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(71) Applicant: **Uil B.V.**
2855 AC Vlist (NL)

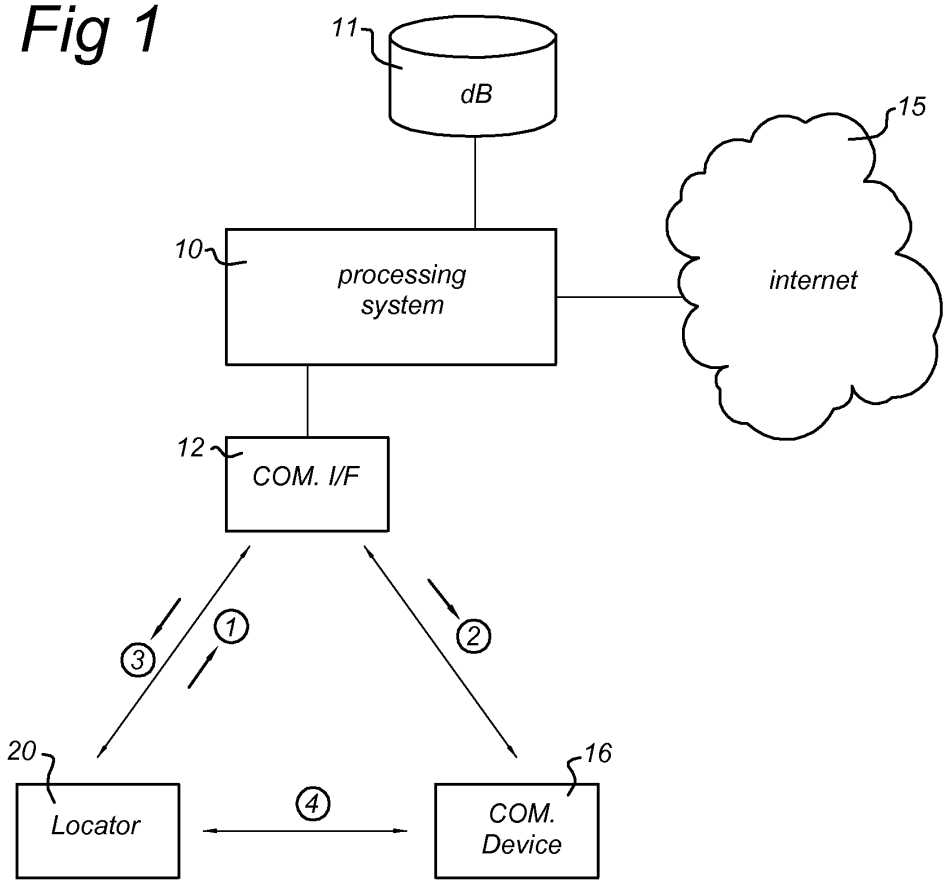
(72) Inventor: **Bakker, Theodorus Alfonsus**
2855 AC, Vlist (NL)

(74) Representative: **Ketelaars, Maarten F.J.M.**
Nederlandsch Octrooibureau
Postbus 29720
2502 LS Den Haag (NL)

(54) Emergency warning method and system for warning a caretaker

(57) Emergency warning method and system for warning a caretaker. A position of a subject is determined by receiving an emergency message from a locator (20) upon actuation of an emergency button (21), the emergency message comprising location data and identification data. The identification data and location data are translated in a verbal message, and the verbal message is sent to a personal communication device (16) in the possession of the caretaker after reception of the emergency message from the locator (20).

Fig 1



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Description

Field of the invention

[0001] The present invention relates to an emergency warning method and system for warning a caretaker, using a locator.

Prior art

[0002] International patent publication W02005/032176 discloses a system for tracking the position of a person or object using a mobile communication network. On the locator, a button can be pressed to send an emergency message to a predetermined telephone number.

[0003] US patent publication US2007/200695 discloses a system using a mobile telephone and a GPS receiver for tracking the location of a child. If a preset boundary is crossed, a warning SMS is generated by the mobile phone of the child and sent directly to a preset number, i.e. another telephone.

Summary of the invention

[0004] The present invention seeks to provide an improved emergency warning method and system, which allows users to go outside with sufficient confidence that when needed, help or care is available or can be warned.

