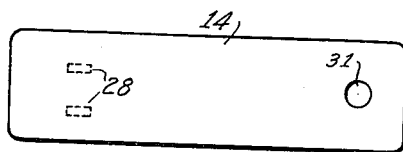


Fig. 13

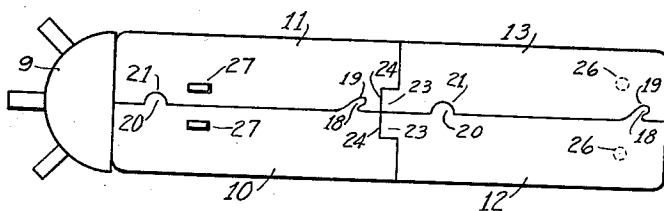


Fig. 14

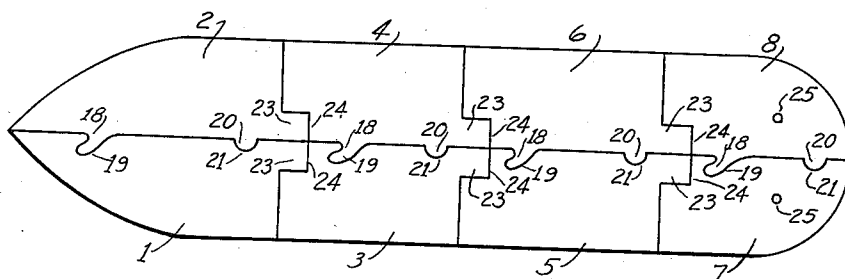


Fig. 15

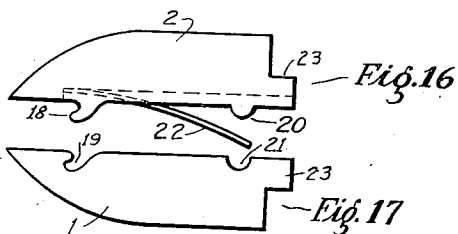


Fig. 16



Fig. 17

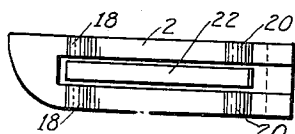


Fig. 19

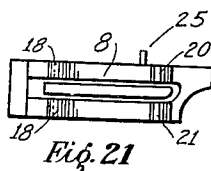


Fig. 21

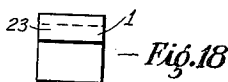


Fig. 18

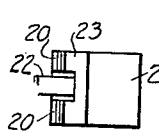


Fig. 20

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TOY

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Application October 29, 1934, Serial No. 750,547

9 Claims. (Cl. 273—102)

My invention relates to new and useful im-
provements in toys, and has for its objects; to
provide a toy structure of separable parts which
may be built into an integral unit adapted to be
caused to suddenly fly apart and disintegrate into
its separate parts; to provide in such a structure,
means of locking said separate parts together,
and also to provide means of throwing them
apart; to provide said parts in separate pairs with
means of normally causing the units of each pair
to spread apart, and to also provide locking means
in the nature of like pairs of parts for other pairs
of parts of said structure; to provide locking
means for the completed structure with a key
lock therefor such as a control lock block or tie
bar which may also be one of the parts of the
structure whereby when actuated it may unlock
the entire structure, and to further provide a
trigger mechanism for operating said locking
means, which may be in the form of a target in
or on the structure if the structure is one designed
to be unlocked upon striking a trigger target as
disclosed by the drawings.

Another object of my invention is to provide
such a structure in tiers of blocks, in which cer-
tain of the blocks are arranged in pairs as afore-
said and locked together by each other and with
one tier locked by a member or members of an-
other tier.

With the above and other objects in view which
will appear as the description proceeds, my inven-
tion consists in the novel features hereinafter
set forth, shown in the accompanying drawings,
and more particularly pointed out in the ap-
ended claims.

Referring to the drawings in which like num-
erals designate similar parts thruout the sev-
eral views:

The drawings disclose a structure and its parts
such as above mentioned, in the form of a toy
boat, the unit blocks of which may be made of
any suitable material such as of wood, wood and
metal, fiber composition, of similar substances,
and it is obvious that the structure may be made
to represent any desired form such as a fort,
mounted gun, train, car, etc., and that the struc-
ture may be adapted to be constructed on the
floor or on a table or other suitable surface, or
may be caused to float on water if a structure of
that nature be desired; and that said structure
as herein particularly disclosed may be disinte-
grated by a shot directed to the trigger target of
the structure, but that other means might be
provided for unlocking a structure of this char-
acter.

