



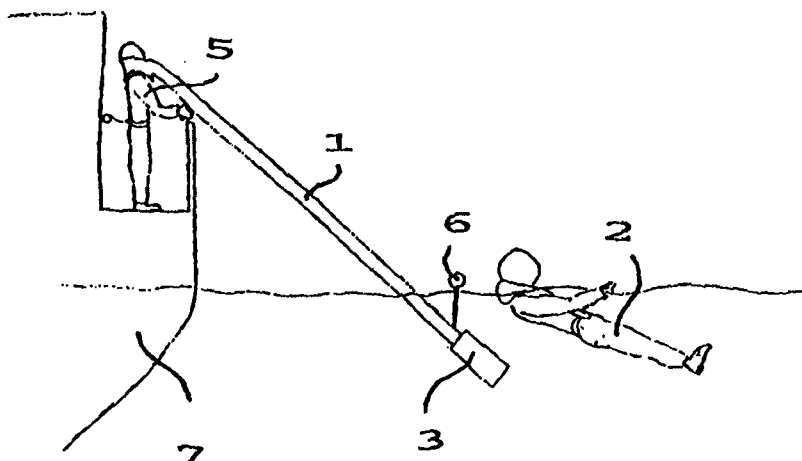
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁷ : B63C 9/04</p>	<p>A1</p>	<p>(11) International Publication Number: WO 00/35747</p> <p>(43) International Publication Date: 22 June 2000 (22.06.00)</p>
<p>(21) International Application Number: PCT/FI99/01044</p> <p>(22) International Filing Date: 16 December 1999 (16.12.99)</p> <p>(30) Priority Data: 982731 17 December 1998 (17.12.98) FI</p> <p>(71) Applicant (for all designated States except US): PO-HJOIS-SAVON AMMATILLISEN KORKEAKOULUTUKSEN KUNTAYHTYMÄ TEKNIikka KUOPIO [FI/FI]; P.O. Box 88, FIN-70101 Kuopio (FI).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): SIIVOLA, Risto [FI/FI]; Retkeilijäntie 18 B 7, FIN-70200 Kuopio (FI). JÄASKELÄINEN, Pasi [FI/FI]; Taivaanpankontie 14 A 6/3, FIN-70200 Kuopio (FI). KARHUNEN, Timo [FI/FI]; Sompatie 3 J 8, FIN-70200 Kuopio (FI). MANNINEN, Ari-Pekka [FI/FI]; Rautalammintie 3 C 107, FIN-00550 Helsinki (FI). PULKKINEN, Tomi [FI/FI]; Savonkatu 20 A 16, FIN-70100 Kuopio (FI). TURUNEN, Timo [FI/FI]; Puijonkatu 37 B 59, FIN-70100 Kuopio (FI). TYRVÄINEN, Marko [FI/FI]; Rahkakatu 2, FIN-70780 Kuopio (FI). SAIRANEN, Tuija [FI/FI]; Niiralankatu 10 F 93, FIN-70600 Kuopio (FI). VÄÄNÄNEN, Petteri [FI/FI]; Samoillijantie 6 K 78, FIN-70200 Kuopio (FI).</p>		<p>(74) Agent: PITKÄNEN, Hannu; Patent Agency Pitkänen Oy, P.O. Box 1750, FIN-70211 Kuopio (FI).</p> <p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. In English translation (filed in Finnish).</p>

(54) Title: METHOD FOR RESCUING A PERSON FROM THE WATER AND A DEVICE FOR APPLYING THE METHOD

(57) Abstract

The invention relates to a method for rescuing a person and a device for applying the method. In a method implemented in accordance with the invention, a bar-like rescue device (1) is conveyed to the vicinity of the rescuee (2), and using the rescue device, a packed life raft (3) is conveyed underneath the rescuee and is filled with a buoyant substance while it is underneath the person, whereupon the life raft rises, lifting the rescuee in the life raft to the surface of the water. A device formed in accordance with the invention comprises a bar-like rescue device (1) and a packed life raft (3) which fills up with a buoyant substance, said life raft being designed to be conveyed under the rescuee (2) with the help of the bar-like rescue device.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

METHOD FOR RESCUING A PERSON FROM THE WATER AND A
DEVICE FOR APPLYING THE METHOD

The invention relates to a method for rescuing a person from the water, and a
5 device for applying the method.

In different accidents or mishaps, or corresponding occurrence, people fall
into or in some other way end up in the water. Efforts should be made as
quickly and as effectively as possible to save people who have fallen into the
10 water. All vessels and public piers have accessible rescue instruments. A
typical rescue instrument is the life preserver, which is thrown near the
rescuer, whereupon the rescuer grabs the life preserver and floats on it until
he/she is saved, or else he/she swims on the life preserver to safety.

