(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 January 2002 (03.01.2002)

PCT

(10) International Publication Number
WO 02/01864 A1

(51) International Patent Classification[7]: H04N 5/445 // G11B 23/28

(21) International Application Number: PCT/SE01/01462

(22) International Filing Date: 26 June 2001 (26.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0002471-1 30 June 2000 (30.06.2000) SE

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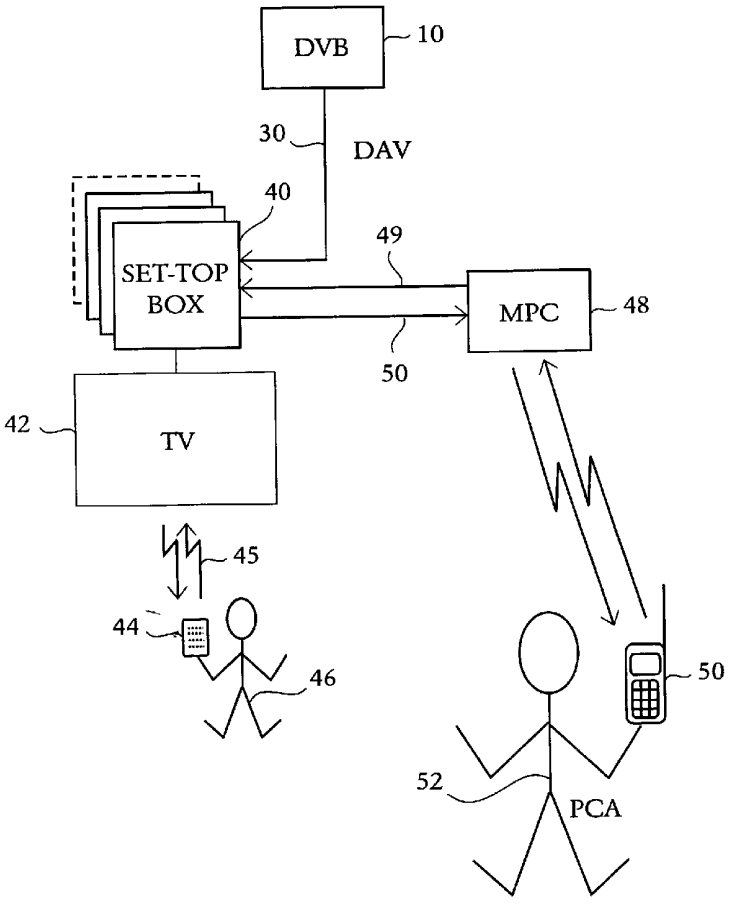
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EC, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, 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, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: PARENTAL CONTROL



(57) Abstract: A method for controlling the use of a media content delivering apparatus (40), e.g. a receiver apparatus, such as a television receiver, integrated receiver decoder, or computer connected to the Internet, or a storage apparatus, such as a computer or a loaded optical disc player, provided with a parental control system is disclosed. The method comprising the steps of sending a request (73, 83) to unlock a particular media content, e.g. channels, individual programs, movies, website content, computer files, and the like, of interest to a user of the apparatus, said media content being locked by said parental control system, to a remotely located communication device (50); and unlocking (67) said particular media content in dependence on receiving an affirmative answer to said request from said communication device.

WO 02/01864 A1

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

PARENTAL CONTROL

TECHNICAL FIELD OF THE INVENTION

The present invention generally relates to parental control of the use of media content delivering apparatus including receiver apparatus, such as e.g. television receivers, decoders, set-top boxes, e.g. cable, satellite and terrestrial, and computers connected to the Internet, and storage apparatus, such as e.g. computer memory circuits and hard disks, and optical disc players.

More specifically, the invention relates to a method and a parental controller, respectively, for controlling the use of a media content delivering apparatus; to a computer program product for performing the method; and to the media content delivering apparatus itself.

