(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 897 733 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
24.02.1999 Bulletin 1999/08

(51) Int Cl.[6]: **A63H 23/08**, A63F 7/04

(21) Application number: **98305787.8**

(22) Date of filing: **21.07.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **22.08.1997 GB 9717940**

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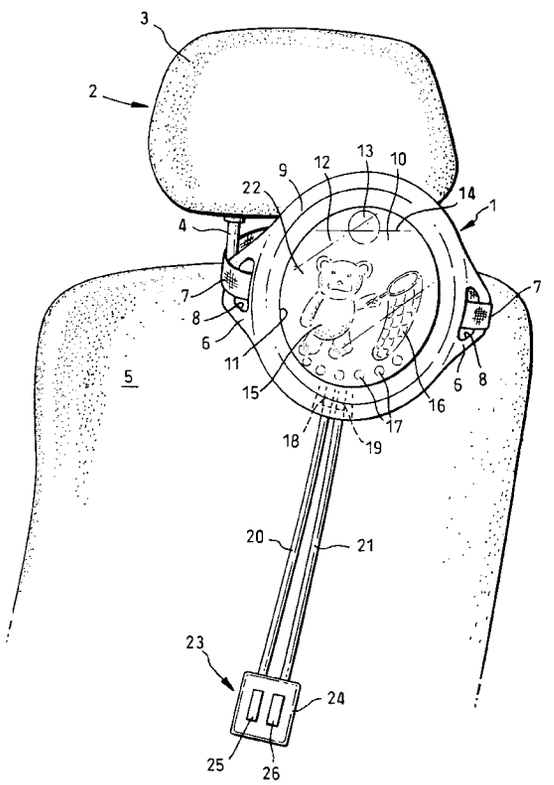
(54) Toy

(57) A toy comprising an actuable feature which responds to an actuation signal and a hand-holdable actuator (23,67) for generating the actuation signal. A flexible conduit contains a communication medium for communicating the actuation signal between the actuator and the actuable feature. Attachment means (7,77,78) attaches the housing to a support.

A toy comprising a housing defining a chamber (22) which contains a fluid in use and one or more play items (17) in the enclosure. A retainer (33) in the chamber retains the play item(s) in a home position. Means (36) are provided for generating jetting movement of the fluid in the chamber which urges the play item(s) towards the home position. A release mechanism (38) is provided for releasing the play item(s) from the home position.

Fig.1.



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Description

[0001] The present invention relates to a toy.

[0002] A conventional toy known as a water toy comprises a housing defining a chamber which contains water in use; one or more play items in the enclosure; a retainer in the chamber for retaining the play item(s) in a home position; and means for generating jetting movement of the water in the chamber which urges the play item(s) towards the home position. For instance the retainer may comprise a receptacle - the object of the game being to get all of the play items into the receptacle. Once all of the play items are in the receptacle, in order to reset the game it is necessary for a child to invert the housing so that the play items fall from the receptacle under the influence of gravity. This can result in limited enjoyment and it may also be difficult for the toy to be safely played with by a child in the rear of a vehicle.

[0003] In accordance with a first aspect of the invention there is provided a toy comprising a housing defining a chamber which contains a fluid in use; one or more play items in the enclosure; a retainer in the chamber for retaining the play item(s) in a home position; means for generating jetting movement of the fluid in the chamber which urges the play item(s) towards the home position; and a release mechanism for releasing the play item(s) from the home position.

[0004] The provision of a release mechanism makes it easier for a child to release the play item(s) in order to reset the game. The release mechanism also provides an additional feature of interest for the child. In one example the toy may be played by one child only but in an alternative example the toy may be played by two children each operating either the means for generating jetting movement or the release mechanism. This enables the two children to interact or compete using a single toy.

[0005] The fluid may comprise a gas but preferably the fluid comprises a liquid such as water.

[0006] The release mechanism is particularly useful when the toy is fixed in use (ie. when it is not possible to invert the housing to release the play item(s)). Therefore in a preferred embodiment the toy further comprises attachment means for attaching the housing to a support (which may be in the interior of a vehicle).

[0007] The retainer may comprise an electromagnet which magnetically attracts the play item(s) but in a preferred example the retainer comprises a receptacle.

[0008] The receptacle may be rigidly fixed to the housing. In this case the release mechanism typically acts directly on the play item(s) to eject them from the fixed receptacle. For instance the play item(s) may be ejected from the receptacle by the action of fluid jets. In a first alternative the receptacle is rotatably mounted to the housing; and the release mechanism comprises means for rotating the receptacle so that the play item(s) fall from the receptacle under the action of gravity. In a second alternative the receptacle has an opening, and a closure member movable between a closed position in which the play item(s) cannot pass through the opening, and an open position in which the play item(s) can pass through the opening, wherein the release mechanism comprises means for moving the closure member from its closed position to its open position.

[0009] The release mechanism may comprise a switch which turns off the electromagnetic retainer, or a mechanical device such as a ram which pivots the receptacle or the closure member. However preferably the release mechanism comprises means for generating release jetting movement of the fluid in the liquid in the chamber.

[0010] The release jetting movement may act on the receptacle or the closure member but preferably the release jetting movement acts directly on the play item(s) to eject the play item(s) from the home position.

