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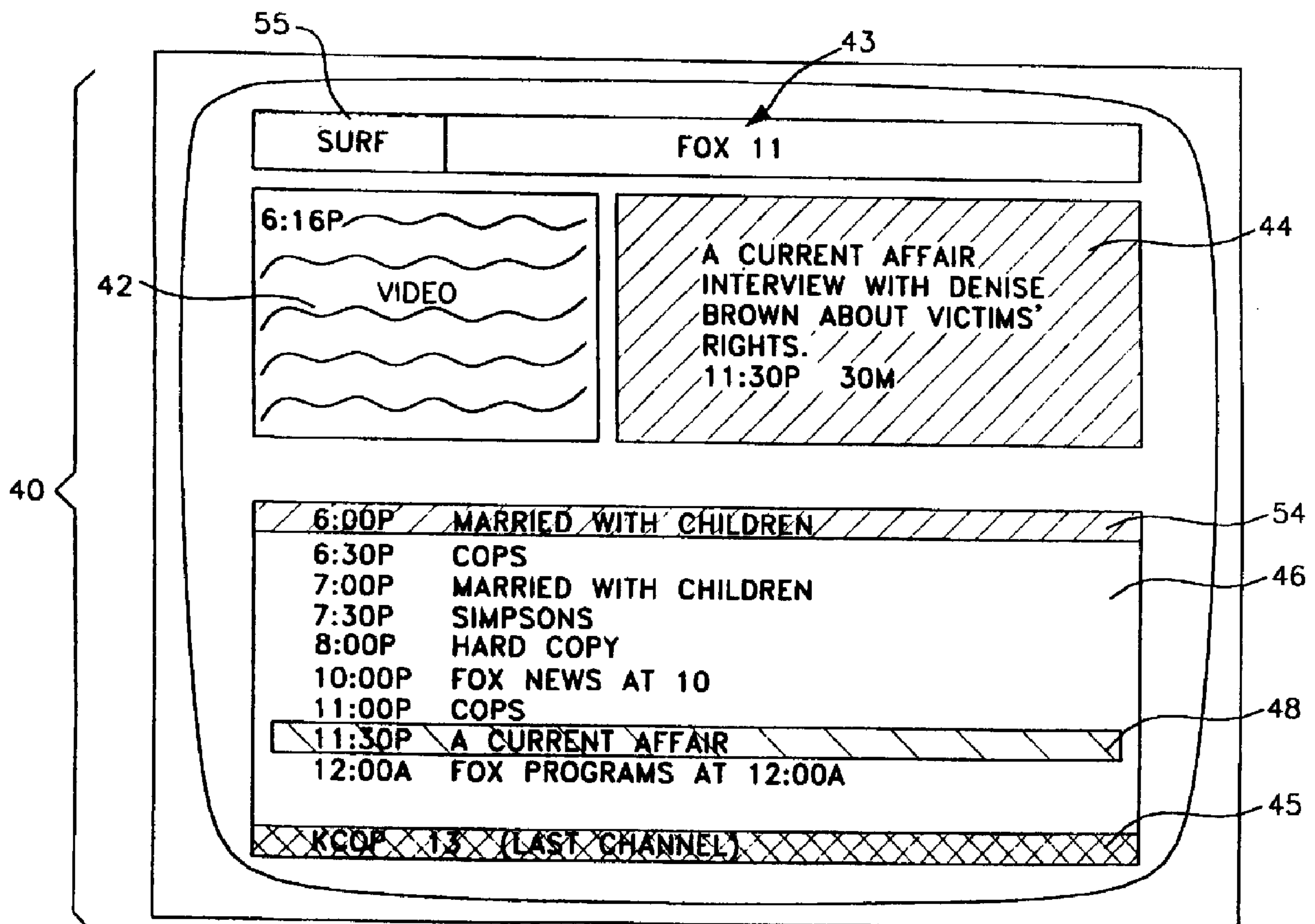
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(57) Abrégé/Abstract:

A television system comprising an electronic program guide (EPG) including a picture-in-picture (PIP) window and a means for returning to a last channel viewed full screen in a television prior to entering the guide. The EPG displays a program list (46) including a listing for the last channel displayed full screen (45).

ABSTRACT

A television system comprising an electronic program guide (EPG) including a picture-in-picture (PIP) window and a means for returning to a last channel viewed full screen in a television prior to entering the guide. The EPG displays a program list (46) including a listing for the last channel displayed full screen (45).

METHOD AND APPARATUS FOR DISPLAYING TELEVISION PROGRAMS AND RELATED TEXT

This application is divided from Canadian Patent Application Serial Number
5 2,251,726, filed March 14, 1997.

Background of the Invention

This invention relates to the field of television and, more particularly, to a
method and apparatus for switching between a television viewing mode and a
10 program guide mode in which video programs and related text are displayed
simultaneously on a television screen.

For a number of years, television receivers have been equipped with picture-
in-picture (PIP) capability. In PIP format, the moving, real time images of another
television channel are displayed on the background of the screen and the moving, real
15 time images of another television channel are displayed in a PIP window overlaid on a
small area of the background. Because two channels are simultaneously displayed by
the television receiver, two tuners are required. The viewer enters the PIP mode by
pressing a PIP key of his or her controller. Then, the viewer can change either the
channel of the background or the channel of the PIP by resetting the appropriate tuner.
20 To reverse the background and PIP images, the viewer simply presses a SWAP key.
To collapse the PIP window, the viewer again presses the PIP key.

Television program guides help television viewers select programs to watch.
Such television program guides list the available television programs by day of the
week, time of day, channel and program title. For many years television program
25 guides have been published in hard copy form. More recently, as illustrated by
United States Patent No. 4,908,713 to Levine issued March 13, 1990, television
program guides have begun to take an electronic form. In other words, the schedule
of program listings is stored in an electronic memory connected to the television
receiver. The program listings are recalled from memory by the viewer on command
30 for display on the television screen.

Despite the prevalence of television program guides, many viewers still make
their program selections by switching the television tuner from channel to channel and

observing on the screen what program is being received on the respective channels. This process is sometimes called "grazing."

United States Patent No. 5,161,019 to Emanuel issued November 3, 1992, discloses an automated form of channel grazing. A preselected group of channels are sequentially scanned by switching the tuner of the television receiver from channel to channel. A still image of the program received on each channel is stored in a memory. After all the channels have been scanned, the still images from all the channels are simultaneously displayed on the television screen. This process gives the viewer more information about the program choices in addition to that obtainable from a television program guide, namely, the displayed still images of the actual programs.

