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(54) APPARATUS AND METHOD FOR PARENTAL CONTROL USING V-CHIP PLUS+ AND MASTER PASSWORD

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(63) Continuation of application No. 09/221,615, filed on Dec. 28, 1998, now abandoned, which is a continuation-in-part of application No. 08/831,531, filed on Apr. 1, 1997, now abandoned, which is a non-provisional of provisional application No. 60/014,512, filed on Apr. 1, 1996, and which is a non-provisional of provisional application No. 60/022,210, filed on Jul. 18, 1996, and which is a non-provisional of provisional application No. 60/023,724, filed on Aug. 8, 1996, and which is a non-provisional of provisional application No. 60/100,575, filed on Sep. 16, 1998, and which is a non-provisional of provisional application No. 60/111,342, filed on Dec. 7, 1998.

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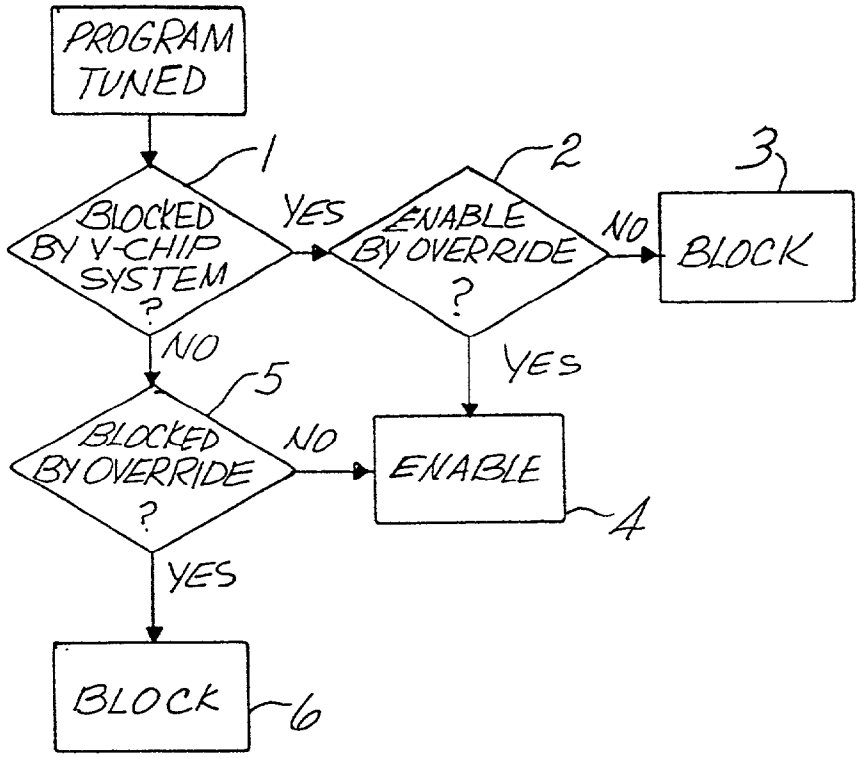
(51) **Int. Cl.**[7] **H04N 7/16**; G06F 3/00; H04N 5/445; G06F 13/00

(52) **U.S. Cl.** **725/25**; 725/30; 725/47

(57) **ABSTRACT**

A method and apparatus for exercising access control over television programs using a parental control user interface that has different functions is provided. The method requires a password to enter into a master mode for obtaining access to all the functions of the parental control user interface. Once in the master mode, the user may enter a criterion for blocking a television program from being viewed or recorded or the user can override an already blocked television program.

If a user, not in the master mode, attempts to watch or record a program that meets the blocking criterion and the program does not meet the overriding criterion, a prompt is provided to the user to enter the password. Upon entering a correct password, the program is unblocked.



 GOOGLE-SAMSUNG EXHIBIT 1006

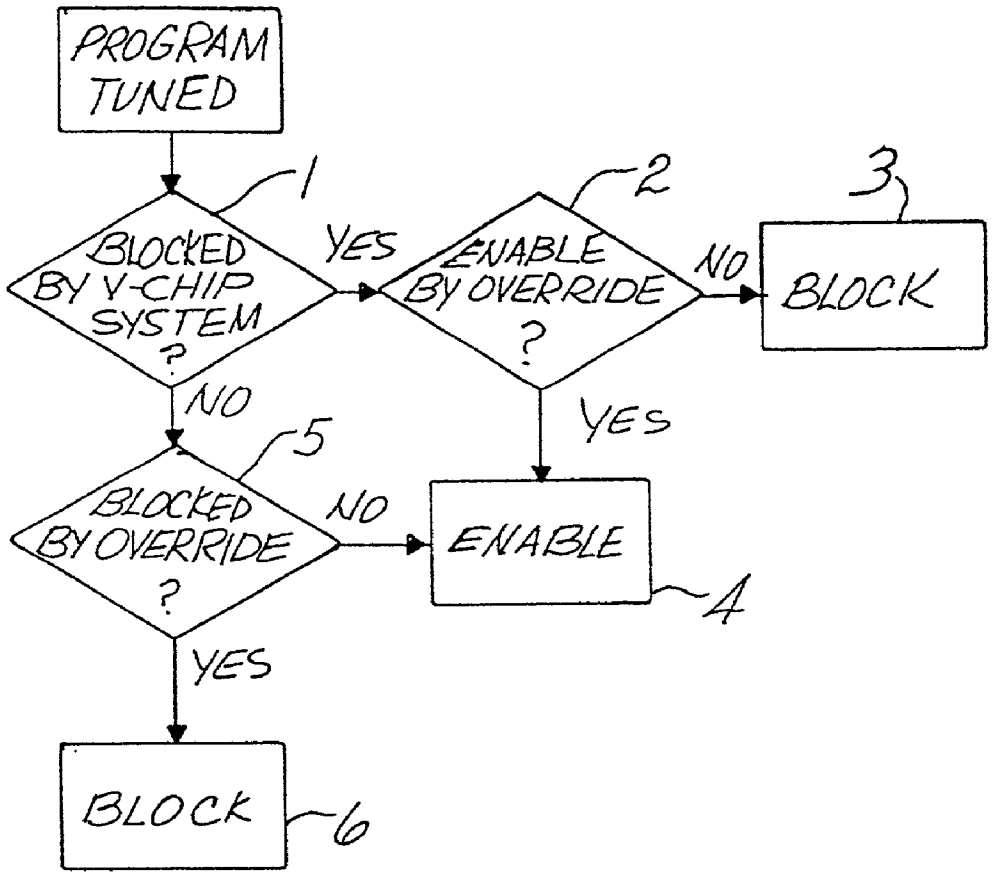

PROGRAM TUNED
1
BLOCKED BY V-CHIP SYSTEM ?
YES
2
ENABLE BY OVERRIDE ?
NO
3
BLOCK
NO
YES
5
BLOCKED BY OVERRIDE ?
NO
ENABLE
4
YES
BLOCK
6

Fig. 1

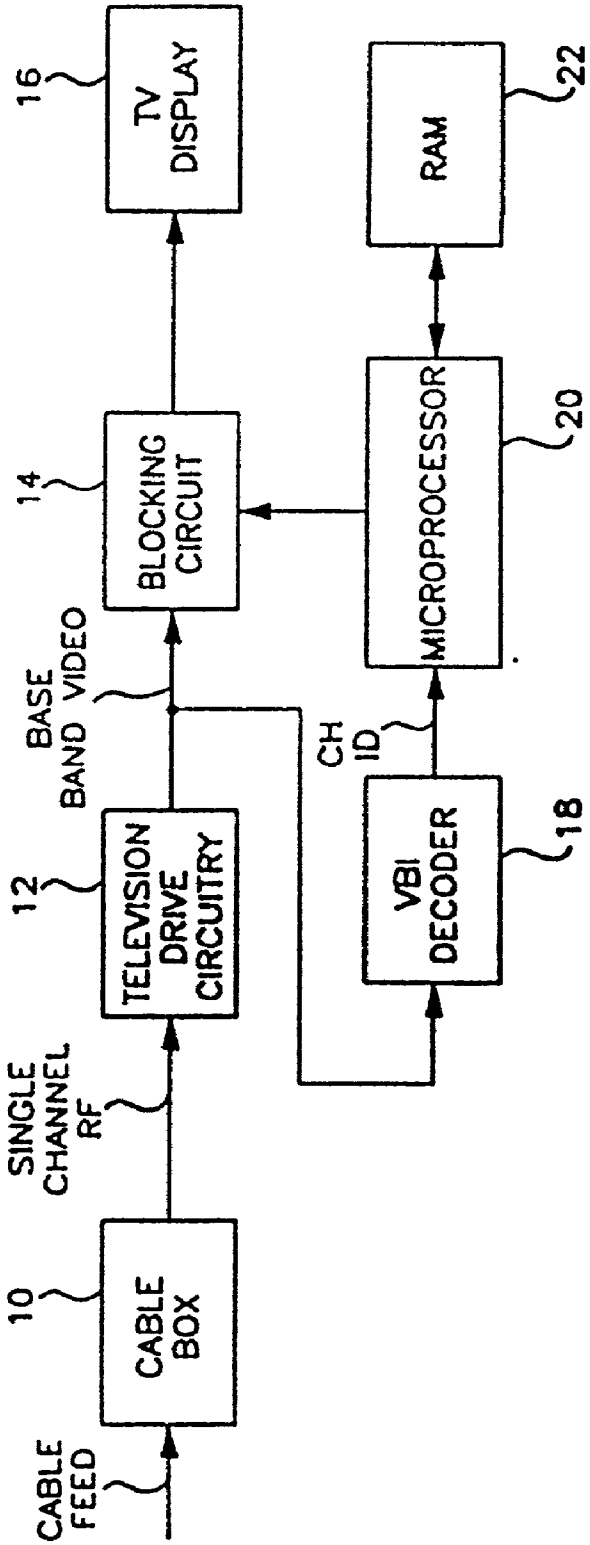

CABLE FEED
10
CABLE BOX
SINGLE CHANNEL RF
12
TELEVISION DRIVE CIRCUITRY
BASE BAND VIDEO
14
BLOCKING CIRCUIT
16
TV DISPLAY
CH ID
VBI DECODER
18
MICROPROCESSOR
20
RAM
22

Fig. 2

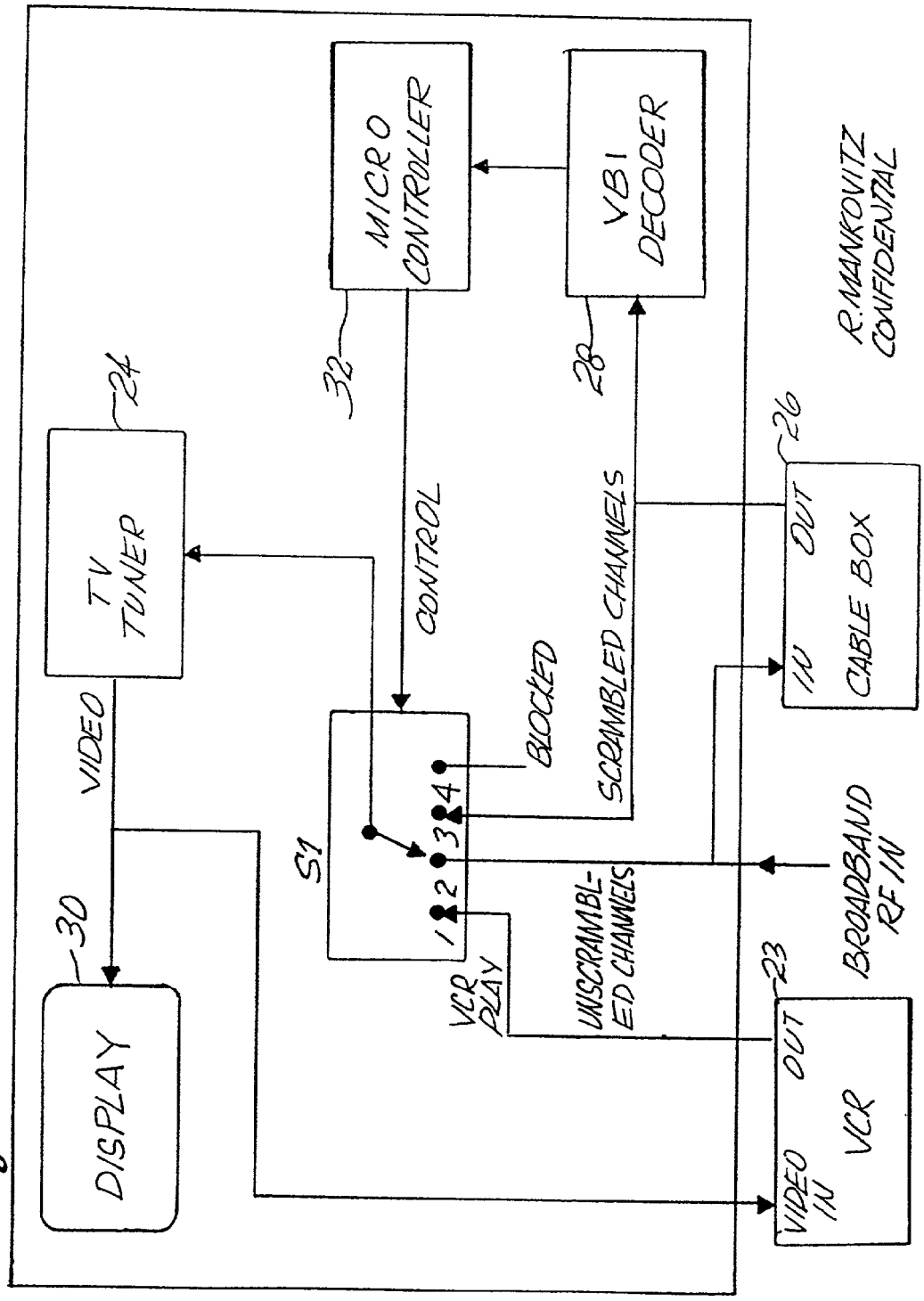

MICRO CONTROLLER
VBI DECODER
R.MANKOVITZ CONFIDENTIAL
TV TUNER
24
32
28
26
CONTROL
SCRAMBLED CHANNELS
OUT
CABLE BOX
IN
VIDEO
BLOCKED
S1
1
2
3
4
BROADBAND RF IN
30
DISPLAY
VCR PLAY
UNSCRAMBLED CHANNELS
23
OUT
VCR
VIDEO IN

Fig. 3

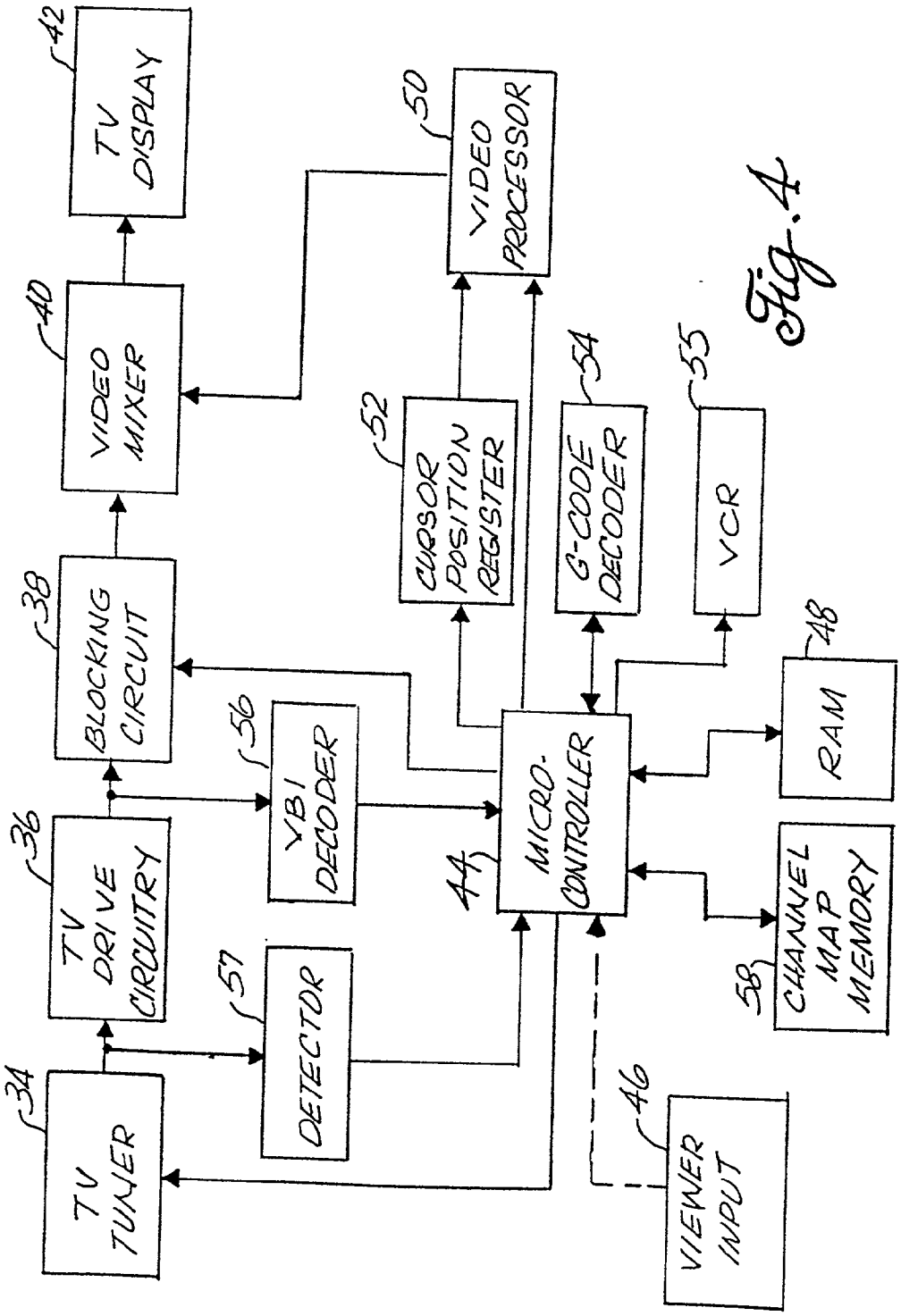

42
TV DISPLAY
40
VIDEO MIXER
38
BLOCKING CIRCUIT
36
TV DRIVE CIRCUITRY
34
TV TUNER
50
VIDEO PROCESSOR
52
CURSOR POSITION REGISTER
54
G-CODE DECODER
55
VCR
56
VBI DECODER
57
DETECTOR
44
MICRO-CONTROLLER
48
RAM
58
CHANNEL MAP MEMORY
46
VIEWER INPUT

Fig. 4

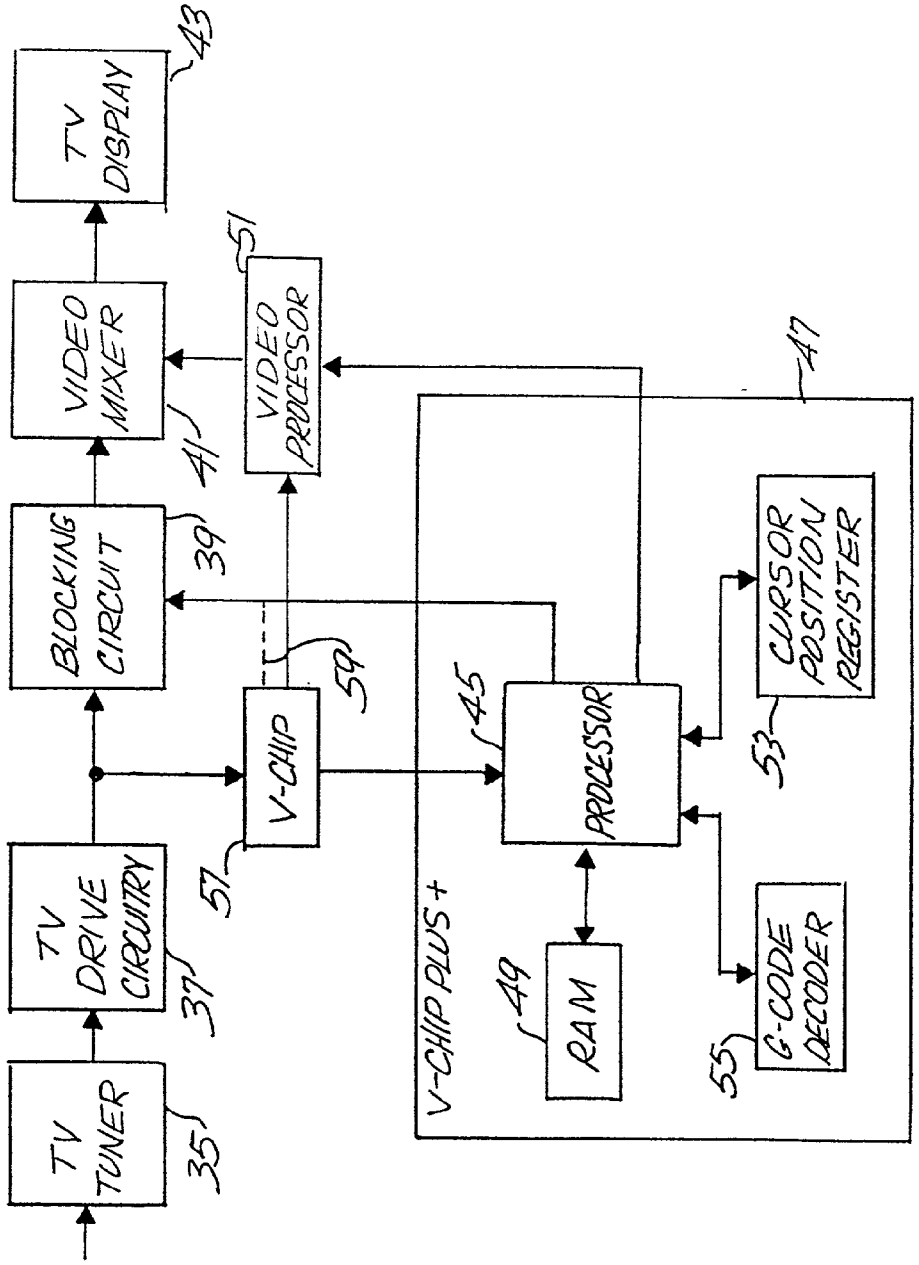

TV TUNER
35
TV DRIVE CIRCUITRY
37
BLOCKING CIRCUIT
39
VIDEO MIXER
41
TV DISPLAY
43
V-CHIP
57
59
VIDEO PROCESSOR
51
V-CHIP PLUS+
47
PROCESSOR
45
RAM
49
CURSOR POSITION REGISTER
53
G-CODE DECODER
55

Fig. 5

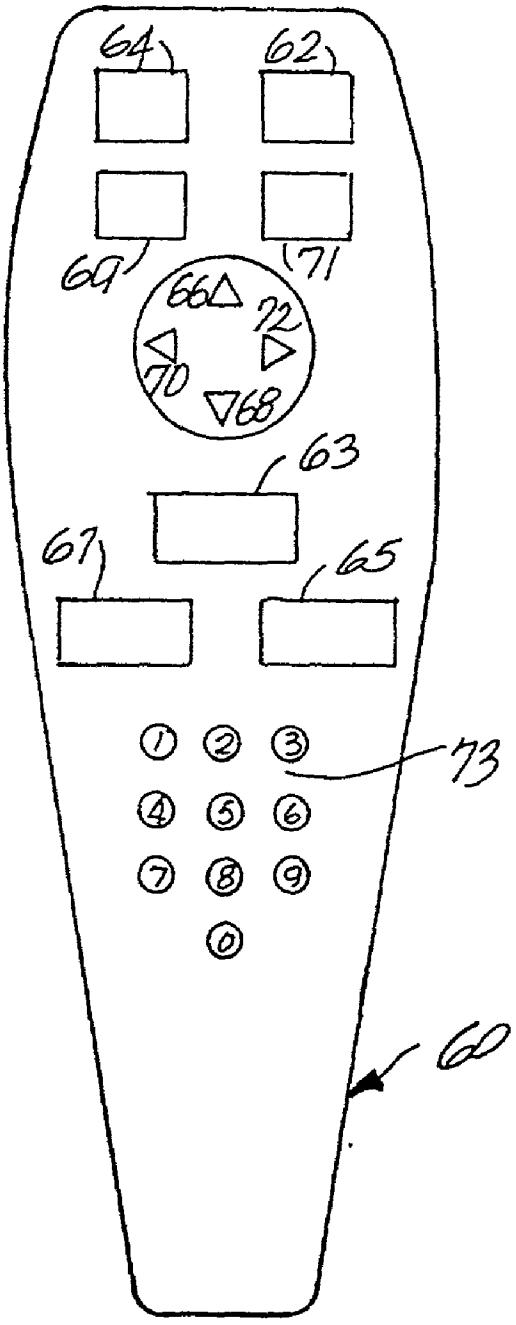


Fig. 6

Fig. 7

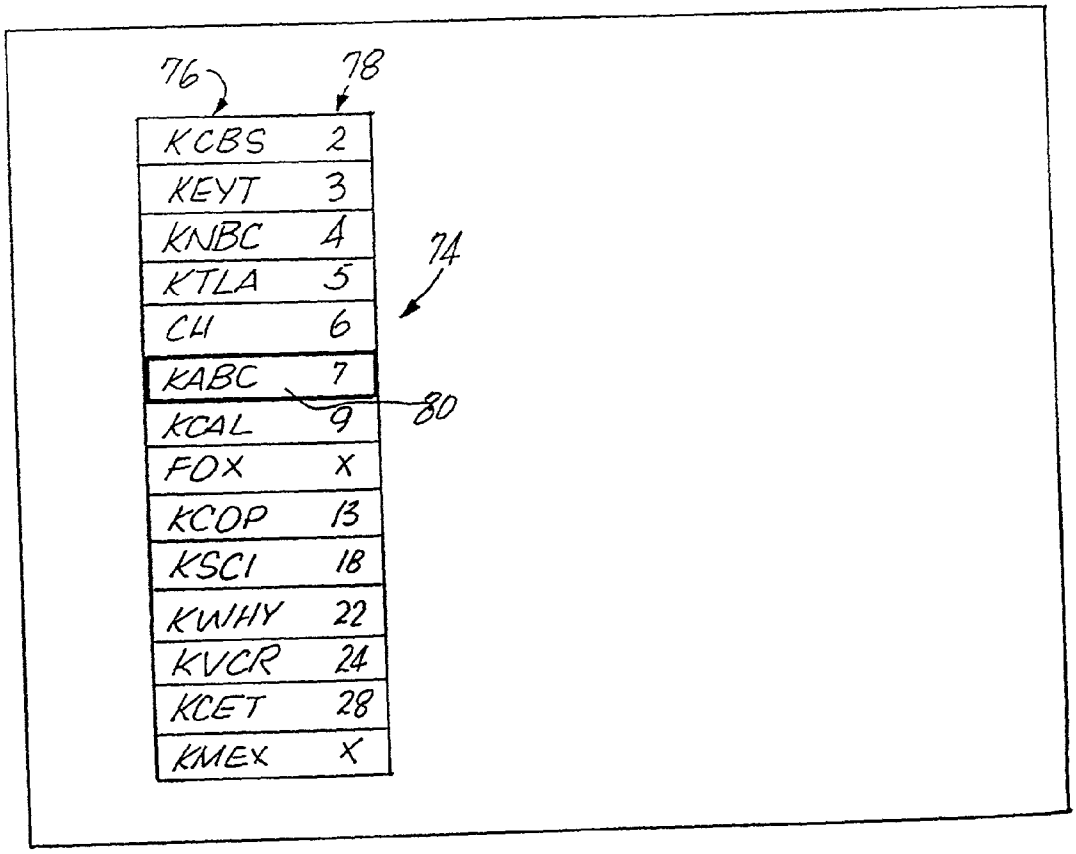

76
78
KCBS 2
KEYT 3
KNBC 4
KTLA 5
CH 6
KABC 7
KCAL 9
FOX X
KCOP 13
KSCI 18
KWHY 22
KVCR 24
KCET 28
KMEX X
74
80

Fig. 8

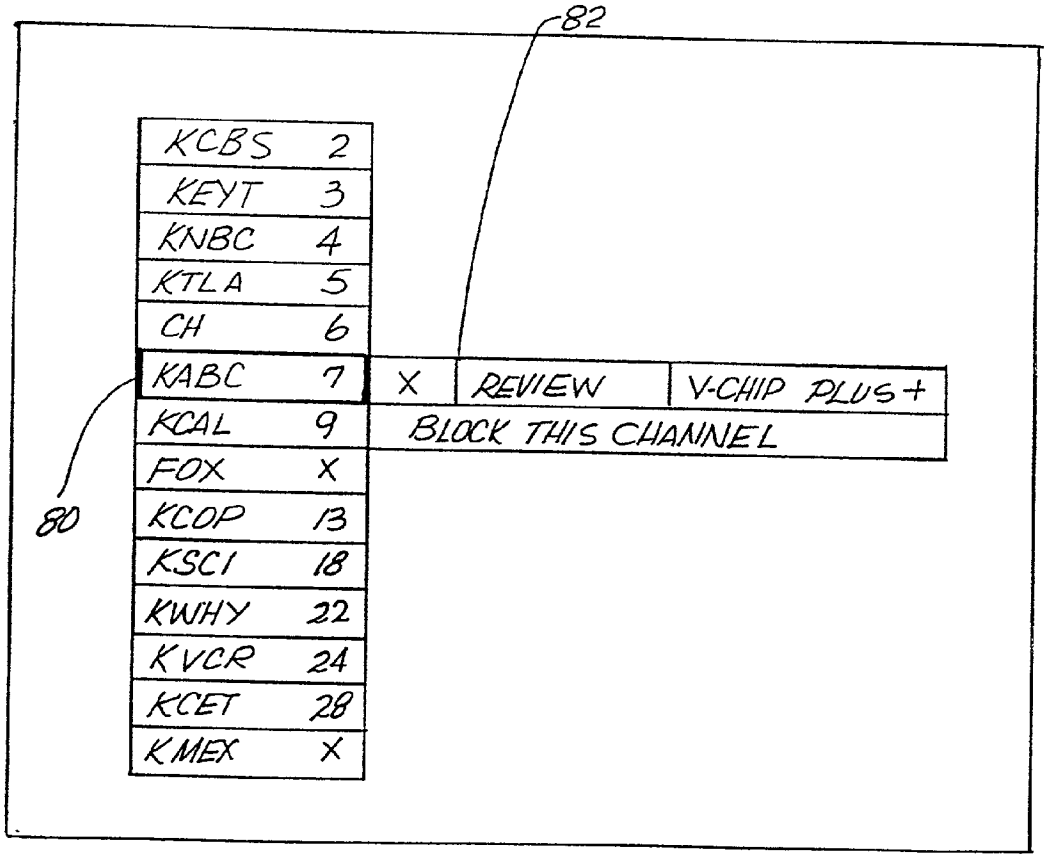

82
KCBS 2
KEYT 3
KNBC 4
KTLA 5
CH 6
KABC 7
KCAL 9
FOX X
KCOP 13
KSCI 18
KWHY 22
KVCR 24
KCET 28
KMEX X
X
REVIEW
V-CHIP PLUS+
BLOCK THIS CHANNEL
80

Fig. 9

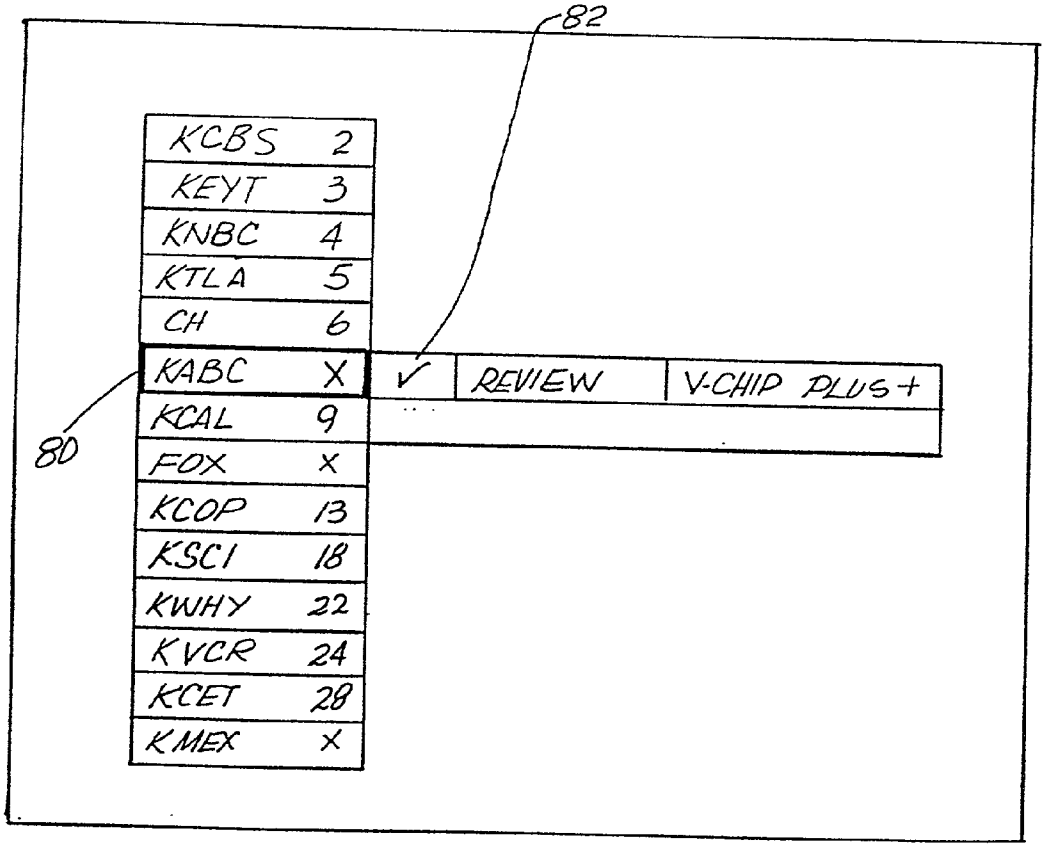

82
KCBS 2
KEYT 3
KNBC 4
KTLA 5
CH 6
KABC X
KCAL 9
FOX X
KCOP 13
KSCI 18
KWHY 22
KVCR 24
KCET 28
KMEX X
✓
REVIEW
V-CHIP PLUS+
80

Fig. 10

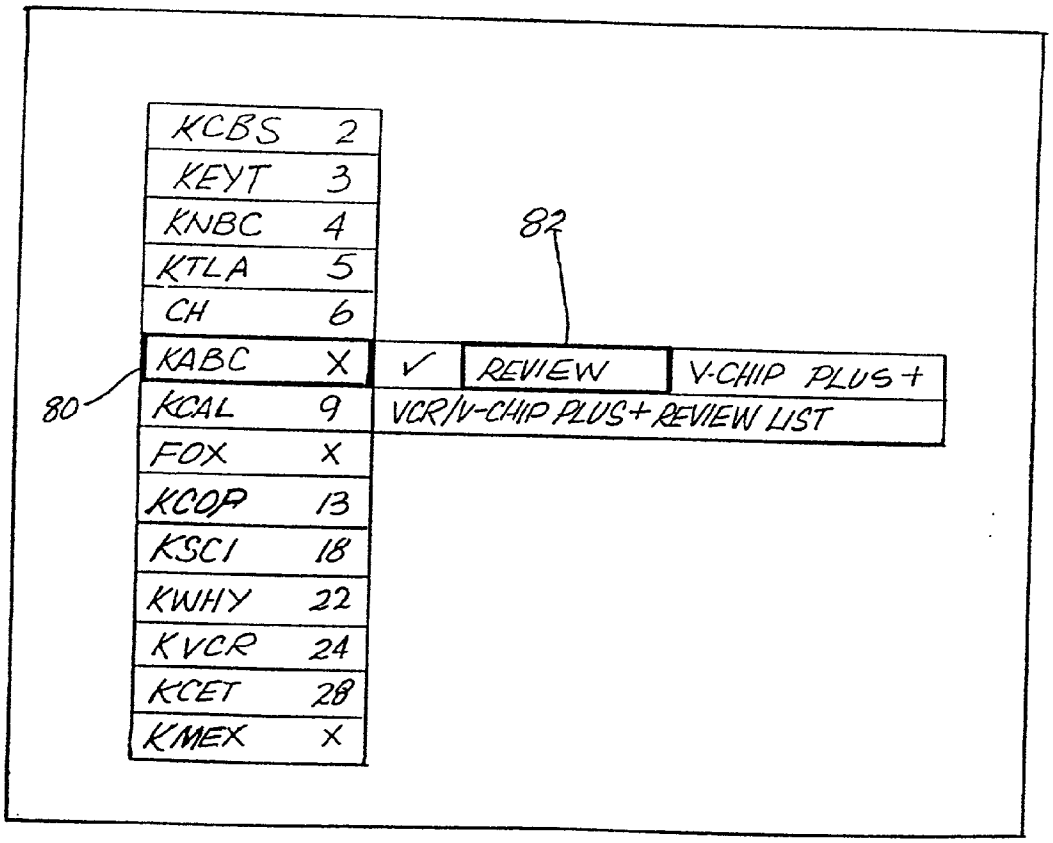

KCBS 2
KEYT 3
KNBC 4
KTLA 5
CH 6
KABC X
KCAL 9
FOX X
KCOP 13
KSCI 18
KWHY 22
KVCR 24
KCET 28
KMEX X
80
82
✓
REVIEW
V-CHIP PLUS+
VCR/V-CHIP PLUS+ REVIEW LIST

Fig. 11

VCR/V-CHIP PLUS + REVIEW LIST

84	07 SAT 01/10	11:15p	1h55m+15m	96
	11 M-F	07:30p	1h40m-15m	
	28 M-F	04:00p	1h00m	
86	35 WED 1/21	02:00P	2h10m+15m	
88	28 SAT WKLY	11:00a	1h55m+30m	
	09 M-F	10:00P	1h00m	
90	02 SUN 01/18	10:00P	3h50m	

△▽ MOVE [ENTER] DELETE

[CHANGE] ◁▷ REDUCE PROGRAM LENGTH

[CHANNEL SURF] EXIT

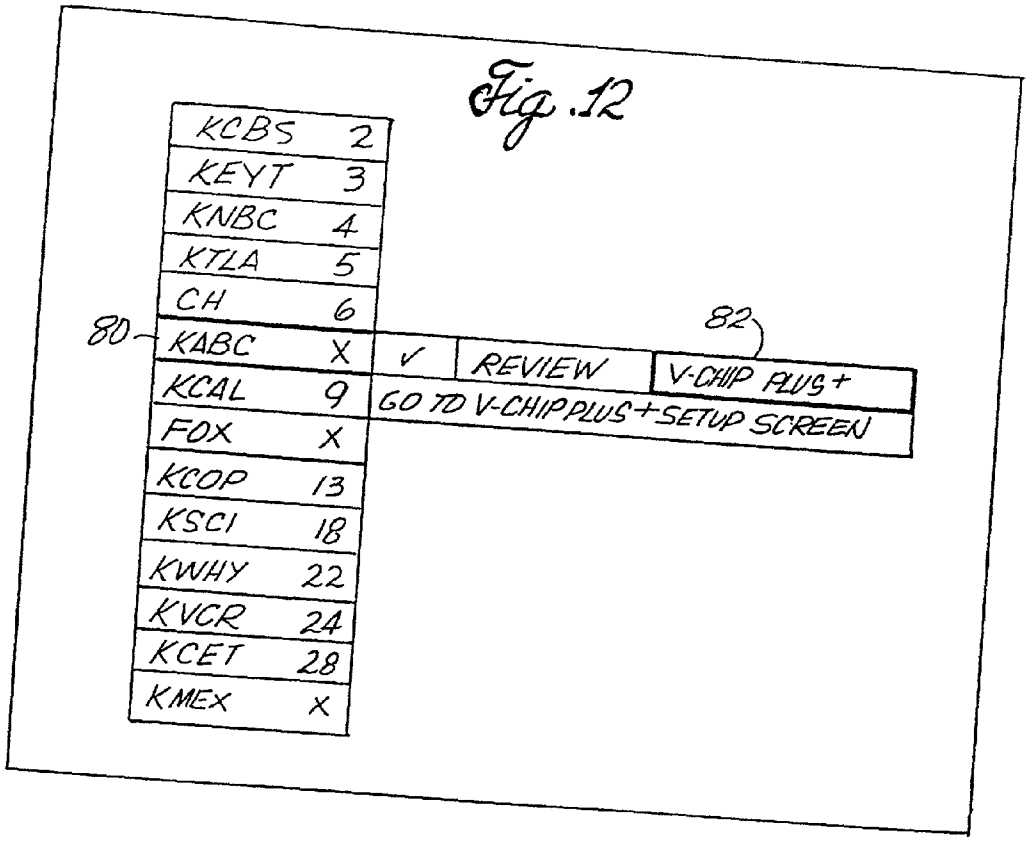


Fig. 12
KCBS 2
KEYT 3
KNBC 4
KTLA 5
CH 6
80
KABC X
KCAL 9
FOX X
KCOP 13
KSCI 18
KWHY 22
KVCR 24
KCET 28
KMEX X
82
✓
REVIEW
V-CHIP PLUS+
GO TO V-CHIP PLUS+ SETUP SCREEN