[0011] In a preferred embodiment the means for generating jetting and/or release jetting movement comprises a hand-holdable actuator for generating an actuation signal; jetting means for generating the jetting movement in response to the actuation signal; and a flexible conduit containing a communication medium for communicating the actuating signal between the actuator and the jetting means. This is particularly advantageous where the toy is designed for use in a vehicle since the housing can then be located in a desired position remote from a child who can play with the toy using the hand-holdable actuator. For instance the toy can be attached to the back of the front seat of an automobile which is a safe position which also encourages a child playing with the toy to look up, thus reducing the risk of motion sickness.

[0012] The communication medium may comprise an electrical conductor which communicates an electrical actuating signal. However preferably the a communication medium comprises a fluid, and the actuating signal comprises a pulse in the communication fluid.

[0013] The pulse in the communication fluid may cause a slave bellows or piston/cylinder arrangement in the housing to expand and actuate an electrical switch. However preferably the communication fluid is the same fluid as the fluid in the housing, and the jetting means comprises one or more jetting apertures which provide a path for the communication fluid between the flexible conduit and the chamber.

[0014] When a child plays with a toy when travelling in a vehicle, motion sickness may occur because the child is looking down at the toy and not out of the windows of the vehicle. A further problem associated with an in-vehicle toy is that the toy can cause injury in an accident.

[0015] US-A-4223471 describes an aquarium crib toy intended to be mounted to a side wall of a crib. A bellows is expanded by pulling on a string. A problem with this arrangement is that the string must be in tension in order to expand the bellows. In addition, the string must be pulled downwards to expand the bellows. This makes

the system of US-A-4223471 unsuitable for use in a vehicle.

[0016] In accordance with a second aspect of the present invention there is provided a toy comprising an actuable feature which responds to an actuation signal; a hand-holdable actuator for generating the actuation signal; a flexible conduit containing a communication medium for communicating the actuation signal between the actuator and the actuable feature; and attachment means for attaching the housing to a support.

[0017] The second aspect of the present invention provides a toy which can be secured in a safe position in the interior of a vehicle, whilst enabling a child remote from the housing to play with the toy using the hand-holdable actuator. For instance the housing could be attached to the back of the front seat in an automobile or to a support on or under the back seat of an automobile. Where the housing is mounted at or above the eye level of a child this encourages the child to look up and reduces the chances of the child developing motion sickness.

[0018] In contrast to US-A-4223471, the flexible conduit does not need to be in tension in order to communicate the actuation signal to the feature. As a result the toy can be mounted at a wide range of distances from a child, and is also suitable for use in a vehicle since the flexible conduit can be held at any required angle.

[0019] Any suitable attachment means may be provided, but in a preferred embodiment the attachment means comprises one or more flexible attachment straps.

[0020] The communication medium may comprise an electrical conductor which communicates an electrical actuating signal. However preferably the a communication medium comprises a fluid, and the actuating signal comprises a pulse in the communication fluid.

[0021] The toy may comprise a housing defining a chamber which contains a fluid in use, wherein the actuable feature comprises means for generating jetting movement in the liquid in the chamber in response to the actuation signal. In this case the means for generating jetting movement typically comprises one or more jetting apertures which provide a fluid path between the flexible conduit and the chamber. The toy may also have a release mechanism according to the first aspect of the present invention.

[0022] In an alternative the actuable feature comprises an electric switch. The switch may operate a display device but preferably the toy further comprises a sound generator which generates a sound in response to actuation of the electric switch.

[0023] The communication fluid may be a liquid, but where the actuable feature is an electric switch the communication fluid preferably comprises air (thus reducing the chances of electric shock and enabling easy detachment of the conduit).

[0024] A single actuator may be provided. However in an alternative two or more actuators may be provided each for generating a respective actuation signal; and two or more flexible conduits each for communicating an actuation signal between a respective actuator and the or a respective actuable feature. This enables two or more children to interact with each other and with the toy.

[0025] Typically the or each conduit has a length greater than 30cm. This has been found to be a minimum length where the toy is attached to the rear of the front seat of a vehicle and the actuator is held by a child on the back seat of the vehicle. Most preferably the or each flexible conduit has a length between 30cm and 50cm.

[0026] A number of embodiments of both aspects of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a schematic view in perspective showing a toy attached in use to an automobile seat;
Figure 2 is a plan view of the lower moulding of the toy;
Figure 3 is a side view of the lower moulding;
Figure 4 is a perspective view of the lower moulding;
Figure 5 is a plan view of part of an alternative toy;
Figure 6 is a plan view of part of a further alternative toy;
Figure 7 is a schematic perspective view of an electronic toy; and
Figure 8 is a schematic perspective view of the electronic toy showing the interior of the main housing.

[0027] Referring to Figure 1, a toy 1 is shown attached to the headrest assembly 2 of a front seat in the interior of an automobile (not shown). The head rest assembly 2 comprises a headrest 3 with a pair of mountings 4 (only the left-hand mounting 4 being shown in Figure 1) which are slidably mounted in a back rest 5.

[0028] The toy 1 comprises a housing having a pair of side handles 6. An attachment strap 7 is threaded through slots 8 in the side handles and passes round the pair of mountings 4 to attach the toy 1 to the headrest assembly 2. The attachment strap 7 has a pair of free ends which are connected by a conventional connector (not shown).

[0029] The toy housing comprises an annular upper moulding 9, a transparent screen 10 sonically welded to the upper moulding 9 at 11, and a lower moulding 12, part of which can be seen in Figure 1 through the transparent screen 10. A water chamber 22 between the lower moulding 12 and the transparent screen 10 contains water which has previously been poured into the chamber via an inlet closed by a plug 13. The upper level of the water is shown at 14. The transparent screen 10 bears a graphic of a character 15 carrying a net 16. Six plastic, neutrally buoyant play items 17 are housed in the chamber. The play items 17 bear graphics representing bees.

