Description

This invention relates to television receivers.

A so-called picture-in-picture television receiver, in which a sub-picture screen is provided within a main picture screen such that pictures having different contents can be displayed on the main and sub-picture screens, respectively, in a picture-in-picture fashion, has been previously proposed. In this television receiver, television channels of the main picture and of the sub-picture, or the number of an external video signal input terminal, are displayed on a front panel of the television receiver using a display apparatus such as a light emitting diode (LED) display apparatus or the like, Alternatively, these numbers are displayed on the picture screen of the cathode ray tube. When these numbers, which are referred to herein as discrimination indications or picture discrimination indications, are displayed on the screen, they are displayed on the main picture screen together.

The picture-in-picture television receiver is provided with a main tuner for selecting a video signal for the main picture screen and a sub-tuner for selecting a video signal for the sub-picture screen. In such a television receiver, it is preferable that the channel selection operations can be carried out independently in the main and sub-tuners. Thus, the discrimination indications of the picture contents, for example the indications of the channels selected, are independently carried out on the main and sub-picture screens in response to the respective channel selection operations.

However, in the previously proposed picture-in-picture television receiver, the picture discrimination indications for discriminating the main picture screen and the sub-picture screen cannot be posively carried out. There is no problem when the selected channel of the sub-tuner is changed, in that the change in the discrimination indication of the picture content is carried out only on the sub-picture screen. However, when the selected channel of the main tuner is changed, a problem arises in that the picture discrimination indication for the picture content is carried out only on the main picture screen. That is, since it is apt to be regarded that the picture displayed on the sub-picture screen is subjected to the picture displayed on the main picture screen, it would be preferable in this case for the discrimination indication for the picture content to be carried out also on the sub-picture screen.

Patent Abstracts of Japan, Volume 5, Number 78, (E-58) [750], 22nd May 1981 of JP-A-56 027 573 discloses a picture-in-picture type television receiver without channel indication. GB-A-2,132,842 discloses a single picture type television receiver in which a channel indication number is displayed upon the screen.

According to the invention there is provided a television receiver comprising:

(a) a cathode ray tube having a picture screen which is divisible into a main picture screen and one or more sub-picture screens inset into the main picture screen;

(b) a main picture circuit for selecting a first video signal from a plurality of video signals and supplying the selected video signal as a video signal for the main picture screen;

(c) a sub-picture circuit for selecting a second video signal from a plurality of video signals and supplying the selected video signal as a sub-picture video signal for one or more of the sub-picture screens; and

(d) a composing circuit for composing the selected video signal for the main picture screen of the cathode ray tube and the selected video signal for the sub-picture screen into a composite signal to be supplied to the cathode ray tube; characterised by

(e) a first adder at a point in the transmission path between the composing circuit and the cathode ray tube for adding a picture discrimination indication signal to the video signal for the main picture screen;

(f) a second adder at a point in the transmission path between the sub-picture circuit and the composing circuit for adding a picture discrimination indication signal to the video signal for the sub-picture screen; and

(g) a system control circuit for controlling the main picture circuit, the sub-picture circuit, the composing circuit, the first adder and the second adder such that the sub-picture discrimination indication signal is displayed on the sub-picture screen whenever the sub-picture circuit selects a different one of the plurality of video signals as the second video signal.

In a picture-in-picture television receiver in accordance with a preferred embodiment of the invention, as described in detail hereinbelow, picture discrimination indications of the main picture screen and the sub-picture screen can be positively discriminated from each other as required. Whenever the content of the picture displayed on the main picture screen in changed, the change in the discrimination indication of the picture content is displayed on the main picture screen and the discrimination indication of the unchanged sub-picture screen is also simultaneously displayed. The preferred picture-in-picture television receiver can be used by the user more conveniently and usefully.

The invention will now be further described, by way of illustrative and non-limiting example, with reference to the accompanying drawings, in which

like references designate like elements and parts throughout, and in which:

Figure 1 is a block diagram of a television receiver in accordance with a preferred embodiment of the present invention;

Figures 2A to 2D and 3A to 3I are respective diagrams used to explain how picture discrimination indications are superimposed on main and sub-picture screens of the television receiver;

Figure 4 is a flow chart used to explain an operation in which, when the content of a picture displayed on the main picture screen is changed, picture discrimination indications are carried out for both the main and sub-picture screens;

Figure 5A and 5B are schematic diagrams used to explain the operation carried out in accordance with the flow chart shown in Figure 4;

Figure 6 is a flow chart used to explain an operation in which, when the content of a picture displayed on the sub -picture screen is changed, picture discrimination indication is carried out only for the sub-picture screen; and

Figures 7A and 7B are schematic diagrams used to explain the operation carried out in accordance with the flow chart shown in Figure 6.

Figure 1 is a block diagram showing an overall circuit arrangement of a television receiver embodying the present invention. The television receiver includes a main television circuit MK and a sub-television circuit SK. A video signal supplied by the main television circuit MK causes a main picture to be displayed on the whole of a picture screen of a cathode ray tube 18, whereas a video signal supplied by the sub-television circuit SK causes a sub-picture to be displayed on a portion of the main picture screen in such a manner that the sub-picture is inset into the main picture. The main and sub-television circuits MK and SK include main and sub-tuners 5M, 55, main and sub-video intermediate frequency circuits 6M, 6S and main and sub-video/chroma signal circuits 8M, 8S, respectively.

The television receiver is provided with external video signal input terminals V1, V2 and V3 to which reproduced video signals (base band signals) from a video tape recorder (VTR) or the like can be supplied. Selection of the video signals from the external input terminals V1, V2 and V3, in place of the video signals from the tuners 5M and 5S, can be effected by main and sub-switching circuits 7M and 7S provided in the television circuits MK and SK. The signal selected by the switching circuit 7M is then supplied to the cathode ray tube 18 to be displayed on its picture screen.

The sub-television circuit SK includes a video signal processor circuit 12 for displaying the sub-picture on the picture screen of the cathode ray tube 18. The video signal processor circuit 12 controls the kinds of sub-picture or sub-pictures (such as a live picture, a still picture, a step-by-step picture or the like), the number of sub-pictures, the position of the sub-picture on the main picture screen, and so forth. The expression "live picture" means that the displayed image is animated (moving) rather than static (still).

The main and sub-television circuits MK and SK are provided with respective main and sub-character display circuits 19M and 19S to display picture discriminating indications 32M, 32S, respectively, on the main picture screen and the sub-picture screen, respectively, in an inset fashion as shown in Figure 2C. Each indication 32M, 32S may, for example, comprise the channel identification (for instance the channel number) of a received television broadcast or the number of an external video signal input terminal.