Fig. 1 is a view in side elevation of said toy
boat structure.

Fig. 2 is a view in side elevation of the trigger
for said structure, shown in the form of a funnel
of said toy boat.

Fig. 3 is a view of the same in end elevation.

Fig. 4 is a view in side elevation of the control
lock block or tie bar, with actuating spring
therein.

Fig. 5 is a bottom plan view of the same.

Fig. 6 is a view of the same in cross section on
line A—A of Fig. 5, with the trigger in place
and holding the actuating spring in engagement.

Fig. 7 is a view of the same in cross section on
line B—B of Fig. 6.

Fig. 8 is a top plan view of a block constituting
part 11 of the structure shown in Fig. 1, and being
one of the pair of key blocks in the second tier
of the completed structure.

Fig. 9 is a top plan view of the other of said pair
of blocks.

Fig. 10 is a view of the last named block in
side elevation, showing the spring actuating
means for the pair of blocks of which it is one of
the pair.

Fig. 11 is a view of the same in end elevation.

Fig. 12 is a view in end elevation of the block
shown in Fig. 8.

Fig. 13 is a top plan view of the control block 14
shown in Fig. 4.

Fig. 14 is a top plan view of the blocks or parts
of the structure shown in Fig. 1 as the same are
assembled in the second tier thereof.

Fig. 15 is a top plan view of the blocks or parts
of the structure shown in Fig. 1 as the same are
assembled in the first tier thereof.

Fig. 16 is a top plan view of a block constitut-
ing part 2 of the structure shown in Fig. 1, and
being one of a pair of blocks in the first or base
tier of said structure.

Fig. 17 is a top plan view of the other of said
pair of blocks of which the block shown in Fig. 16
is one of the pair.

Fig. 18 is a view of the same in end elevation.

Fig. 19 is a view in side elevation of the block
shown in Fig. 16, showing the spring actuating
mechanism for the pair of blocks of which it is one
of the pair.

Fig. 20 is a view of the same in end elevation.

Fig. 21 is a view in side elevation of block num-
bered 8 in the first tier of blocks, and which is one
of the pair of key blocks for said tier, the other
of said key blocks of said pair being numbered 7,
and showing the spring actuating mechanism for
said pair of blocks.

Numerals 1 to 17 inclusive represent various blocks of the completed structure shown in Fig. 1. Some of these blocks are identical and interchangeable with each other such as blocks 3 and 5, blocks 4 and 6, and blocks 15 and 16. Some of the blocks such as blocks 9, 15 and 16 have no mechanical connection with the structure but merely rest on other parts thereof, while the other blocks have mechanical features related as will hereinafter be explained.

In order to best describe the various parts of the structure, each tier thereof will be treated separately and the peculiar properties of each part of the tier explained without unnecessary repetition, and in order to make the description complete the method of building the structure will be disclosed along with the description of the parts and their functions.

Commencing with the parts comprising the base or first section or tier of the structure, a top plan view of which tier is shown in Fig. 15, all of the blocks 1 to 8 inclusive therein are adapted to be arranged and held in pairs. 1 and 2 constitute a pair, 3 and 4, 5 and 6, and 7 and 8 constitute other pairs. All of the pairs possess the same kind of interlocking means for locking the members of the pair together, but the pair composed of 1 and 2 does not have a key lock wherewith to hold another pair of blocks together, and the pair composed of 7 and 8 while having such a key lock for holding another pair of blocks together does not itself possess such a similar kind of key locking facilities but is in its turn locked by a pair of blocks situate in the second tier of the structure. Blocks 2, 4, 6 and 8, all have similar locking tongues 18 which fit into corresponding recesses 19 in blocks 1, 3, 5 and 7. Blocks 2, 4, 6 and 8 also have holding tongues 20, which while they may not be essential, materially assist in holding the two parts of the pairs together against longitudinal movement in relation to each other, particularly while the structure is being built or moved. The holding tongues 20 fit into corresponding recesses 21 in blocks 1, 3, 5 and 7. It will be noted that the locking tongues 18 protrude at an oblique angle from their respective blocks, while the holding tongue 20 projects at a right angle from its block; also the locking tongue is curved in its projection to form a hinge socket with groove or recess 19, whereas the holding tongue 20 is curved merely to permit it to be slipped into its groove or recess 21 with an arcuate movement the pivot of which is the hinge provided by locking tongue 18 and recess 19 so that the holding tongue 20 may be shouldered in its recess against the tendency of tongue 18 to slip out of its recess 19 as aforesaid. The two blocks are thus keyed together when locked in the manner hereinafter described.