Summary of the Invention

The present invention relates generally to a television system comprising in a guide mode an electronic program guide (EPG) which includes a PIP window for display of real time images and a last channel recall. The last channel recall provides the viewer means for returning from the guide mode to a last channel displayed on screen in a television viewing mode, or last channel full screen (LCF), prior to entering the guide mode. The EPG displays a vertically oriented program list which includes a listing for the LCF, and text identifying it as such. This last channel listing is positioned at the top of a program list area of an all channel guide. The viewer may return directly to the LCF in the television mode by setting a cursor in the all channel guide to the last channel listing immediately prior to exiting the guide mode.

The guide mode may include various types of guides. In guides which include listings for fixture programs, the last channel listing is positioned at a designated position of the program list area and remains in that position as the viewer scrolls through the other program listings in the program list. Preferably, this designated position is at the bottom of the program list area.

The system provides several options for returning to the LCF from the guide mode: the viewer may cursor to the last channel listing in the program list and then press a GUIDE/TV button; the viewer may designate the LCF as a default channel to which the system automatically tunes when exiting the guide mode; or the viewer may press a LAST CHANNEL button on the remote control unit to control the system

to automatically exit the guide mode and simultaneously tune the system to the LCF.
 In an alternate embodiment, the system employs two tuners, one for use in the television viewing mode and the other for use by a PIP chip in the guide mode. In the guide mode, the television tuner remains tuned to the LCF. Thus, when the viewer
 5 reselects the television viewing mode, the program being telecast on the LCF is displayed full screen.

Accordingly, the present invention provides a method for channel grazing from an electronic program guide (EPG) of a television apparatus having a tuner, the method comprising: displaying a program carried by a television channel in full
 10 screen format during a television viewing mode; receiving a user selection of a first EPG mode; storing in a channel memory a designation of the television channel in response to the user selection of the first EPG mode; generating a last channel listing for the channel designation; displaying a plurality of first television program listings in the first EPG mode; displaying the last channel listing in a separate area from the
 15 plurality of first television program listings in the first EPG mode; selecting one of the displayed first program listings in the first EPG mode; setting the tuner to a channel carrying a first program indicated by the selected first program listing; displaying the selected first program in a picture-in-picture window in the first EPG mode; changing to a second EPG mode in response to a user command; displaying a
 20 plurality of second television program listings in the second EPG mode wherein the plurality of second television program listings include a program listing for the selected first program; displaying the last channel listing in a separate area from the plurality of second television program listings in the second EPG mode; selecting one of the displayed listings in the second EPG mode; in response to the selection of the
 25 last channel listing, displaying the program carried by the television channel in the picture-in-picture window; in response to the selection of the program listing for the selected first program, displaying the first program in the picture-in-picture window; and in response to the selection of one of the displayed second program listings, displaying information on the selected second program while maintaining the picture-
 30 in-picture window.

The present invention also provides a television system comprising: a memory storing a plurality of first television program listings and a plurality of second

television program listings; a channel memory; a tuner; a display; a picture-in-picture window; a user input device; and a processor coupled to the memory storing a plurality of first television program listings and a plurality of second television program listings, the channel memory, tuner, display, picture-in-picture window, and user input device, wherein the processor is configured to: display on the display a program carried by a television channel in full screen format during a television viewing mode; receive via the user input device a user selection of a first EPG mode; store in the channel memory a designation of the television channel in response to the user selection of the first EPG mode; generate a last channel listing for the channel designation; display on the display the plurality of first television program listings in the first EPG mode; display on the display the last channel listing in a separate area from the plurality of first television program listings in the first EPG mode; receive via the user input device a user selection of one of the displayed first program listings in the first EPG mode; set the tuner to a channel carrying a first program indicated by the selected first program listing; display the selected first program in the picture-in-picture window in the first EPG mode; change to a second EPG mode in response to a user command; display on the display the plurality of second television program listings in the second EPG mode wherein the plurality of second television program listings include a program listing for the selected first program; display on the display the last channel listing in a separate area from the plurality of second television program listings in the second EPG mode; receive via the user input device a user selection of one of the displayed listings in the second EPG mode; in response to the selection of the last channel listing, display a program carried by the television channel in the picture-in-picture window; in response to the selection of the program listing for the first program, display the first program in the picture-in-picture window; and in response to the selection of one of the displayed second program listings, display on the display information on the selected second program while maintaining the picture-in-picture window.

30 **Brief Description of the Drawings**

These and other features, aspects, and advantages of the present invention will become better understood with regard to the following description, appended claims,

and accompanying drawings wherein:

FIG. 1 is a schematic block diagram of a television receiver that has an electronic television program guide incorporating the principles of one embodiment of the invention,

5 FIG. 2 is a television screen displaying a SURF guide formatted in accordance with the embodiment of FIG. 1;

FIG. 3 is a television screen displaying a NEXT guide formatted in accordance with another embodiment;

10 FIG. 4 is a television screen displaying a SCAN guide formatted in accordance with the embodiment of FIG. 3;

FIG. 5 is a television screen displaying a SORT guide formatted in accordance with the embodiment of FIG. 3;

FIG. 6 is a top plan view of a remote control unit for operating the electronic program guide; and

15 FIG. 7 is a schematic block diagram of yet another embodiment of the invention.

Detailed Description

20 This application is an improvement on US Patent No. 6,239,794 to Mankovitz, and International PCT Application No. PCT/US95/11173, filed August 31, 1995.

25 The above-referenced applications each describe a television system including an electronic television program guide (EPG) in which the moving images of a television program are displayed in a PIP window on the screen of a television monitor and textual information related to the television program is displayed in the background on the screen. Preferably, the audio portion of the television program displayed in the PW window is also reproduced by the sound system of the television monitor. The textual information is arranged on the screen so none of it is covered by the moving images.

30 In one embodiment, the textual, program-related information is a television program schedule. One of the program listings of the schedule identifies, by title and Pine and/or channel, the television program in the PIP window, which displays

moving images.

To facilitate channel grazing, a television viewer can use a PIP format for display of current television program listings from a program schedule data base in the background and moving, real time images of a program selected from the displayed listings in the PIP window. Specifically, as the viewer selects a particular program from the displayed current television program listings by means of a cursor or a code number, the corresponding program automatically appears in the PIP window. In this way, the viewer can channel graze by sequentially selecting the individual program listings in the background. When the viewer finds a program that the viewer wishes to watch, the viewer leaves the PIP format and returns to full screen television viewing, the tuner already being set to the desired program. To do this the viewer can reverse the background and PIP window and then collapse the window, leaving the desired program on the full screen, or the apparatus can be configured to return to full screen viewing in a single step.

