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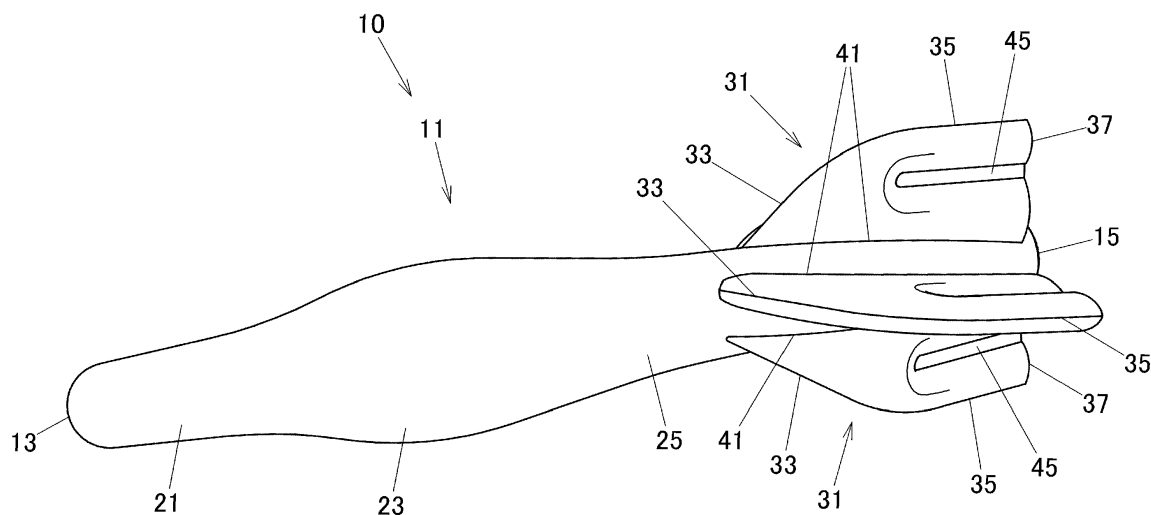
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(54) **FLYING TOY**

(57) A vinyl hollow flying toy having a rocket shape includes a main body portion including a front body portion at a front end portion and narrowed diametrically, a middle body portion at a middle portion and having a maximum diameter, and a rear body portion at a rear end portion and having fins, which are each made up of a fin member, and in the flying toy, the fins are inflated with

air as with the main body portion to maintain a shape of a rocket type flying object with fins, the fin members constituting the fins are formed to be attached while being twisted in one direction relative to an axis of the main body portion of the flying toy, and an air injection nozzle is provided on the main body portion.

FIG.1



Description

[0001] The present invention relates to a vinyl toy that is inflated into a rocket shape with air to be played with by being thrown.

[0002] Conventionally, there have been provided a number of variously shaped toys that are played with by being thrown, and some of them are formed into a shape copied from an airplane or into a rocket-like shape.

[0003] In the toys that are played with by children by throwing them to fly, there has been a balloon toy formed into a flying object having a cylindrical main body portion and a plurality of fins provided on the main body portion and made of a plastic film to secure the safety of a person, should the person be hit by the thrown flying object (for example, Japanese Patent Laid-Open No. 9-56934).

[0004] This flying object is made up of a cylindrical rod-shaped balloon having a diameter of on the order of 10 cm and a length of 1 m to 2 m. When it is stowed, air is drawn out from the balloon flying object, whereby the balloon can be folded up. The fins are each formed as a plate-like fin member which is made up of two superposed plastic films. In this balloon flying object, four fin members are provided. Then, these fin members are connected together at base portions thereof by an annular fin member base portion. This annular fin member base portion and the four plate-like fin members are formed integrally by a plastic film, so that the fins are fixed to a main body portion of the flying object by the annular fin member base portion when air is injected into the main body portion to inflate the main body portion into a cylindrical body.

[0005] The balloon flying object having the length of 1 m or longer is suitable for playing outside, but the balloon flying object having such a length has a drawback that it is too big to play with inside a room.

[0006] In addition, when attempting to inflate the balloon toy to play with, some labor hours need to be taken to inflate the main body portion of the toy from a folded state for stowage, leading a drawback that preparations for play become troublesome.