DESCRIPTION OF RELATED ART AND BACKGROUND OF THE INVENTION

Parental control is presently available in some television receivers, videocassette recorders, DVD players, and decoders on a limited basis. In these devices, certain channels may be locked out. Thus, the parents can prevent objectionable and improper material from being accessed by their children or by any other unauthorized persons.

Activities in the home networking area are growing rapidly and it becomes more and more essential to be capable of controlling the access to the media content available in the homes. This leads inevitably to situations where the system is locked even for persons that should be capable of accessing specific information content.

In general, the present state of the art concerning parental control suffers from a number of drawbacks. In particular, the control is very limited and does not provide a parent the broad

control desirable for controlling the viewing or use of a television by a child. The parental control in television receivers of today is quite static wherein a locked channel or program has to be unlocked through entering a password typically from a remote control.

If the parental control should be set aside in the systems of today when the parent is not at home, the password could of course be given out, but in such instance the channels cannot be locked again until the parent is back home and then a new password has to be selected. Further, such approach does not allow for the unlocking of only a particular channel or program or during particular times.

Further, some channels are scrambled and must be decoded by a conditional access system (CAS) of e.g. an integrated receiver decoder before being sent to a television. In such case, controlling the tuning of the television is ineffective. In such instance, the integrated receiver decoder must be provided with its own parental control.

Accordingly, there is a need in the art for apparatus and methods for improved parental control of inter alia television use to provide a parent broad control for blocking unacceptable programs, and selecting acceptable programs that are available for viewing.

SUMMARY OF THE INVENTION

It is a main object of the present invention to provide a method for controlling the use of a media content delivering apparatus provided with a parental control system such that access to blocked programs can be granted on a media content individual basis. Here, media content delivering apparatus refer to both media content receivers such as e.g. television receivers, decoders, integrated receiver decoders, e.g. cable, satellite and terrestrial, and computers with access to the Internet, and

media storage apparatus such as e.g. computer hard drives and various disc players, and media content refers to channels, individual programs, movies, website content, computer files, and the like.

It is in this respect a particular object of the invention to provide such a method that allows for the grant or the denial of an access request from a remote location.

It is a further object of the invention to provide such a method that is flexible, fast, effective, of low cost, and easy to implement.

It is still a further object of the invention to provide a computer program product for implementing the method.

It is yet a further object of the invention to provide a media content delivering apparatus provided with a parental control system such that access to blocked programs can be granted on a media content individual basis from a remote location.

It is still a further object of the invention to provide a parental controller for controlling the use of a media content delivering apparatus on a media content individual basis from a remote location.

These objects among others are attained by methods; media content delivering apparatus, parental controllers and a computer program product, respectively, as claimed in the appended patent claims.

An advantage of the present invention is that it provides for a very flexible use of parental control wherein access may be given to media content such as programs, channels, movies, files and websites remotely and independently of where the parental control administrator is located at the moment.

A further advantage of the present invention is that it provides for a rough, rather restricted setting of the parental control in advance and then access may be granted on a media content individual basis.

Furthermore, the present invention allows for the remote setup of the parental control.

Further characteristics of the invention and advantages thereof will be evident from the following detailed description of embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description of embodiments of the present invention given hereinbelow and the accompanying Figs. 1-3, which are given by way of illustration only, and thus are not limitative of the present invention.

Fig. 1 illustrates, schematically, a block diagram of a communication system wherein the present invention may be implemented.

Fig. 2 is a flow-chart of the operation of an integrated receiver decoder incorporating the parental control of the present invention.

Fig. 3 is a flow-chart of the operation of a remote parental controller according to an embodiment of the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS

In the following description, for purposes of explanation and not limitation, specific details are set forth, such as particular techniques and applications in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present

invention may be practiced in other embodiments that depart from these specific details. In other instances, detailed descriptions of well-known methods and apparatuses are omitted so as not to obscure the description of the present invention with unnecessary details.