[0030] The lower moulding 10 has a pair of cylindrical

ports 18,19 which each communicate with jetting apertures (not shown) in the water chamber 22. A pair of 42 cm long flexible hydraulic tubes 20,21 fit over the ports 18,19. The hydraulic tubes 20,21 contain water and each communicate with respective bellows (not shown) in an actuator 23. The actuator 23 comprises a housing 24 containing the bellows, and a pair of buttons 25,26 which when pressed, compress a respective bellows and cause a pulse to pass along the water in a respective tube 20,21. When the buttons 25,26 are released they are urged back into their original position by expansion of the bellows.

[0031] The lower moulding 10 is illustrated in the perspective, plan and side views of Figures 2-4. The lower moulding comprises a base 30 bounded by a wall 31 and with a water inlet 32 which is closed in use with the plug 13. A wall 33, which lies in register with the edge of the net graphic 16, forms a receptacle which defines a home position 35.

[0032] The port 18 communicates with three small jetting apertures (not shown) in wall 31 at position 36. A water pulse along tube 20 causes jets of water to be emitted from the jetting apertures at position 36. The port 19, as shown in Figure 4, is mounted lower than port 18, and communicates with a groove 37 in base 30 which passes from wall 31 to an outlet end 38 in the home position 35. In use an additional moulding (not shown) is fitted on the groove 37 and lies flush with the surface of base 30. The additional moulding has three small jetting apertures at outlet end 38. A water pulse along the tube 21 passes along a conduit defined between the groove 37 and the additional moulding and causes jets of water to be emitted from the jetting apertures at outlet end 38.

[0033] In use a child playing with toy 1 sits on the back seat of the vehicle behind the front seat shown in Figure 1 and holds the actuator 23. When the play items 17 are outside the home position 35, the child repeatedly presses button 25 which generates water jets in the position indicated at 36. This causes water in the chamber to circulate as indicated at 40 which urges the play items in the general direction of the home position 35. When all of the play items are in the home position 35 (and in the context of the game all of the bees 17 are in the net 16) the child resets the game by repeatedly pressing button 26 to generate water jets at the outlet end 38 which eject the play items 17 from the home position 35 and back into the main area of the water chamber 22 (ie. in the context of the game the bees 17 fly out of the net 16).

[0034] In an alternative embodiment (not shown) separate actuators may be provided for each tube 20,21. In this case one child can operate the tube 20 to urge play items towards the home position 35, and another child can operate tube 21 to eject play items from the home position 35.

[0035] Figures 5 and 6 illustrate the base of the lower moulding for alternative embodiments of the water toy 1 shown in Figures 1-4.

[0036] Referring to Figure 5, the fixed wall 33 is replaced by a pivoting wall 41 pivoted to base 42 at 43. Water jets 44 urge play items toward a home position 45 defined by the pivoting wall 41. A conduit 46 leads to jetting apertures which generate release jets 47 which act against the pivoting wall 41 and cause it to pivot (as indicated at 48) from the position shown in Figure 5 to a release position where the wall 41 abuts a stop 49 and the play items fall out under the influence of gravity.

[0037] Referring to Figure 6, the fixed walls 33,34 are replaced by fixed walls 50,51 and a pivoting door 52 pivoted to fixed wall 51 on a sprung hinge 53. The sprung hinge 53 biasses the door towards its closed position shown in Figure 6. Water jets 55 urge play items toward a home position 54 defined by the walls 50,51 and door 52. A conduit 56 leads to jetting apertures which generate release jets 57 which act against the pivoting door 52 and cause it to pivot (as indicated at 58) from the closed position shown in Figure 6 to an open position (not shown) where the play items fall out under the influence of gravity. When the release jets stop, the sprung hinge 53 causes the door 52 to pivot back to its closed position.

[0038] A further alternative toy is illustrated in Figures 7 and 8. The toy 60 comprises a housing 63 having air outlet ports 61,62 to which are attached flexible pneumatic tubes 64, 65. The pneumatic tubes 64,65 are connected to respective hand-holdable actuators 66,67. The ports 61,62 are in fluid communication with respective slave bellows 68,69. The actuators are formed from flexible plastic and define an air chamber which is in fluid communication with the hydraulic tubes 64,65. By compressing the actuators 66,67 (which act as master bellows) a pulse of air passes along the tubes 64,65 and causes the slave bellows 68,69 to expand and operate a respective electrical switch 70,71. The electrical switches 70,71 are mounted on a circuit board 72, to which is mounted a sound generating chip 73 which stores sampled sounds which are output by loudspeaker 74. The loudspeaker 74 outputs different sounds in response to actuation of each respective electrical switch 70,71.

[0039] The toy 60 is attached in use to a support in the interior of a vehicle with a attachment straps 75,76 which carry a conventional male fastener 77 and female fastener 78. The attachment straps can be used to attach the toy 60 to the seat lift strap on the rear seat of a vehicle, or to the base of the webbing which fixes a rear seat belt to the base of a vehicle. In this way the toy 60 is located in use between two children sat on the rear seat of a vehicle. Each child can then hold one of the actuators 66,67 and play an electronic game in which each child interacts with sounds output by the loudspeaker 74 by pressing their respective actuator. The actuators 66,67 may be joined together by clips or the like (not shown) if a single player is to use the toy.

