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(54) **Life vest with integrated audio device and method of use**

(57) A life vest (1) is adapted to retain or hold a waterproof audio playback device (19) so that a wearer of the life vest (1) when engaging in water-related activities can listen to audio playback. The life vest (1) can utilize pockets (9,17) or device holders (21) to integrate the au-

dio playback device, and can also integrate one or more lead wires (11,12) of the audio playback (19) device into the vest (1).

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Description

[0001] This application claims priority under 35 USC 119(e) based on provisional patent application no. 60/625,104, filed on November 5, 2004.

Field of Invention

[0002] The present invention is directed to an improved life vest, and particularly, a life vest that has integrated therewith an audio playback device, that enables a wearer of the vest to listen to audio such as music while engaging in a water-related activity.

Background Art

[0003] In the prior art, it is well known to include signaling devices of different types into safety or life vests. These devices make it possible for a wearer of the vest to be able to send a signal that the wearer is in distress, and needs rescue. These life vests are distinguishable from other garments that people may wear by the fact that they incorporate buoyancy material(s) or structure, and/or an inflatable device. These added materials or structure allow the life vest to support a wearer when in the water.

[0004] It is also known to incorporate audio playing devices in clothing for different purposes. United States Patent No. 4,539,700 to Sato discloses a vest that has an audio component located in a vest pocket, with speakers integrated into shoulder portions of the vests for playback.

[0005] It is also known to use life vests during water sports activity such as water skiing, wakeboarding, kiteboarding, sailing and the like. However, none of these types of vests permit the sports enthusiast engaging in these activities to listen to music or other audio during the activity. As such, there is a need for improvements in the field of these sports activities.

[0006] In response to this need, the present invention provides a life vest that incorporates an audio playback device so that a water sports enthusiast can listen to audio playback when engaging in various water activities.

Summary of the Invention

[0007] It is an object of the invention to provide an improved life vest for use in water-related activities, and especially water-related sporting activities.

[0008] Another object of the invention is a method of engaging in water-related activities such as sports while listening to audio playback.

[0009] Other objects and advantages will become apparent as the description proceeds.

[0010] In satisfaction of the foregoing objects and advantages, the present invention is an improvement in the field of life vests that have buoyancy structures and/or devices to permit a wearer of the life vest to float in water.

According to the invention, the life vest is equipped with a waterproof audio playback device that is secured to the life vest. The audio playback device is adapted to connect to waterproof earphones or other similar sound generating equipment so that a wearer can listen to audio playback during the time that the life vest is worn.

[0011] While the audio playback device can be secured to the life vest in any manner, one mode of securement includes a pocket to retain the audio playback device. The pocket can be located anywhere on the vest, with preferred locations including a back side, a front side, or an inside surface of the life vest. In another preferred mode, the pocket is located near a neck opening of the life vest. Rather than being secured to the vest itself, the audio playback device can be attached to a strap or other elongate member associated with the life vest via a holder.

[0012] The audio playback device can be any type adapted for use in a wet or water environment, and preferably includes earphones that are connected to the audio playback device by lead wires. While the lead wires can be free of the vest, it is preferred that at least a portion of the lead wires are either integrated into material of the life vest or held to the material of the life vest by attaching structure on the life vest. In one mode, the audio playback device can be the type where its components are waterproof. In another mode, the audio playback device can have an audio unit with a waterproof housing, or a housing enclosed in a waterproof casing.

[0013] The invention also entails improvements in a method of engaging in a water activity, wherein a participant in the water activity wears a life vest for safety purposes. The improvement comprises the step of the participant listening to audio playback while wearing the life vest, the audio playback deriving from an audio device integrated into the life vest. The audio playback device can be any type, and is preferred to include those mentioned above. Similarly, the integration of the audio playback device can involve any type of integration, with preferred integration schemes as detailed above. Preferably, the audio playback device is one that employs waterproof earphones that the participant can use.

[0014] The water activity can be virtually any activity that involves water, e.g., the mere floating in water using a life vest, or using some flotation item while wearing the life vest. The water flotation items can be any type, e.g., wakeboard, water ski, kiteboard, surfboard, windsurfboard, boogie board, raft, boat, or the like.