Fig. 13

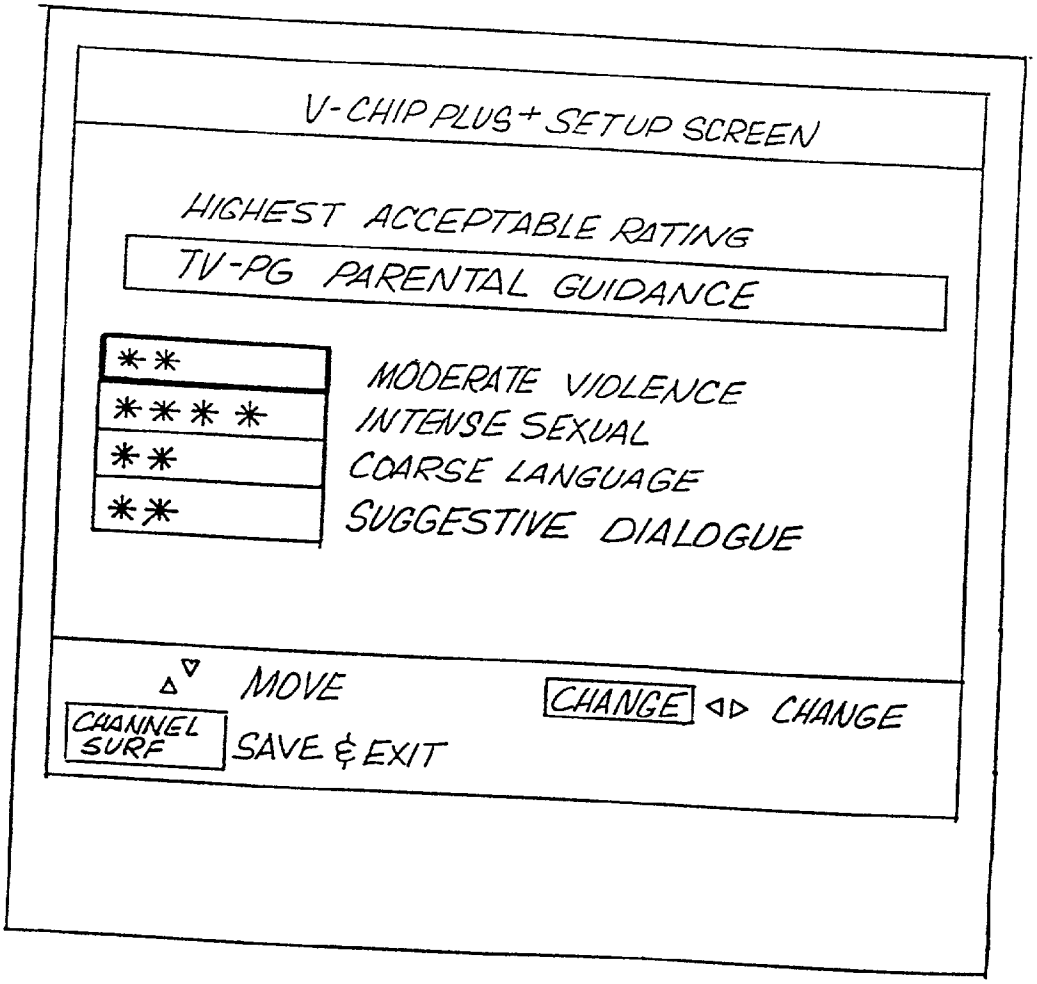

V-CHIP PLUS+ SETUP SCREEN
HIGHEST ACCEPTABLE RATING
TV-PG PARENTAL GUIDANCE
**
MODERATE VIOLENCE
****
INTENSE SEXUAL
**
COARSE LANGUAGE
**
SUGGESTIVE DIALOGUE
MOVE
CHANGE
CHANGE
CHANNEL SURF
SAVE & EXIT

Fig. 14

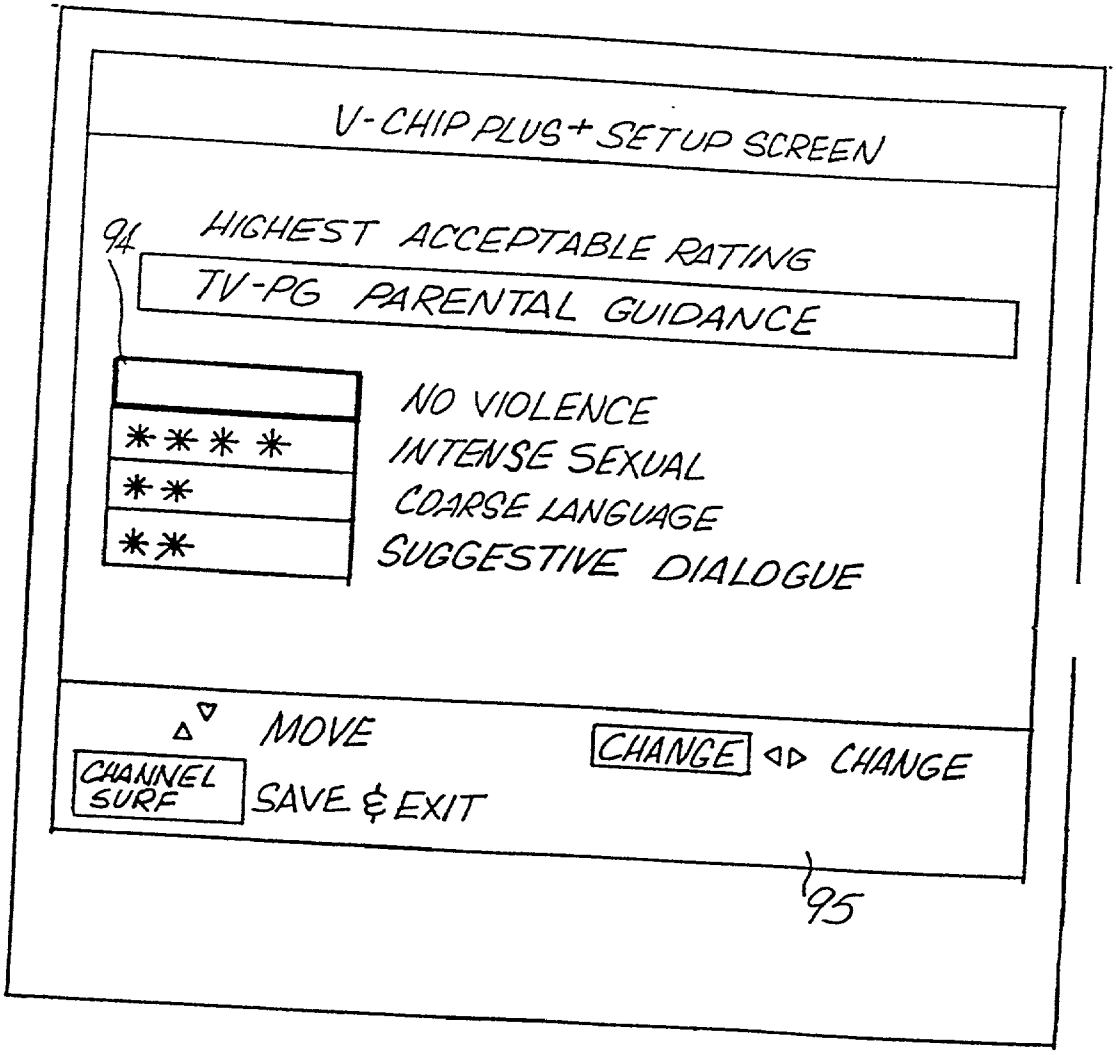

V-CHIP PLUS+ SETUP SCREEN
94
HIGHEST ACCEPTABLE RATING
TV-PG PARENTAL GUIDANCE
NO VIOLENCE
****
INTENSE SEXUAL
**
COARSE LANGUAGE
**
SUGGESTIVE DIALOGUE
MOVE
CHANGE
CHANGE
CHANNEL SURF
SAVE & EXIT
95

Fig. 15

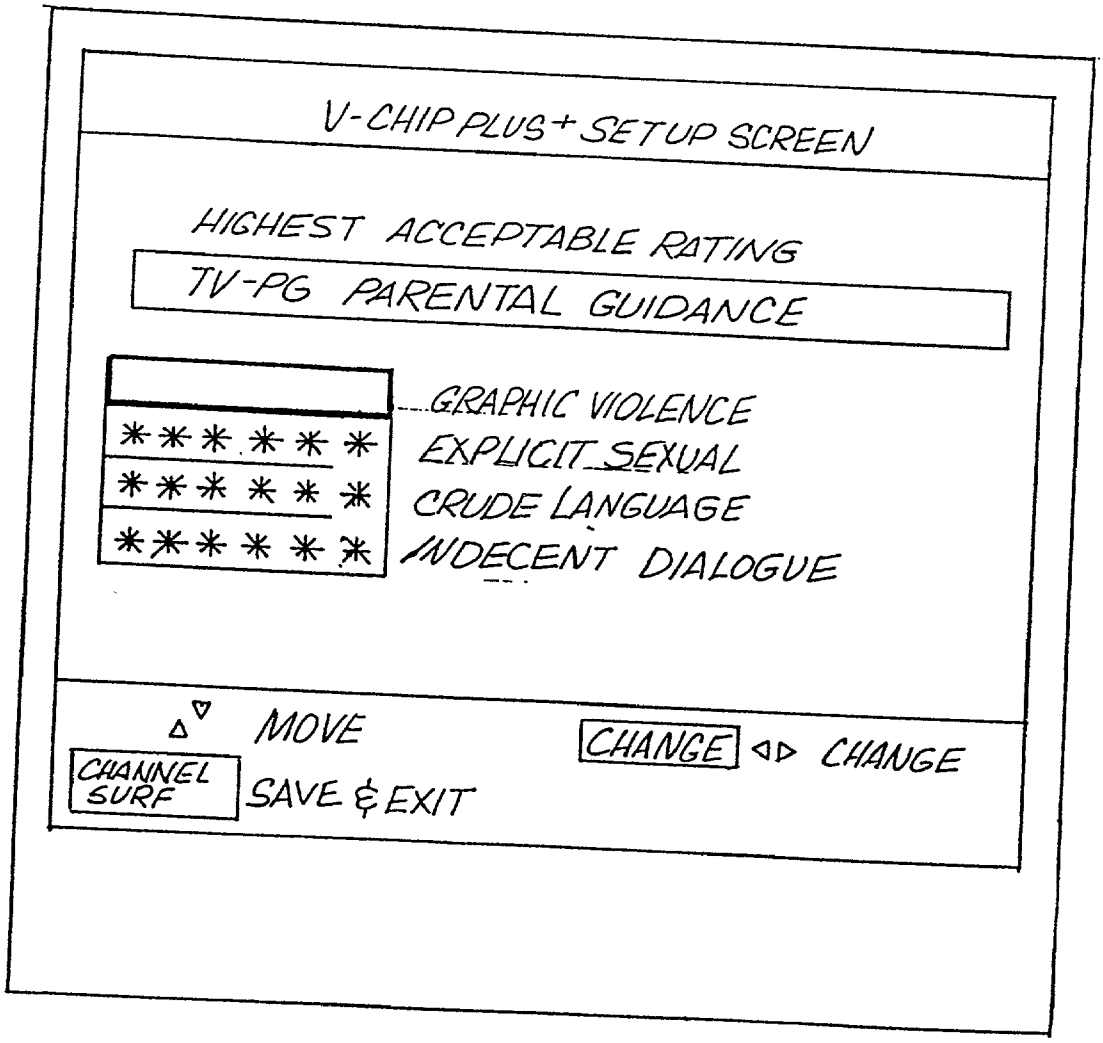

V-CHIP PLUS+ SETUP SCREEN
HIGHEST ACCEPTABLE RATING
TV-PG PARENTAL GUIDANCE
GRAPHIC VIOLENCE
EXPLICIT SEXUAL
CRUDE LANGUAGE
INDECENT DIALOGUE
MOVE
CHANGE
CHANGE
CHANNEL SURF
SAVE & EXIT

Fig. 16

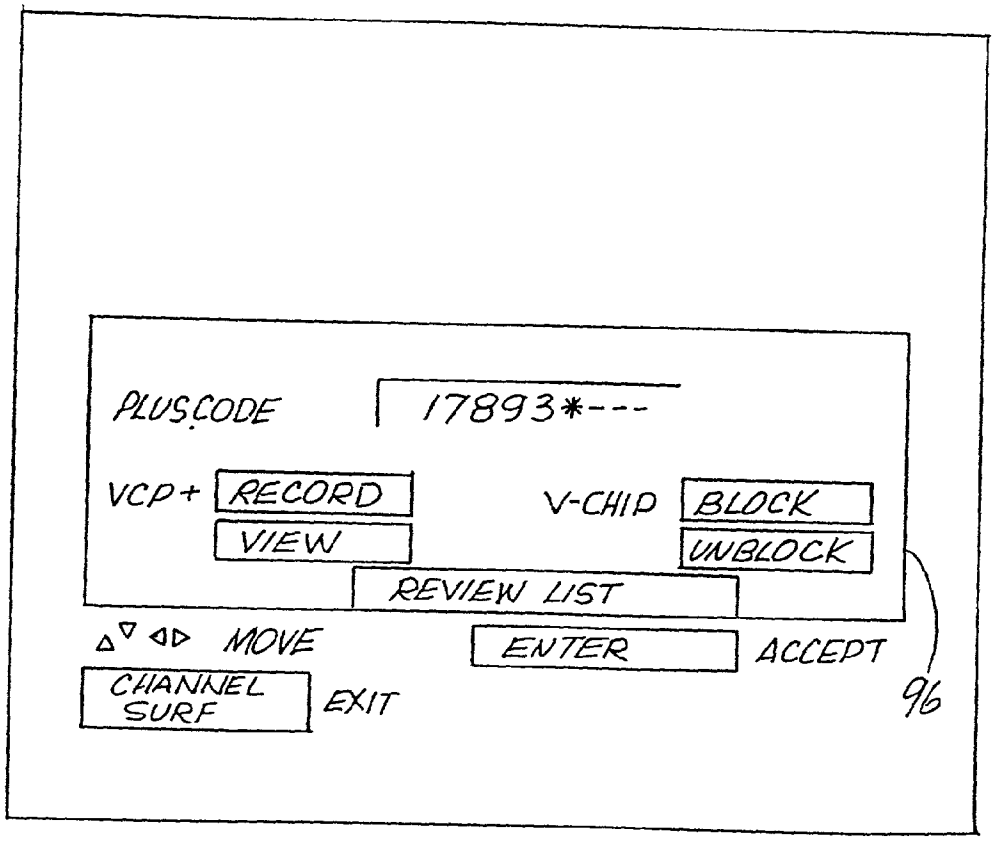

PLUS CODE
17893*---
VCP+
RECORD
VIEW
V-CHIP
BLOCK
UNBLOCK
REVIEW LIST
MOVE
ENTER
ACCEPT
CHANNEL SURF
EXIT
96

Fig. 17

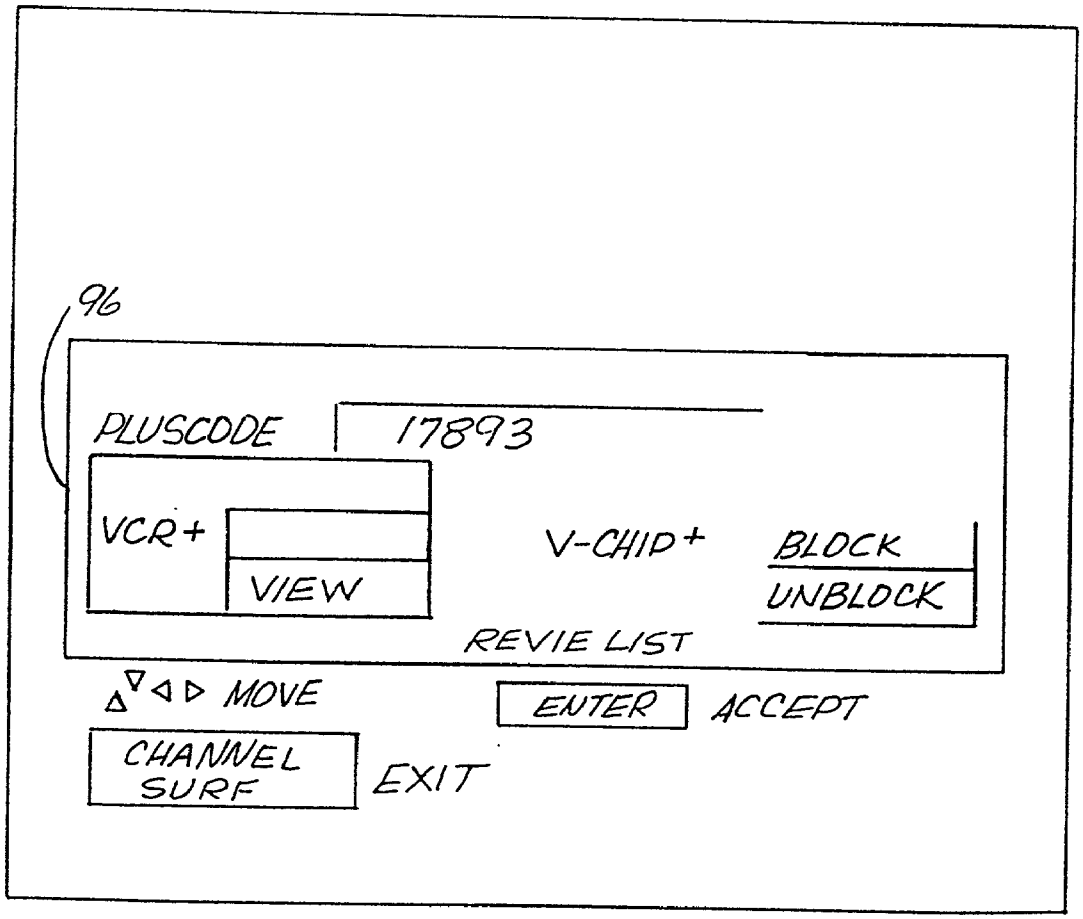

96
PLUSCODE
17893
VCR+
VIEW
V-CHIP+
BLOCK
UNBLOCK
REVIE LIST
MOVE
ENTER
ACCEPT
CHANNEL SURF
EXIT

Fig. 18

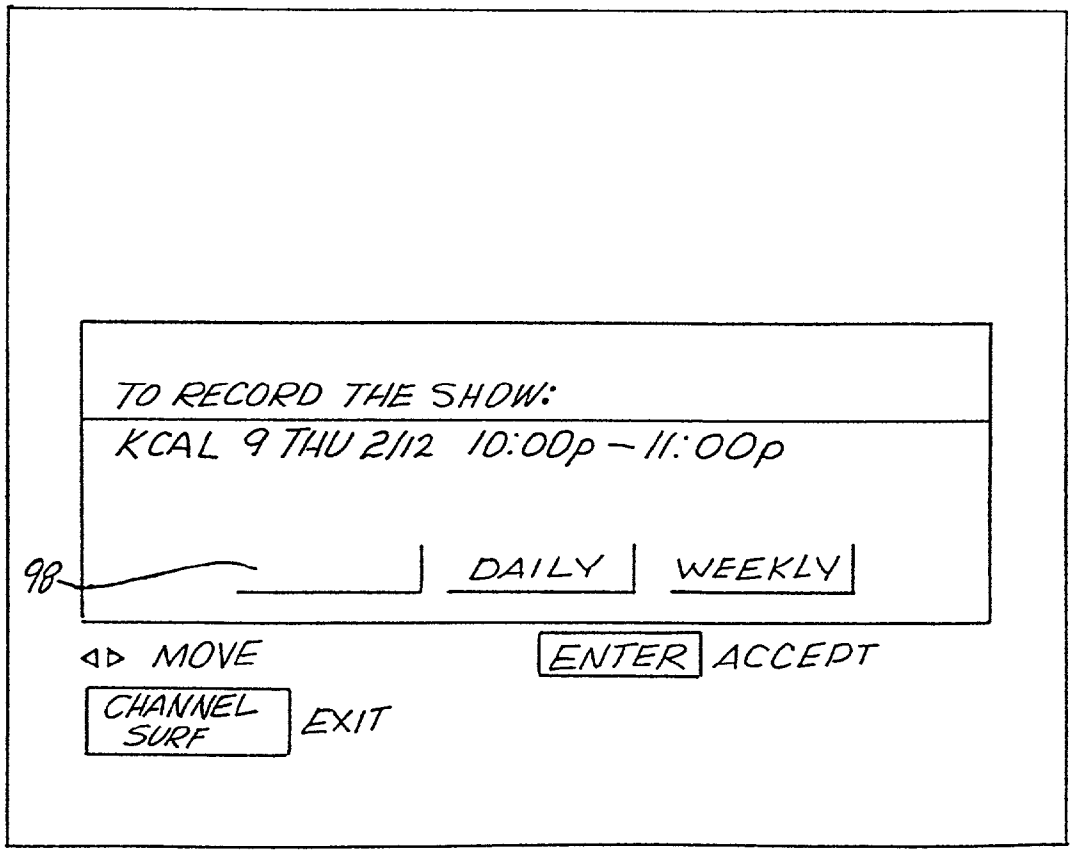

TO RECORD THE SHOW:
KCAL 9 THU 2/12 10:00p – 11:00p
98
DAILY
WEEKLY
◁▷ MOVE
ENTER ACCEPT
CHANNEL SURF
EXIT

Fig. 19

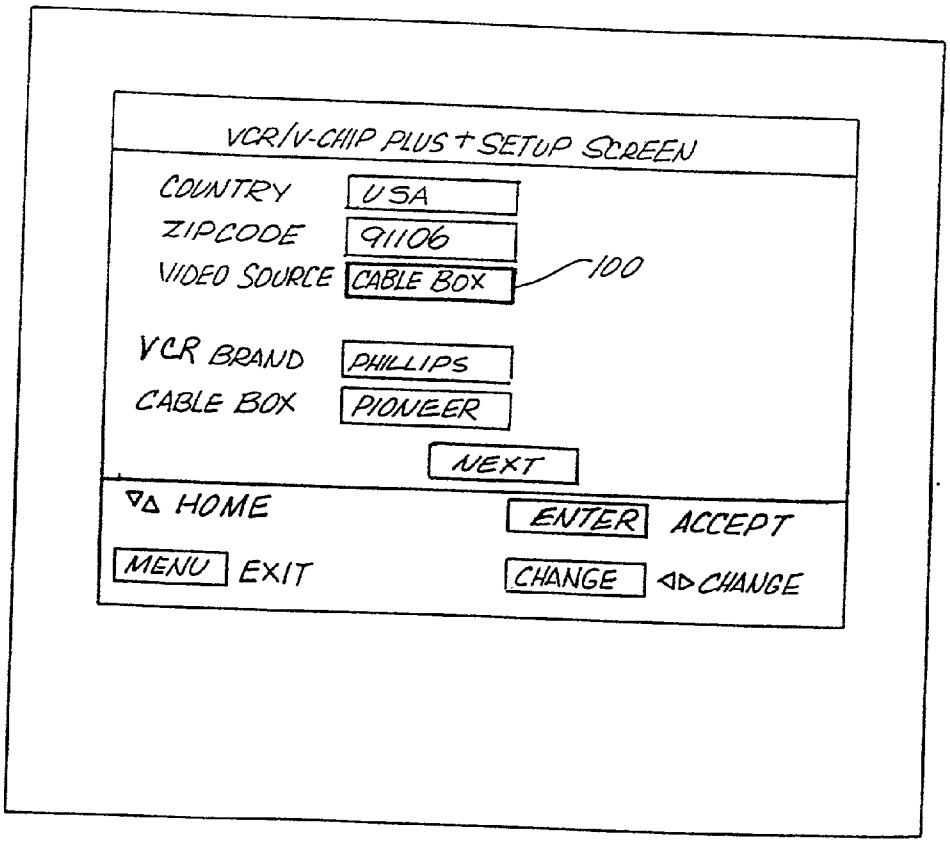
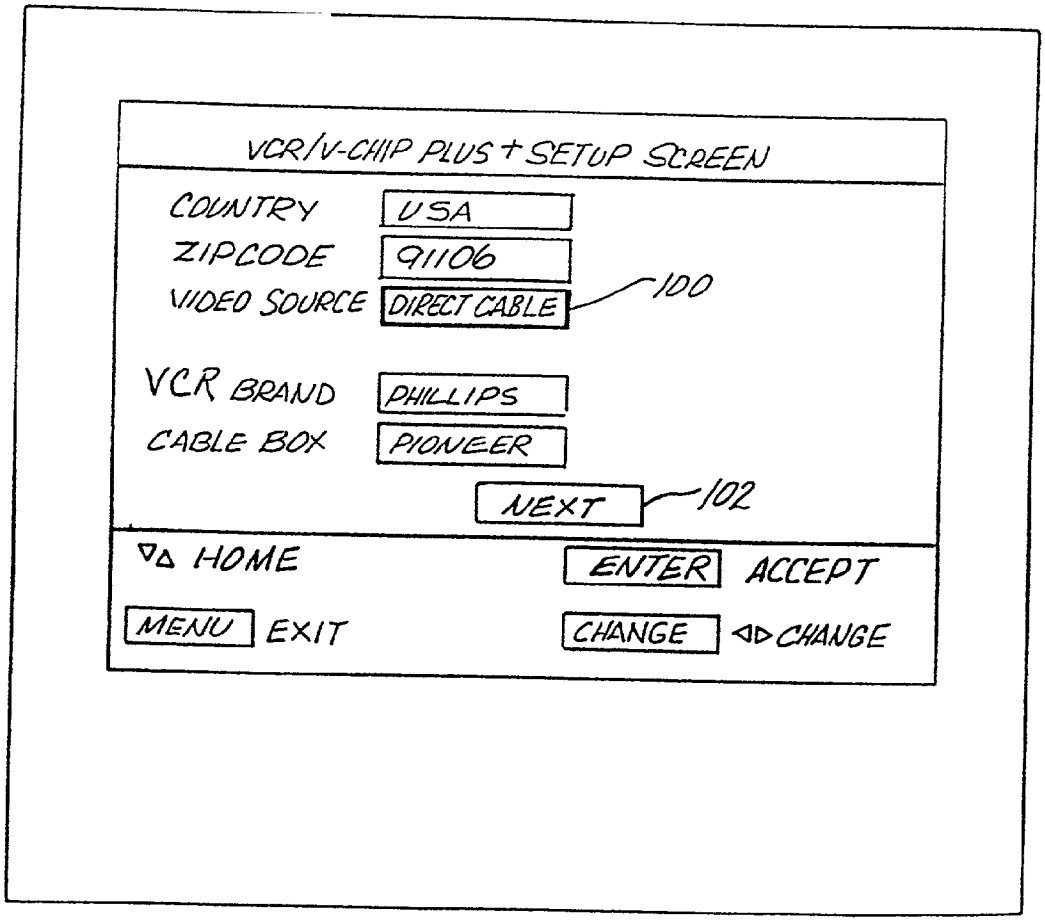

VCR/V-CHIP PLUS + SETUP SCREEN
COUNTRY
USA
ZIPCODE
91106
VIDEO SOURCE
CABLE BOX
100
VCR BRAND
PHILLIPS
CABLE BOX
PIONEER
NEXT
HOME
ENTER
ACCEPT
MENU
EXIT
CHANGE
CHANGE

Fig. 20


VCR/V-CHIP PLUS + SETUP SCREEN
COUNTRY
USA
ZIPCODE
91106
VIDEO SOURCE
DIRECT CABLE
100
VCR BRAND
PHILLIPS
CABLE BOX
PIONEER
NEXT
102
HOME
ENTER
ACCEPT
MENU
EXIT
CHANGE
CHANGE

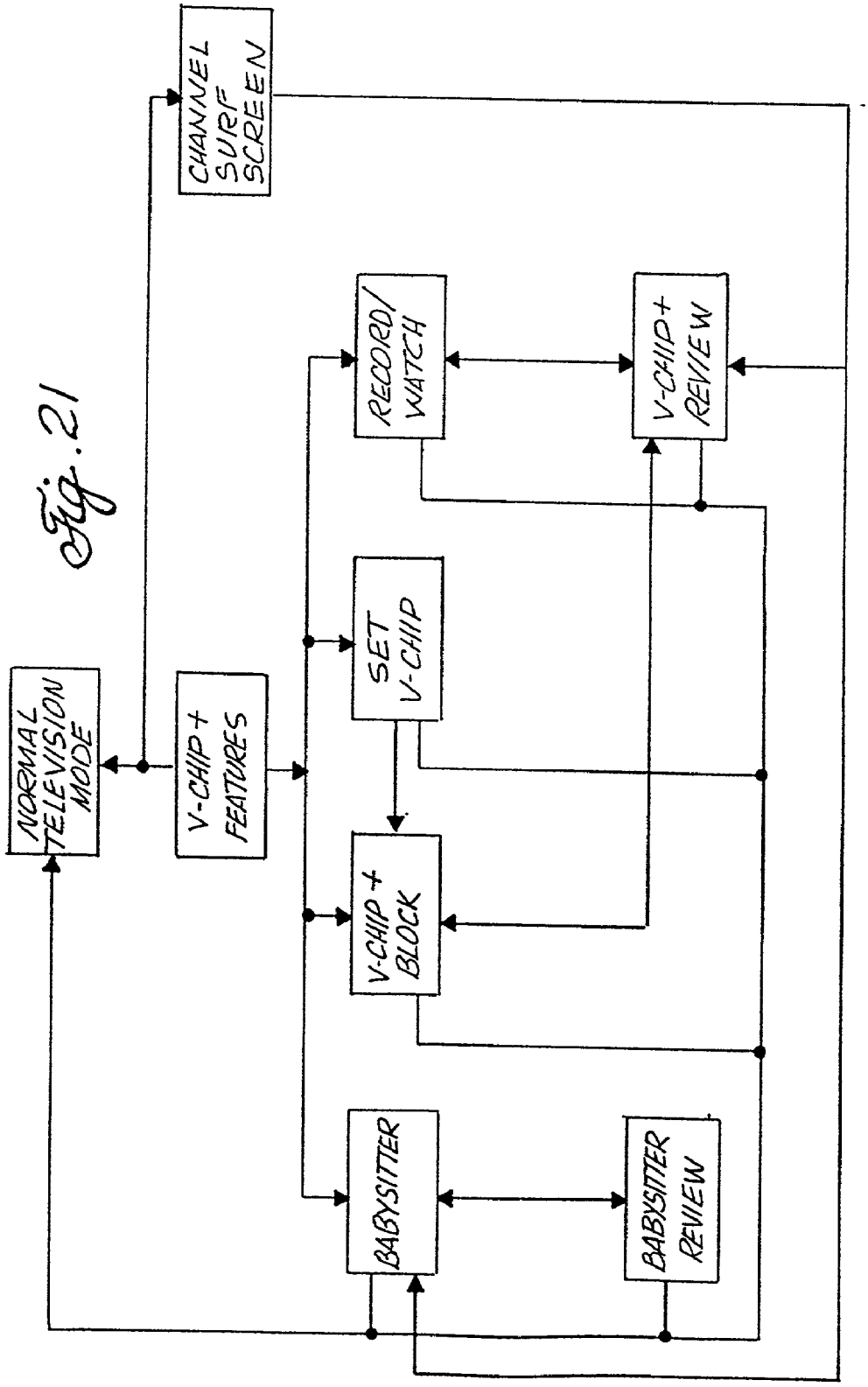

NORMAL TELEVISION MODE
V-CHIP + FEATURES
CHANNEL SURF SCREEN
RECORD/ WATCH
SET V-CHIP
V-CHIP + BLOCK
BABYSITTER
V-CHIP + REVIEW
BABYSITTER REVIEW

Fig. 21

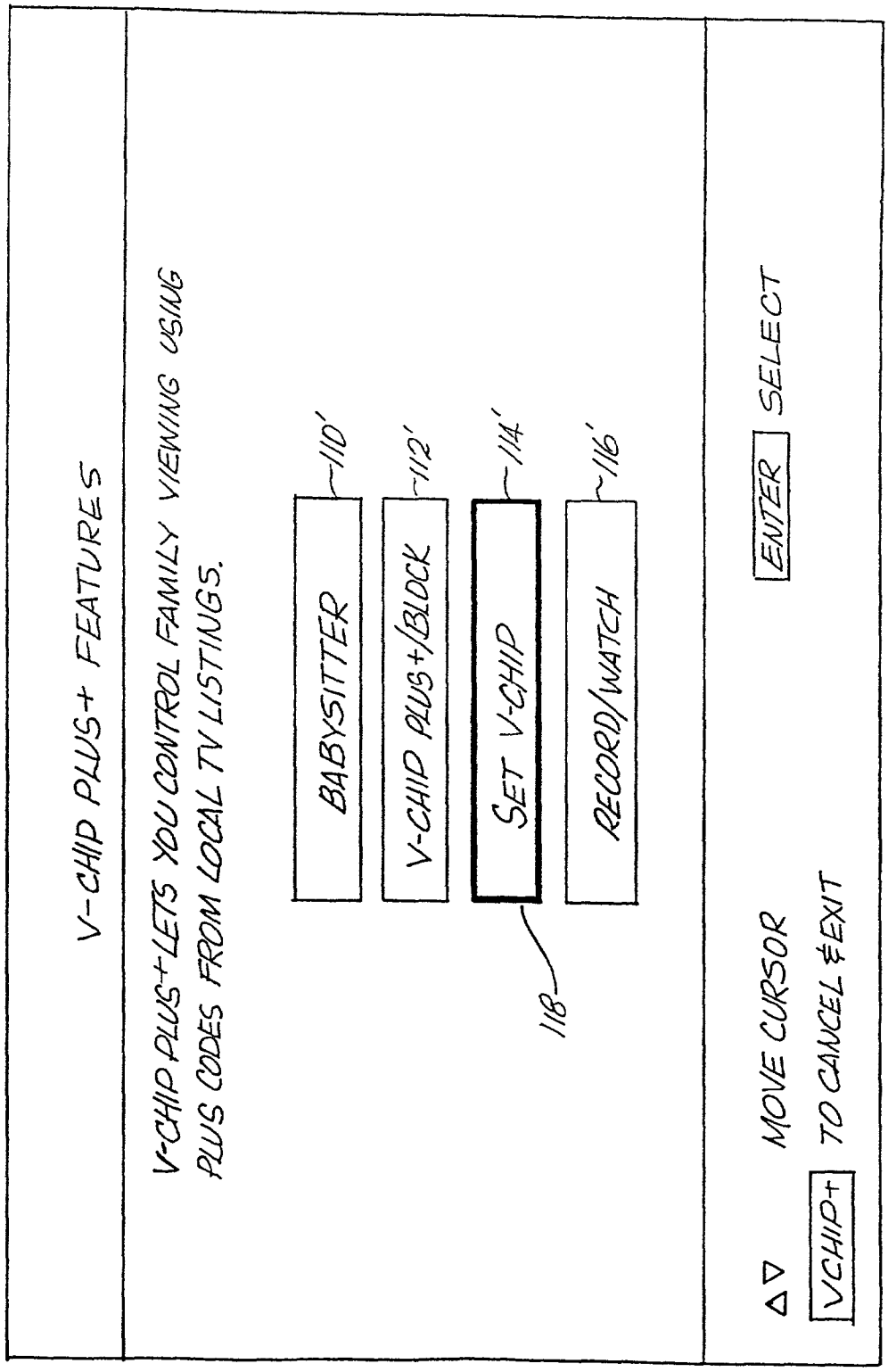

V-CHIP PLUS+ FEATURES
V-CHIP PLUS+ LETS YOU CONTROL FAMILY VIEWING USING PLUS CODES FROM LOCAL TV LISTINGS.
BABYSITTER
110'
V-CHIP PLUS+/BLOCK
112'
SET V-CHIP
114'
RECORD/WATCH
116'
118
ENTER
SELECT
MOVE CURSOR
TO CANCEL & EXIT
VCHIP+

Fig. 22

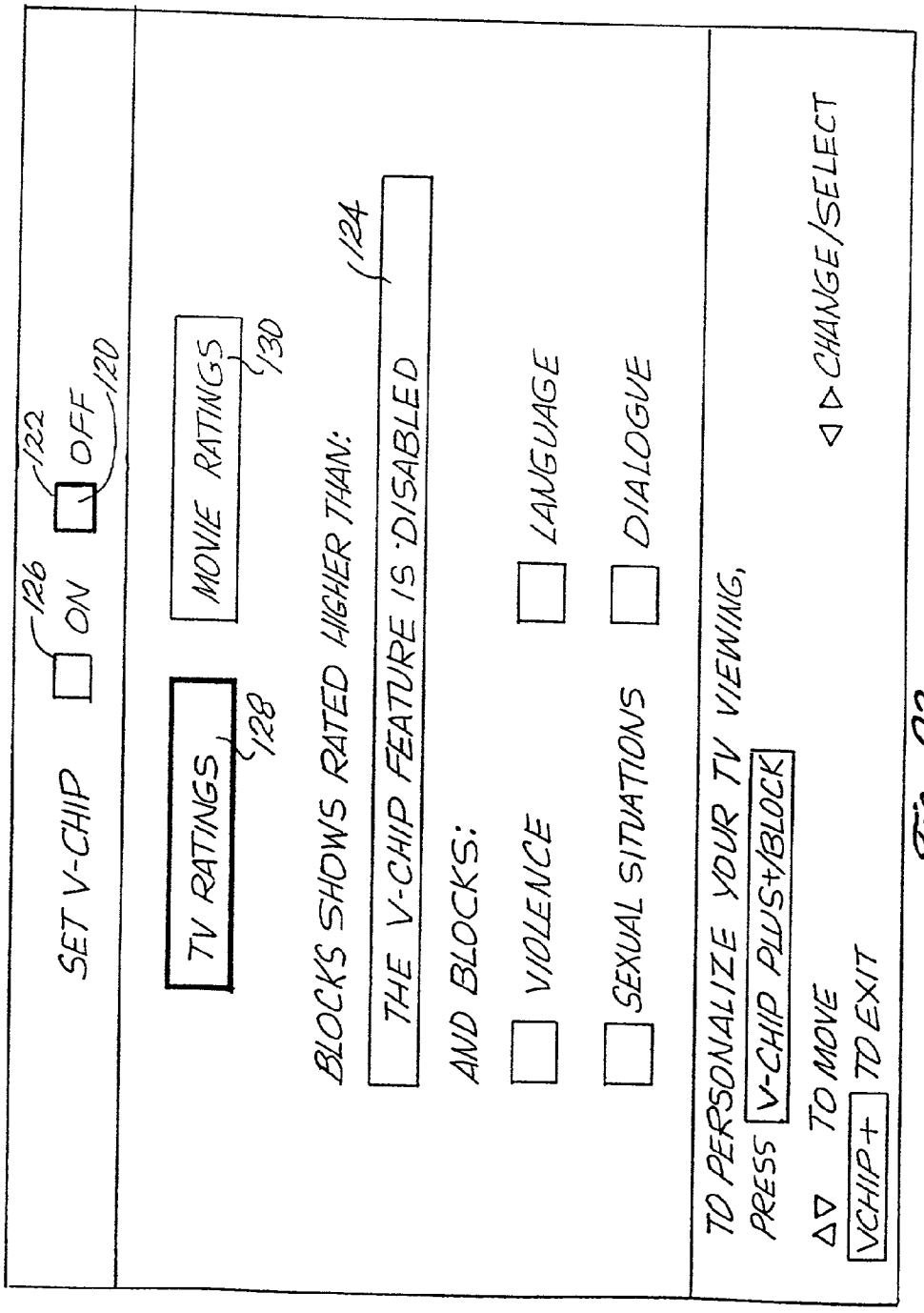

SET V-CHIP
ON
OFF
120
122
126
TV RATINGS
128
MOVIE RATINGS
130
BLOCKS SHOWS RATED HIGHER THAN:
THE V-CHIP FEATURE IS DISABLED
124
AND BLOCKS:
VIOLENCE
LANGUAGE
SEXUAL SITUATIONS
DIALOGUE
TO PERSONALIZE YOUR TV VIEWING,
PRESS V-CHIP PLUS+/BLOCK
TO MOVE
VCHIP+ TO EXIT
◁ ▷ CHANGE/SELECT

Fig. 23

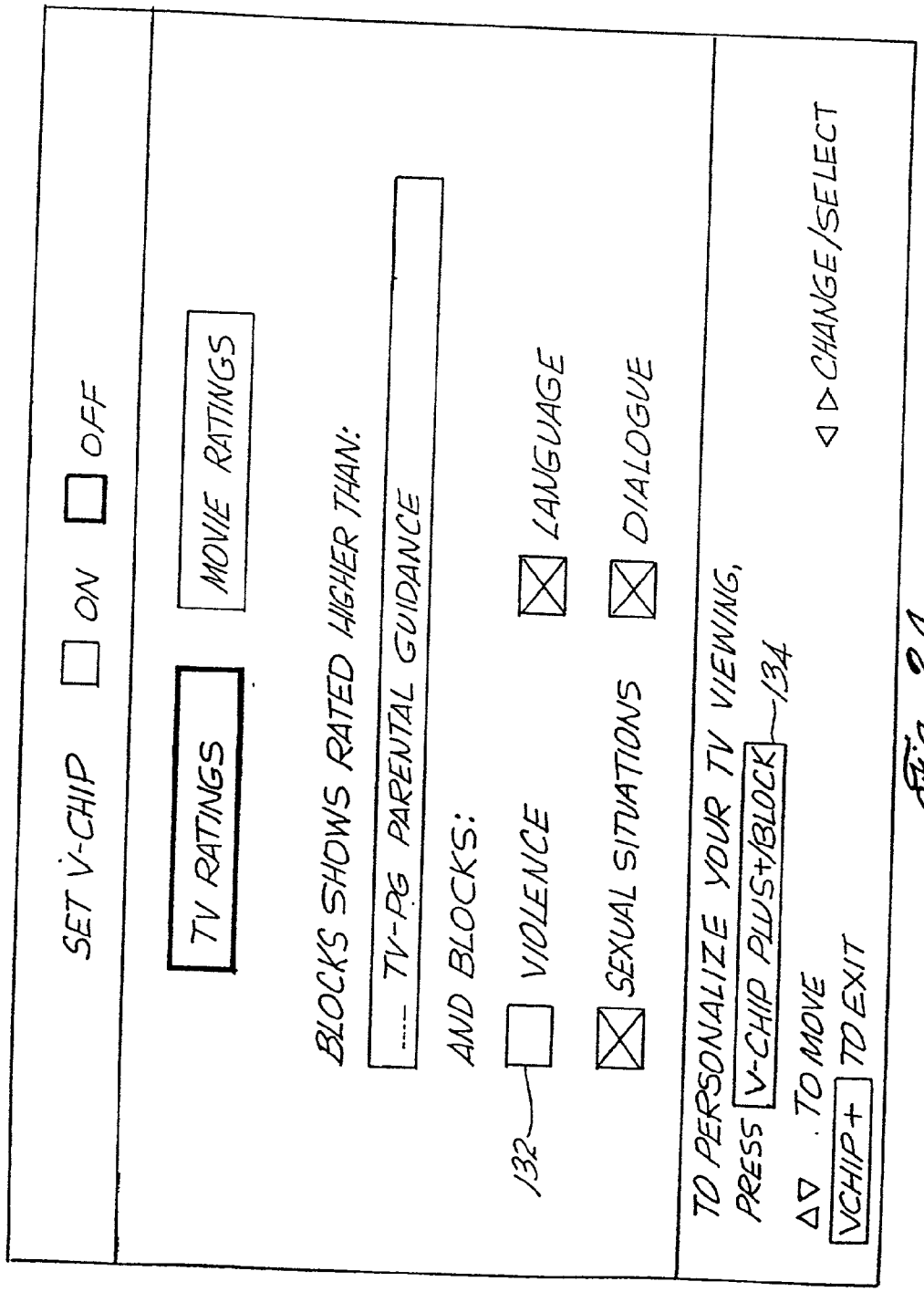

SET V-CHIP
ON
OFF
TV RATINGS
MOVIE RATINGS
BLOCKS SHOWS RATED HIGHER THAN:
TV-PG PARENTAL GUIDANCE
AND BLOCKS:
VIOLENCE
LANGUAGE
SEXUAL SITUATIONS
DIALOGUE
132
TO PERSONALIZE YOUR TV VIEWING,
PRESS V-CHIP PLUS+/BLOCK
134
TO MOVE
VCHIP+ TO EXIT
CHANGE/SELECT