The television receiver includes a system control circuit or controller 20 which includes a microcomputer. Respective sections of the television receiver are controlled by the system control circuit 20 as will be explained in greater detail hereinafter.

The circuit arrangement of the television receiver will now be described more fully. A television broadcast signal received by an aerial (antenna) AT is supplied to a distributor 1. The distributor 1 supplies the received signal through a switching circuit 3 to the main tuner 5M, without substantially attenuating the signal, and also supplies a portion of the received signal to the sub-tuner 5S. The received signal portion is amplified by a high frequency amplifier 4 before it is applied to the sub-tuner 5S. The switching circuit 3 selectively switches between the aerial input signal from the distributor 1, and a high frequency input signal from a descrambler used for receiving a cable television broadcast or the like and supplied to an auxiliary input terminal 2, and supplies one of the signals to the main tuner 5M.

The video signal from the main tuner 5M is supplied to the main video intermediate frequency circuit 6M and a video intermediate frequency signal is supplied therefrom to the main switching circuit 7M which can be selectively switched between this video signal and the external video signals from the external video input terminals V1 to V3. The signal selected by the switching circuit 7M is supplied to the main video/chroma signal circuit 8M. A monitor output terminal 26 is connected to the output side of the main switching circuit 7M. The main video/chroma signal circuit 8M generates red, green and blue colour signals R, G and B which are fed to a switching circuit 9.

An audio intermediate frequency signal from the main video intermediate frequency circuit 6M is supplied to an audio circuit (incorporating a sound ultiplexing decoder circuit) 28. An audio signal from the audio circuit 28 is supplied to a switching circuit 29 which can be selectively switched between this audio signal and external audio signals reproduced from a VTR or the like and supplied thereto from external audio signal input terminals A1, A2 and A3, respectively, corresponding to the external video signal input terminals V1, V2 and V3. The audio signal selected by the switching circuit 29 is supplied through a low frequency amplifier 30 to a loudspeaker 31.

Horizontal and vertical synchronising signals from the main video/chroma signal circuit 8M are supplied to a deflection/high voltage circuit 27. A deflection signal and a high dc voltage from the cuit 27 are supplied to the cathode ray tube 18.

The video signal from the sub-tuner 5S is supplied to the sub-video intermediate frequency circuit 6S and a video intermediate frequency signal is supplied therefrom to the sub-switching circuit 7S which selectively switches between this video signal and the external video signals from the external video signal input terminals V1 to V3. A switch 25 effects selection between the video signal selected by the switching circuit 7S and the video signal from the main switching circuit 7M and supplies the chosen video signal to the sub-video/chroma signal circuit 8S. The sub -video/chroma signal circuit 8S generates red, green and blue colour signals R, G and B which are supplied to a matrix circuit 10 in which they are converted to a luminance signal Y and red and blue colour difference signals R-Y and B-Y, respectively, which are then fed to an analog-to-digital /D) converter 13 in the video signal processor circuit 12.

The A/D converter 13 is a time division type A/D converter as disclosed, for example, in Japanese Patent Application Publication JP-A-60-47792. A digital signal from the A/D converter 13 is supplied to a memory 14 and written therein. The digital signal is read out from the memory 14 and supplied to a digital-to-analog (D/A) converter 15 so as thereby to be converted to an analog signal. In the video signal processor circuit 12, sampling lines and picture elements of the video signal are selected and other lines and picture elements are thrown away or removed in correspondence with the ratio between the sizes of the main picture screen and the sub-picture screen. The memory 14 has frame (or field) memory areas corresponding to the maximum number of displayable sub -pictures, for example four frame memory areas. The memory 14 is controlled by a sub-picture control circuit 16 so as to specify the kinds of sub-picture of sub-pictures (such as a live picture, a still picture, a step-by-step picture and so on), the number of sub-pictures, the position of the sub-picture on the main picture and the like.

When the sub-picture is displayed as a live picture, that is a real moving picture, the video signal is alternately written in and read out from the memory 14 continuously and repeatedly; when the sub-picture is displayed as a still picture, the video signal is written in the memory 14 for a selected frame or field period and then read out from the memory 14 repeatedly; and when the sub-picture is displayed as a step-by-step picture, a plurality of video signals are written in the memory 14 at different times corresponding to different frames or field periods and then read out therefrom repeatedly (see Japanese Patent Application Publication JP-A-56-27573). The number of the sub-picture screens inset into the main picture screen is determined on the basis of the number of memory areas in the memory 14 which are used. The contents or picture of the sub-picture screen can be a real moving picture, a still picture or a step-by-step picture based on the video signal from the sub-video/chroma signal circuit 8S or on the video signal from the main video/chroma signal circuit 8M. The switching of these video signals is carried out by the switch 25. The picture contents on the main picture screen and the sub-picture screen can be exchanged with each other by simultaneously switching the reception channels of the main and sub-tuners 5M and 5S or by simultaneously switching the main and sub-switching circuits 7M and 7S.

The respective colour signals from the main/video chroma signal circuit 8M and the respective colour signals from the D/A converter 15 are supplied to the switching circuit 9 in which both groups of respective colour signals are switched at appropriate timing intervals such that the sub-picture screen is inset into one portion of the main picture screen at a selected, predetermined position. The switching circuit 9 is controlled by the sub-picture control circuit 16, which is controlled by the system control circuit 20. The video signal from the switching circuit 9 is supplied to the cathode ray tube 18.

The main picture discrimination indicating signal, such as a signal indicative of the main channel number, is formed by the main character display circuit 19M and is added to the video signal by an adder 17 connected between the switching circuit 9 and the cathode ray tube 18. In this example, the adder 17 is interposed only in the transmission path of the green colour signal G to thereby superimpose a green picture discrimination indication upon the main picture screen. It is of course possible for this picture discrimination indication to be made by using other colours.

The sub-picture discrimination indicating signal, which is formed by the sub-character display circuit 19S and which could be indicative of the channel number selected by the sub-tuner 5S, for example, is added to the sub-video signal by an adder 11 connected between the matrix circuit 10 and the A/D converter 13. In this example, the adder 11 is interposed only in the transmission path of the luminance signal Y to thereby superimpose a white picture discrimination indication on the sub-picture screen. However, it is possible for this picture discrimination indication to be made by using other colours.

