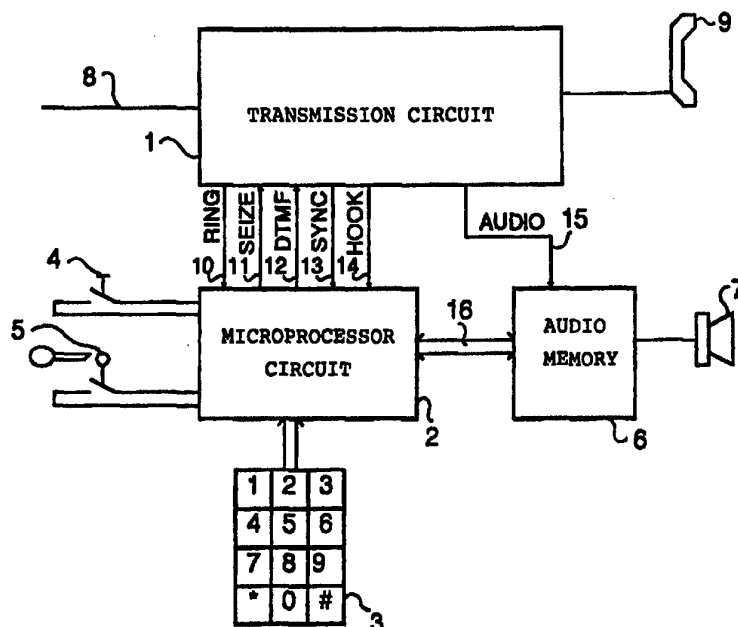




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(54) Title: TELEPHONE APPARATUS WITH ABBREVIATED DIALLING



(57) Abstract

Telephone set provided with twelve telephone buttons (3) and memories for storing telephone numbers designed in such a way that, after the receiver has been lifted off the hook, the twelve telephone buttons can be used to dial a number stored in the memory and coupled to the respective button and that, after the receiver has been lifted off the hook and a switch-over button has been depressed, the telephone buttons can be used in the normal manner for dialling a number not stored in one of the memories. The set is intended for use by children. The buttons can be provided with photographs or other illustrations.

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Telephone Apparatus with Abbreviated Dialling

The invention relates to a telephone set intended for use by children.

Telephone sets are known which have memories for speed dialling. In order to dial the numbers stored in the memories of the telephone set, the user has to depress specific buttons coupled to said memories. Sets are also known in which the user has to depress a combination of a specific button and one or more numerical buttons in order to dial a number from one of the memories. Combinations of these possibilities incorporated in one and the same telephone set are also known.

It is known that children generally need to be able to dial only a limited number of telephone numbers. The use of a telephone number with memories is therefore also the appropriate means for this purpose. However, the use of a combination of a plurality of buttons may present a problem, especially for young children. Even if there are specific buttons for the memories, it is difficult for a child who cannot yet read to find out which buttons have to be used. The total amount of buttons on the set may also lead to confusion.

US Patent 4 866 764 offers a solution in the sense that the specific buttons for dialling numbers from the memory of the telephone set can be provided with photographs or other illustrations which indicate the nature of the number to be dialled. However, the normal numerical buttons which are generally unnecessary for the use by young children are incorporated in the telephone set of the said patent and increase the risk of errors.

US Patent 4 567 326 offers a solution in which the number of buttons on the telephone set is limited to the numerical buttons and in which speed dialling is nevertheless possible. To dial a number from one of the memories, however, the user has to depress a complicated combination of buttons.

The object of the invention is to offer a user-friendly solution for children for dialling numbers stored in

the memories of the telephone set. The invention according to the first claim thus refers to a telephone set which is provided with twelve telephone buttons and memories for storing telephone numbers, characterized in that the set is
5 designed in such a way that, after the receiver has been lifted off the hook, the twelve telephone buttons can be used to dial a number stored in the memory and coupled to the respective button and in that the set is furthermore provided with a switch-over button which is such that, after the
10 receiver has been lifted off the hook and the switch-over button has been depressed, the telephone buttons can be used in the normal manner for dialling a number not stored in one of the memories.