Fig. 24

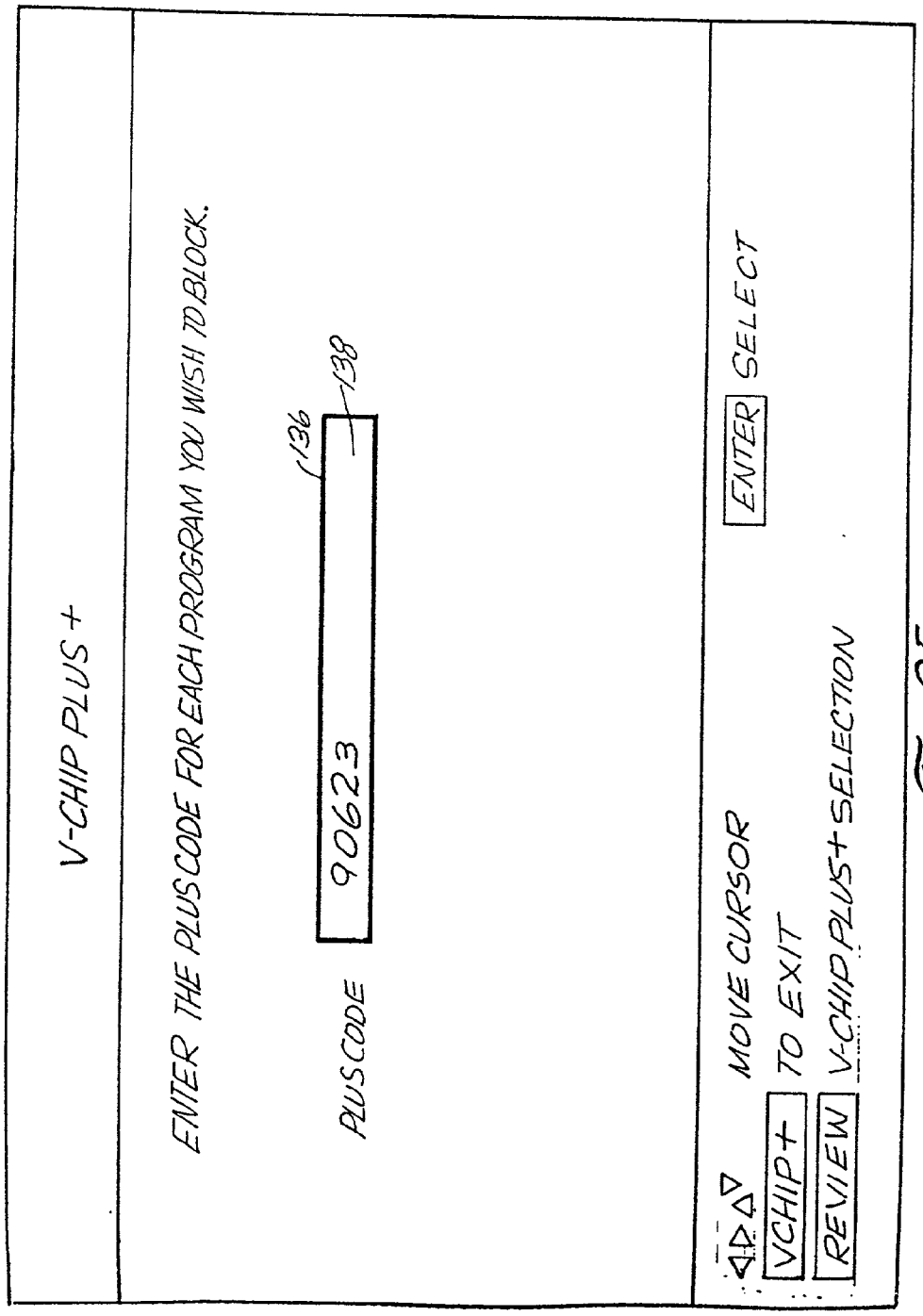

V-CHIP PLUS +
ENTER THE PLUS CODE FOR EACH PROGRAM YOU WISH TO BLOCK.
PLUS CODE
90623
136
138
ENTER SELECT
MOVE CURSOR
VCHIP+ TO EXIT
REVIEW V-CHIP PLUS+ SELECTION

Fig. 25

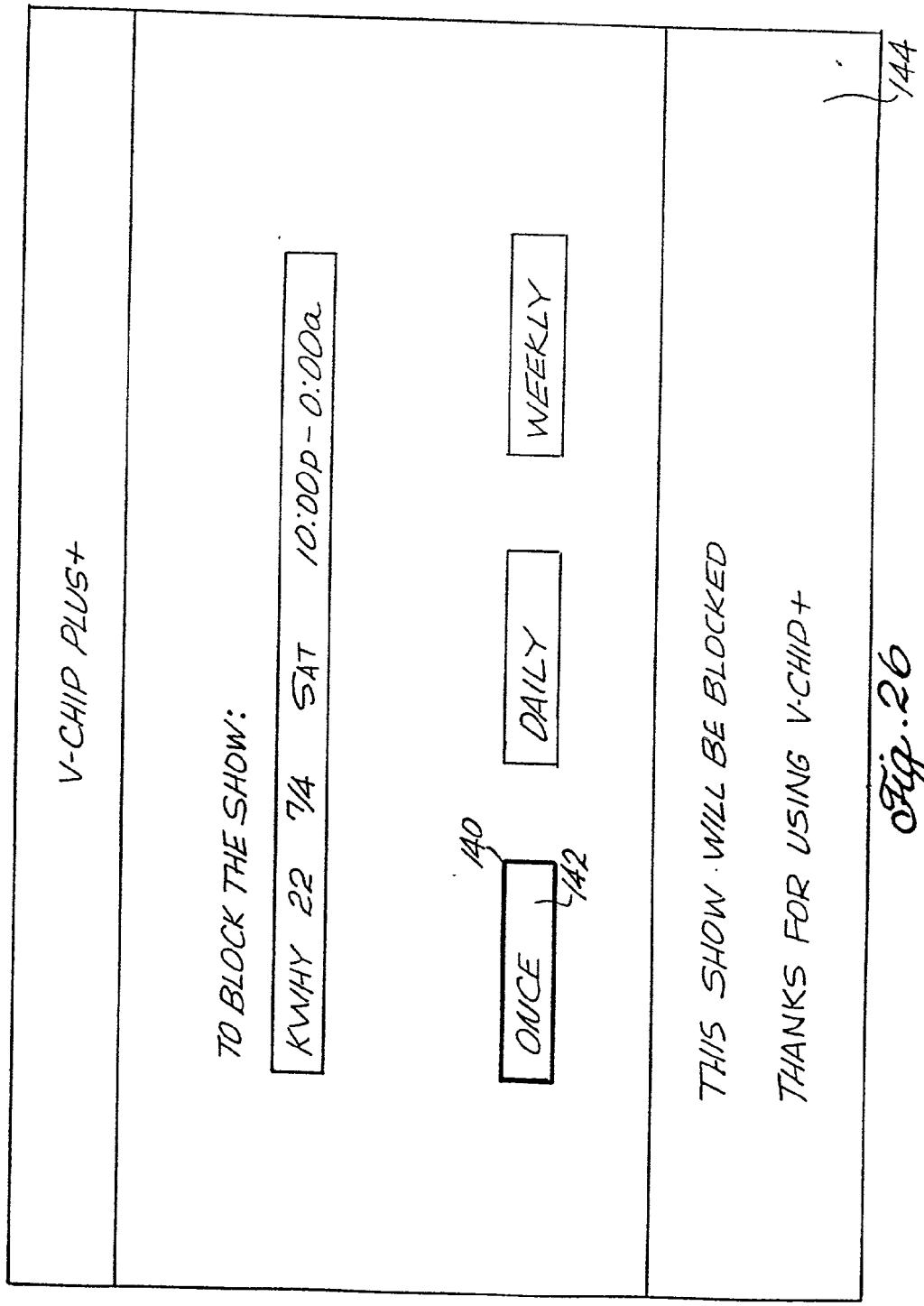

V-CHIP PLUS+
TO BLOCK THE SHOW:
KWHY 22 7/4 SAT 10:00p - 0:00a
140
ONCE
142
DAILY
WEEKLY
THIS SHOW WILL BE BLOCKED
THANKS FOR USING V-CHIP+
144

Fig. 26

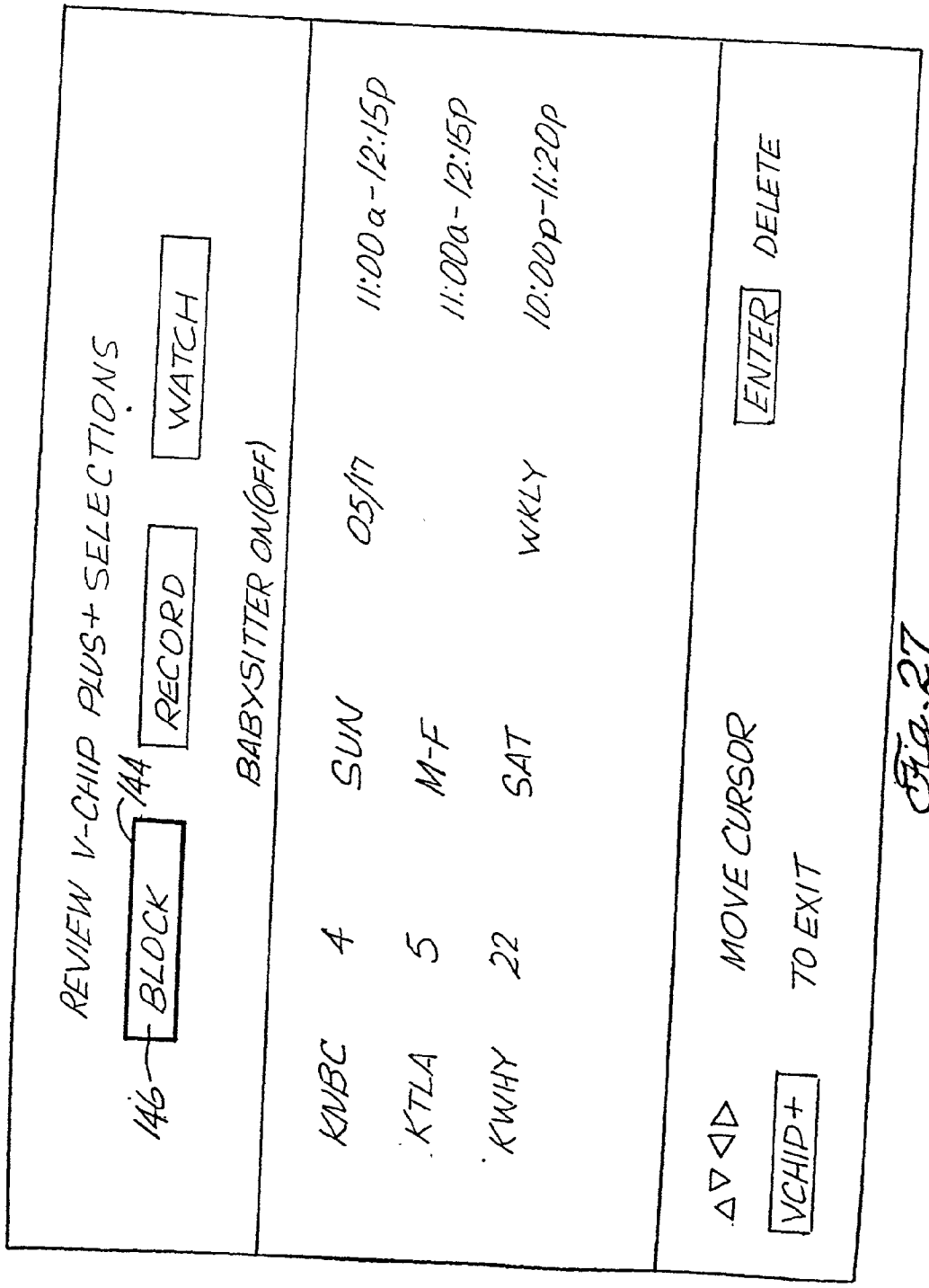

REVIEW V-CHIP PLUS+ SELECTIONS
146
BLOCK
144
RECORD
WATCH
BABYSITTER ON(OFF)
KNBC 4 SUN 05/17 11:00a-12:15p
KTLA 5 M-F 11:00a-12:15p
KWHY 22 SAT WKLY 10:00p-11:20p
MOVE CURSOR
TO EXIT
ENTER DELETE
VCHIP+

Fig. 27

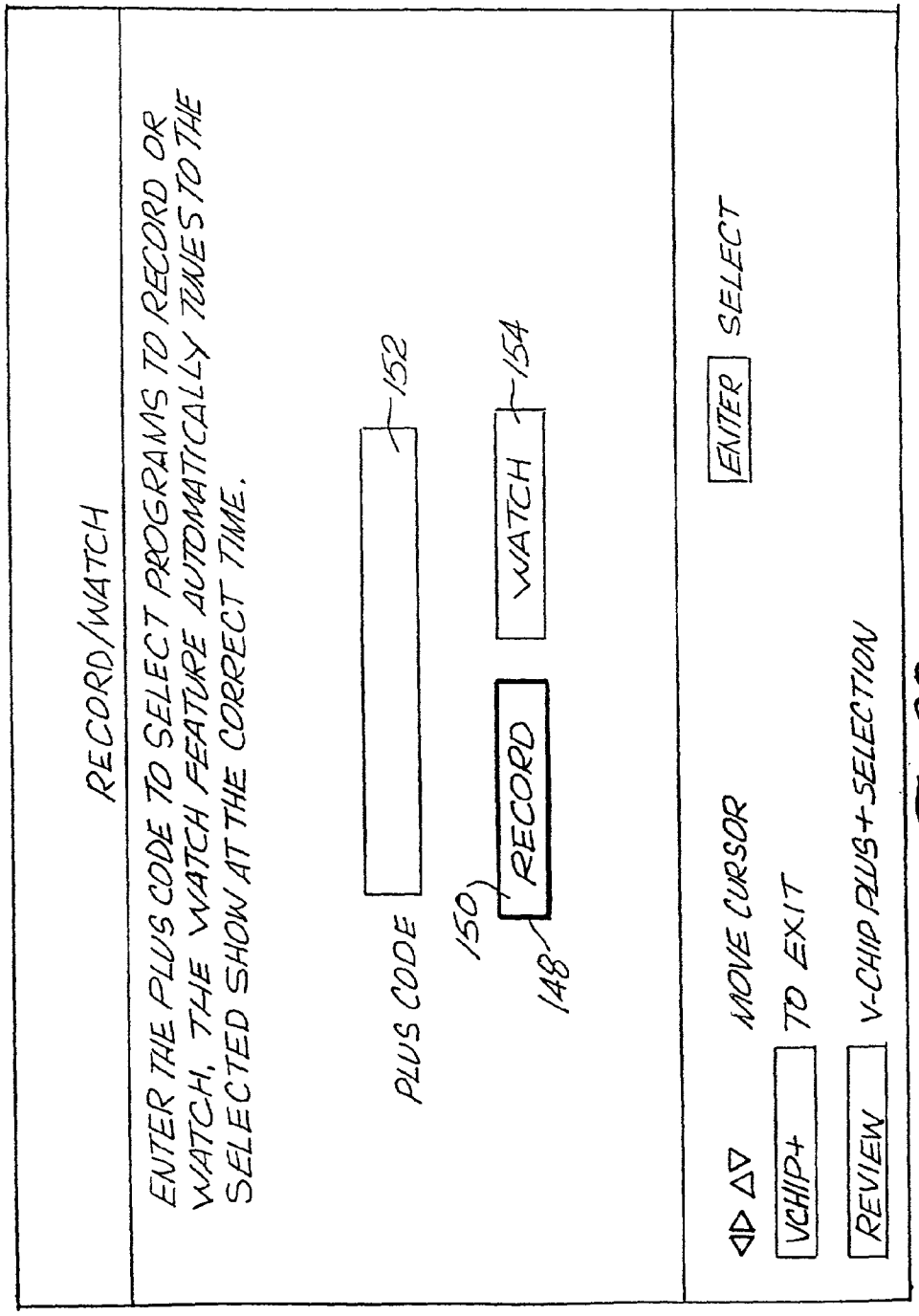

RECORD/WATCH
ENTER THE PLUS CODE TO SELECT PROGRAMS TO RECORD OR WATCH. THE WATCH FEATURE AUTOMATICALLY TUNES TO THE SELECTED SHOW AT THE CORRECT TIME.
PLUS CODE
152
150
RECORD
148
WATCH
154
ENTER
SELECT
MOVE CURSOR
VCHIP+
TO EXIT
REVIEW
V-CHIP PLUS+ SELECTION

Fig. 28

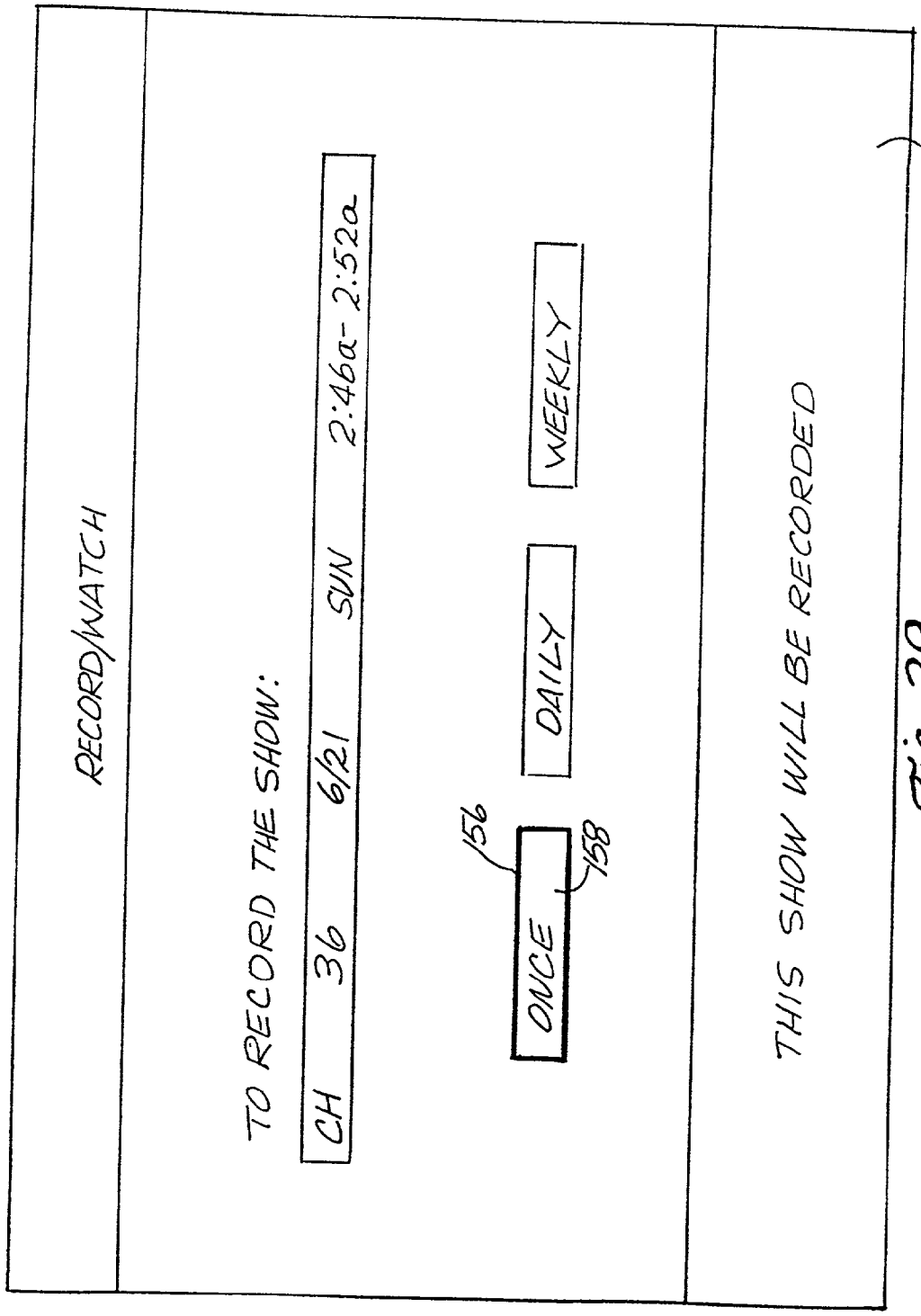

RECORD/WATCH
TO RECORD THE SHOW:
CH 36 6/21 SUN 2:46a-2:52a
ONCE
DAILY
WEEKLY
156
158
THIS SHOW WILL BE RECORDED
158

Fig. 29

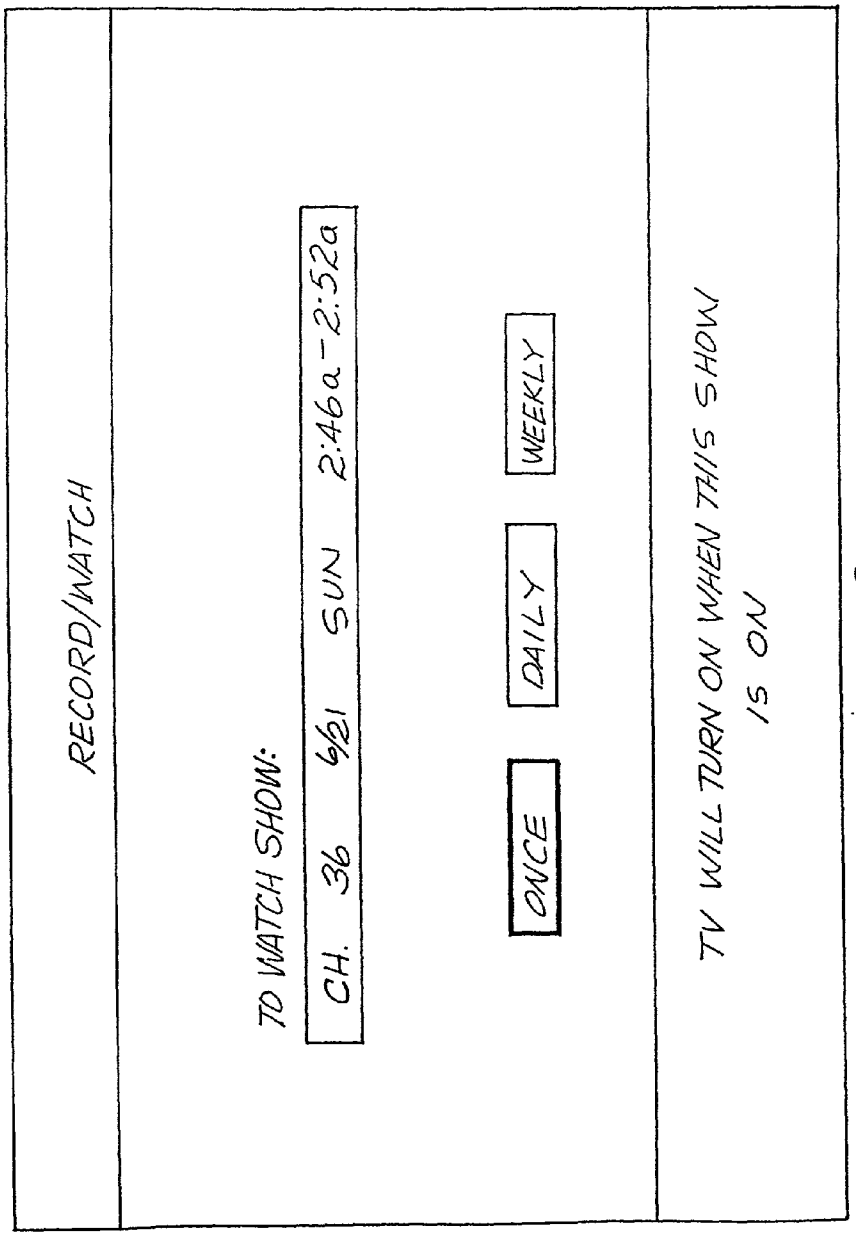

RECORD/WATCH
TO WATCH SHOW:
CH. 36 6/21 SUN 2:46a-2:52a
ONCE
DAILY
WEEKLY
TV WILL TURN ON WHEN THIS SHOW IS ON

Fig. 30

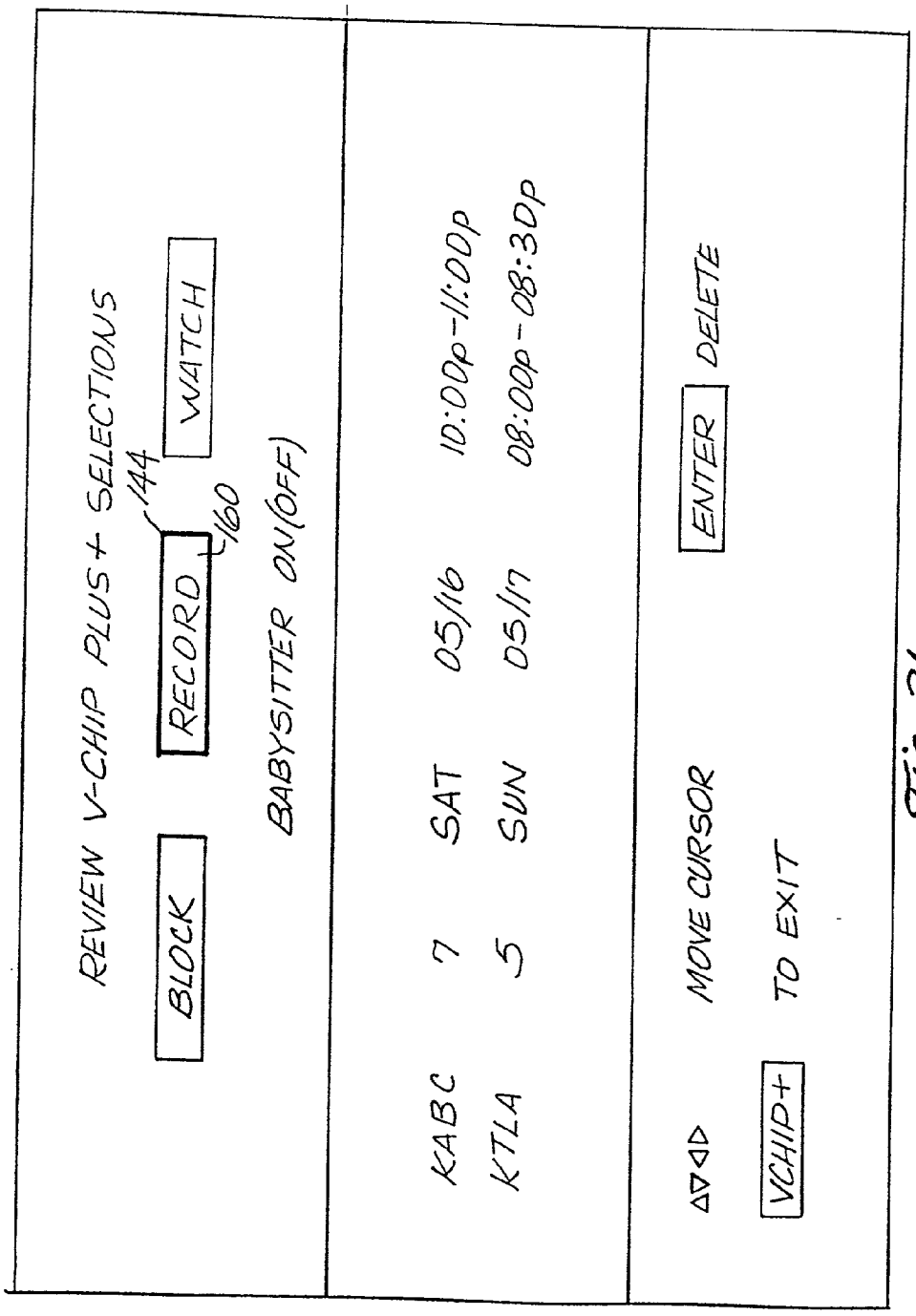

REVIEW V-CHIP PLUS+ SELECTIONS
BLOCK
RECORD
WATCH
144
160
BABYSITTER ON(OFF)
KABC 7 SAT 05/16 10:00p-11:00p
KTLA 5 SUN 05/17 08:00p-08:30p
ΔΔΔΔ MOVE CURSOR
ENTER DELETE
VCHIP+ TO EXIT

Fig. 31

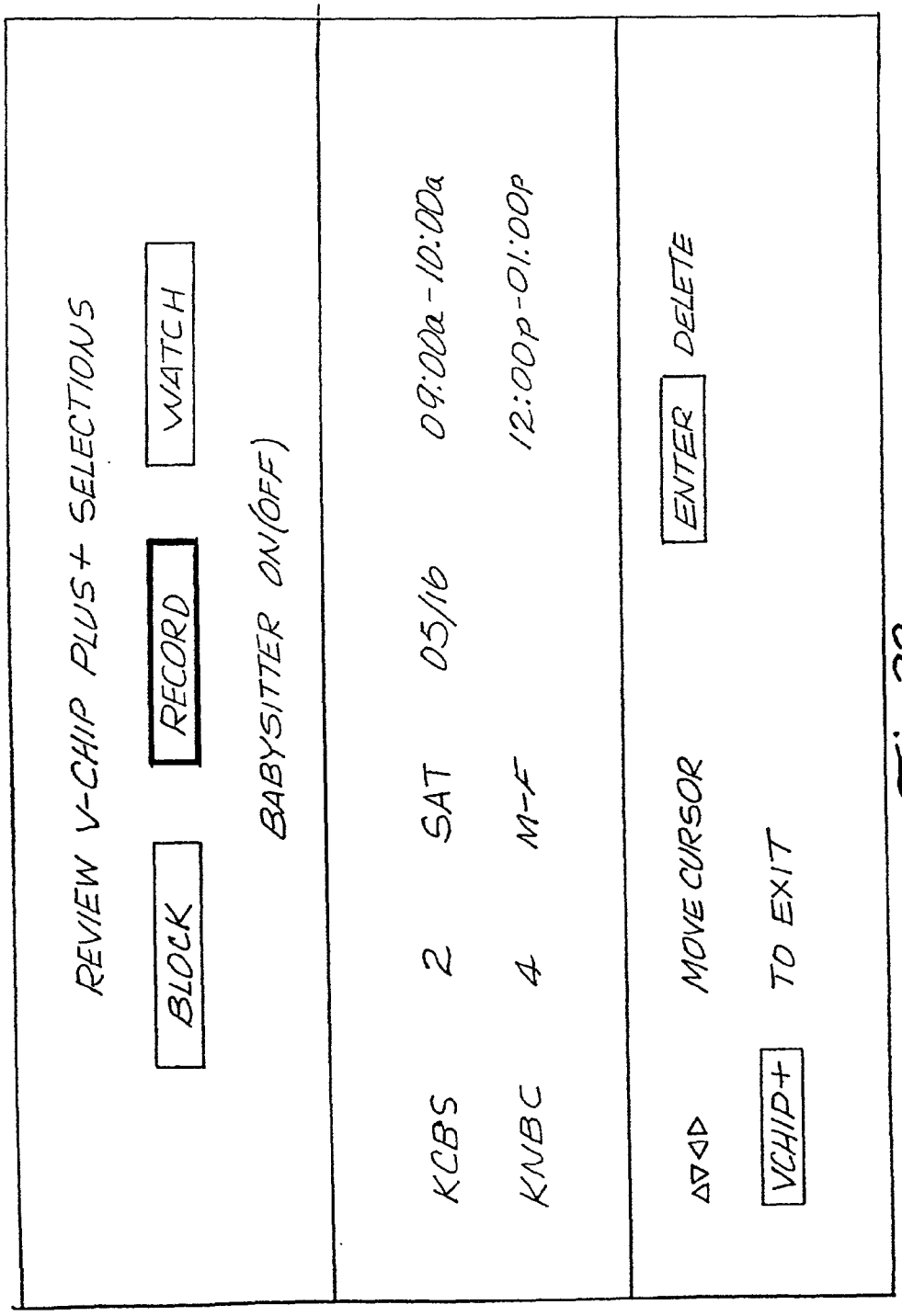

REVIEW V-CHIP PLUS+ SELECTIONS
BLOCK
RECORD
WATCH
BABYSITTER ON/OFF
KCBS 2 SAT 05/16 09:00a-10:00a
KNBC 4 M-F 12:00p-01:00p
ΔΔΔΔ MOVE CURSOR
ENTER DELETE
VCHIP+ TO EXIT

Fig. 32

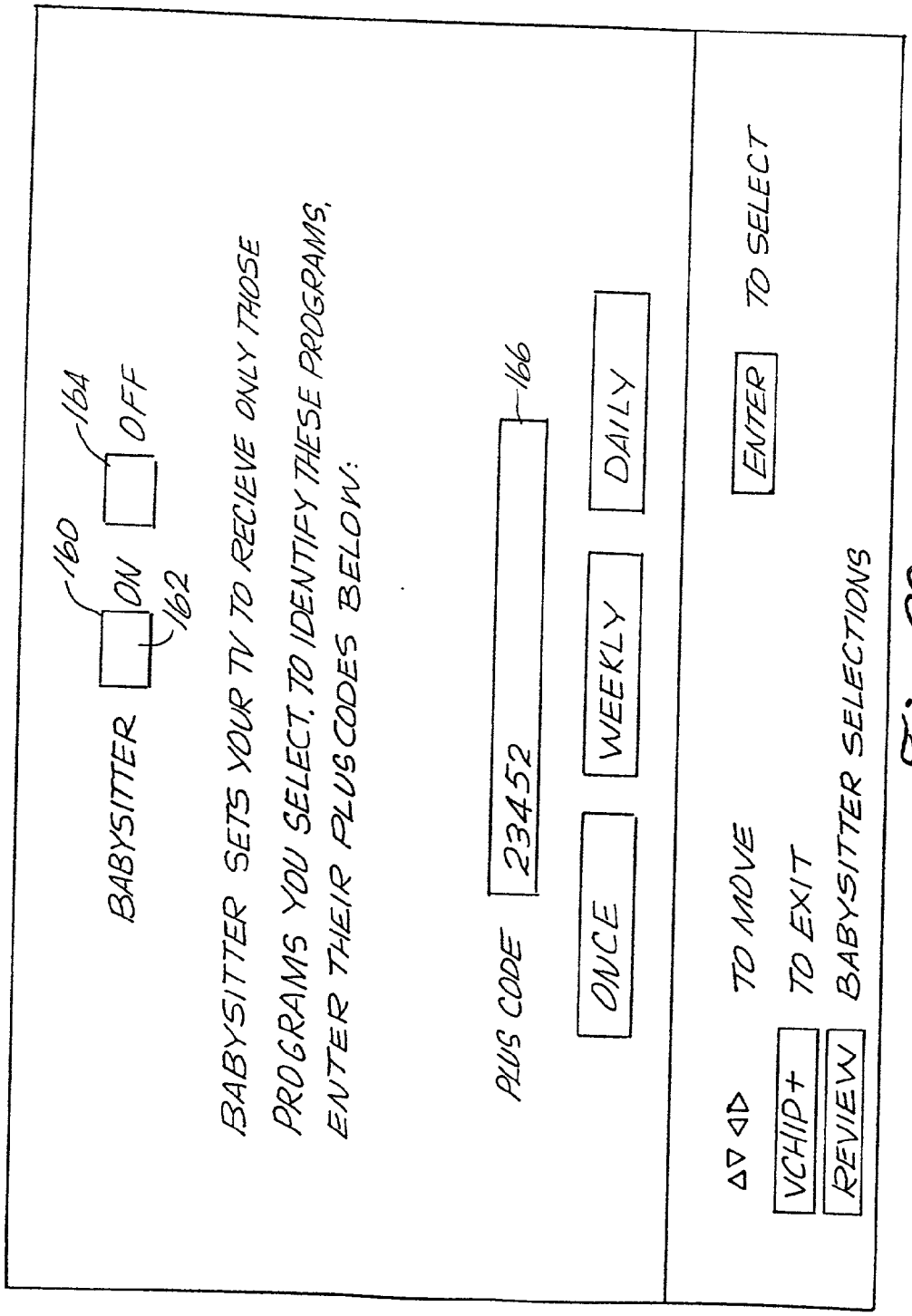

BABYSITTER
160
ON
162
164
OFF
BABYSITTER SETS YOUR TV TO RECIEVE ONLY THOSE PROGRAMS YOU SELECT. TO IDENTIFY THESE PROGRAMS, ENTER THEIR PLUS CODES BELOW:
PLUS CODE
23452
166
ONCE
WEEKLY
DAILY
ENTER
TO SELECT
TO MOVE
VCHIP+
TO EXIT
REVIEW
BABYSITTER SELECTIONS

Fig. 33

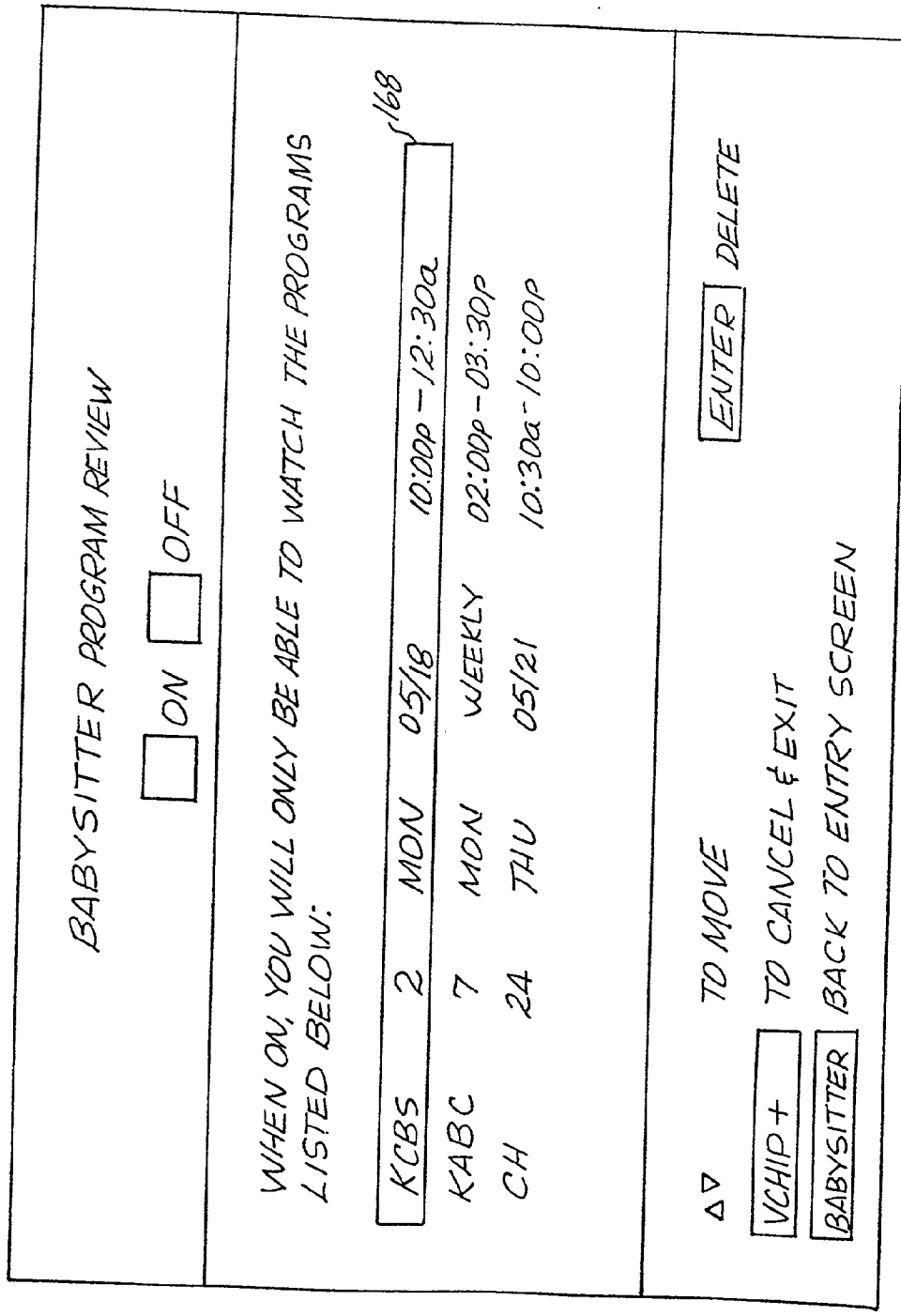

BABYSITTER PROGRAM REVIEW
ON
OFF
WHEN ON, YOU WILL ONLY BE ABLE TO WATCH THE PROGRAMS LISTED BELOW:
168
KCBS 2 MON 05/18 10:00p - 12:30a
KABC 7 MON WEEKLY 02:00p - 03:30p
CH 24 THU 05/21 10:30a - 10:00p
ENTER DELETE
TO MOVE
VCHIP + TO CANCEL & EXIT
BABYSITTER BACK TO ENTRY SCREEN