15 Additionally, life rafts, or corresponding floating devices, are used, which
open in the water. There are also different devices by which a rescue
instrument, such as a life preserver or life raft, is thrown, shot, flung or
dropped into the vicinity of the rescuer. All of these have the disadvantage
that, although the life preserver, life raft, or corresponding floating device,
20 can be aimed to the vicinity of the rescuer, the person must still swim to it,
grab it and possibly lift him/herself onto it and hereby further his/her own
rescue. If, however, the rescuer is, for example, unconscious, tired or for
some other reason may not be able to get a grasp on the rescue instrument,
he/she cannot be saved in this way.

25

The object of the invention is to provide a method by which the
disadvantages associated with the current methods will be eliminated. In
particular, the object of the invention is to provide a method, which when
used, will enable the rescuer to be lifted quickly and effectively to the surface
30 of the water and to the life raft. Further, the object of the invention is to
provide a device for applying the method, which is easy to use and functions
reliably.

In a method implemented in accordance with the invention, a bar-like rescue
35 device is conveyed into the vicinity of the rescuer and with the help of the

rescue device, a life raft which is packed together is conveyed underneath the rescuee and is then filled with a buoyant substance while it is under the rescuee, whereupon the rescuee is lifted to the surface of the water on the life raft as it rises. In a method implemented in accordance with the invention,
5 the rescuer stays with the rescuee the whole time and with the help of the rescue device, guides the life raft under the rescuee. When the rescue device and the life raft are in the desired place, the life raft is filled in a way known per se with some conventional buoyant substance suitable for the purpose, such as gas, foam or corresponding substance. In this way, the life raft rises
10 upwards in the water and because it is underneath the rescuee, it also simultaneously lifts him/her to the surface of the water. Thus, the rescuee is effectively raised to the life raft and to the water surface, where he/she is out of the immediate danger of drowning, without him/her having had to take any action.

15

In one advantageous application of the invention, the packed life raft is conveyed underneath the rescuee on the inside of the bar-like rescue device. The size of the bar-like rescue device is such that the packed life raft can go through it. Many life raft packs can be found on a vessel, and they can be fed
20 one after another through the rescue device using a feeding and/or loading device suited for the purpose. After one life raft has been fed into the water, the rescue device can be moved to the location of the next rescuee and the next life raft can be fed under him/her. Thus, many people can be saved using one rescue device. Life rafts are designed appropriately for the purpose
25 and to fit on the pipe.

In another advantageous application of the invention, the packed life raft is conveyed on the outside of or along the bar-like rescue device underneath the rescuee. The life raft can be located in the end of the rescue device,
30 whereupon it is launched from one end of the rescue device once it is in the right place underneath the rescuee. In this sort of application, the life raft pack is detachably attached to the end of the rescue device. After one pack has been launched, the next raft pack can be attached to the end of the rescue device and the next person who is in the water can be rescued. Thus, the

same rescue device can be used for launching several different life rafts into the water.

In another application of the invention, the rescue device and the life raft pack are designed such that the life raft pack can slide along the outer surface of the rescue device to the end of the rescue device, or in its vicinity to the desired place. Thus also one rescue device can be used for feeding several life raft packs into the water.

10 In the following advantageous application of the invention, the life raft is connected to the rescuer with a rope-like element. By "rescuer" is meant thus either the person or the rescue vessel. Thus, the life raft cannot drift and the person on the life raft can be pulled on the life raft to safety to the rescuer and then lifted to safety. If it is a question of saving one person, he/she is pulled
15 immediately to safety. If several people have fallen into the water, they can first all be saved on the life rafts and then pulled to the vessel and raised into the vessel.

In a further advantageous application of the invention, an observing
20 instrument attached to the rescue device enables one to monitor the position of the rescue device in the water in relation to the rescuee. The use of such an observing instrument is important, so that the rescue device and the end of the rescue device can be observed the whole time and can be accurately moved to and underneath the rescuee.

25 A device formed in accordance with the invention comprises a bar-like rescue device and a packed life raft which fills up with a buoyant substance, and which is designed to be transferred underneath the rescuee using the bar-like rescue device. This kind of bar-like rescue device can be handled by one
30 person and, using it, the life raft can be accurately and reliably positioned underneath the person in order to save him/her.

The invention will now be described in more detail with reference to the accompanying drawings, in which

Figure 1 illustrates a certain description of a method carried out in accordance with the invention, in the phase in which the rescue device is being moved into the vicinity of the rescuee,

Figure 2 illustrates a situation, in which the life raft is being launched
5 underneath the rescuee, and

Figure 3 illustrates the rescuee on the life raft.

