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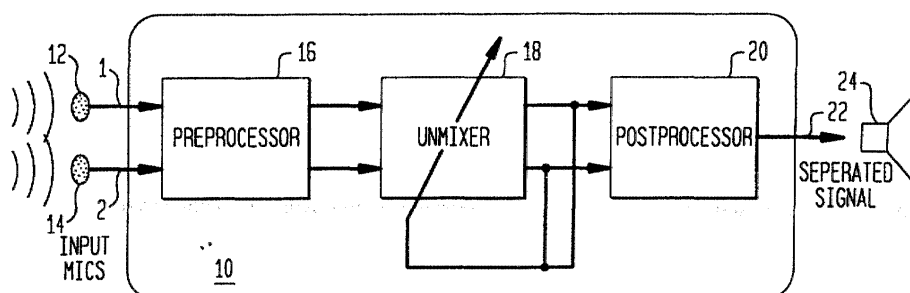
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(54) **Blind source separation for hearing aids**

(57) An electronic filtering device for performing real-time unmixing of a signal desired to be recovered by a user of the device, where the desired signal emanates from one of a plurality of independent signal sources. Two microphones positioned along a common axis develop first and second electrical input signals in response to reception by the microphones of acoustic signals from the plurality of independent signal sources. The common axis of the microphones is controllable in real time by the user to align the common axis so it points in the direction of the source of the desired signal. An

adaptive unmixing signal processor responsive to the input signals develops output signals wherein the desired signal is separate from the mixture signal. A pre-processor may be provided to subject the input signals to one or both of a time delay processing and a decorrelation processing before their application to the unmixing signal processor, to enhance recovery of the desired signal. A selected output of the unmixing signal processor can be applied as an input to a speaker for reproduction, or can be further processed for signal enhancement by an additional processor before reproduction.

**FIG. 1**





European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 99 31 0611

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			H04R
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>30 January 2003</b>	Examiner <b>Tsapelis, A</b>
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  
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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  
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