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# United States Patent [19]

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Anderson

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[54] **HEARING AID WITH WIRELESS REMOTE PROCESSOR**

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[76] Inventor: **James C. Anderson**, 40 Aran Rd., Westwood, Mass. 02090

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[21] Appl. No.: **479,629**

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[22] Filed: **Jun. 7, 1995**

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[51] Int. Cl.<sup>6</sup> ..... **H04R 25/00**

[52] U.S. Cl. .... **381/68.6; 381/68; 381/68.2; 381/68.4**

[58] Field of Search ..... 381/68, 68.2, 68.4, 381/68.6; 342/42-51, 2; 340/6, 825.54, 505

SHS Wireless Radio Communications Data Sheet From E.A.R. Inc.; Jan. 1990.

CROS Product Data Sheets From Telex Communications, Inc.; Jan. 1989.

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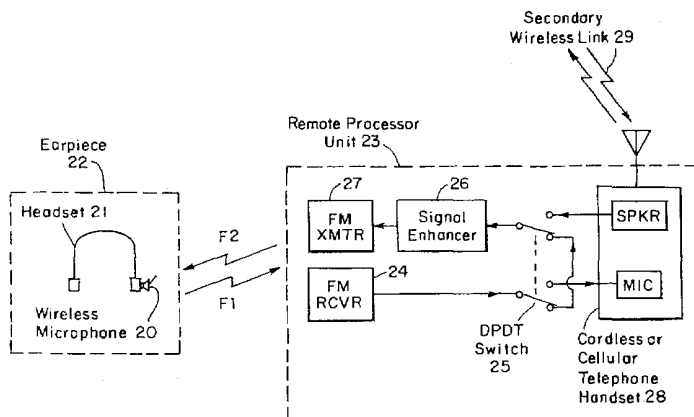
### [57] ABSTRACT

A hearing aid or audio communication system includes an earpiece (10) that can be hidden in the ear canal, and which communicates wirelessly with a remote processor unit, or RPU (16), that enhances audio signals and can be concealed under clothing. Sounds from the environment are picked up by a microphone (12) in the earpiece and sent with other information over a two-way wireless link (17) to the RPU (16). The wireless link (17) uses microwaves for component miniaturization. Furthermore, use of radar technology to implement the wireless link (17), with an RPU (16) interrogator and earpiece (10) transponder, reduces earpiece size and power, as no microwave oscillator is needed in the earpiece (10). Optional secondary wireless link circuitry (19) can be used between the RPU (16) and a cellular telephone system or other sources of information. Electronic voice recognition and response can control system operation.

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**71 Claims, 9 Drawing Sheets**