With reference to Fig. 1, which schematically illustrates a block diagram of a communication system for multimedia applications, an embodiment of the present invention will be depicted. The backbone of the system comprises a number of communication paths 30, one of which is shown in figure 1. The transmission medium supports high-speed transmission of digital information, such as audio (A), video (V) and data (D). A number of users are connected to the backbone, of which a media content provider 10 is a transmitter of information, e.g. an information or multimedia service provider for digital video broadcasting (DVB), and a second user 40 is a receiver of multimedia information, such as a networked Integrated Receiver Decoder (IRD) or a set-top box. A standardized method, such as MPE, Multiprotocol Encapsulation, can be used to send the information to the receiver 40 through receiver equipment at the end user side.

The integrated receiver decoder 40 is typically an interactive television system provided with a processor, memory and a modem or similar enabling two-way communication between provider 10 and decoder 40.

Further, decoder 40 is provided with a parental control system (not illustrated) by means of which decoder 40 may be set to three different operating modes: a family viewing mode in which conversion of selected channels and/or programs is blocked; a setup mode for selecting the channels and/or programs to be blocked from family viewing; and a parent access mode in which all channels may be watched. The family viewing mode is enabled by turn-on of the converter or by commands by the user or the

information content provider. The setup mode is initiated by a user command typically from remote control 44 followed by a valid setup access code. The parent access mode is typically enabled by user entry of a valid access code.

Individual programs may be blocked in the setup mode provided that each program that is broadcast has a unique program identifier.

As a further alternative channels may be set to be blocked in family viewing mode only during selected dates and times in the setup mode. In such manner, e.g. channels that are broadcasting children programs in the mornings and adult oriented material during night time can be chosen to be blocked in family viewing mode during the nights.

In digital video broadcasting each program, which is broadcast, may be provided with a rating indicating how objectionable and inappropriate the program is to be watched by children. In such instance programs may be blocked from family viewing simply by selecting program ratings in the setup mode, and the programs having such ratings are automatically blocked from being converted in the family viewing mode.

It shall be appreciated that instead of selecting forbidden channels, programs, times and/or ratings the parental control system may be designed such that allowed channels, programs, times and/or ratings should be selected.

It shall further be appreciated that the parental control system may be provided with further viewing modes such as e.g. an adolescent viewing mode, which is accessed by user entry of a valid access code. In such instance, there may be two levels of restricted access: one family viewing mode wherein only universal exhibition or U films are allowed to be watched; and one adolescent viewing mode wherein all programs but the most objectionable and improper ones are allowed. The setup mode has

then to provide for the setting of two levels of restricted access and the adolescent and parent access codes must be different.

Further, there is provided various end user interface devices, such as a TV monitor 42 for displaying the multimedia information content received by decoder 40 and a remote control 44 for the control and adjustment 45 of decoder 40. Further, there may be other user interface devices present such as e.g. a microphone, speakers, a video camera, etc. (not illustrated) for enabling interactivity between an end user 46 and provider 10.

According to the present invention there is provided a remote parental controller (RPC) 48 for controlling the use of decoder 40 (i.e. of the parental control system therein). Controller 48 may be located at the decoder premises, remote from both decoder 40 and provider 10, but is preferably located at the multimedia provider premises. Controller 48 is connected to decoder 40 by means of a bi-directional communication line 49, 50. Line 49, 50 is preferably a modem connection that is available in existing integrated receiver decoders, and which typically is used as a back channel. The parental controller 48 is further typically provided with a processor, a memory and a GSM transceiver (not illustrated) such that it can place a call to a remotely located communication device such as a mobile phone 52. Optionally, the RPC and the mobile phone can communicate with each other by means of exchanging SMS messages. The mobile phone is used by a parental control administrator (PCA) 54, i.e. the parental user of decoder 40, to control the parental control system of decoder 40 remotely. Alternatively or complementary, parental controller 48 may be provided with an Internet connection such that the PCA may be contacted via e.g. e-mail and the answer may given via Internet.

It shall be appreciated that in an alternative version of the invention the RPC is not provided with a GSM transceiver but is

connected to a server or a network, which in turn contacts any communication device of the PCA.

Turning now to Fig. 2, which is a flow-chart of the operation of the receiver decoder 40 of Fig. 1, this particular part of the present invention will be depicted.

