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(54) **PROCESS AND DEVICE FOR IDENTIFYING A PROGRAMME INFORMATION**

PROCESS AND DEVICE FOR IDENTIFYING A PROGRAMME INFORMATION

PROCEDE ET SYSTEME PERMETTANT D'IDENTIFIER DES INFORMATIONS CONCERNANT UNE EMISSION

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Description

[0001] The invention concerns a process for identifying a broadcasting program that contains sound and/or image information.

[0002] Music and image broadcasts via state and private broadcasting facilities are consumed on a large scale. When listening to or viewing individual broadcasting programs, especially music titles, there is often a wish to get to know the broadcasting program or music title just received more closely or to purchase it for storage in a home or private archive. However, corresponding targeted coverage of these requirements is generally excluded due to lack of knowledge of the title, the composer or the performers. The already rare title announcements are often insufficient or difficult to remember; the announcements are also often not noticed, or missed. Taking written notes of title information transmitted in the broadcast is difficult and often not safely possible, for example, when receiving the transmission by car radio in moving traffic. Specific requests from the respective broadcasting facility only bring the desired information rarely and then only with a considerable investment of time and expense.

[0003] Patent document US 5 063 610 describes a broadcasting system with accompanying data transmission and storage. Parallel to music broadcasts, the broadcaster transmits information texts that identify the transmitted music program (preferably in a digital format). A receiver receives the broadcast and decodes and saves the identifying information between, so that it can be output later. The information texts to be identified contain information about the title, performers and recording medium. The *operator* can read this clear text information on a display or have it printed out on a paper strip printer.

[0004] The task of the invention is to enable simple and reliable identification of a broadcasting program, particularly a music title, by the operator of a receiver.

[0005] This task is solved by the invention by means of a process with the attributes of Claim 1.

[0006] The transmission of the identification information allocated to the broadcasting program enables a listener or operator to identify the music title in a simple and reliable manner. A simple operator input (such as pushing a button) is sufficient for this purpose, and the identification information is saved. This saved identification information then easily permits the operator or listener to identify the heard or seen broadcasting program. A non-volatile memory that can be taken out of the receiver is used,

and taken out of the receiver to read the identification information, and read out in a separate reading unit. A magnetic card or chip card, for example, can be used as a non-volatile memory. After a series of identification information is saved on the card, the operator takes out the card and places it in the reading unit. Such a reading unit, which is preferably connected to a database, can be installed in stores that sell or loan CDs, LPs and cassettes, for example. After reading the identification information, the corresponding information about the music title and/or the corresponding sound recordings can be provided to the card holder there.

[0007] An advantageous further embodiment of the invention is characterized by the identification information being encoded on the transmitter side and decoded on the receiver side, either before being saved or after being read out from the memory. When transmitting the identification information, the process feasibly utilizes the numerous existing technical options for transmitting encoded information via the communication link that is created between the transmitter and the receiver. For example, the encoded identification information can be transmitted with the aid of a non-audible low frequency signal (>20kHz) or an additional HF subcarrier. The RDS (Radio Data System) is a known method for transmitting encoded information.

[0008] Encoding the identification information also offers the option of allocating a specific code to each broadcasting program or music title, which can have a relatively short length. For example, the encoded identification information may be a binary number whose length results from the number of all broadcasting programs or music titles that are possible within a foreseeable time (for example, approx. 4×10^9 broadcasting programs can be identified with a 32-bit number). It is practical to allocate information about the broadcasting program to the identification information, such as the title, the performers and the composer of a music title; the information that is allocated to each other is filed in a database, and the information about the broadcasting program is brought up from the database and output with the aid of the identification information after the identification information is read from the memory. The database represents a type of table, which contains the encoded identification information in one column (such as the above binary number) and the allocated information in further columns. One broadcasting program is allocated to one table line, respectively. It is practical to allocate the identification information to the information about the broadcasting program and the creation of the database in a central location to ensure the uniqueness of the allocation. The identification information

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is used to refer to the corresponding dataset of the database after it is read out. These technologies to query a database are known in the state of the art.

