May 3, 1938. E. P. O'DONNELL 2,116,279

COLLAPSIBLE OR KNOCK-DOWN TOY

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Fig. 1.

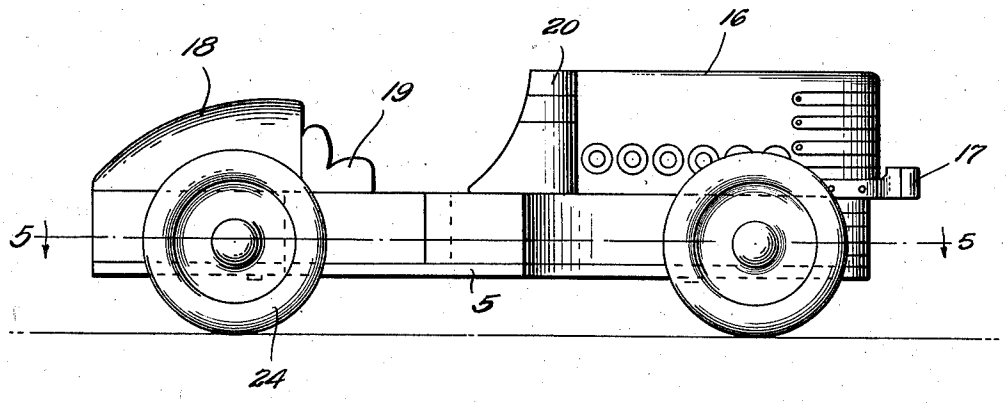


Fig. 2.

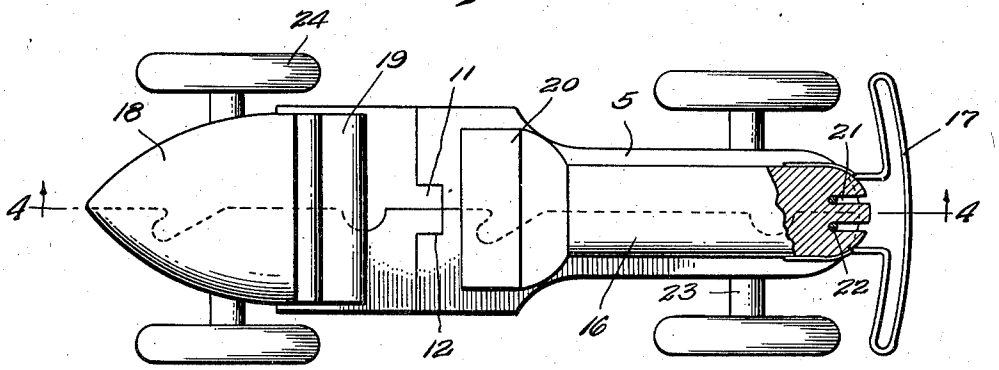
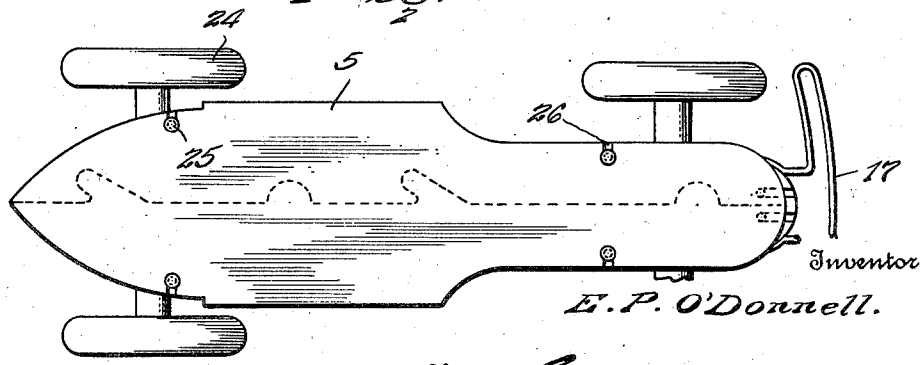


Fig. 3.



Inventor

E. P. O'Donnell.

By Lacey & Lacey, Attorneys

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Fig. 4.