Brief Description of the Drawings

[0015]

Figure 1 is a front view of a first embodiment of the life vest of the invention;

Figure 2 is a rear view of a portion of a life vest showing another embodiment of the invention, wherein the audio playback device is inserted into a pocket

on the back side of the life vest;

Figure 3 is a front view of a yet another and alternative embodiment of the invention, wherein the audio playback device is attached to a strap of the life vest; Figure 4 is a view of a portion of the life vest of Figure 3 showing the lead wire entering the vest; and Figure 5 is a schematic view showing an alternative pocket design for a life vest.

Description of the Preferred Embodiments

[0016] The invention in one mode is the incorporation of an audio playback device that is either waterproof or enclosed to be waterproof into a life vest so that the wearer of the life vest can listen to audio material when engaging in a water-related activity. The water-related activity can be any activity that would require a person to wear a life vest. Examples include wakeboarding, boating, rafting, surfing, windsurfing, parasailing, kiteboarding, bodyboarding, and the like. The activity during which the audio material is listened to could be the actual physical activity, such as engaging in wakeboarding, or merely sitting in a canoe, boat, or other water floatation component, or floating in water prior to or after water activity that would require wearing of a life vest.

[0017] In another mode, the invention entails the method of listening to audio material during such water related activity by wearing the specially adapted life vest which allows for such listening.

[0018] In yet another mode, the invention entails the life vest itself as adapted to incorporate the waterproof audio playback device by including features which allow the audio playback device to be integrated into the vest for listening purposes. This mode can include the audio playback device, or just the lead wires, or the lead wires and earphones so that the vest would be sold with the lead wires or lead wires and earphones and the user could supply the audio playback device separately. As another option, the lead wires could come with connectors, or multiple connector capability to connect to different design audio playback devices and/or earphones.

[0019] There are multiple methods of integrating these devices into the vest. The first is a pocket built into the vest. The location of the pocket is only important in as much as it does not impede the function of the vest or prevent any motion that the user might perform while using the vest. This pocket could be visible and accessible from the outside or the inside of the vest, and utilize any type of closure system such as hook and loop fastening, a zipper, a button, etc. Also, the pocket could be designed in such a way that the buttons on the audio device were still accessible after the audio device has been inserted in the pocket (either through additional holes into the vest or a clear window, etc.)

[0020] Also, the vest could possibly have a method built in for routing the wire from the audio playback device, e.g., an mp3 player, to the earphones. This could be done through small loops inside the vest, or even done com-

pletely internally to the vest and the cable or lead wire would be routed or inserted during manufacturing of the vest, and each end of the lead wire would then come out of the vest through strategically positioned holes near the audio unit (to plug into the unit), and near the user's head (to connect to the earphones). A more complicated solution, although still within the scope of the invention, would be one where the entire audio device is permanently integrated into the vest and must be installed during manufacturing.

[0021] Also, in a simpler solution, the audio playback device could be placed into a holder or sleeve that would then clip or attach to the straps or other components associated with the vest. In this embodiment, the audio playback device could be positioned such that the earphone wire would exit out towards the bottom of the vest and then run up inside the vest to the earphones. This would prevent the wire from flying around loose during use. The holder in this embodiment can be any type that would support the audio playback device, and attach to the vest in any manner, providing that the attachment did not interfere with the vest function or wearer's comfort or activity. Further detail is given regarding the various embodiments discussed above in the accompanying drawings and following description.

[0022] Referring now to Figure 1, one embodiment of the invention shows a typical life vest 1 with a vest body 3 having a front side 5, and securing straps 7. An audio unit (not shown) is placed in a pocket 9. A single lead wire 11, which is really a pair of lead wires 12 joined together, extends from the pocket 9 and the audio unit. The single wire 11 splits into two wires 12, each of which terminates in an earphone 13. While separate earphones are shown, the earphones could be connected together by structure to form a headphone assembly that would include each earphone.

[0023] The life vest 1 has means for keeping a wearer of the life vest afloat in water, e.g., buoyant material or materials, an inflatable device, an already inflated component, or a combination thereof.

[0024] The pocket 9 is one example of a means for integrating the audio playback device into the vest so that the wearer can listen to audio playback when the vest is worn. Other means include a holder attached to a portion of the life vest, and wherein the life vest is adapted to allow one or more lead wires attached to the audio playback device to enter the vest, extend through a portion of the life vest, and exit the vest to link to the earphones, or is adapted to have loops or other restraints to secure the wires to an exterior of the vest when extending between the audio playback device and the earphones. Details of the various embodiments are addressed below.

