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(54) **System for detecting and indicating change in condition of apparatus**

(57) The invention relates to the ability to allow a user of electrical apparatus to detect a change in condition of further apparatus such as, in one embodiment to allow a person watching television to detect an incoming telephone call even when they may not be able to hear the ringing tone due to the volume of the television set. The invention utilises in one embodiment a means connected to a line to detect a change in condition of the line and, in response, causes a change in condition of electrical apparatus connected to the means such as reducing the volume of the apparatus or displaying a message.

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## Description

**[0001]** The invention to which this application relates is related to use of electrical apparatus and particularly, although not exclusively, to apparatus in the form of a television set and/or receiver, and to allow other facilities of the premises in which the television set or receiver is used to be detected and their use enhanced.

**[0002]** In particular, but not necessarily exclusively, the invention is related to the ability for the signal of an incoming telephone call to be detected even when the ringing tone may not easily be heard when other relatively high volume apparatus may be used in the premises.

**[0003]** Typically, when a television is being used in a premises, the volume from the television can be relatively high especially when material such as music, sports or films are being listened to. This can mean on occasion that other occurrences such as, for example, the ringing of a telephone, cannot be heard. Even when it can be heard, and is answered, it is very difficult for the person answering the phone to be able to hear the other person due to the volume of the television and it is often necessary to reduce the volume of the television to allow any conversation to take place. This is inconvenient and could mean that important telephone calls could be missed.

**[0004]** The aim of the present invention is to provide a means whereby the ringing of a telephone and/or the change in condition of any other apparatus within the premises can be detected by a person using other electrical apparatus, even when there is high volume sound such as a television set and/or to allow the apparatus to be used to allow the occurrence of a change in condition of the other apparatus to be detected.

**[0005]** In a first aspect of the invention there is provided electrical apparatus which emits or is connected to electrical apparatus to emit a sound when in use, and further apparatus which can change condition upon receiving a signal and characterised in that said electrical apparatus is provided with means for detecting the change in condition of the further apparatus and, upon detecting the change, causes a change in operation of the electrical apparatus and/or electrical apparatus connected thereto to allow the user of the electrical apparatus to detect and react to the change in condition of the further apparatus.

**[0006]** Typically the electrical apparatus can be any which has speakers to emit a sound such as a television, radio, stereo, computer and the like but may also include other apparatus such as vacuum cleaners, washing machines, dishwashers and the like. The further apparatus can be any apparatus but the invention is believed to be of particular advantage to telephones but may also be used with doorbells, cooker timers, alarm clocks and the like.

**[0007]** In one embodiment of the invention there is

provided electrical apparatus in the form of a television set and/or receiver for broadcast data for the generation of the video and audio display connected to a telecommunications line in a premises and which telecommunications line and associated telephone form the further apparatus in this embodiment of the invention. The television set and/or receiver are provided with detection means to detect when a signal received and a change in condition of the telecommunications line occurs and provided with means to cause a change in condition of the television set and/or receiver in response to the change in the telecommunications line.

**[0008]** In one embodiment of the invention the circuitry in the set top box or receiver is arranged to detect a signal for change in condition in the telecommunications line in the form of a new call or ringing tone signal. Upon detecting the ringing tone the circuitry of the receiver and/or television set is operated to reduce the volume of the television to a level, which can be pre-set, when the telephone ring signal is received. In one embodiment this may be achieved by reducing the volume at the set top box receiver or, by causing the emulation of the TV infrared command for reducing volume and transmitting the same to the television.

**[0009]** In addition, or alternatively, a message can be displayed on the television that the telephone is ringing or is about to ring and/or the ringing noise may be generated through the speakers of the television set.

**[0010]** In one embodiment, the receiver is connected to other electrical apparatus in the premises so that when the change in condition of the telecommunications line is detected, the receiver transmits a control signal to the connected electrical apparatus to change the volume of the same to a preset level.

**[0011]** In a further embodiment, the volume of the electrical apparatus can be reduced automatically for the duration of a telephone message or, alternatively, upon generation of a telephone message, a screen display is generated on the television set which provides an option that allows the user of the television set to reduce the volume.