The set is so designed that the buttons can be
15 provided with a photograph or an illustration, for example in the way as specified in Patent 4 866 764. To dial a number from the memory, the user has to take the receiver from the set and depress one of the buttons. Instead of the numeral, the number from the memory coupled to the button is dialled
20 directly.

The switch-over due to the switch-over button is maintained until the receiver is again placed on the set. When removal from the hook takes place the next time, the buttons are again coupled to the memory.

25 In order not to make the number of buttons of the set greater than is necessary, it is also possible for said switch-over button to be one of the original twelve buttons, in which case said button cannot then, of course, be coupled to one of the memories. Preferably, the numerical button 0
30 is used for the switch-over function in this solution.

The memories can be programmed in various ways, for example as is usual in existing telephone sets with memories. A specific programming button is then present in order to indicate that a memory has to be programmed. It is then
35 necessary to depress one of the memory buttons, the numerical buttons for the number to be stored and the programming button yet again.

Other ways in which the number of buttons does not

have to be extended with a programming button are, however, also possible. The programming is then done, for example, while the receiver is on the set. The user presses in sequence the switch-over button, one of the numerical/memory buttons and the numerical buttons for the number to be stored in the memory. The procedure is concluded by depressing the #-button.

Another method in which additional buttons are also unnecessary proceeds as follows. The user presses the switch-over button and keeps it depressed while the receiver is lifted off the hook. After that, one of the numerical/memory buttons and the numerical buttons for the number to be stored in the memory are depressed. The procedure is concluded by replacing the receiver on the set.

To prevent the undesirable programming of the set by the child, the set can be equipped with a key switch having a removable key. In addition to the fact that programming can be prevented with the key switch, other limitations can be switched on and off. In this connection the switching-off of the facility for switching between speed dialling and normal numerical dialling, the limiting of the number of outgoing calls for each preset period, for example 24 hours, or the limiting of the time duration of outgoing calls come to mind.

The telephone set can be made still more attractive to children by providing an audible feedback when a button is depressed. This can be done, for example, by coupling a sound fragment stored in an audio memory to each numeral, * and #. Said sound fragment may be the numeral which is pronounced by a human voice, but also a tone generated by a musical instrument or synthesizer. In the last case, each numeral, * or # has its own pitch, the various pitches being chosen in such a way that discords unpleasant to human hearing cannot occur if the tones are reproduced in an arbitrary sequence.

A series of sound fragments is reproduced via a loudspeaker simultaneously with the dialling of a number from the memory. The switch-over button may also be provided with

a sound fragment. When the switch-over button has been operated once and the buttons function as numerical buttons, the fragment associated with each numerical button is reproduced when that number is pressed.

5 A variation on the same theme is that a sound fragment is coupled to each button and is reproduced when the button is depressed when the button functions as a speed-dialling button. Once the switch-over button has been operated and the buttons function as numerical buttons
10 another series of sound fragments can be coupled to the button.

Furthermore, the set can be made still more attractive for children if a sound fragment of, for example, a known pop group is reproduced instead of the known ringing
15 sounds in the case of an incoming call.

To replace the sound fragments both for the audible feedback of the dialled numbers and for the call signals with other sound fragments, use can be made of the method as described in Dutch Patent Application 9401394.

20 The invention will now be explained in its most elaborate form by reference to the accompanying drawing, in which the sole figure shows a block diagram of the invention.

The set comprises, according to this Figure, a transmission circuit 1, a microprocessor circuit 2, a
25 keyboard 3, a switch-over button 4, a key switch 5, an audio memory 6 and a loudspeaker 7.

Connected to the transmission circuit 1 are the telephone line 8 and the receiver of the set 9. Incorporated in the microprocessor circuit 2 is a DTMF transmitter and
30 also a programming memory and data memory, inter alia for the storage of speed-dialling numbers.

Between the transmission circuit 1 and the microprocessor 2 there are connections for the following signals: RING 10 coming from the bell-signal detector
35 incorporated in the telephone transmission circuit 1, SEIZE 11 coming from the microprocessor circuit 2 and used to seize the telephone line 8 via the telephone transmission circuit 1 and to control pulse dialling signals, DTMF 12 for

controlling tone dialling signals to the telephone line 8, SYNC 13 for the microprocessor circuit 2 to receive the synchronization signal of the sound data base, as specified in Dutch Patent Application 9401398 and HOOK 14 for transmitting the status of the cradle switch to the microprocessor circuit 2.