[0025] Figure 2 shows an alternative embodiment wherein the back side 15 of the vest body 3 has a pocket 17. The audio unit 19 is shown partially inserted into the pocket 17. These two versions show the lead wires loose from the vest 1. As shown below though, the invention also contemplates securing the lead wires in various

ways so that they are not loose with respect to the vest.

[0026] Figure 3 shows yet another alternative wherein the unit (not shown) is retained in a holder 21, with the holder linked to one of the straps 7. The attachment of the holder 21 to the strap can be any type, such as a sleeve, wherein the strap 7 would be inserted through the sleeve before connecting to the clip 23. The holder can also be any type that will keep the audio unit in place. Figure 3 is but one example, wherein the holder 21 has an opening (not shown) that is secured using a strap 25 that is adhered to the holder using hook and loop fastening or equivalent. In this embodiment, the dual lead wire 11 exits the holder 21 and enters the vest body 3 at an opening 27. The lead wire 11 extends between front and back layers of the vest body, splits into the two wires 12, and each wire 12 exits at respective openings 29 in the inside surface 18 of the vest body 3 near the neck opening 31 of the vest body 3. Of course, the lead wire 11 could pass through the vest 1, and exit from a single opening if so desired.

[0027] The entry opening 27 with the dual lead wire 11 is shown in greater detail in Figure 4. This manner of securing the wires 11/12 keeps the lead wires securely out of the way so that they are not damaged, and still maintains the earphones in proximity to a user's head for listening purposes. This figure also shows how the lead wire 11 terminates in an audio playback connector 40, and couples with an adapter 41 that would allow the connector 40 to hook up to an audio playback device which may not be compatible with the male end 43 of the connector 40.

[0028] It should be understood that other types of integration of the lead wires 11/12 could be employed as part of the invention. For example, the vest body could have a separate channel running on the exterior surface of the body, with the lead wires extending through the channel between the audio unit and the earphones. Instead of a continuous channel, spaced apart securement means such as loops or the like could be attached to the life vest, with the lead wires running through the openings formed by the loops to keep the lead wires securely held.

[0029] In yet another mode, the audio playback device could send a wireless signal to a receiver associated with the earphones so that lead wires between the audio playback device and earphones would be optional. The receiver could be incorporated into the earphones, or mounted near the neck portion 31, wherein lead wires would interconnect the earphones with the receiver unit.

[0030] Figure 5 shows another alternative wherein a pocket 31 is disposed in the vest body 3, with the pocket 31 having an opening 33 to expose control buttons 35 on the audio playback device unit 19. The opening 33 could be replaced with a clear window so that a wearer could see the control buttons and activate them through the window. More than one opening or clear window could be utilized to accommodate differently located control buttons on the audio unit. Figure 5 also shows a connector 40 for the audio playback unit 19.

[0031] The life vest for use with the invention can be any type of a vest that will support the wearer in water, i.e., US Coast Guard Approved, USCGA, or non-USCGA. The term vest is intended to encompass vests or jackets or any style of wear that provides the water-supporting function, e.g., vest-type garments which would not have sleeves, jacket-type garments that would have sleeves, or any other style garment that would be adaptable as a life vest or life jacket. The life vest incorporates any type of floatation component or structure that would keep a user afloat in the water, e.g., buoyant material or materials, inflatable components, inflated components, and/or combinations thereof.

[0032] The audio playback device can be any type of device that would permit playback of audio material in spite of the proximity of the device to water. Examples of devices would be those that store audio in digital format, and audio players that store audio in tape or magnetic form such as on cassettes or in CD format, e.g., walkman-type players. The audio playback device should also be sized so that it does not interfere with the performance of the life vest. Preferred devices are mp3 players such as Apple's i-pod, which uses a mechanical hard drive to store the digital audio, and others which store the audio via a solid state memory rather than a mechanical one. It is more preferred to use audio playback devices that use solid state memory to avoid the skipping problem prevalent with devices employing mechanical systems. Also, the audio device could have waterproof video playing capability so that the life vest wearer could not only listen to audio playback but could view video with the audio, or alone if so desired.

[0033] The waterproof feature of the audio playback device is essential to the invention, since the device would be used during water-related activity. Waterproof mp3s are currently available from different companies. One company's device uses a waterproof case for use with an off-the-shelf mp3 unit such as Apple I-pod and Mini-Ipod, as well as the I-river mp3 unit. Another company has developed an mp3 with its own housing and related components such as earphones and connections being waterproof, see United States Patent No. 6,614,722 to Polany et al., which is herein incorporated by reference in its entirety.

