

EXHIBIT N



US005874686A

United States Patent [19][11] **Patent Number:** **5,874,686****Ghias et al.**[45] **Date of Patent:** **Feb. 23, 1999**[54] **APPARATUS AND METHOD FOR
SEARCHING A MELODY**

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[21] Appl. No.: **742,260**[22] Filed: **Oct. 31, 1996****Related U.S. Application Data**

[60] Provisional application No. 60/008,177, Oct. 31, 1995.

[51] **Int. Cl.⁶** **A63H 5/00**; G04B 13/00;
G10H 7/00[52] **U.S. Cl.** **84/609**; 84/616[58] **Field of Search** 84/600, 609, 634,
84/616, 654[56] **References Cited****U.S. PATENT DOCUMENTS**

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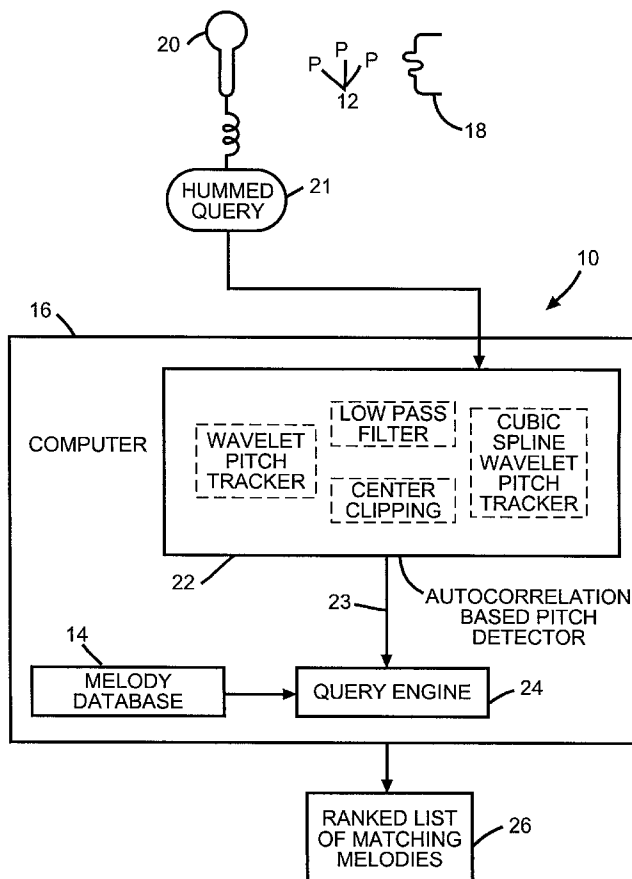
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[57] **ABSTRACT**

Apparatus and method for easily, efficiently, and accurately searching melodies. A melody is inputted to a computer and converted into a form of a sequence of digitized representations of relative pitch differences between successive notes thereof. A melody database is searched for at least one sequence of digitized representations of relative pitch differences between successive notes which at least approximately matches the sequence of digitized representations of relative pitch differences between successive notes of the melody.