[0040] In a first illustrative game known as "I-Spy" the

loudspeaker outputs a message to the children such as "can you spy anything yellow?". Each child looks out of the window and when they see something yellow they press their respective actuator 66 or 67. In response to either of the switches 70,71 being closed the loudspeaker outputs a message such as "well done, let's try another one now, can you spy a bird?" and so on. This game is particularly good at encouraging the children to look out of the windows of the automobile, thus reducing the risk of motion sickness.

[0041] In a second illustrative game each child has a unique noise which is output by the loudspeaker when they press their respective actuator, eg. "woof" or "quack". The loudspeaker outputs a message such as "repeat these sounds - woof, quack, woof". The children attempt to repeat the sequence of sounds by pressing their actuators in the correct order. If successful the loudspeaker outputs a message such as "well done, now try and repeat these sounds - quack, woof, woof, quack" and so on with the sequence of sounds becoming progressively longer until the children make an error.

Claims

1. A toy comprising an actuable feature which responds to an actuation signal; a hand-holdable actuator (23,67) for generating the actuation signal; a flexible conduit containing a communication medium for communicating the actuation signal between the actuator and the actuable feature; and attachment means (7,77,78) for attaching the housing to a support.

2. A toy according to claim 1 wherein the communication medium comprises a fluid.

3. A toy according to claim 2 wherein the fluid comprises air.

4. A toy according to any of the preceding claims wherein the actuable feature comprises an electric switch (70,71).

5. A toy according to claim 4 further comprising a sound generator (74) which generates a sound in response to actuation of the electric switch.

6. A toy according to any of the preceding claims comprising two or more actuators (66,67) each for generating a respective actuation signal; and two or more flexible conduits (64,65) each containing a communication medium for communicating an actuation signal between a respective actuator and the or a respective actuable feature.

7. A toy according to any of the preceding claims wherein the or each flexible conduit (64,65) has a length greater than 30cm.

8. A toy according to claim 7 wherein the or each flexible conduit (64,65) has a length between 30cm and 50cm.

9. A toy comprising a housing defining a chamber (22) which contains a fluid in use; one or more play items (17) in the enclosure; a retainer (33) in the chamber for retaining the play item(s) in a home position; means (36) for generating jetting movement of the fluid in the chamber which urges the play item(s) towards the home position; and a release mechanism (38) for releasing the play item(s) from the home position.

10. A toy according to claim 9 and any of claims 1 to 8.

11. A toy according to claim 9 or 10 wherein the retainer (41) is rotatably mounted to the housing; and the release mechanism comprises means (46) for rotating the retainer so that the play item(s) fall from the retainer under the action of gravity.

12. A toy according to claim 9 or 10 wherein the retainer has an opening, and a closure member (52) movable between a closed position in which the play item (s) cannot pass through the opening, and an open position in which the play item(s) can pass through the opening, wherein the release mechanism comprises means (56) for moving the closure member from its closed position to its open position.

13. A toy according to any of the claims 9 to 12 wherein the release mechanism comprises means (38) for generating release jetting movement of the fluid in the liquid in the chamber which acts directly on the play item(s) to eject the play item(s) from the home position.

14. A toy according to any of claims 9 to 13, wherein the means for generating jetting and/or release jetting movement comprises a hand-holdable actuator (23) for generating an actuation signal; jetting means for generating the jetting movement in response to the actuation signal; and a flexible conduit (20,21) containing a communication medium for communicating the actuating signal between the actuator and the jetting means.

15. A toy according to claim 14 wherein the communication medium comprises a fluid, and the jetting means comprises one or more jetting apertures (38,36) which provide a path for the fluid between the flexible conduit and the chamber.

16. A vehicle with a toy according to any of the preceding claims attached to a support in the interior of the

vehicle.

17. A method of playing with a toy according to any of claims 1 to 8, the method comprising attaching the housing to a support in the interior of a vehicle, and generating an actuation signal with the actuator whereby the feature is actuated.

18. A method of playing with a toy according to any of claims 9 to 15, the method comprising actuating the means for generating jetting movement to urge the play item(s) towards the home position, and when one or more of the play item(s) are in the home position, actuating the release mechanism to release the play item(s) from the home position.

Fig.1.