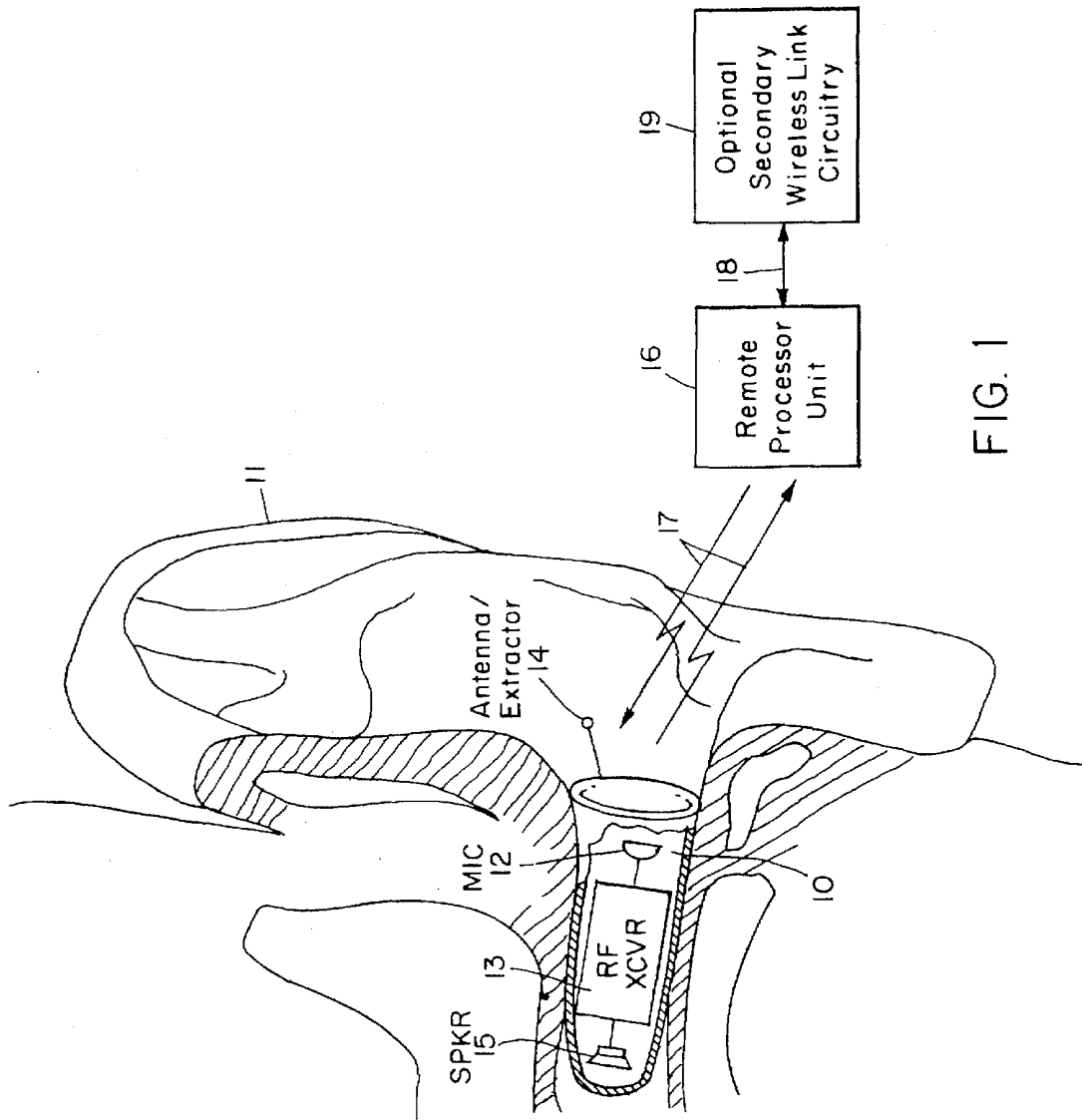


FIG. 1

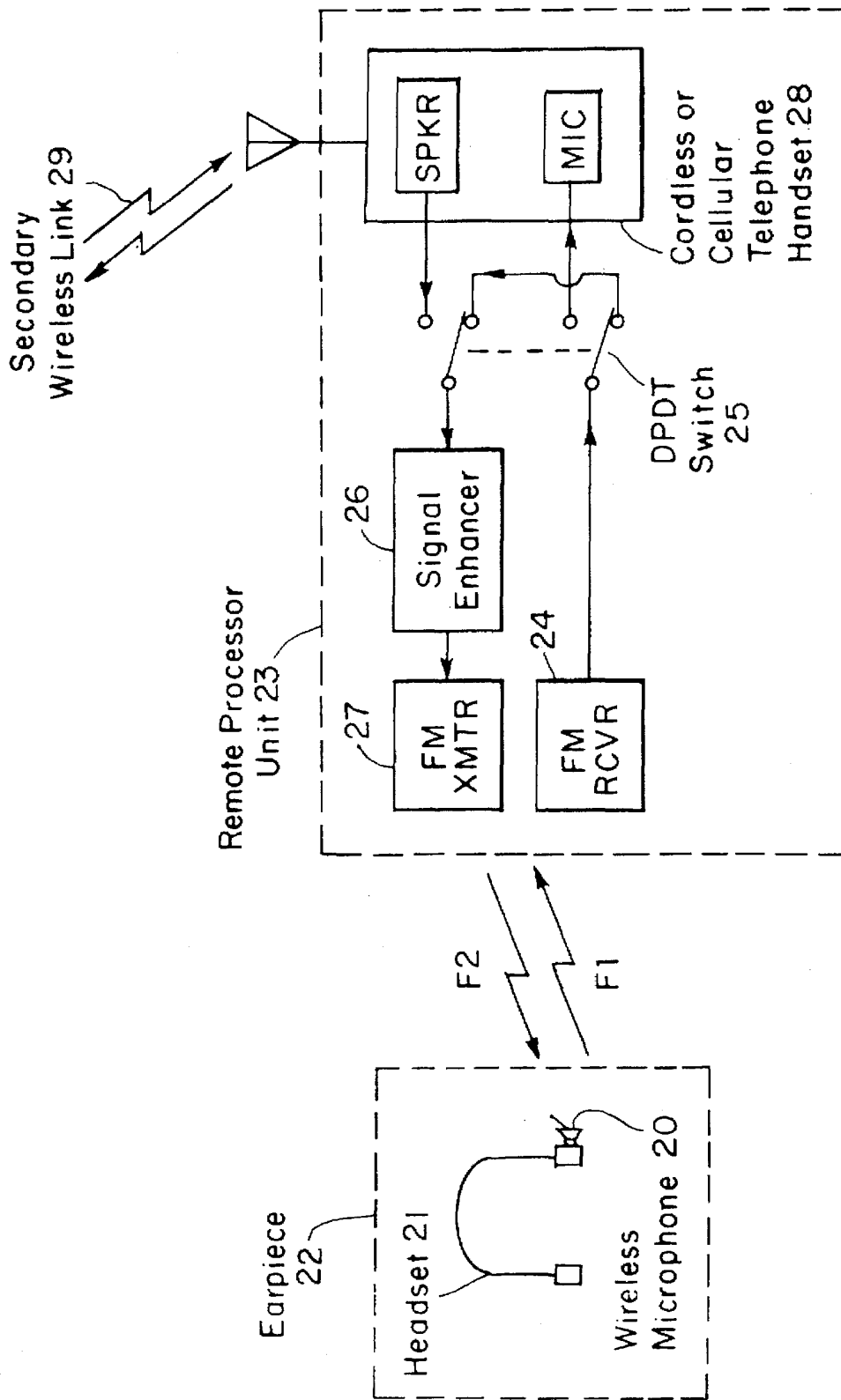