**[0012]** A specific embodiment of the invention is now described. In this embodiment a telecommunications line to a receiver of broadcast data is monitored using modem telecommunication line sensing circuits in the receiver. The sensing circuit can be set to monitor off-hook detect and/or ring detect signals which pass along the telecommunications line and, when detected, information is passed into the receiver system to indicate the change of condition of the line. Upon a suitable trigger or detection occurring such as a telephone ring signal then a volume modifying section in the receiver is activated to cause a reduction in the volume of sound from speaker apparatus connected to the receiver, if in use, such as television speakers, to a preset level so that the user can more clearly hear the telephone ringing and/or the call itself. In addition, or alternatively, the receiver is implemented to generate a display on the

screen of the television set to provide a visual indication of the change in condition and that the telephone is ringing so as to increase the ability for the same to be detected. It is also possible that a ringing noise is held in a memory of the receiver and, when the ringing tone is detected on the telecommunications line, the ringing noise from the memory is reproduced through the speakers of the electrical apparatus.

**[0013]** While the invention is described above with respect to the use of a television set and telephone it will be appreciated that the invention can be applied to many different combinations of apparatus, some of which are listed previously, to allow the change in condition of the said further apparatus to be more easily detected by the user while electrical apparatus is being used at the same time and furthermore for the condition of the electrical apparatus to be altered in response to the change of condition of the further apparatus to the advantage of the user.

### Claims

1. Electrical apparatus which emits or is connected to electrical apparatus to emit a sound when in use, and further apparatus which can change condition upon receiving a signal and characterised in that said electrical apparatus is provided with means for detecting the change in condition of the said further apparatus and, upon detecting the change, causes a change in operation of the electrical apparatus and/or electrical apparatus connected thereto to allow the user of the electrical apparatus to detect and react to the change in condition of the further apparatus.
2. Electrical apparatus according to claim 1 characterised in that the electrical apparatus includes speakers to emit a sound.
3. Apparatus according to claim 1 wherein the further apparatus is a telephone and telecommunications line connected thereto.
4. Electrical apparatus according to claim 3 characterised in that the electrical apparatus comprises a broadcast data receiver connected to the telecommunications line, said receiver provided with detection means to detect a change in condition of the telecommunications line and means to cause a change in condition of the receiver and/or electrical apparatus connected thereto in response to the detection of a change in condition of the telecommunications line.
5. Electrical apparatus according to claim 4 characterised in that the change in condition in the telecommunications line is the reception of a new incoming call.
6. Electrical apparatus according to claim 5 characterised in that in response to the detection of a change in condition of the telecommunications line, the receiver is controlled to reduce the volume of the sound emitted from speakers connected thereto to a preset level.
7. Electrical apparatus according to claim 1 characterised in that the electrical apparatus is connected to a plurality of items of apparatus in a premises and causes a change in condition of the said electrical apparatus upon detecting a change in condition of the further apparatus.
8. Electrical apparatus according to claim 1 characterised in that the electrical apparatus includes a display screen and speakers and, upon detection of a change in condition of the further apparatus an indicator is generated to indicate the change of condition of the further apparatus to the user of the electrical apparatus.
9. Electrical apparatus according to claim 8 characterised in that the further apparatus is a telephone and telecommunications line and if the telephone receives an incoming call and hence changes condition a message is generated on the display screen.
10. Electrical apparatus according to claim 8 characterised in that the further apparatus is a telephone and telecommunications line and if the telephone receives an incoming call and hence changes condition a ringing noise is generated through the speakers.
11. Electrical apparatus according to claim 8 characterised in that upon detection of a change in condition of the further apparatus a screen display or speaker message provides an option that allows the user of the electrical apparatus to reduce the volume of the electrical apparatus for the duration of the telephone call.



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EUROPEAN SEARCH REPORT

Application Number  
EP 00 10 0858

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 113 533 A (THORN EMI FERGUSON) 18 July 1984 (1984-07-18)	1,2,7,8	608B25/08
Y	* the whole document *	3-6,9-11	
Y	US 4 853 674 A (KISS MICHAEL Z) 1 August 1989 (1989-08-01) * abstract * * column 4, line 43 - line 67; figures 1,2 *	3-6,9-11	
A	US 5 382 939 A (HONG YEONG K) 17 January 1995 (1995-01-17) * abstract *	1-11	
A	EP 0 682 331 A (FRABA TECHNOLOGY AND TRADING G) 15 November 1995 (1995-11-15) * abstract *	1-11	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			608B
Place of search		Date of completion of the search	Examiner
THE HAGUE		7 April 2000	Sgura, S
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 10 0858

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-04-2000

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0113533	A	18-07-1984	AT 40609 T	15-02-1989
US 4853674	A	01-08-1989	NONE	
US 5382939	A	17-01-1995	NONE	
EP 0682331	A	15-11-1995	DE 4417048 A	16-11-1995

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