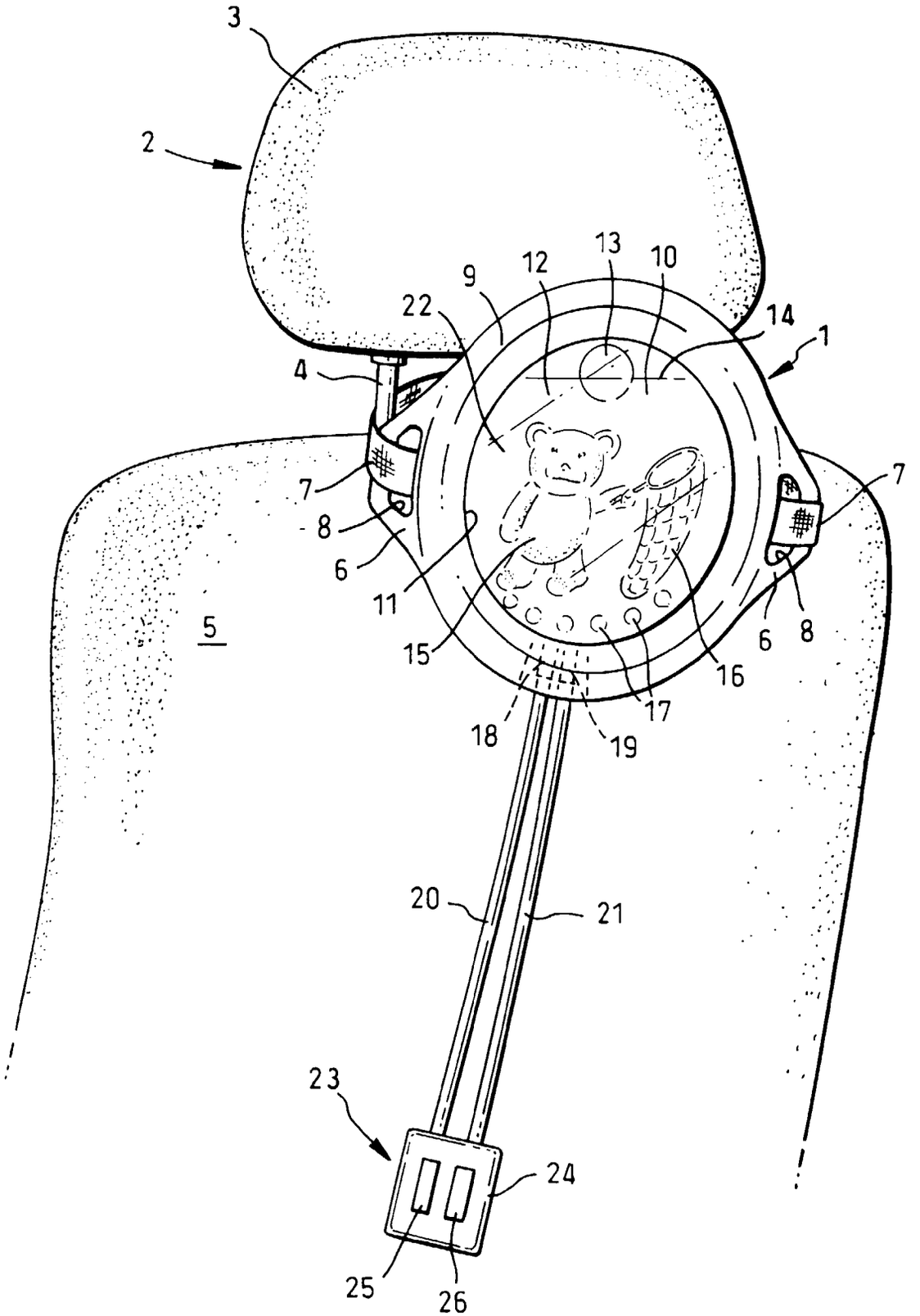


Fig.2.

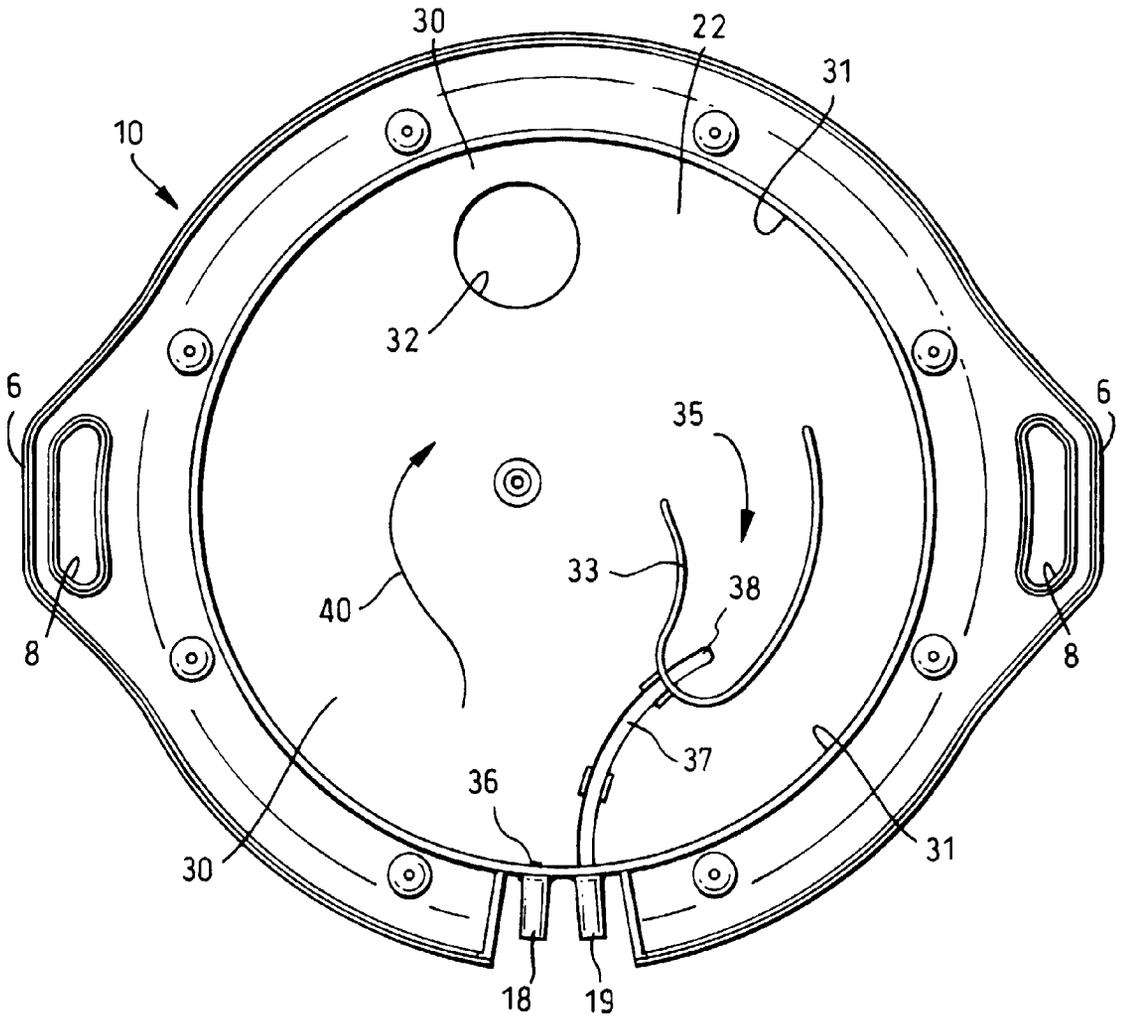


Fig.3.