The algorithm commences when a person, e.g. a child, watches TV in the family viewing mode and switches to a program or channel that is blocked from viewing in the family viewing mode. A menu is displayed on the TV monitor in a step 61 and the child is informed of the parental blocking of the current event or program, and is asked if he/she wants to enter a PIN code to unlock the event in order to watch it. If the answer is affirmative he/she is asked to enter the PIN and in a step 63 the PIN is entered. Subsequently, in a step 65, the PIN is checked and if it is correct the event is unlocked in a step 67. If the PIN is incorrect the person is informed and is again asked to enter the PIN. This may be repeated a number of times before the algorithm is stopped.

If the answer to whether to enter the PIN code or not is negative (e.g. due to the fact that the child does not know the PIN code) he/she is asked in a step 69 whether he/she wants to ask the parental control administrator (i.e. the parent) for permission to watch the current event. If the answer is negative he/she is in a step 71 informed of that the event remains blocked. If, on the other hand, the answer is affirmative, then in a step 73 a request is sent to the remote parental controller. The request contains inter alia the name of the event the child wishes to watch.

Instead of steps 61 and 69 there may be displayed a larger menu informing of the PIN entering and the permission request, wherein e.g. a "1" is pressed for entering the PIN and a "2" is pressed for sending a request to the parent.

The operation of the parental controller will be depicted further below. For the time being it is only necessary to know that the parental controller contacts the remotely located parent and asks for permission to watch the event on the behalf of the child. Three different alternatives are possible: an affirmative answer, a negative answer and no answer at all (the parent may e.g. not be possible to contact).

Thus, in a step 75 it is checked whether an answer is received. If no answer is received the algorithm is moved to step 71, i.e. the child is informed of that the event remains blocked. If an answer is received, then in a step 77 it is checked whether the answer is affirmative or not. If the answer is affirmative the algorithm is moved to step 67, i.e. the event is unlocked. It shall be noted that only this event is unlocked, i.e. removed from the forbidden list of programs and channels.

Finally, if the answer received from the RPC is negative the algorithm moves to step 71 and the event remains blocked.

It shall be appreciated that communication with the receiver decoder 40 may be performed in any known manner, but preferably an ordinary remote control is used.

It shall further be appreciated that the parental control system remains in the family viewing mode during all parts of the algorithm described above. It is, however, possible to see the unlocking of events as a momentarily switch to the setup mode of the system for erasing the event in question.

With reference now to Fig. 3, which is a flow-chart of the operation of the RPC 48 of Fig. 1, this particular part of the present invention will be depicted.

The algorithm commences after step 73 of Fig. 2, i.e. a request is sent from the receiver decoder 40 to the RPC 48. This request is in a step 81 received. In a step 83 the request is sent to

the parental control administrator (the parent) as an SMS message or in a mobile phone call. The request is accompanied by a request to enter a PIN code, which may be the same PIN code as is to be entered in step 63 of Fig. 2. The request may alternatively be sent to the parental control administrator via Internet.

Then in a step 85 it is checked whether an answer from the PCA is received. If an answer is received it is checked whether the PIN code is correct. If so the answer, being affirmative or negative, is in a step 87 sent back to the receiver decoder 40. The PIN access code is necessary to prevent the child itself from giving the answer when the mobile phone of the parental control administrator by mistake is left at home, i.e. at the decoder premises.

If no answer is received then in a step 89 a signal is sent back indicating that no answer from the PCA has been received. Alternatively, no answer at all is sent back to the receiver decoder.

The remote parental controller provides means to increase the flexibility of parental control used in existing receiver decoders. By sending an inquiry to the parental control administrator (i.e. the parent that setup the parental control system of decoder 40) the child can ask if he or she could watch a specific program (or unlock the entire channel). If e.g. a mobile phone is used to contact the parent, an automatic parental controller service could ask the parent to enter the same PIN code that would have been entered with the remote control in the home and then press e.g. "1" or "0" in order to grant or deny access to the requested material.