[0005] According to the present invention, a method according to the preamble defined above is provided, in which the method comprises determining a position of a subject by receiving an emergency message from a locator upon actuation of an emergency button, the emergency message comprising location data and identification data, translating the identification data and location data in a verbal message, and sending the verbal message to a personal communication device in the possession of the caretaker after reception of the emergency message from the locator. The verbal message is a message in audio format, i.e. comprising understandable words/sentences in clear speech. The caretaker is warned in a sufficiently clear manner to be able to assess the situation of the person requesting help, and to go to the location of the person in need, as this location is known with sufficient precision. Using a verbal message ensures that the warning reaches the caretaker in an easy understandable manner.

[0006] This may be even improved in a further embodiment, in which the method further comprises converting the location data to street address data. Street address data (e.g. Marktstraat 45 in Rotterdam) is much more clear and easy and quickly to understand by the caretaker, especially in a verbal message. Furthermore, it provides a clear and unambiguous location of the person in need.

[0007] In a further embodiment, the location data is converted to a nearest street address data and distance and direction data. This is especially helpful when the exact location is more than a predefined distance from a known street address, and still allows the caretaker to go to the location of the person in need with sufficient accuracy.

[0008] The identification data as received from the locator is converted to personal data in a further embodiment. This furthermore is helpful for the unambiguous understanding of the verbal message by the caretaker. This information may be provided e.g. using a database with data concerning registration of subscribers, such as the personal data (calling name, surname, etc.).

[0009] In a further embodiment, the method further comprises sending a comforting message to the locator after reception of the emergency message. This aids in reassuring the person in need. The comforting message may also comprising personal data associated with the identification data and street address data associated with the location data.

[0010] Setting up a voice communication link between the personal communication device and the locator is provided for in a further embodiment. Such a direct speech communication link between person in need and caretaker may be very comforting for both the person in need and the caretaker, as more information may be exchanged allowing to call in additional help when needed.

[0011] In a further embodiment, the emergency messages as received are stored. This allows to view historical events generated using the present method embodiments, which e.g. can be used for administrative purposes.

[0012] The method, in a further embodiment, further comprises obtaining location data from a locator upon receiving a request from a caretaker associated with the specific locator. This may be very helpful if the caretaker wishes to check where the person(s) he is supervising are located at that moment. A database may be used to assure that only caretakers associated with a specific locator can access these data.

[0013] Further, the method may comprise storing a location obtained from the locator in a periodic manner. The frequency of storing may be selected by the caretaker, and allows a track and trace capacity of the present method.

[0014] In an even further embodiment, the method further comprises providing access to stored data associated with a locator. This e.g. allows tracing of a person, and the present and previous locations may be shown on a map display for ease of interpretation.

[0015] In a further aspect, the present invention relates to an emergency warning system comprising a processing system (e.g. implementing an interactive web page) and a locator for determining a position of a subject (such as a person, child,...), the locator being provided with an emergency button and arranged for sending an emergency message to the processing system upon actuation of the emergency button, the emergency message comprising location data and identification data, in which the processing system is arranged to translate the identifi-

cation data and location data in a verbal message, to communicate with a personal communication device in the possession of a caretaker, and to send the verbal message to the personal communication device after reception of the emergency message from the locator. In further embodiments, the processing system is further arranged to implement the method according to any one of the method embodiments as described above.

[0016] In an even further aspect the present invention relates to a computer program product comprising computer executable instructions (e.g. a software program stored on a CD or DVD disc), which when loaded on a computer system, provides the computer system with the functionality of the method according to any one of the method embodiments described above.

Short description of drawings

[0017] The present invention will be discussed in more detail below, using a number of exemplary embodiments, with reference to the attached drawings, in which

Fig. 1 shows a schematic diagram of an implementation of an embodiment of the present invention;
Fig. 2 shows a schematic diagram of a locator as used in the embodiment of Fig. 1.