The rescue equipment formed in accordance with Figures 1-3 comprises a bar-like rescue device 1, to which is connected a packed life raft 3, a rope-
10 like element 4 and an observing instrument 6. The size and shape of the bar-like rescue device can vary in different applications of the invention. In the application illustrated in the figures, the size of the bar-like rescue device 1 is such that one person can handle, hold and control it. Figure 1 illustrates the rescuer 5, which is a person on the vessel 7. The rescuer is holding the
15 rescue device 1 with his/her hands and the rescue device is further supported by the shoulders of the rescuer.

In this application of the invention, the life raft contained in the pack 3 is located on the end of the bar-like rescue device 1. An observing instrument 6
20 has been attached in the vicinity of the end of the rescue device, said observing instrument comprising a buoyant float or corresponding device, which comes up from the water, which is attached to the rescue device such that it shows the position of the end of the rescue device. The observing instrument can be bright-colored or it can be equipped with a signal light or it
25 can be made clearly distinguishable by some other means.

The rope-like element is made from conventional material known per se and it is connected to the rescuer by the rescue device. In another alternative, the rope-like element is on the outside of the rescue device, whereupon the rescue
30 device can be re-used immediately to launch another life raft after the first life raft has been launched.

When one or more people 2 have fallen into the water, a rescue device formed in accordance with the invention is used. The rescuer positioned, for
35 example, on the edge of the vessel, brings the bar-like rescue device to the

rescuer. The rescue device should be positioned so that the end of the rescue device, and the life raft in it, is underneath the rescuer. Then the rescuer launches the life raft, which fills up with a buoyant medium. While it is filling, the life raft rises upwards to the surface of the water. Because the rescuer is on the life raft, the life raft lifts the rescuer as it rises. The rescuer can then pull the life raft to the vessel, pier, or other place, and lift the person who has fallen into the water to safety. If it is a question of an accident, in which several people have fallen into the water, the rescuer can be left in safety on the life raft for some time, to move to the next rescuer and get new rescuers onto other life rafts before lifting them. It is also possible to join two or more rafts together, whereupon they form a bigger whole. The rafts can be towed in a suitable way, to a protected place, for example, before the person/people is/are lifted to the vessel.

15 The structure of a bar-like rescue device formed in accordance with the invention can vary significantly in different applications of the invention. In a certain application, the bar-like rescue device is hollow and the pack which forms the life raft is fed along a pipe to its position underneath the rescuer. In another application, the life raft is designed such that it can slide on the outside of the rescue device beneath the person in need.

In a third application, the rescue device is like a telescopic pipe in its structure, so that it can be stored in a small space. When the pipe is used, it is opened to its full length and taken to the rescuer.

25 The life raft is launched using the rescue device, or in some cases it is shot out automatically when it reaches the end of the launching device. The launch can occur mechanically or by remote control using conventional techniques known per se. It is also possible to position a transmitter on people, which launches the life raft when it is in the immediate vicinity of the rescuer. The life raft can be equipped in a conventional way with a transmitter. The bottom of it is a net-like material, perforated or other such material, which allows water to flow out of it.

The invention is not limited to these advantageous applications. The invention is versatile and its form can vary within the scope of the idea of the invention set forth in the claims.

CLAIMS

1. A method for rescuing a person from the water, **characterized in** that a bar-like rescue device (1) is conveyed to the vicinity of the rescuee (2), a
5 packed life raft (3) is positioned underneath the rescuee using the rescue device, said packed life raft being filled with a buoyant substance after it is under the rescuee, whereupon while the life raft is rising, it lifts the rescuee on the life raft to the surface of the water.
- 10 2. A method implemented in accordance with Claim 1, **characterized in** that the packed life raft is conveyed beneath the rescuee on the inside of the bar-like rescue device.
- 15 3. A method implemented in accordance with Claim 1, **characterized in** that the packed life raft is conveyed beneath the rescuee on the outside of the bar-like rescue device or along it.
- 20 4. A method implemented in accordance with any one of Claims 1-3, **characterized in** that the life raft is connected by a rope-like element (4) to the rescuer (5).
- 25 5. A method implemented in accordance with any one of Claims 1-4, **characterized in** that an observing instrument (6) connected to the rescue device is used to monitor the positioning of the rescue device in the water in relation to the rescuee.
- 30 6. A device for rescuing a person from the water, **characterized in** that the device comprises a bar-like rescue device (1) and a packed life raft (3) which fills up with a buoyant substance, which has been designed to be conveyed beneath the rescuee (2) using the bar-like rescue device.
7. A device formed in accordance with Claim 6, **characterized in** that the packed life raft is located inside the bar-like rescue device.