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5 To permit the viewing of programs scheduled for future broadcast without losing sight of the current program being watched, a television viewer can use a PIP format for display of television program listings for a specific channel or a specific time from a program schedule data base in the background and moving, real time images of the current program on that channel in the PIP window. Specifically, as the viewer changes channels, the current program on that channel automatically appears in the PIP window. Alternatively, the programs scheduled for future broadcast can be formatted by category. The viewer can control the background to display program listings for a period of days, e.g., a week, in the future. In this way, the viewer can continue to watch a television program while ascertaining the future programs on the channel to which the television tuner is set. When the viewer finds a program that the viewer wishes to watch, the background disappears, leaving the program on the channel to which the tuner is set on the full screen.

15 In the course of switching from the television viewing mode to the guide mode, navigating through the various guides available in the guide mode, and channel grazing in the guides, the viewer may forget which channel he or she was watching prior to entering the guide mode. Accordingly, it is desirable to provide the viewer a simple means for returning to the last channel he or she was viewing before entering the guide mode without having to rely on his or her memory and without having to navigate through several guides in the guide mode in order to identify and access that channel when switching back to the television viewing mode. A television system according to the present invention provides the viewer with a last channel recall feature which allows the viewer to return to the last channel displayed full screen from the guide mode.

25 FIG. 1 is a schematic block diagram of a television receiver that has an EPG. This receiver is the same as that described in the above-referenced patent applications, including reference numerals, with the addition of a last channel register 34. Microprocessor 24 is programmed to execute the functions described below. Although last channel register 34 functionally is a separate component, it could be incorporated into the random access memory (RAM) of microprocessor 24, not shown. Similarly, cursor position register 32 and program schedule memory 22 could be resident in the RAM of microprocessor 24. When the receiver is, in the television viewing mode, the channel to which tuner 11 is set is stored in register 34. Each time tuner 11 is set to a new channel, the last channel data in register 34 is updated. Ordinarily, only the national channel name or identification, e.g., CBS, HBO, CNN, is stored in register 34. A local channel number is retrieved from the channel map memory for display on the screen.

35 FIG. 2 is a television screen display that is a modification of the all channel guide for current time (NOW) shown in FIG. 8 of the above-referenced applications. The modification vis-a-vis the above-referenced applications is a last channel listing 45 at the top of program

schedule area 46, which is designated by the text “(Last Channel)” in banner 43, the designation “NOW” has been changed to “SURF”, the designation “CHAN” has been changed to “NEXT”, the designation “NEXT” has been changed to “SCAN”, and the
 5 designation “SORT” remains the same. These and other modifications to the EPGs described in the above referenced applications are described in US Patent No. 6,477,705 to Yuen.

In program schedule memory 22, the program listings are coded by day of the week, time of day, and channel so that they can be accessed by the microprocessor 24
 10 when necessary to supply program schedule information to the video processor 30 to compose the program listings and the program descriptions. The microprocessor 24 has a real time clock (not shown), the time of which is compared with the time of day and day of the week codes to select the program listings for the SURF guide. The functional storage areas of the cursor position register 32 are mapped to the storage
 15 areas of the video processor 30 where the program schedule is formatted for display on background area 40 so the cursor position register 32 points to the area of the screen, and thus the particular program, that is highlighted by the cursor 48. At the same time, the microprocessor 24 operates the switch 18 so the output of the tuner 11 is directly connected to the one input of the PIP chip 19 and switches PIP chip 19 into
 20 a PIP mode, such that the input from the tuner 11 is displayed in PIP window 42 and the program schedule from the video processor 30 is displayed in background 40. The microprocessor 24 senses the channel to which the tuner is set when the SURF guide is entered, and initially positions the cursor 48 at the program listing broadcast on this channel. As the viewer moves the up/down arrows of the cursor control key set, the
 25 tuner 11 is reset accordingly and new program schedule information is fed through the microprocessor 24 to the video processor 30 to recompose the program listings so the cursor 48 remains visible and the program description remains current. By comparing the cursor position a the register 32 with the channel corresponding to the highlighted area of the video processor 30 the channel of the highlighted program is derived and
 30 coupled to the microprocessor 24. The microprocessor 24 then sets the tuner 11 to this

channel. The described mode facilitates channel grazing by the viewer. When the viewer finds the video program he or she wishes to winch, the viewer leaves the EPG. As a result the microprocessor 24 switches the PIP chip 19 out of the PIP mode, such
5 that the video program inputted from the tuner 11 is displayed hull screen.

Microprocessor 24 is configured to retrieve the data in last channel register 34 and to couple the retrieved data to video processor 30 to be incorporated into the formatted display shown in FIG. 2 as last channel listing 45 when the viewer enters the guide mode. It should be noted that it is not necessary to retrieve the associated
10 title data because the program is simply

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identified as "(Last Channel)". The listing for the same channel is also displayed in its regular order in the program listings with the title information.

5 According to a presently preferred embodiment, when entering the guide mode from the television viewing mode, the system automatically displays the SURF guide (FIG. 2). Microprocessor 24 is configured to position cursor 48 on last channel listing 45 and to display the program being broadcast on the last channel, i.e., "The Cosby Show" on KCOP 13, as the real time video image in PIP window 42. In operation, to display a different channel in PIP window
10 42, the viewer moves cursor 48 to a different entry in area 46. For example, to view "Married With Children" on FOX channel 11, cursor 48 highlights this entry and microprocessor 24 is configured to set tuner 11 to that channel.

 While the system is in the guide mode, the data in last channel register 34 does not change. Microprocessor 24 is configured to set tuner 11 to the channel marked by cursor 48.
15 When the viewer returns to the television viewing mode from the guide mode, the setting of the tuner 11 is not changed so the program last displayed in banner 43 is displayed full screen. Thus, if the viewer wishes to return to the channel that the viewer was last watching in the television viewing mode, the viewer moves cursor 48 to the top of area 46 to highlight last channel listing 45 and then automatically returns to the television viewing mode by pressing GUIDE/TV button
20 52 on a remote control unit 50, as shown in FIG. 6, which may function as viewer input device 28 (FIG 1). When the GUIDE/TV button is pressed, the channel data in register 34 is retrieved by microprocessor 24 and transmitted to tuner 11 to set tuner 11 to the last channel, e.g., KCOP 13 in the case illustrated in FIG 2. If the viewer instead wishes to watch a different channel upon return to the television viewing mode, the viewer moves cursor 48 to highlight the entry in area
25 46 that identifies the desired channel and then automatically returns to the television viewing mode by pressing the GUIDE/TV button. When the GUIDE/TV button is pressed this time, the channel data in video processor is retrieved by microprocessor 24 and transmitted to tuner 11 to set tuner 11 to the highlighted channel, e.g., FOX 11, in the case illustrated in FIG. 2.

