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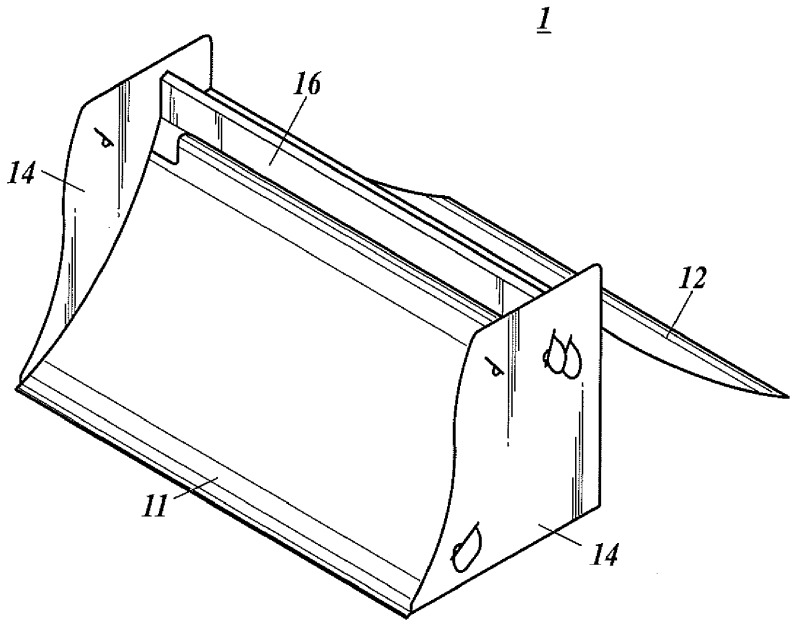
(54) **Jump ramp for toy car**

(57) Disclosed is a jump ramp (1) for a toy car including a first slope (11) which slants obliquely upward, and the toy car which is running is made to fly upward along the slope and a tilting portion (16) which is tiltable toward a back side of the slope is provided at a tip portion of the slope.

***FIG.1***

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## Description

The present invention relates to a jump ramp for toy car.

**[0001]** Conventionally, there is known a jump ramp for toy car for making a running toy car fly into the air. However, such jump ramp for toy car just simply makes the toy car fly into the air while the toy car is running and it lacks fun.

**[0002]** It is, therefore, a main object of the present invention to provide a jump ramp which produces more fun comparing to the conventional jump ramp.

**[0003]** According to a first aspect of the present invention, there is provided a jump ramp for a toy car including a slope which slants obliquely upward, and the toy car which is running is made to fly upward along the slope and a tilting portion which is tiltable toward a back side of the slope is provided at a tip portion of the slope.

**[0004]** The above and other aspects, objects, advantages and features of the present invention will become more fully understood from the detailed description given hereinbelow and the appended drawings which are given by way of illustration only, and thus are not intended as a definition of the limits of the present invention, and wherein:

FIG. 1 is a schematic view of a jump ramp for toy car;
FIG. 2 is a cross-sectional side view of the jump ramp for toy car;
FIGS. 3A to 3D are development views of the jump ramp for toy car;
FIGS. 4A to 4C are diagrams for explaining a jumping operation of a toy car using the jump ramp for toy car;
FIG. 5 is a schematic view of the jump ramp for toy car provided with a bar; and
FIG. 6 is a development view of bar supports.

**[0005]** Hereinafter, an embodiment of the present invention will be described with reference to the drawings.

**[0006]** FIG. 1 is a schematic view of the jump ramp for toy car (hereinafter, simply called the jump ramp) of the embodiment, and FIG. 2 is a cross-sectional side view of the jump ramp 1.

**[0007]** As shown in the drawings, the jump ramp 1 is structured by making the first slope 11 and the second slope 12 be supported by the side plates 14 and the back plate 15 which are formed integrally via the bottom plate 13.

**[0008]** The first slope 11 is a climbing slope which is sloped obliquely upward, and the back surface of the first slope 11 faces the back plate 15 and the first slope 11 is supported by the side plates 14 at the both sides thereof. The first slope 11 is formed so as to curve upward toward the upper end thereof and the upper end portion 11a thereof is bent toward the back plate 15. At this bent portion, that is, at the proximal end of the upper end portion 11a, a flap 16 having an approximately flat plate shape is disposed in a standing position toward approximately upward. The flap 16 is for making the toy car turn in the air, and the flap 16 is joined with the first slope 11 so as to be able to elastically tilt toward back of the first slope 11 from the proximal end thereof. Further, the attachment angle of the flap 16 with respect to the first slope 11 in a normal state is adjustable, and the flap 16 is detachable from the first slope 11. Furthermore, the flap 16 is elastically biased toward the front side of the first slope 11.