Fig. 34

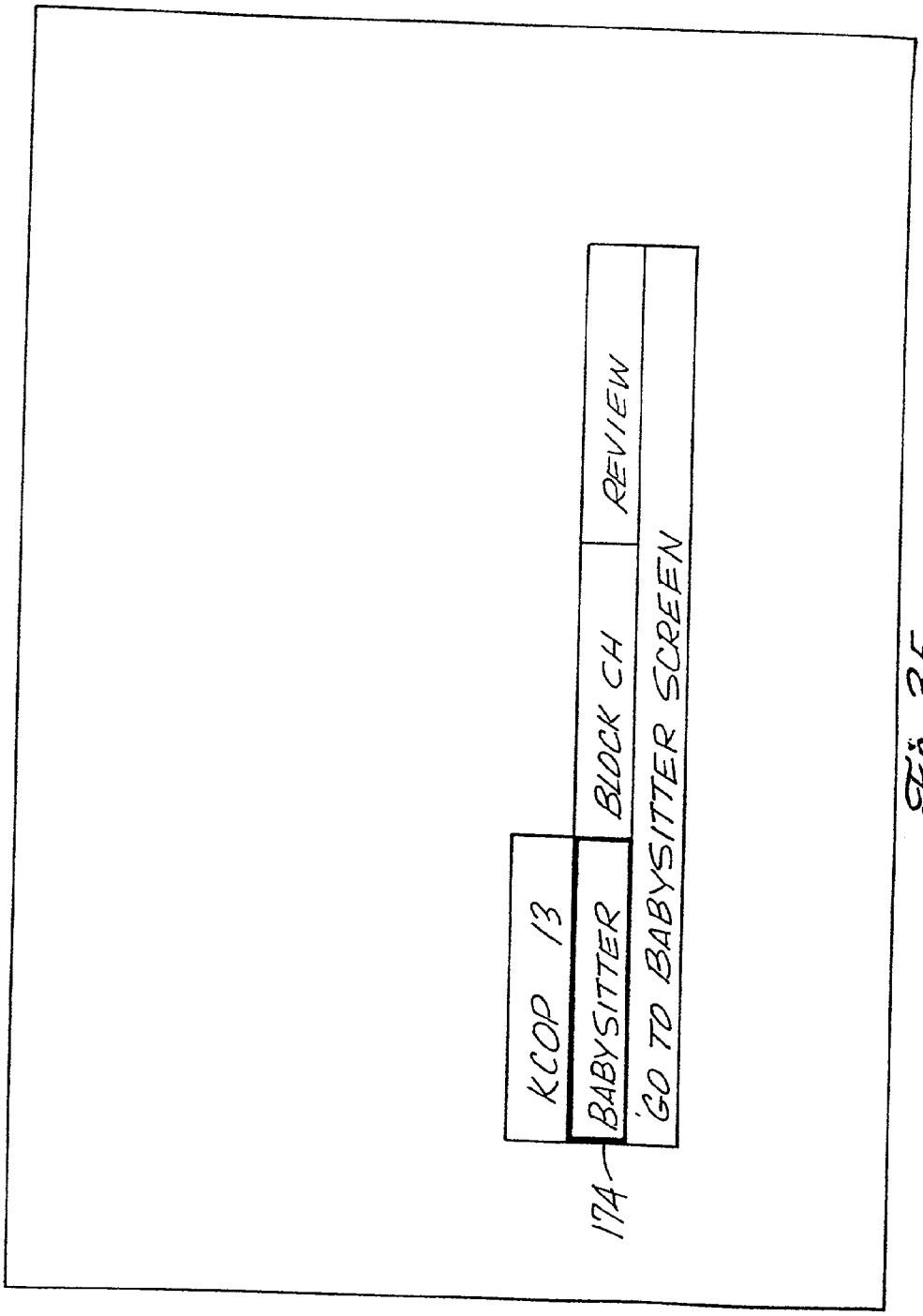

KCOP 13
BABYSITTER
BLOCK CH
REVIEW
GO TO BABYSITTER SCREEN
174

Fig. 35

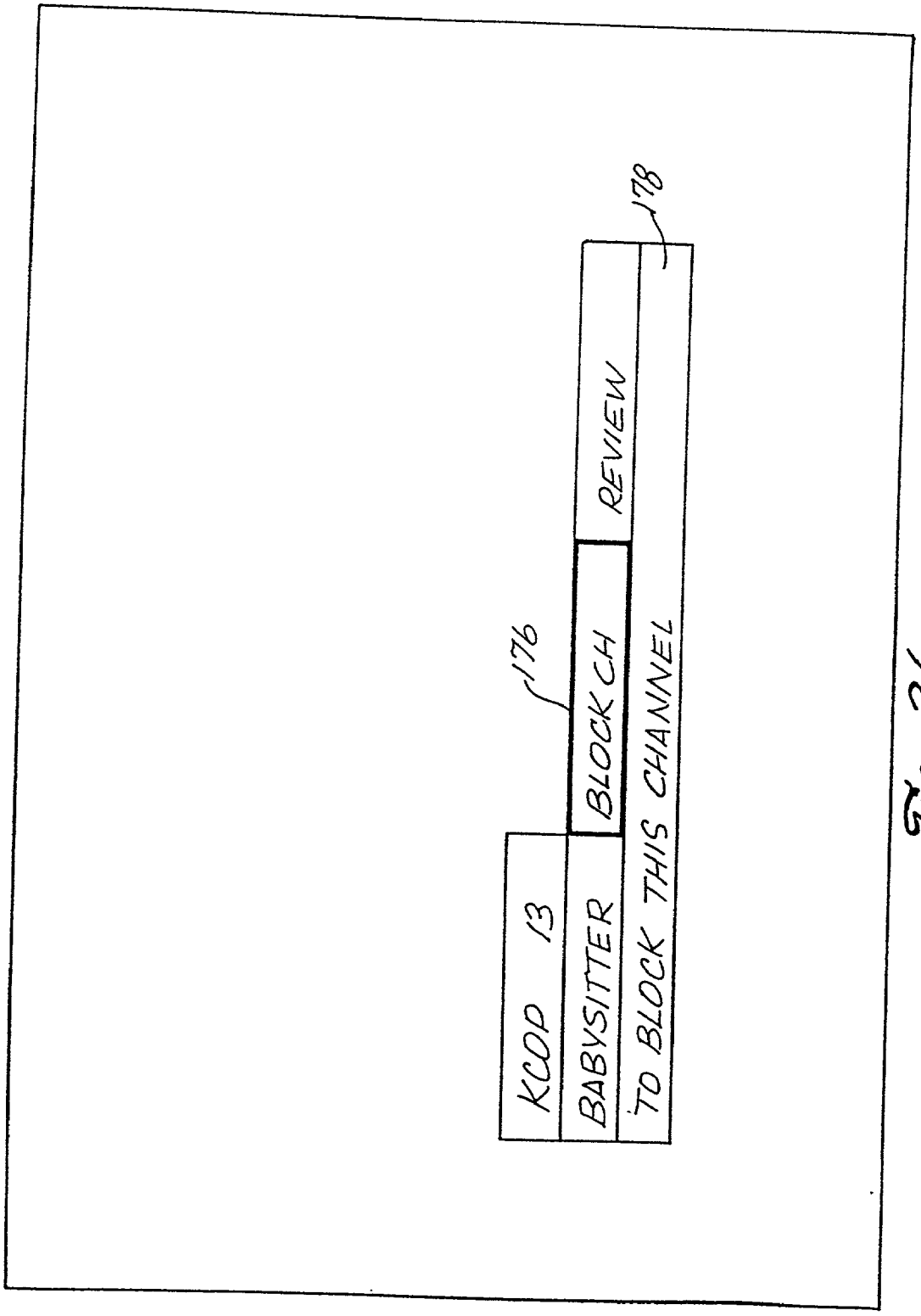

KCOP 13
BABYSITTER
TO BLOCK THIS CHANNEL
BLOCK CH
REVIEW
176
178

Fig. 36

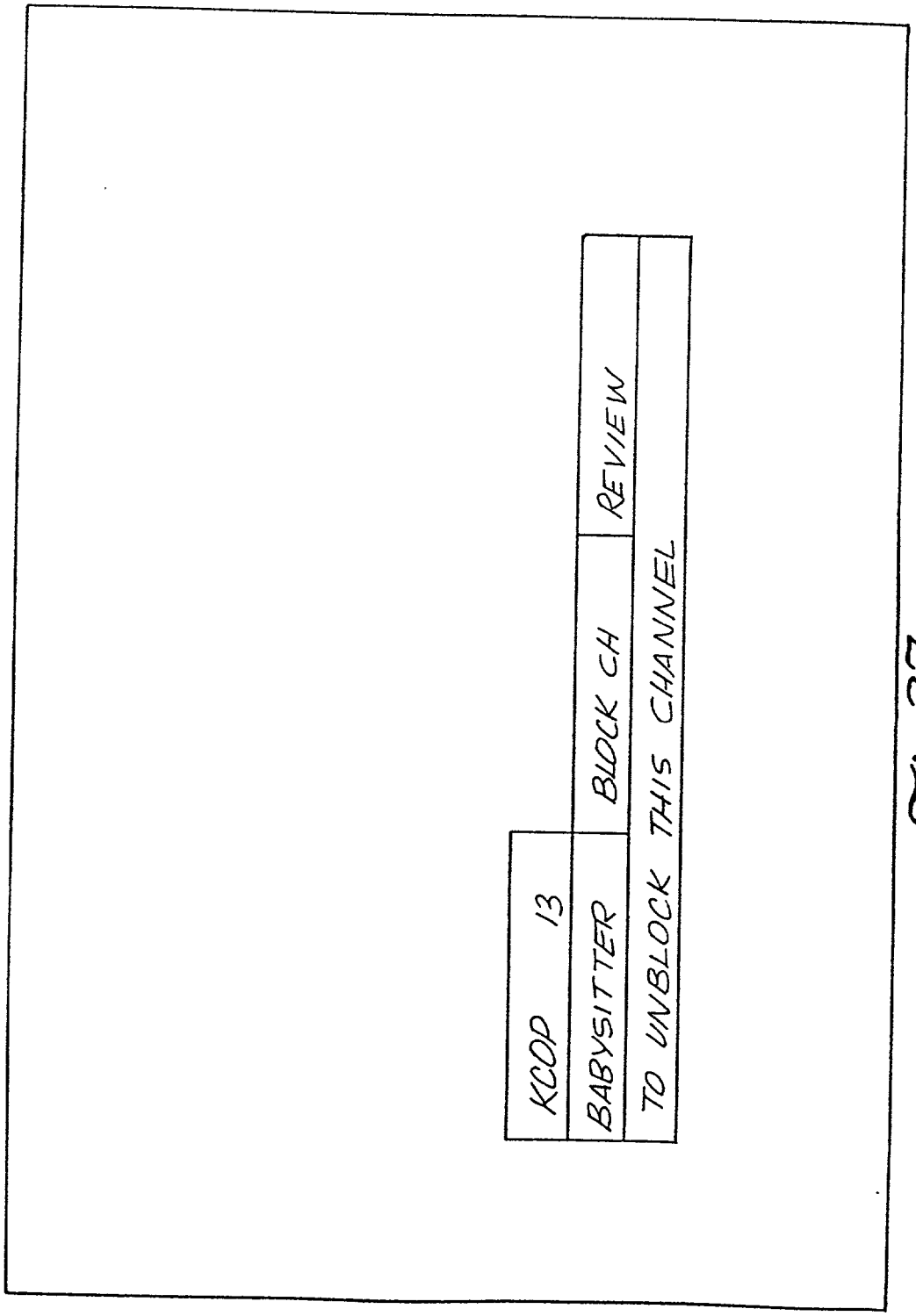


Fig. 37

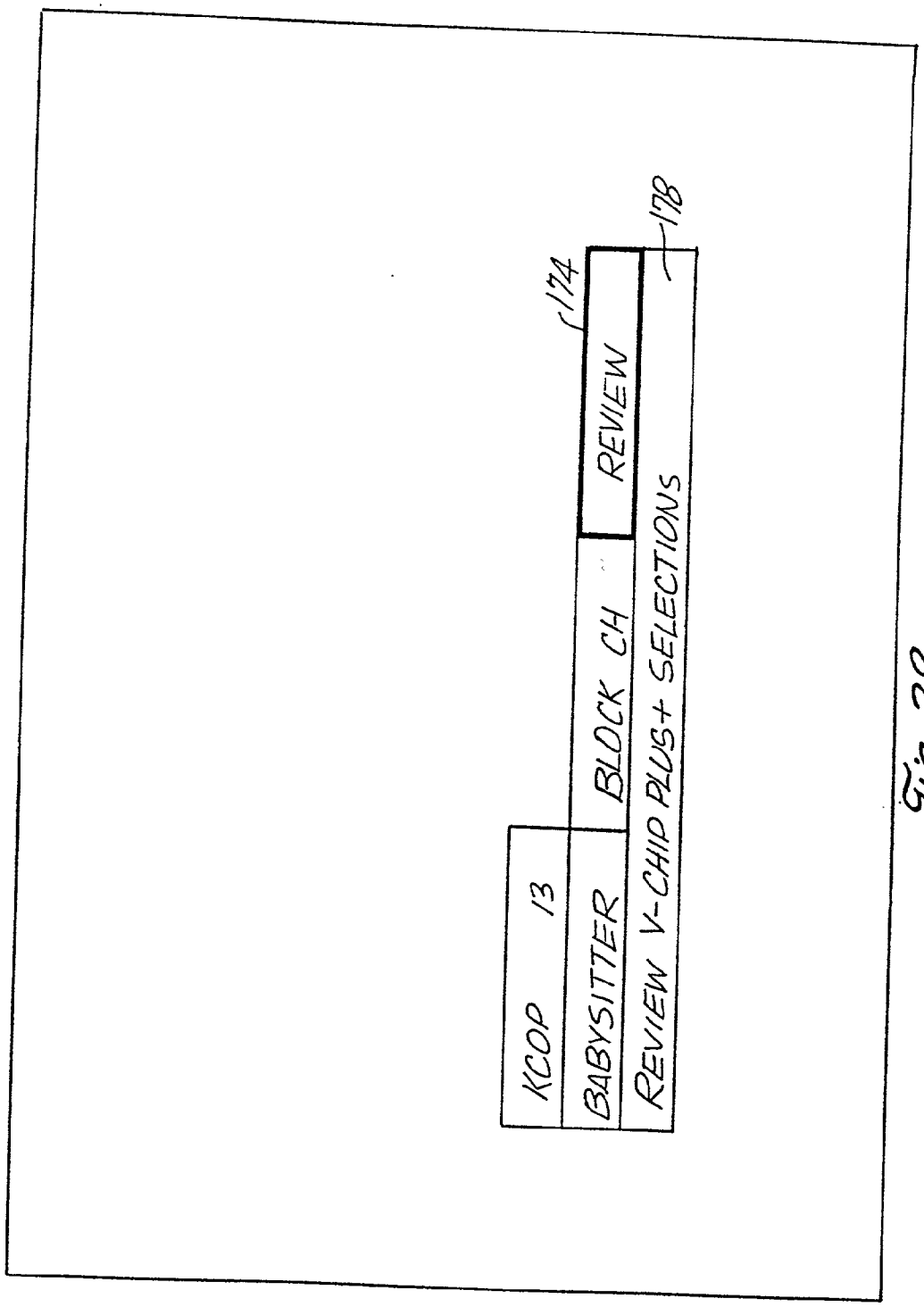

KCOP 13
BABYSITTER
BLOCK CH
REVIEW
REVIEW V-CHIP PLUS+ SELECTIONS
174
178

Fig. 38

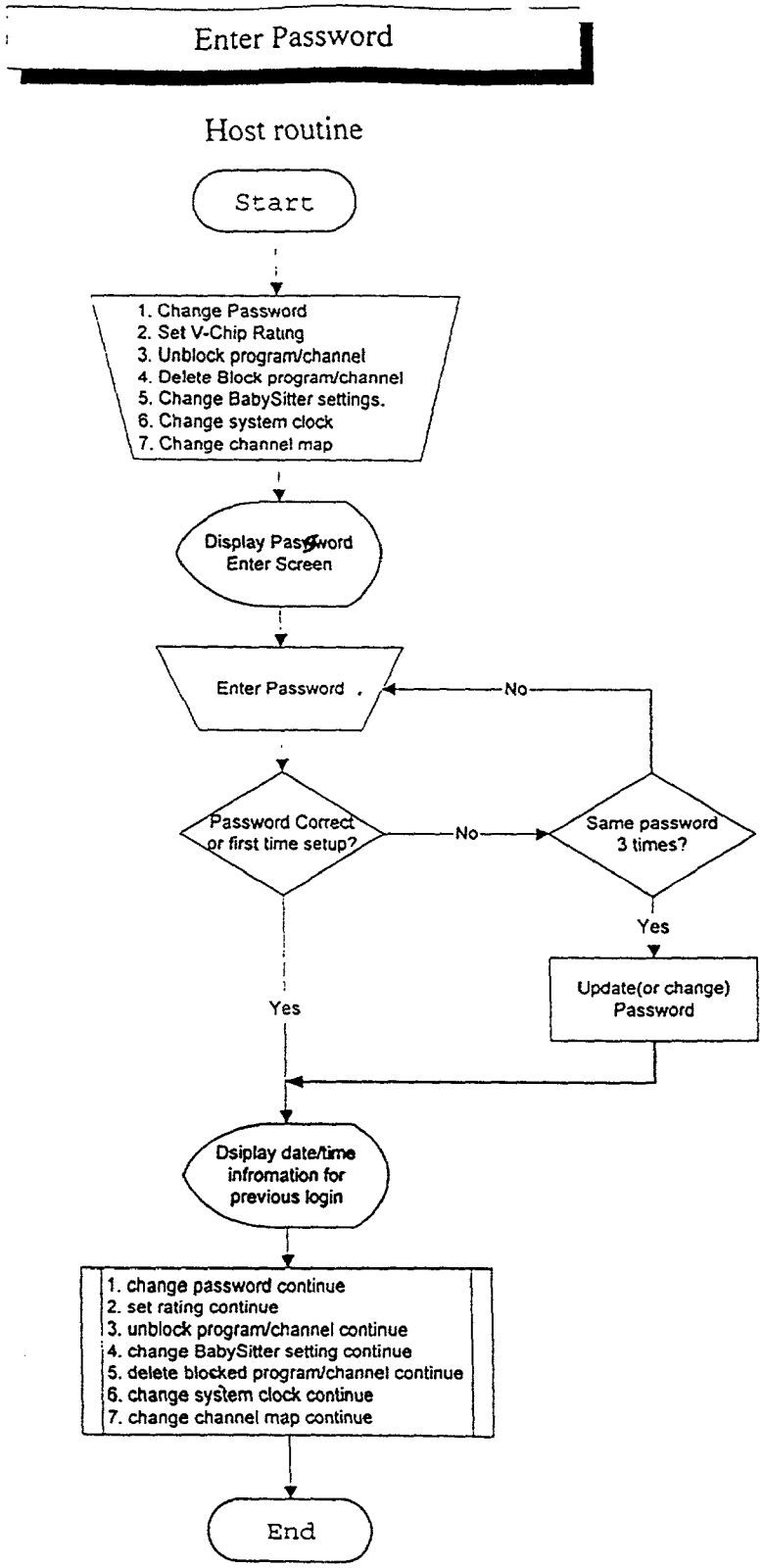

Enter Password
Host routine
Start
1. Change Password
2. Set V-Chip Rating
3. Unblock program/channel
4. Delete Block program/channel
5. Change BabySitter settings.
6. Change system clock
7. Change channel map
Display Password Enter Screen
Enter Password
No
Password Correct or first time setup?
No
Same password 3 times?
Yes
Update(or change) Password
Yes
Dsiplay date/time infromation for previous login
1. change password continue
2. set rating continue
3. unblock program/channel continue
4. change BabySitter setting continue
5. delete blocked program/channel continue
6. change system clock continue
7. change channel map continue
End

FIG. 39

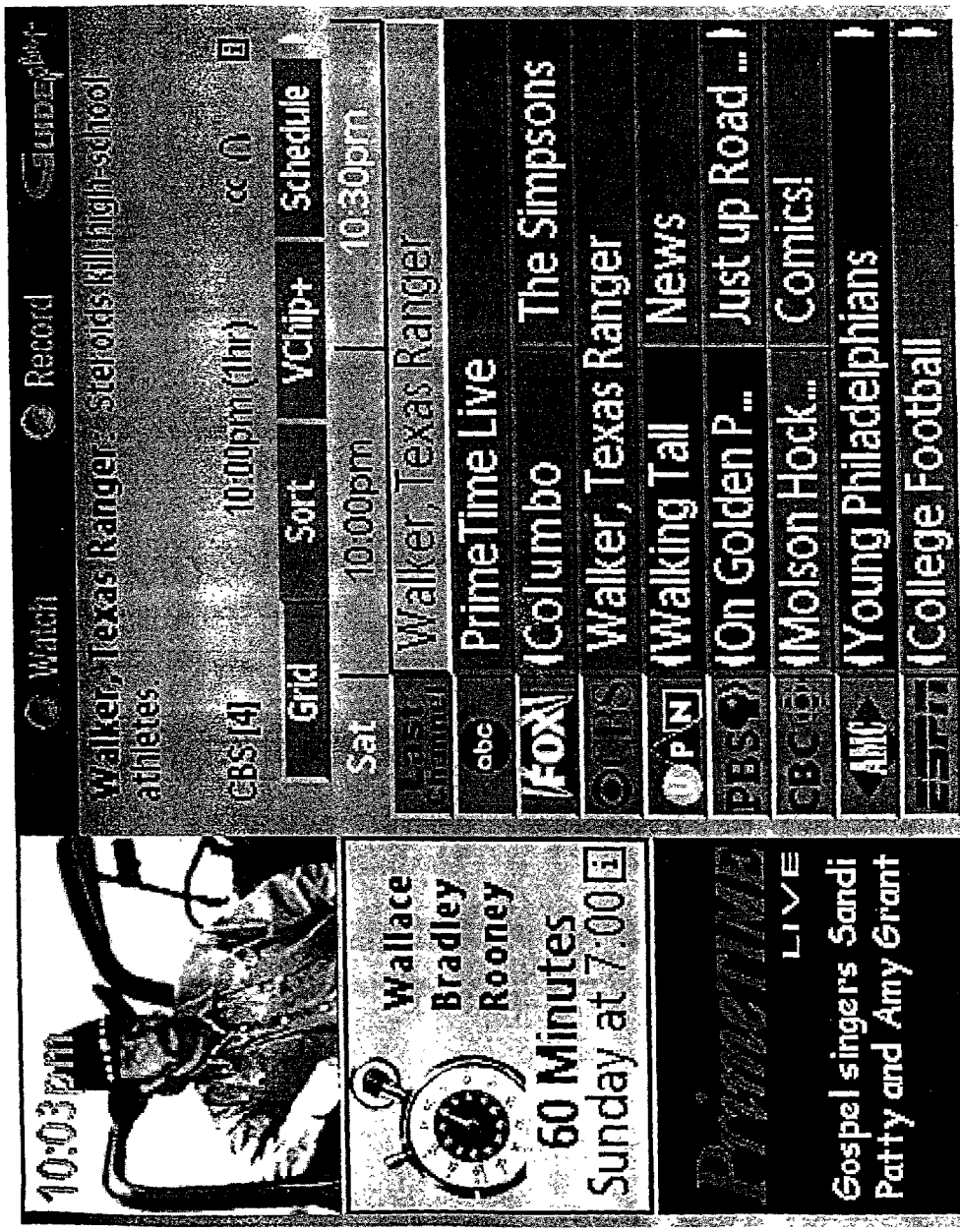

10:03pm
Watch
Record
Walker, Texas Ranger: Steroids Kill high-school athletes.
CBS [4]
10:00pm (1hr)
Grid
Sort
VChip+
Schedule
Sat
10:00pm
10:30pm
Walker, Texas Ranger
PrimeTime Live
Columbo
The Simpsons
Walker, Texas Ranger
Walking Tall
News
On Golden P...
Just up Road ...
Molson Hock...
Comics!
Young Philadelphians
College Football
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi Patty and Amy Grant

FIG. 4D

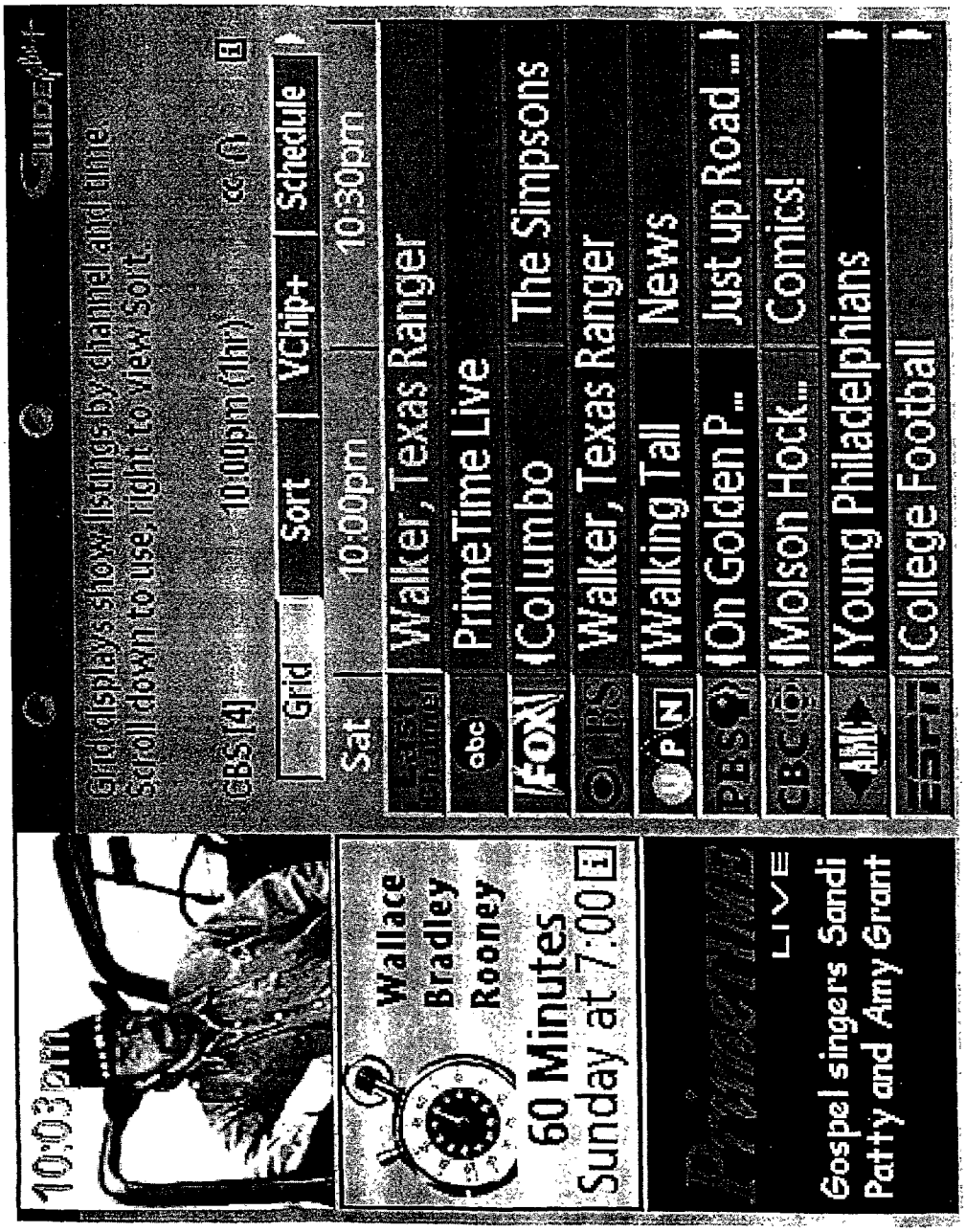

10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
Grid displays shows listings by channel and time
Scroll down to use, right to view Sort.
CBS [4]
10:00pm (1hr)
Grid
Sort
VChip+
Schedule
Sat
10:00pm
10:30pm
Walker, Texas Ranger
PrimeTime Live
Columbo
The Simpsons
Walker, Texas Ranger
Walking Tall
News
On Golden P...
Just up Road ...
Molson Hock...
Comics!
Young Philadelphians
College Football

FIG. 41

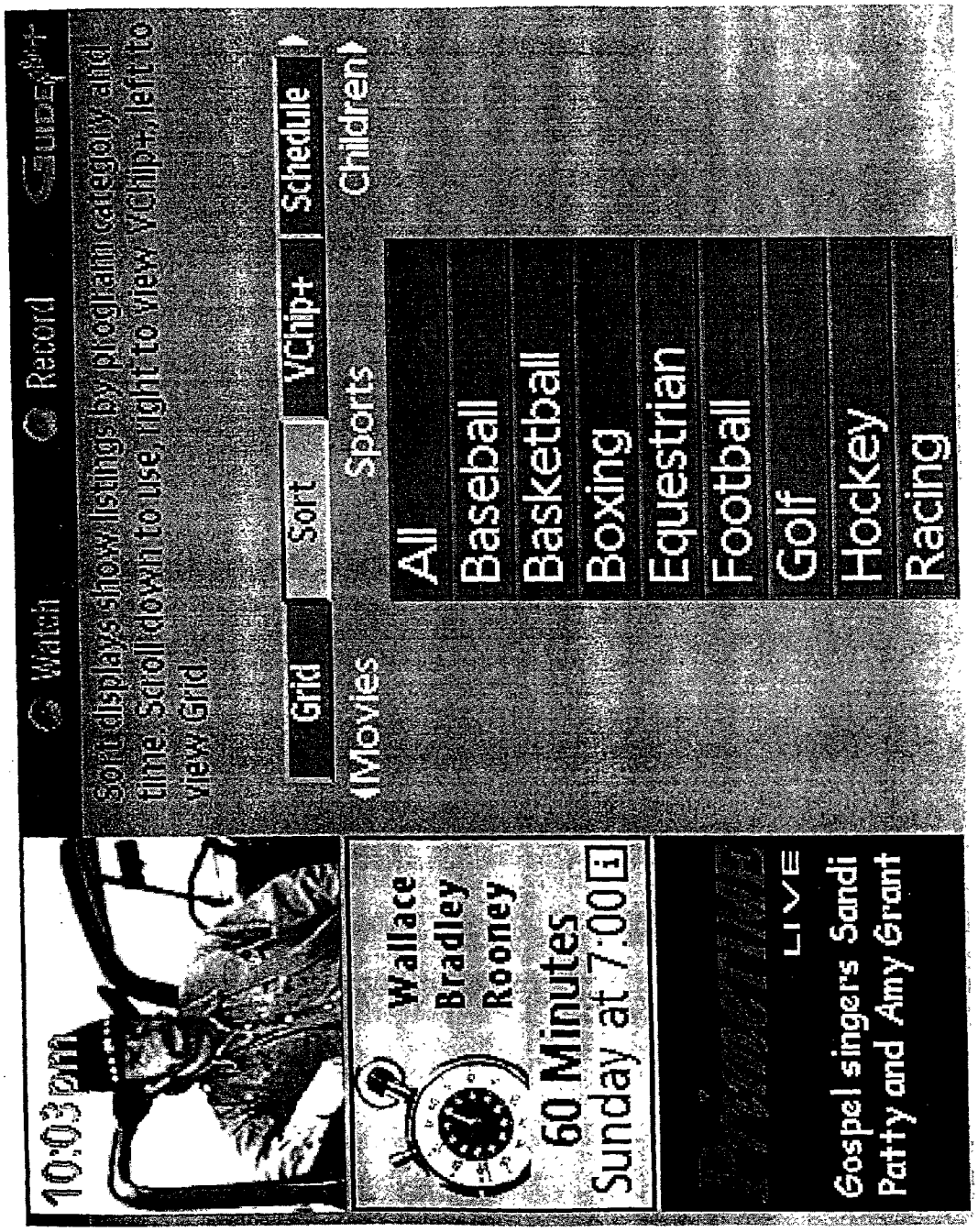

Watch
Record
Sort displays show listings by program category and time. Scroll down to use, right to view VChip+, left to view Grid
Grid
Sort
VChip+
Schedule
Movies
Sports
Children
All
Baseball
Basketball
Boxing
Equestrian
Football
Golf
Hockey
Racing
10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG 42

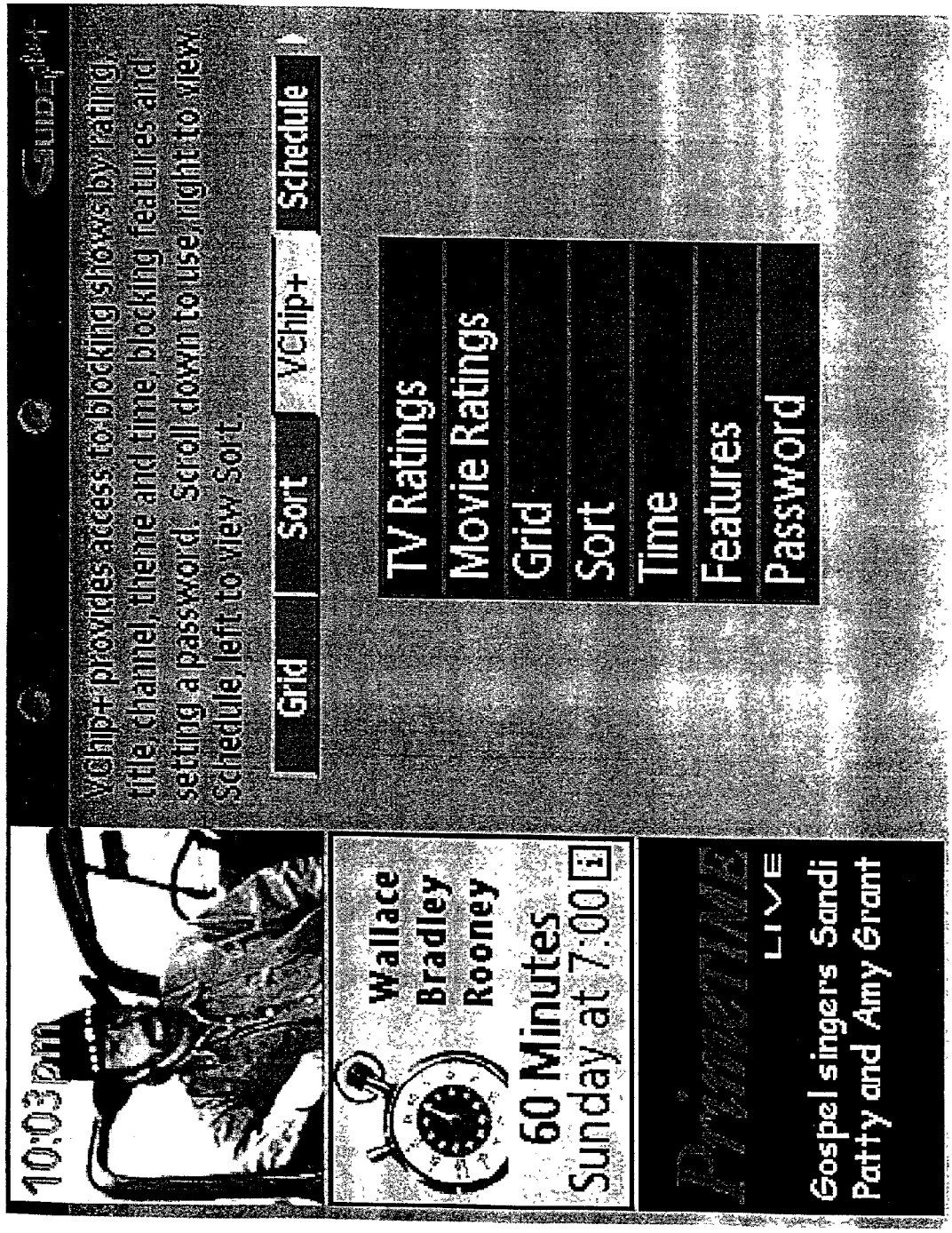

10:03 pm
VChip+ provides access to blocking shows by rating, title, channel, theme and time, blocking features and setting a password. Scroll down to use, right to view Schedule, left to view Sort.
Grid
Sort
VChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG 43

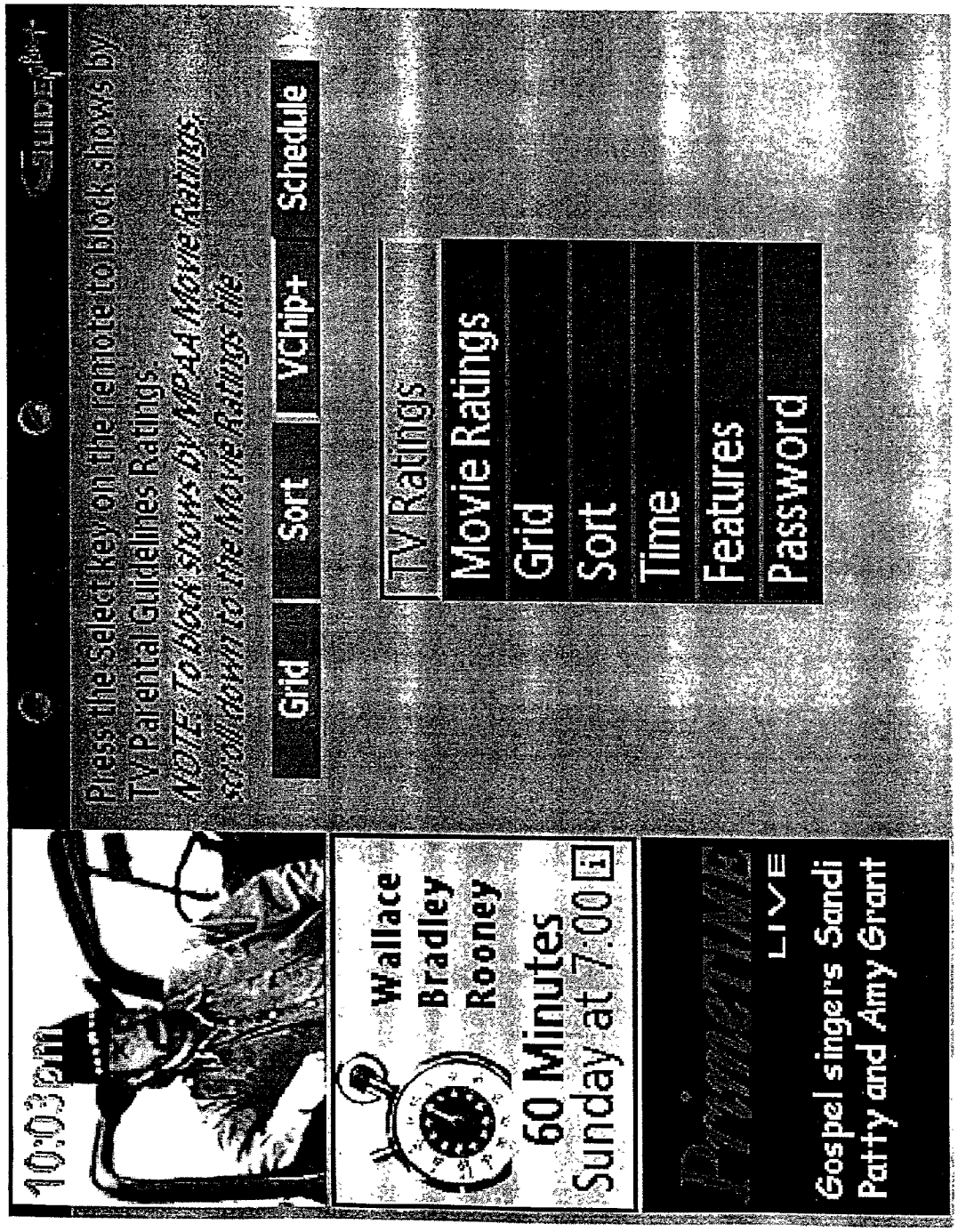

10:03 pm
Press the select key on the remote to block shows by
TV Parental Guidelines Ratings.
NOTE: To block shows by MPAA Movie Ratings,
scroll down to the Movie Ratings tab.
Grid
Sort
VChip+
Schedule
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password

FIG 44

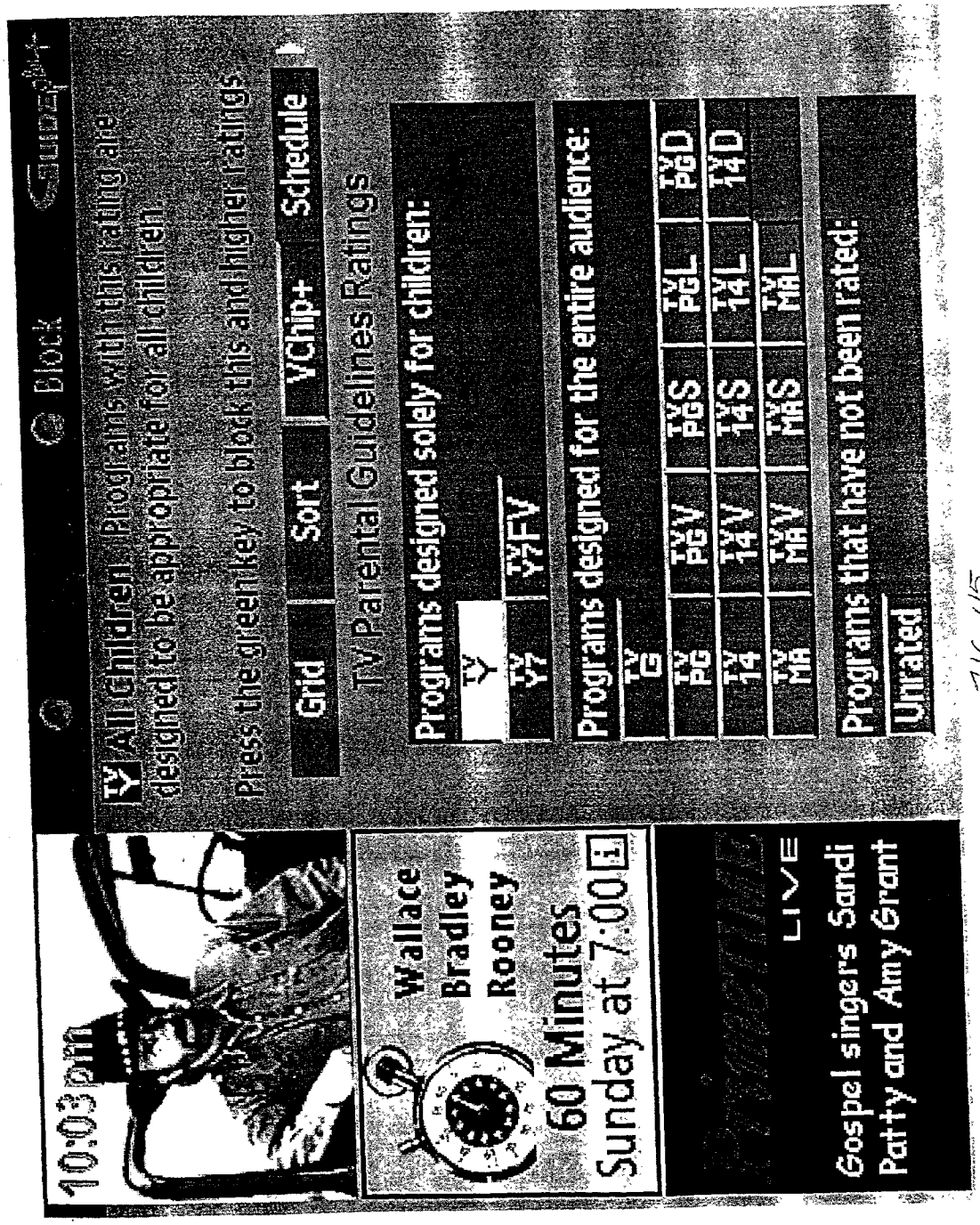

10:03pm
Block
TV All Children: Programs with this rating are designed to be appropriate for all children.
Press the green key to block this and higher ratings
Grid
Sort
VChip+
Schedule
TV Parental Guidelines Ratings
Programs designed solely for children:
TV Y
TV Y7
TV Y7FV
Programs designed for the entire audience:
TV G
TV PG
TV PGV
TVS PGS
TVL PGL
TVD PGD
TV 14
TV 14V
TVS 14S
TVL 14L
TVD 14D
TV MA
TV MAV
TVS MAS
TVL MAL
Programs that have not been rated:
Unrated
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi Patty and Amy Grant