Channel selections in the main tuner 5M and sub-tuner 5S are carried out by channel selection signals from the system control circuit 20. The switching circuits 3, 7M, 7S, 29 and the switch 25 are also selectively switched under the control of the system control circuit 20. The main and sub-video/chroma signal circuits 8M and 8S are subjected to blanking by the system control circuit 20 for a short period upon up and down scanning channel selection operation. Alternatively, such blanking may be carried out by a blanking switch that is provided at a stage before the cathode ray tube 18. Further, main and sub-horizontal synchronising signals Hm and Ms from the main and sub-video intermediate frequency circuits 6M and 6S and main and sub-vertical blanking signals (vertical signals) Vm and Vs from the main and sub-video/chroma signal circuits 8M and 8S are supplied to the system control circuit 20. The main picture and sub-picture discrimination indicating signal circuits 19M and 19S and the sub-picture control circuit 16 are controlled by the system control circuit 20.

A last-condition memory 21 stores, under the control of the system control circuit 20, the selected channels of the main and sub-tuners 5M and 5S, the switch conditions of the switching circuits 7M and 7S, the control conditions of the sub-picture control circuit 16 and so on when power to the television receiver is turned off. When the television receiver is turned on again, the conditions of the respective circuits present when the television receiver was last turned off are reproduced under the control of the system control circuit 20.

A key apparatus 22 is connected to the system control circuit 20 and is provided with various kinds of keys KY to control the television receiver.

A remote controller (commander) 24 also is provided with various kinds of keys KY to control the television receiver. The remote controller 24 is also provided with a transmitter (not shown) to transmit a remote control signal based on the corresponding key operation. A receiver 23 for receiving the signal transmitted from the transmitter of the remote controller 24 is connected to the system control circuit 20. The remote control signal can be transmitted by means of a light beam, radio wave, sound wave and so on.

By way of example, the keys KY of the key apparatus 22 or the remote controller 24 may comprise: a power key 33; a recall key 34 (used to display the picture discrimination indication such as the channel number); a mute key (used to mute the sound); ten keys (designated generally by the reference numeral 35) used to select the reception channel and the number of the external video signal input terminal; a TV (television)/VTR change-over key; an aerial input/auxiliary high frequency input change-over key; a sound multiplexing key; up and down keys 36 for incrementing and decrementing the contrast of luminance and chrominance signals, the main reception channels, the number of the main external video signal input terminal, and the sound volume, respectively; an on-off key 37 for the sub-picture screen; up and down keys 38 for incrementing and decrementing the sub-reception channel and the number of the sub-external video signal input terminal; a still picture key; a step-by-step picture key; a shift key used to shift the position of the sub-picture screen; and a main-sub exchange key 39 used to exchange the picture contents on the main picture and sub -picture screens.

How to superimpose the picture discrimination indications on the respective picture screens will now be described with reference to Figures 2A to 2D and 3A to 3I.

Figure 2A shows a case in which only the main picture screen (real moving picture) M is displayed on the picture screen of the cathode ray tube 18. In this case, when the recall key 34 on the remote controller 24 is depressed, a channel number, for example "14", is displayed in green on the main picture screen M at, for example, the upper right-hand corner of the screen, as a picture discrimination indication. The numbers of the external video (identification) signal input terminals V1, V2 and V3 would similarly be displayed as "V1", "V2" and "V3", by way of example.

Figure 2B shows a case in which a step-by-step picture composed of sub-picture screens S_1, S_2 and S_3 of three still pictures is displayed on the main picture screen (real moving picture) M at its left-hand side in the up and down direction. In this case, when the recall key 34 on the remote controller 24 is depressed, the channel number "14" is displayed in green only on the main picture screen M and not on the sub-picture screens S_1, S_2, or S_3.

Figure 2C shows a case in which a sub-picture screen (real moving picture) S_1 is inset into the main picture screen (real moving picture) M at its lower left-hand corner. In this case, when the recall

key 34 on the remote controller 24 is depressed, the channel number "14" is displayed in green on the upper right-hand corner of the main picture screen M and a channel number, for example "22", is displayed in white on the upper right-hand corner of the sub-picture screen S_1.

Figure 2D shows a case in which a real moving picture S_1 and step-by-step still pictures S_2, S_3 and S_4, taken at different times from the real moving picture signal displayed on the screen S_1, are each displayed on a separate sub-picture screen inset into, for example, the four corners of the main picture screen (real moving picture) M. In this case, when the recall key 34 of the remote controller 24 is depressed, the channel number "14" is displayed in green on the upper right-hand corner of the main picture screen M and a channel number "22" is displayed in white on the upper right-hand corner of each of the four sub-picture screens S_1 to S_4.

The display operation of the television receiver will now be described more fully with reference to Figures 3A to 3I.

When only the main picture screen M (real moving picture) is displayed as shown in Figure 3A, if the on-off key 37 of the remote controller 24 for the sub-picture screen is depressed, the sub-picture screen S_1 (real moving picture) is displayed as shown in Figure 3B. At that time, the channel number "22" is displayed in white on the upper right-hand corner of the sub-picture screen S_1 for a time period of, for example, 2 seconds, and then the indication of the channel number "22" disappears, as shown in Figure 3C.

When the main picture screen M (real moving picture) and the sub-picture screen S_1 (real moving picture of the channel 22) are both displayed, as shown in Figure 3D, if the up key or down key 38 of the sub-reception channel on the remote controller 24 is depressed, the picture on the sub-picture screen S_1 is changed and also a channel number, for example "10", thereof is displayed in white on the sub-picture screen S_1 for a time period of, for example, 2 seconds, as shown in Figure 3E. Thereafter, the indication of the channel number "10" disappears, as shown in Figure 3F.

When the main picture screen M (real moving picture of the channel 14) and the sub-picture screen S_1 (real moving picture of the channel 22) are both displayed, as shown in Figure 3G, if the main-sub exchange key 39 on the remote controller 24 used to exchange the contents of the pictures on the main and sub-picture screens is depressed, the contents of the pictures on the main picture screen M and the sub-picture screen S_1 are exchanged, as shown in Figure 3H, and, also, the channel number "22" is displayed on the main picture screen M and the channel number "14" is displayed on the sub-picture screen S_1 for a time period of, for example, 2 seconds. Thereafter, the indications of the respective channel numbers "14" and "22" disappear, as shown in Figure 3I.

According to the arrangement described above, the picture discrimination indications of the main picture and the sub-picture screens can be positively discriminated from each other as required during and after changes in the display.

The operation of the television receiver will now be described further.

