



US005506908A

United States Patent [19]**Baumhauer, Jr. et al.**[11] **Patent Number:** **5,506,908**[45] **Date of Patent:** **Apr. 9, 1996**[54] **DIRECTIONAL MICROPHONE SYSTEM**

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[51] Int. Cl.⁶ **H04R 3/00**

[52] U.S. Cl. **381/92**

[58] Field of Search 381/155, 94, 92

[56] **References Cited****U.S. PATENT DOCUMENTS**

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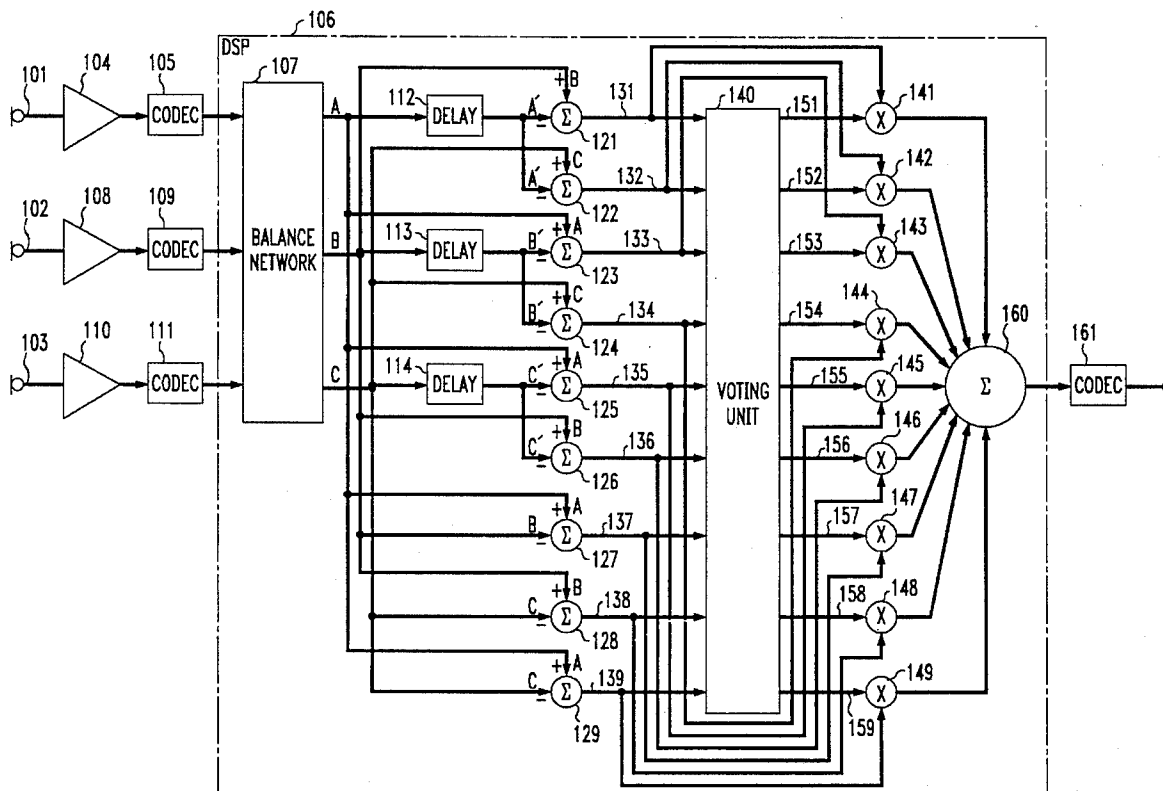
Primary Examiner—Scott A. Rogers

Assistant Examiner—Jerome Grant, II

Attorney, Agent, or Firm—Thomas Stafford

[57] **ABSTRACT**

Full directional pickup coverage is realized by employing a pickup arrangement which provides a plurality of audio polar directivity patterns, i.e., directional beams. These polar directivity patterns are formed in a unique embodiment of the invention by generating a plurality of frequency independent time-delayed versions of a corresponding plurality of spatially sampled signals and by combining each of the plurality of spatially sampled signals with one or more selected ones of the time delayed versions to generate at least a similar plurality of polar directivity patterns. More specifically, the spatially sampled signals are combined with the delayed versions in such a manner that a greater number of polar directivity patterns can be considered than the number of spatially sampled signals. In a specific embodiment, the spatially sampled signals are acoustic (audio) and a plurality of microphones arranged in a predetermined spatial configuration is employed to obtain them.