FIG 45

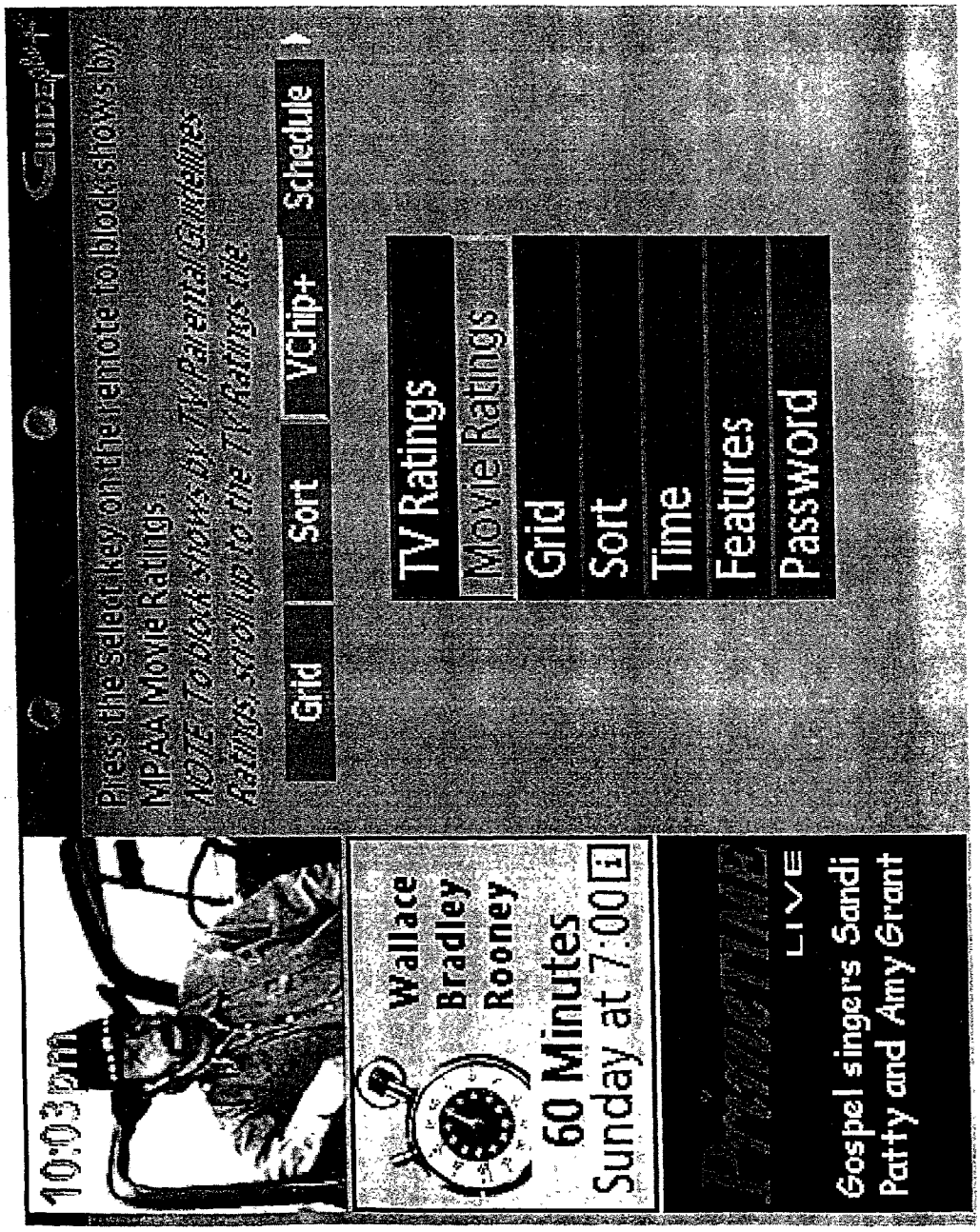

10:03pm
Press the select key on the remote to block shows by
MPAA Movie Ratings
NOTE: To block shows by TV Parental Guidelines
ratings scroll up to the TV ratings.
Grid
Sort
VChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG 46

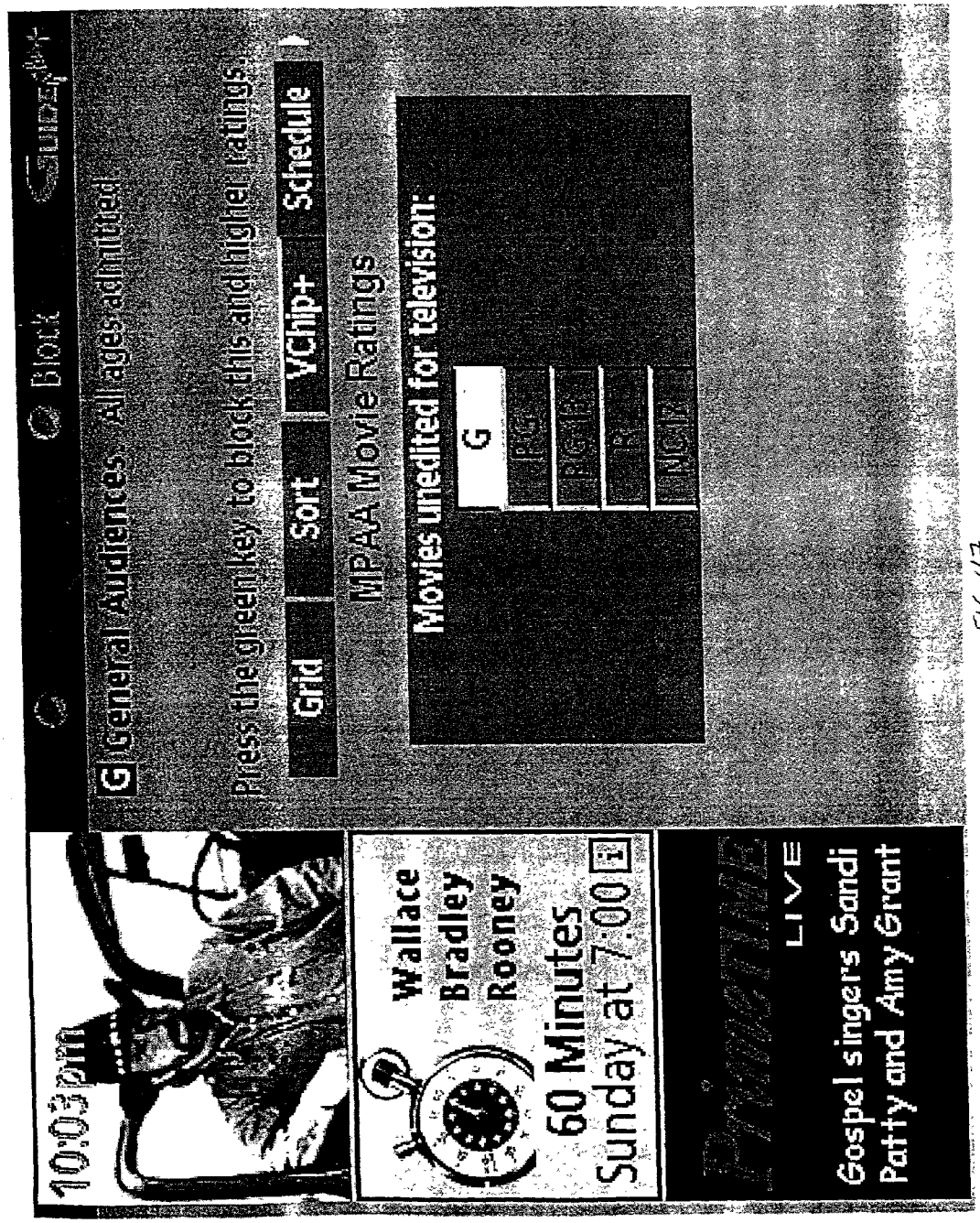

10:03 pm
Block
G General Audiences. All ages admitted.
Press the green key to block this and higher ratings.
Grid
Sort
VChip+
Schedule
MPAA Movie Ratings
Movies unedited for television:
G
PG
PG-13
R
NC-R
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG 47

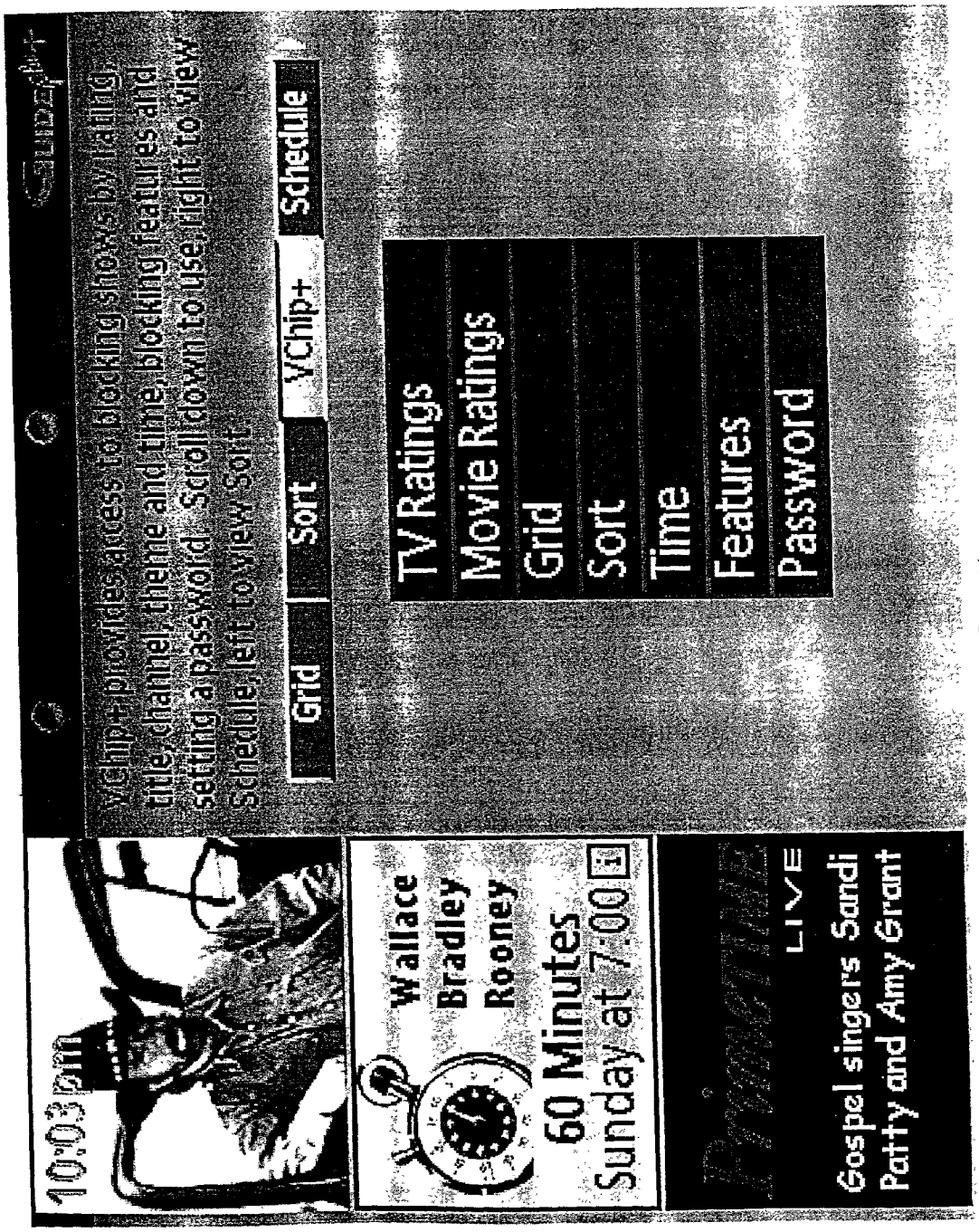

10:03 pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
vchip+ provides access to blocking shows by rating,
title, channel, theme and time, blocking features and
setting a password. Scroll down to use, right to view
Schedule, left to view Sort
Grid
Sort
VChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password

FIG 48

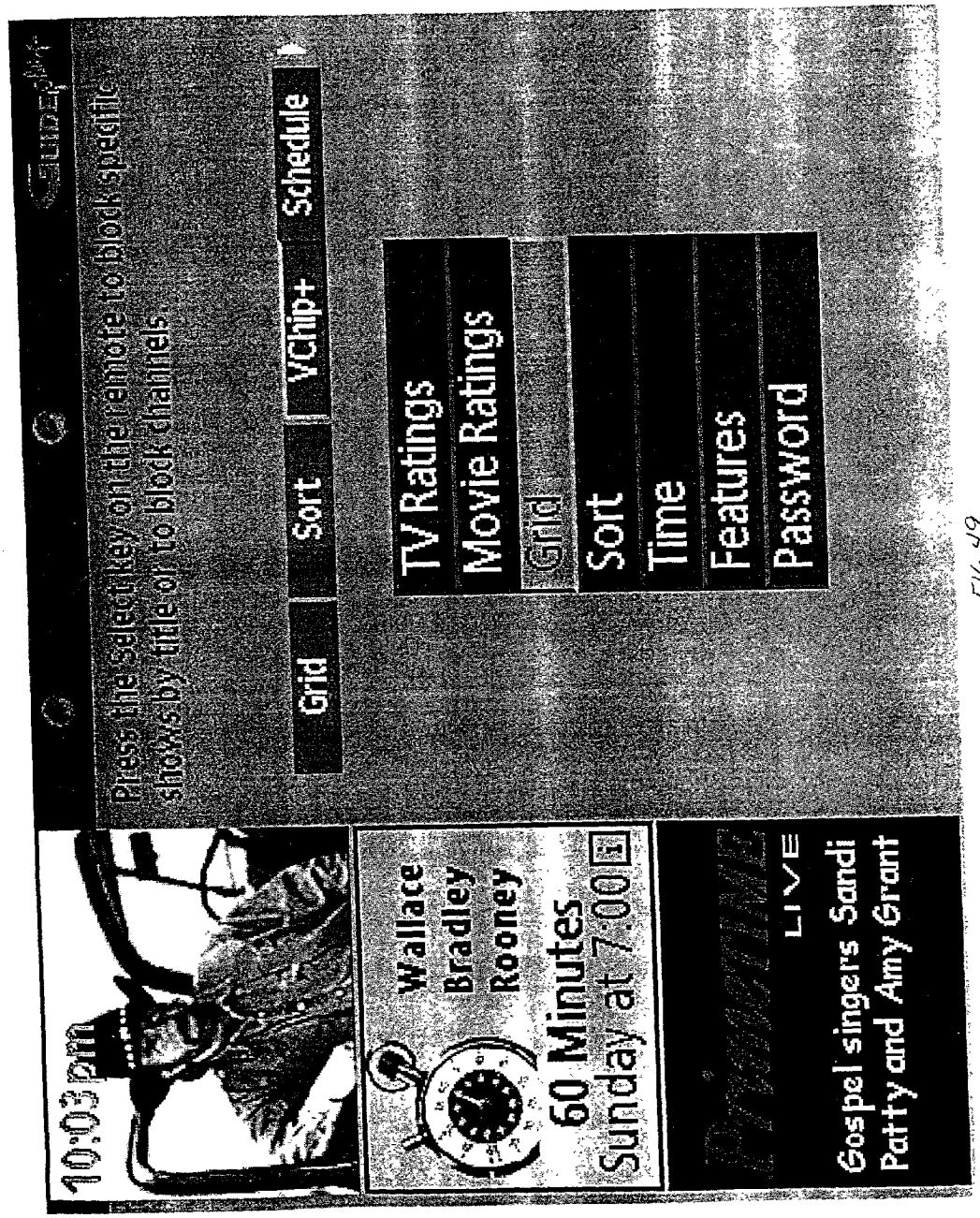

10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
Press the select key on the remote to block specific
shows by title or to block channels
Grid
Sort
VChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password

FIG 49

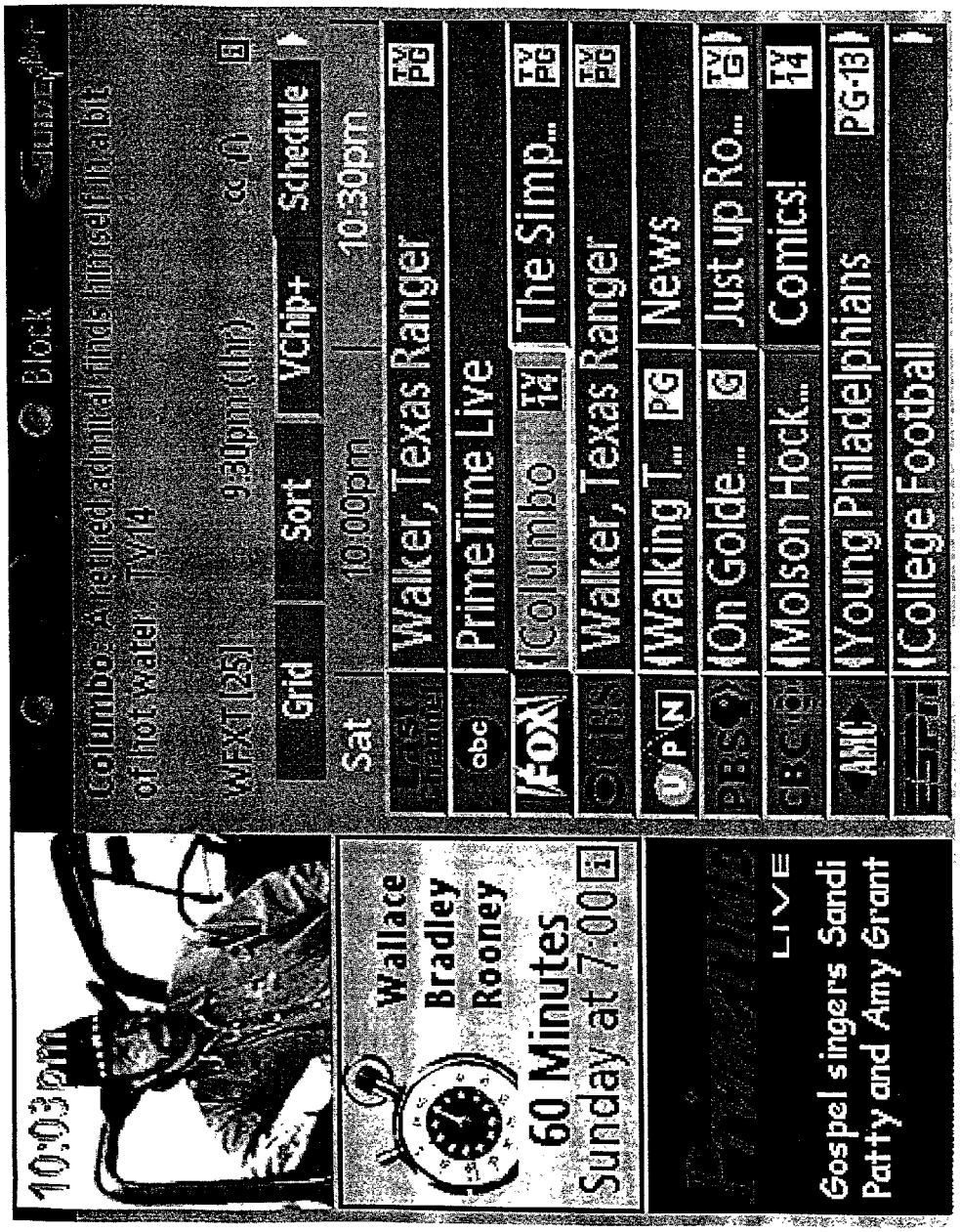

10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi Patty and Amy Grant
Columbo: A retired chemical finds himself in a bit of hot water TV14
WFXT [25]
9:30pm (1hr)
Block
Grid
Sort
VChip+
Schedule
Sat
10:00pm
10:30pm
Walker, Texas Ranger
Prime Time Live
Columbo
The Simp...
Walker, Texas Ranger
Walking T...
News
On Golde...
Just up Ro...
Molson Hock...
Comics!
Young Philadelphians
College Football

FIG 50

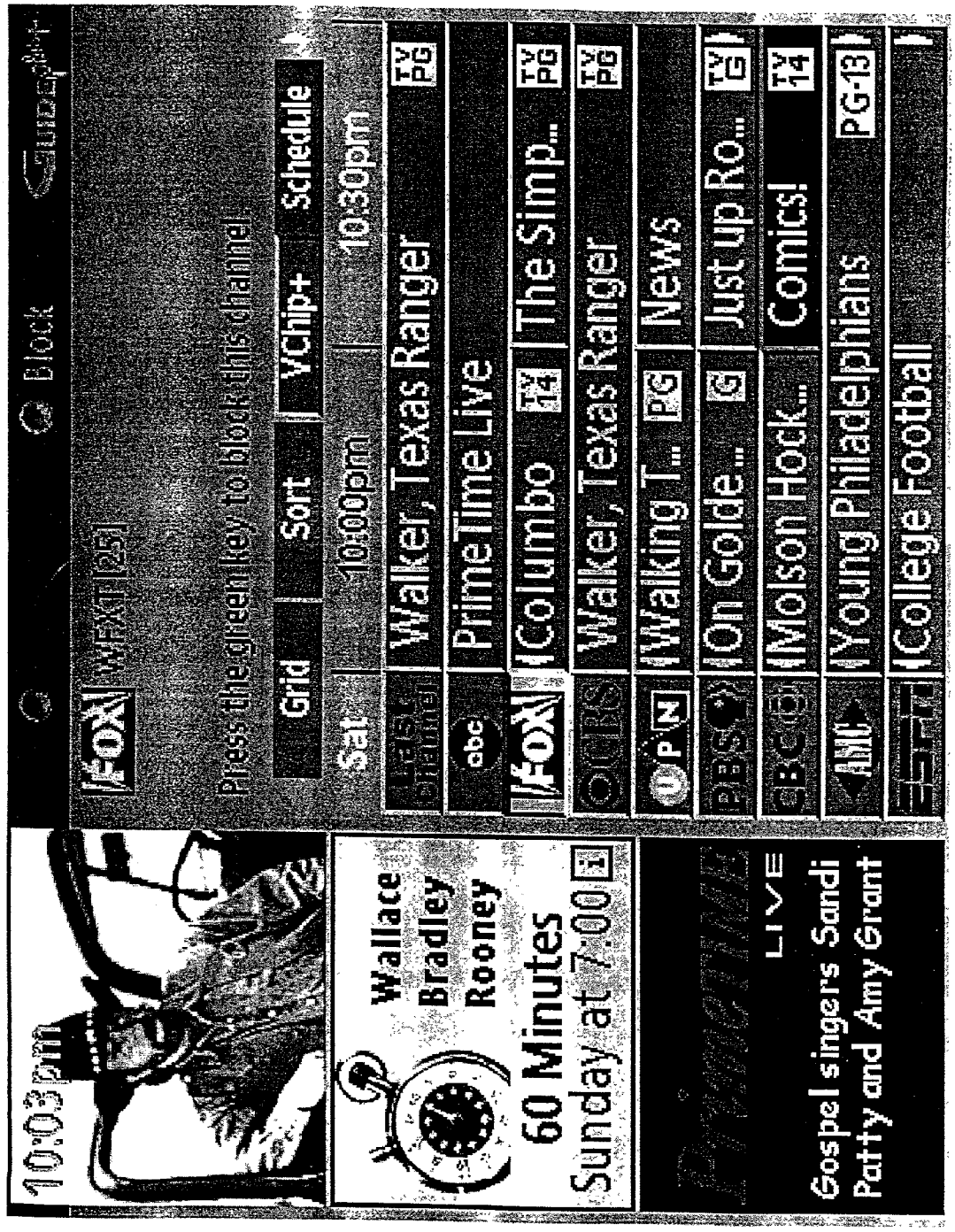

10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
WFXT [25]
Block
Press the green key to block this channel
Grid
Sort
VChip+
Schedule
Sat
10:00pm
10:30pm
Walker, Texas Ranger
Prime Time Live
Columbo
The Simp...
Walker, Texas Ranger
Walking T...
News
On Golde...
Just up Ro...
Molson Hock...
Comics!
Young Philadelphians
College Football

FIG. 51

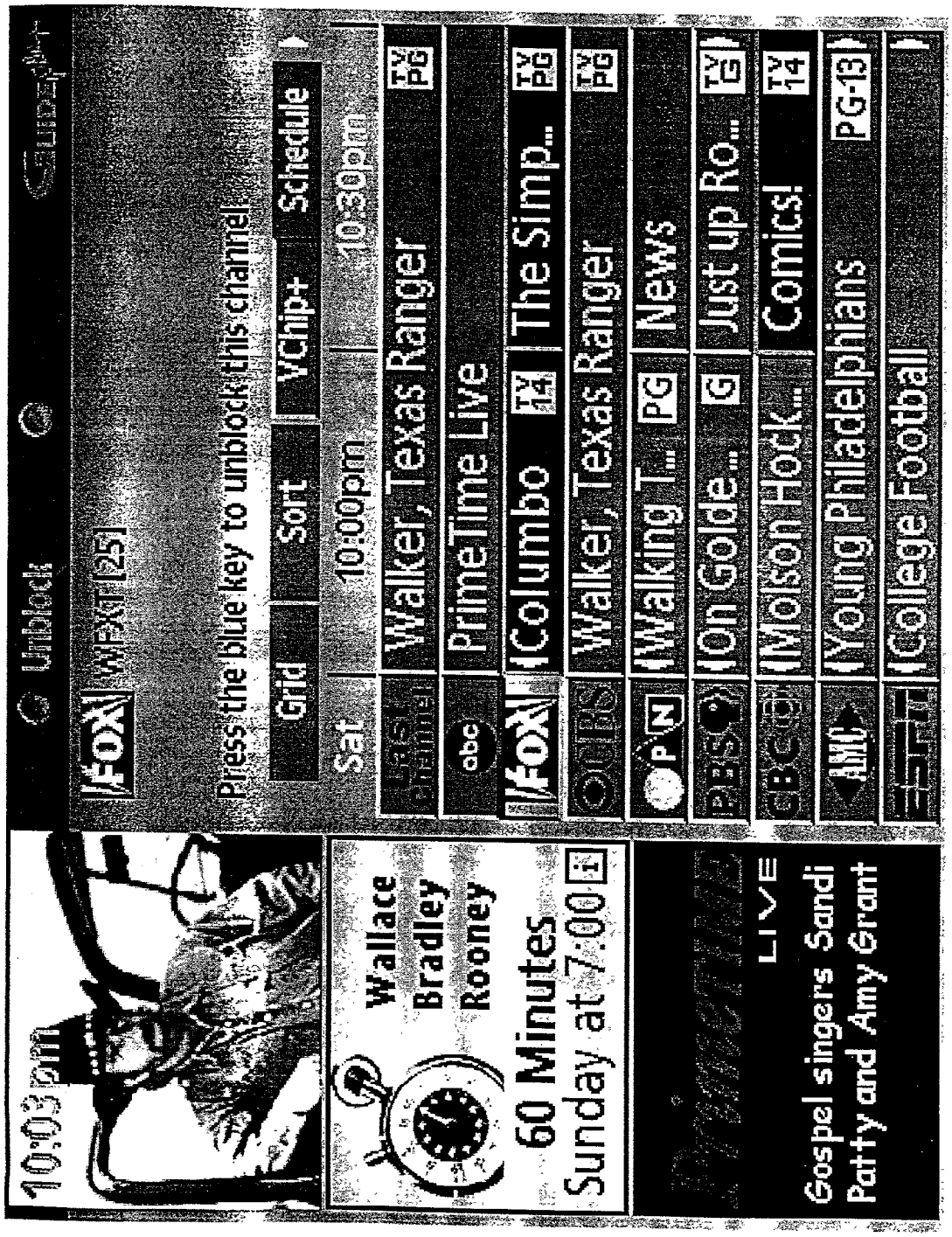

Unblock
WFXT [25]
Press the blue key to unblock this channel.
Grid
Sort
VChip+
Schedule
Sat
10:00pm
10:30pm
Last Channel
Walker, Texas Ranger
TV PG
Prime Time Live
Columbo
TV 14
The Simp...
TV PG
Walker, Texas Ranger
TV PG
Walking T...
PG
News
On Golde...
G
Just up Ro...
TV G
Molson Hock...
Comics!
TV 14
Young Philadelphians
PG-13
College Football
10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG. 52

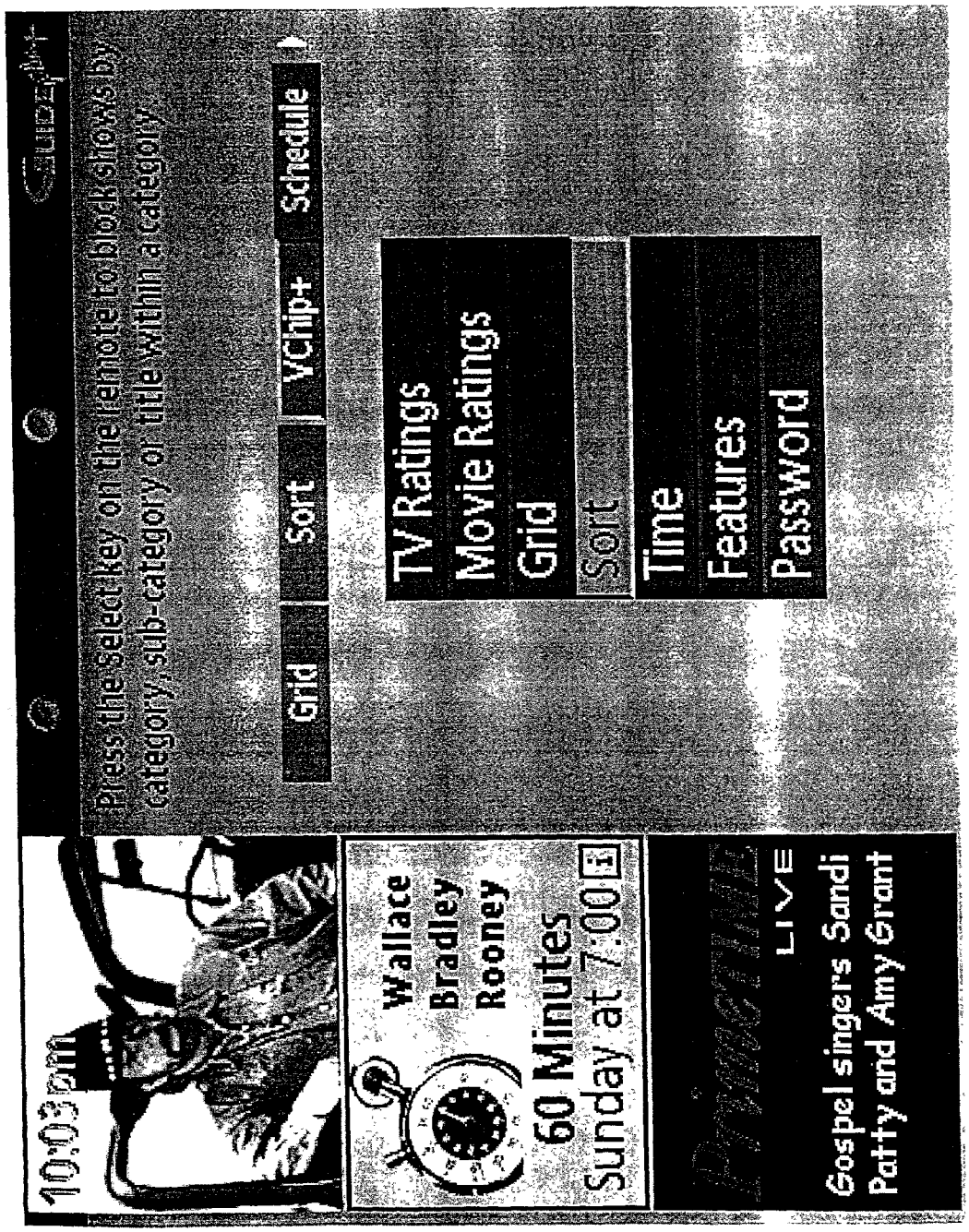

10:03pm
Press the select key on the remote to block shows by category, sub-category or title within a category.
Grid
Sort
VChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG. 53

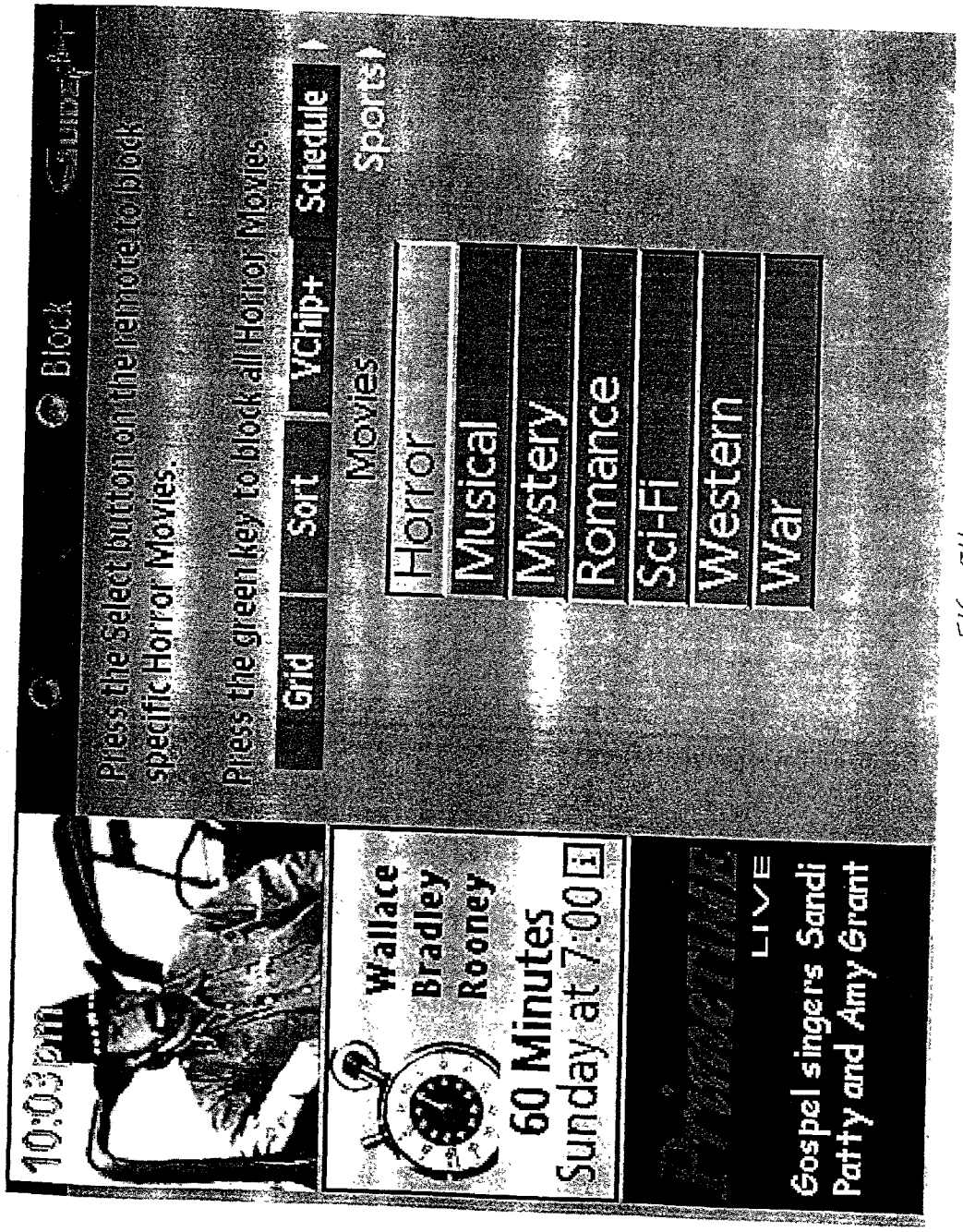

10:03pm
Block
Press the Select button on the remote to block specific Horror Movies.
Press the green key to block all Horror Movies.
Grid
Sort
VChip+
Schedule
Movies
Sports
Horror
Musical
Mystery
Romance
Sci-Fi
Western
War
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi Patty and Amy Grant

FIG 54

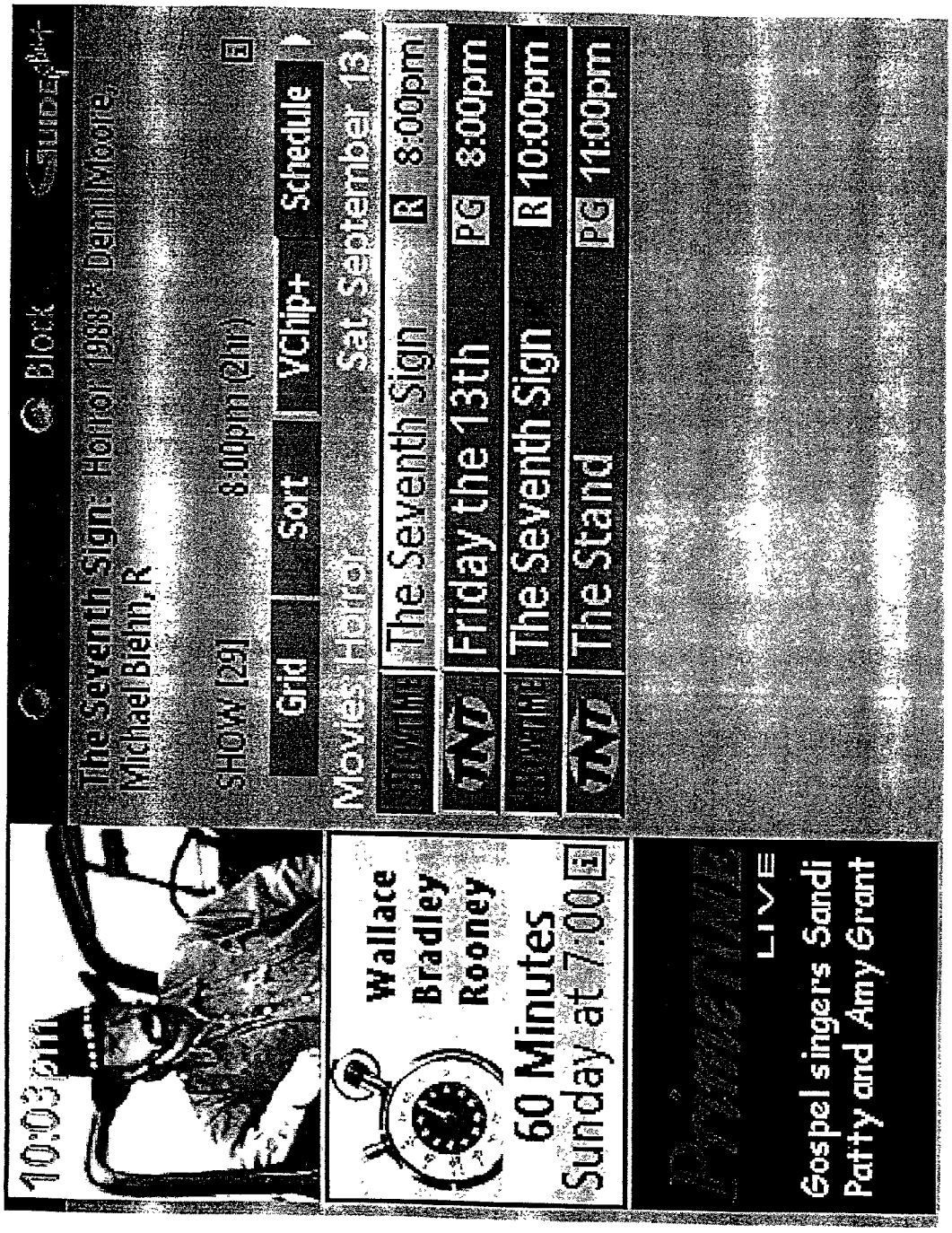

10:03 pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
Block
The Seventh Sign: Horror 1988 * Demi Moore,
Michael Biehn, R
SHOW [29]
8:00pm (2hr)
Grid
Sort
VChip+
Schedule
Movies Horror
Sat, September 13
The Seventh Sign
R
8:00pm
Friday the 13th
PG
8:00pm
The Seventh Sign
R
10:00pm
The Stand
PG
11:00pm

FIG 55

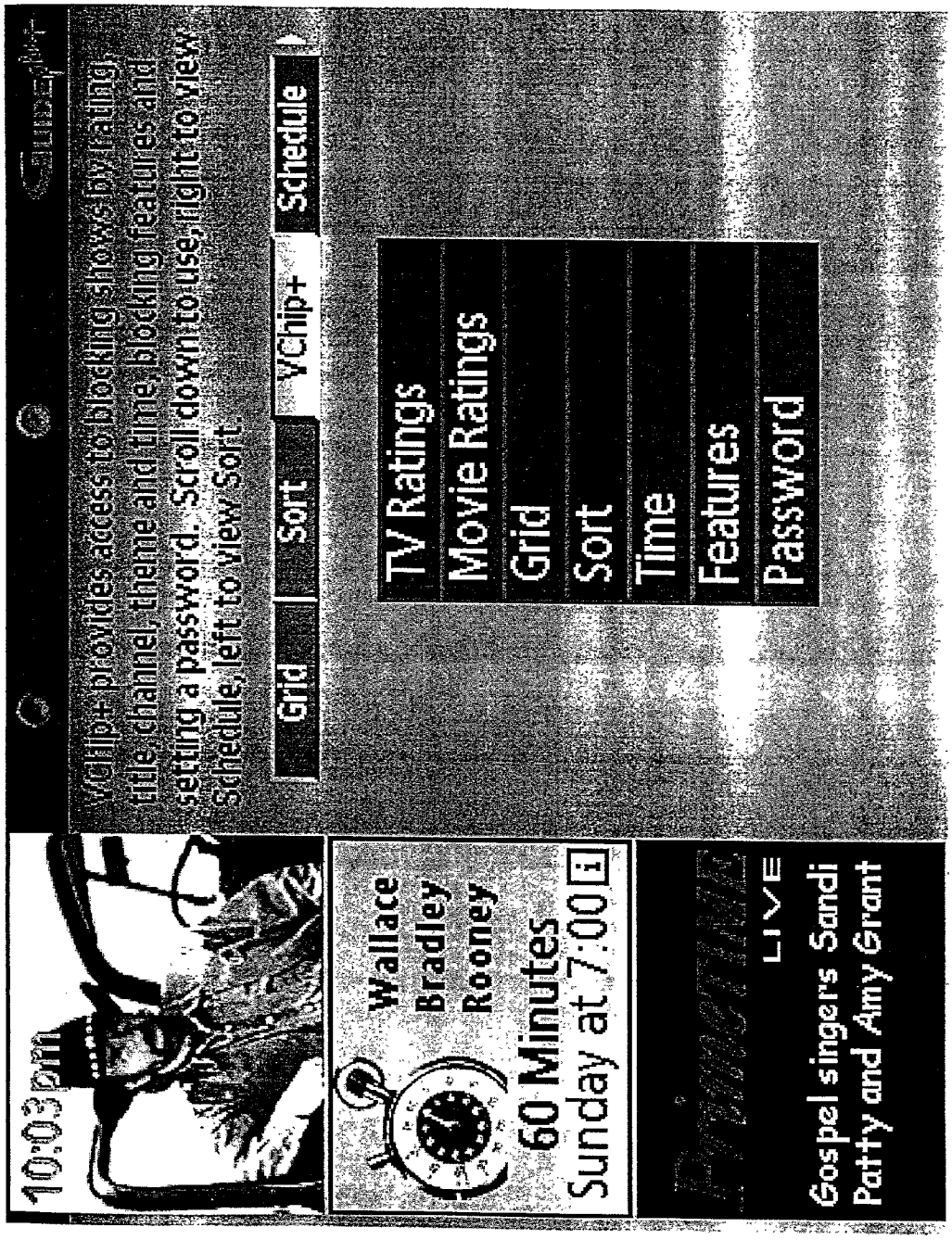

10:03 pm
VChip+ provides access to blocking shows by rating, title, channel, theme and time, blocking features and setting a password. Scroll down to use, right to view Schedule, left to view Sort.
Grid
Sort
VChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG. 56