[0034] As such an invention has been disclosed in terms of preferred embodiments thereof, which fulfills each and every one of the objects of the invention as set forth above, and provides an improved method life vest that has audio playback capability to enable a user to listen to audio material when engaging in water-related activity.

[0035] Of course, various changes, modifications and alterations from the teachings of the present invention may be contemplated by those skilled in the art without departing from the intended spirit and scope thereof. It is intended that the present invention only be limited by the terms of the appended claims.

Claims

1. In a life vest having buoyancy structure to permit a wearer of the life vest to float in water, the improvement comprising incorporating a waterproof audio playback device with the life vest, the audio playback device secured to the life vest and being adapted to connect to waterproof earphones so that a wearer can listen to audio playback during life vest wearing. 5
2. The life vest of claim 1, wherein the life vest includes a pocket to retain the audio playback device.
3. The life vest of claim 2, wherein the pocket is located on a back side, a front side, or an inside surface of the life vest. 15
4. The life vest of claim 3, wherein the pocket is located near a neck opening of the life vest. 20
5. The life vest of claim 1, wherein the audio playback device is attached to a strap or other elongate member associated with the life vest via a holder.
6. The life vest of claim 1, wherein the audio playback device includes earphones that are connected to the audio playback device by lead wires, and at least a portion of the lead wires are either integrated into material of the life vest or held to the material of the life vest by attaching structure on the life vest. 25 30
7. The life vest of claim 1, wherein the components of the audio playback device are waterproof.
8. The life vest of claim 1, wherein the audio playback device has an audio unit with a waterproof housing, or a housing enclosed in a waterproof casing. 35
9. In a method of engaging in a water activity, wherein a participant in the water activity wears a life vest for safety purposes, the improvement comprising the participant listening to audio playback while wearing the life vest, the audio playback deriving from an audio playback device integrated into the life vest. 40 45
10. The method of claim 9, wherein the audio playback device is secured to the life vest and is adapted to connect to waterproof earphones so that a wearer can listen to audio playback using the waterproof earphones. 50
11. The method of claim 9, wherein the water activity is one wherein the wearer uses a water floatation item or is floating in water using the life vest. 55
12. The method of claim 9, wherein the water floatation item is one of a wakeboard, water ski, kiteboard, surfboard, windsurfboard, boogie board, raft, boat, or the like.
13. A life vest having means for keeping a wearer of the life vest afloat in water, and means for integrating an audio playback device therein, so that the wearer can listen to audio playback when wearing the life vest.
14. The life vest of claim 13, wherein the means for integrating the audio playback device is one of:
 - a) a pocket on the life vest;
 - b) a holder attached to a portion of the life vest;
 - c) a pocket on the life vest with a portion of the lead wires extending through a portion of the life vest; and
 - d) a holder attached to a portion of the life vest with a portion of the lead wires extending through a portion of the life vest.
15. The life vest of claim 13, wherein the life vest integrates at least a portion of one or more lead wires of an audio playback device.
16. The life vest of claim 13, wherein the means for keeping a wearer of the life vest afloat in water further comprises a buoyancy material or materials associated with the life vest, an inflated or inflatable component, or a combination thereof.
17. The life vest of claim 13, further comprising at least one connector to allow one or more free ends of the lead wires to connect to different audio playback devices and/or different types of earphones.
18. The life vest of claim 15, further comprising earphones connected to the one or more lead wires.