When the up key or down key 36 of the remote controller 24 for incrementing or decrementing the main reception channel and the number of the main external video signal input terminal is depressed to thereby change the content of the picture displayed on the main picture screen, the picture discrimination indications are carried out on both of the main and sub-picture screens. At that time, the television receiver will be operated, under the control of the system control circuit 20, in accordance with a flow chart shown in Figure 4.

Referring to the flow chart shown in Figure 4, when the up key or down key is depressed at a step 1, the system control circuit 20 causes the video blanking operations of the main and sub-picture screens to be carried out at a step 2. The video blankings are carried out by, for example, the main and sub-picture/chroma signal circuits 8M and 8S, respectively. At a step 3, a picture of the video signal from the main tuner 5M is displayed on the main picture screen and the main reception channel is moved in the up or down direction to reset the channel selection data - phase locked loop (PLL) data - of the main tuner 5M. Also at the step 3, when the picture of a video signal from the external video signal input terminals V1 to V3 is displayed on the main picture screen and the number of the external video signal input terminal is moved upwardly or downwardly, the change-over switch data of the main switching circuit 7M is set in response to the incremented or decremented number of the external video signal input terminal whereby the main switching circuit 7M is switched so as to generate the video signal of the external video signal input terminal of the incremented or decremented number. Then, the picture discriminator indication data of the main picture screen is set at a step 4. This picture discrimination indication data is supplied by the system control circuit 20 to the main character display circuit 19M which generates the main picture discrimination indication signal. Subsequently, the picture discrimination indication data of the sub-picture screen is set at a step 5. This picture discrimination indication data is supplied by the system control circuit 20 to the sub-character display circuit 195 which generates the sub-picture discrimination indication signal. At a

step 6, the video blanking is released. The main picture, whose picture content has been changed, is then displayed on the main picture screen along with the sub-picture whose picture content has not been changed. In this case, the main and sub-picture discrimination indications are carried out on both the main and the sub-picture screens, respectively. The picture discrimination indications will be erased after, for example, 2 seconds, at a step 7.

This sequence is illustrated in Figures 5A and 5B. In Figure 5A, the picture contents are displayed on the main and sub-picture screens M and S_1 before the main picture channel selection up key 36, for example, is depressed. If the up key 36 is then depressed, the picture content displayed on the main picture screen M is changed and new picture discrimination indications are displayed on both the main and sub-picture screens M and S_1, as shown in Figure 5B. These picture discrimination indications are erased after 2 seconds.

Further, in this embodiment, when the up key or down key 38 of, for example, the remote controller 24 is depressed to increment or decrement the sub-reception channel or the number of the sub-external video signal input terminal and hence the picture content displayed on the sub-picture screen is changed, the picture discrimination indication is carried out only on the sub-picture screen. That is, at that time, the television receiver is operated in accordance with a flow chart shown in Figure 6 under the control of the system control circuit 20.

Referring to the flow chart shown in Figure 6, the up or down key 38 is depressed at a step 10. Then, at a step 20, when the picture of the video signal from the sub-tuner 5S is displayed on the sub-picture screen S_1 and the sub-reception channel is incremented or decremented, the system control circuit 20 causes the channel selection data of the sub-tuner 5S to be set in response to the incremented or decremented reception channel, whereby the sub- tuner 5S is placed in the channel selection mode for selecting the incremented or decremented reception channel. If, however, at the step 20, a picture provided by a video signal from the external video signal input terminals V1 to V3 is displayed on the sub-picture screen S_1 and the number of the external video signal input terminal is incremented or decremented, the switching data for changing-over the sub-switching circuit 7S is set in response to the number of the incremented or decremented external video signal input terminal, whereby the sub-switching circuit 7S is switched so as to generate the video signal of the external video signal input terminal corresponding to the incremented or decremented number. Then, the picture discrimination indication data of the sub picture screen is set at a step 30. So, this picture discrimination indication data is applied to the sub-character display circuit 19S in which the sub-picture screen discrimination indication signal is generated. By virtue of the operations represented at the steps 20 and 30, the sub-picture whose picture content is changed is displayed on the sub-picture screen and the corresponding picture discrimination indication of the sub-picture is displayed on this sub-picture screen. In this case, a main picture having the same picture content as that of the original main picture is displayed on the main picture screen. Then, at a step 40, the picture discrimination indication on the sub-picture screen is erased after, for example, 2 seconds.

For example, when the picture contents shown in Figure 7A are displayed on the main and sub-picture screens M and S_1 before the up key 38 is depressed, if the up key 38 is depressed, the picture discrimination indication is carried out only on the sub-picture screen S_1, which is changed as shown in Figure 7b. Then, this picture discrimination indication is erased after 2 seconds.

According to the above-described embodiment of the present invention, when the picture content displayed on the main picture screen is changed, not only is the corresponding picture discrimination indication displayed on the main picture screen, but also the picture discrimination indication is displayed on the sub-picture screen. Accordingly, positive confirmation is provided to the user that the picture content displayed on the sub-picture screen remains unchanged.

It will be seen that the described embodiment in overall terms provides a television receiver comprising a cathode ray tube, a composing circuit for composing a video signal for a main picture screen of the cathode ray tube type and a video signal for a sub-picture screen which is inset into a part of the main picture screen, a first adder for adding a picture discrimination indication signal to the video signal for the main picture screen, a second adder for adding a picture discrimination indication signal to the video signal for the sub-picture screen, and a system control circuit for controlling the composing circuit and the additions carried out by the first and second adders.

Claims

1. A television receiver comprising:
   (a) a cathode ray tube (18) having a picture screen which is divisible into a main picture screen (M) and one or more sub-picture screens (S_1) inset into the main picture screen (M);
   (b) a main picture circuit (7M, 8M) for selecting a first video signal from a plurality of video signals (V_1, V_2, V_3, 5M) and supplying the selected video signal as a video

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step 6, the video blanking is released. The main picture, whose picture content has been changed, is then displayed on the main picture screen along with the sub-picture whose picture content has not been changed. In this case, the main and sub-picture discrimination indications are carried out on both the main and the sub-picture screens, respectively. The picture discrimination indications will be erased after, for example, 2 seconds, at a step 7.

This sequence is illustrated in Figures 5A and 5B. In Figure 5A, the picture contents are displayed on the main and sub-picture screens M and S_1 before the main picture channel selection up key 36, for example, is depressed. If the up key 36 is then depressed, the picture content displayed on the main picture screen M is changed and new picture discrimination indications are displayed on both the main and sub-picture screens M and S_1, as shown in Figure 5B. These picture discrimination indications are erased after 2 seconds.