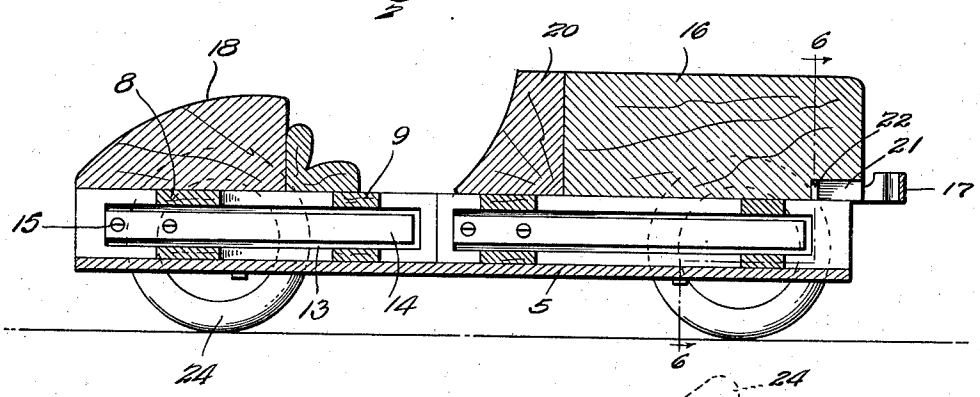


Fig. 5.

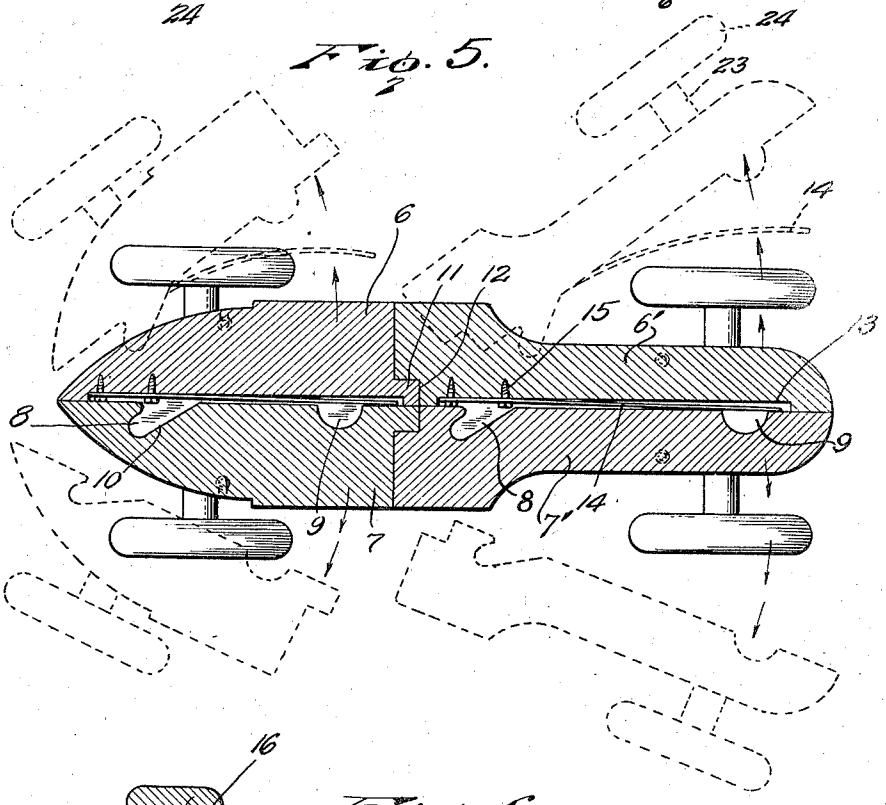
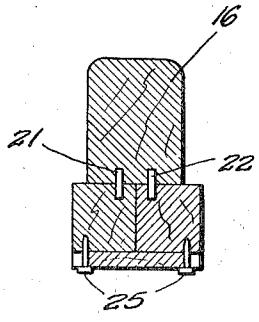


Fig. 6.



Inventor

E. P. O'Donnell.

By Lacey & Lacey Attorneys

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Fig. 7.