Furthermore connected to the microprocessor circuit 2 are the keyboard 3 containing the twelve telephone buttons, the switch-over button 4 and the key switch 5. The microprocessor circuit can control the audio memory via control bus 16 in order to reproduce or to record sound fragments.

The connection AUDIO 15 between the transmission circuit 1 and the audio memory 6 conveys sound signals coming from the telephone line 8 to the audio memory 6 if new sound fragments have to be recorded from the sound data base. Sound fragments are reproduced from the audio memory 6 via the loudspeaker 7 connected to the audio memory 6.

If one of the twelve telephone buttons is used to switch over between speed dialling and normal numerical dialling, the separate switch-over button 4 can be omitted.

If no restrictive provisions are needed in the set, the key switch 5 can be omitted.

If the sound fragments do not need to be re-recorded via the telephone line 8 from a sound data base, the SYNC signal connection 13 and the AUDIO signal connection 15 can be omitted.

If no sound fragments need to be reproduced when numerals, * or # are selected or when the switch-over button 4 is depressed or for the purpose of signalling incoming calls, the audio memory 6, the loudspeaker 7 and the control bus 16 can be omitted.

The operation of the set will immediately be clear to any person skilled in the field of electronics and telephony with the block diagram shown and the description given above of the functionality.

CLAIMS

1. Telephone set, provided with twelve telephone buttons (3) and memories for storing telephone numbers, characterized in that the set is designed in such a way that, after the receiver (9) has been lifted off the hook, the twelve
5 telephone buttons (3) can be used to dial a number stored in the memory and coupled to the respective button and in that the set is furthermore provided with a switch-over button (4) which is such that, after the receiver has been lifted off the hook and the switch-over button (4) has been depressed,
10 the telephone buttons can be used in the normal manner for dialling a number not stored in one of the memories.
2. Telephone set according to claim 1, characterized in that the switch-over button (4) is one of the twelve telephone buttons (3).
- 15 3. Telephone set according to claim 1 or 2, characterized in that the set is furthermore provided with a key switch (5) with which the switch-over to normal dialling and the programming of new numbers in the memory can be prevented, the number of outgoing calls per time unit can be
20 limited and/or the call duration of an outgoing call can be maximized.
4. Telephone set according to claim 1, 2 or 3, characterized in that the set furthermore contains an audio memory (6) and a loudspeaker (7) and in that, whenever a
25 numeral, an * or a # is selected or the switch-over button (4) is depressed, another sound fragment associated with said numeral, * or # or with the switch-over button (4) is reproduced from the audio memory (6) via the loudspeaker (7).
5. Telephone set according to claim 1, 2 or 3,
30 characterized in that the set furthermore contains an audio memory (6) and a loudspeaker (7) and in that, whenever a button, including the switch-over button (4), is depressed, another sound fragment from a first series of sound fragments is reproduced from the audio memory (6) via the loudspeaker
35 (7) and in that, after the switch-over button (4) has been depressed, whenever a button, with the exception of the switch-over button (4), is depressed, another sound fragment

from a second series of sound fragments is reproduced from the audio memory (6) via the loudspeaker (7).

6. Telephone set according to claims 1, 2 or 3, characterized in that the set furthermore contains an audio
5 memory (6) and a loudspeaker (7) and in that, whenever an incoming call has to be signalled, a sound fragment is reproduced from the audio memory (6) via the loudspeaker (7).

7. Telephone set according to claims 4 and 6 or according to claims 5 and 6, characterized in that the audio
10 memory (6) and the loudspeaker (7) is used both for the sound fragments associated with the numerals, * and # to be selected or with the buttons and with the switch-over button (4) and for sound fragments associated with incoming calls.

8. Telephone set according to one of claims 4 to 7,
15 inclusive, characterized in that new sound fragments for the numerals, * and # and/or the buttons and the switch-over button and/or for incoming calls can be loaded from a sound database into the audio memory (6).