[0007] An object of the present invention is to provide a flying toy which can solve the problems described above, can be played with easily and safely whether inside or outside, and can be folded into a small size for stowage, for example, when it is not used.

[0008] According to an aspect of the present invention, there is provided a vinyl hollow flying toy having a shape copied from a rocket, including a main body portion including, in turn, a front body portion provided at a front end portion and narrowed in diameter, a middle body portion provided at a middle portion and having a maximum diameter, and a rear body portion provided at a rear end portion and having a plurality of fins provided thereon, the plurality of fins each being made up of a fin member, and in this vinyl hollow flying toy, the fins are inflated with air as the main body portion is inflated with air to maintain a shape of a rocket type flying object with fins,

the fin members constituting the fins are formed to be attached to the rear body portion in such a manner as to be twisted in one direction with respect to a center axis of the main body portion of the flying toy, and an air injection nozzle is provided on the main body portion.

[0009] The flying toy preferably has an overall length of more than 10 cm to several tens of centimeters.

[0010] The flying toy may be configured as follows. The fin members constituting the fins are each formed into a bag formed by connecting two front and rear sheets together at a front edge portion, an outer edge portion, and a rear edge portion and are fixedly connected to the main body portion at connecting portions each extending from the front edge portion to the rear edge portion, interiors of the fin members and an interior of the main body portion are caused to communicate with each other, so that air in the interior of the main body portion is injected into the interiors of the fin members and air in the interiors of the fin members is discharged into the interior of the main body portion, and the fin members each have a linear bonded portion where the two front and rear sheets are pressure bonded together.

[0011] The flying toy may be configured as follows. In the main body portion, the front body portion is thinner than the middle body portion, the middle body portion is increased gradually in diameter from the front body portion to become thicker curvilinearly in diameter and is slightly reduced in diameter near a rear end thereof to connect continuously to the rear body portion, and the rear body portion is narrowed in diameter gradually and rectilinearly to reach a rear end portion, and the fins are provided on the rear body portion.

[0012] The flying toy may be configured as follows. In the flying toy having the shape of the rocket type flying object, a center of gravity of a whole of the flying toy is positioned near a center position of the main body portion in relation to a front-rear direction thereof or is positioned further forwards than the center position.

[0013] The flying toy according to the present invention is formed into the rocket shape having the fins at the rear body portion, and the fins are attached to the main body portion while being twisted. Thus, when in flight with the fins constituting a trailing portion of the main body portion, the main body portion is rotated around the longitudinal center axis of the main body portion by the fins, whereby the flying toy is enabled to fly far in a stabilized posture by the rotation of the main body portion and the advantageous effect of the fins.

[0014] In addition, in the flying toy, the main body portion and the fin members constituting the fins are formed into the vinyl bag which can be inflated with air. Thus, the flying toy can be prepared for play only by injecting air from the air injection nozzle, whereas the flying toy can be folded up into a reduced size for stowage by drawing out the air therefrom. When in use, even though the flying toy hits an object or a person, it is difficult for the flying toy to be broken, and the flying toy is least likely to damage or injure the thing or the person it hits. Conse-

quently, with the flying toy, players can enjoy playing with by throwing the flying toy to fly far safely and easily.

[0015] Then, the flying toy preferably has the overall length of more than 10 cm to several tens of centimeters, whereby a player can enjoy playing with the flying toy by throwing the toy whether inside or outside. When in no use, the flying toy can be folded into a small size by drawing out the air from the interior thereof for stowage, transport, carriage, or storage.

[0016] Additionally, the fin members constituting the fins are each formed into the bag by connecting the two front and rear sheets together along the circumferential edge thereof, and the interiors of the fin members so formed are caused to communicate with the interior of the main body portion of the flying toy. Then, when air is injected into the main body portion to inflate the main body portion, the fins are also inflated with the air, whereby the flying toy can be formed into the predetermined shape. Then, since the linear bonded portions are provided to extend from the rear edge portions of the fin members towards the front, an air drag at the time of flight can be prevented from being increased too high, which would otherwise be the case as a result of the fin members constituting the fins being inflated thick.