It shall be appreciated that RPC may contact the PCA via a GSM service or via WAP, SMS, or WWW. All necessary information

regarding the content is sent to the PCA to make it possible to make the decision to grant or deny access.

It is not only possible to grant or deny access to content but also to setup the parental control remotely. In such instance, the RPC is operating such that a transparent connection is setup between the PCA and the receiver decoder. Thus the remotely located PCA may control the parental control system of receiver decoder 40 by means of his/her mobile phone just as if he/she was sitting in front of the receiver decoder with the remote control in his/her hand (possibly with the exception of slight delays due to transmittal time). This function is particularly useful if the PCA and the RPC may communicate over the Internet such that the PCA can have a good overview of the settings.

If the RPC system of the present invention is used, it wouldn't be necessary for the parent to be at home to lock or unlock e.g. TV channels or programs.

It shall be appreciated that the present invention is not only applicable to receiver decoders and television receivers, but to media (multimedia) content apparatus in a general term which include both media content receivers such as e.g. television receivers, decoders, integrated receiver decoders and computers with access to the Internet, and media storage apparatus such as e.g. computer hard drives and various disc players, and thus program or event may correspond to movies, website content, computer files, discs, and the like.

It will be obvious that the invention may be varied in a plurality of ways. Such variations are not to be regarded as a departure from the scope of the invention. All such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the appended claims.

CLAIMS

1. A method for controlling the use of a media content delivering apparatus (40) provided with a parental control system, the method being characterized by the steps of:

- sending a request (73, 83) to unlock a particular media content of interest to a user of the apparatus, said media content being locked by said parental control system, to a remotely located communication device (50); and

- unlocking said particular media content (67) depending on receiving an affirmative answer to said request from said communication device.

2. The method as claimed in claim 1 wherein said media content delivering apparatus (40) is an integrated receiver decoder and said particular media content is a channel or a program.

3. The method as claimed in claim 2 wherein said integrated receiver decoder is provided with a modem, typically used as a back channel, and wherein the step of sending the request is performed via said modem.

4. The method as claimed in claim 3 wherein any affirmative answer to said request from said communication device is received via said modem.

5. The method as claimed in any of claims 1-4 wherein the request is accompanied by an identification of the particular media content.

6. The method as claimed in any of claims 1-5 wherein the step of sending the request to the remotely located communication device comprises a further request to supply a valid access

code; and wherein said particular media content is unlocked depending on receiving a valid access code.

7. The method as claimed in any of claims 1-6 wherein the request is sent and the answer is received via a cellular telecommunication network.

8. The method as claimed in any of claims 1-7 wherein a further unlocked particular media content is locked depending on receiving such a request from said communication device.

9. A media content delivering apparatus provided with a parental control system for controlling its use, the media content delivering apparatus c h a r a c t e r i z e d i n :

- a transceiver for sending a request (73, 83) to unlock a particular media content of interest to a user of the apparatus, said media content being locked by said parental control system, to a remotely located communication device (50), and for receiving an answer to said request from said communication device; wherein

- said parental control system is adapted to unlock said particular media content (67) depending on the answer being affirmative.

10. The apparatus as claimed in claim 9 wherein said apparatus is an integrated receiver decoder (40) and said particular media content is a channel or a program.

11. The apparatus as claimed in claim 10 wherein said transceiver for sending a request and receiving an answer is a modem.

12. The apparatus as claimed in any of claims 9-11 wherein said transceiver for sending a request and receiving an answer is a cellular network transceiver.

13. A parental controller for controlling the use of a media content delivering apparatus (40) provided with a parental control system, c h a r a c t e r i z e d i n

- that said controller is connectable to said media content delivering apparatus by means of a bi-directional communication line (49, 50), particularly a modem line; and in that the controller further comprises:

- an input terminal being connectable to said communication line for receiving a request (81) to unlock a particular media content of interest to a user of the media content delivering apparatus, said media content being locked by said parental control system, from the media content delivering apparatus;

- a transmitter for transmitting the request to unlock a particular media content (83) to a remotely located communication device (50);

- a receiver for receiving an answer (85) to said request from said communication device; and

- an output terminal being connectable to said communication line for sending a signal (87) to said media content delivering apparatus to unlock said particular media content depending on the answer being affirmative.