 The viewer may enter any of the other program guides for the SURF guide screen. The
30 on-screen options are located in banner 43 and include a green NEXT prompt, a yellow SCAN prompt and a red SORT prompt. In FIG. 3, a version of a screen format for the NEXT guide is shown. All the program listings for the channel highlighted immediately before leaving the SURF guide, i.e., FOX Channel 11, are displayed in area 46, from the currently broadcast program into the future for a specified time period, e.g., 24 hours or until the end of the next day.
35 This last channel highlighted before exiting the SURF guide is hereinafter referred to as the "last channel surfed" or "LCS". Area 46 has a column for time and a column for program title; each line of area 46 represents a separate program listing. The moving, real time images of the current television program on the channel are displayed in the PIP window 42. If the cursor also

highlights this program, a brief program description of that program is displayed in area 44. If the cursor highlights another program listing, as shown in FIG. 3, a brief program description of the highlighted program is displayed in area 44. The program being displayed on the LCS always remains displayed in the PIP window 42 as the viewer navigates through the SCAN guide. The viewer may return to the SURF guide by selecting the blue SURF prompt 55 in banner 43.

According to the presently preferred embodiment, only the SURF guide includes the last channel listing 45. In order to utilize the last channel feature, the viewer must return to the SURF guide and select last channel listing 45 with cursor 48 prior to exiting the guide mode.

In FIG. 4, a version of a screen format for the SCAN guide is shown. From this menu, the viewer can select the future time of the program listings to be displayed at intervals such as one-half hour. The selected future time, i.e., 8:00 p.m., for the program listings displayed in area 49 is shown in banner 43. A brief program description of the program listing highlighted in area 46 by the cursor 48 is displayed in area 44. The time slot of the SCAN guide can be incremented by one-half hour to 8:30 p.m. by selecting the red 8:30P prompt 59 in banner 43. Conversely, the viewer can scan back one-half hour to 7:30 p.m. by selecting the green 7:30P prompt 57 in banner 43. By way of example, if the television program schedule for 8:00 p.m. is currently displayed in area 46 and the viewer selects the green 7:30P prompt 57, the television program schedule for 7:30 p.m. will be displayed in area 46 and 7:30P will be displayed in sub-area 49 of banner 43. The green on-screen prompt 57 will change to 7:00P and the red on-screen prompt 59 will change to 8:00P so that the viewer has the option of scanning forward or backward in time by one-half hour with a single touch of the corresponding colored button on the remote control unit 50. Here also, the program being displayed on the LCS always remains displayed in the PIP window 42 as the viewer navigates through the SCAN guide. The viewer may return to the SURF guide by selecting the blue SURF prompt 55 in banner 43.

In FIG. 5, a version of a screen format for the "SORT" guide is shown. A list of various categories, i.e., movies, sports, variety, are displayed in area 46. Again, the program being displayed on the LCS always remains displayed in the PIP window 42 as the viewer navigates through the SCAN guide, and the viewer may return to the SURF guide by selecting the blue SURF prompt 55 in banner 43.

As shown in FIGs. 3 to 5, each of the NEXT, SCAN, and SORT guides include a program listing 54 for the current television program displayed in the PIP window 42, i.e., the program being displayed on the LCS. This listing is hereinafter referred to as the "PIP listing". Many times, a given program list will contain more program listings than may be displayed in area 46. Accordingly, only a portion of the program listings available in the guide will be displayed at one time, with "hidden" program listings being displayed as the viewer scrolls through the

program list. The PIP listing 54 is positioned on the top line of area 46 and remains at this position even as the viewer scrolls through the program listings available in the respective guide. Preferably, the PIP listing is on a background having a different color or shade than the cursor 48.

According to a presently preferred embodiment, GUIDE/TV button 52 on remote control unit 50 (FIG. 6) allows the viewer to toggle between the television viewing mode and the guide mode. Thus, the viewer may exit any of the guides by pressing the GUIDE/TV button. The program displayed in the PIP window 42 will be displayed full screen upon entering the television viewing mode, that is, the program currently being telecast on the LCS.

As described above, when entering each of the NEXT (FIG. 3), SCAN (FIG. 4), and SORT (FIG. 5) guides from the SURF guide (FIG. 2), the tuner 11 remains set to the LCS, so that the moving real time images of the television program viewed from the SURF guide remains in the PIP window 42 for uninterrupted viewing. Also, in each of these guides, the PIP listing 54 is displayed at the top of area 46. In an alternate embodiment according to the present invention, area 46 may include the last channel listing 45, providing the viewer with the last channel recall feature in any of these guides. This channel is hereinafter referred to as the last channel full screen or "LCF". As in the SURF guide, the text designating the LCF in the last channel listing 45 is "(Last Channel)".

It is desirable to position the PIP listing 54 at the top of area 46 to clearly identify which program is being displayed. It is also desirable to display the last channel listing 45 in a fixed position in area 46 separate from the other program listings. According to one embodiment, area 46 in each of the NEXT, SCAN, and SORT guides is arranged such that PIP listing 54 is at the top of area 46 and last channel listing 45 is at the bottom of the list. These listings remain in their designated positions even as the viewer scrolls through the other program listings in the respective guide. Preferably, the last channel listing 45 is highlighted a different color or shade than the cursor 48 or the PIP listing 54. The last channel listing is generated in the same manner as described above for the SURF mode. The viewer may cursor to any listing in area 46 including the PIP listing 54 and the last channel listing 45.

In one embodiment, the tuner remains tuned to the LCS in the NEXT, SCAN, and SORT guides regardless of which listing is selected with the cursor. Therefore, in these guides, the program being displayed in the PIP window 42 does not change. In this embodiment, to utilize the last channel recall feature, the viewer pushes the GUIDE/TV button to exit the guide mode while the cursor is positioned on the last channel listing 45, which controls the microprocessor to retrieve the channel designation for the LCF from the last channel register 34 and to control the tuner to tune the LCF. Hence, the program being telecast on the LCF is displayed full screen upon returning to the television viewing mode. However, if any other listing is selected at the

time the viewer exits the guide mode, the tuner will remain tuned to the LCS, and the program displayed in the PIP window prior to exiting the guide mode will be displayed full screen in the television viewing mode. Hence, the LCS is the default channel when switching to the television viewing mode. In an alternate embodiment, the default channel may be designated as either the LCS or LCF by the viewer during system set-up.