[0017] Further, the air drag that the flying toy generates when in flight can be reduced, allowing the flying toy to fly over a long flying distance by the shape of the main body portion in which the front body portion is narrowed in diameter, the middle body portion is widened to become the thickest, and the rear body portion is gradually narrowed in diameter towards the rear. Thus, the player can enjoy playing with the flying toy by throwing the toy to fly far.

[0018] Then, the center of gravity of the rocket-type vinyl flying toy with the fins provided at the rear is positioned near the center position of the main body portion in relation to the front-rear direction thereof or is positioned further forwards than the center position. This enables the light flying toy made of the vinyl sheet to fly in a stabilized posture.

[0019] An example of a flying toy in accordance with the present invention will now be described with reference to the accompanying drawings, in which:

FIG. 1 is a side view showing an embodiment of a flying toy according to the present invention; and
FIG. 2 is a rear view showing the embodiment of the flying toy according to the present invention.

[0020] As shown in FIG. 1, a flying toy according to an embodiment of the present invention is a rocket-shaped vinyl flying toy 10 with fins 31 including a main body portion 11 including, in turn, a nose portion 13, a front body portion 21 situated near the nose portion 13, a middle body portion 23 situated in the middle of the main body portion 11, and a rear body portion 25 situated at the rear of the middle body portion 23. The front body portion 21 is formed into a cylindrical shape which is narrower in

diameter than the middle body portion 23 and the rear body portion 25. The fins 31 are provided at the rear body portion 25.

[0021] The main body portion 11 and the fins 31 are inflated with air and are formed of a vinyl sheet of a thickness of on the order of 0.2 mm. The main body portion 11 has an overall length of substantially more than 10 cm to 70 cm, and a maximum diameter portion of the middle body portion 23 has a diameter of substantially 2 to 3 cm to 7 to 10 cm. Additionally, the fins 31 each have a length of substantially one fourth to one fifth of the overall length of the main body portion 11 and a thickness of substantially 5 mm to 15 mm.

[0022] Then, substantially one fourth of the main body portion 11 situated closer to the nose portion 13 is allocated to the front body portion 21, and this front body portion 21 is formed into a thin cylindrical shape of a diameter of substantially one half of the maximum diameter of the main body portion 11. The nose portion 13 has a substantially spherical shape. The middle body portion 23 continues from the front body portion 21 and extends substantially to a center of the main body portion 11. A diameter of the middle body portion 23 is changed in such a manner as to change the shape of the middle body portion 23 curvilinearly by gradually increasing the diameter of the middle body portion 23 from the front body portion 21, while the diameter is slightly reduced near a rear end of the middle body portion 23. Further, the rear body portion 25 that continues from the middle body portion 23 is narrowed in diameter gradually and rectilinearly to a rear end of the main body portion 11 in such a manner that a diameter of a rear end portion 15 becomes almost the same as or slightly greater than a diameter of the nose portion 13.

[0023] As shown in FIG. 2, an air injection nozzle 51, which is configured to inject air into interiors of the main body portion 11 and the fins 31, is provided at the rear end portion 15.

[0024] Then, in this embodiment, four fins 31, which are made up of fin members of the same shape, are formed on the main body portion 11 at a portion near a rear end of the rear body portion 25 in such a manner as to be disposed at equal intervals around a circumference of the rear body portion 25. The fin members constituting the fins 31 are each formed into a bag by use of two vinyl sheets, so that air can be injected into the fin members via the main body portion 11 as air is injected into the main body portion 11.

[0025] The fin 31 has a front edge portion 33 which extends obliquely rearwards and outwards from front ends of connecting portions 41 where the fin 31 is connected to the main body portion 11, an outer edge portion 35 which extends rearwards from an outer end of the front edge portion 33, and a rear edge portion 37 which connects a rear end of the outer edge portion 35 with rear ends of the connecting portions 41. Then, the two vinyl sheets are connected together along the front edge portion 33, the outer edge portion 35, and the rear edge

portion 37. Further, the two vinyl sheets are connected to the main body portion 11 at the connecting portions 41 in such a manner that an interior of the main body portion 11 communicates with an interior of the fin member constituting the fin 31 through a portion defined between the connecting portions 41 where the two vinyl sheets are connected to the main body portion 11. This enables air in the interior of the main body portion 11 to flow into the interior of the fin member and air in the interior of the fin member to flow into the interior of the main body portion 11.