8. A device formed in accordance with Claim 6, **characterized in** that the packed life raft is on the outside of the bar-like rescue device.
9. A device formed in accordance with any one of Claims 6-8,
5 **characterized in** that an observing instrument (6), used for observing the positioning of the bar-like rescue device, is attached to the rescue device.
10. A device formed in accordance with any one of Claims 6-9,
10 **characterized in** that the rescue device has a rope-like element (4) for joining the rescuer and the life raft together.

FIG. 1

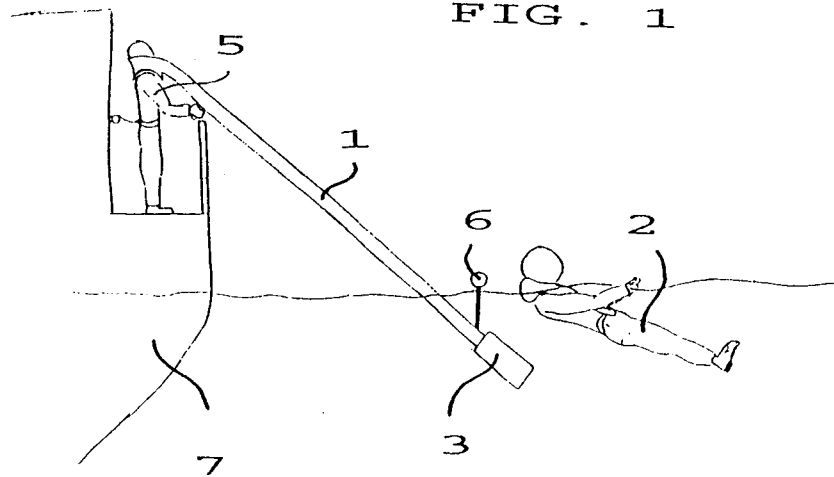


FIG. 2

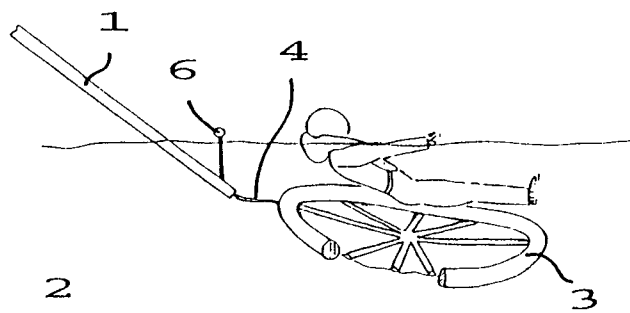
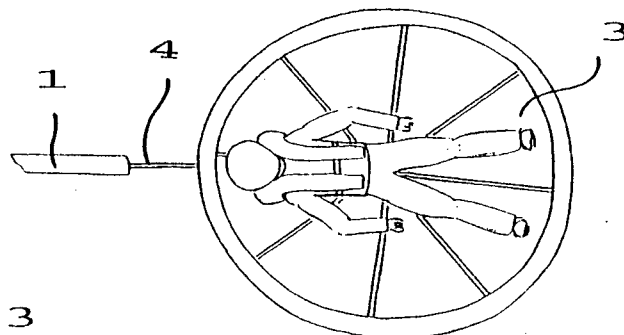


FIG. 3



INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 99/01044

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B63C 9/04
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B63C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	A 19648560 A1 (HUMMEL, GEORG), 4 June 1998 (04.06.98), figures 1-3, abstract --	1-10
A	WO 9723381 A1 (CASTERS, LAURENT), 3 July 1997 (03.07.97), figures 1-10, abstract --	1-10
A	DE 3047296 A1 (KOOFS, FRANZ-PETER), 29 July 1982 (29.07.82), figures 1-3 --	1-10
A	WO 9814364 A1 (MANNES, HARALD), 9 April 1998 (09.04.98), figures 1-8, abstract -- -----	1-10

Further documents are listed in the continuation of Box C. See patent family annex.

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
--	---

Date of the actual completion of the international search	Date of mailing of the international search report
17 April 2000	05-05-2000

Name and mailing address of the ISA Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Björn Salén/LR Telephone No. +46 8 782 25 00
---	--

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/FI 99/01044

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
A 19648560 A1	04/06/98	NONE	
WO 9723381 A1	03/07/97	AU 1198097 A	17/07/97
		DE 69602209 D	00/00/00
		EP 0868341 A,B	07/10/98
		FR 2742723 A,B	27/06/97
DE 3047296 A1	29/07/82	NONE	
WO 9814364 A1	09/04/98	AU 4323997 A	24/04/98
		EP 0929438 A	21/07/99
		NO 302160 B	02/02/98
		NO 964152 D	00/00/00
		NO 970353 D	00/00/00