In another alternate embodiment, the viewer may toggle between the programs telecast on the LCS and LCF in the PIP window 42. According to this embodiment, while in the NEXT, SCAN, or SORT guides, the microprocessor 24 controls the tuner 11 to tune the LCF when the cursor is set to last channel listing 45 so that the television program on the LCS displayed in PIP window 42 is replaced by the program last displayed full screen. The tuner will remain tuned to the LCF until the PIP listing 54 is selected. This affords the viewer the option of toggling between the program being telecast on the last channel he or she selected before entering the guide mode and the last channel he or she selected while channel grazing in the SURF guide mode. Preferably, the colors of the PIP listing 54 and last channel listing 45 highlighting are exchanged, but their respective positions in area 46 are not.

According to yet another embodiment of the present invention, returning to the LCF in the television viewing mode from any guide is facilitated by the inclusion of a LAST CHANNEL button 60 on remote control unit 50. In a television viewing mode, a last channel button is commonly used to toggle between a currently tuned channel and previously tuned channel. According to the present invention, the LAST CHANNEL button 60 may also be used to return to the television viewing mode from any guide, i.e., SURF, NEXT, SCAN, or SORT, while simultaneously tuning the tuner 11 to the LCF. The viewer thus has two viewing options when exiting the guide mode, either pressing the LAST CHANNEL button to return to the LCF in the television viewing mode, or pressing the GUIDE/TV button to return to the LCS in the television viewing mode.

In the embodiments described above, the microprocessor 24 controls a single tuner 11 to display a program in both the television viewing mode and the guide mode, and the LCF is stored in a memory such as a RAM connected to the microprocessor. FIG. 7 is a schematic block diagram of a television system according to the present invention utilizing two tuners to provide last channel recall feature. According to this embodiment, the LCF is stored in a television tuner 72 which tunes channels in the television viewing mode. Depending on the type of tuner employed, the LCF may be stored in television tuner 72 mechanically or in the phase-locked loop of the tuner. In the guide mode, a separate PIP tuner 74 tunes channels for display in the PIP window and the television tuner 72 remains tuned to the LCF. Since the television tuner remains tuned to the LCF, upon return to the television mode from the guide mode, the program being telecast on the LCF is automatically displayed full screen.

Although certain preferred embodiments of the present invention have been described herein, many modifications and variations will be apparent to those skilled in the art. It is
5 therefore to be understood that the scope of the invention should be limited only by the appended claims.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for channel grazing from an electronic program guide (EPG) of a television apparatus having a tuner, the method comprising:
 - displaying a program carried by a television channel in full screen format during a television viewing mode;
 - receiving a user selection of a first EPG mode;
 - storing in a channel memory a designation of the television channel in response to the user selection of the first EPG mode;
 - generating a last channel listing for the channel designation;
 - displaying a plurality of first television program listings in the first EPG mode;
 - displaying the last channel listing in a separate area from the plurality of first television program listings in the first EPG mode;
 - selecting one of the displayed first program listings in the first EPG mode;
 - setting the tuner to a channel carrying a first program indicated by the selected first program listing;
 - displaying the selected first program in a picture-in-picture window in the first EPG mode;
 - changing to a second EPG mode in response to a user command;
 - displaying a plurality of second television program listings in the second EPG mode wherein the plurality of second television program listings include a program listing for the selected first program;
 - displaying the last channel listing in a separate area from the plurality of second television program listings in the second EPG mode;
 - selecting one of the displayed listings in the second EPG mode;
 - in response to the selection of the last channel listing, displaying the program carried by the television channel in the picture-in-picture window;
 - in response to the selection of the program listing for the selected first program, displaying the first program in the picture-in-picture window; and

in response to the selection of one of the displayed second program listings, displaying information on the selected second program while maintaining the picture-in-picture window.

5 2. The method of claim 1 further comprising maintaining the program listing for the first program in a fixed position on a display screen.

 3. The method of claim 1 further comprising changing the displayed plurality of second television program listings while continuing to display the
10 program listing for the first program.

 4. The method of claim 1 further comprising:
 receiving a user selection of a television viewing mode; and
 displaying the first program in full screen format.

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 5. The method of claim 1 further comprising:
 receiving a selection of the displayed last channel listing;
 retrieving the designation of the television channel from the channel
memory in response to the selection; and
20 changing to the television viewing mode to display the program
carried by the television channel in full screen format.

 6. The method of claim 5 wherein the last channel listing remains in a fixed position on the screen.

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 7. The method of claim 1, wherein the first EPG mode displays television program listings of television programs broadcast at a present time.

 8. The method of claim 1, wherein the second EPG mode displays
30 television program listings of television programs to be broadcast at a present time
and a future time by the channel carrying the first program.

9. The method of claim 1, wherein the second EPG mode displays television program listings of all television programs to be broadcast at a designated future time.

- 5 10. A television system comprising:
 a memory storing a plurality of first television program listings and a plurality of second television program listings;
 a channel memory;
 a tuner;
 10 a display;
 a picture-in-picture window;
 a user input device; and
 a processor coupled to the memory storing a plurality of first television program listings and a plurality of second television program listings, the channel
 15 memory, tuner, display, picture-in-picture window, and user input device, wherein the processor is configured to:
 display on the display a program carried by a television channel in full screen format during a television viewing mode;
 receive via the user input device a user selection of a first EPG mode;
 20 store in the channel memory a designation of the television channel in response to the user selection of the first EPG mode;
 generate a last channel listing for the channel designation;
 display on the display the plurality of first television program listings in the first EPG mode;
 25 display on the display the last channel listing in a separate area from the plurality of first television program listings in the first EPG mode;
 receive via the user input device a user selection of one of the displayed first program listings in the first EPG mode;
 set the tuner to a channel carrying a first program indicated by the
 30 selected first program listing;
 display the selected first program in the picture-in-picture window in the first EPG mode;

change to a second EPG mode in response to a user command;
display on the display the plurality of second television program
listings in the second EPG mode wherein the plurality of second television program
listings include a program listing for the selected first program;
5 display on the display the last channel listing in a separate area from
the plurality of second television program listings in the second EPG mode;
receive via the user input device a user selection of one of the
displayed listings in the second EPG mode;
in response to the selection of the last channel listing, display a
10 program carried by the television channel in the picture-in-picture window;
in response to the selection of the program listing for the first program,
display the first program in the picture-in-picture window; and
in response to the selection of one of the displayed second program
listings, display on the display information on the selected second program while
15 maintaining the picture-in-picture window.

11. The system of claim 10 wherein the processor is further configured to
maintain the program listing for the first program in a fixed position on the display.

20 12. The system of claim 10 wherein the processor is further configured to
change the displayed plurality of second television program listings while continuing
to display the program listing for the first program.

25 13. The system of claim 10 wherein the processor is further configured to:
receive via the user input device a user selection of a television
viewing mode; and
display the first program in full screen format.