[0026] Then, the fin members each include a linear bonded portion 45 where the two front and rear vinyl sheets are bonded together through heat sealing from a middle position of the rear edge portion 37 to a position lying near the front edge portion 33 in substantially parallel to the outer edge portion 35 and the connecting portions 41. Thus, a middle portion of the fin member is prevented from being inflated thick as a thickness of the fin member when the fin member is inflated with air flowing thereinto from the main body portion 11, whereby the fin member constituting the fin 31 can be kept holding a plate-like shape as a whole.

[0027] In each of the fins 31, the fin member is attached integrally to the main body portion 11 in such a manner as to be inclined or twisted at an angle of substantially 15 degrees to 20 degrees with respect to a longitudinal axis of the rear body portion 25 so that the front edge portion 33 and the rear edge portion 37 are offset from each other in one direction with respect to the direction of a longitudinal center axis of the main body portion 11.

[0028] Consequently, the flying toy 10 flies with the main body portion 11 rotating around the longitudinal center axis of the main body portion 11 as a result of the fins 31 being twisted in the one direction when the flying toy 10 is thrown.

[0029] The air injection nozzle 51 provided at the rear end portion 15 includes a check valve and is normally retracted into the interior of the main body portion 11 at the rear end portion 15. The air injection nozzle 51 includes a cap. When preparing the flying toy 10 for use, the air injection nozzle 51 at the rear end portion 15 is pulled out from the interior of the main body portion, and with the cap removed, air is injected into the interiors of the main body portion 11 and the fins 31 through the air injection nozzle 51, whereby the flying toy 10 can be inflated for use. On the contrary, when preparing the flying toy 10, for example, for stowage, the cap is removed from the air injection nozzle 51, and the check valve is collapsed to be opened by being pressed laterally horizontally so that air in the interiors of the main body portions 11 and the like can be discharged to the outside.

[0030] In this way, the flying toy 10 is formed of the vinyl sheet with the main body portion 11 and the fins 31 kept hollow when inflated. As a result, the flying toy 10 can be folded into a small size by discharging the air inside to facilitate stowage or storage and transport or carriage. On the contrary, the flying toy 10 can be inflated

with air injected into the interior thereof, whereby the fin members constituting the fins 31 are inflated to the predetermined thickness and the rocket-shaped main body portion 11 with the fins 31 can easily be inflated to the predetermined shape and size.

[0031] As a result, the flying toy 10 can be inflated easily and quickly to such an extent that the main body portion 11 has a maximum diameter of substantially several centimeters and an overall length of substantially more than 10 cm or a maximum diameter of 10 cm or smaller and an overall length of substantially several tens of centimeters only by injecting air from the air injection nozzle 51, whereby the player can play by throwing the inflated flying toy 10.

[0032] Then, in playing with this flying toy 10, when the flying toy 10 is thrown, the flying toy 10 flies with the main body portion 11 rotating due to the fins 31 which are provided on the main body portion 11 in such a manner as to be twisted with respect to the center axis of the main body portion 11. In this way, for play, the flying toy 10 can fly far while maintain the stable flying posture as a result of the shape of the main body portion 11 in which the front body portion 21 is formed narrower in diameter than the middle body portion 23 and the rear body portion 25, the action of the fins 31, and the stabilization of the center axis due to the rotation of the toy.

[0033] Additionally, since the flying toy 10 is formed to have the overall length of more than 10 cm to several tens of centimeters, the player can play with the flying toy 10 by throwing it whether inside or outside. Further, the player can enjoy playing with the flying toy 10 by inflating the flying toy 10 into the rocket-type toy having the predetermined shape anywhere through injection of air thereinto.

[0034] Furthermore, in this flying toy 10, the main body portion 11 and the fins 31 are made of the thin vinyl sheets and are inflated with air to keep their shapes. As a result, even though the flying toy 10 hits a person or an object, there is no risk of the flying toy 10 being broken, and the person or the object that the flying toy 10 hits is least likely to be injured or damaged.