16 Claims, 6 Drawing Sheets

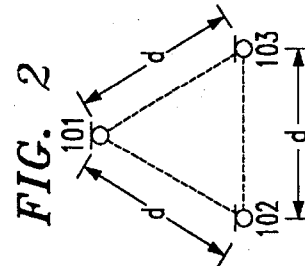


FIG. 3

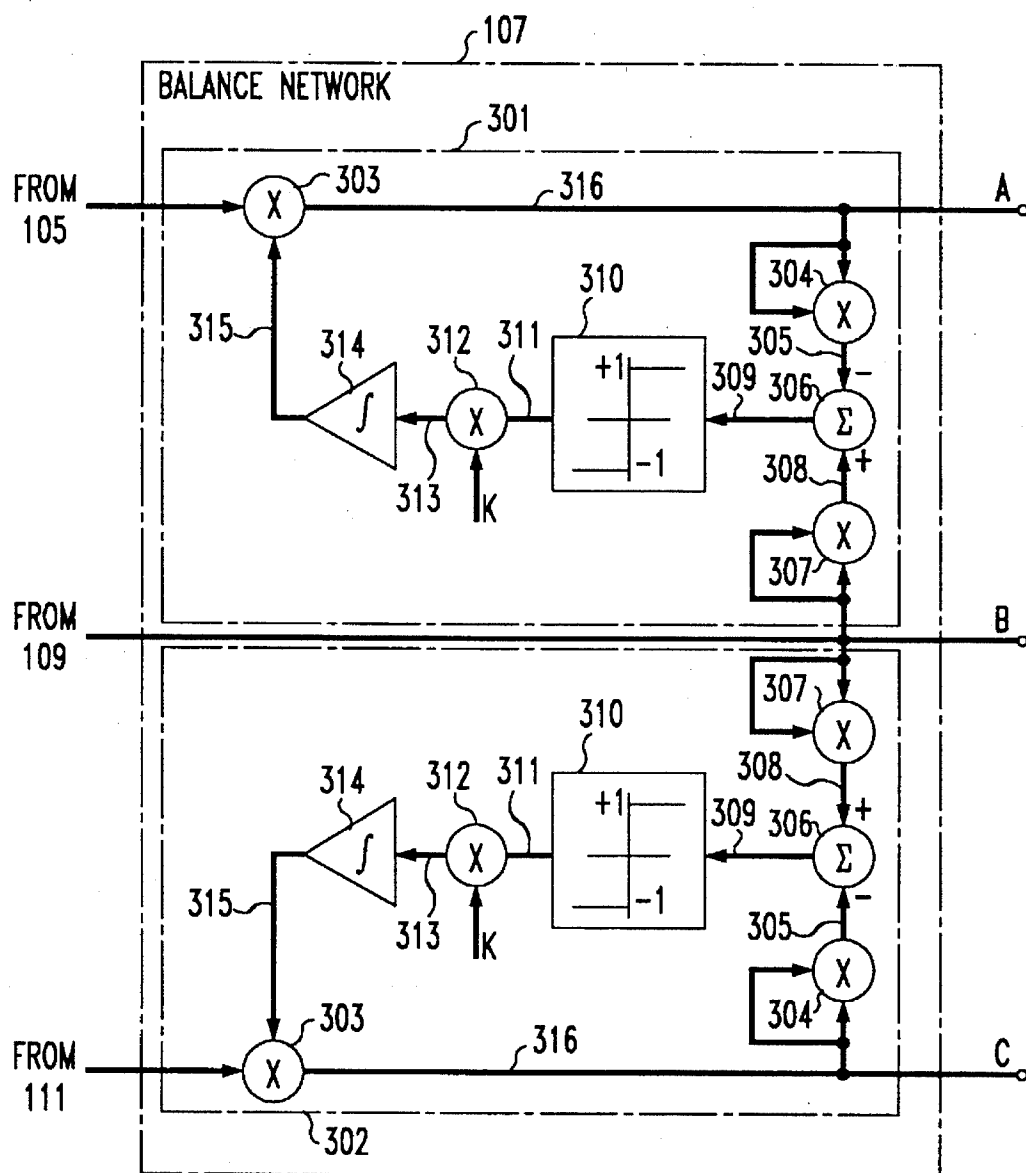
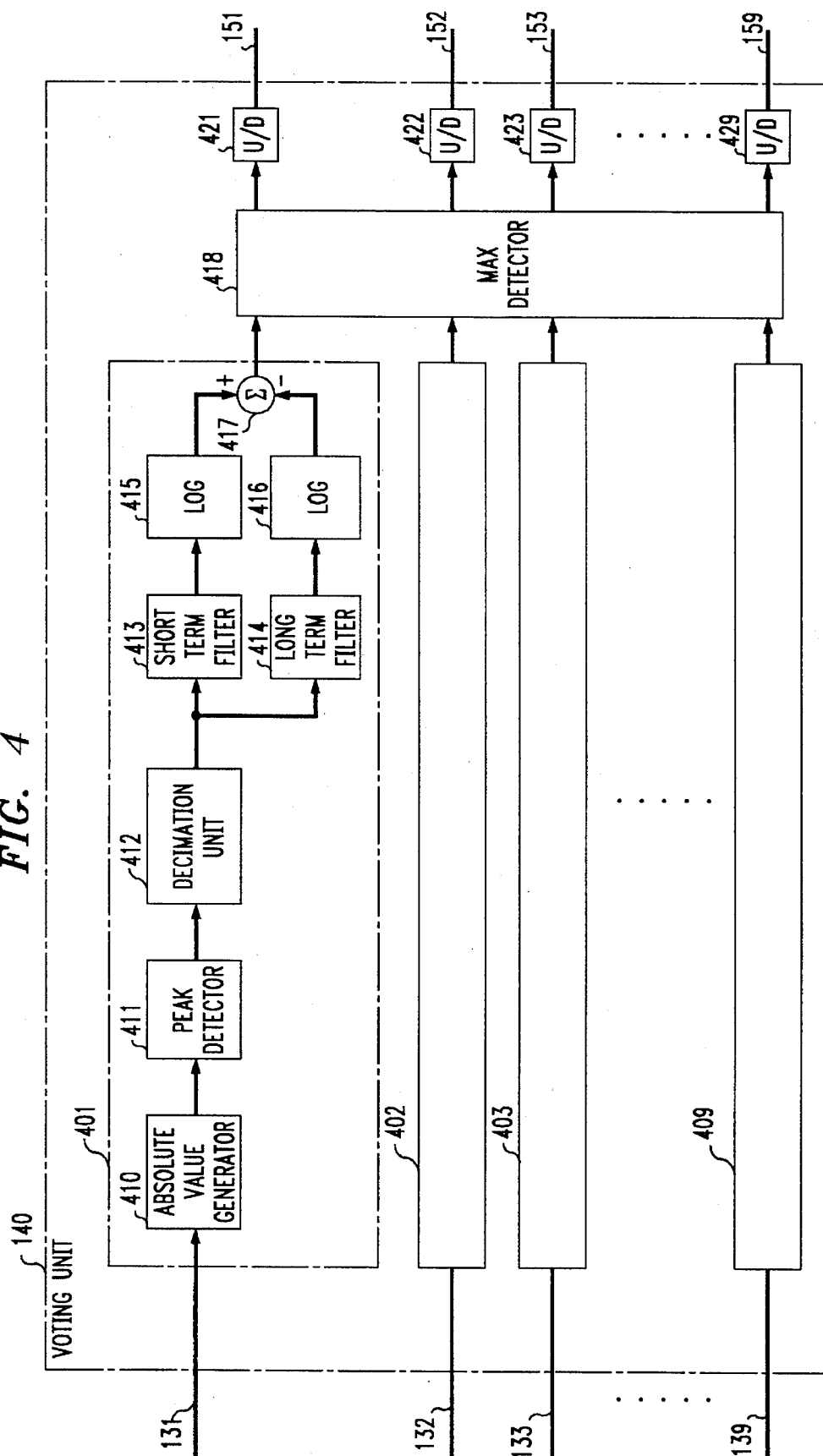