Detailed description of exemplary embodiments

[0018] The present invention relates to an emergency warning method and system for handling emergency requests from subjects, such as elderly people, hart patients, Alzheimer patients, patients suffering from various phobia, epilepsy patients, disabled or otherwise handicapped persons, children, etc. People more and more not only live longer, they also want to be more and more independent, being able to stand in society much longer doing the things they want to do, even when there is no one to accompany them outside. Being outside, especially in more abandoned areas (walking in woods, cycling on country roads) can be dangerous if suddenly (medical) attention is needed and no one able to help can be reached. This may result in fear to go outside alone, and consequently reduces the quality of life.

[0019] The present method and system, called VOS ('Veilig Op Stap'), allows people to go outside on their own with a comfortable feel of safety, in that it is possible to warn a caretaker (nurse, family member, neighbor, etc.) at the push of a button, who can then help or request support of medical specialists, as the exact location of the help seeker is known.

[0020] The method according to the various embodiments as described in the appended claims may be implemented in a system as shown schematically in Fig. 1. A processing system 10 plays a key role in an exemplary embodiment of the present invention, and may be formed by a general purpose computer executing a software program comprising computer executable instructions. Alternatively, the processing system 10 may be formed by multiple, distributed processors interacting to provide the functionality of the present method embodiments. The processing system 10 is provided with suitable interfaces as known in the art, such as data interfaces, user interfaces, memory interfaces, etc.

[0021] The processing system 10 is connected to a database 11 in which data related to the use of the present method embodiments may be stored. The processing system 10 is also connected to the Internet or another computer network 15, e.g. to allow access to a web page implemented on the processing system. Finally, the processing system 10 is connected to a communication interface 12, which allows connecting to a telephony network, such as a GSM or UMTS network, for data and voice communication.

[0022] First, the processing system 10 is able to communicate with a locator 20, which will be discussed in more detail below with reference to Fig. 2, and provides location data and identification data of a subject carrying the locator 20. Also, the processing system is able to communicate with a communication device 16, which is in the possession of a caretaker associated with the subject carrying the locator 20.

[0023] The locator 20 is shown in more detail in Fig. 2, and comprises a (large) emergency button 21 which can be easily actuated by a user. Furthermore, the locator 20 is provided with a speaker 22 and a microphone 23, which are connected to a GSM module to provide bidirectional voice communication using a GSM network. Also, a GPS antenna 24 is present, which in the embodiment shown is of a very compact design. The GPS antenna 24 is connected to a GPS module, which provides, as known to the skilled person, location data in the form of WGS-84 latitude-longitude data. Furthermore, a number of indicator lights 25, 26 are provided, e.g. indicator light 25 which indicates that a connection with a GSM network is present, and indicator light 26 which indicates that a valid GPS position can be provided (sufficient GPS satellites in view of the antenna 24). The indicator light 25, 26 may have multiple functions, e.g. a blinking indicator light 25 may be used to indicate charging of the locator 20 (which as is apparent from the above is provided with a (rechargeable) battery for mobile operation). The locator 20 is also provided with suitable electronics (processor, memory, interfaces, etc. as known to the skilled person) to allow operation as described below.

[0024] The embodiment of the locator 20 as described above uses the GSM and GPS system which as such are known to the skilled person. Other (mobile) communication systems and location systems may also be used when appropriate, such as UMTS networks or Voice over IP (VoIP) networks, and GLONASS location system, as long as the locator 20 is able to provide location data and voice and data communications to the processing system 10.

[0025] When the user of the locator 20 is in need of

help, he/she can actuate the emergency button 21. This triggers the locator 20 to send an emergency message to the processing system 10 using the communication interface 12, e.g. in the form of an SMS-message. This is indicated in Fig. 1 by the arrow with reference (1). The emergency message comprises identification data identifying the specific locator 20 from which the emergency message originates. This may be a dedicated identification number, but may also be the originating call number (mobile number) or IMEI number of the locator 20. Furthermore, the emergency message comprises location data, i.e. the most recently received GPS data (lat., lon.).

[0026] Upon reception of the emergency message, the processing system 10 retrieves the identification data from the specific locator 20 from the emergency message, and using the database 11, looks up data of a caretaker associated with that identification data. The data may be a single GSM number of the personal communication device 160f the caretaker, but may also include more complex data, such as various telephone numbers depending on the day of the week or the time of the day. Also, the data associated with the identification data may include the name of the user of the locator 20, and possibly the name of the caretaker.