[0035] That is, in the case where the flying toy 10 is formed to be inflated to such an extent that the main body portion 11 has an overall length of more than 10 cm or substantially 12 to 13 cm to 20 cm and the middle body portion 23 has a maximum diameter of substantially 2 to 3 cm, the flying toy 10 can be gripped on by the fingers to be thrown, whereby the player can play with the flying toy 10 inside such as within a room in a general house. For example, the player can use the flying toy 10 as a dart and enjoy playing the game of darts. Additionally, in the case where the flying toy 10 is formed to be inflated to such an extent that the main body portion 11 has an overall length of several tens of centimeters or substantially 50 to 70 cm and the middle body portion 23 has a maximum diameter of substantially 7 to 10 cm, the flying toy 10 can be gripped on by the hand to be thrown, whereby the player can play with the flying toy 10 inside such

as within a wide room in a general house or outside. For example, two players can enjoy playing with the flying toy 10 in such a way that one player throws the flying toy 10 in the air and the other player catches the thrown flying toy 10.

[0036] Additionally, in the case where the flying toy 10 is formed to be inflated to such an extent that the main body portion 11 has the overall length of more than 10 cm or substantially 12 to 13 cm to 20 cm, the flying toy 10 can be folded into such a small size as, for example, to be put in a pocket by drawing out the air in the interior of the main body portion 11 therefrom, so that the flying toy 10 can be carried, transported or held extremely easily. Even in the case where the flying toy 10 is formed to be inflated to such an extent that the main body portion 11 has the overall length of several tens of centimeters or 50 to 70 cm, the flying toy 10 can be folded into such a small size as to be put in a pocket or a bag in the same way, so that the flying toy 10 can be carried, transported or held easily.

[0037] The overall length of the main body portion 11 or the flying toy 10 is not limited to the overall length of 12 to 13 cm to 20 cm which constitutes a small-sized flying object suitable mainly for the play inside and the overall length of 50 to 70 cm which constitutes a middle-sized flying object suitable mainly for the play outside on many occasions. However, the overall length of the flying toy 10 can be changed as required so that the flying toy 10 can be sized to any size between the overall length of substantially more than 10 cm to the overall length of substantially several tens of centimeters or 50 to 70 cm.

[0038] Then, in the embodiment described above, although the air injection nozzle 51 is provided at the rear end portion 15 of the flying toy 10, the position where to provide the air injection nozzle 51 is not limited to the rear end portion 15. Thus, there may be a case where the air injection nozzle 51 is provided at an appropriate location on the main body portion 11 such as the nose portion 13.

[0039] The number of fins 31 is not limited to four. Thus, an appropriate number of two or more fins 31 only need to be disposed at equal intervals around the circumferential edge of the rear end portion 15, so that the rear of the flying toy 10 can be stabilized to maintain a stable posture while the flying toy 10 is being rotated.

[0040] The number of linear bonded portions 45 on each fin member is not limited to one. A plurality of linear bonded portions 45 may be provided parallel to the outer edge portion 35, and even in the case where each fin member has a wide area, the thickness of the fin member can easily be maintained thin by forming the plurality of linear bonded portions 45 in parallel to each other.

[0041] Then, the flying toy 10 has the center of gravity positioned substantially at the longitudinal center of the main body portion 11 for stable flight.

[0042] That is, in the case where the main body portion 11 and the fins 31 are formed of a vinyl sheet of the same thickness, since the front body portion 21 is narrowed in

diameter and the plurality of fin members as the fins 31 are provided at the rear of the main body portion 11, the center of gravity of the flying toy 10 tends to be positioned further rearwards than the center of the main body portion. Then, when the flying toy 10 having the center of gravity so positioned is thrown to fly, the inertial force generated as a result of the flying toy 10 being thrown becomes great at the rear of the flying toy 10, whereby the posture of the flying toy 10 in flight is caused to be unstable from time to time.

[0043] Due to this, the center of gravity of the flying toy 10 is positioned substantially at the longitudinal center of the main body portion 11. The position of the center of gravity can be controlled by controlling the distribution of thickness over the vinyl sheet by increasing the thickness of a portion of the vinyl sheet that corresponds to the front body portion 21 of the main body portion 11.