14. The controller as claimed in claim 13 wherein said media content delivering apparatus is an integrated receiver decoder (40) and said particular media content is a channel or a program.

15. The controller as claimed in claim 13 or 14 wherein said transmitter for transmitting the request to the remotely located communication device and said receiver for receiving an answer (85) from said communication device receiver are adapted to use a cellular network.

16. A computer program product loadable into the internal memory of a computer-based media content delivering apparatus (40), and comprising software code portions for performing the method as claimed in any of claims 1-8 when said product is run on said apparatus.

1/3

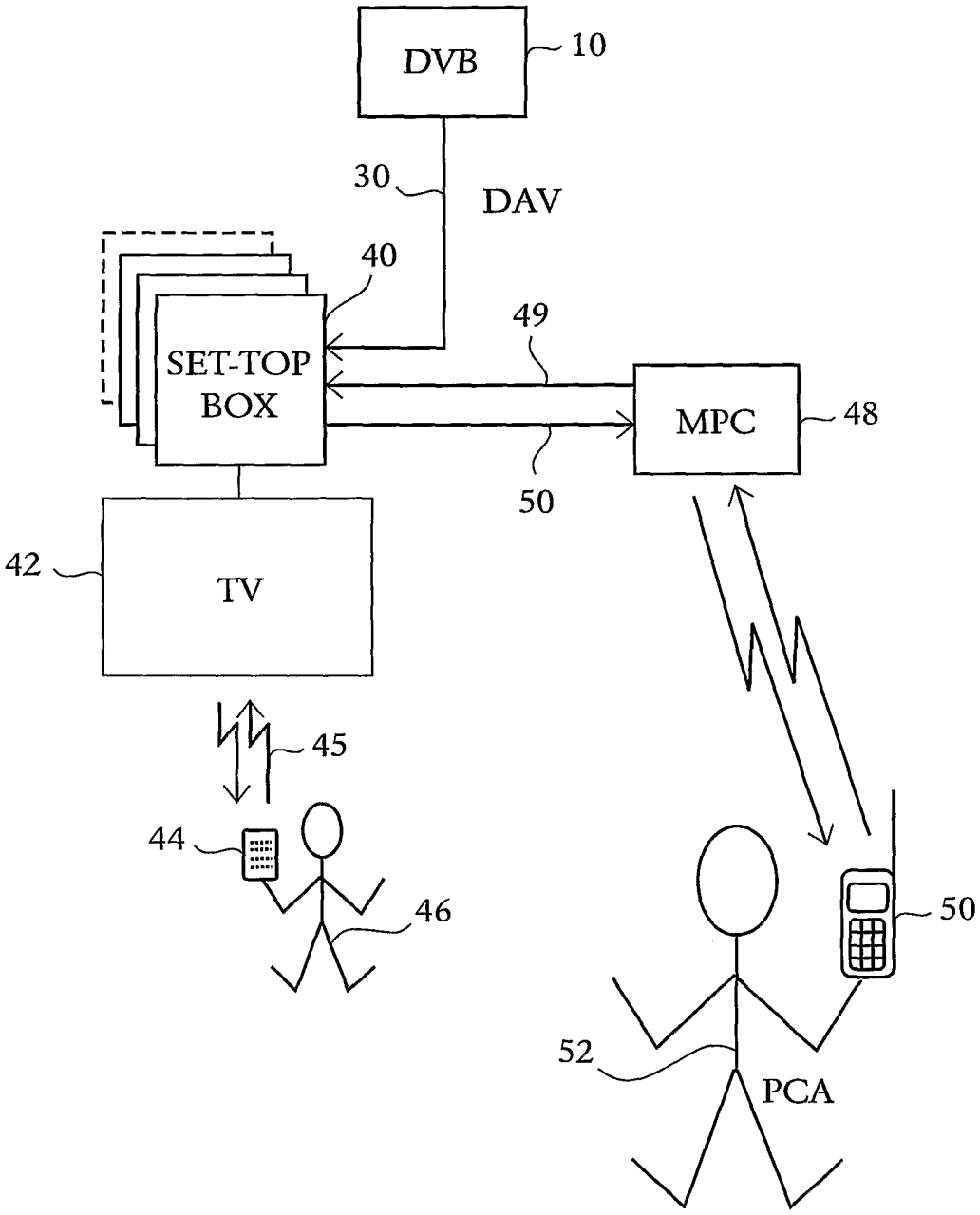


Fig. 1

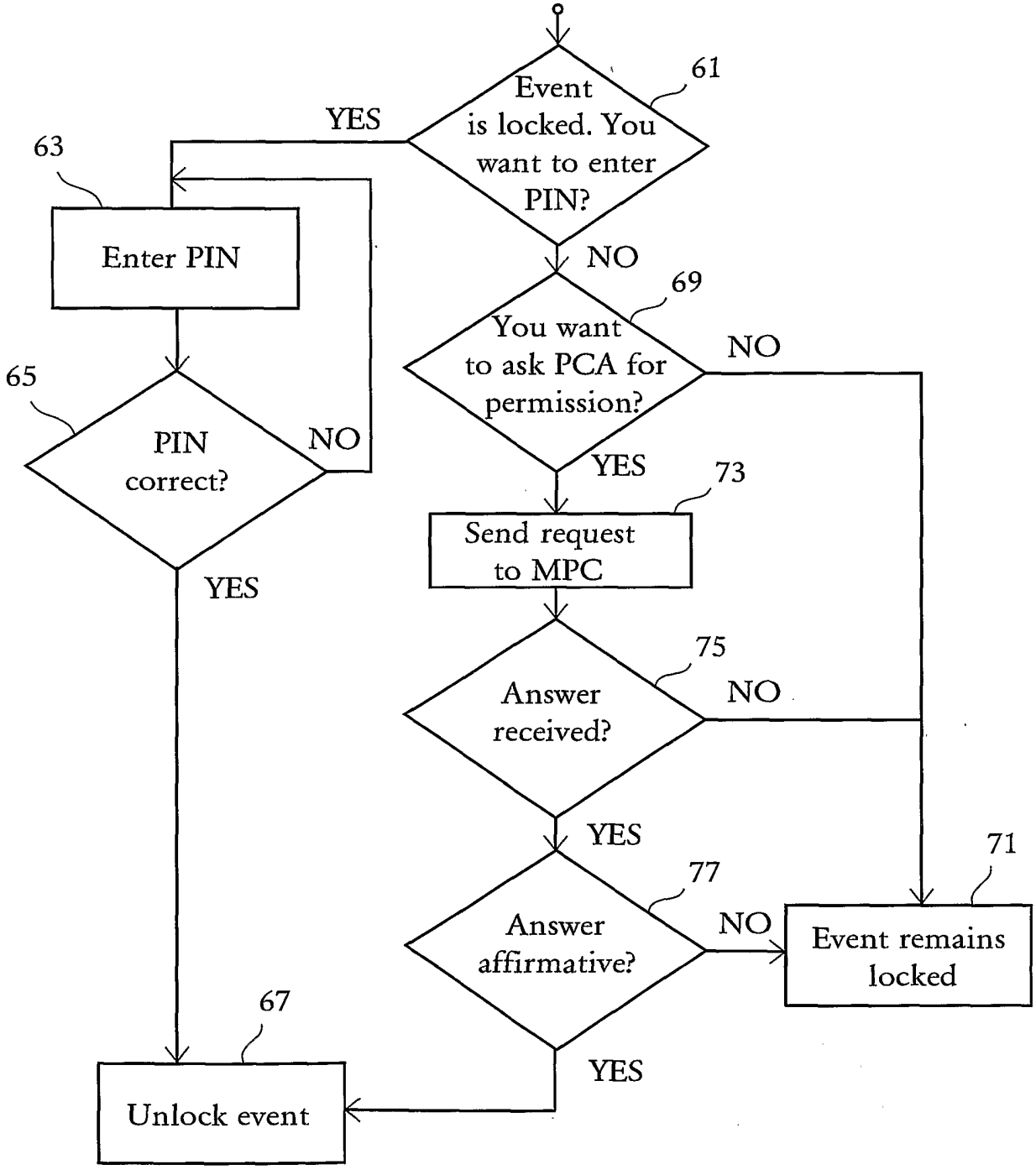

