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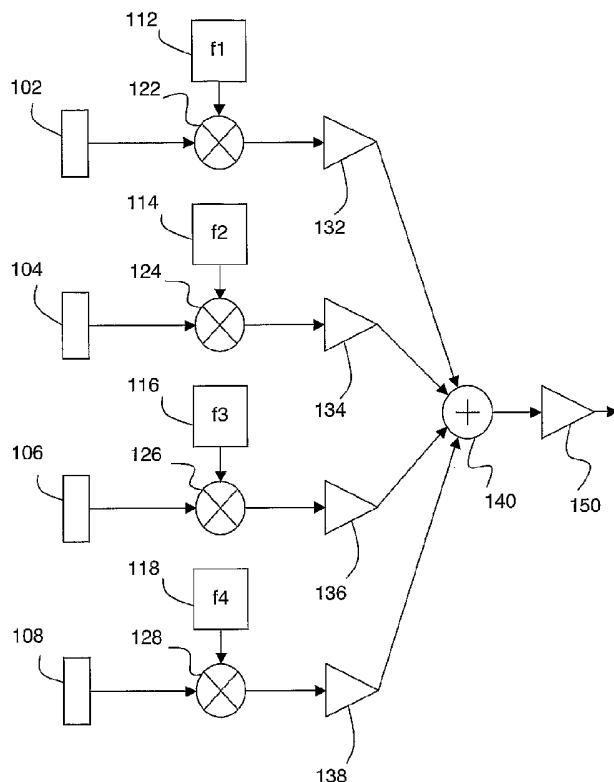
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[Continued on next page]

(54) Title: MAGNETIC SENSOR ARRAY HAVING AN ANALOG FREQUENCY-DIVISION MULTIPLEXED OUTPUT



(57) Abstract: A magnetic sensor array including magnetoresistive sensor elements having outputs combined by frequency division multiplexing (FDM) is provided. Each sensor element provides an input to a mixer which provides a distinct frequency shift. Preferably, time division multiplexing is also used to combine sensor element outputs. Each sensor element is typically in proximity to a corresponding sample. The sensor elements are preferably subarrays having row and column addressable sensor element pixels. This arrangement provides multiple sensor pixels for each sample under test. Multiplexing of sensor element outputs advantageously reduces readout time. A modulated external magnetic field is preferably applied during operation, to reduce the effect of 1/f noise on the sensor element signals. The effect of electromagnetic interference (EMI) induced by the magnetic field on sensor element signals is advantageously reduced by the mixing required for FDM.



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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,981,297 A (BASELT) 09 November 1999, see columns 2-8	1-23



Further documents are listed in the continuation of Box C.



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