Further, in this embodiment, when the up key or down key 38 of, for example, the remote controller 24 is depressed to increment or decrement the sub-reception channel or the number of the sub-external video signal input terminal and hence the picture content displayed on the sub-picture screen is changed, the picture discrimination indication is carried out only on the sub-picture screen. That is, at that time, the television receiver is operated in accordance with a flow chart shown in Figure 6 under the control of the system control circuit 20.

Referring to the flow chart shown in Figure 6, the up or down key 38 is depressed at a step 10. Then, at a step 20, when the picture of the video signal from the sub-tuner 5S is displayed on the sub-picture screen S_1 and the sub-reception channel is incremented or decremented, the system control circuit 20 causes the channel selection data of the sub-tuner 5S to be set in response to the incremented or decremented reception channel, whereby the sub- tuner 5S is placed in the channel selection mode for selecting the incremented or decremented reception channel. If, however, at the step 20, a picture provided by a video signal from the external video signal input terminals V1 to V3 is displayed on the sub-picture screen S_1 and the number of the external video signal input terminal is incremented or decremented, the switching data for changing-over the sub-switching circuit 7S is set in response to the number of the incremented or decremented external video signal input terminal, whereby the sub-switching circuit 7S is switched so as to generate the video signal of the external video signal input terminal corresponding to the incremented or decremented number. Then, the picture discrimination indication data of the sub picture screen is set at a step 30. So, this picture discrimination indication data is applied to the sub-character display circuit 19S in which the sub-picture screen discrimination indication signal is generated. By virtue of the operations represented at the steps 20 and 30, the sub-picture whose picture content is changed is displayed on the sub-picture screen and the corresponding picture discrimination indication of the sub-picture is displayed on this sub-picture screen. In this case, a main picture having the same picture content as that of the original main picture is displayed on the main picture screen. Then, at a step 40, the picture discrimination indication on the sub-picture screen is erased after, for example, 2 seconds.

For example, when the picture contents shown in Figure 7A are displayed on the main and sub-picture screens M and S_1 before the up key 38 is depressed, if the up key 38 is depressed, the picture discrimination indication is carried out only on the sub-picture screen S_1, which is changed as shown in Figure 7b. Then, this picture discrimination indication is erased after 2 seconds.

According to the above-described embodiment of the present invention, when the picture content displayed on the main picture screen is changed, not only is the corresponding picture discrimination indication displayed on the main picture screen, but also the picture discrimination indication is displayed on the sub-picture screen. Accordingly, positive confirmation is provided to the user that the picture content displayed on the sub-picture screen remains unchanged.

It will be seen that the described embodiment in overall terms provides a television receiver comprising a cathode ray tube, a composing circuit for composing a video signal for a main picture screen of the cathode ray tube type and a video signal for a sub-picture screen which is inset into a part of the main picture screen, a first adder for adding a picture discrimination indication signal to the video signal for the main picture screen, a second adder for adding a picture discrimination indication signal to the video signal for the sub-picture screen, and a system control circuit for controlling the composing circuit and the additions carried out by the first and second adders.

Claims

1. A television receiver comprising:
   (a) a cathode ray tube (18) having a picture screen which is divisible into a main picture screen (M) and one or more sub-picture screens (S_1) inset into the main picture screen (M);
   (b) a main picture circuit (7M, 8M) for selecting a first video signal from a plurality of video signals (V_1, V_2, V_3, 5M) and supplying the selected video signal as a video

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signal for the main picture screen (M);
(c) a sub-picture circuit (7S, 25, 8S) for selecting a second video signal from a plurality of video signals (V_1, V_2, V_3, 5S) and supplying the selected video signal as a sub-picture video signal for one or more of the sub-picture screens (S_1); and
(d) a composing circuit (9) for composing the selected video signal for the main picture screen (M) of the cathode ray tube (18) and the selected video signal for the sub-picture screen (S_1) into a composite signal (R,G,B) to be supplied to the cathode ray tube (18); characterised by
(e) a first adder (19M, 17) at a point in the transmission path between the composing circuit (9) and the cathode ray tube (18) for adding a picture discrimination indication signal to the video signal for the main picture screen (M);
(f) a second adder (19S, 11) at a point in the transmission path between the sub-picture circuit (7S, 25, 8S) and the composing circuit (9) for adding a picture discrimination indication signal to the video signal for the sub-picture screen (S_1); and
(g) a system control circuit (20) for controlling the main picture circuit (7M, 8M), the sub-picture circuit (7S, 25, 8S), the composing circuit (9), the first adder (19M, 17) and the second adder (19S, 11) such that the sub-picture discrimination indication signal is displayed on the sub-picture screen (S_1) whenever the sub-picture circuit (7S, 25, 8S) selects a different one of the plurality of video signals (V_1, V_2, V_3, 5S) as the second video signal.

2. A television receiver according to claim 1, comprising a recall key (34) for the picture discrimination indication, the system control circuit (20) being operative to control the adders (19M, 17, 19S, 11) such that, if the recall key (34) is operated when only the main picture screen (M) is displayed on the cathode ray tube (18), the discrimination indication of the picture is displayed on the main picture screen (M).

3. A television receiver according to claim 2, wherein the system control circuit (20) is operative to control the adders (19M, 17, 19S, 11) such that, if the recall key (34) is operated when the main picture screen (M) and a plurality of sub-picture screens (S_1, S_2, S_3) whose picture contents are the same as that of the main picture screen (M) but taken at different times from the main picture screen (M) are displayed, only the discrimination indication of the picture on the main picture screen (M) is displayed.

4. A television receiver according to claim 2 or claim 3, wherein the system control circuit (20) is operative to control the adders (19M, 17, 19S, 11) such that, if the recall key (34) is operated when the main picture screen (M) and the sub-picture screen (S_1) are displaying pictures from different signals, the discrimination indications of the pictures on the main and sub-picture screens (M, S_1) are displayed thereon, respectively.

5. A television receiver according to claim 2, claim 3 or claim 4, wherein the system control circuit (20) is operative to control the adders (19M, 17, 19S, 11) such that, if the recall key (34) is operated when the main picture screen (M) is displaying a picture different from pictures displayed on a plurality of sub-picture screens (S_1,etc,), the discrimination indications of the pictures on the main picture screen (M) and the plurality of sub-picture screens (S_1, etc.) are displayed on the respective screens.

