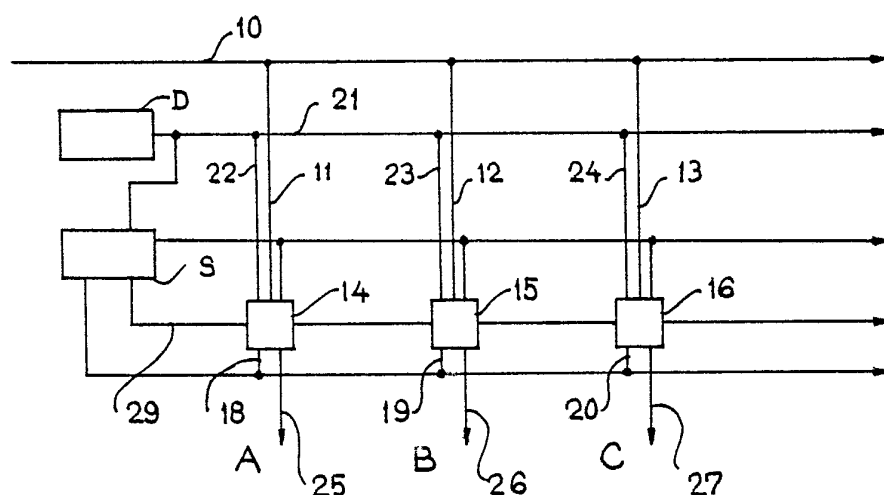




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(54) Title: METHOD AND APPARATUS FOR SELECTIVELY BLOCKING PROGRAM CHANNELS



(57) Abstract

A method for telecommunication in a system comprising a plurality of selectable program channels for communication with a plurality of subscribers. Program signals for all selectable program channels are passed to each one of the subscribers or groups thereof, and obfuscation signals are passed to all selectable program channels under such a selection at the subscribers that there only program channels, for which subscription has been made, receive undisturbed signals whereas the remaining channels are obfuscated. An equipment for telecommunication in a system comprising a plurality of selectable program channels for communication with a plurality of subscribers comprises controllable blocking means disposed at each one of the subscribers, adapted to let through program signals for a plurality of programs, and an obfuscation signal generator connected to all blocking means, which generator is adapted to send an obfuscation signal via the blocking means to all of the selectable program channels with the exception of those channels, for which a subscription has been made.

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Method and apparatus for selectively blocking program
channels

The present invention relates to a method and means for telecommunication in a system comprising a plurality of selectable channels. Simplified, the system may be said to relate to a cable TV system comprising a plurality of channels for which subscription may be made to any desired number, and the invention will be discussed below essentially with reference to such a system, without however being restricted to exactly such systems.

Certain known cable TV systems comprising a plurality of channels are designed in such a manner that one has to select one or some of the selectable channels already when the subscription is made, which channels are then connected up at the subscriber and which will then remain permanently connected up. The systems are comparatively limited with respect to the number of possible channels. Further, these known systems suffer from the drawback that it is comparatively complicated to change from one selection of channels to a different one, in as much as such a change normally requires a service man to visit the subscriber in order to carry out the necessary switching there.

The present invention has aimed at providing a method and means for telecommunication in a system comprising a plurality of selectable channels, which do not suffer from the just mentioned limitations and drawbacks.

To the just mentioned end it is proposed, according to the invention, that the telecommunication should be carried out so as is defined in principle in the characterizing clause of claim 1.

Corresponding to the just mentioned it is proposed that the the equipment should be so designed, as is defined in principle in the characterizing clause of claim 4.

The invention will be disclosed in more details below with reference to the accompanying drawing, which illustrates diagrammatically a telecommunication system according to the invention.

The system comprises an input line 10 which may be connected through cables 11, 12, 13 to a plurality of subscribers A, B, C etc., each having a blocking means 14, 15

and 16, respectively. Further, the system comprises a controlling computer D and an obfuscation signal generator S, which last mentioned has an obfuscation output line 17 connected to each one of the the blocking means 14-16 through lines 18, 19 and 20, respectively. Further, the obfuscation signal generator S is connected to each one of the blocking means 14-16 through a line 28 to send "clock" pulses to the blocking means. The controlling computer D has an output line 21 connected to each one of the blocking means 14-16 through lines 22, 23 and 24, respectively.

Generalized, and very principally, the system according to the invention is adapted to operate in the following manner: The entire offer of programs is passed, through line 10, to all subscribers A, B, C etc., which may select freely between the channels for which a subscription has been made, whereas the programs on the other channels are obfuscated in a suitable manner. Here, the obfuscation may be directed to the picture only, or the sound only, or both. The control of which channels at the respective subscriber A, B, C etc., that should be permitted to pass on, and which are to be obfuscated, is carried out by the centrally located computer, which has been set in advance in accordance with the subscriptions made.