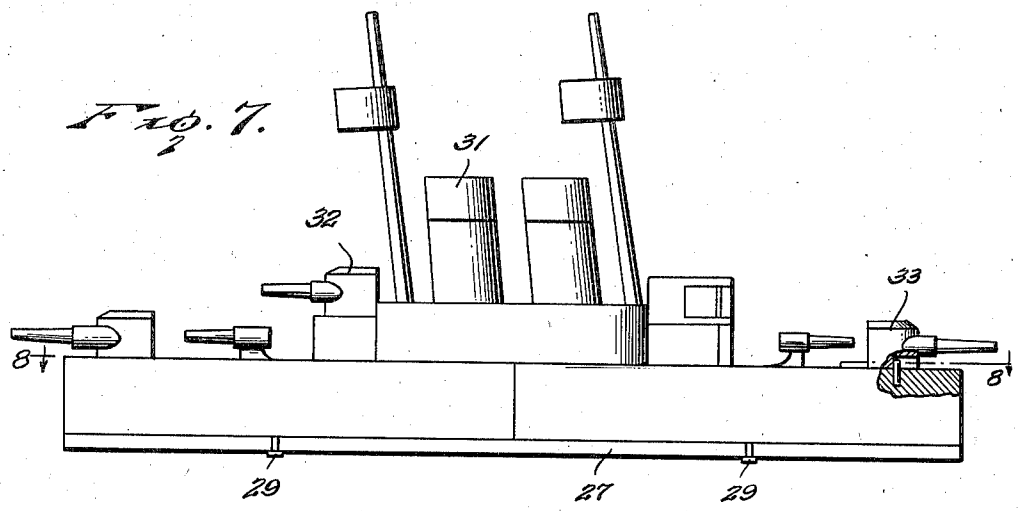
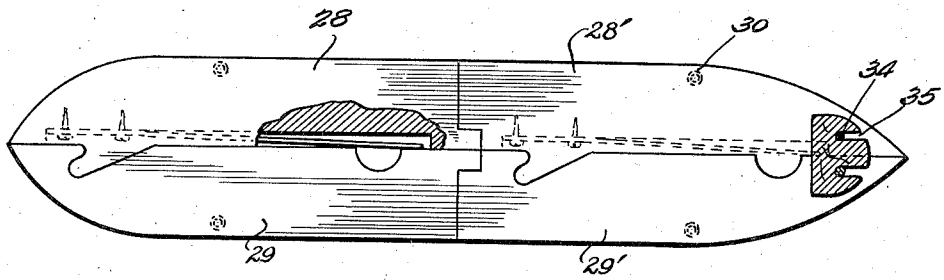


Fig. 8.



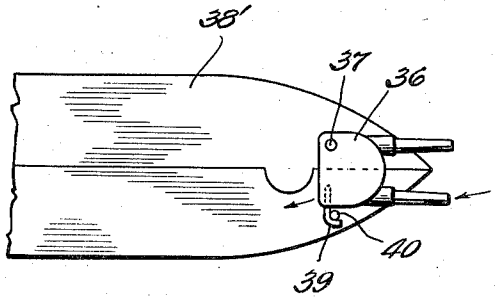


Fig. 9.

Inventor

E. P. O'Donnell.

By Lacey & Lacey, Attorneys

Patented May 3, 1938 2,116,279

UNITED STATES PATENT OFFICE

2,116,279

COLLAPSIBLE OR KNOCK-DOWN TOY

Edward P. O'Donnell, Tulsa, Okla., assignor of one-half to B. F. Kelley, Tulsa, Okla.

Application October 10, 1936, Serial No. 105,130
Renewed October 4, 1937

7 Claims. (Cl. 46—17)

This invention relates to toys and more particularly to a collapsible or knock-down toy.

The object of the invention is to provide a collapsible toy formed of a plurality of detachably united sections assembled in the shape of an automobile or boat and so constructed and fitted together that, when one of the sections is displaced by impact with an object, all of the sections will be released and separated laterally in simulation of a wreck or explosion.

A further object of the invention is to provide a collapsible toy including a supporting plate or templet on which the different sections of the toys are mounted in assembling the same to form a vehicle or marine craft, said templet being provided with lateral slots adapted to receive guide pins depending from certain of the toy sections.

A further object is to provide the confronting faces of certain of the detachable sections with longitudinal grooves in which are seated actuating springs, the free ends of which are normally outwardly bowed and compressible within said grooves, whereby when the locking section is released the springs will automatically expand and separate all of said sections.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

In the accompanying drawings forming a part of this specification and in which similar numerals of reference indicate corresponding parts in all the figures of the drawings:

Figure 1 is a side elevation of a collapsible or knock-down automobile embodying the present invention,

Figure 2 is a top plan view partly in section,

Figure 3 is a bottom plan view,

Figure 4 is a vertical longitudinal sectional view taken on the line 4—4 of Figure 2,

Figure 5 is a horizontal sectional view taken on the line 5—5 of Figure 1 showing in dotted lines position of the sections when the locking block is released,

Figure 6 is a detail vertical sectional view taken on the line 6—6 of Figure 4,

Figure 7 is a side elevation showing a modified form of the invention as applied to a boat,

Figure 8 is a plan view taken on the line 8—8 of Figure 7 with the super-structure removed and with the forward turret and a portion of the hull of the boat shown in section,

Figure 9 is a top plan view illustrating a modified form of locking section.