FIG. 1



FIG. 2

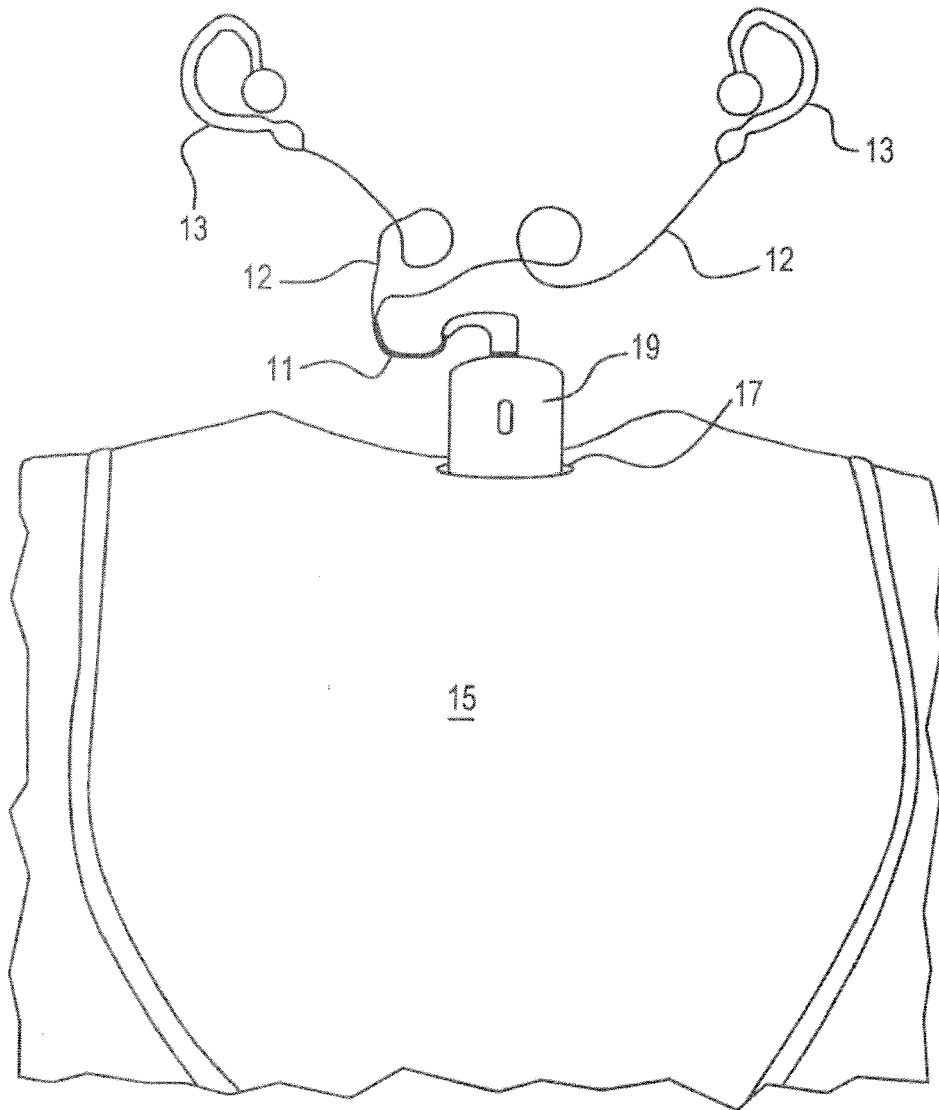


FIG. 3



FIG. 4

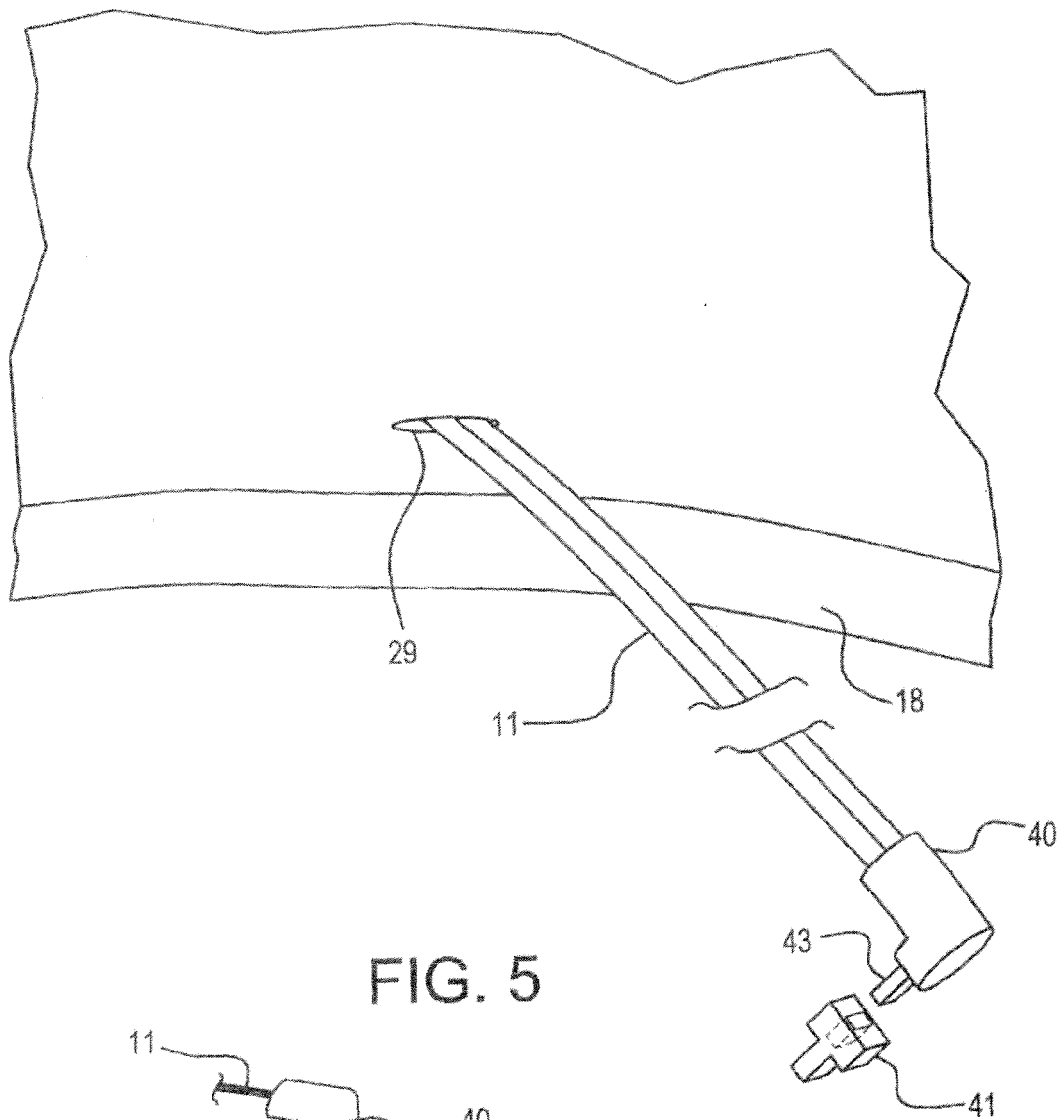
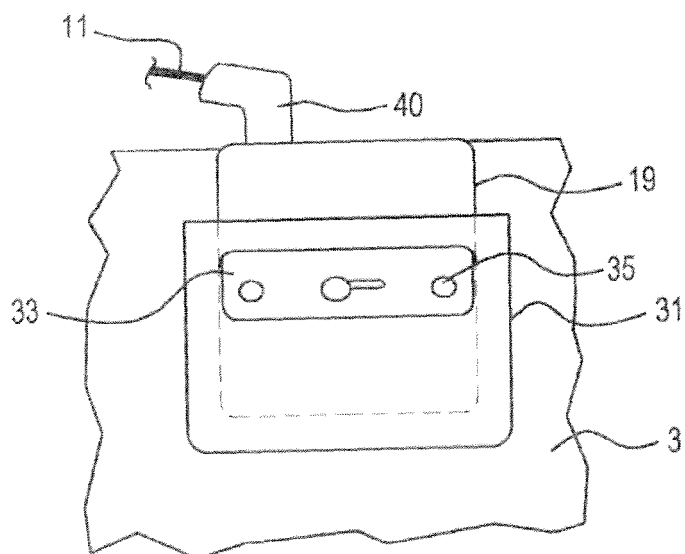


FIG. 5





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 05 10 9656

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2004/113836 A1 (RICKERSON DONALD) 17 June 2004 (2004-06-17)	13-18	B63C9/08
Y	* abstract; claims 1,2; figures 4-6 *	1-12	
Y,D	US 2004/120219 A1 (POLANY RANY ET AL) 24 June 2004 (2004-06-24) * abstract * * paragraph [0026] *	1-12	
Y,D	US 4 539 700 A (SATO ET AL) 3 September 1985 (1985-09-03) * abstract; figures *	1-12	
			TECHNICAL FIELDS SEARCHED (IPC)
			B63C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 1 March 2006	Examiner Nicol, Y
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EPO FORM 1503 03.82 (P04C01)

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

EP 05 10 9656

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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01-03-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004113836 A1	17-06-2004	NONE	
US 2004120219 A1	24-06-2004	NONE	
US 4539700 A	03-09-1985	NONE	