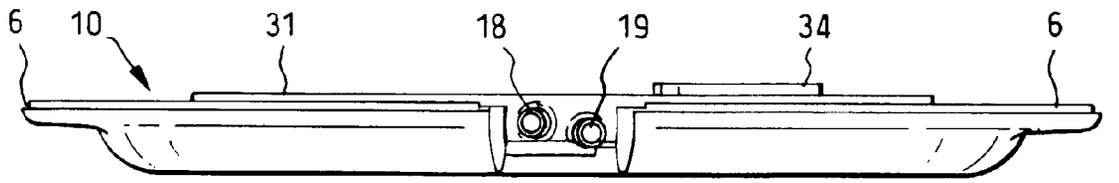


Fig.4.

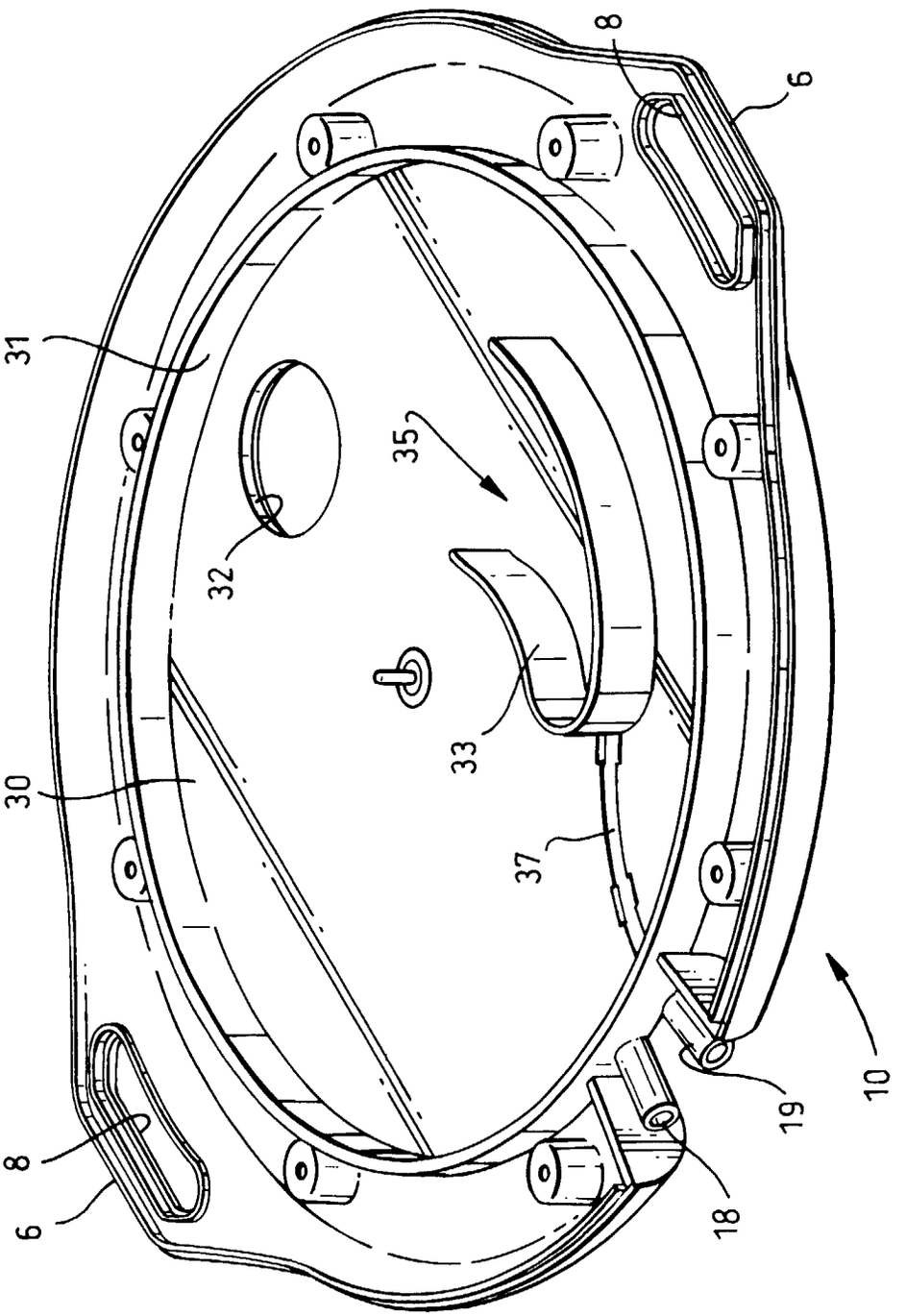


Fig.5.