**[0009]** The second slope 12 is a downward slope which is arranged at the position approximately symmetry to the first slope 11 having the back plate 15 therebetween, and the second slope 12 is supported by the back plate 15 by the upper end thereof. In particular, the upper end portion 15a of the back plate 15 is bent toward the first slope 11 and the second slope 12 is attached to the proximal end of the upper end portion 15a. Moreover, the second slope 12 can be elastically deformed (curved) in the up-down direction by setting the upper end and the lower end which are supported as supporting points.

**[0010]** FIGS. 3A to 3D are development diagrams of each part of the jump ramp 1. Here, the dashed lines in the drawings show the bending sections when assembling the jump ramp 1.

**[0011]** As shown in the drawings, the jump ramp 1 can be easily assembled by bending a flat bendable member (for example, a thick paper or the like).

**[0012]** In particular, first, the side plates 14 and the back plate 15 which are integrally formed with the bottom plate 13 are bent at a right angle with respect to the bottom plate 13 as shown in FIG. 3A. Thereafter, the insert portions 15b and the insertion holes 15c each of which are disposed at both sides of the back plate 15 are assembled with the insertion holes 14a and the insert portions 14b of the side plates 14. Thereby, the jump ramp 1 is assembled in a standing position.

**[0013]** Next, the first slope 11 shown in FIG. 3B is attached to the side plates 14. Here, the upper insert portions 11b and the lower insert portions 11c which are respectively provided at both sides of the first slope 11 are inserted into the upper insertion holes 14c and the lower insertion holes 14d of the side plates 14, respectively. Here, three upper insertion holes 14c are formed at different positions in each of the side plates 14, and the slope angle (curve angle) of the first slope 11 can be adjusted by switching the hole to which each of the upper insert portions 11b of the first slope 11 is to be inserted among the three upper insertion holes 14c.

**[0014]** Next, the flap 16 shown in FIG. 3C is attached to the first slope 11. Here, the upper end portion 11a of the first slope 11 is bent toward the back plate 15 and the insert portions 16a at the lower end of the flap 16 are respectively inserted into the insertion holes 11d of the first slope 11. At the same time, in a state where the convex portions 16d at the lower end of both sides of the flap 16 being exposed at the front side of the first slope 11, the insert portion 16c of the convex portion 16d side end is inserted in the upper insertion hole 14c of the side

plate 14 to which the upper insert portion 11b of the first slope 11 is inserted. In such way, the insert portions 16c of the convex portions 16d side ends of the flap 16 is fixed to the side plates 14, and the flap 16 are elastically biased towards the front side of the first slope 11 by the entire flap 16 including the insert portions 16c and the convex portions 16d being formed integrally. Further, the upper end portion 16b of the flap 16 is bent towards the back plate 15. This bent upper end portion 16b functions as a rib and is for inhibiting deformation (warping) of the flap 16. However, the flap 16 can be reinforced by simply thickening the flap 16 and not bending the upper end portion 16b of the flap 16.

**[0015]** Next, the second slope 12 shown in FIG. 3D is attached to the back plate 15. Here, the upper end portion 15a of the back plate 15 is bent towards the first slope 11 and the upper end portion 12a of the second slope 12 is also bent. Further, the insert portions 12b of the upper end portion 12a are respectively inserted in the insertion holes 15d of the back plate 15.

**[0016]** In such way, the assembling of the jump ramp 1 is completed.

**[0017]** Next, the jumping movement of a toy car using the jump ramp 1 will be described. Here, the jumping movement of the toy car C when a toy car C in which the center of gravity positions at a back part of the car is used will be described.

**[0018]** FIGS. 4A to 4C are diagrams for explaining the jumping movement of the toy car C using the jump ramp 1.

**[0019]** First, as shown in FIG. 4A, when the toy car is made to run towards the first slope 11, the toy car C climbs the first slope 11 and reaches the flap 16 at the tip portion of the first slope 11. At this time, the front wheels of the toy car C contact the flap 16 first, however, the flap 16 hardly tilts because the center of gravity of the toy car C positions at back of the car.