30 14. The system of claim 10, wherein the processor is further configured to:
receive a selection of the displayed last channel listing;
retrieve the designation of the television channel from the channel
memory in response to the selection; and

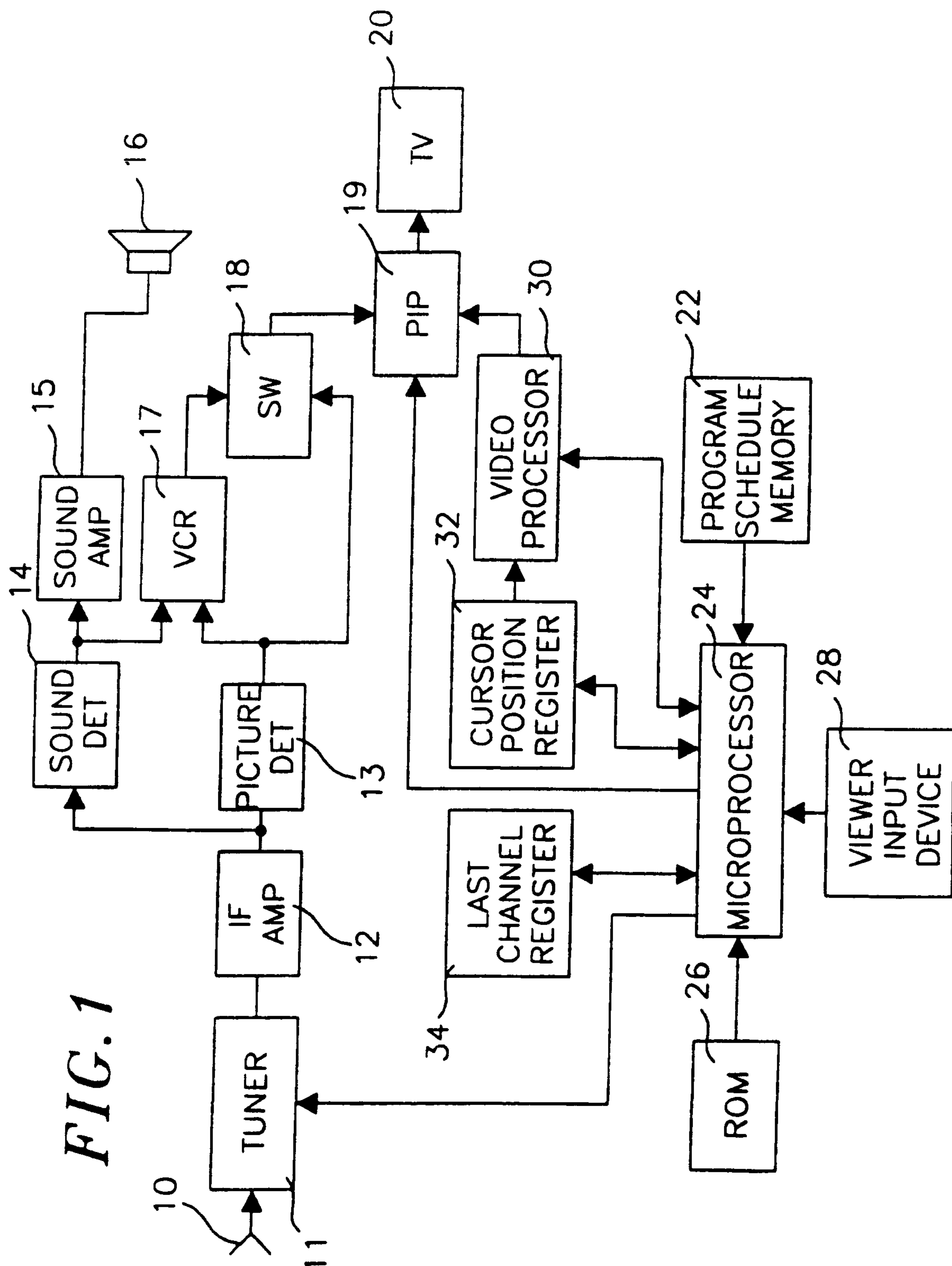
change to the television viewing mode to display a program carried by the television channel in full screen format.

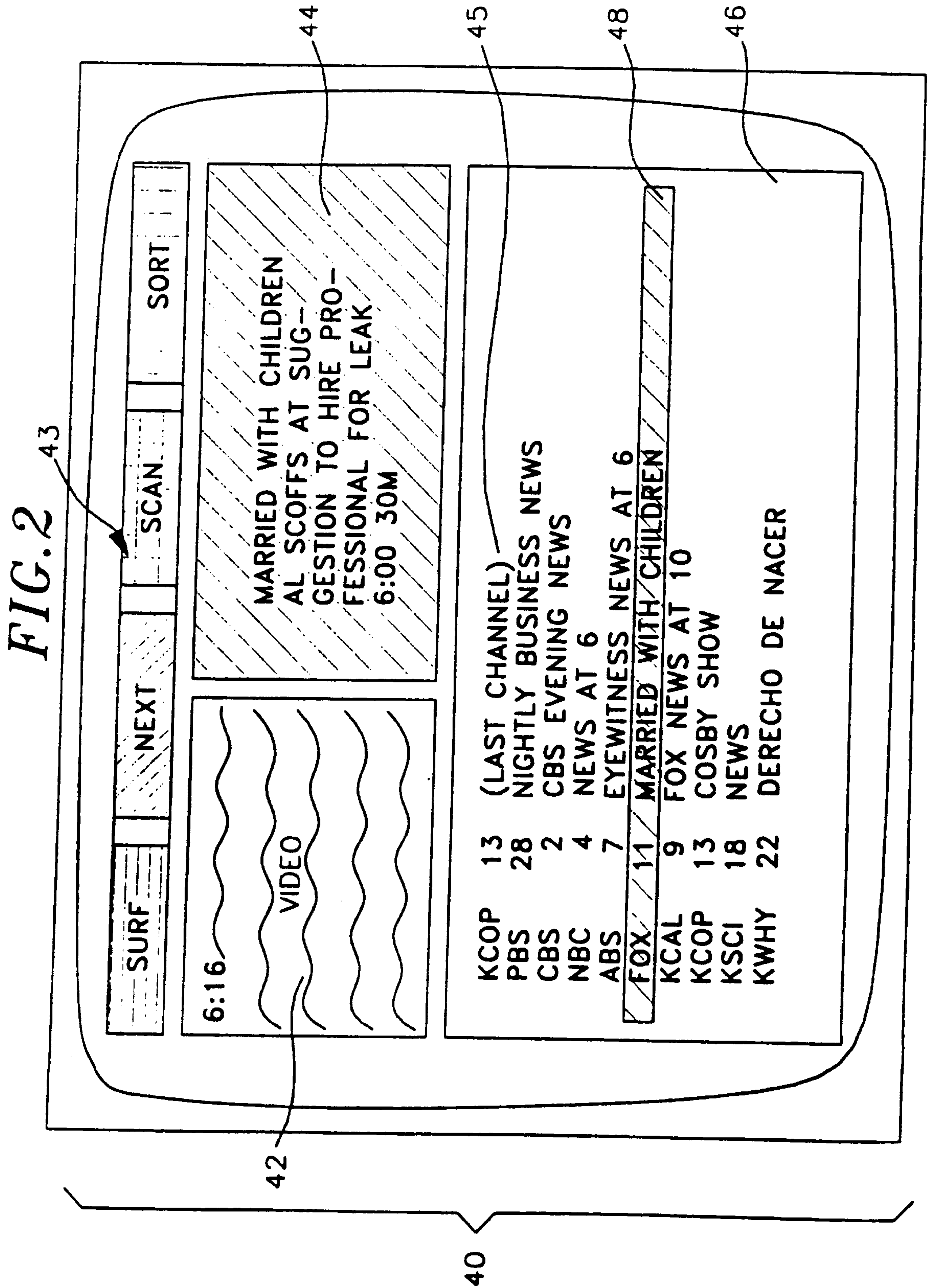
15. The system of claim 14 wherein the last channel listing remains in a
5 fixed position on the display.