The improved toy forming the subject-matter of the present invention may be in the form of an automobile, boat, fort or other desired shape, and in Figures 1 to 6 inclusive is shown in the form of a collapsible or knock-down automobile. The device comprises a supporting base or templet 5 having the general outline or configuration of the chassis of an automobile and preferably formed of a single strip of relatively narrow wood or other suitable material, this base or templet being for the purpose of supporting the mechanism constituting the body of the vehicle. The body of the vehicle is formed of a plurality of detachably united sections 6 and 6' and 7 and 7', the sections 6 and 6' being disposed on one side of the longitudinal axis of the body and the sections 7 and 7' on the other. The sections 6 and 6' are each provided with a substantially hook-shaped projection 8 and a semi-circular projection 9 which fit within correspondingly shaped seating recesses 10 formed in the adjacent sections 7 and 7', as best shown in Figure 5 of the drawings. The rear ends of the sections 6 and 7 at the center of the automobile are provided with registering angular portions 11 adapted to fit within angular sockets 12 formed in the adjacent faces of the mating sections 6' and 7' when all of said sections are assembled on the base or templet 5.

The inner faces of the sections 6 and 6' are formed with longitudinally disposed seating grooves 13 which intersect the adjacent projections 8 and 9 and fitted in each groove 13 is a normally outwardly bowed flat spring 14, one end of which is secured by screws or similar fastening devices 15 to the wall of said groove. The springs 14 are so disposed that when the several sections are assembled the springs will lie flat within the seating grooves 13, but when the locking member hereinafter referred to is released, the free ends of the springs will expand and separate said sections.

Slidably mounted on the assembled sections constituting the body of the automobile is a hood 16 having a bumper 17 secured thereto and arranged at the rear of the automobile is a tail piece 18 and a seat 19 for the driver, as shown. A removable block 20 rests against the hood 16 in front of the driver's seat 19 and acts as a guard or shield. The hood 16 constitutes the locking member and to this end the bottom of the hood section 16 is formed with parallel slots 21 which open through the front end of the hood and are adapted to receive spaced pins 22 carried by the forward section 6' and 7' of the body of the automobile. The pins 22 by engagement with the walls of the slots 21 serve to hold the sections to-

gether against the action of the springs 14. Should the bumper 17 of the automobile, however, strike a fixed object, such as a table or chair, the impact will force the hood or locking section rearwardly until the pins clear the slots 21 when the expansion of the springs 14 will separate the sections 6 and 6' and 7 and 7' laterally in simulation of a wreck or explosion, as best shown in Figure 5 of the drawings. Certain of the detachable sections are provided with stub axles 23 on which are mounted traction wheels 24 so that a child can roll the automobile from place to place as desired. In order to properly position the sections on the base or templet 5 when assembling the sections, certain of said sections are provided with depending headed pins 25 which fit in lateral slots 26 opening through the adjacent side edges of the templet, as best shown in Figures 3 and 6 of the drawings.

In assembling the different parts comprising the automobile, the sections 6 and 6' and 7 and 7' are placed on the base or templet 5 with the projections 8 and 9 fitted in the seats 10 and with the pins 25 disposed within the slots 26. The hood or locking section 16 is then positioned on the body of the automobile with the pins 22 fitting within the slots 21 and in which position all of the sections will be securely held together against the tension of the springs 14. When the bumper 17 strikes a fixed object, however, the pins 22 will be released from the slots 21, thereby causing the springs to automatically separate the sections in the manner before stated.

In Figures 7 and 8 of the drawings, the invention is shown applied to a boat or other marine craft. In this form of the device a base or templet 27 similar in construction to the templet 5 is employed and certain of the detachable sections 28 and 28' and 29 and 29' are provided with depending pins 29 which fit in slots 30 in the templet. The boat is provided with separable smoke stacks 31 and one or more separable gun turrets 32. The gun turret 33 at the bow of the boat constitutes the locking section, and vertical pins 34 project upwardly from the adjacent sections 28' and 29' of the boat for engagement with slots 35 formed in the bottom of the turret 33, as shown. The detachable sections in this form of the device as well as the expansion springs are similar in construction to those shown in Figures 1 to 6 inclusive of the drawings. It will, therefore, be obvious that should the forward turret 33 be struck with a projectile or should the cannon mounted in the turret strike a fixed object the impact will cause the turret 33 to slide rearwardly, thereby releasing the pins 34 from the slots 35 and causing the expansion springs between the boat sections to laterally separate said sections and wreck the boat in the same manner as if it were struck by a submarine or high velocity projectile. If desired, the locking section or turret 33 may be located either at the stern or bow of the boat. In Figure 9 of the drawings, there is illustrated a further modified form of the invention in whch the gun turret or locking section 36 is pivotally mounted at 37 on one of the detachable sections 38' of the boat and is provided with a hook or latch 39 which engages a pin 40 projecting upwardly from the mating section. It will be understood that a templet and depending pins similar to those shown in Figure 7 will also be employed in this form of the device. Should the turret 36 be struck by a projectile said turret will swing laterally on its pivot 37 so as to cause the latch 39 to clear the pin 40 and thus permit the expansion springs to automatically separate the sections.