Event is locked. You want to enter PIN?
61
YES
NO
63
Enter PIN
65
PIN correct?
NO
YES
69
You want to ask PCA for permission?
NO
YES
73
Send request to MPC
75
Answer received?
NO
YES
77
Answer affirmative?
NO
YES
71
Event remains locked
67
Unlock event

Fig. 2

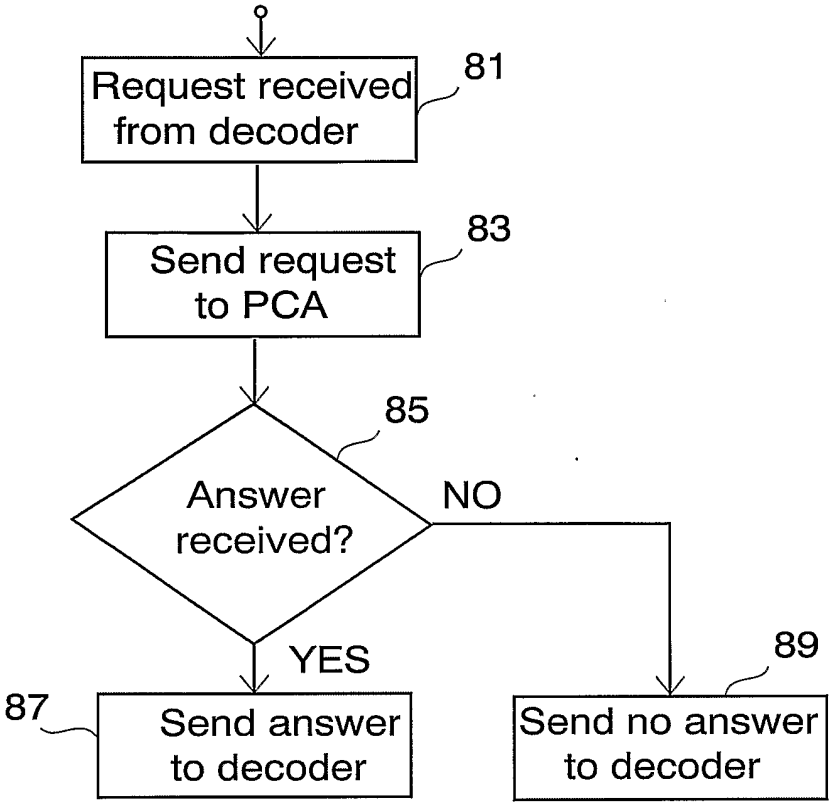

Request received from decoder
81
Send request to PCA
83
Answer received?
85
NO
YES
Send answer to decoder
87
Send no answer to decoder
89

Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 01/01462

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04N 5/445 // G11B 23/28
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: H04N, G11B

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)

EPO-INTERNAL, WPI DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 0119084 A1 (UNITED VIDEO PROPERTIES, INC.), 15 March 2001 (15.03.01)	1-16
A	US 5949471 A (YUEN,H.C.), 7 Sept 1999 (07.09.99)	1-16
A	EP 0801512 A2 (NOKIA MOBILE PHONES LTD.), 15 October 1997 (15.10.97)	1-16
A	WO 0017021 A1 (VAN BERGEN,J.C.), 30 March 2000 (30.03.00)	1-16

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"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)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"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
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 October 2001	05 -10- 2001
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 Henrik Andersson/LR Telephone No. +46 8 782 25 00

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

Information on patent family members

03/09/01

International application No.
PCT/SE 01/01462

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