FIG. 2

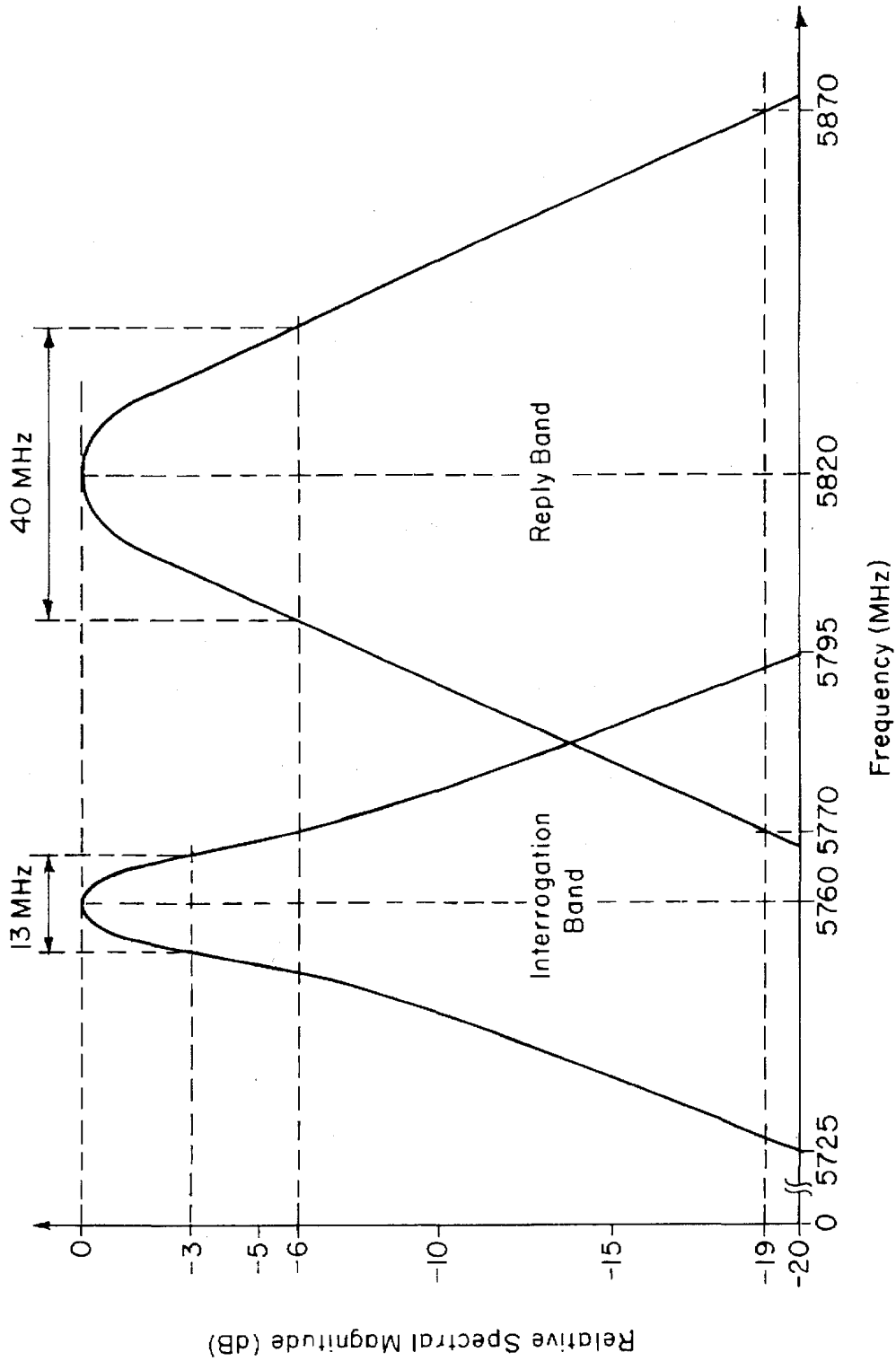
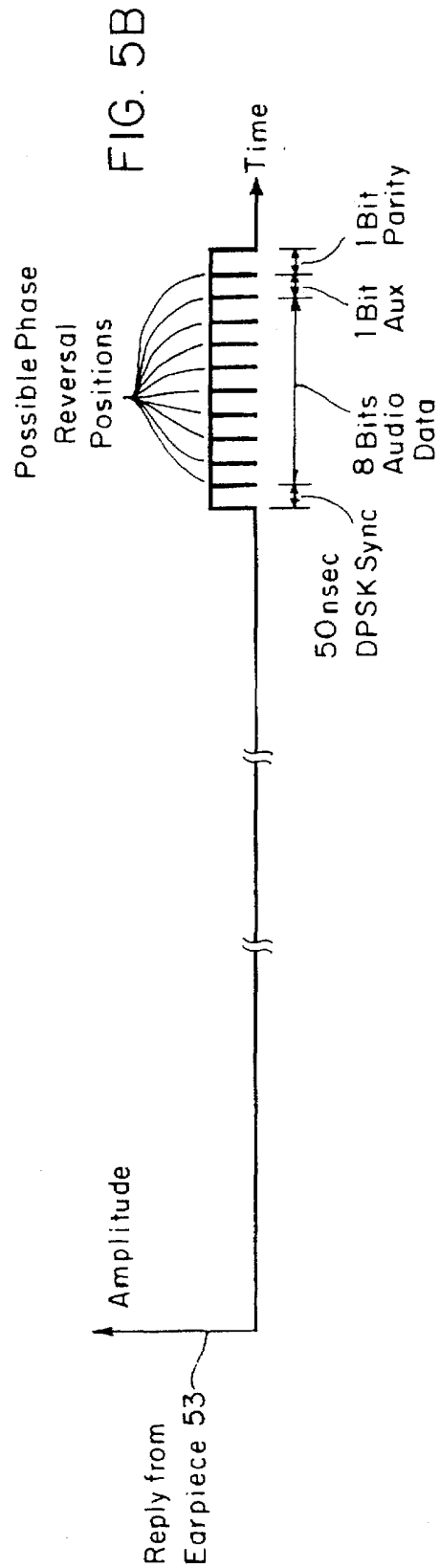