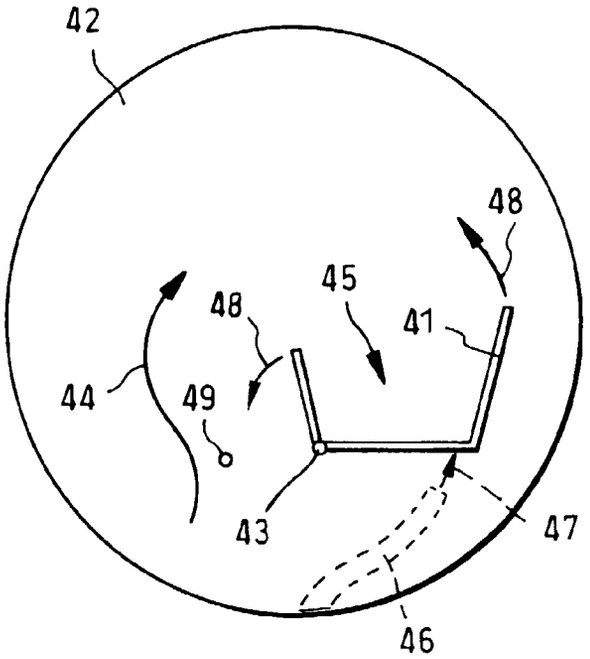


Fig.6.

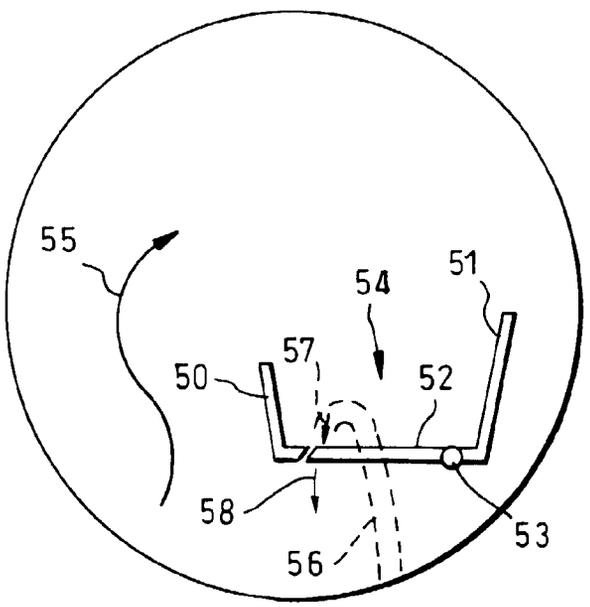


Fig.7.