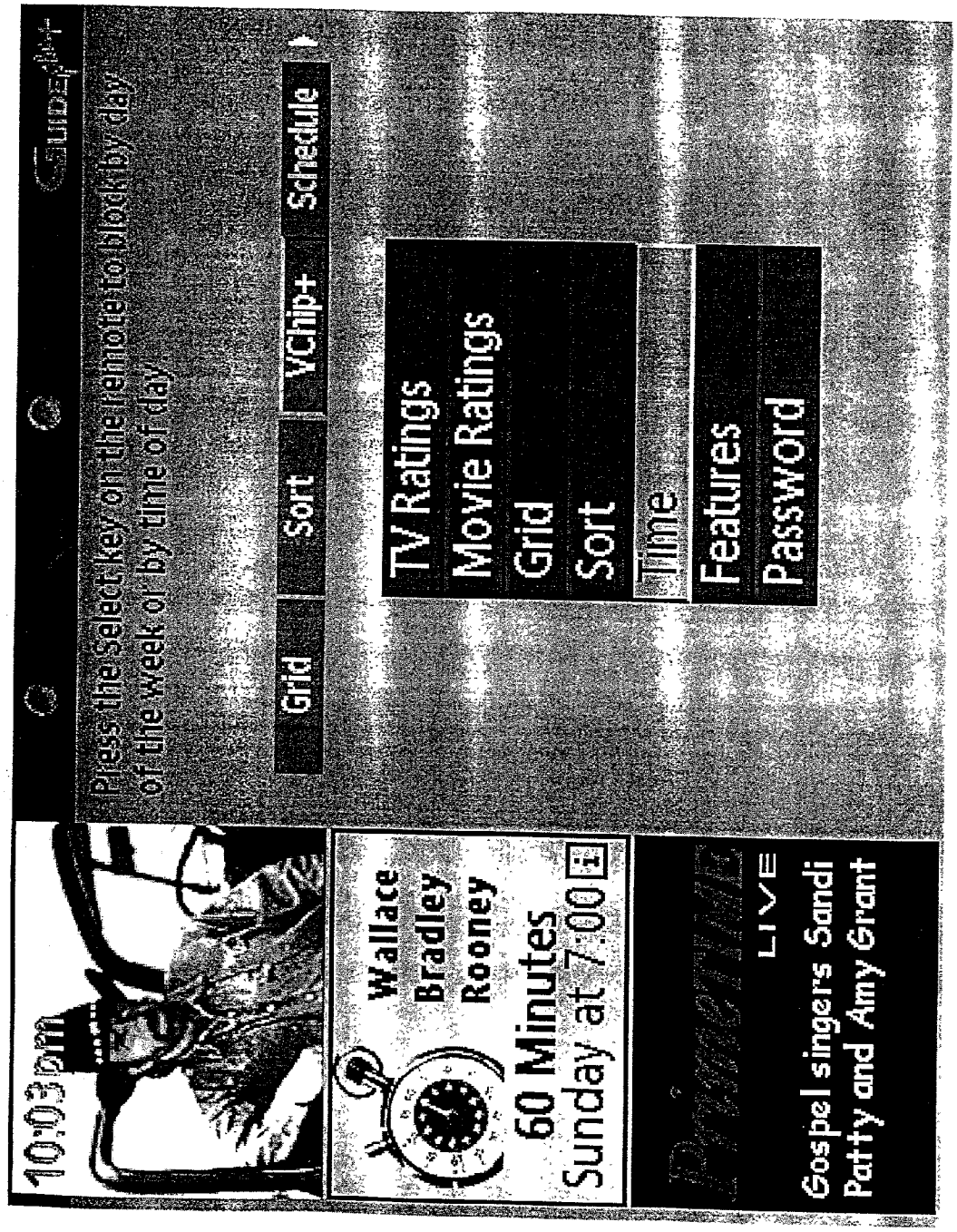

10:03pm
Press the Select key on the remote to block by day of the week or by time of day
Grid
Sort
VChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi Patty and Amy Grant

FIG 57

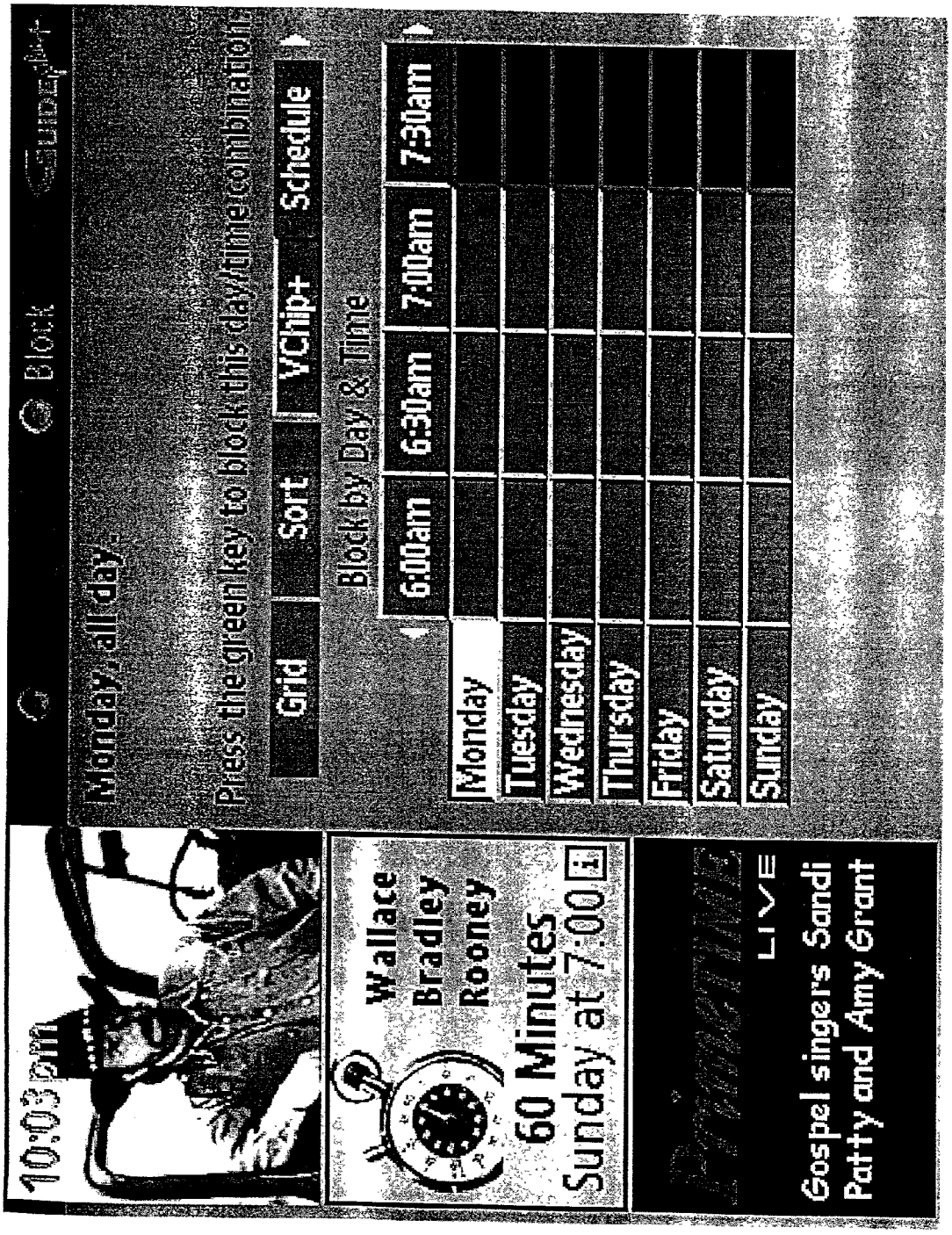

10:03 pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
Monday, all day.
Block
Press the green key to block this day/time combination.
Grid
Sort
VChip+
Schedule
Block by Day & Time
6:00am
6:30am
7:00am
7:30am
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday

FIG 58

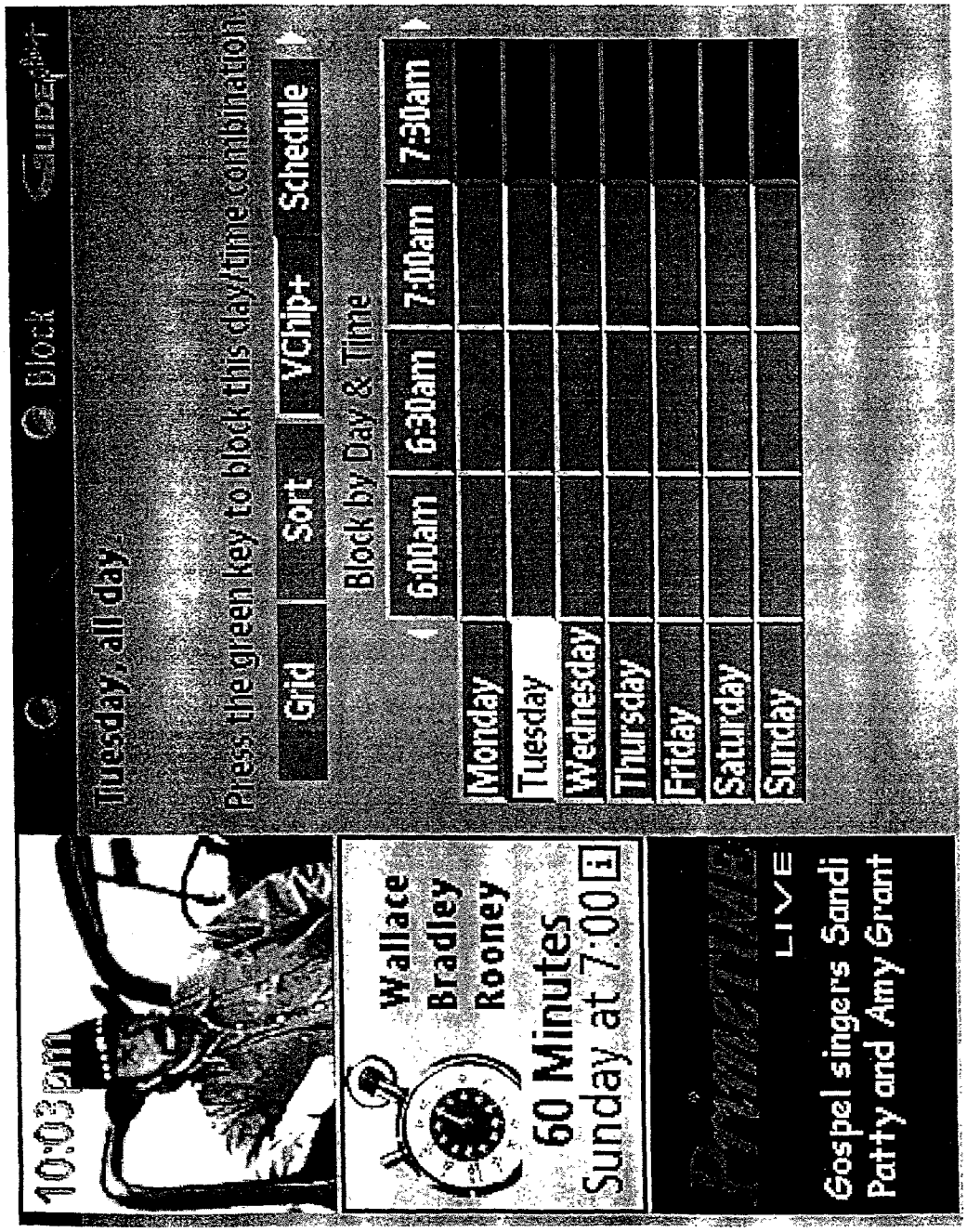

10:03pm
Tuesday, all day
Block
Press the green key to block this day/time combination
Grid
Sort
VChip+
Schedule
Block by Day & Time
6:00am
6:30am
7:00am
7:30am
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG 59

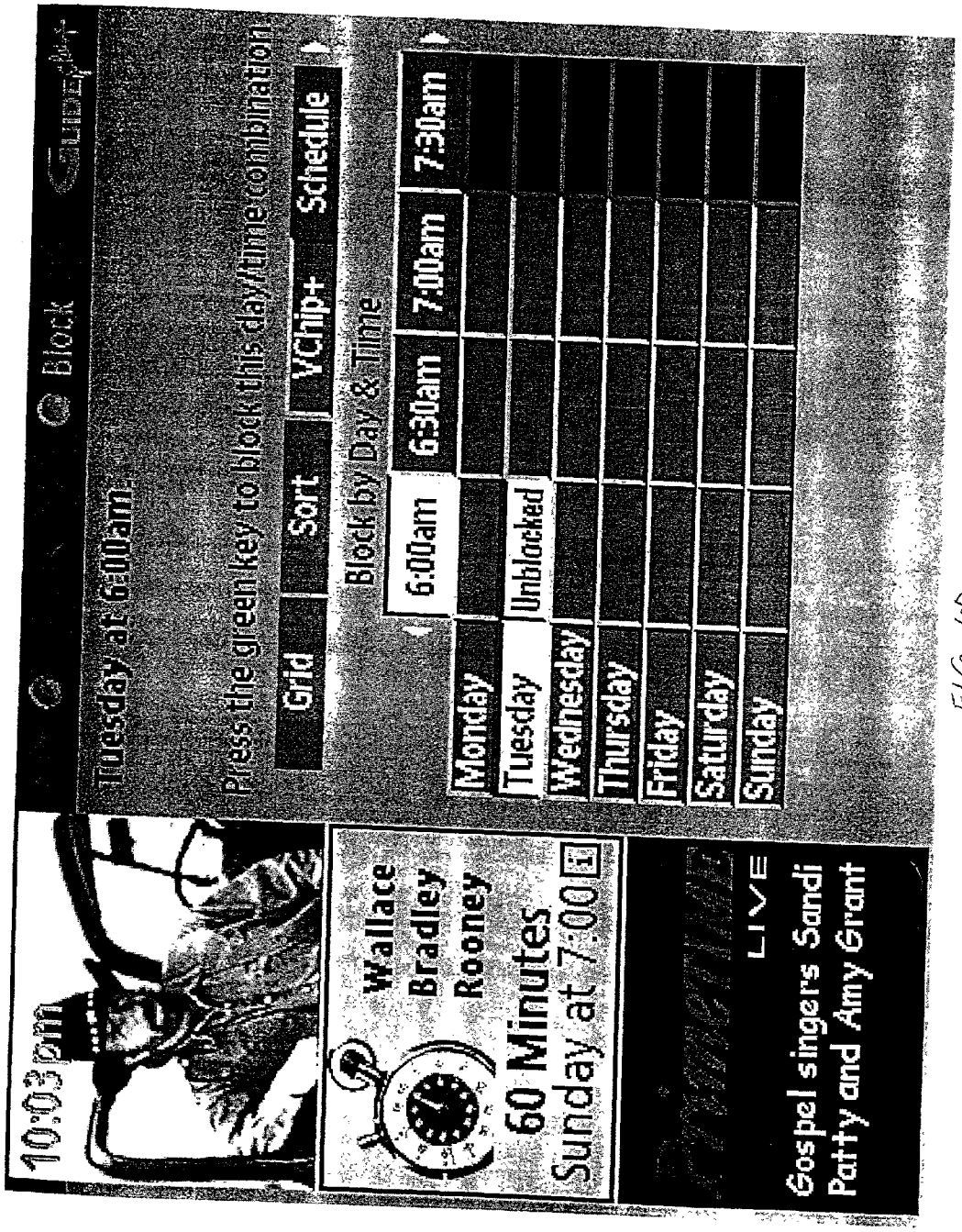

10:03pm
Tuesday at 6:00am
Block
Press the green key to block this day/time combination
Grid
Sort
VChip+
Schedule
Block by Day & Time
6:00am
6:30am
7:00am
7:30am
Monday
Tuesday
Unblocked
Wednesday
Thursday
Friday
Saturday
Sunday
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG. 60

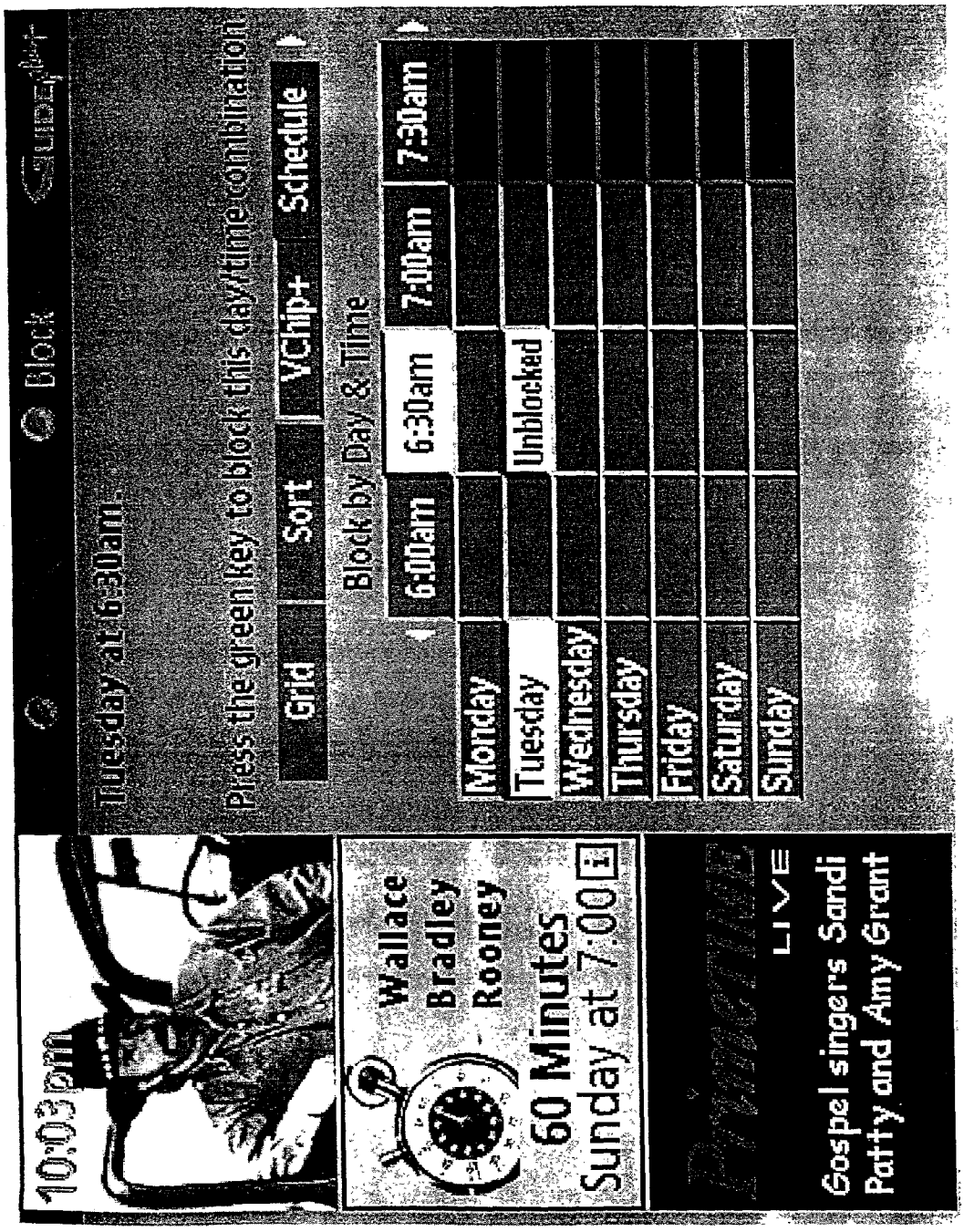

10:03 pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant
Block
Tuesday at 6:30am.
Press the green key to block this day/time combination
Grid
Sort
VChip+
Schedule
Block by Day & Time
6:00am
6:30am
7:00am
7:30am
Monday
Tuesday
Unblocked
Wednesday
Thursday
Friday
Saturday
Sunday

FIG. 61

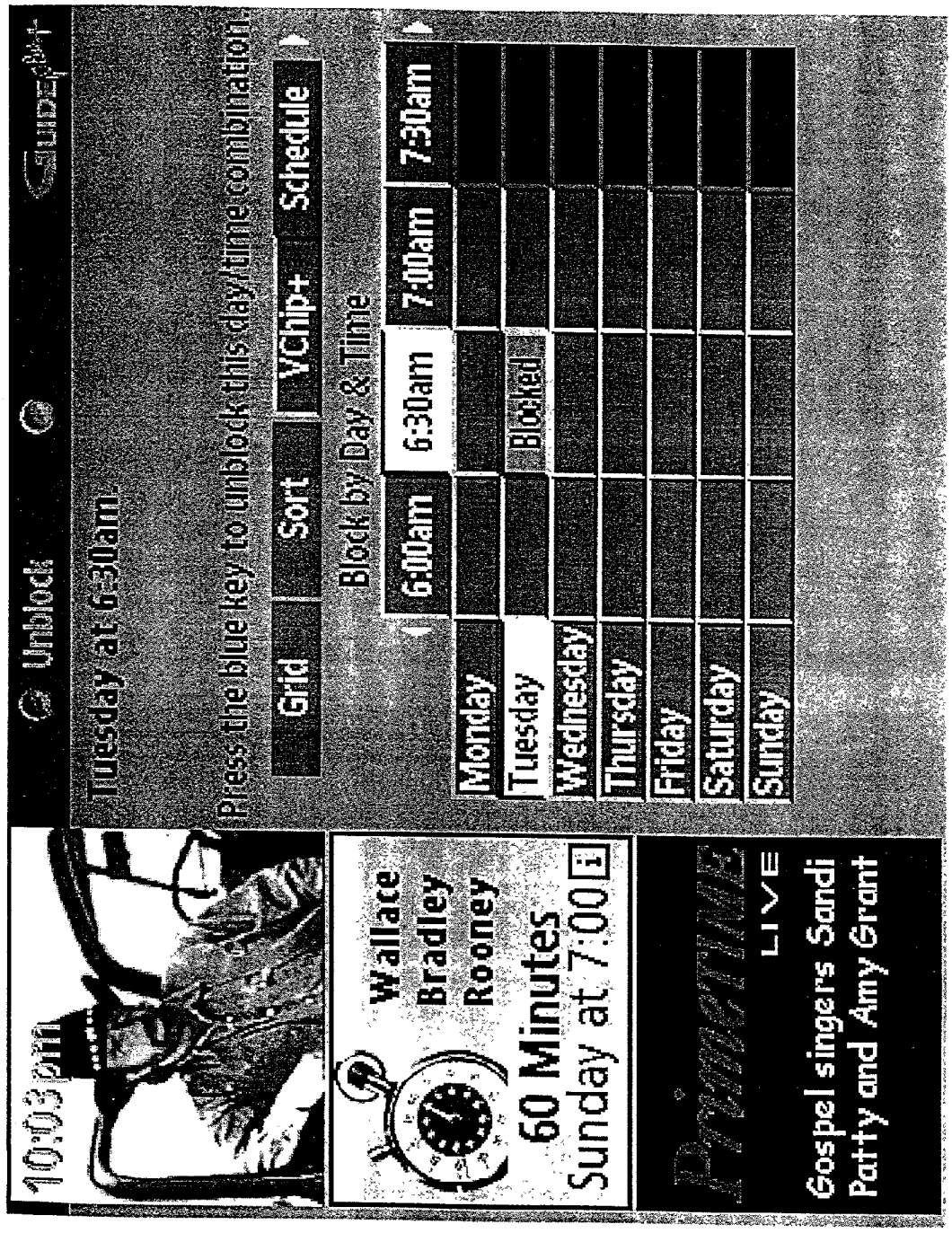

10:03pm
Unblock
Tuesday at 6:30am
Press the blue key to unblock this day/time combination.
Grid
Sort
VChip+
Schedule
Block by Day & Time
6:00am
6:30am
7:00am
7:30am
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Blocked
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG. 62

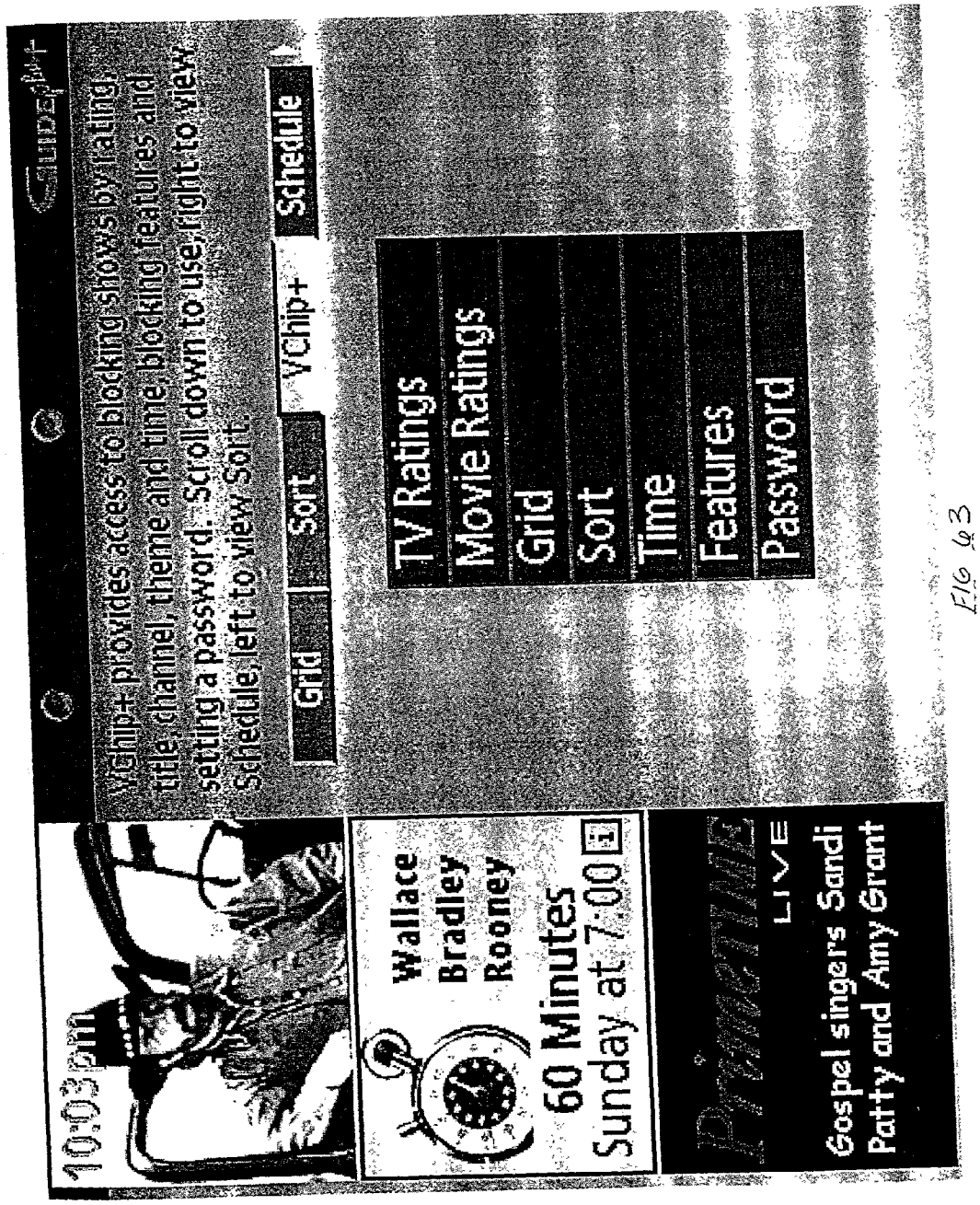

10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
Programme
LIVE
Gospel singers Sandi
Patty and Amy Grant
vChip+ provides access to blocking shows by rating,
title, channel, theme and time, blocking features and
setting a password. Scroll down to use, right to view,
schedule, left to view Sort.
Grid
Sort
vChip+
Schedule
TV Ratings
Movie Ratings
Grid
Sort
Time
Features
Password

FIG 43

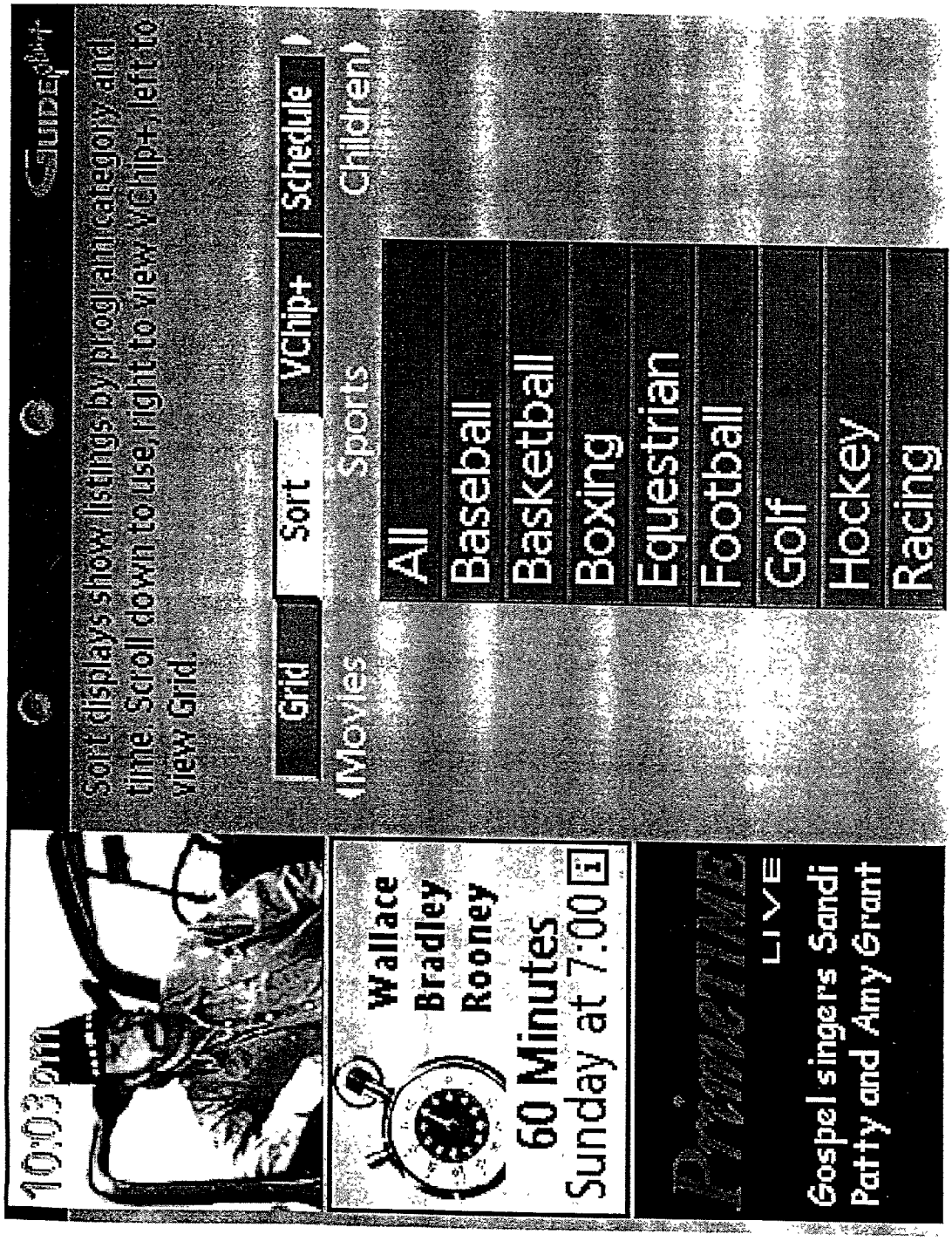

10:03 pm
Sort displays shows listings by program category and time. Scroll down to use, right to view VChip+, left to view Grid.
Grid
Sort
VChip+
Schedule
Movies
Sports
Children
All
Baseball
Basketball
Boxing
Equestrian
Football
Golf
Hockey
Racing
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi Patty and Amy Grant

FIG 64

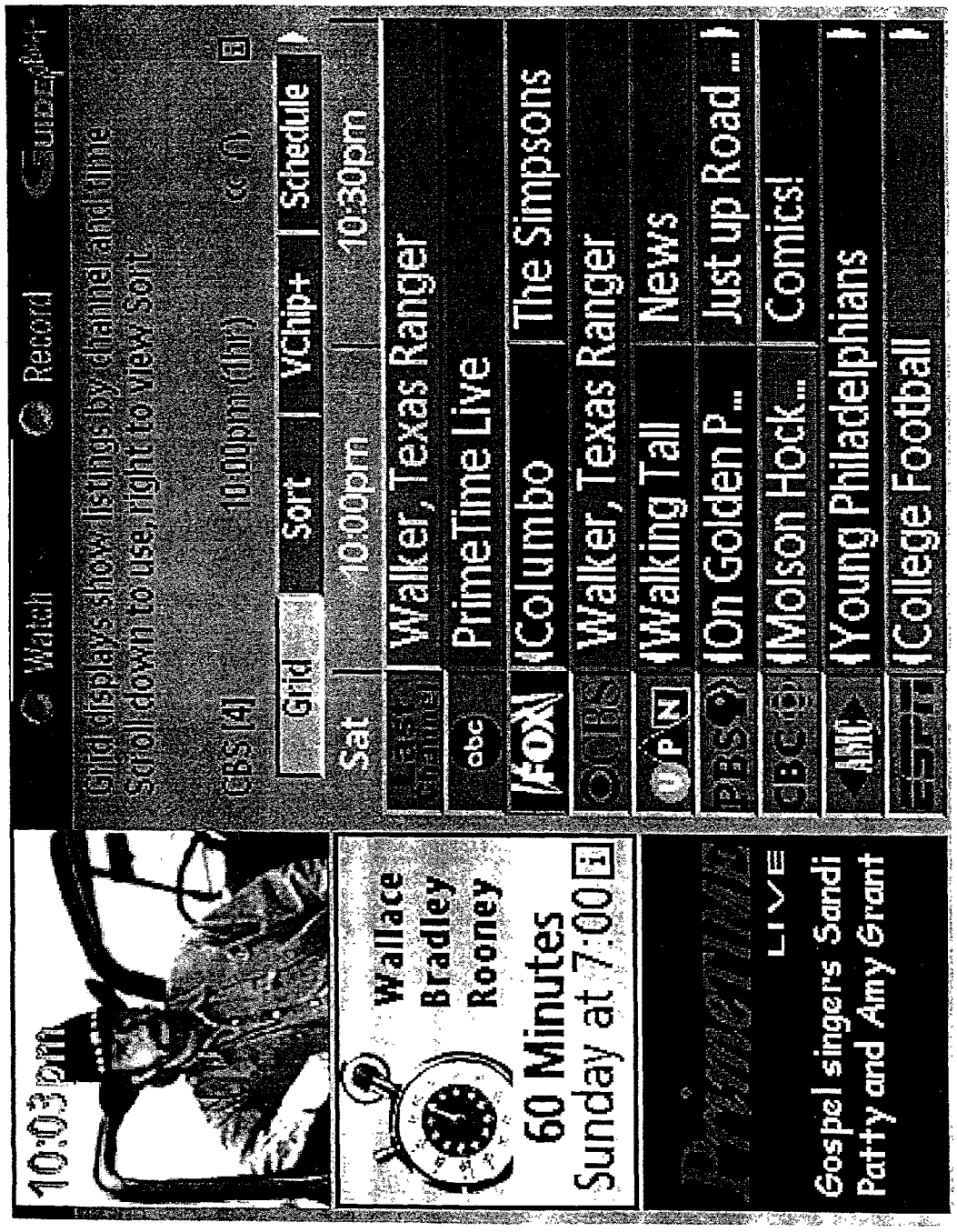

Watch
Record
Grid displays show listings by channel and time
Scroll down to use, right to view sort
CBS [4]
10:00pm (dur)
Grid
Sort
VChip+
Schedule
Sat
10:00pm
10:30pm
Walker, Texas Ranger
PrimeTime Live
Columbo
The Simpsons
Walker, Texas Ranger
Walking Tall
News
On Golden P...
Just up Road ...
Molson Hock...
Comics!
Young Philadelphians
College Football
10:03pm
Wallace
Bradley
Rooney
60 Minutes
Sunday at 7:00
LIVE
Gospel singers Sandi
Patty and Amy Grant

FIG. 65

Show Blocked by VChip Plus+

Please enter a password, then press the <OK> key.

___ ___ ___ ___ ___ ___ ___

OR

Press the Guide key to enter GUIDE Plus+.

Press the Ch+ or Ch- key to go to the next channel

Press <OK> to try again.

FIG. 66

Do you wish to establish a VChip Plus+ Master Password? This will enable you to block shows by rating, time, channel and program title.

Yes

No

FIG. 67

You may set up a VChip Plus+
Master Password at any time
by entering GUIDE Plus+ and
selecting the VChip Plus+
password screen.

FIG. 68

Password Creation
Please create a password by inputting
a 3 to 7 digit number using the
number keys on the remote.
Choose something that you will not forget.

___ ___ ___ ___ ___ ___ ___

Input only zeros if you wish create a
password later
Press <OK> when finished.

FIG. 69

Password Confirmation
Please repeat your password using the number keys on the remote.

___ ___ ___ ___ ___ ___ ___

Input only zeros if you wish create a password later.
Press <OK> when finished.

FIG. 70

Password Accepted
Please be sure you do not forget your password.

Press <OK> to exit.

FIG. 71

Password Failed
The password does not match, please try again.

Press <OK> to try again.

FIG. 72

APPARATUS AND METHOD FOR PARENTAL CONTROL USING V-CHIP PLUS+ AND MASTER PASSWORD

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of patent application Ser. No. 09/221,615, filed Dec. 28, 1998 which is a continuation-in-part of patent application Ser. No. 08/831,531, filed Apr. 1, 1997, which itself claims priority to the following applications: provisional Application No. 60/014,512, filed Apr. 1, 1996, entitled "User Programmable V-Chip System"; Provisional Application No. 60/022,210, filed Jul. 18, 1996, entitled "Parental Control Method and Apparatus"; and provisional Application No. 60/023,724, filed Aug. 8, 1996, entitled "Parental Control for Cable Input." The present application also claims priority to the following applications: provisional co-pending Application No. 60/111,342 filed Dec. 7, 1998, entitled "Guide Oriented Parental Control Apparatus and Method"; provisional co-pending Application No. 60/100,575, filed Sep. 16, 1998, entitled "V-CHIP PLUS+: IN-GUIDE USER INTERFACE APPARATUS AND METHOD FOR PROGRAMMABLE BLOCKING OF TELEVISION AND OTHER VIEWABLE PROGRAMMING, SUCH AS FOR PARENTAL CONTROL OF A TELEVISION RECEIVER"; and pending patent Application No. 09/190,031 filed Nov. 11, 1998. The above-identified applications being incorporated by reference as if fully set forth herein.

FIELD OF THE INVENTION

[0002] The present invention relates generally to television systems, and more particularly, to parental control of television receivers using a master password to effectuate a variety of access control functions.

BACKGROUND OF THE INVENTION

[0003] A system has been proposed in the United States and endorsed by the U.S. Congress commonly known as the V-Chip System. The system involves using the vertical blanking interval ("VBI") of a standard television signal to include a code which indicates one or more rating factors for the program then being aired. These rating factors can include ratings similar to those promulgated by the Motion Picture Association of America (e.g. G, PG, PG-13, R, NC-17) and numerical ratings of individual categories of program nature such as violence, language, nudity and sexual content. A consumer V-Chip television system would allow a consumer to program his or her television system to exclude programs according to their preferred levels of one or more of these rating criteria or alternatively could be programmed to permit only programs having certain levels of content according to these rating categories.

[0004] A problem with the V-Chip system, as recognized in an article by T. Atherton, entitled "Living With the V-Chip," The Ottawa Citizen, Entertainment, Section F, pp. F1-F2 (Saturday, Mar. 9, 1996), is that the perceived utility of the V-Chip system to a consumer depends on whether the consumer agrees with the subjective ratings contained in the VBI for most, if not all, programs. The author of this article, who purportedly has been involved in a "Beta-test" of the V-Chip system in Canada, gives two illustrative examples in his article. First, "trash-talk" shows are rated at the lowest possible level for violence and the next lowest level for language and sex categories, even though these shows often contain verbal violence, physical confrontations and graphic verbal sexual discussions. Second, utilizing the overall rating system to exclude this type of program, such as excluding all programs with a rating above PG, results in the blocking out of many programs which the author considers appropriate for viewing and does not wish blocked out, such as the movie Forrest Gump.

[0005] Although some people may disagree with the author's judgment of the relative harm and worth of particular television programs, the article illustrates, at least, that regardless of how much the ratings providers will be able to adjust and fine tune their ratings system, based upon the majority of consumers' wishes, there will remain a significant portion of the consumer public who will disagree with the rating systems and think that whatever exclusion programming they do will block out desirable programs while not blocking out undesirable programs.

[0006] Another problem with the existing parental control systems is that the users (parents) have to re-enter a password every time they block/unblock a program or invoke a related function. This is time consuming and will quickly become annoying as well. Yet Another problem with the parental control systems using passwords is that the users (parents) forget the password. This may lead to service calls to equipment manufacturer, adding to the cost of support. Accordingly, an improvement on the V-Chip system access control is needed.

SUMMARY OF THE INVENTION

[0007] The present invention is directed to an apparatus and method that satisfies this need. There is, therefore provided, according to a preferred embodiment, an apparatus for parental control of a television receiver. A memory provides storage of information relating to television programming. A microprocessor generates a blocking command as a function of the information stored in memory including a master password. A blocking circuit, which passes a baseband television video signal to a television display, provides blocking of the video signal in response to the blocking command. The blocking can be overridden by a user-provided list in the memory.

[0008] It is understood that other embodiments of the present invention will become readily apparent to those skilled in the art from the following detailed description, wherein it is shown and described only embodiments of the invention by way of illustration of the best modes contemplated for carrying out the invention. As will be realized, the invention is capable of other and different embodiments and its several details are capable of modification in various other respects, all without departing from the spirit and scope of the present invention. Accordingly, the drawings and detailed description are to be regarded as illustrative in nature and not as restrictive.