In some more details, the system is adapted to operate in the following manner:

Over line 10 e.g. twenty program channels TV1 - TV20 are passed to each one of the subscribers A, B, C etc. Governed by a built-in computer the obfuscation signal generator S sends, through line 28, a plurality of "clock" pulses to each one of the blocking means 14-16, which each, in dependence of signals from the computer D, is set into an individual state that permits the signal on certain channels to pass undisturbed whereas it is obfuscated on other channels.

For instance, if the subscriber A has made a subscription for channels TV1, TV 3 and TV6 only signals corresponding to those channels pass undisturbed to his line 25 whereas the signals for all the other channels are obfus-

cated. Of course, the same would be the case with the lines 26, 27 etc. of the other subscribers.

In the example the obfuscation signal generator is assumed to send obfuscation signals to each one of the blocking means 14-16 which signals obfuscate the channels successively, in which case, of course, at each subscriber only those channels are subjected to the obfuscation, for which he has not entered into a subscription.

It has been found that a very efficient obfuscation is achieved if the periodicity of the obfuscation is chosen to a such a value that the partial picture frequency differs from certain integer multiples of the periodicity of the obfuscation, i.e. the time lag between the obfuscations on one and the same channel.

Preferably, the number of "clock" pulses may correspond to the number of selectable channels, e.g. twenty clock pulses per pulse train, or may the number of clock pulses be an integer multiple of the number of selectable channels.

To avoid that the opening or closing mutual relation between impulses from the computer D and impulses from the obfuscation signal generator S are interfered by possibly incoming foreign signals it may be found advantageous to lay out the system in such a manner that one or more "reset" signals are emitted between the pulse train so that the count down always starts from one and the same value. This possibility has been indicated by the reset line 29.

To obviate unauthorized access to a channel for which no subscription has been made it has been conceived to periodically change the duration of the clock pulses or the intermittency or frequency, and also to change the obfuscation sequence between the channels.

The above described system is one example only of the invention and presupposes that a subscription is made in advance for a particular channel selection. The subscription may be made by a written or oral agreement, which is followed by a corresponding programming of the computer. It may also be performed over ordinary telephone lines with the necessary modems.

A reversed arrangement with respect to the payment has also been contemplated, i.e. a system wherein each subscriber has a possibility to select one channel each time from the full channel offer, wherein his particular channel selection is determined and registered periodically with very short intervals to then be billed him retroactively, e.g. each month.

To preclude unauthorized program withdrawal, e.g. where the selection between different types of subscription may be performed without a "personal" operation, e.g. over telephone lines, for instance, and where the program selection is charged for retroactively, the system may be complemented by some type of a credit card and/or a "personal code", similar to what is used with bank note machines, at the same time as some sort of a "censorship" with respect to time and/or program content may be exercised.

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Claims

1. A method for telecommunication in a system having a plurality of selectable program channels for communication with a plurality of subscribers, characterized in that
5 program signals for all selectable channels are passed on to each one of the subscribers or groups thereof, and that obfuscation signals are sent to each one of the selectable channels under such a selection at each one of the subscribers that there only those program channels, for which a
10 subscription has been made, receive undisturbed signals whereas the remaining channels are obfuscated.

2. A method as claimed in claim 1, characterized in that a computer controlled blocking means at each subscriber is utilized to let through obfuscation signals to the
15 subscriber on channels, for which no subscription has been made, whereas the blocking means lets through only program signals to the remaining selectable program channels, and in that the selection of channels within the blocking means is made in connection with a new subscription or an alteration
20 of the subscription.

3. A method as claimed in claim 1 or claim 2, characterized in that a clock pulse emitter within the signal generator is utilized to control the blocking means in such a manner that the latter with regard to the channels operates
25 synchronously with the obfuscation signal generator.

4. An equipment for telecommunication in a system having a plurality of selectable program channels for communication with a plurality of subscribers, characterized by controllable blocking means at each subscriber, through
30 which means program signals for a plurality of selectable programs are passed to the subscribers, and an obfuscation signal generator connected to all blocking means, which signal generator is adapted to give off an obfuscation signal to all selectable program channels with the exception
35 of those channels, for which a subscription has been made.

5. An equipment as claimed in claim 4, characterized in that the obfuscation signal generator is adapted to obfuscate the program channels in a predetermined and, if

desired, variable sequence, and in that a clock pulse emitter within the obfuscation signal generator is adapted to control all blocking means in such a manner, that these, with respect to the channels, operate synchronously with
5 the obfuscation signal generator.