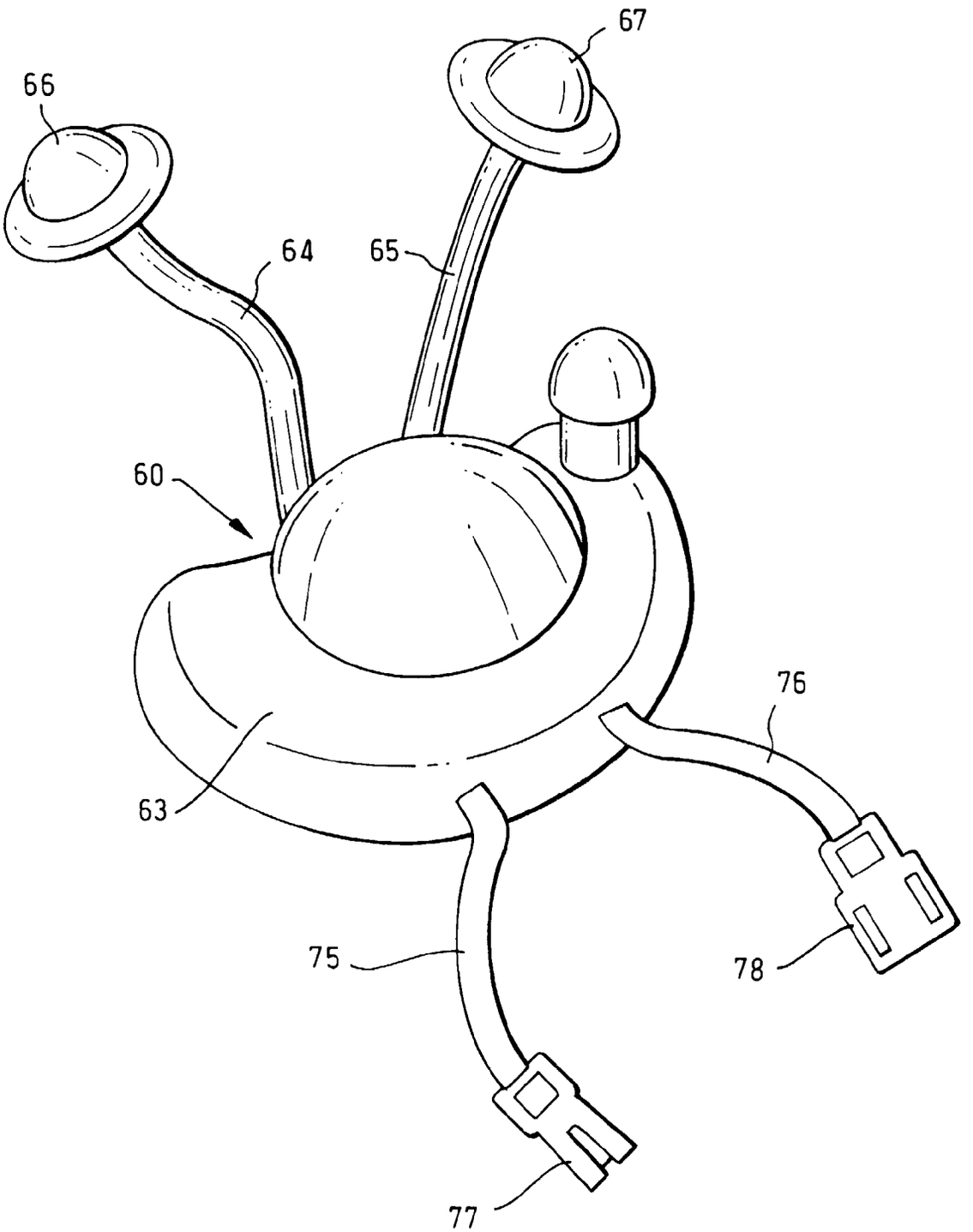
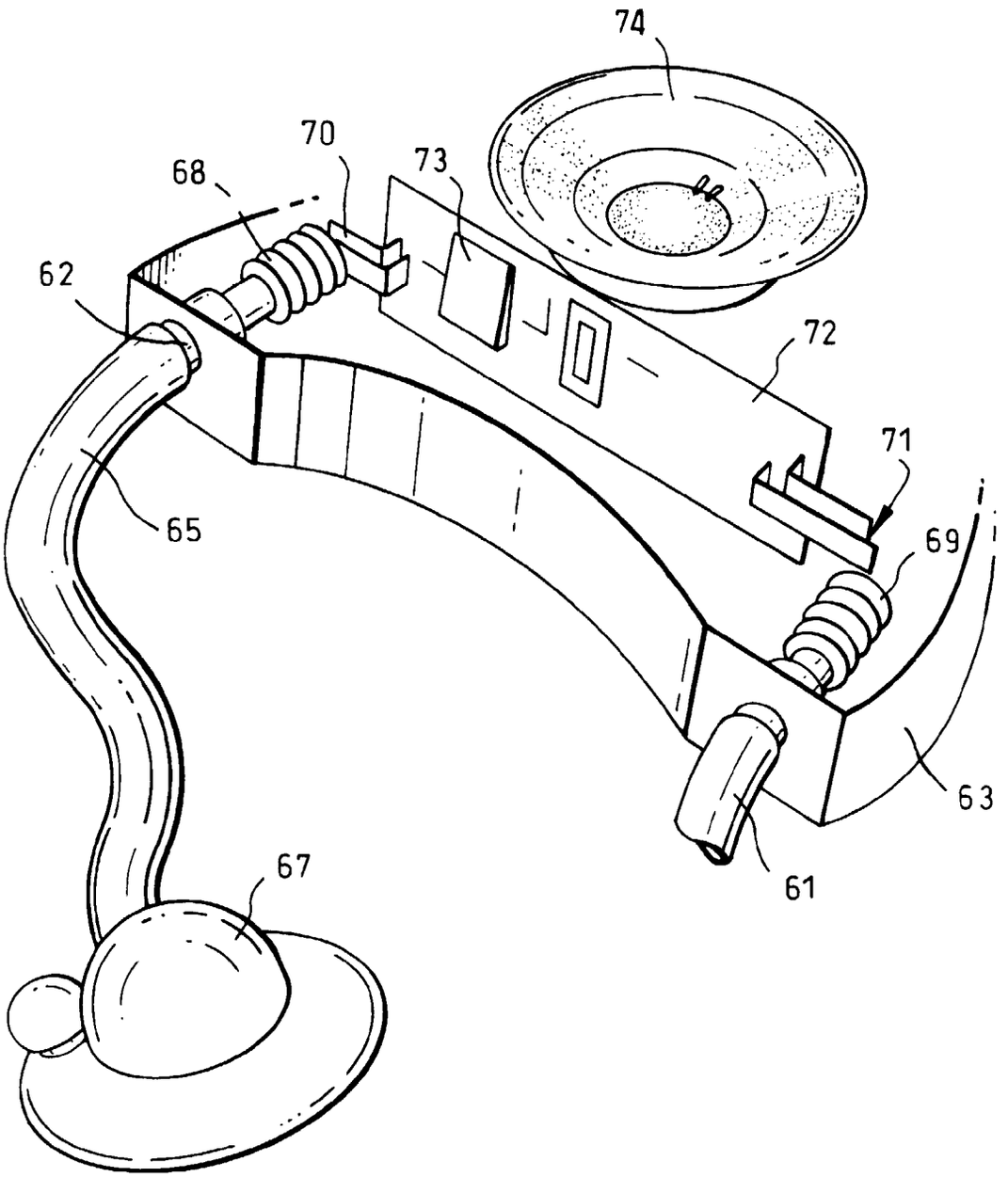


Fig.8.



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EUROPEAN SEARCH REPORT

Application Number
EP 98 30 5787

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	WO 89 06999 A (GRANTA DESIGN LIMITED) 10 August 1989 * figure 1 *	1,2,9, 13,16-18	A63H23/08 A63F7/04
A	GB 2 220 864 A (AKIO SHIINA) 24 January 1990 * the whole document *	2,7,8	
A	GB 2 244 930 A (KIYOSHI KASHIMOTO) 18 December 1991 * figures 2-4 *	1,9	
A	US 4 142 715 A (MATSUMOTO) 6 March 1979 * figures *	1,9	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

A63H
A63F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	17 November 1998	Lasson, C

CATEGORY OF CITED DOCUMENTS

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