16. The system of claim 10, wherein the first EPG mode displays television program listings of television programs broadcast at a present time.

10 17. The system of claim 10, wherein the second EPG mode displays television program listings of television programs to be broadcast at a present time and a future time by the channel carrying the first program.

18. The system of claim 10, wherein the second EPG mode displays
15 television program listings of all television programs to be broadcast at a designated future time.





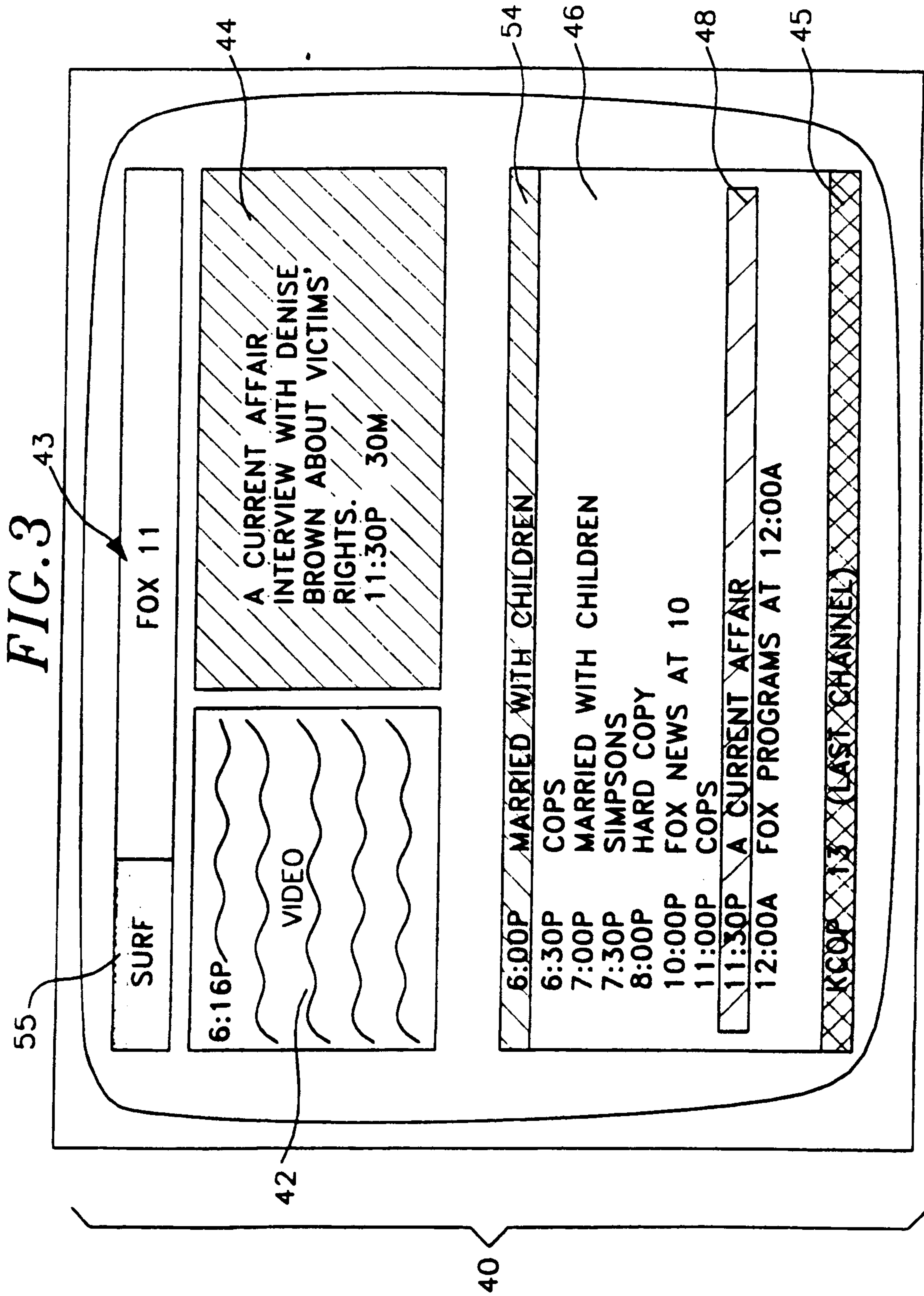


FIG. 4

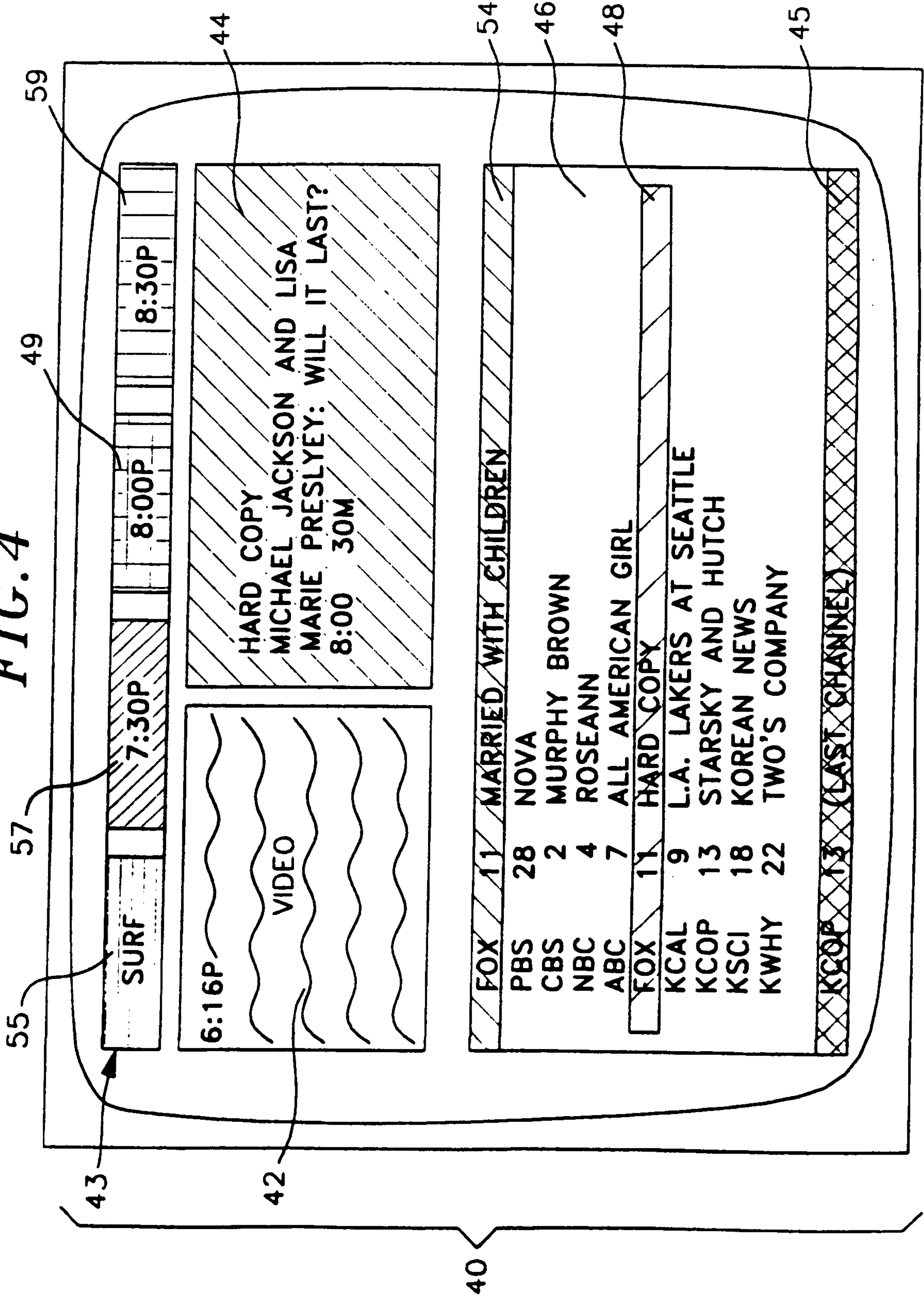


FIG. 5

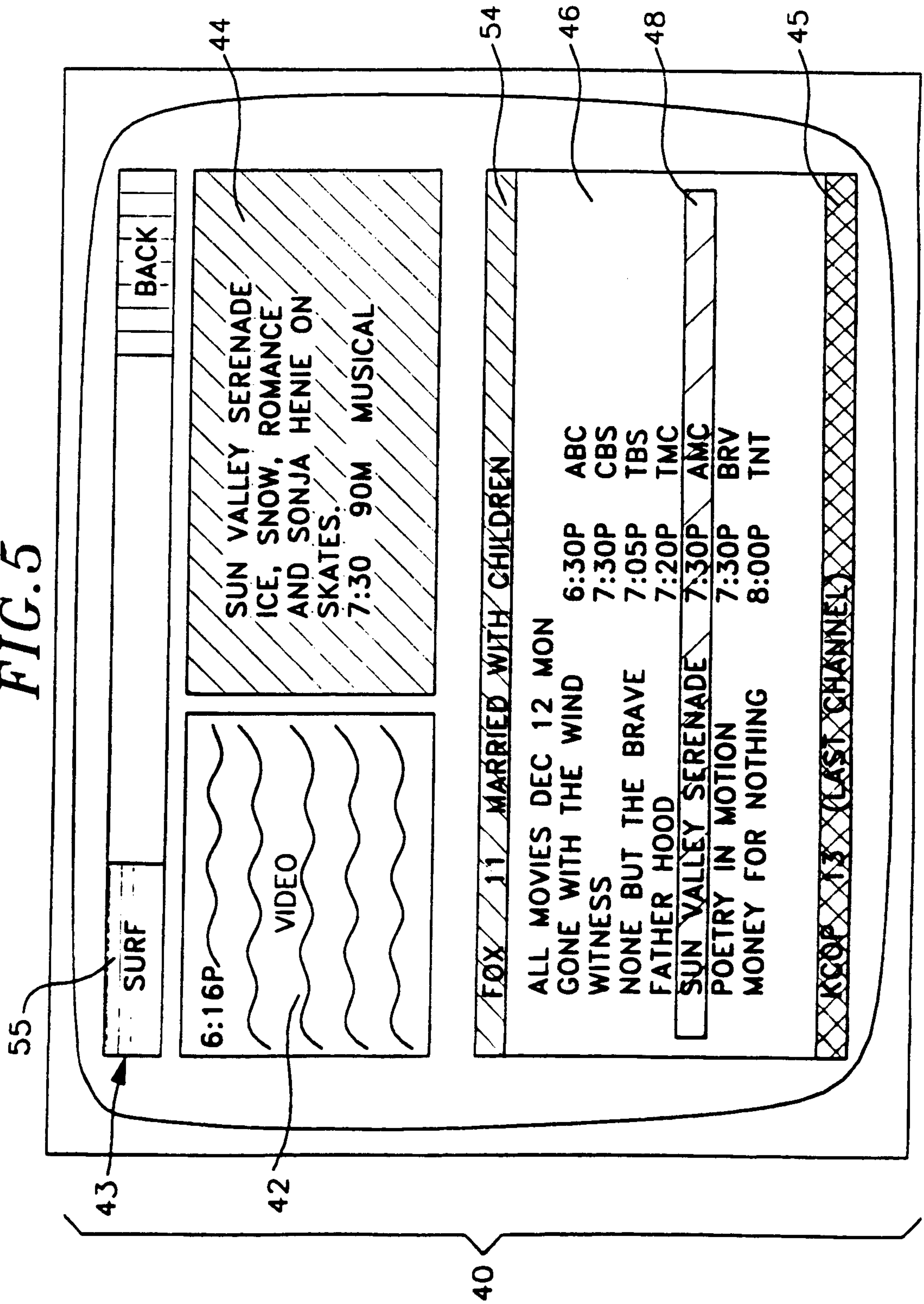


FIG. 6