**[0020]** Moreover, as shown in FIG. 4B, when the back wheels of the toy car C contact the flap 16, the flap 16 tilts toward the back (frontward) of the first slope 11 by the weight of the toy car C. Thereby, the toy car C flies out toward upper direction along the first slope 11 and the flap 16, however, the back wheel side of the toy car C flies out more frontward than the front wheel side of the toy car C due to the tilting of the flap 16. As a result, the toy car C turns centering around the center of gravity thereof in the air while flying so that the center of gravity thereof forms a parabola. Therefore, the toy car C makes a backward half turn and the front wheels thereof face downward.

**[0021]** Then, as shown in FIG. 4C, the toy car C lands on the second slope 12 while the impact of landing is absorbed by the elastic deformation of the second slope 12 in the up-down direction, and the toy car C continues to run along the second slope 12.

**[0022]** According to the above jump ramp 1, the toy car C can make a turn in the air by the flap 16 which is provided at the tip portion of the first slope 11. In particular, because the flap 16 tilts just before the toy car C flies, the toy car C flies out in the air loosing its balance and turns centering around the center of gravity thereof in the air. In such way, a player can have fun watching the way the toy car C flies where the toy car C makes a turn by the flap 16. Therefore, the player can have more fun comparing to the conventional way where the toy car flies into the air while the toy car is simply in a state of running.

**[0023]** Further, because the flap 16 is biased toward the front side of the first slope 11, the wheels of the toy car C contact the flap 16 preferably while making the flap 16 tilt. Therefore, the toy car C can be made to fly preferably by effectively using the grip of the wheels of the toy car C.

**[0024]** Moreover, the slope angle of the first slope 11 is adjustable, and further, the attachment angle of the flap 16 with respect to the first slope 11 is adjustable. Therefore, the slope angel of the first slope 11 and/or the attachment angle of the flap 16 can be changed arbitrarily according to the speed and the position of the center of gravity of the toy car C so that the toy car C flies in a preferable turning manner.

**[0025]** Furthermore, the upper end portion 11a of the first slope 11 is bent toward the back plate 15 and the upper end portion 15a of the back plate 15 is bent toward the first slope 11. Therefore, the toy car C can be prevented from falling in between the first slope 11 and the back plate 15.

**[0026]** Here, the above described embodiment does not limit the present invention in any way and it is needless to say that the present invention can be changed and modified arbitrarily.

**[0027]** For example, as shown in FIG. 5, a bar 17 which can be used for competing how high the toy car C flies can be arranged above the second slope 12. In the example of FIG. 5, two bar supports 18 in which a plurality of bar attaching sections 18a of different heights are formed are respectively arranged at the sides of the side plates 14 to support the bar 17. As shown in FIG. 6, similarly to the other parts of the jump ramp 1, the bar supports 18 can be easily assembled by bending a flat bendable member (for example, a thick paper or the like). In particular, each of the bar supports 18 can be assembled by bending the two bottom portions 18b at a right angle along their longitudinal direction so as to overlap each other, wherein the two bottom portions 18b are bent at a right angle along their width direction.

**[0028]** Moreover, the toy car C in which the center of gravity positions at its back is used. However, the position of the center of gravity of the toy car C is not specifically limited.

**[0029]** According to a first aspect of the preferred embodiment of the present invention, there is provided a jump ramp for a toy car including a slope which slants obliquely upward, and the toy car which is running is made to fly upward along the slope and a tilting portion which is tiltable toward a back side of the slope is provided at a tip portion of the slope.

**[0030]** Preferably, the tilting portion is tiltable toward the back side of the slope by a weight of the toy cay which is running.

**[0031]** Preferably, the tilting portion is biased towards a front side of the slope.

**[0032]** Preferably, the tilting portion is detachable from the slope.

**[0033]** Preferably, an angle of the tilting portion with respect to the slope in a normal state is adjustable.

**[0034]** Preferably, a slope angle of the slope is adjustable.

**[0035]** Preferably, the jump ramp further includes a second slope where the toy car which flies from the slope lands.

**[0036]** According to the preferred embodiment of the present invention, the tilting portion which is tiltable toward the back side of the slope is provided at the tip portion of the slope which makes the running toy car fly. Therefore, the toy car which flies out from the slope can be made to make a turn in the air by the tilting portion and a player can have fun watching the way the toy car C flies where the toy car C makes a turn by the tilting portion. Thus, the player can have more fun comparing to the conventional way where the toy car flies into the air while the toy car is simply in a state of running.