[0009] In a practical embodiment of the invention, the identification information is transmitted along with the sound and/or image information. The identification information is then placed in interim memory on the receiver side for a specified time interval after the sound and/or image information is separated from the identification information, and the identification information that was placed in interim memory is permanently saved if the operator makes an entry in the specified time interval. Interim saving of the identification information ensures that the operator entry can be made at any desired time during and/or immediately after the sound and/or image information of the broadcasting program is played. It is advantageous that the identification information of each broadcasting program is repeatedly sent, received and placed in interim memory until the next broadcasting program begins. If, for example, two broadcasting programs or music titles are separated by a brief word program, the identification information of the previous music title continues to be transmitted during the word program. The listener can decide while listening to (and/or viewing) the broadcasting program and directly afterwards whether they wish to make an entry, thus making it possible to identify the broadcasting program.

[0010] An array to implement the process in accordance with the invention possesses five significant components: a filtration means, an input device that can be selectively operated by the user, a memory, a decoder, and a reading unit. The filtration means is arrayed in or on the receiver and separates encoded identification information that corresponds to the received broadcasting program from the signal that is received from the transmitter. The input device that can be selectively operated by the user is also arrayed on the receiver, and serves for the selection of the received broadcasting program for identification. The memory is linked with the input device and saves the identification information depending on whether the input device is operated. The decoder decodes the identification information and can be connected with the memory (if the memory saves the encoded identification information, the input of the decoder can be connected with the memory, and when the memory saves the decoded identification information, the output of the decoder can be connected with the memory). The reading unit can be connected with the memory and reads out and evaluates the identification information that is saved in the memory.

[0011] In this array, the memory is non-volatile, removable from the receiver, and insertable into a reading unit, wherein the reading unit

is arrayed separately from the receiver and connected with an output device. When identification information has been saved as a result of operating the input device, the non-volatile memory can be taken out of the receiver and inserted into the separate reading unit. Herein the memory can save either the encoded or the decoded identification information. When the memory saves the encoded identification information, the decoder is arrayed in the reading unit, wherein the encoded identification information is decoded after reading. In the preferred exemplary embodiment, the reading unit is connected with a database that contains information about the broadcasting program, such as the title, the performers and the composer of a music title. Herein the reading unit accesses the database with the aid of the read identification information. In this exemplary embodiment, the output device that is connected with the reading unit outputs the information about the broadcasting program by printing it out and/or displaying it.

[0012] The input device preferably possesses a flip-flop whose set input is connected to a button, and whose reset input is connected to the memory in such a manner that the flip-flop is reset after the identification information is saved. Such an array has the advantage that the entry that is associated with the wish to identify the broadcasting program can be made even before the encoded or decoded identification information of the just-transmitted program is available to be saved. This is especially necessary when the identification information is only transmitted at the end of the broadcasting program or repeatedly at specified intervals.

[0013] Aside from the non-volatile memory (which can be taken out of the receiver), the system may contain a further, volatile memory (such as a RAM) for interim saving of encoded and/or decoded identification information. This interim memory may be arrayed so that it saves the identification information that is transmitted with the broadcasting program and then outputs it to the non-volatile memory when the operator has operated the input device. The filtration means, the decoder, the input device, the interim memory (RAM) and the non-volatile memory as well as a control unit that controls the transmissions between these component groups can be linked via a shared bus. Herein the control unit may contain a microprocessor.

[0014] Advantageous further embodiments of the invention are identified in the sub-claims.

[0015] The following further describes the invention on the basis of exemplary embodiments that are shown in the diagrams. In the diagram, the following:

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Fig 1 show a schematic diagram of a system to perform the process in accordance with the invention; and
Fig. 2 – 5 block diagrams of exemplary embodiments of the array.