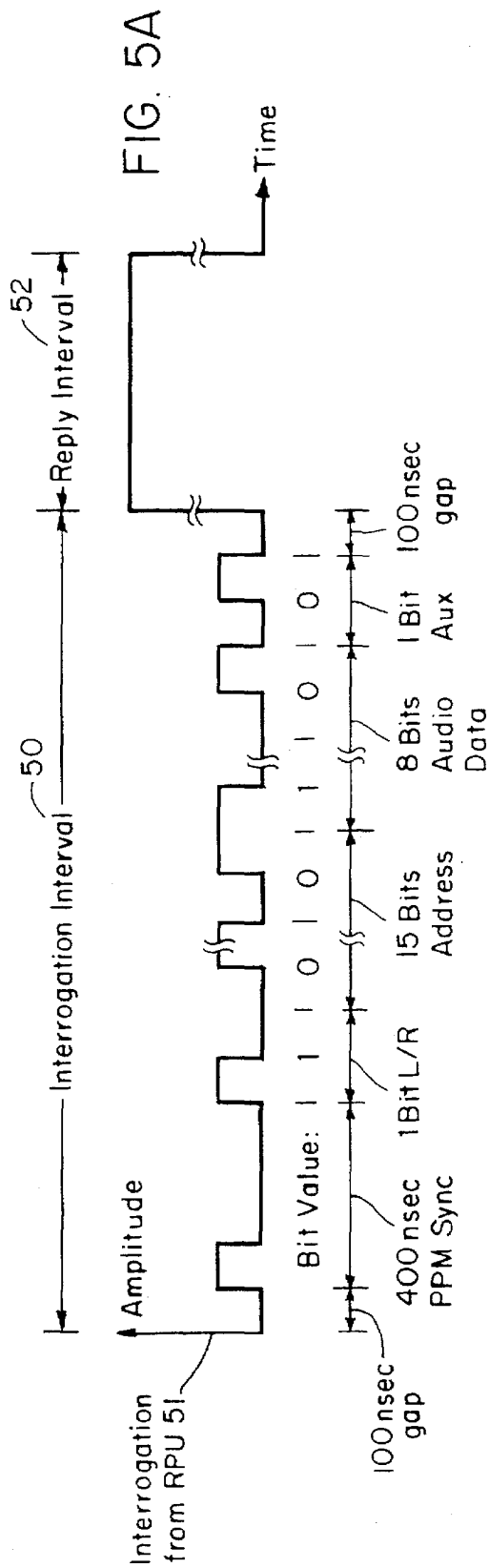


FIG. 3



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