[0027] The processing system 10 now translates the identification data and location data in a verbal message, e.g. 'Uncle Henry has pressed his emergency button at 12.15 and is located at location X'. This verbal message includes important data, such as the name of the person seeking help, the time of pressing the emergency button, and the location. Next, the processing system sends this verbal message to the personal communication device 16 of the caretaker, using again the communication interface 12. This is indicated in Fig. 1 by the arrow with reference (2).

[0028] In a further embodiment, the processing system 10 converts the location data to street address data. Again, data stored in the database 11 may be used to perform this conversion. The verbal message may then include a more useable form of the location data for the caretaker, e.g. 'at Marktstraat 45 in Rotterdam'.

[0029] If the distance between the actual location (lat., lon.) conveyed in the emergency message, and a possible nearest street address is larger than a predefined value (e.g. 25 or 50 meters), the processing system may, further to a nearest street address, also determine the distance and bearing from this nearest street address to the actual location. The verbal message may then e.g. be 'Uncle Henry has pressed his emergency button at 12.15 and is located 250 meters North-East of Marktstraat 45 in Rotterdam'.

[0030] The processing system 10 or communication interface 12 may use various techniques to compose the verbal message, such as prerecorded message fragments or text-to-speech synthesis.

[0031] Furthermore, as an alternative, the communication between processing system 10 and personal communication device 16 (including the verbal message) may be interactive, and transmitted to the personal communication device 16 using interactive voice response techniques. The caretaker can then e.g. use DTMF codes of a regular phone to select desired data (e.g.: 'Press '1' if you want to talk to the person in need, press '2' to repeat the location information',...).

[0032] In a further embodiment, the processing system 10 is furthermore arranged to also send a comforting message to locator 20 of the person in need after reception of the emergency message. This may be a simple prerecorded message ('We have received your call for assistance and know you location; one moment please, we will alert a person known to you'), but also a more complex message using text-to-speech analysis, which e.g. also included the street address. This is indicated in Fig. 1 with the arrow with reference (3).

[0033] In case of an emergency situation, it is sometimes desired to also have a direct contact between the person in need and the caretaker. For this, the processing system 10 is arranged to set up a direct (voice) communication link between the personal communication device 16 of the caretaker and the locator 20 of the person in need. Telecommunication networks such as GSM networks comprise mechanisms which allow implementation of such functionality. This is indicated in Fig. 1 with the arrow with reference (4)

[0034] The verbal message sent to the personal communication device 16, and the comforting message sent to the locator 20 may be sent once before the direct communication is set up, or may be repeated once before setting up the direct communication.

[0035] Furthermore, the verbal message, which in the above described examples, are sent to the personal communication device 16 using a speech connection, may additionally be sent to the personal communication device 16 using a data connection, e.g. in the form of an SMS or MMS message.

[0036] The processing system 10, which may e.g. be provided as a web page on the Internet 15, may comprise further control options for the caretaker or the person in need. Also, the processing system 10 may be used for billing purposes, or subscription administration. The processing system 10 may e.g. use the database 11 to store subscription data, i.e. the personal data of the user, the identification data of the associated locator 20, the associated data of the caretaker and personal communication device 16, etc.

[0037] The settings as stored in the database 11 may allow the processing system 10 to call an alternative number if the personal communication device 16 is unavailable at that moment.

[0038] Also, the database 11 may be used to store historical data concerning the emergency messages received and verbal messages sent, which may afterwards be accessed by caretakers or other persons involved and authorized.

[0039] The web page implemented using the processing system 10 may also be used interactively, e.g. by the

caretaker. The caretaker may log in to processing system 10 (using authorization techniques known as such), and e.g. submit a request to find out where the person he looks after is located (e.g. using a 'retrieve position once' button on a personal web page. The processing system 10 is then triggered to send a request signal to the locator 20, which replies with sending the data requested (actually the same as in the emergency message as discussed above). When the location data is received, the processing system 10 can convert this to street address data. Depending on user settings managed by the caretaker, the processing system 10 may convey this information back to the caretaker using one or more of the available information channels. E.g. a text line may be shown on the web page, including co-ordinates, time, address information), but this information may also be sent to the personal communication device in the form of a text message (SMS, MMS), or a voice message. The web page may also be additionally arranged to show a geographical map on request, showing the position of the locator 20.