6. A television receiver according to any one of the preceding claims, comprising an on/off key (37) for the sub-picture screen (S_1), the system control circuit (20) being operative to control the adders (19M, 17, 19S, 11) such that, if the on/off key (37) is operated when only the main picture screen (M) is displayed, the sub-picture screen (S_1) is displayed and, at the same time, a discrimination indication of the sub-picture screen (S_1) is displayed thereon for a predetermined period of time.

7. A television receiver according to any one of the preceding claims comprising an exchange key (39) for exchanging the pictures between the main and sub-picture screens (M, S_1) the system control circuit (20) being operative to control the adders (19M, 17, 19S,11) such that, if the exchange key (39) is operated when different pictures are produced on the main and sub-picture screens (M, S_1), the pictures of the main and sub-picture screens are exchanged with each other and the discrimination indications of the main and sub-picture screens are respectively disPlayed thereon for a predetermined period of time.

8. A television receiver according to any one of claims 1 to 7, comprising a channel up/down key (38) for changing the sub-channel of the sub-picture screen (S_1), the system control

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circuit (20) being operative to control the adders (19M, 17, 19S, 11) such that, if the channel up/down key (38) is operated when the main picture screen (M) is displaying a picture different from that displayed on the sub-picture screen (S_1), the picture of the sub-picture screen (S_1) is changed and, at the same time, a discrimination indication of the sub-picture screen (S_1) is displayed thereon for a predetermined period of time.

9. A television receiver according to any one of claims 1 to 7, comprising channel selection keys (35, 38) for the main and sub-pictures, the system control circuit (20) being operative to control the adders (19M, 17, 19S, 11) such that, if the channel selection key (35) for the main picture is operated when different pictures are produced on the ain and sub-picture screens (M, S_1), the picture on the main picture screen (M) is changed and, at the same time, the discrimination indications of the main and sub-picture screens (M, S_1) are respectively displayed thereon for a predetermined period of time.

10. A television receiver according to claim 9, wherein the system control circuit (20) is operative to control the adders (19M, 17,19S, 11) such that, if the channel selection key (38) for the sub-picture is operated when different pictures are produced on the main and sub-picture screens (M, S_1), the picture on the sub-picture screen (S_1) is changed and, at the same time, the discrimination indication of the sub-picture screen (S_1) is displayed thereon for a predetermined period of time.

11. A television receiver according to claim 10, wherein the system control circuit (20) is operative to control the adders (19M, 17, 19S, 11) such that, if the channel selection key (38) for the sub-picture is further operated, the picture of the sub-picture screen (S_1) is changed and, at the same time, only the discrimination indication of the sub-picture screen (S_1) is displayed for a predetermined period of time.

12. A television receiver as claimed in claim 1, wherein the picture discrimination indication signal for the main picture screen (M) is added to one colour component of the composite signal (R, G, B) and the picture discrimination indication signal for the sub-picture screen (S_1) is added to the luminance component of the sub-picture video signal.

Patentansprüche

1. Fernsehempfänger mit
   (a) einer Katodenstrahlröhre (18) mit einem Bildschirm, der in einen Hauptbildschirm (M) und einen oder mehrere in den Hauptbildschirm (M) einfügbare Unterbildschirme (S_1) aufteilbar ist,
   (b) einer Hauptbildschaltung (7M, 8M) zum Auswählen eines ersten Videosignals aus einer Vielzahl von Videosignalen (V_1, V_2, V_3, 5M) und zum Bereitstellen des ausgewählten Videosignals als Videosignal für den Hauptbildschirm (M),
   (c) einer Unterbildschaltung (7S, 25, 8S) zum Auswählen eines zweiten Videosignals aus einer Vielzahl von Videosignalen (V_1, v_2, V_3, 5S) und zum Bereitstellen des ausgewählten Videosignals als ein Unterbild-Videosignal für einen oder mehrere der Unterbildschirme (S_1), und
   (d) einer Schaltung (9) zum Zusammensetzen des ausgewählten Videosignals für den Hauptbildschirm (M) der Katodenstrahlröhre (18) und des ausgewählten Videosignals für den Unterbildschirm (S_1) in ein zusammengesetztes Signal (R, G, B), um es der Katodenstrahlröhre (18) zuzuführen, gekennzeichnet durch
   (e) einen ersten Addierer (19M, 17) an einer Stelle im Übertragungsweg zwischen der Schaltung (9) zum Zusammensetzen der Videosignale und der Katodenstrahlröhre (18) zum Hinzufügen eines Bildunterscheidungskennsignals zu dem Videosignal für den Hauptbildschirm (M),
   (f) einen zweiten Addierer (19S, 11) an einer Stelle im Übertragungsweg zwischen der Unterbildschaltung (7S, 25, 8S) und der Setzschaltung (9) zum Hinzufügen eines Bildunterscheidungskenrtsignal zu dem Videosignal für den Unterbildschirm (S_1), und
   (g) eine Systemsteuerschaltung (20) zum Steuern der Hauptbildschaltung (7M, 8M), der Unterbildschaltung (7S, 25, 8S), der Setzschaltung (9), des ersten Addierers (19M, 17) und des zweiten Addierers (19S, 11) derart, daß das Unterbildunterscheidungskennsignal auf dem Unterbildschirm (S_1) immer dann angezeigt wird, wenn die Unterbildschaltung (7S, 25, 8S) ein anderes Signal aus der Vielzahl von Videosignalen (V_1, V_2, V_3, 5S) auswählt als das zweite Videosignal.

2. Fernsehempfänger nach Anspruch 1, welcher eine Abruftaste (34) für die Bildunterscheidungskennung aufweist, wobei die System-

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steuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Abruftaste (34) betätigt wird, während nur der Hauptbildschirm (M) auf der Katodenstrahlröhre (18) gezeigt wird, die Unterscheidungskennung des Bildes auf dem Hauptbildschirm (M) angezeigt wird.

3. Fernsehempfänger nach Anspruch 2, bei dem die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Abruftaste (34) betätigt wird, während der Hauptbildschirm (M) und eine Vielzahl von Unterbildschirmen (S_1, S_2, S_3), deren Bildinhalte die gleichen wie jener des Hauptbildschirms sind, aber zu verschiedenen Zeiten vom Hauptbildschirm abgenommen worden sind, gezeigt werden, nur die Unterscheidungskennung des Bildes auf dem Hauptbildschirm angezeigt wird.