FIG. 4



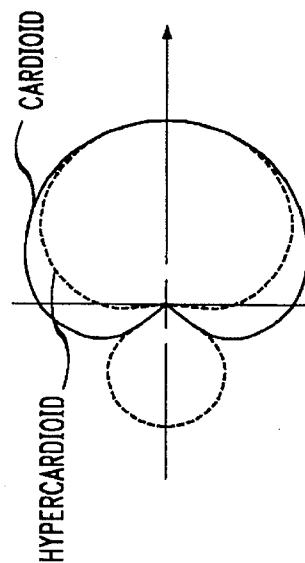
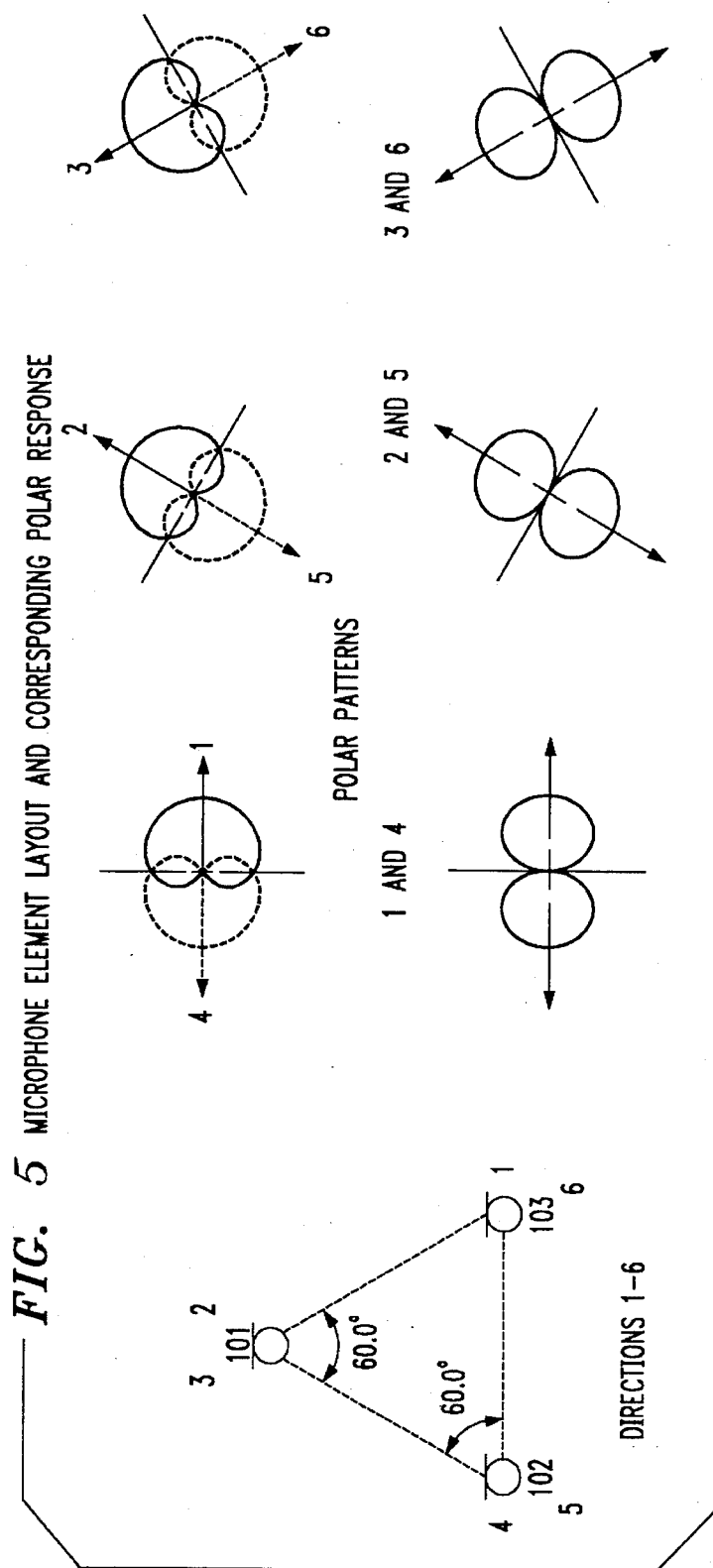


FIG. 5A
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