On each of said blocks 2, 4, 6 and 8 is a spring 22 held in a recess in its block as indicated in the drawings, which spring normally protrudes from its block in the position shown in Fig. 16 and contacts the other block of the pair and is compressed against said other block when the pair of blocks are placed together in the structure as shown in Fig. 15. The spring in each pair of blocks thus normally tends to thrust the two members apart in a direction transverse of the completed structure.

This tendency of the spring is checked by the locking tongue 18 in its recess 19 and the pressure necessary to compress the spring and bring the two blocks together. However, it is further necessary to provide a means of holding them to-

gether in the structure, and to hold them in such manner that they may be suddenly released as the pairs of blocks are successively released when the entire structure is unlocked. A key lock is therefore provided by a protruding lug 23 on each of said blocks 1 to 6 inclusive, and a corresponding offset portion 24 provided in each of the blocks 3 to 6 inclusive which provides a recess within which lugs 23 may be held together when the two blocks of any such pair are in engagement with the two blocks of any other pair in which the recess is provided, when said pairs of blocks are in position in said structure.

The recesses 24 and the lugs 23 and the tongues 18 and 20 are all so positioned and adapted that the structure of said tier may be built as follows; first, blocks 1 and 2 are interlocked with each other and pressed together as indicated in Fig. 15, next, blocks 3 and 4 are interlocked with each other in like manner and pressed together, and then lugs 23 on blocks 1 and 2 are slipped into the recess provided by offset portions 24 in said blocks 3 and 4, whereupon still holding blocks 3 and 4 together against the pressure of the spring within said pair, the blocks 1 and 2 remain interlocked with each other, and in like manner blocks 3 and 4 are locked into blocks 5 and 6, and these blocks in turn locked into blocks 7 and 8. Now then, if blocks 7 and 8 were released so that the spring in said pair of blocks would function, it would successively release all of the locks in the entire structure of said tier and cause it to suddenly disintegrate into its component parts 1 to 8 inclusive.

However, it will be noted that on each of blocks 7 and 8 is a dowel pin 25 wherewith said blocks may be locked by blocks in the second tier of the structure, to which tier reference will now be made. This tier is shown in Fig. 14 as being fully assembled, and is composed of a block 9 representing a gun turret with guns therein and which has no mechanical connection with the rest of the structure but merely rests upon members of the lower tier of the structure, and blocks 10 to 13 inclusive. These last named blocks are provided in pairs, the blocks 10 and 11 being in one pair and the blocks 12 and 13 in another pair, as shown in Fig. 14, with interlocking means for each pair like that in the blocks in the first tier. These pairs of blocks are also each provided with a spring mechanism the same as the pair of blocks in the first tier. It will be noted that blocks 12 and 13 each have a dowel pin hole 26 and that these holes correspond with the dowel pins 25 on blocks 7 and 8.

Continuing a description of the building of the structure, and with the first tier of blocks complete therein, blocks 7 and 8 are held together until blocks 12 and 13 are united in a pair, which is accomplished by interlocking them in the same manner as the blocks in the first tier are interlocked, whereupon blocks 12 and 13 are superimposed on the first tier of blocks and the dowel pins 25 slipped into their respective dowel pin holes 26, upon which only blocks 12 and 13 need to be held together, independently of the structural elements of the structure thus far completed, in order to prevent said structure from flying apart.

Blocks 10 and 11 are then united in the same manner and the recess formed by their offset portions 24 slipped over the lugs 23 on blocks 12 and 13, thus locking said last named blocks together. Block 9 may then be placed on the structure. However, blocks 10 and 11 have to be

held together, for as yet there is no final lock to the structure. It will be noted that blocks 10 and 11 are each provided with a dowel pin 27 which is shown in square form but which may be of any suitable shape. These pins 27 project upwardly from the face of their respective blocks.