[0016] Fig. 1 shows a schematic diagram of a device to perform the process in accordance with the invention. Before a music title is broadcast by a broadcaster 1, an identification code is allocated to it. This is practically performed at a central location in order to ensure that a specific, unique identification code is allocated to each music title. Before the music title that has been recorded on various recordings is passed on to the broadcasting facilities, the allocated identification code is noted on the music recording or an accompanying information carrier medium. On the broadcaster side, the identification code is either entered into the transmitter 1 automatically or by means of an operator entry that is performed in parallel with the music title stored on the recording, and broadcast by the transmitter 1.

[0017] The signals that are encoded or modulated in the customary manner (sound information and identification code) then reach a receiver 2. The receiver 2 has a filter 3, which separates the identification code from the sound signals. The sound information that forms the music title is output in the customary manner via an amplifier 7 and loudspeaker 8, and thereby reach the listener or the operator of the receiver. The filtered or separated identification code is sent to a control unit 5 that is connected with an input device 4 and a memory 6. The input device 4, such as a button, is operated by the listener or operator if they wish to identify the just-heard music title. When operating the input device 4, an impulse is sent to the control unit 5, which then passes the code that it received from the filter 3 on to the memory 6. The memory 6 saves the identification code that was selectively chosen by the operator.

[0018] Depending on the embodiment of the system and size of the memory 6, the operator can consecutively save the identification codes of several heard music titles. The memory 6 is a non-volatile memory; that is, it continues to hold the saved identification codes even when the power supply of the receiver 2 is shut down. The memory 6 may, for example, consist of a magnetic card or chip card.

[0019] When the operator later desires the identification codes of the heard and selectively chosen music titles, they take the memory 6 out of the receiver 2 and connect the memory with a reading unit 10 that is arrayed in another location. The connection can take place, for example, by inserting the magnetic or chip card into a corresponding device. The reading unit 10 reads

the saved identification codes out of the memory 6', and allocates information about the respective music title (performers, title, composer, year of publication etc.) to these codes by accessing a dataset of a database 11 with the aid of the respective specific identification code of a music title. The database 11 is organized in a known tabular manner so that the identification code can be used to refer to a line in a table or a dataset. The line in the table contains information about the music title in corresponding fields. The information about the music title that is thereby obtained from the reading unit 10 is transmitted to an output device 12. The output device 12 can display and/or print out the information that is obtained in this manner. Using the information obtained in this manner, it is relatively simple for the operator to specifically purchase music recordings of the corresponding music titles.

[0020] Within the scope of the idea behind the invention, numerous modifications of the system to perform the process in accordance with the invention are conceivable. Some of these exemplary embodiments are shown as block diagrams in figures 2 to 5.

[0021] Figure 2 shows a block depiction of an exemplary embodiment, in which the receiver 2 possesses a minimum of additional components. Aside from the demodulation and booster circuits, the receiver 2 has only three additional components to fulfill the process in accordance with the invention. A filter 3 (F) serves to separate the identification code from the received signal. The output signal of the filter 3 reaches the memory 6 (Sp) via an input device 4. When the input device 4 is operated, the memory 6 saves the identification code. The memory is non-volatile, removable from the receiver 2, and can be connected to a reading unit 10 (L).

[0022] When the memory 6' (Sp') is connected to the reading unit 10, the identification code is read out and transmitted to a decoder (D). The decoder (D) decodes the identification code and passes the decoded identification information on to an output device 12 (A). The output device displays the identification information and/or prints it out. The reading unit (10), decoder (D) and output device 12 are arrayed separately from the receiver 2 and if applicable, at a spatial distance.

[0023] The identification information that is output by the output device 12 identifies a music title in a unique manner. Similarly, to an ISBN number that is used for book titles, the operator can use the decoded and output identification information to specifically cover their requirements for a recording of the heard music title.

[0024] Fig. 3 shows another exemplary embodiment of a device to perform the process in accordance with the invention. In this system, the

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