It will, of course, be understood that the toys may be made in different sizes and shapes and constructed of any desired number of interfitting sections without departing from the spirit of the invention. It will also be understood that the locking section may be either slidably or pivotally mounted on the toy, the result accomplished being the same in both cases, namely, to hold the several sections comprising the body of the toy in assembled position until the locking section is released.

A toy constructed in accordance with the present invention will provide a healthy source of amusement for a child and is educational in character inasmuch as it will tend to familiarize the child with the construction of an automobile or boat.

Having thus described the invention, what is claimed as new is:

1. A collapsible toy comprising a plurality of interfitting separable sections, springs interposed between said sections, pins projecting upwardly from certain of the sections, and a locking member slidably mounted on certain of the sections and provided with grooves adapted to receive the pins for holding all of said separable sections together, said locking member being movable to release position by impact with an object whereby to cause the springs to automatically separate the several sections.

2. A collapsible toy comprising a rigid supporting templet, a plurality of interfitting separable sections independent of the templet and detachably mounted thereon, certain of said sections having their confronting faces provided with grooves, outwardly bowed springs seated in said grooves, and a locking member coacting with certain of the separable sections for holding all of said sections together against the tension of the springs, said locking member being movable to release position by impact with an object whereby to cause the springs to automatically separate the several sections.

3. A collapsible toy comprising a templet having transverse slots opening through the opposite sides thereof, a plurality of interfitting separable sections mounted on the templet, certain of said sections being provided with depending pins fitting in the slots in the templet, springs interposed between said sections, and a locking member engaging certain of said sections for holding all of the sections in assembled position, said locking member being movable to release position by impact with an object whereby to cause the springs to automatically separate all of the sections.

4. A collapsible toy comprising a templet, a plurality of separable sections detachably mounted on the templet and provided with interfitting projections and seats, there being longitudinal grooves formed in the inner faces of certain of the sections and intersecting the adjacent projections, springs interposed between the sections and each having one end thereof rigidly secured within the adjacent groove and its other end normally bowed outwardly, spaced pins projecting upwardly from certain of the sections, a locking member slidably mounted on the pin carrying sections and provided with spaced slots receiving the pins for holding the sections together against the tension of the springs, said locking member being movable to disengage the pins from the slots by impact with an object

whereby to cause the springs to automatically separate all of the sections.

5. A toy comprising a templet, a plurality of separable sections removably mounted on the templet, certain of the sections being provided at their forward ends with hook-shaped projections and near their rear ends with semi-circular projections adapted to fit in correspondingly shaped seats in an adjacent section, the projection carrying sections being provided with longitudinal seating grooves, expansion springs seated in said grooves, pins projecting upwardly from certain of the sections, a locking member slidably mounted on the pin carrying sections and having its lower face formed with spaced parallel grooves adapted to receive the pins for holding the sections in assembled position against the tension of the springs, said locking member being movable to release position by impact with an object whereby to cause the springs to automatically separate the sections.

6. A collapsible toy comprising a flat templet having lateral slots formed therein and opening through the opposite sides thereof, a plurality of interfitting separable sections mounted on the templet, certain of the separable sections being provided with angular portions adapted to fit within correspondingly shaped seating recesses formed in adjacent separable sections, outwardly bowed flat springs interposed between the sections, pins depending from certain of the sections and fitting within the slots of the templet, spaced upstanding pins carried by other of said sections, and a movable locking member having parallel grooves formed therein and opening through its outer face for the reception of the upstanding pins for holding the sections in assembled position, said locking member being movable to release position by impact with an object thereby to cause the springs to automatically separate all of said sections.

7. A collapsible toy comprising a plurality of interfitting separable sections, springs interposed between said sections, a pin projecting upwardly from one of the sections, a locking member pivotally mounted on an adjacent section and provided with a hook adapted to engage the pin for holding the sections together against the tension of the springs, the hook of said locking member being movable out of engagement with the pin when said locking member is swung laterally on its pivot by impact with an object thereby to cause the springs to automatically separate the sections.

EDWARD P. O'DONNELL.