In order to key the whole structure together a master lock or control lock block 14 is provided, which may now be placed on the second tier of blocks. This block has dowel pin holes 28 in its under side with the holes corresponding with the dowel pins 27 when blocks 10 and 11 are in position in the structure and by means of said pins and holes aforesaid block 14 may act as a tie bar to hold the structure together independently of any other holding means.

However, provision must be made whereby block 14 may disengage itself from the dowel pins 27 for the purpose of unlocking the entire structure and causing it to fly apart. This is effected by providing a spring 29 in a recess in said block 14 with the spring normally projecting from the bottom of said block as shown in Figs. 4 to 7 inclusive and adapted to be pressed into its recess and locked by a trigger when said block 14 is in place in the structure. In this manner, when the spring is actuated, the block 14 is caused to be thrown upwardly and to disengage itself from the dowel pins 27. The spring 29 is held against operation by the trigger arrangement shown in Figs. 6 and 7, said arrangement being that of the aforementioned target 17 whereon is a shaft 30 with a hook on its end adapted to engage said spring in the manner shown in Figs. 5, 6 and 7, and with said shaft inserted thru aperture 31 in said block and with said target resting on said block and adapted to rock thereon, when it is struck, by reason of the beveled bottom portion 32 thereof whereby the operation of the trigger is facilitated. Blocks 15 and 16 may then be placed on the completed structure as shown in Fig. 1.

In operation, after the structure has been fully built and capped by the control lock block 14 with its spring held by said trigger target, a projectile may be directed at said structure with the object of striking the target 17 to cause the trigger to operate, which when done releases spring 29 causing it to lift block 14 off dowel pins 27, thus successively unlocking all of the locks in the entire structure and causing said structure to suddenly disintegrate into its component unit blocks.

Having thus fully disclosed my invention, what I claim and desire to secure by Letters Patent is:

1. A toy block structure wherein certain of the blocks are arranged in a plurality of pairs, a pair of blocks as aforesaid, a spring positioned between them, and locking means for holding said pair of blocks together against the normal tendency of said spring to throw them apart.

2. In a toy block structure as claimed in claim 1; and wherein one of said locking means for said pair of blocks is a projection on one of the blocks of said pair and a corresponding recess in the other block of said pair shaped to receive said projection, and with the axis of said projection directed at an oblique angle from the axis of the jointure of the blocks of said pair.

3. A toy block structure wherein certain blocks are arranged in a plurality of pairs, means for urging the blocks of a pair of blocks apart, means for locking said blocks together in pairs, means for locking said pairs of blocks together, and a trigger mechanism for releasing said locking means thruout said structure.

4. A toy block structure wherein a plurality of certain blocks are arranged in pairs, a pair of blocks as aforesaid, means in said pair of blocks for normally causing the blocks of said pair to spread apart, and a curved projection on one of said blocks of said pair adapted to engage a recess in the other of said blocks of said pair and to resist the normal tendency of said blocks to spread apart by the action of said spreading means.

5. In a toy block structure as claimed in claim 4, and another projection on one of said blocks of said pair adapted to engage a corresponding recess in the other block of said pair to align and hold said blocks of said pair longitudinally of each other.

6. A pair of blocks of a toy block structure wherein certain of the blocks are arranged and held in pairs, a spring positioned between the blocks of said pair, interlocking means for holding said blocks together when further locked, and means for further locking said pair of blocks with another pair of blocks of the structure.

7. A pair of blocks as claimed in claim 6; and with said last named means comprising a lug on each of said pair of blocks adjoining their line of division.

8. A toy block structure wherein are tiers of blocks certain of which are arranged in pairs, a pair of blocks, a compression spring between the blocks of said pair, means for interlocking said blocks of the pair together, means of locking pairs of said blocks together, means of locking said tiers of blocks together, and means of suddenly disintegrating said structure into its component block units.

9. In a toy block structure including block units adapted for sudden disintegration into its component block units, a lock block for locking said structure together and with said lock block constituting one of the said block units, and a trigger actuated spring on said lock block.

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