[0040] Furthermore, in an even further embodiment, the processing system 10 may be set up to track a locator 20, e.g. upon request of a caretaker. The caretaker can once again log in to a web page implemented using the processing system 10, and select the interval between location reports. Again, depending on user settings selected by the caretaker, the location information may be reported in a periodic manner using one or more information channels. It is possible to show the subsequent locations on the web page, but these may also be sent to the personal communication device using text or voice messaging. The web page may also be arranged to show a historical report and include buttons to activate or deactivate this tracking mode.

[0041] As the locator 20 is equipped with a GSM module or similar mobile communications module, and provided with a speaker 22 and microphone 23, it is also possible to directly call the locator 20 to establish a speech connection or voice communication link, e.g. with the personal communication device 16 of the caretaker.

Claims

1. Emergency warning method for warning a caretaker, comprising
   determining a position of a subject by receiving an emergency message from a locator (20) upon actuation of an emergency button (21), the emergency message comprising location data and identification data,
   translating the identification data and location data in a verbal message, and sending the verbal message to a personal communication device (16) in the possession of the caretaker after reception of the emergency message from the locator (20).

2. Method according to claim 1, further comprising converting the location data to street address data.

3. Method according to claim 1 or 2, in which the location data is converted to a nearest street address data and distance and direction data.

4. Method according to claim 1, 2 or 3, in which the identification data is converted to personal data.

5. Method according to any one of claims 1-4, further comprising sending a comforting message to the locator (20) after reception of the emergency message.

6. Method according to any one of claims 1-5, further comprising setting up a voice communication link between the personal communication device (16) and the locator (20).

7. Method according to any one of claims 1-6, further comprising storing emergency messages.

8. Method according to any one of claims 1-7, further comprising obtaining location data from a locator (20) upon receiving a request from a caretaker associated with the specific locator (20).

9. Method according to any one of claims 1-8, further comprising storing a location obtained from the locator (20) in a periodic manner.

10. Method according to any one of claims 1-9, further comprising providing access to stored data associated with a locator (20).

11. Emergency warning system comprising a processing system (10) and a locator (20) for determining a position of a subject,
    the locator (20) being provided with an emergency button (21) and arranged for sending an emergency message to the processing system (10) upon actuation of the emergency button (21), the emergency message comprising location data and identification data,
    in which the processing system (10) is arranged:
    to translate the identification data and location data in a verbal message,
    to communicate with a personal communication device (16) in the possession of a caretaker,
    and to send the verbal message to the personal communication device (16) after reception of the emergency message from the locator (20).

12. Emergency warning system according to claim 11, in which the processing system (10) is further arranged to implement the method according to any one of claims 1-10.

13. Computer program product comprising computer executable instructions, which when loaded on a computer system, provides the computer system with the functionality of the method according to any one of claims 1-10.