DESCRIPTION OF THE DRAWINGS

[0009] 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 where:

[0010] **FIG. 1** is a flow diagram of the parental control apparatus used with the V-Chip system in accordance with a preferred embodiment of the present invention;

[0011] **FIG. 2** is an electrical block diagram of the parental control apparatus in accordance with a preferred embodiment of the present invention;

[0012] **FIG. 3** is an electrical block diagram of the parental control apparatus used in a cable system in accordance with a preferred embodiment of the present invention;

[0013] **FIG. 4** is an electrical block diagram of a parental control apparatus in combination with a V-Chip system employing VCR Plus+ and automated channel mapping in accordance with a preferred embodiment of the present invention;

[0014] **FIG. 5** is an electrical block diagram of a parental control apparatus in combination with VCR Plus+ integrated circuit retrofitted into an existing V-Chip system;

[0015] **FIG. 6** is a top plan view of a remote controller for operating the system of **FIG. 4** in accordance with a preferred embodiment of the present invention;

[0016] **FIG. 7** is a television screen displaying a Channel Surf Menu formatted in accordance with a TV mode of the present invention;

[0017] **FIG. 8** is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

[0018] **FIG. 9** is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

[0019] **FIG. 10** is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

[0020] **FIG. 11** is a television screen displaying a VCR/V-Chip Plus+ Review List formatted in accordance with a TV mode of the present invention;

[0021] **FIG. 12** is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

[0022] **FIG. 13** is a television screen displaying a V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

[0023] **FIG. 14** is a television screen displaying a V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

[0024] **FIG. 15** is a television screen displaying a V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

[0025] **FIG. 16** is a television screen displaying a VCR/V-Chip Plus+ Main Screen formatted in accordance with a TV mode of the present invention;

[0026] **FIG. 17** is a television screen displaying a VCR/V-Chip Plus+ Main Screen formatted in accordance with a TV mode of the present invention;

[0027] **FIG. 18** is a television screen displaying a Confirmation Screen formatted in accordance with a TV mode of the present invention;

[0028] **FIG. 19** is a television screen displaying a VCR/V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

[0029] **FIG. 20** is a television screen displaying a VCR/V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

[0030] **FIG. 21** is a block diagram of a user interface screen map in accordance with an embodiment of the present invention;

[0031] **FIG. 22** is a television screen displaying a V-Chip Plus+ Features Screen formatted in accordance with a TV mode of the present invention;

[0032] **FIG. 23** is a television screen displaying a V-Chip Set-Up Screen with the V-Chip function disabled formatted in accordance with a TV mode of the present invention;

[0033] **FIG. 24** is a television screen displaying the V-Chip Set-Up Screen with the V-Chip function enabled formatted in accordance with a TV mode of the present invention;

[0034] **FIG. 25** is a television screen displaying a V-Chip Plus+ Screen for selecting television programs formatted in accordance with a TV mode of the present invention;

[0035] **FIG. 26** is a television screen displaying a V-Chip Plus+ Screen for programming the frequency of the selected television program formatted in accordance with a TV mode of the present invention;

[0036] **FIG. 27** is a television screen displaying a V-Chip Plus+ Selections Review List for blocked television programs formatted in accordance with a TV mode of the present invention;

[0037] **FIG. 28** is a television screen displaying a Record/Watch Screen for selecting television programs formatted in accordance with a TV mode of the present invention;

[0038] **FIG. 29** is a television screen displaying a Record/Watch Screen for programming the frequency of the selected television programs to be recorded formatted in accordance with a TV mode of the present invention;

[0039] **FIG. 30** is a television screen displaying a Record/Watch SCREEN for programming the frequency of the selected television programs to be watch formatted in accordance with a TV mode of the present invention;

[0040] **FIG. 31** is a television screen displaying a V-Chip Plus+ Selections Review List for recorded television programs formatted in accordance with a TV mode of the present invention;

[0041] **FIG. 32** is a television screen displaying a V-Chip Plus+ Selections Review List for watched television programs formatted in accordance with a TV mode of the present invention;

[0042] **FIG. 33** is a television screen displaying a Babysitting Screen formatted in accordance with a TV mode of the present invention;

[0043] **FIG. 34** is a television screen displaying a Babysitter Program Review Screen formatted in accordance with a TV mode of the present invention;

[0044] **FIG. 35** is a television screen displaying a Channel Surf Screen set for Babysitter selection formatted in accordance with a TV mode of the present invention;

[0045] **FIG. 36** is a television screen displaying a Channel Surf Screen set for blocking the tuned channel formatted in accordance with a TV mode of the present invention;

[0046] **FIG. 37** is a television screen displaying a Channel Surf Screen set for unblocking the tuned channel formatted in accordance with a TV mode of the present invention;

[0047] **FIG. 38** is a television screen displaying a Channel Surf Screen set for reviewing the V-Chip Plus+ selections formatted in accordance with a TV mode of the present invention;

[0048] **FIG. 39** is a flow diagram for a preferred embodiment of the password operation;

[0049] FIGS.**40-65** depict the operation of the V-Chip Plus+ and Parental Control, including selection and deletion for blocking and unblocking television programs based on different criteria in a GUIDE mode (GUIDE Plus+);

[0050] **FIG. 66** is a display screen displaying the Password Dialog Box; and

[0051] FIGS. **67-72** are display screens displaying the Password Setup process.

DETAILED DESCRIPTION

[0052] A preferred embodiment of the present invention is a combination of the V-Chip system and a parental control system more oriented around programming by a user for blocking and enabling particular television programs. Such a parental control system is described in U.S. Pat. No. 5,382,983, which is hereby incorporated by reference as if set forth in full herein. The preferred embodiment adds functionality which allows the two systems to work together to form a system which is an improvement over either system. In the preferred embodiment, the user is allowed to override the operation of the V-Chip system for particular programs contained in user programmable enable override lists and blocking override lists. The parental control functions are accessed and selected in two different modes based on the preference of the user. In the TV mode, a variety of interactive television screens display functions and user choices using text and graphics. In the GUIDE mode, the function and choices are made available to the user through menus in a program guide context.

[0053] Turning to **FIG. 1, a** flow chart of the operation of this override system is shown. In block **1**, the V-Chip system operates as originally designed: a program is tuned, resulting in an output indicating that either the program should be blocked or should not be blocked, according to the user's programming of the V-Chip system. If, according to the V-Chip system, the program should be blocked, the Yes Path from block **1** is followed to block **2**. In block **2**, the program being tuned is checked against a list of programs which have been specifically enabled by the user called the enable override list. If the program being tuned does not appear on the enable override list, the No Path out of block **2** is followed to block **3** in which the program being tuned is blocked. If, on the other hand, it is found in block **2** that the program being tuned is contained in the enable override list, then the Yes Path out of block **2** is followed to block **4** which enables the program to be tuned.

[0054] If the V-Chip system outputs a signal that the program is not to be blocked pursuant to the user's programming of the V-Chip system, the No Path out of block **1** is followed to block **5**. In block **5**, the program to be tuned is compared against a override list to block particular programs (the "blocking override list") in a similar manner as is performed in block **2** for the enable override list. If the program to be tuned is found to be contained in the blocking override list, the Yes Path out of block **5** is followed to block **6** and the program being tuned is blocked. If the program being tuned is not contained in the blocking override list in block **5**, then the No Path from block **5** is followed to block **4**, in which case the program is allowed to be tuned.

[0055] The blocking override list and enable override list may be defined in a number of ways. One way would be to define programs by channel, date, start time and length (or ending time). Thus, a clock and a link to the tuner would be employed to determine whether the program being tuned falls within any of the sets of channel, date, time and length information contained in either of the override lists.

[0056] Alternatively, the lists could consist of compressed codes such as those described in U.S. Pat. No. 5,335,079. A particular implementation of this type of compressed codes are PlusCode™ numbers used by Gemstar Development Corporation's VCRPlus+® systems that presently appear in television calendars and may be used to enter the selected programs, rather than using the more laborious and time consuming approach of inputting the uncompressed channel, date, time and length of the program that is selected.

[0057] Alternatively, the lists could be composed of the titles of television programs desired to be on the override lists. These titles could be compared against title information broadcast in the VBI with each program as part of the V-Chip coding information, using the XDS system or other similar system. Alternatively, the titles could be compared to a database which relates the channel, date, time, length to program titles, such as that contained in many electronic television guides.

[0058] A problem that arises in implementing the system described in **FIG. 1** is that the blocking override list and the enable override list can be, and in most cases will be, very cumbersome to create. One solution to this problem is using a system similar to that described in co-pending U.S. application Ser. No. 08/031,246, filed Mar. 12, 1993, which is hereby incorporated by reference as if fully set forth herein. With this system, a user would call a representative on the telephone and relate various selection criteria that are important to the user to the representative. These selection criteria may include television channels, times of day, program titles, program subject matter categories, and actors and actresses appearing in the programs. The representative would have access to an extensive centralized computerized database which would include all of this type of data for each television program scheduled to be broadcast. In addition, this extensive database could include a variety of additional rating systems other than those provided by the broadcasters in conjunction with the V-Chip system. Any of a variety of third parties might provide such ratings such as religious organizations, newspapers and rating services targeted to particular segments of the user public. Based upon

the selection criteria provided by the user, the representative's computer downloads the data to program the user's system, by telephone, VBI, or other available data path.

[0059] In another alternative embodiment, a database similar to the extensive centralized database described above, and containing the same types of ratings information, including third party ratings, may be stored locally in the user's system. One of the ways this embodiment would become feasible is if the system is combined with a locally stored electronic program guide which already stores the channel, date, time, length, title, category and descriptions of a large number of future scheduled television programs.

[0060] In yet another alternative embodiment, in addition to ratings prepared by the Motion Picture Association of America and the television broadcasters, the ratings of third parties are included within the V-Chip data along with an identification of the third party ratings providers, allowing the user to choose the rating provider which most closely matches their own values.

[0061] A preferred embodiment of an override system for use with the V-Chip system described above is shown in **FIG. 2**. A multichannel radio frequency (RF) television signal from a cable feed is connected to the input of a cable box **10**, which has a channel changing control. The output of cable box **10**, which is a single channel RF television signal at the frequency of the user selected channel, is coupled to television drive circuitry **12**. The output of the television drive circuity **12** is connected by a transmission blocking circuit **14** to a television display **16**. Blocking circuit **14** could be a conventional analog signal transmission gate, or any other similar device known in the art.

[0062] For the purpose of describing the operation of the override system, it is assumed that the television signal of each channel carried by the cable feed contains supplemental data, including channel identification, such as HBO, CNN, or NBC. Preferably, the channel identification is embedded in the VBI of the signal of each channel in an XDS format.

[0063] The output of the television drive circuitry **12** is also connected to the input of a VBI decoder **18**, which strips the XDS signal from the baseband television signal. The output of VBI decoder **18**, which includes a data signal representative of the channel identification of the channel to which the cable box **10** is tuned, is coupled to a microprocessor **20**, the output of which controls the blocking circuit **14**. The microprocessor **20** is coupled to a RAM **22**.

[0064] The programs to be selectively blocked are stored in RAM **22**. For each program the date, time, channel and program length are stored in RAM **22** in a stack arrangement as described in U.S. Pat. No. 5,382,983 ("the '983 patent") and co-pending U.S. application Ser. No. 08/684,678, the disclosures of which are hereby incorporated by reference as if set forth in full herein. The program blocking data base stored in RAM can be generated in a number of different ways. One way is to transmit groups of program data consisting of date, time, channel, and length content according to a customized rating service, as composed for example by a religious group, newspaper, or political association, and to download such data to RAM **22** from the VBI of the television signal or a telephone line. (See for example the above referenced '983 patent.) The viewer can call up an on-screen menu of choices of customized rating services that are transmitted in the VBI or telephone line, key in the selected service, and command the microprocessor **20** to download the group of program data corresponding to the selected service. Another way is to key in the data of the individual programs through a remote controller. A third way is to select the programs with a cursor from an on screen electronic program guide ("EPG"), in which the EPG data base is used both to determine the programs to be blocked and the programs to be viewed or recorded. In any case, the microprocessor **20** continuously monitors the output of a real time clock in the microprocessor **20**, and the channel identification of the channel to which cable box **10** is tuned, which is recovered by VBI decoder **18** or by monitoring the tuner and using a channel map. These monitored attributes are compared with the data of the program blocking database. Preferably, this is accomplished by arranging the data base in a stack in RAM **22** as described in the '983 patent such that the top of the stack is the next program telecast to be blocked. When a match is found, the microprocessor **20** actuates the blocking circuit **14**, thereby preventing the TV display **16** from showing the program.

[0065] When the override system is used in conjunction with the V-Chip system, a code is also included in the VBI which indicates one or more rating factors for the program then being aired. In this embodiment, the user programs the television system to exclude programs according to one or more of these rating criteria. The user selections are stored in RAM **22**, and compared with the code transmitted in the VBI. In the event an excluded program is detected by the microprocessor **20**, via the VBI decoder **18**, an enable override list stored in RAM **22** is consulted. The blocking circuit **14**, under microprocessor control, prevents the excluded program from being presented to the TV display **16** if the program is not contained in the enable override list. Conversely, if the program currently being aired is not excluded under the rating criteria established by the user, a blocking override list stored in RAM **22** is checked by the microprocessor **20**. The blocking circuit **14**, under microprocessor control, allows the program to pass to the TV display **16** if the program is not contained in the blocking override list.

[0066] In the described embodiment where the television programs comprising the blocking override list and the enable override list are defined by channel, date, start time and length (or ending time), or through the use of compressed codes such as those described in U.S. Pat. No. 5,335,079, an alternative arrangement is necessary to accommodate the addition of a cable box or video cassette recorder ("VCR").

[0067] With conventional cable box or VCR hook-ups, a cable box or VCR is connected to the front end of the television receiver. The cable box, or VCR, has a tunable bandpass filter for tuning the desired channel. The television signal from the tuned channel is modulated onto a fixed carrier frequency, by way of example channel **3**, and coupled to the television receiver. The television receiver is tuned to the carrier frequency output of the cable box, or VCR, regardless of the particular channel selected. Since the television receiver is always tuned to the fixed frequency, the microprocessor of **FIG. 2** will be unable to ascertain when a blocked or selected television program is selected at the cable box, or VCR.

[0068] Turning to **FIG. 3, a** preferred embodiment of the present invention is shown which accommodates a system employing both a cable box and a VCR implemented with a low cost mechanization using a simple switch **S1**. The VCR tuning issue is resolved by connecting the video input of the VCR **23** to the video output of the TV tuner **24**, which is always tuned to a parentally enabled program. There is no reason for the VCR **23** to have broadband input.

[0069] With respect to cable box tuning, the cable box **26** is used only for tuning scrambled programs. During setup, the user identifies the scrambled (premium) channels in his or her cable lineup. This can be automated or performed manually. In this embodiment, the scrambled program providers will transmit their names (HBO ESPN, etc.) in the VBI of the television signal. Accordingly, when a scrambled channel is selected by the user, the cable box **26** is tuned to the respective channel, and the VBI is scanned for the name, via VBI decoder **28**. If the name cannot be identified, the channel is blocked.

[0070] VCR recording may also be controlled by providing the VCR video input with the same signal that is provided to the display **30** by the TV tuner **24**. This signal has already been processed to insure that it contains a program that has been authorized. Hence, the user can only record authorized programs.

[0071] In operation, when a user requests a non-scrambled channel, the microprocessor **32** checks to see (from setup table) if the requested channel is designated as a scrambled channel, and also checks to see (from PlusCode table) if this channel is unblocked for the particular time slot. If the television channel is unblocked and non-scrambled, switch **S1** is set to position **2** and the TV tuner **24** is tuned to the requested channel. If the requested channel is to be blocked, **S1** is set to position **4**, so the TV tuner **24** has no input. The user may also record the displayed program (but no other program since the VCR video input comes from the TV tuner output).

[0072] If the user requests a scrambled channel, the microprocessor **32** checks to see if the requested channel is designated as a scrambled channel, and also checks to see (from PlusCode table) if this channel is unblocked for the particular time slot. If the television channel is unblocked and scrambled, **S1** is set to position **3**, and the cable box **26** is tuned to the requested channel. The VBI decoder **28** monitors the cable box output, looking for the channel name in the VBI (broadcast say every minute). If a name is found, it is compared to the channel name in the channel setup table. If a match is detected, the TV tuner **24** is tuned to channel **3**, and the program is displayed. If no match is detected, **S1** is switched to position **4**, and the display **30** is blanked. Thus, if the user tries to manually change the cable box channel, the VBI name check will fail and **S1** will be switched to position **4** to blank the display. The user may also record the displayed program (but no other program since the VCR video input comes from the TV tuner output).

[0073] If the user requests to play a tape in the VCR, **S1** is switched to position **1**, and the TV tuner **24** is tuned to channel **3**. Note that in position **1**, the VCR has no RF/video input. Hence the user cannot use the VCR tuner.

[0074] Turning to **FIG. 4, a** detailed electrical diagram of a preferred embodiment of the present invention is shown incorporating the V-Chip system with the override system ("V-Chip Plus+ system"). Preferably, the V-Chip Plus+ system is responsive to compressed codes for creating the override lists, such as those described in U.S. Pat. No. 5,335,079, and includes automatic channel mapping capability. Specifically, a TV tuner **34** is positioned at the front end of the television receiver for passing a selected channel of a multichannel RF television signal. The TV tuner **34**, which can be any conventional tuner in the art, should provide amplification, downconversion to an intermediate frequency ("IF") and demodulation, as well as frequency tuning. The TV tuner **34** is coupled to television drive circuitry **36** which provides the signal processing required to amplify and downconvert the IF signal to a baseband television video signal. The output of the television drive circuitry **36** is connected to a blocking circuit **38**. The blocking circuit **38** could be a conventional analog signal transmission gate, or any other similar device known in the art. The output of the blocking circuit **38** is connected to a TV display **42** through a video mixer **40** for selectively displaying the television program currently being broadcast on the selected channel.

[0075] The TV tuner **34** is tuned to the selected channel by a microprocessor **44**. A viewer input device **46**, preferably in the form of a remote infrared ("IR") controller, is coupled to the microprocessor **44** to provide viewer control of the television channels. The viewer input device **46** also allows the viewer to remotely program the V-Chip Plus+ system to exclude programs according to one or more rating factors, as well as compiling or modifying the V-Chip Plus+ override lists. When the viewer wishes to review the particular ratings set in the V-Chip Plus+ system or the V-Chip Plus+ override lists, the microprocessor **44** retrieves the appropriate information from RAM **48** and couples it to the video processor **50**, where the information is formatted for display. Preferably, the information stored in the video processor **50** is a bit map of what is displayed on the TV display **42**. The video processor **50** is connected to the video mixer **40**. The video mixer **40** outputs the information as an overlay on the television program currently being viewed, although it will be understood by those skilled in the art that the information from the video mixer **40** could be presented to the TV display **42** as a window in the television program or as a full screen display instead of the television program.

[0076] Using the viewer input device **46** in conjunction with the information presented to the TV display, the viewer programs the V-Chip Plus+ system to exclude programs according to one or more rating factors. Preferably, the viewer input device **46** allows manipulation of the V-Chip Plus+ rating system and the V-Chip Plus+ override lists by moving a cursor on the TV display **42** and inputting discrete commands. Cursor control is achieved by coupling the microprocessor **44** to the video processor **50** through to a cursor position register **52**.

[0077] Viewer edits to the V-Chip Plus+ override lists presented to the TV display **42** are preferably accomplished using compressed codes such as those described in U.S. Pat. No. 5,335,079. A G-code decoder **54** is employed to process the compressed codes. If the microprocessor **44** determines that a G-code has been received from the viewer input device **46**, then the G-code will be sent to the G-code decoder **54** for decoding. The G-code decoder **54** converts the G-code into channel, date, time and length ("CDTL")

information which is used by the microprocessor **44** to override the V-Chip Plus+ rating system for individually selected television programs. Preferably, the V-Chip Plus+ system is integrated with Gemstar Development Corporation's VCRPlus+® system so that the CDTL information can be selectively used not only to create the V-Chip Plus+ override lists, but to activate a video cassette recorder ("VCR") **55** to record a selected television program corresponding to the CDTL information stored in RAM **48** as described in detail in U.S. Pat. No. 5,335,079 which is hereby incorporated by reference as if set forth in full herein. The CDTL information is stored in RAM **48** in a stack arrangement as described in U.S. Pat No. 5,382,983.

[**0078**] The V-Chip Plus+ system is implemented by decoding the VBI of a television signal. A VBI decoder **56** connected to the output of the television drive circuitry **36** extracts the XDS signal from the baseband television signal. The output of the VBI decoder **56**, which includes one or more rating factors for the television program currently broadcast, is coupled to the microprocessor **44**. These rating factors extracted from the VBI of the television signal are compared with the viewer programmed rating factors in RAM **48** by the microprocessor **44**. In the event that the microprocessor **44** determines that the television program currently broadcast should be blocked based on the programmed rating factors, the enable override list stored in RAM **48** is consulted. The microprocessor **44** will actuate the blocking circuit **38** to block the currently broadcast television program from the TV display **42** if the television program is not contained in the enable override list. Conversely, if the television program currently broadcast should be televised based on the programmed rating factors stored in RAM **48**, the blocking override list stored in RAM **48** is consulted. The blocking circuit **38**, under microprocessor **44** control, allows the television program to pass to the TV display **42** if the television program is not contained in the blocking override list. The V-Chip Plus+ override lists are consulted by the microprocessor **44** by comparing the CDTL information stored in RAM **48** with the tuner channel set by microprocessor **44** and an internal clock (not shown) in the microprocessor. Alternatively, the channel information can be striped from the XDS data by the VBI decoder **56**, if available there.

[**0079**] In order for the compressed codes to be useful in compiling the V-Chip Plus+ override lists, the microprocessor **44** must be able to determine the channel on which the television program corresponding to the compressed code is transmitted on. Because the channel allocations vary depending on the particular television service (i.e., satellite transmission, cable service, over-the-air broadcasts) used by the viewer and the specific geographic area of service, a method of establishing a channel map is required. Such a method is described in co-pending U.S. application Ser. No. 08/694,864, which is hereby incorporated by reference as if set forth in full herein. A channel map relates the television stations (i.e., KABC, KCET) to their respective channel frequency allocations for any particular television service.

[**0080**] Briefly, the particular type of television service is automatically detected in an embodiment of the present invention by monitoring the channel allocations of the television stations. This accomplished by sweeping the TV tuner **34** across its RF band with the microprocessor **44**. A detector **57**, coupled to the TV tuner **34**, detects whether a television station has been allocated to each of the channels as the TV tuner **34** is swept across the RF band by monitoring the stability of the horizontal sync pulses. The microprocessor **44** can then determine the type of television service based on the channel allocation for a given geographic area. This scheme requires only that the viewer key in his or her zip code using the viewer input device **46**. Alternatively, the automatic detection of the particular television service used by the viewer can be eliminated in favor of having the viewer key in directly the information pertaining to the model and brand of the VCR and cable box using the viewer input device **46**.

[**0081**] Once the particular type of television service used by the viewer is ascertained, the appropriate channel map can be extracted by the VBI decoder **56** from the television signal based on the geographic location of the viewer. The microprocessor **44** again sweeps the TV tuner **34** to locate a channel having channel map information transmitted in the VBI portion of the television signal. The microprocessor **44** then extracts the channel map marked with an identification code corresponding to the geographic location entered by the viewer and stores the extracted channel map in channel map memory **58**.

[**0082**] The described embodiment of the V-Chip Plus+ system illustrated in **FIG. 4** is directed to a fully integrated system utilizing a single microprocessor. However, those skilled in the art will readily appreciate that numerous applications may arise where it would be desirable to retrofit the V-Chip Plus+ system into a television receiver with an existing V-Chip system. As a result of Congressional endorsement of the V-Chip system, it is envisioned that many television manufacturers will develop a V-Chip IC ("IC") for user programing according to a standardized rating system, and include the V-Chip capability as a standard feature. In these systems, it would be advantageous to incorporate a V-Chip Plus+ upgrade into a single IC which could be easily integrated into an existing V-Chip system. An exemplary embodiment of such a V-Chip Plus+ system is shown in **FIG. 5**.

[**0083**] Referring to **FIG. 5**, the V-Chip system includes the basic television processing and drive circuitry described with reference to **FIG. 4**. Specifically, a TV tuner **35** is positioned at the front end of the television receiver for passing a selected channel of a multichannel RF television signal to television drive circuitry **37**. The output of the television drive circuitry **37** is connected to a blocking circuit **39**. The output of the blocking circuit **39** is connected to a TV display **43** through a video mixer **41** for selectively displaying the television program currently being broadcast on the selected channel.

[**0084**] A V-Chip **57**, connected to the output of the television drive circuitry **37**, extracts the XDS signal from the baseband television signal. The rating factors for the television program currently broadcast are stripped from the XDS data and are compared with the viewer programmed rating factors stored in internal memory of the V-Chip **57**. In the event that the V-Chip **57** determines that the television program currently broadcast should be blocked based on the programmed rating factors, the blocking circuit **37** is actuated by the V-Chip **57** to block the currently broadcast television program from the TV display **43**.

[**0085**] Conversely, if the television program currently broadcast should be televised based on the programmed

rating factors stored in memory, the blocking circuit **39** is deactivated by the V-Chip **57** and the television program is allowed to pass to the TV display **43**.

[**0086**] The V-Chip system provides viewer's editing of the rating factors by using an Editor. Specifically, when the viewer wishes to review the particular ratings set in the V-Chip system, the V-Chip **57**, under control of the viewer input device, retrieves the appropriate information from memory and couples it to the video processor **51**, where the information is formatted for display. The video processor **51** is connected to the video mixer **41**. The video mixer **41** outputs the information as an overlay on the television program currently being viewed, although it will be understood by those skilled in the art that the information from the video mixer **41** could be presented to the TV display **43** as a window in the television program or as a full screen display instead of the television program. Using the viewer input device in conjunction with the information presented to the TV display **43**, the viewer programs the V-Chip system to exclude programs according to one or more rating factors.

[**0087**] Customization of the blocking function of the V-Chip **57** is achieved with an external V-Chip Plus+ IC **47**. The implementation of the V-Chip Plus+ circuitry into an IC is an economical approach, however, it will be understood by those skilled in the art that the V-Chip Plus+ function could be implemented using discrete components. Preferably, the V-Chip Plus+ IC **47** is designed for easy retrofit into an existing television receiver with V-Chip capability already installed. The V-Chip Plus+ IC **47** is inserted in line between the V-Chip **57** and the blocking circuit **39**. This requires disconnecting the V-Chip **57** from the blocking by removing wire **59**.

[**0088**] In operation, when the V-Chip **57** determines that the television program currently broadcast should be blocked based on the programmed rating factors, the blocking signal is coupled to the V-Chip Plus+ IC **47**. In response to the blocking signal, the microprocessor **45** in the V-Chip Plus+ IC **47** consults an enable override list stored in RAM **49**. The microprocessor **45** will actuate the blocking circuit **39** to block the currently broadcast television program from the TV display **43** if the television program is not contained in the enable override list. Conversely, if the V-Chip **57** determines that the television program currently broadcast should be televised based on the programmed rating factors, the unblocking signal is coupled to the V-Chip Plus+ IC **47**. In response to the unblocking signal, a blocking override list stored in RAM **49** is consulted. The blocking circuit **39**, under microprocessor **45** control, allows the television program to pass to the TV display **43** if the television program is not contained in the blocking override list.

[**0089**] The V-Chip Plus+ IC **47** is also connected to the video processor **51** for viewer edits to the V-Chip Plus+ override lists. In this configuration, the viewer can program the V-Chip system to exclude programs according to one or more rating factors, as well as compiling or modifying the V-Chip Plus+ override lists. When the viewer wishes to review or edit the V-Chip Plus+ override lists, the microprocessor **45** retrieves the appropriate information from RAM **49** and couples it to the video processor **51**, where the information is formatted for display. The video processor **51** outputs the information, via the video mixer **41**, preferably as an overlay on the television program currently being viewed. Edits to the V-Chip Plus+ override lists are accomplished using, by way of example, compressed codes. A G-code decoder **55** is employed to process the compressed codes in the same manner as described above with reference to the embodiment illustrated in **FIG. 4**.

[**0090**] The viewer input device **46** preferably takes the form of a hand-held remote IR transmitter which communicates with an IR receiver connected to the microprocessor **44**. As shown in **FIG. 6**, the IR transmitter has a housing **60** on which a number of control keys are mounted. A CHANNEL SURF key **62**, a V-CHIP PLUS+ key **64**, a REVIEW key **69**, a BABYSITTER key **71**, a MENU key **63**, an ENTER key **65**, and a CHANGE key **67** are all provided on the housing **60**. Located below the REVIEW key **69** and the BABYSITTER key **71** are up, down, left and right arrow keys **66**, **68**, **70** and **72**, respectively. A numerical keypad **73** is positioned below the ENTER key **65** and CHANGE key **67**. The blocking and unblocking functions are set and selected in two different modes, a TV mode and a GUIDE mode.

[**0091**] TV Mode

[**0092**] Preferably, the user interface is fully menu driven. On-screen option are presented to the TV display for programming the V-Chip Plus+ system, and editing the V-Chip Plus+ override lists. In a TV mode, these on-screen options can be accessed from the normal television picture viewing mode by selecting either the CHANNEL SURF key **62**, the V-CHIP PLUS+ key **64**, or the MENU key **63** on the viewer input device.

[**0093**] Upon activation of the CHANNEL SURF key, a channel selection list **74** is retrieved by the microprocessor from the channel map memory and presented to the TV display by the video processor as an overlay on the television picture via the video mixer as shown in **FIG. 7**. This display format is called the Channel Surf Menu. The channel selection list **74** consists of a column for television station names or call letters **76**, and a corresponding column identifying the allocated channel for each television station **78**, with the channel currently tuned by the TV tuner highlighted by a first cursor **80**. In this mode, the viewer can tune any channel on the channel selection list **74** by moving the first cursor **80** vertically with the up and down arrow keys on the viewer input device. As the first cursor **80** moves from one channel to another, the microprocessor causes the TV tuner to tune the highlighted channel for display on the TV display. The viewer may exit the Channel Surf Menu at any time and return to the normal television picture viewing mode by depressing the CHANNEL SURF key on the viewer input device.

[**0094**] Preferably, the microprocessor has individual channel block capability. That is, selected channels can be blocked in their entirety regardless of the rating factors established by the viewer in the V-Chip Plus+ system or the override lists created by the viewer in the V-Chip Plus+ system. Channel block indication is shown in the channel selection list **74** of the Channel Surf Menu by replacing the channel allocation for the blocked television station with an "X". In **FIG. 7**, both FOX and KMEX have been blocked.

[**0095**] Three sub-menus can be accessed from the Channel Surf Menu by depressing the right arrow key on the

viewer input device from any highlighted channel. In response, three on-screen sub-menu prompts are presented to the TV display as shown in **FIG. 8**. These on-screen sub-menu prompts are displayed horizontally next to the highlighted channel, and may be accessed by moving a second cursor **82** with the right and left arrow keys on the viewer input device. A description of the on-screen sub-menu prompt selected by the viewer with the second cursor **82** is displayed immediately below. The viewer may remove the on-screen sub-menu prompts from the Channel Surf Menu at any time by depressing the CHANNEL SURF key on the viewer input device.

[**0096**] In **FIG. 8**, KABC is highlighted by the first cursor **80**, and an icon which allows the viewer to toggle KABC between a channel block mode and a channel unblock mode is highlighted by the second cursor **82**. A message, "Block this channel," describing the operation of the icon is displayed below the on-screen sub-menu prompts. With this set up, KABC can be blocked with a single touch of the ENTER key on the viewer input device. The channel block command from the viewer input device is stored in RAM by the microprocessor for controlling the blocking circuit when the viewer subsequently attempts to tune KABC on the television receiver. The microprocessor then causes the video processor to overlay, via the video mixer, the Channel Surf Menu shown in **FIG. 9** on the television picture. The replacement of the channel allocation "7" for KABC with an "X" confirms that the command for blocking this channel has successfully been loaded into RAM. The on-screen sub-menu icon prompt has also been changed to indicate that KABC may be unblocked, as indicated by the message below the on-screen sub-menu prompts, again with a single stroke of the ENTER key on the viewer input device.

[**0097**] The V-Chip Plus+ override lists can be accessed by the viewer from the Channel Surf Menu by highlighting the "Review" on-screen sub-menu prompt with the second cursor **82** as shown in **FIG. 10**. The message below the on-screen sub-menu prompts reads "VCR/V-Chip Plus+ Review List." In a preferred embodiment, the enable override list and the blocking override list are combined into a single list on the VCR/V-Chip Plus+ Review List. Preferably, the VCR/V-Chip Plus+ Review List also allows viewer editing of the television programs selected for VCR Plus+ applications, a system developed by Gemstar Development Corporation which allows a timer preprogramming feature on a VCR to be programmed using compressed codes.

[**0098**] By depressing the ENTER key on the viewer input device while the "Review" on-screen sub-menu prompt is highlighted by the second cursor **82**, the microprocessor retrieves the designated television programs for the VCR Plus+ system and the V-Chip Plus+ override feature from memory and causes the video processor to overlay a VCR/V-Chip Plus+ Review List onto the normal television picture on the TV display, via the video mixer, as shown in **FIG. 11**. It will be appreciated by those skilled in the art that VCR/V-Chip Plus+ Review List can be divided into two separate screens, one for the VCR Plus+ system and the other for the V-Chip Plus+ override list, and accessed by providing separate keys on the viewer input device.

[**0099**] The VCR/V-Chip Plus+ Review List shown in **FIG. 11** comprises a list of television programs designated under either the VCR Plus+ system or the V-Chip Plus+ override feature. Each television program is displayed on the VCR/V-Chip Plus+ Review List by its respective CDTL information. It will be appreciated by those skilled in the art that the titles of the television programs could be alternately, or additionally displayed with the CDTL information by accessing an EPG data base in memory with the microprocessor as described in co-pending U.S. application Ser. No. 08/744,399, the contents of which is hereby incorporated by reference as if set forth in full herein.

[**0100**] To the left of each television program defined by the CDTL information is an icon indicating the function to be performed by the microprocessor. By way of example, the icon **84** to the left of the television program beginning on Saturday, January 10, at 11:15 P.M. on channel **7** indicates that this television program is to be recorded by the VCR under control of the VCR Plus+ program in the microprocessor. The icon **86** to the left of the television program beginning Wednesday, January 21, at 2:00 P.M. on channel **35** indicates that the television receiver will be automatically turned on and tuned to this television program under the VCR Plus+ program in the microprocessor. The icon **88** to the left of the television program televised weekly on Saturdays at 11:00 A.M. on channel **28** indicates that the television program is to be blocked by the blocking circuit even though the rating factors embedded in the VBI portion of the television signal meet the rating criteria established by the viewer in the V-Chip Plus+ system. The icon **90** to the left on the television program beginning Sunday, January 18, at 10:00 P.M. on channel **2** indicates that the television program will be shown despite having rating factors embedded in the VBI of the television signal that would otherwise cause the television program to be blocked by the V-Chip Plus+ system.

[**0101**] The lower portion of the VCR/V-Chip Plus+ Review List **92** contains instructions to assist the viewer in editing the television programs with the viewer input device. Arrow indicators **94**, with accompanying text "MOVE," inform the viewer that the individual television programs can be selected by vertically moving the cursor **96** with the up and down arrow keys on the viewer input device. Once the desired television program is selected by the viewer, the viewer can then either delete the television program from the VCR/V-Chip Plus+ Review List, or alter the length of the designated function indicated by the icon to the left of the television program. As indicated in the lower portion of the VCR/V-Chip Plus+ Review List **92**, the selected television program highlighted by the cursor **96** can be deleted by depressing the ENTER key on the viewer input device. Alternatively, the length of the designated function programmed in the VCR/V-Chip Plus+ system can be altered by first depressing the CHANGE key on the viewer input device, and then incrementing or decrementing the length with the right and left arrow keys, respectively, on the viewer input device. The viewer may exit the VCR/V-Chip Plus+ Review List and return to the Channel Surf Menu of **FIG. 34** at any time by depressing the V-CHIP PLUS+ key on the viewer input device.

[**0102**] From the Channel Surf Menu of **FIG. 10**, the viewer can access the V-Chip Plus+ Setup Screen by highlighting the "V-Chip Plus+" on-screen sub-menu prompt with the second cursor **82** as shown in **FIG. 12**. A message "Go to V-Chip Plus+ Setup Screen" is displayed immediately below the on-screen prompts. By depressing the

ENTER key on the viewer input device while the "V-Chip Plus+" on-screen sub-menu prompt is highlighted by the second cursor **82**, the microprocessor retrieves the V-Chip Plus+ rating factors from memory and causes the video processor to overlay the V-Chip Plus+ Setup Screen onto the normal television picture on the TV display, via the video mixer, as shown in **FIG. 13**.

[**0103**] The V-Chip Plus+ Setup Screen indicates the V-Chip Plus+ system rating set by the viewer under the heading "Highest Acceptable Rating." In **FIG. 13**, the current V-Chip Plus+ system rating programmed into RAM is "TV-PG Parental Guidance." The individual default rating factors (i.e., violent content, sexual content, language, dialogue) for "TV-PG Parental Guidance" are listed below. In a preferred embodiment, independent control of the default rating factors by the viewer is provided. For example, the default rating factors for the V-Chip Plus+ system rating "TV-PG Parental Guidance" are moderate violence, intense sexual content, coarse language, and suggestive dialogue. However, the viewer may desire to limit viewing access to "TV-PG Parental Guidance" television programs with no violent content. In this case, the viewer would move the cursor **94** vertically using the up and down arrow keys on the viewer input device from the V-Chip Plus+ system rating to the violent content indicator immediately to the left of the descriptive text "Moderate Violence." The violent content of television programs accessible to the viewer can now be altered by first depressing the CHANGE key on the viewer input device to enable a change in the rating factor, and then using the left and right arrow keys to adjust the violent content of television programming to the desired level. As shown in **FIG. 14**, the viewer has successfully limited viewing of television programs to "TV-PG Parental Guidance" without any violent content.

[**0104**] Alternatively, the entire V-Chip Plus+ system rating programmed in RAM can be altered by the viewer. This function is performed by positioning the cursor **94** on the V-Chip Plus+ system rating indicator "TV-PG Parental Guidance" by depressing the up and down arrow keys on the viewer input device. Next, the CHANGE key on the viewer input device is depressed to enable a change in the V-Chip Plus+ system rating. Then the desired V-Chip Plus+ rating can be adjusted using the left and right arrow keys on the viewer input device. These operational steps are illustrated at the bottom of the V-Chip Plus+ Setup Screen **95** to facilitate viewer editing. As shown in **FIG. 15**, the V-Chip Plus+ system rating programmed in RAM, via the microprocessor, has been changed to "TV-MA Mature Audience Only." The default rating factors stored in RAM allow viewing of television programs containing graphic violence, explicit sexual content, crude language and indecent dialogue. These rating factors are compared against corresponding factors transmitted in the VBI portion of the television program currently being broadcast.

[**0105**] In a preferred embodiment, other V-Chip Plus+ system ratings include "TV-P**14** Parents Cautioned !!!" for television programming with moderate violence, intense sexual content, crude language and very suggestive dialogue; "TV-G General Audience" for television programming with no violence, no sexual content, no strong language and no sexual dialogue; "TV-Y**7** Older Children" for television programming with no violence, no sexual content, no strong language and no sexual dialogue; and "TV-Y All Children" for television programming with no violence, no sexual content, descent language and descent dialogue. The individual rating factors for each of these V-Chip Plus+ system ratings can be independently controlled in the manner described above. It will be appreciated by those skilled in the art that other V-Chip Plus+ system ratings could be used and the individual rating factors could be different from the described embodiment depending upon the needs of the manufacturer or consumer.

[**0106**] The viewer may exit the V-Chip Plus+ Setup Screen and return to the Channel Surf Menu of **FIG. 12** at any time by depressing the CHANNEL SURF key on the viewer input device. From the Channel Surf Menu, normal viewing of the television picture can be selected by the viewer by depressing the CHANNEL SURF key on the viewer input device a second time.

[**0107**] From the normal picture viewing mode, the VCR/V-Chip Plus+ Main Screen can be accessed by selecting the V-CHIP PLUS+ key on the viewer input device. This causes the video processor, under microprocessor control, to overlay the VCR/V-Chip Plus+ Main Screen, via the video mixer, onto the television picture on the TV display as shown in **FIG. 16**. The viewer can program the VCR Plus+ system and the V-Chip Plus+ system from the VCR/V-Chip Plus+ Main Screen.

[**0108**] The format of the VCR/V-Chip Plus+ Main Screen includes an upper portion for viewer entry of compressed codes, such as PlusCode™ numbers used by Gemstar Development Corporation's VCRPlus+® systems that presently appear in published television schedules. Specifically, the viewer highlights the top portion of the VCR/V-Chip Plus+ Main Screen immediately to the right of the text "PLUSCODE" with a cursor **96** and enters the compressed code that appears with the program listed in the published television schedule by using the numerical keypad on the viewer input device. Once the compressed code is entered by the viewer, the cursor **96** is then moved to the desired feature listed below the compressed code entry by using the arrow keys on the viewer input device. Preferably, the left half of the VCR/V-Chip Plus+ Main Screen is dedicated to the VCR Plus+ functions, and the right half of the VCR/V-Chip Plus+ Main Screen is dedicated to the V-Chip Plus+ functions. The VCR Plus+ functions include a RECORD option for programming the VCR to automatically record a television program, and a VIEW option for automatically turning on the television receiver and tuning the selected television program when aired. The V-Chip Plus+ functions include a BLOCK option for creating the blocking override list, and an UNBLOCK option for creating the enable override list.

[**0109**] Once the viewer selects the desired option, the ENTER key on the viewer input device is then depressed causing the CDTL information of the television program corresponding to the compressed code entered by the viewer to be loaded in RAM by the microprocessor and designated for the viewer selected option. For example, referring to **FIG. 17**, by depressing the ENTER key on the viewer input device with the RECORD option highlighted by the cursor **96**, the VCR will automatically record the television program corresponding to the compressed code "17893." A Confirmation Screen, as shown in **FIG. 18**, will be presented to the TV display by the video processor as an overlay on the normal television picture, via the video mixer, when the

ENTER key on the viewer input device is depressed. The viewer will then have the option of recording the selected television program once, daily or weekly by highlighting the appropriate selection with a cursor **98** and depressing the ENTER key on the viewer input device. Once the frequency of recordation is selected from the Confirmation Screen, the user can return to the VCR/V-Chip Plus+ Main Screen by selecting V-CHIP PLUS+ key on the viewer input device.

[**0110**] The CDTL information entered from the VCR/V-Chip Plus+ Main Screen is formatted in RAM for display on the VCR/V-Chip Plus+ Review List when accessed as a sub-menu from the Channel Surf Menu (**FIG. 10**). In addition, the VCR/V-Chip Plus+ Review List can be accessed directly from the VCR/V-Chip Plus+ Main Screen by highlighting the "Review List" option with the cursor **96** and depressing the ENTER key on the viewer input device. The VCR/V-Chip Plus+ Review List, which is presented to the TV display by the video processor as an overlay on the normal television picture, via the video mixer, is edited in the same manner as described with reference to **FIG. 11**. When the VCR/V-Chip Plus+ Review List is entered from the VCR/V-Chip Plus+ Main Screen, the viewer must depress the V-CHIP PLUS+ key on the viewer input device to exit and return to the VCR/V-Chip Plus+ Main Screen. The V-CHIP PLUS+ key on the viewer input device is depressed a second time to exit the VCR/V-Chip Plus+ Main Screen and return to the normal television picture viewing mode.