4. Fernsehempfänger nach Anspruch 2 oder 3, bei dem die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Abruftaste (34) betätigt wird, während der Hauptbildschirm (M) und der Unterbildschirm (S_1) Bilder von unterschiedlichen Signalen zeigen, die Unterscheidungskennungen der Bilder auf Haupt- und Unterbildschirm (M, S_1) jeweils auf diesen angezeigt werden.

5. Fernsehempfänger nach Anspruch 2, 3 oder 4, bei dem die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Abruftaste (34) betätigt wird, während der Hauptbildschirm (M) ein anderes Bild zeigt als die auf einer Vielzahl von Unterbildschirmen (S_1, usw.) gezeigten Bilder, die Unterscheidungskennungen der Bilder auf dem Hauptbildschirm (M) und der Vielzahl von Unterbildschirmen (S_1, usw.) auf den jeweiligen Bildschirmen angezeigt werden.

6. Fernsehempfänger nach einem der vorhergehenden Ansprüchen, welcher eine Ein/Aus-Taste (37) für den Unterbildschirm (S1) aufweist, wobei die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Ein/Aus-Taste (37) betätigt wird, während nur der Hauptbildschirm (M) gezeigt wird, der Unterbildschirm gezeigt wird und gleichzeitig eine Unterscheidungskennung des Unterbildschirms (S1) auf diesem für einen vorgegebenen Zeitraum angezeigt wird.

7. Fernsehempfänger nach einem der vorhergehenden Ansprüche, der eine Umschalttaste (39) zum Wechseln der Bilder zwischen den Haupt- und Unterbildschirmen (M, S_1) aufweist, wobei die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Umschalt-taste (39) betätigt wird, während unterschiedliche Bilder auf Haupt- und Unterbildschirmen (M, S1) erzeugt werden, die Bilder der Haupt- und Unterbildschirme miteinander vertauscht werden und Unterscheidungskennungen der Haupt- und Unterbildschirme jeweils auf diesen für einen vorgegebenen Zeitraum angezeigt werden.

8. Fernsehempfänger nach einem der Ansprüche 1 bis 7, der eine Auf/Ab-Taste (38) für die Kanäle zum Wechseln des Unterkanals des Unterbildschirms (S1) aufweist, wobei die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Auf/Ab-Taste (38) für die Kanäle betätigt wird, während der Hauptbildschirm (M) ein anderes Bild als das auf dem Unterbildschirm (S1) gezeigte Bild zeigt, das Bild des Unterbildschirms (S1) gewechselt wird und gleichzeitig eine Unterscheidungskennung des Unterbildschirms (S_1) auf diesem für einen vorgegebenen Zeitraum angezeigt wird.

9. Fernsehempfänger nach einem der Ansprüche 1 bis 7, der Kanalwähltasten (35, 38) für Haupt- und Unterbilder aufweist, wobei die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Kanalwähltaste (35) für das Hauptbild betätigt wird, während unterschiedliche Bilder auf Haupt- und den Unterbildschirmen (M,S_1) erzeugt werden, das Bild auf dem Hauptbildschirm gewechselt wird und gleichzeitig die Unterscheidungskennungen von Haupt- und Unterbildschirmen (M, S_1) jeweils auf diesen für einen vorgegebenen Zeitraum angezeigt werden.

10. Fernsehempfänger nach Anspruch 9, in dem die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Kanalwähltaste (38) für das Unterbild betätigt wird, während unterschiedliche Bilder auf Haupt- und den Unterbildschirmen (M, S_1) erzeugt werden, das Bild auf dem Unterbildschirm (S_1) gewechselt wird und gleichzeitig das Unterscheidungskennzeichen des Unterbildschirms (S_1) auf diesem für einen vorgegebenen Zeitraum angezeigt wird.

11. Fernsehempfänger nach Anspruch 10, bei dem die Systemsteuerschaltung (20) die Addierer (19M, 17, 19S, 11) derart steuert, daß, wenn die Kanalwähltaste (38) für das Unterbild wei-

terhin betätigt wird, das Bild des Unterbildschirms (S_1) gewechselt wird und gleichzeitig nur das Unterscheidungskennzeichen des Unterbildschirms (S_1) für einen vorgegebenen Zeitraum angezeigt wird.

12. Fernsehempfänger nach Anspruch 1, bei dem das Bildunterscheidungskennsignal für den Hauptbildschirm (M) einer Farbkomponente des zusammengesetzten Signals (R, G, B) und das Bildunterscheidungskennsignal für den Unterbildschirm (S_1) der Luminanzkomponente des Unterbild-Videosignals hinzugefügt wird.

Revendications

1. Un récepteur de télévision comprenant :
(a) un tube cathodique (18) ayant un écran d'image qui peut être divisé en un écran d'image principale (M) et un ou plusieurs écrans d'image auxiliaire (S_1) incrustés dans l'écran d'image principale (M);
(b) un circuit d'image principale (7M, 8M) destiné à sélectionner un premier signal vidéo parmi un ensemble de signaux vidéo (V_1, V_2, V_3, 5M), et à fournir le signal vidéo sélectionné, à titre de signal vidéo pour l'écran d'image principale (M);
(c) un circuit d'image auxiliaire (7S, 25, 8S) qui est destiné à sélectionner un second signal vidéo parmi un ensemble de signaux vidéo (V_1, V_2, V_3, 5S) et à fournir le signal vidéo sélectionné à titre de signal vidéo d'image auxiliaire pour un ou plusieurs des écrans d'image auxiliaire (S_1); et
(d) un circuit de combinaison (9) qui est destiné à combiner le signal vidéo sélectionné pour l'écran d'image principale (M) du tube cathodique (18), et le signal vidéo sélectionné pour l'écran d'image auxiliaire (S_1), pour donner un signal composite (R, G, B) qui est destiné à être appliqué au tube cathodique (18); caractérisé par
(e) un premier additionneur (19M, 17), en un point dans le chemin de transmission qui est situé entre le circuit de combinaison (9) et le tube cathodique (18), pour ajouter un signal d'indication de discrimination d'image au signal vidéo pour l'écran d'image principale (M);
(f) un second additionneur (19S, 11) en un point dans le chemin de transmission qui est situé entre le circuit d'image auxiliaire (7S, 25, 8S) et le circuit de combinaison (9), pour ajouter un signal d'indication de discrimination d'image au signal vidéo pour l'écran d'image auxiliaire (S_1); et
(g) un circuit de commande de système (20) qui est destiné à commander le circuit d'image principale (7M, 8M), le circuit d'image auxiliaire (7S, 25, 8S), le circuit de combinaison (9), le premier additionneur (19M, 17) et le second additionneur (19S, 11), d'une manière telle que le signal d'indication de discrimination d'image auxiliaire soit visualisé sur l'écran d'image auxiliaire (S_1) chaque fois que le circuit d'image auxiliaire (7S, 25, 8S) sélectionne un signal différent parmi l'ensemble de signaux vidéo (V_1, V_2, V_3, 5S), pour le second signal vidéo.