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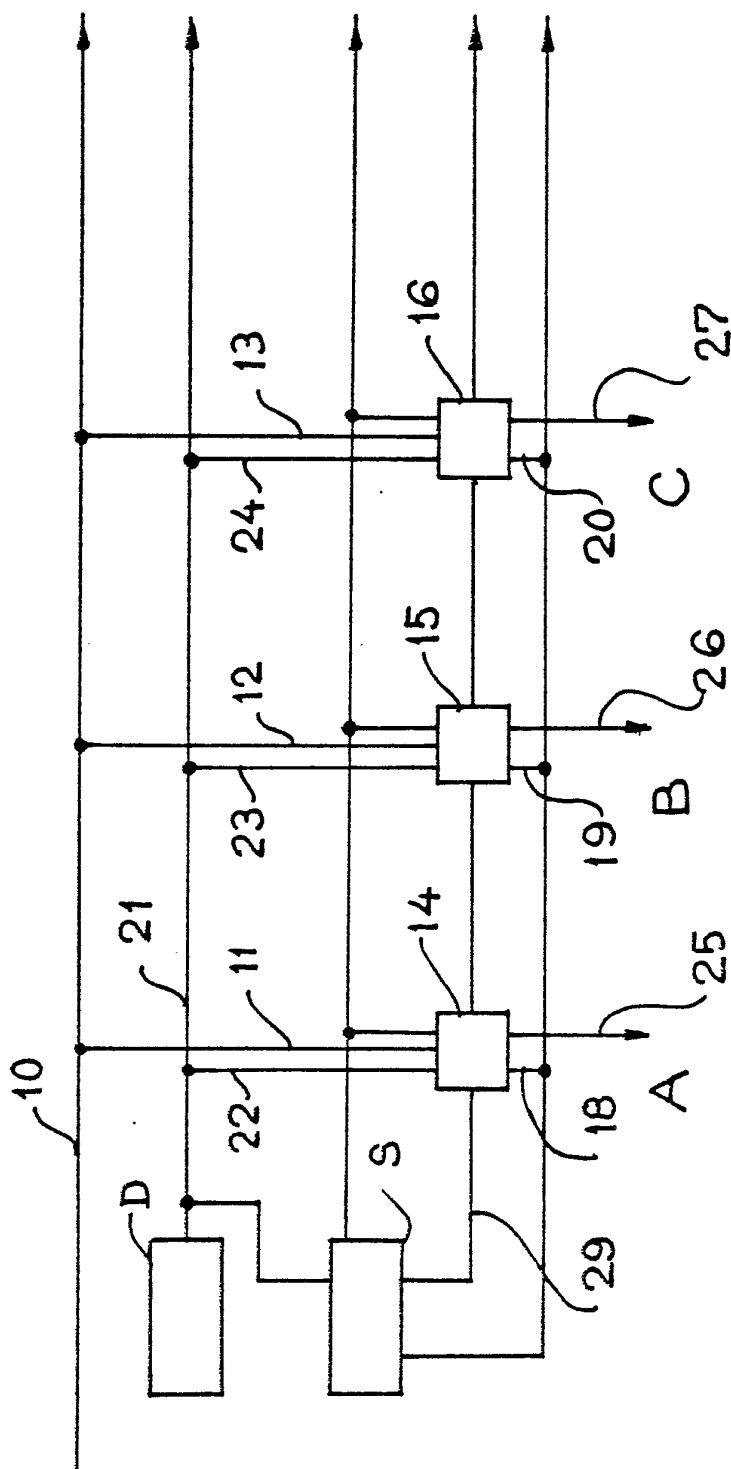
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SUBSTITUTE SHEET

INTERNATIONAL SEARCH REPORT

International Application No PCT/SE87/00052

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
H 04 H 1/02, H 04 N 7/16		4
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC	H 04 H 1/02-/06; H 04 N 7/16, /173	
US C1	325:308; 358:86, 114, 118, 121; 455:2-6	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
SE, NO, DK, FI classes as above		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	US, A, 4 434 436 (G. KLEYKAMP ET AL) 28 February 1984 See column 2, line 27- column 3, line 40.	1-5
X	US, A, 4 367 557 (J. STERN ET AL) 4 January 1983 See column 7, line 62- column 8, line 29.	1, 2, 4
X	US, A, 4 039 954 (P TOONDER) 2 August 1977 See fig 2. & US, 29997	1, 2, 4
X	EP, A1, 157 889 (VITEK ELECTRONICS, INC.) 16 October 1985	1, 2, 4
X	Patent Abstracts of Japan, Vol 9, No 4 (E-288), abstract of JP 59-153390, published 1 September 1984.	1, 2, 4
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
1987-04-03		1987-04-09
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