**[0037]** Although various exemplary embodiments have been shown and described, the invention is not limited to the embodiments shown. Therefore, the scope of the invention is intended to be limited solely by the scope of the claims that follow.

## Claims

**1.** A jump ramp for a toy car, comprising:

a slope which slants obliquely upwardly,
wherein
the toy car which is running is made to fly upwardly along the slope, and
a tilting portion which is tiltable toward a rear or back side of the slope is provided at a tip portion of the slope.

**2.** A jump ramp for the toy car as claimed in claim 1, wherein the tilting portion is tiltable toward the rear or back side of the slope by a weight of the toy cay which is running.

**3.** A jump ramp for the toy car as claimed in claim 1 or 2, wherein the tilting portion is biased towards a front side of the slope.

**4.** A jump ramp for the toy car as claimed in any one of claims 1 to 3, wherein the tilting portion is detachable from the slope.

**5.** A jump ramp for the toy car as claimed in any one of claims 1 to 4, wherein an angle of the tilting portion with respect to the slope in a normal state is adjustable.

**6.** A jump ramp for the toy car as claimed in any one of claims 1 to 5, wherein a slope angle of the slope is adjustable.

**7.** A jump ramp for the toy car as claimed in any one of claims 1 to 6, further comprising a second slope where the toy car which flies from the slope lands.