[0044] In addition to the control based on the distribution of thickness over the vinyl sheet, a small circular vinyl sheet is additionally affixed to the nose portion 13 so that the nose portion 13 is made up of double layers of vinyl sheet. Alternatively, a circumferential portion of a small circular vinyl sheet may be fused to the nose portion 13 of the main body portion 11 so as to define a sealed space, so that a small amount of iron sand is sealed in the sealed space to control the center of gravity of the flying toy 10.

[0045] As another means for controlling the center of gravity of the flying toy 10, a resin string such as a nylon string passing through the center axis of the main body portion 11 may be incorporated in the front body portion 21 or the middle body portion 23 in such a manner as to be stretched when the main body portion 11 is inflated into the cylindrical shape, so that a small metallic weight is attached to the resin string to control the position of the center of gravity of the whole of the flying toy 10.

[0046] With iron sand sealed in the nose portion 13 in this way, the center of gravity can easily be shifted to the front, and with power-like substance such as iron sand used, even in the event that the flying toy 10 hits an object, impact which is generated then can be made small.

[0047] With a metallic weight incorporated in the interiors of the front body portion 21 or the middle body portion 23, the position of the center of gravity of the flying toy 10 can be controlled by the small weight extremely easily. Additionally, since the metallic weight is accommodated in the interior of the vinyl sheet inflated with air, even in the event that the flying toy 10 hits an object, the flying toy 10 is allowed to fall down safely by the cushioning action of the inflated vinyl sheet.

[0048] Then, the position of the center of gravity of the flying toy 10 only needs to be situated on the longitudinal center axis of the main body portion 11 and hence is not limited to the location lying near the longitudinal center of the main body portion 11. There may be situations where the center of gravity of the flying toy 10 is positioned further forwards than the longitudinally central position. Thus, with the center of gravity positioned slightly

further rearwards than the longitudinal center of the main body portion 11 near the longitudinal center, the flying toy 10 can fly in such a posture that the nose portion 13 is slightly lifted up, whereas with the center of gravity positioned further forwards than the longitudinal center, the flying toy 10 can fly in such a posture that the flying toy 10 is thrust into the air head-on from the nose portion 13.

[0049] Additionally, the player can also enjoy an unstable flight of the flying toy 10 caused by an unstable flight posture without controlling the position of the center of gravity thereof.

Claims

1. A vinyl hollow flying toy having a shape copied from a rocket, comprising:

a main body portion comprising, in turn, a front body portion provided at a front end portion and narrowed in diameter, a middle body portion provided at a middle portion and having a maximum diameter, and a rear body portion provided at a rear end portion and having a plurality of fins provided thereon, the plurality of fins each being made up of a fin member, wherein the fins are inflated with air as the main body portion is inflated with air to maintain a shape of a rocket type flying object with fins, wherein the fin members constituting the fins are formed to be attached to the rear body portion in such a manner as to be twisted in one direction with respect to a center axis of the main body portion of the flying toy, and wherein an air injection nozzle is provided on the main body portion.

2. The flying toy according to claim 1, having an overall length of more than 10 cm to several tens of centimeters.

3. The flying toy according to claim 1 or 2, wherein the fin members constituting the fins are each formed into a bag formed by connecting two front and rear sheets together at a front edge portion, an outer edge portion, and a rear edge portion and are fixedly connected to the main body portion at connecting portions each extending from the front edge portion to the rear edge portion, wherein interiors of the fin members and an interior of the main body portion are caused to communicate with each other, so that air in the interior of the main body portion is injected into the interiors of the fin members and air in the interiors of the fin members is discharged into the interior of the main body portion, and wherein the fin members each have a linear bonded

portion where the two front and rear sheets are pressure bonded together.

4. The flying toy according to any one of claims 1 to 3, wherein in the main body portion, the front body portion is thinner than the middle body portion, the middle body portion is increased gradually in diameter from the front body portion to become thicker curvilinearly in diameter and is slightly reduced in diameter near a rear end thereof to connect continuously to the rear body portion, and the rear body portion is narrowed in diameter gradually and rectilinearly to reach a rear end portion, and wherein the fins are provided on the rear body portion.