[**0111**] From the normal television picture viewing mode, the TV Menu (not shown) may be accessed by the viewer by depressing the MENU key on the viewer input device. The TV menu allows the viewer to perform certain functions such as activating channels, activating closed caption television and adjusting picture clarity (i.e., contrast, brightness, color). In addition, the VCR/V-Chip Setup Screen, as shown in **FIG. 19**, may be accessed from the TV Menu.

[**0112**] The VCR/V-Chip Plus+ Setup Screen permits the viewer to define certain parameters which allow automated channel mapping according to the television signal source and the geographic location of the viewer. In the preferred embodiments without television signal source detection (i.e., monitoring the channel allocations of the television stations) the video source, the VCR brand and the cable box brand used by the viewer are entered directly into the VCR/V-Chip Plus+ Setup Screen with the viewer input device. From the VCR/V-Chip Plus+ Setup Screen shown in **FIG. 18**, the viewer, residing in the United States at zip code 91106, utilizes a Pioneer cable box with a Phillips VCR. From the zip code information, the appropriate channel map can be downloaded by the microprocessor from the VBI of the television signal to RAM as described in co-pending U.S. application Ser. No. 08/694,864, which is hereby incorporated by reference as if set forth in full herein. From the other information the proper IR codes for operating the VCR and cable box are selected.

[**0113**] The information on the VCR/V-Chip Plus+ Setup Screen can be edited by the viewer by moving a cursor **100** vertically between the on-screen prompts with the up and down arrow keys on the viewer input device. For example, in the event that the viewer switches from cable box service to direct cable, a new channel map may be required for VCR/V-Chip Plus+ operation. The new channel map can be downloaded into RAM with minimal viewer effort by accessing the VCR/V-Chip Plus+ Setup Screen, highlighting the text "Cable Box" immediately to the right of the "Video Source" prompt with the cursor **100**, depressing the CHANGE key on the viewer input device to enable a change in the video source, and then depressing the left and right arrow keys on the viewer input device to select the appropriate video source. In this case, the viewer will operate the arrow keys on the viewer input device until the text "Cable Direct" appears on the VCR/V-Chip Plus+ Setup Screen next to the "Video Source" prompt. With this entry, the "Cable Box" prompt is removed from the VCR/V-Chip Plus+ Setup Screen as shown in **FIG. 20**.

[**0114**] The VCR/V-Chip Plus+ Setup Screen also includes a "Next" on-screen prompt **102**. If a cable box service is entered into the VCR-V-Chip Plus+ Setup Screen by the viewer, or automatically detected by the microprocessor, the proper cable box codes must be set to operate the cable box. This is accomplished by positioning the cursor **100** on the "Next" on-screen prompt **102** with the up and down arrow keys on the viewer input device, and then depressing ENTER. This sequence causes the microprocessor to retrieve IR codes compatible with the cable box from memory and store them in RAM. This step is necessary to give the microprocessor control over the tuner in the cable box for VCR/V-Chip Plus+ system operation.

[**0115**] Those skilled in the art will readily recognize that the user interface described above is merely an exemplary embodiment of the present invention and that numerous other user interfaces may be utilized within the scope of the present invention. By way of example, an alternative embodiment of the user interface will be described with reference to a user interface screen map shown in **FIG. 21**. In this alternative embodiment, the viewer may enter the either a "V-Chip Plus+ Features" screen **106** or a "Channel Surf" screen **108** from the normal television viewing mode **104**.

[**0116**] The viewer may exit the VCR/V-Chip Setup Screen and enter the TV Menu at any time by depressing the MENU key on the viewer input device. The normal picture viewing mode can then be accessed from the TV Menu by depressing the MENU key on the viewer input device a second time.

[**0117**] The V-Chip Plus+ features screen **108** can be pulled up by selecting the V-CHIP PLUS+ key on the viewer input device. Upon activation of the V-CHIP PLUS+ key, the V-Chip Plus+ features screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. Another exemplary V-Chip Plus+ features screen in accordance with the described embodiment is shown in **FIG. 22**. Referring to **FIG. 22**, four sub-menus can be accessed from the V-Chip Plus+. The four sub-menu selections include a BABYSITTER feature **110**, a V-CHIP PLUS+ blocking feature **112**, a V-CHIP set feature **114**, and a RECORD/WATCH feature **116**. From the V-Chip Plus+ features screen (see **FIG. 22**) any sub-menu can be selected by the viewer by positioning a cursor **118** on the desired sub-menu selection with the up and down arrow keys on the viewer input device and then depressing the ENTER key.

[**0118**] In the described embodiment illustrated in **FIG. 22**, the V-CHIP set feature **114'** is highlighted by the cursor **118**. As described above with reference to other embodiments of

the present invention, the V-CHIP set feature allows the viewer to program his or her television system to exclude programs according to a selected rating criteria. From this sub-menu selection, the viewer can either review or edit the rating criteria by depressing the ENTER key on the viewer input device. As a result, the V-Chip set screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary V-Chip set screen is shown in **FIG. 23**.

[**0119**] Initially, from the V-Chip set screen, the viewer has the option of deactivating the V-Chip system. This is accomplished by positioning a cursor **122** on the OFF prompt **120** with the arrow keys on the viewer input device and then depressing the ENTER key. In response, a message indicating that the V-Chip feature is disabled will appear on the message screen **124**. As a result, the blocking circuit will be controlled by the microprocessor independently of the rating factors contained in the VBI.

[**0120**] To activate the V-Chip system, the viewer merely positions the cursor **122** over the ON prompt **126** with the arrow keys on the viewer input device and depresses the ENTER key. Once activated, the rating factors extracted from the VBI of the television signal will be compared with the current rating factors stored in RAM and used to determine whether the blocking circuit, under microprocessor control, will allow television programs to pass to the TV display.

[**0121**] Once the V-Chip system is activated, the current rating set by the viewer will be displayed on the message screen **124**. In the described embodiment, the V-Chip system can be programmed using movie ratings, such as those promulgated by the Motion Picture Association of America, as well as TV ratings. Preferably, the V-Chip system should be programmed with both TV and movie ratings to accommodate television programming utilizing different rating systems. Viewing and editing of either the TV or movie ratings is accomplished by selecting the appropriate prompt **128**, **130** on the V-Chip set screen with the viewer input device.

[**0122**] Referring to **FIG. 24**, the current V-Chip rating for TV programs in RAM is "TV-PG Parental Guidance." In a preferred embodiment, the "TV-PG Parental Guidance" allows viewing of television programs with moderate violence, some sexual situations, some coarse language and suggestive dialogue. Each of these rating factors can be individually activated or deactivated by positioning the cursor **122** on the appropriate prompt, by way of example, "Violence"**132**, and depressing the right or left arrow key on the user input device. As a result, the violent content of television programming will not be used to determine whether the current televised show should be blocked.

[**0123**] Alternatively, the overall V-Chip system rating programmed in RAM for either TV or movies can be altered by the viewer. This function is performed by positioning the cursor **122** on the message screen **124** with the up and down arrow keys on the viewer input device. Next, the right and left arrow key are used to peruse the different V-Chip system ratings until the desired rating appears on the message screen **124** at which time the viewer can select that rating by depressing the ENTER key on the viewer input device. The particular V-Chip system ratings for movies and TV programs may vary depending upon the needs of the manufacturer or consumer. Exemplary V-Chip system ratings for TV programs are described above with reference to other embodiments of the present invention.

[**0124**] The V-Chip Plus+ block list can be accessed from the V-Chip set screen by positioning the cursor **122** on the V-CHIP PLUS+/BLOCK prompt **134** with the up and down arrow keys on the viewer input device and depressing the ENTER key. The ability to directly access the V-Chip Plus+ block list from the V-Chip set screen is shown in **FIG. 21** by path **136**. Alternatively, the viewer can exit the system and return to normal television viewing **104** by depressing the V-CHIP PLUS+ key on the viewer input device. From the normal television screen **104**, the viewer can depress the V-CHIP PLUS+ key on the viewer input device a second time to pull up the V-Chip Plus+ features screen **106**, and select the V-CHIP PLUS+ blocking feature **112** in the manner described above with reference to **FIG. 22**.

[**0125**] Once the V-CHIP PLUS+ blocking feature is selected by the viewer, the V-Chip Plus+ screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary V-Chip Plus+ screen is shown in FIG. **25**. From the V-Chip Plus+ screen the viewer can both review and edit the V-Chip Plus+ blocking list. To edit the V-Chip Plus+ blocking list, the viewer positions a cursor **136** on the PlusCode entry line **138**, enters the compressed code that appears with the program listed in the published television schedule by using the numeric keypad on the viewer input device, and depresses the ENTER key. As described above with reference to other embodiments of the present invention, the use of PlusCodes to create the V-Chip Plus+ blocking list is a convenient method, although it will be understood by those skilled in the art that other methods could be used such as program title entries or selection from an electronic program guide.

[**0126**] Once the ENTER key is depressed, a sub-menu is retrieved by the microprocessor from RAM and presented to the TV display. The sub-menu, shown in **FIG. 26**, allows the user to block the selected television program once, or alternatively, on a daily or weekly basis. The blocking frequency is set by positioning a cursor **140** over the desired prompt. In **FIG. 26**, the ONCE prompt **142** is highlighted for illustrative purposes, and once entered into the system with the viewer input device, will produce the message shown in the message display **144**. The V-Chip Plus+ blocking screen of **FIG. 25** is then re-entered by depressing the V-CHIP PLUS+ key on the viewer input device.

[**0127**] To review the television programs that have been selectively blocked, a V-Chip Plus+ blocking list is consulted by depressing the REVIEW key on the viewer input device. As a result, the V-Chip Plus+ selections list is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary V-Chip Plus+ selections list is shown in **FIG. 27**. Next, the viewer positions a cursor **144** on the BLOCK prompt **146** and depresses the ENTER key on the viewer input device. A list of television programs selected by the viewer for blocking, that would otherwise be passed to the TV display by the V-Chip system, is presented to the screen. Each television

program is displayed on the V-Chip Plus+ blocking list by its respective CDTL information. It will be appreciated by those skilled in the art that the titles of the television programs could be alternately displayed, or additionally displayed with the CDTL information, by accessing an EPG data base in memory with the microprocessor.

[0128] The V-Chip Plus+ selection screen also provides limited editing features. For example, any television program may be deleted from the V-Chip Plus+ blocking list by positioning the cursor **144** over the CDTL information corresponding to the desired television program and depressing the ENTER key on the viewer input device to delete the highlighted television program. In addition, the length of the blocking function programmed in the microprocessor for the highlighted television program can be altered by first depressing the CHANGE key on the viewer input device, and then incrementing or decrementing the length with the right and left arrow keys, respectively, on the viewer input device.

[0129] To exit the V-Chip Plus+ selection screen, the viewer depresses the V-CHIP PLUS+ key on the viewer input device. As shown in **FIG. 21**, the normal viewing television screen **104** is entered from the V-Chip Plus+ selection screen **148**. From the normal television screen **104**, the viewer can then depress the V-CHIP PLUS+ key on the viewer input device a second time to pull up the V-Chip Plus+ features screen **106**.

[0130] The V-Chip Plus+features screen **106** includes a Record/Watch **116** option. The "Record" option provides a means for programming the VCR to automatically record a television program, and the "Watch" option allows the television receiver to be turned on automatically and tuned to a selected television program when aired.

[0131] The Record/Watch Option **116** can be accessed from the V-Chip Plus+ features screen **106** by positioning the cursor **118** on the RECORD/WATCH prompt **116'** with the arrow keys on the viewer input device and depressing the ENTER key (see **FIG. 22**). Once the RECORD/WATCH feature is selected by the viewer, the Record/Watch screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary Record/Watch screen is shown in **FIG. 28**. From the Record/Watch screen, the viewer can review and edit the television programs he or she wishes to record or view. To edit the Record list, the viewer first positions a cursor **148** over the RECORD prompt **150** and depresses the ENTER key on the viewer input device. Next, the cursor **148** is positioned on the PlusCode entry line **152** and the compressed code from the published television schedule is entered with the numeric keypad on the viewer input device much in the same way the V-Chip Plus+ blocking list is created. Once the PlusCode is keyed in, the ENTER key is depressed on the viewer input device. The Watch list can also be edited in the same manner except that the WATCH prompt **154** is highlighted with the cursor **148** prior to entering the PlusCode.

[0132] Once a new television program is entered for either recording or watching, a sub-menu similar to the one used to edit the V-Chip Plus+ blocking list is retrieved by the microprocessor from RAM and presented to the TV display. The sub-menu, shown in **FIG. 29**, allows the user to record or watch, whatever the case may be, the selected television program once, or alternatively, on a daily or weekly basis. The blocking frequency of the selected television program is set by positioning a cursor **156** over the desired prompt. In **FIG. 29**, the ONCE prompt **158** is highlighted for illustrative purposes, and once entered into the system with the viewer input device, will produce the message for recording the selected television program shown in the message display **158**. **FIG. 30** is an example of a sub-menu screen for editing the watch list. Upon completion. of editing the record or watch list, the Record/Watch screen of **FIG. 28** is then re-entered by depressing the V-CHIP PLUS+ key on the viewer input device.

[0133] To review the television programs selected for recordation or watching, the V-Chip Plus+ selection screen (see **FIG. 27**) is retrieved from the microprocessor and presented to the TV display by depressing the REVIEW key on the viewer input device. To review the record list, the viewer positions the cursor **144** on the RECORD prompt **160** and depresses the ENTER key on the viewer input device. A list of television programs selected by the viewer for recordation is presented to the screen in a CDTL format as shown in **FIG. 31**. Conversely, the watch list can be viewed by positioning the cursor **144** on the WATCH prompt **162** (see **FIG. 27**) and depresses the ENTER key on the viewer input device. A list of television programs selected by the viewer for watching is presented to the screen in a CDTL format as shown in **FIG. 32**. Preferably, the same limited editing features described with reference to the V-Chip Plus+ blocking list is also available for the record and watch lists.

[0134] As described above, to exit the V-Chip Plus+ selection screen, the viewer depresses the V-CHIP PLUS+ key on the viewer input device. As shown in **FIG. 21**, the normal viewing television screen **104** is entered from the V-Chip Plus+ selection screen **148**. From the normal television screen **104**, the viewer can then depress the V-CHIP PLUS+ key on the viewer input device a second time to pull up the V-Chip Plus+ features screen **106**.

[0135] The V-Chip Plus+ features screen also provides a BABYSITTER function to control the unsupervised television viewing of children. The BABYSITTER operates independently of the V-Chip Plus+ system and blocks all television programs from the TV display except for those shows placed on a BABYSITTER list.

[0136] To enter the BABYSITTER function from the V-Chip Plus+ features screen (see **FIG. 22**), the viewer positions the cursor **118** on the BABYSITTER prompt **110'** with the arrow keys on the viewer input device and then depresses the ENTER key. As a result, the Babysitter screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary Babysitter screen is shown in **FIG. 33**.

[0137] To activate the BABYSITTING feature, the viewer positions a cursor **160** on the ON prompt **162** with the arrow keys on the viewer input device and then depresses the ENTER key. In response, the television picture background to the overlaid Babysitter screen will be blacked out, unless a television program contained in the Babysitter list is currently being televised. Conversely, to deactivate the Babysitting feature, the cursor **160** is positioned over the OFF prompt **164** and the ENTER key is then depressed,

causing the television picture to reappear in the background portion of the babysitting screen overlay.

[0138] From the Babysitter screen the viewer can edit and review the Babysitting list. To edit the Babysitting list, the viewer positions the cursor **160** on the PlusCode entry line **166** and enters the compressed code that appears with the program listed in the published television schedule by using the numeric keypad on the viewer input device. Then the viewer selects the frequency in which the television show is allowed to be watched (i.e., once, daily, or weekly) by positioning the cursor **160** over the appropriate prompt, and depresses the ENTER key. As described above with reference to other embodiments of the present invention, the use of PlusCodes to create the V-Chip Plus+ blocking list is a convenient method, although it will be understood by those skilled in the art that other methods could be used such as program title entries or selection from an electronic program guide.

[0139] To review the television programs that have been selected for viewing by the babysitter, a Babysitter Program Review list is consulted by depressing the REVIEW key on the viewer input device. As a result, the Babysitter Program Review list is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary Babysitter Program Review list is shown in **FIG. 34**. The Babysitter Program Review list comprises a list of television programs that have been selected for viewing by the Babysitter. Any television program not contained on the Babysitter Program Review list will be blocked by the microprocessor from the TV display when the Babysitting feature is activated regardless of the V-Chip Plus+ rating factors programmed into RAM. Similar to the other television lists described above, the Babysitting Program Review list displays the selected television programs by their respective CDTL information. It will be appreciated by those skilled in the art that the titles of the television programs could be alternately displayed, or additionally displayed with the CDTL information, by accessing an EPG data base in memory with the microprocessor.

[0140] The Babysitting Program Review screen also provides limited editing features. For example, any television program may be deleted from the Babysitter Program Review list by positioning a cursor **168** over the desired CDTL information corresponding to the desired television program and depressing the ENTER key on the viewer input device to delete the highlighted television program. Alternatively, the length of the viewing time for the highlighted television program can be altered by first depressing the CHANGE key on the viewer input device, and then incrementing or decrementing the length with the right and left arrow keys, respectively, on the viewer input device. Preferably, the Babysitting feature can be activated or deactivated from this screen by positioning the cursor **168** over the appropriate prompt and depressing the ENTER key on the viewer input device. The Babysitting feature can be also activated or deactivated from V-Chip Plus+ menu by selecting an entry for the Babysitting feature (not shown).

[0141] To exit the Babysitter Program Review screen, the viewer either depressed the BABYSITTER key on the viewer input device to return to the Babysitter screen of **FIG. 33**, or depresses the V-CHIP PLUS+ key on the viewer input device to return to the normal viewing television screen.

[0142] In addition to accessing the V-Chip Plus+ features screen from the normal television viewing mode **104**, a channel surf option provides direct access to certain features. By way of example, the viewer can access directly from the channel surf screen **108** the V-Chip Plus+ Program Review list **148** and the Babysitter Program Review list **170**. The channel surf screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer by depressing the CHANNEL SURF key on the viewer input device. An exemplary channel surf screen is shown in **FIG. 35**. In a preferred embodiment, the channel surf screen is also presented to the TV display for a short period of time every time a new channel is tuned.

[0143] Referring to **FIG. 35**, the tuned channel is presented to the TV display for viewer information. In a preferred embodiment, three on-screen sub-menu prompts are displayed horizontally below the channel indicator, and may be accessed by moving a cursor **174** with the right and left arrow keys on the viewer input device. A description of the on-screen sub-menu prompt selected by the viewer with the cursor **174** is displayed immediately below. In the embodiment illustrated in **FIG. 35**, the viewer has selected the Babysitter feature, and the message "Go to Babysitter Screen" appears below the sub-menus. This approach allows the viewer to directly access the Babysitter function without having to first go through the V-Chip Plus+ features screen. The viewer merely depressed the ENTER key on the viewer input device and the Babysitter screen shown in **FIG. 33** is retrieved by the microprocessor from RAM and presented to the TV display as an overlay. From this screen, the viewer may either pull up the Babysitter Program Review list (see **FIG. 34**) or return to the normal television viewing mode in the same manner described above with reference to the V-Chip Plus+ features screen.

[0144] The channel surf screen also provides the capability to block or unblock the channel tuned by the microprocessor. This is achieved by positioning the cursor **174** over the BLOCK CH prompt **176** as shown in **FIG. 36**. In response, a message "To Block this Channel" appears in the message display **178**. The ENTER key on the viewer input device is then depressed to block the entire channel. This approach allows, by way of example, KCOP to be blocked with a single touch of the viewer input device. The channel block command from the viewer input device is stored in RAM by the microprocessor for controlling the blocking circuit. A new message, "To Unblock this Channel," is retrieved by the microprocessor and presented to the TV display in the message screen **178** as shown in **FIG. 37**. The channel can now be unblocked by simply depressing the ENTER key on the viewer input device a second time.

[0145] The V-Chip Plus+ Program list can also be accessed directly by the viewer from the channel surf screen by positioning the cursor **174** on the "Review" on-screen sub-menu prompt causing a message, "Review V-Chip Plus+ Selections," on the message display **178** as shown in **FIG. 38**. The ENTER key on the viewer input device is then depressed to call up the V-Chip Plus+ Program Review list on the TV display. Once the V-Chip Plus+ Program Review

list is retrieved, the list can be edited and reviewed in the same manner described above. To exit the V-Chip Plus+ Program Review list and return to the normal television viewing mode, the viewer depresses the V-CHIP PLUS+ key on the viewer input device.

[0146] Guide Mode

[0147] Referring to **FIG. 43**, the several V-Chip Plus+ screens are accessed from the Menu bar; the user highlights the "V-Chip Plus+" button on the menu bar, and then scrolls down to select from the menu of V-Chip Plus+ functions. Throughout the V-Chip Plus+ screens, an (blue) action button is used to unblock and a different (green) action button is used to block shows, times. channels, etc. As shown in **FIGS. 51 and 52**, when the highlighted tile is currently unblocked, the blue action button label is blank and the green action button is labeled "Block." When the highlighted tile is blocked, the blue action button is labeled "Unblock" and the green action button label is blank, except if the highlighted tile is a show title. If a blocked show title tile is highlighted, the green action button is labeled "Schedule," providing access to the Schedule screen to modify the blocking frequency from the default of once to daily or weekly.

[0148] Once a show is blocked, an info. box displays a message of: "<Show title>has been Blocked on <day, date>. Press the <key>to enter the Schedule to block <Show title>Daily or Weekly."

[0149] Pressing the VCR Plus+ key on the remote displays the VCR Plus+ interface in the Guide's Schedule screen. The user may input a Plus Code and then select the action they wish to take on the program: record (the default), watch, or block. These options will appear as tiles in the Plus Code entry area.

[0150] Similar to the watch and record features, a blocked show may be set to be blocked once, daily or weekly. This is accomplished by placing any individual show (this does not apply to all shows set to be blocked by channel, time or rating) that is set to be blocked into the Schedule queue. These blocked shows will be mixed in with the shows set to record or watch in chronological order. By entering the Schedule, either by pressing the green action button while highlighting a blocked show in the V-Chip Plus+ or the GUIDE Plus+ screens or from the Schedule button on the menu bar, the user may modify the frequency of the block in the same way they may do so for shows set to record or watch, by pressing an action button labeled "Change." This will cycle through the frequency choices. Modifying the frequency can only be done while the guide is in Master Mode.

[0151] Scheduled events (shows scheduled to record, watch or blocked) can be stored in a non-volatile memory such as an EEPROM. Thus, if a power outage occurs, the Scheduled events will be saved.

[0152] V-Chip Plus+ in GUIDE mode uses two data sources in combination to determine whether a show should be blocked: data downloaded and stored in the guide (channel lineups, show schedules, show ratings), and rating data transmitted over the VBI. Ordinary V-Chip devices use the data transmitted over the VBI to determine whether or not to block a show by rating. These ratings are sent a minimum of every 15 seconds. Thus, a show a parent may wish blocked, may be seen for up to 15 seconds before the blocking takes effect. V-Chip Plus+ in GUIDE mode will use show rating data already stored in the Guide to determine whether a show should be blocked as soon as it begins, and use the VBI data to confirm if the show was properly blocked. If it was blocked in error, then the block will be removed. In the event the Guide does not have rating data stored on a given show, the show will be accessible, until the VBI data is obtained and a blocking decision made.

[0153] Shows of participating networks. except news and sports programming. will be rated with either a TV Parental Guideline rating or an MPAA rating (for movies that have not been modified or TV). Networks using the ratings will also transmit the ratings during network commercials. Local commercials will most likely not carry the ratings of the contiguous show. V-Chip Plus+ will provide the ability for the user to block unrated programming. The intent is to give parents control over whether they wish their children to watch the potentially objectionable content of some news and sports programs. As a side effect, local ads which do not carry ratings will be blocked. In the circumstance where a local ad is surrounded by a rated show and unrated shows have been blocked, the user may find they are able to watch the show. However, the ad is blocked within about 15 seconds of appearing. The show will be re-displayed after the rating has been interpreted by V-Chip Plus+, potentially up to about 15 seconds after the show recommenced. Ads linked to shows that have been blocked by the blocking of the individual show, show channel, show theme, show rating, or show time slot will deny access to the show (as with any blocked show) until the Master Password is input. When an ad linked to a show is highlighted, the blocking message will appear in the PIP.

[0154] Additionally, turning a channel off in the Editor does not result in blocking all access to that channel. Specifically, if an ad with a show linked to channel turned off in the Editor is displayed, the user can still schedule that show for recording or watching, or tune to its related channel by pressing the OK button. Additionally, the PIP will tune to the channel related to the ad when the ad is highlighted, even though that channel has been turned off.

[0155] The EPG requests that the user provide certain profile information, including but not limited to: the user's zip code; television, cable, and satellite services to which the user subscribes; the length of said subscriptions; the type of television; the age of the television; where the television was purchased; the user's top favorite channels; the user's favorite types of programs; and the times during which the user is most likely to watch television. If the user declines to provide this information, the EPG will attempt to "learn" the information as described in a co-pending patent application Ser. No. 09/120,488 ("SYSTEMS AND METHODS FOR DISPLAYING AND RECORDING CONTROL INTERFACE WITH TELEVISION PROGRAMS, VIDEO, ADVERTISING INFORMATION AND PROGRAM SCHEDULING INFORMATION"), filed Jul. 21, 1998, the disclosures of which is incorporated herein by reference, as if fully stated here, for all purposes.

[0156] When the TV is powered on, the display will depend upon whether Auto-Guide-On is activated, the entry show has been blocked, or the TV remote or front panel was used to turn on the TV. If Auto-Guide-On is activated, the

Guide will always appear when the TV is turned on using the remote. If a Master Password has been set, the user will have access to shows. features and screens provided by the User Profile. If the entry show has not been blocked, the show video will appear in the PIG. All shows, channels, times, etc. that are blocked will be so marked within the Guide. The user will have access to all unrestricted shows and features and screens of the Guide without the need to enter a password. Upon attempting to access a restricted show (by pressing the OK or Guide key), feature (recording via action buttons, any enabled buttons on the remote—likely the record button—and via the VCRPlus+ key) or screen (scrolling into or pressing OK from menu bar), a password dialog box will appear in the info. box (see **FIG. 66**). If the user correctly inputs the Master Password, they obtain access to all shows, areas of the guide and features. If the user does not input the Master Password, they will maintain access as defined by the User Profile. If the entry show has been blocked. the PIG will be black and contain the following message: "Show Blocked by V-Chip Plus+."

[**0157**] If Auto-Guide-On is not activated, the Guide will not appear when the TV is turned on using the remote. If a Master Password has been set, the user will have access to shows, features and screens provided by the User Profile. If the entry show has not been blocked, the show video will appear on screen. If the entry show has been blocked, the TV video will be covered with a password dialog box (see **FIG. 66**). Again, if the users correctly inputs the Master Password, they obtain access to all shows, areas of the guide and features. If the users do not input the Master Password, they will maintain access as defined by the User Profile.

[**0158**] In the event that the TV is turned on from the front panel of the TV, Auto-Guide-on is not active. V-Chip Plus+ in-Guide will operate as restricted by the User Profile, until the Master Password is input via the remote. There is no way to enter the Master Password without the remote control.

[**0159**] A user, intending on circumventing the V-Chip Plus+ blocking, may attempt to remove power from the TV with the hope that the blocking settings will be lost. Due to limitations in available EE ROM, not all settings can be stored in EE ROM. Following is a desired set of setting to be stored, in order of priority if EE ROM space permitting:

[**0160**] 1. Master Password

[**0161**] 2. blocking by ratings

[**0162**] 3. blocking by channel

[**0163**] 4. blocking by time

[**0164**] 5. blocking by individual show in the Schedule (the next several items in the Schedule will be saved. This will be a combination of shows scheduled to record, watch or block.)

[**0165**] 6. blocking features (recording, watch).

[**0166**] In the event of a power failure that exceeds the supercap power capabilities, the user will have the choice of two power outage settings (the default is number I below, the Master will select a setting in the V-Chip Plus+ feature screen):

[**0167**] 1. deny all access to the TV until the Master Password is input. Access to the Guide will be permitted with access denied to Setup. Editor and V-Chip Plus+ screens.

[**0168**] 2. allow access to everything not saved in EE ROM.

[**0169**] In setting, a power failure notice will present itself on screen every time the TV is powered on by the remote or by the front panel until the Master Password is input. This will inform the users of the power outage.

[**0170**] A child attempting to thwart the blocking of a specific show or channel by V-Chip Plus+ by tuning with the cable box will be unsuccessful due to the implementation of a Child Guard feature within V-Chip Plus+. The Child Guard feature monitors the video sync. of the signal coming into the TV. If a video interrupt is identified by the Child Guard mechanism without the Guide sending an IR. command to the cable box, the Guide will simply redial the cable box to the channel it was on before detecting the video interrupt. This will hinder a child from working around V-Chip Plus+.

[**0171**] A V-Chip Plus+ Menu, with different features selected, is shown in **FIGS. 43, 44, 46, 48, 49, 53, 56, 57,** and **63**. The V-Chip Plus+ Menu screen provides access to all the V-Chip Plus+ screens. These screens can only be accessed in Master Password Mode. The user scrolls down off the menu bar to highlight the tile of the desired feature. **FIG. 44** shows the selection of TV Ratings. The user presses the OK/Select key to enter the screens related to the highlighted V-Chip Plus+ feature. Any user attempting to access these screens when not in Master Password mode will be prompted to enter the Master Password. If not in Master Mode, these menu tiles would be dark and unaccessible.

[**0172**] **FIG. 45** shows the V-Chip Plus+ TV Parental Guidelines Ratings. From this screen the user may block all instances of shows with any given TV Parental Guideline Ratings, block an entire content rating or a combination of TV Parental Guidelines and content ratings. Blocking unrated programs is executed from this screen as well. The screen is divided into 3 areas: 1. Programs for children, 2. Programs for the entire audience, and 3. Unrated programs. The green action key is used to block and the blue action key is used to unblock the ratings. When a rating is blocked, that rating and all higher ratings in the same group are blocked. When a rating is unblocked, only that rating is unblocked.

[**0173**] V-Chip Plus+ MPAA Ratings is selected from the feature menu of **FIG. 46** by highlighting Movie Ratings feature. **FIG. 47** shows the movie Ratings screen responsive to the selection of the Movie Ratings feature in **FIG. 46**. From this screen the user may block all instances of shows with any given MPAA Ratings. When a rating is blocked, that rating and all higher ratings are blocked. When a rating is unblocked, only that rating is unblocked. In this example, all the movies with rating G are unblocked.

[**0174**] After the V-Chip Plus+ Grid feature is selected as shown in **FIG. 49**, the screen of **FIG. 50** is displayed. The V-Chip Plus+ Grid is in gray tones except for the PIG, ads, logos and the action bar. This is intended for differentiating it from the Guide's Grid Screen. This screen displays ALL channels, whether or not they are turned off in the Editor. Individual shows or entire channels may be blocked from this screen as shown in FIGS. **51-52**. All blocked shows or channels are in dark gray. However, channel ads do not appear in this grid. When blocked show title is highlighted in Master mode, the blue and green action buttons are labeled "Remove" and "Change" respectively. When not in Master mode, the action button labels are blank.

[0175] After the V-Chip Plus+ Sort feature is selected as shown in **FIG. 53**, the screens of **FIGS. 54 and 55** are displayed. From the Sort screen the user may block all shows in a category, e.g. Movies, Sports or Children's programs. From the first level Sort screen of **FIG. 54**, the user may block all shows in a subcategory, e.g. Horror, Mystery, Baseball, Basketball, etc. From the second level Sort screen of **FIG. 55**, the user may block any individual show in a subcategory.

[0176] V-Chip Plus+ Time Settings

[0177] After the V-Chip Plus+ Time feature is selected as shown in **FIG. 57**, the screens of FIGS. **58-62** are displayed. From these Time Settings screens, the user may block viewing by times of the day and/or days of the week. The user may highlight a day or time tile and block that entire day or that time for all days. Alternatively the user may block certain hours on any individual day.

[0178] After the V-Chip Plus+ Features function is selected, a features screen is displayed. From this Features screen, the user may block access to the record and/or watch functions. Additionally, the user may select a Power Outage setting from this screen. After the V-Chip Plus+ Password feature is selected a Password screen is displayed. From this Password screen the user may set up the Master Password for the first time (if not done during initial setup) or may modify the current Master Password.

[0179] When a show, channel, time-slot, etc. is blocked, the title(s) identifying the show, channel, time slot, etc. are modified to have different background colors as shown in **FIG. 65**. In this screen, The Simpsons, Young Philadelphians and the 10:00 p.m. time slot are indicated as blocked by the dark gray background.

[0180] MASTER PASSWORD CONTROL

[0181] In one embodiment of the present invention, a 4 digit numeric Master Password scheme is used to enable the establishment of a User Profile and provide unlimited access to the Guide screens and shows once a Master Password is established. Only one Master Password can be established. It is established either during initial setup (see **FIG. 67**) or later by entering the Password screen from the Guide menu (see **FIG. 43**) or the TV mode. Once a Master Password is established, the Master Password must be entered to execute blocking or unblocking. The Master Password must also be entered to access the Setup, Editor, and V-Chip Plus+ screens. Once entered, the TV is in Master Password mode until the TV is turned off, the user exits V-Chip Plus+ mode, or a certain time delay, which starts from the time when the user correctly enters the password, has expired.

[0182] **FIG. 39** is a flow chart of the master password operation. Obviously not all operations would require a password. As shown in block **391**, the following operations have password protection: changing the password, changing the V-Chip ratings, deleting a "blocked" program or deleting a "blocked" channel, changing the "Babysitter" function, unblocking a program or a channel within the "Babysitter" function, changing the clock (this is because a different clock will cause V-Chip Plus+ to block a different program), and changing the channel map (this is because a different channel map will cause V-Chip Plus+ to block a different channel).

[0183] A Master password user can establish specific viewing (blocking) parameters for the User Profile, establish specific feature use limits (disable Recording or Watch) for the User Profile, modify the Master password, or enter all Guide screens and view, record or schedule to watch all shows. But, it is not necessary to input the Master Password to access unrestricted shows, channels, time slots, features and Guide screens. Whenever access to a blocked show (tuning to it in TV mode or pressing OK or Guide keys from the Guide) or a restricted screen (scrolling into or pressing OK from menu bar) or feature (recording via action buttons, any enabled buttons on the remote —likely the record button—and via the VCRPlus+ key) of the guide is attempted, a dialog box appears on screen requesting the password (see **FIG. 66**).

[0184] If the password is correctly input, access will be granted. If the password is incorrectly input, an error screen will be displayed. Once the password is correctly input, access to all shows and areas of the guide will be enabled until the TV is turned off, the user exits V-Chip Plus+ mode, or a certain time delay, which starts from the time when the user correctly eaters the password, has expired. Additionally, once the password is correctly entered, it can be changed by the user as shown in block **396**. However, repeating the entry of a consistently incorrect password for a certain number of times can establish a new password. The new password is established by repeatedly entering the same incorrect password a certain number of times, and at the end of the process confirming the newly established password (block **395**). The date and time of the last time that the password was used is recorded and, as shown in block **397**, that date and time for the previous login is then displayed.

[0185] Once a Master Password is created, restrictions on access to certain Guide screens is automatically established as modifications to these screens may defeat blocking effectiveness. Only the Master may establish blocks. Access-blocking may be established on: individual shows; channels; themes (entire themes such as Movies, Sports, Children's or sub-themes such as Adventure, Drama, Baseball, Basketball, etc.); TV Parental Guideline or MPAA rating (including un-rated shows); time slot or day; and/or access to the Recording and Watch features.

[0186] When a show is blocked either by the blocking of the individual show, show channel, show theme, show rating, or show time slot, and a user without entering the Master Password tries to access a blocked element, access to the blocked element will be denied and a dialog box requesting the Master Password will be displayed (see **FIG. 66**). Failure to input the Master Password will result in maintaining the block and the function of the Guide will be as follows:

[0187] No viewing of a blocked show in TV mode,

[0188] No viewing of a blocked show in the PIP in TV mode,

[0189] No viewing of the blocked show in the PIG in Guide mode (the PIG will contain a message indicating the show is blocked),

[0190] No scheduling of the blocked show to record (via the Guide or VCR Plus+), and

[0191] No scheduling the blocked show to watch (via the Guide or VCR Plus+)

[0192] However, the descriptions for blocked shows will be available. Also, blocked shows may still be scheduled to record or watch once the Master Password is input. Any show scheduled to record or watch will be recorded or watched even if it is blocked previously or subsequently blocked.

[0193] The record and watch features may be blocked also. If a user attempts to schedule a show to record or watch when the feature is blocked and the guide is not in Master Mode, the action will be denied and the Master Password dialog box will appear. If the Master Password is not input, the function of the Guide will be modified as follows:

[0194] If the Record feature is blocked:

[0195] the user may not schedule any show to record via the Guide or VCR Plus+

[0196] all shows scheduled to record will be marked as blocked in the Schedule so the user may not remove it or modify its frequency.

[0197] If the Watch feature is blocked:

[0198] the user may not schedule any show to watch via the Guide or VCR Plus+

[0199] all shows scheduled to watch will be marked as blocked in the Schedule so the user may not remove it or modify its frequency.

[0200] However, any show scheduled to record or watch by the Master will still be executed even if these features are blocked. If these features are not blocked, a user without the Master Password may enter the Record/Watch Schedule and make changes to any shows in the queue.

[0201] When a Master Password is set, and a user without the Master Password is using the TV or the Guide, access to the Setup, Editor, and V-Chip Plus+ screens will be denied. A V-Chip Plus+ Dialog box appears whenever access has been denied to a show, channel, time screen, feature, etc. via a V-Chip Plus+ block. This dialog box provides for input of the Master Password for access as shown in **FIG. 66**. Additional dialog boxes appear if the input is not the correct password.

[0202] The GUIDE Plus+ system supports semi-automatic setup with minimal user intervention. The basic data required from the user includes, Country, Zip Code/Postal Code, whether the service is Over-the-Air (OTA) or cable, Cable Box, chosen from on-screen list of brand names, VCR Brand, chosen from on-screen list of brand names, cable Box output RF channel (if applicable). However, V-Chip Plus+ includes additional setup screens directly following the Cable Box output questions. These screens will appear only the first time the user goes through setup, thereafter, the user will use the V-Chip Plus+ password screen to set a Master Password or change it.

[0203] **FIG. 67** depicts the Master Password Setup. The user is asked if he/she wishes to set up a Master Password now. If No, then a screen appears communicating that the user may set up a Master Password later by entering the V-Chip Plus+ Password screen within GUIDE Plus+ (see **FIG. 68**). If Yes, then the user is presented with a password creation screen as indicated by **FIG. 69**. Once a password is input, a confirmation screen is displayed (see **FIG. 70**). If the user correctly inputs the password a second time, the acceptance screen is displayed (see **FIG. 71**). If the user incorrectly inputs the password a second time, the failure screen shown in **FIG. 72** is displayed. When the user presses the <OK>button, the Master Password Setup Screen of **FIG. 67**, is displayed. The user may try again now or input NO and try later.

[0204] It is apparent from the foregoing that the present invention satisfies an immediate need for a parental control apparatus which can be used with the V-Chip system. This parental control apparatus may be embodied in other specific forms and used with a variety of communications equipment without departing from the spirit or essential attributes of the present invention. It is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being made to the appended claims rather than the foregoing description to indicate the scope of the invention.

What is claimed is:

1. A method of exercising access control over television programs using a parental control user interface having different functions, said method comprising the steps of:

requiring a password for a master mode to obtain access to all the functions of the parental control user interface;

entering a criterion for blocking a television program from being viewed or recorded or overriding a blocked television program;

selecting a program for displaying or recording;

prompting a user not in the master mode to enter the password if the selected program meets the blocking criterion and does not meet the overriding criterion; and

unblocking the selected program that meets the blocking criterion and does not meet the overbidding criterion so it can be viewed if the user enters the password responsive to the prompt.

2. An apparatus for parental control of a television receiver, comprising:

a television display;

a tuner for receiving a plurality of television programs and passing one of said television programs;

a memory for storing a blocking override list comprising information relating to at least one television program, and an enable override list comprising information relating to at least one television program;

a microprocessor selectively operable in a blocking mode and an unblocking mode, said microprocessor generating a blocking command in said unblocking mode only when the television program passed by the tuner corresponds to said information relating to one of the television program in said blocking override list, and generating a blocking command in said blocking mode only when the television program passed by the tuner does not correspond to said information relating to any one of the television programs in said enable override list; and

a blocking circuit for coupling the television program passed by the tuner to said television display, said blocking circuit having a control input which causes the

television program passed by the tuner to be blocked from said television display in response to the blocking command.

3. The apparatus of claim 2 wherein the television program passed by the tuner includes rating information, and further comprising a vertical blanking decoder for extracting said rating information from the television program, said microprocessor being selectively operated in one of said blocking mode and unblocking mode based on said extracted rating information.

4. The apparatus of claim 3 wherein said memory comprises rating information stored therein, and said microprocessor is selectively operated in one of said blocking mode and unblocking mode based on a comparison between the extracted rating information from the television program and the rating information stored in memory.

5. The apparatus of claim 2 wherein the blocking override list information comprises channel, date, time and length for each of its respective television programs, and the enable override list information comprises channel, date, time and length for each of its respective television programs.

6. A method for exercising parental control over a television receiver, comprising the steps of:

creating an enable override list comprising information relating to at least one television program to be watched or recorded in a blocking mode;

creating a blocking override list comprising information relating to at least one television program to be blocked in an unblocking mode;

selecting the blocking mode or the unblocking mode;

permitting only television programs relating to said information in the enable override list to be watched or recorded when the blocking mode is selected; and

blocking only television programs relating to said information in the blocking override list from being watched or recorded when the unblocking mode is selected.

7. The method of claim 6 wherein the selecting step further comprises the steps of programming the television receiver with rating information, extracting rating information broadcast with a television program tuned by the television receiver, comparing the programmed rating information with the broadcast rating information, and selecting the blocking mode or unblocking mode as a function of said comparison.

8. The method of claim 6 wherein the step of creating the enable override list comprises entering information relating to channel, date, time and length of the television programs to be watched or recorded in the blocking mode, and the step of creating the blocking override list comprises entering information relating to channel, date, time and length of the television programs to be blocked in the unblocking.

9. A method for exercising parental control, comprising the steps of:

receiving a television signal carrying a television program and a rating for the television program;

inputting a rating level;

extracting the television program rating from the received television signal;

comparing the extracted television program rating with the inputted rating level;

displaying the television program carried by the received television signal if the extracted television program rating is below the inputted rating level;

blocking the television program carried by the received television signal if the extracted television program rating is above the inputted rating level;

selecting a specific television program which, when carried by the received television signal, will override the comparing step; and

displaying the specific television program, when carried by the received television signal, if its rating is above the inputted rating level, or blocking the specific television program, when carried by the received television signal, if its rating is below the inputted rating level.

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