2. Un récepteur de télévision selon la revendication 1, comprenant une touche de rappel (34) pour l'indication de discrimination d'image, le circuit de commande de système (20) étant capable de commander les additionneurs (19M, 17, 19S, 11) de façon que, si la touche de rappel (34) est actionnée pendant que seul l'écran d'image principale (M) est visualisé sur le tube cathodique (18), l'indication de discrimination de l'image soit visualisée sur l'écran d'image principale (M).

3. Un récepteur de télévision selon la revendication 2, dans lequel le circuit de commande de système (20) commande les additionneurs (19M, 17, 19S, 11) de façon que si la touche de rappel (34) est actionnée pendant la visualisation de l'écran d'image principale (M) et d'un ensemble d'écrans d'image auxiliaire (S_1, S_2, S_3) dont les images sont les mêmes que celles de l'écran d'image principale (M), mais sont extraites à différents instants de l'écran d'image principale (M), seule l'indication de discrimination de l'image sur l'écran d'image principale (M) est visualisée.

4. Un récepteur de télévision selon la revendication 2 ou la revendication 3, dans lequel le circuit de commande de système (20) commande les additionneurs (19M, 17, 19S, 11) de façon que si la touche de rappel (34) est actionnée pendant que l'écran d'image principale (M) et l'écran d'image auxiliaire (S_1) visualisent des images provenant de différents signaux, les indications de discrimination des images sur les écrans d'image principale et d'image auxiliaire (M, S_1) sont respectivement visualisées sur ces écrans.

5. Un récepteur de télévision selon la revendication 2, la revendication 3 ou la revendication 4, dans lequel le circuit de commande de système (20) commande les additionneurs (19M,

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17, 19S, 11) de façon que si la touche de rappel (34) est actionnée lorsque l'écran d'image principale (M) visualise une image différente des images qui sont visualisées sur un ensemble d'écrans d'image auxiliaire (S_1, etc.), les indications de discrimination des images sur l'écran d'image principale (M) et sur l'ensemble d'écrans d'image auxiliaire (S_1, etc.), sont visualisées sur les écrans respectifs.

6. Un récepteur de télévision selon l'une quelconque des revendications précédentes, comprenant une touche marche/arrêt (37) pour l'écran d'image auxiliaire (S_1), le circuit de commande de système (20) commandant les additionneurs (19M, 17, 19S, 11) de façon que si la touche marche/arrêt (37) est actionnée lorsque seul l'écran d'image principale (M) est visualisé, alors l'écran d'image auxiliaire (S_1) est visualisé et, simultanément, une indication de discrimination de l'écran d'image auxiliaire (S_1) est visualisée sur ce dernier pendant une durée prédéterminée.

7. Un récepteur de télévision selon l'une quelconque des revendications précédentes, comprenant une touche de permutation (39) pour permuter les images entre les écrans d'image principale et d'image auxiliaire (M, S_1), le circuit de commande de système (20) commandant les additionneurs (19M, 17, 19S, 11) de façon que si la touche de permutation (39) est actionnée lorsque différentes images sont visualisées sur les écrans d'image principale et d'image auxiliaire (M, S_1), les images sur les écrans d'image principale et d'image auxiliaire sont mutuellement permutées, et les indications de discrimination des écrans d'image principale et d'image auxiliaire sont respectivement visualisées sur ces écrans pendant une durée prédéterminée.

8. Un récepteur de télévision selon l'une quelconque des revendications 1 à 7, comprenant une touche d'incrémentation/décrémentation de canal (38), pour changer le canal auxiliaire de l'écran d'image auxiliaire (S_1), le circuit de commande de système (20) commandant les additionneurs (19M, 17, 19S, 11) de façon que si la touche d'incrémentation/décrémentation de canal (38) est actionnée lorsque l'écran d'image principale (M) visualise une image différente de celle qui est visualisée sur l'écran d'image auxiliaire (S_1), alors l'image de l'écran d'image auxiliaire (S_1) est changée et, simultanément, une indication de discrimination de l'écran d'image auxiliaire (S_1) est visualisée sur cet écran pendant une durée prédéterminée.

9. Un récepteur de télévision selon l'une quelconque des revendications 1 à 7, comprenant des touches de sélection de canal (35, 38) pour les images principale et auxiliaire, le circuit de commande de système (20) commandant les additionneurs (19M, 17, 19S, 11) de façon que si la touche de sélection de canal (35) pour l'image principale est actionnée lorsque des images différentes sont visualisées sur les écrans d'image principale et d'image auxiliaire (M, S_1), alors l'image qui est visualisée sur l'écran d'image principale (M) est changée, et simultanément, les indications de discrimination des écrans d'image principale et d'image auxiliaire (M, S_1) sont respectivement visualisées sur ces écrans pendant une durée prédéterminée.

10. Un récepteur de télévision selon la revendication 9, dans lequel le circuit de commande de système (20) commande les additionneurs (19M, 17, 19S, 11) de façon que si la touche de sélection de canal (38) pour l'image auxiliaire est actionnée lorsque des images différente sont visualisées sur les écrans d'image principale et d'image auxiliaire (M, S_1), alors l'image présente sur l'écran de visualisation d'image auxiliaire (S_1) est changée, et simultanément l'indication de discrimination de l'écran d'image auxiliaire (S_1) est visualisée sur cet écran pendant une durée prédéterminée.

11. Un récepteur de télévision selon la revendication 10, dans lequel le circuit de commande de système (20) commande les additionneurs (19M, 17, 19S, 11) de façon que si la touche de sélection de canal (38) pour l'image auxiliaire est à nouveau actionnée, l'image de l'écran d'image auxiliaire (S_1) est changée et, simultanément, seule l'indication de discrimination de l'écran d'image auxiliaire (S_1) est visualisée pendant une durée prédéterminée.

12. Un récepteur de télévision selon la revendication 1, dans lequel le signal d'indication de discrimination d'image pour l'écran d'image principale (M) est ajouté à une composante de couleur du signal composite (R, G, B), et le signal d'indication de discrimination d'image pour l'écran d'image auxiliaire (S_1) est ajouté à la composante de luminance du signal vidéo d'image auxiliaire.