FIG.1

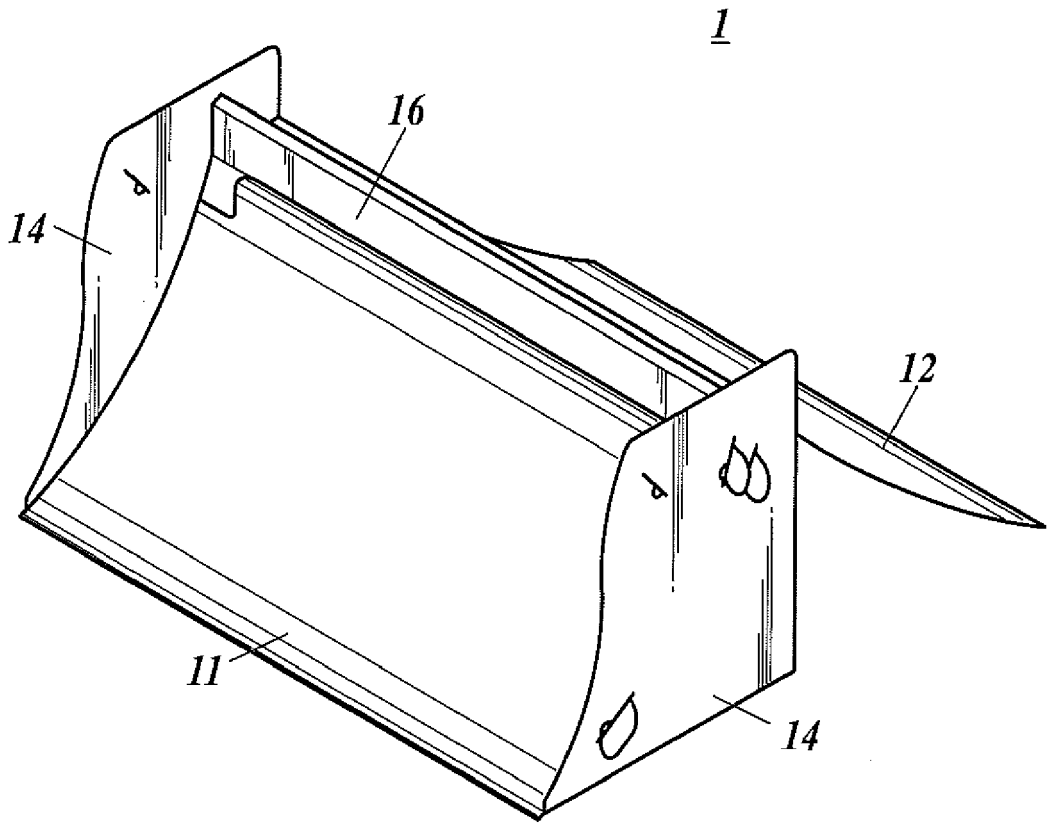


FIG.2

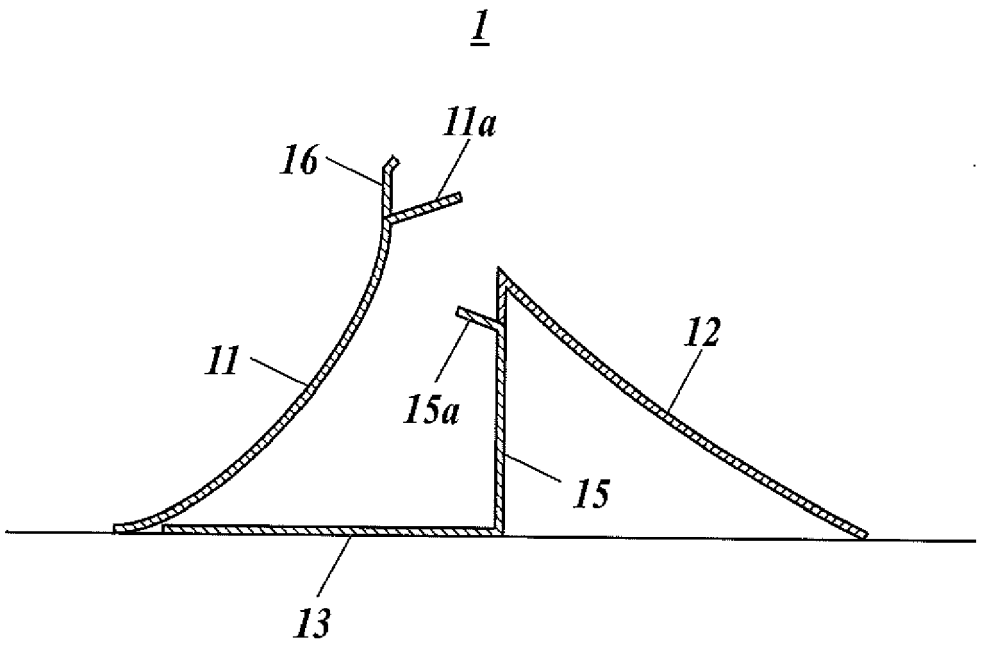


FIG.3A

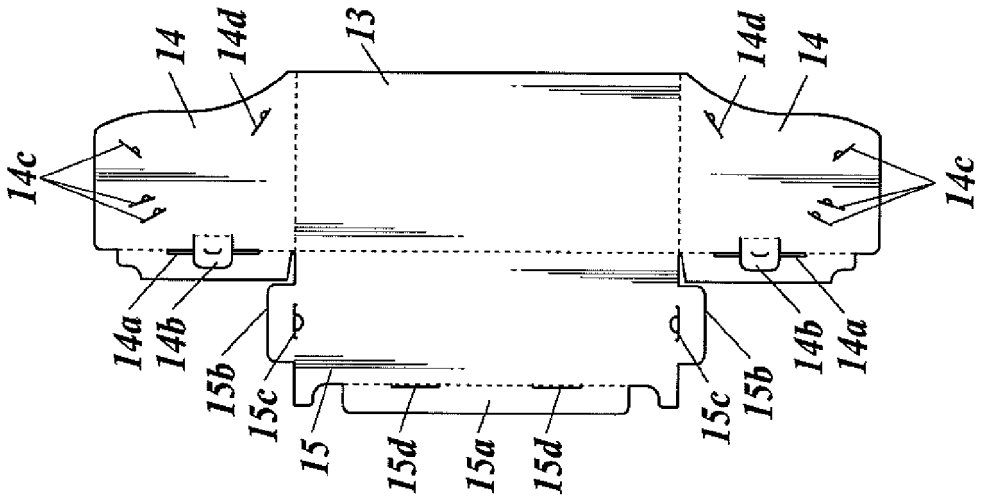



FIG.3B

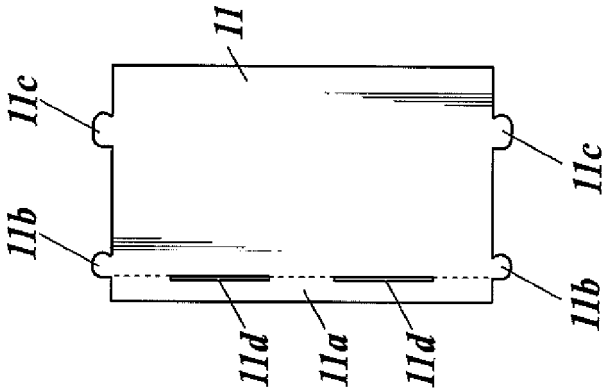



FIG.3C

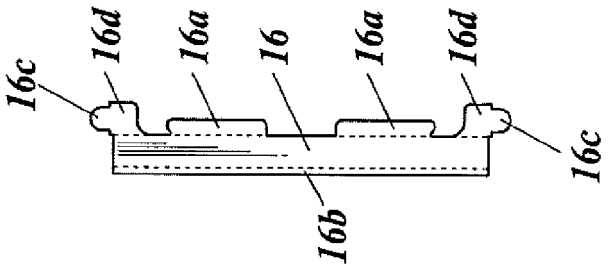



FIG.3D

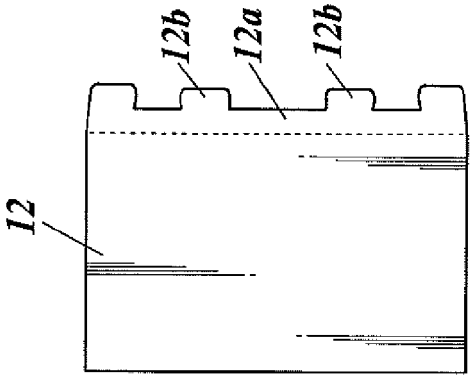


FIG.4A