Fig 1

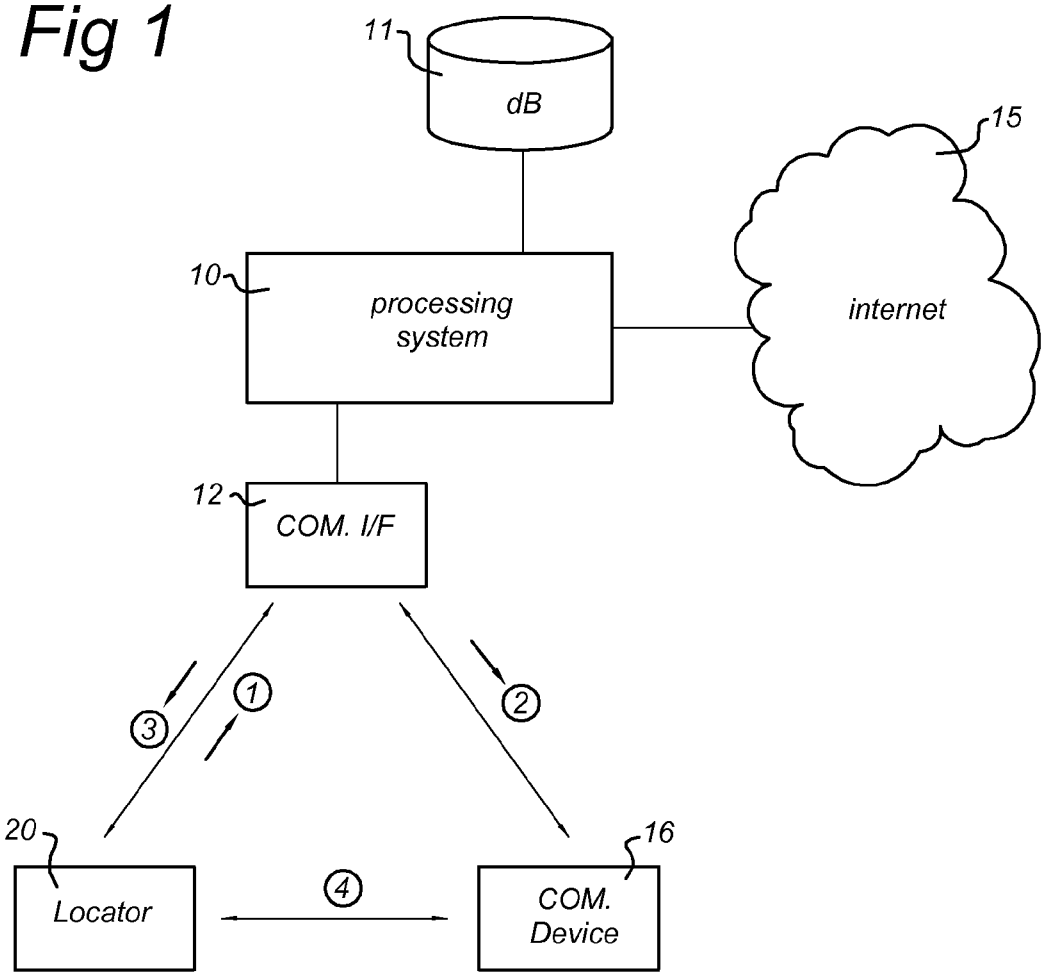
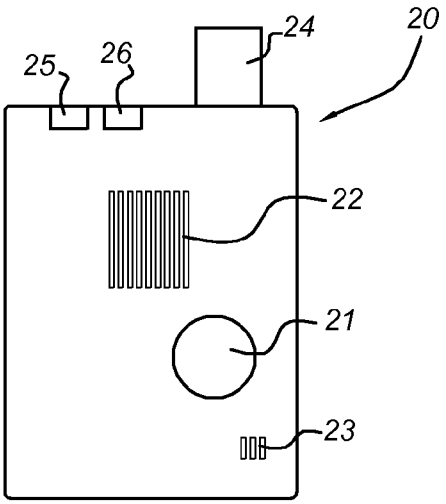

11
dB
15
10
processing system
internet
12
COM. I/F
1
2
3
20
Locator
4
16
COM. Device

Fig 2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EUROPEAN SEARCH REPORT

Application Number
EP 08 15 2530

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 6 243 039 B1 (ELLIOT BRUCE D [US]) 5 June 2001 (2001-06-05) * column 4, line 52 - column 6, line 44 * * column 7, line 51 - column 8, line 2 * * figures 1-3 *	1-13	INV. G08B25/01
X	US 6 756 913 B1 (AYED MOURAD BEN [CA]) 29 June 2004 (2004-06-29) * column 2, line 40 - line 67 * * figure 1 *	1-13	
X	US 2002/072348 A1 (WHEELER JILL CHRISTINE [US] ET AL) 13 June 2002 (2002-06-13) * the whole document *	1-13	
X	GB 2 424 149 A (BELL JOHN KIELTY [GB]) 13 September 2006 (2006-09-13) * page 3, line 18 - line 27 * * figure 2 *	1-13	

TECHNICAL FIELDS SEARCHED (IPC)

G08B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	24 July 2008	Sgura, Salvatore

CATEGORY OF CITED DOCUMENTS

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24-07-2008

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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