5. The flying toy according to any one of claims 1 to 4, wherein in the flying toy having the shape of the rocket type flying object, a center of gravity of a whole of the flying toy is positioned near a center position of the main body portion in relation to a front-rear direction thereof or is positioned further forwards than the center position.

FIG.1

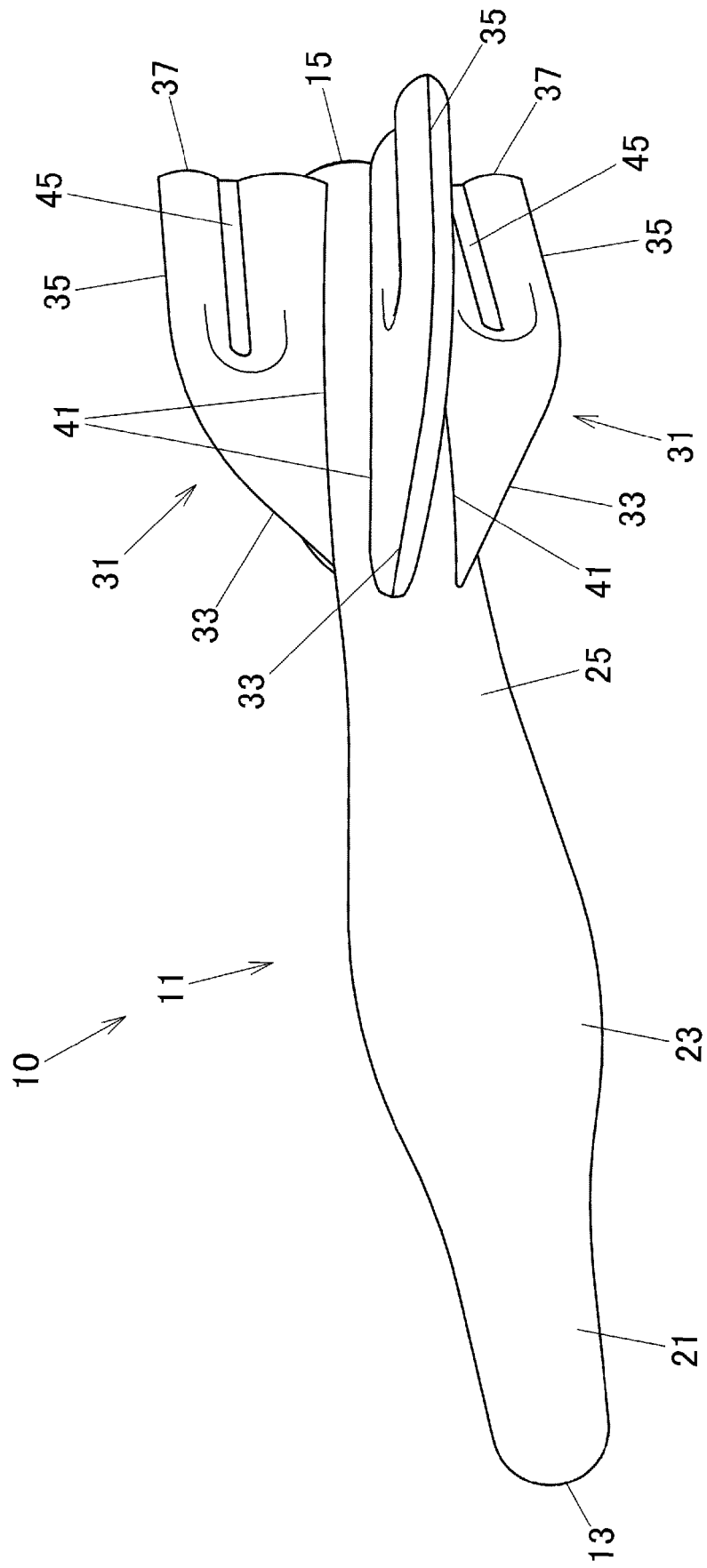
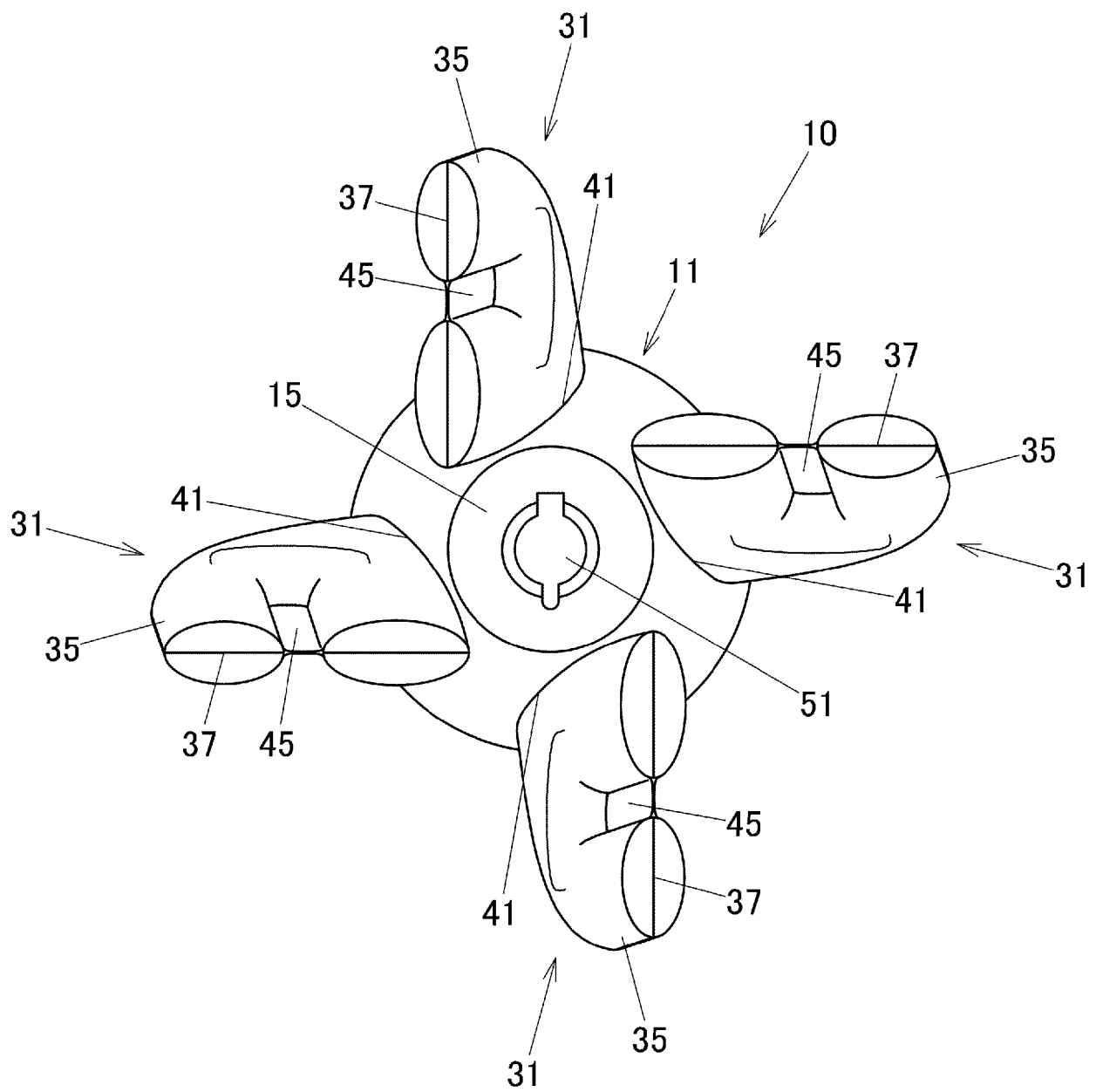


FIG.2





EUROPEAN SEARCH REPORT

Application Number
EP 19 21 1039

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* See in particular the embodiments of figures 3, 5 and 8.; paragraphs [0026], [0028], [0030], [0031], [0032], [0037]; figures *	1-5	ADD. A63H27/10
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 March 2020	Examiner Bagarry, Damien
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 21 1039

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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REFERENCES CITED IN THE DESCRIPTION

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