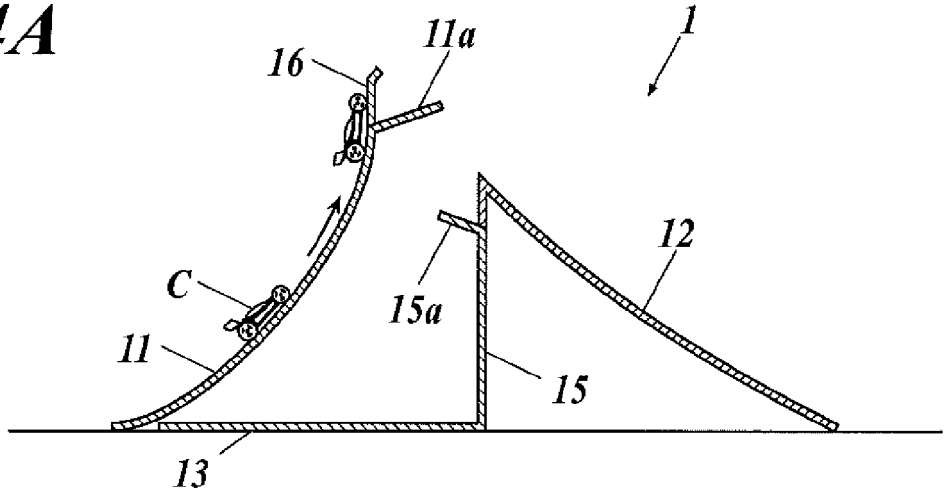



FIG.4B

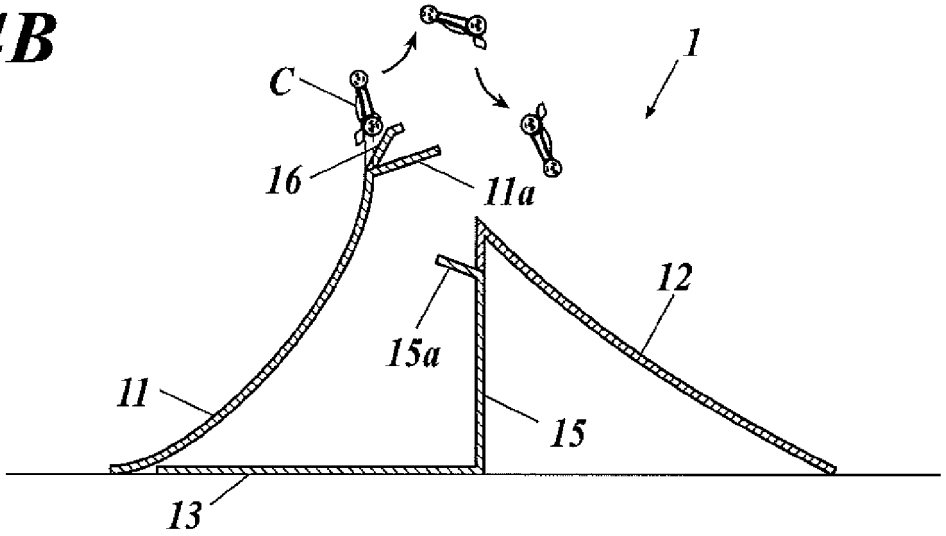



FIG.4C

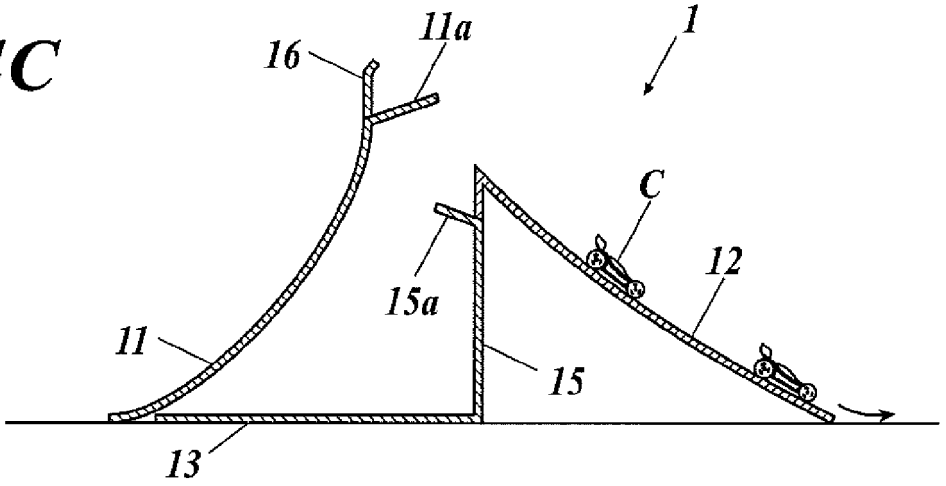


FIG.5

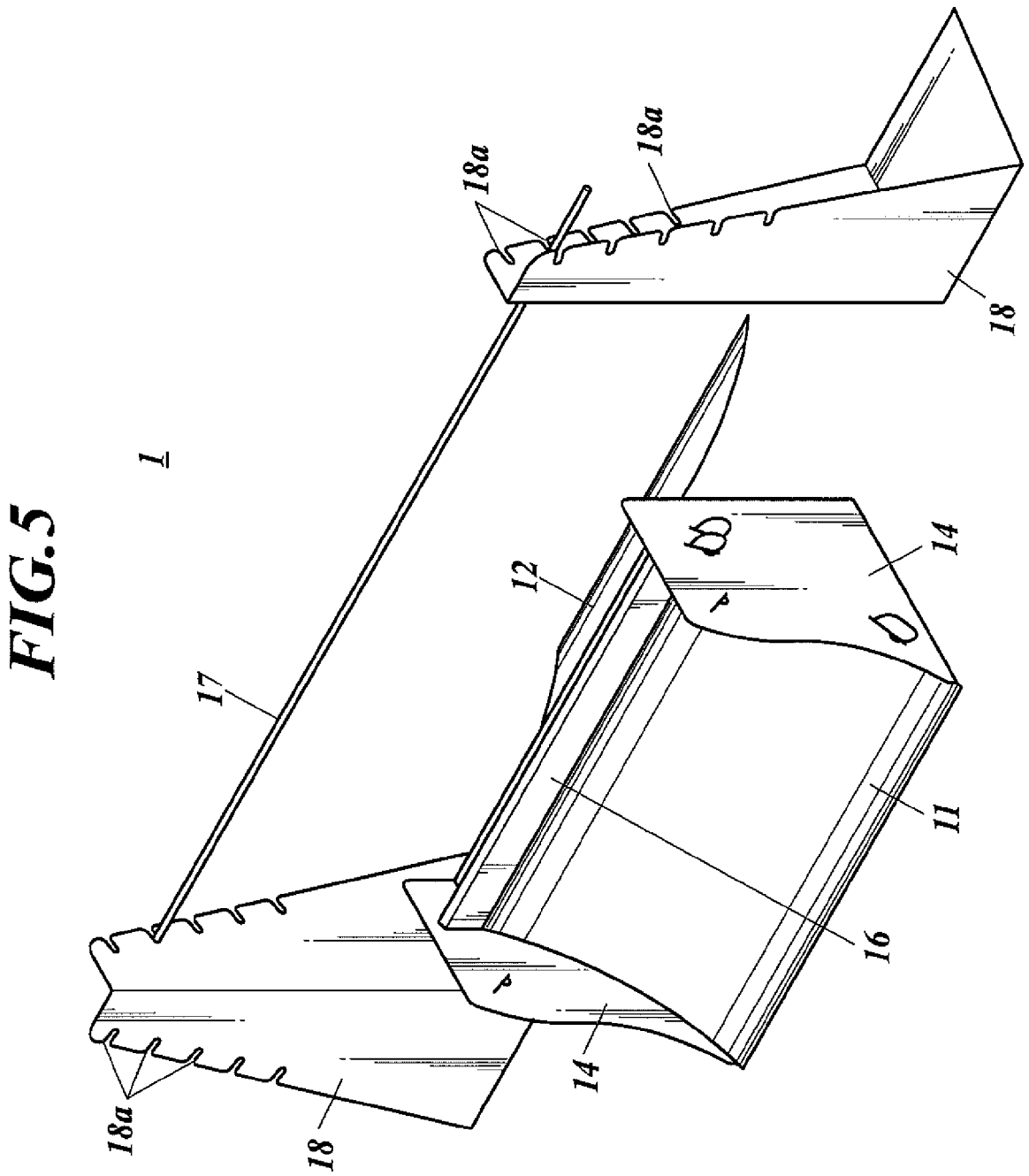
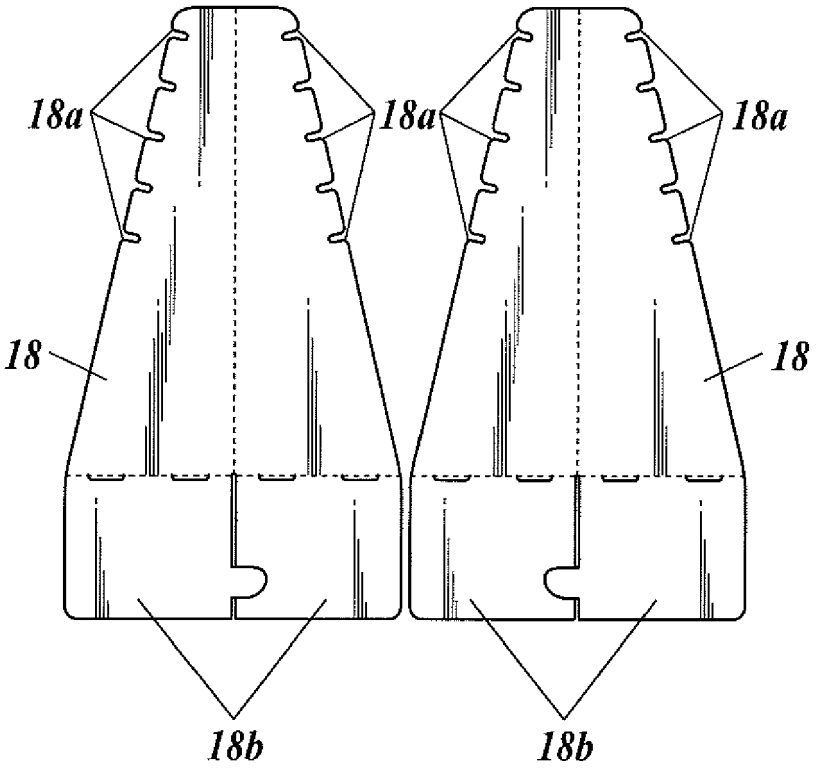


FIG. 6



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# EUROPEAN SEARCH REPORT

Application Number
EP 11 17 3805

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| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
|---|---|---|---|
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| A | EP 0 085 301 A1 (DARDA HELMUT SPIELWAREN [DE]) 10 August 1983 (1983-08-10) * page 7, line 16 - page 8, line 10; figure 2 * | 1-7 | |
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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| Munich | 18 October 2011 | Lucas, Peter |

CATEGORY OF CITED DOCUMENTS

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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 17 3805

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