16 Claims, 3 Drawing Sheets

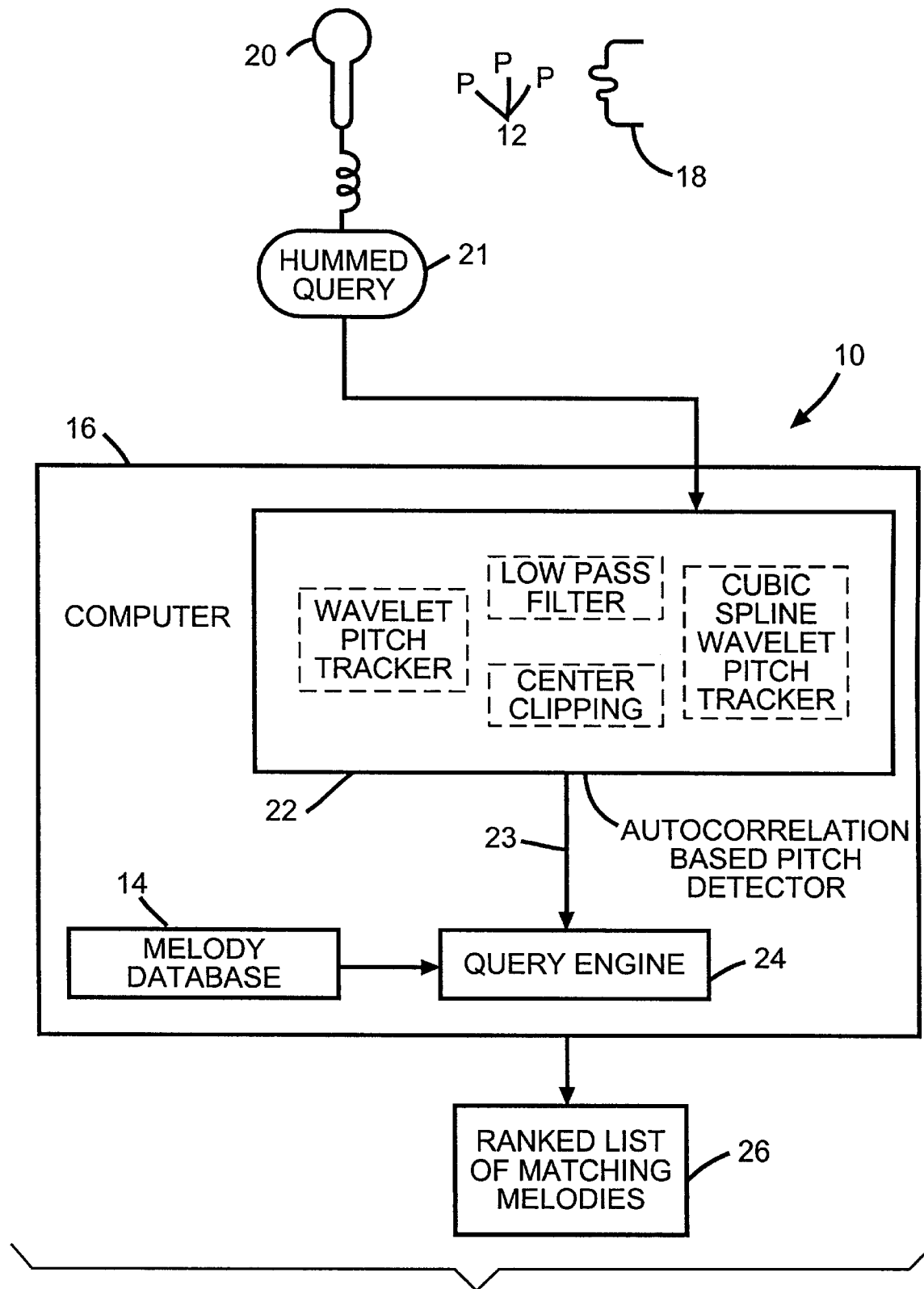
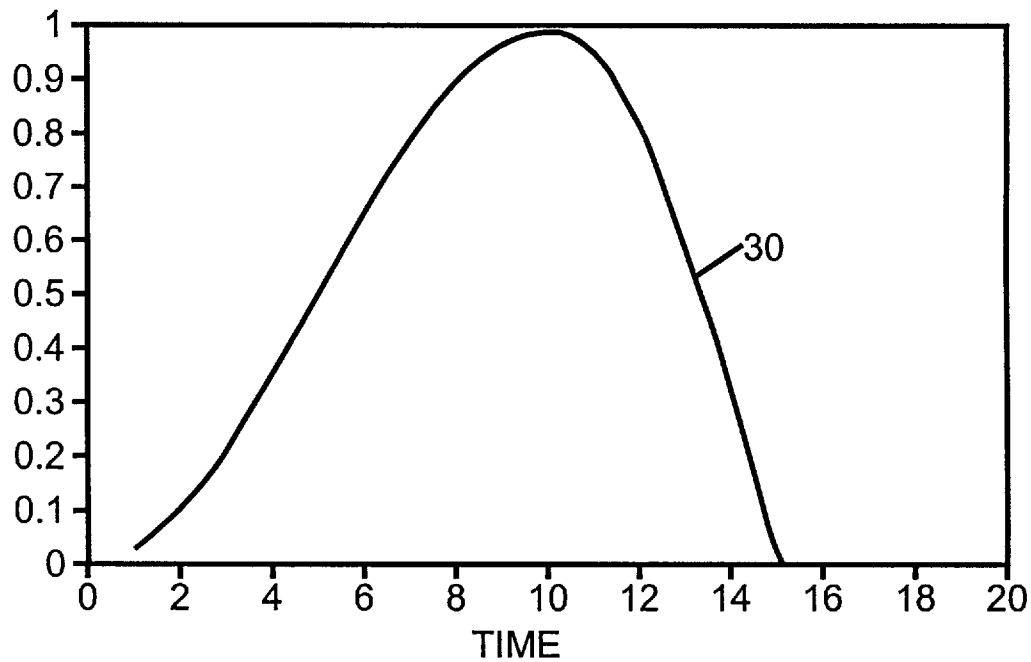
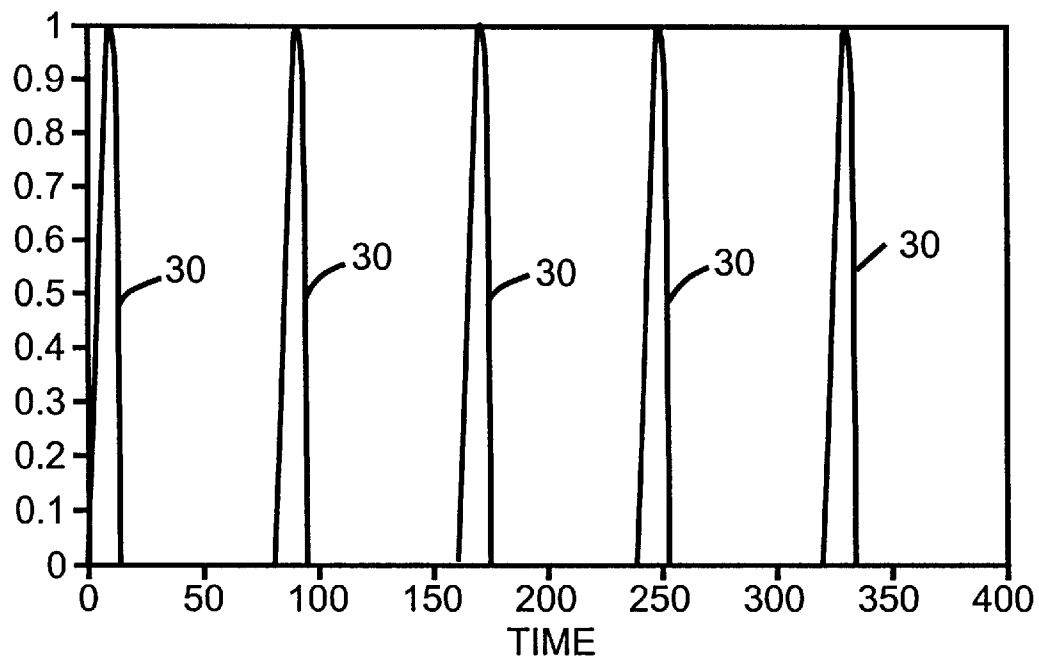


FIG. 1



—FIG. 2



—FIG. 3

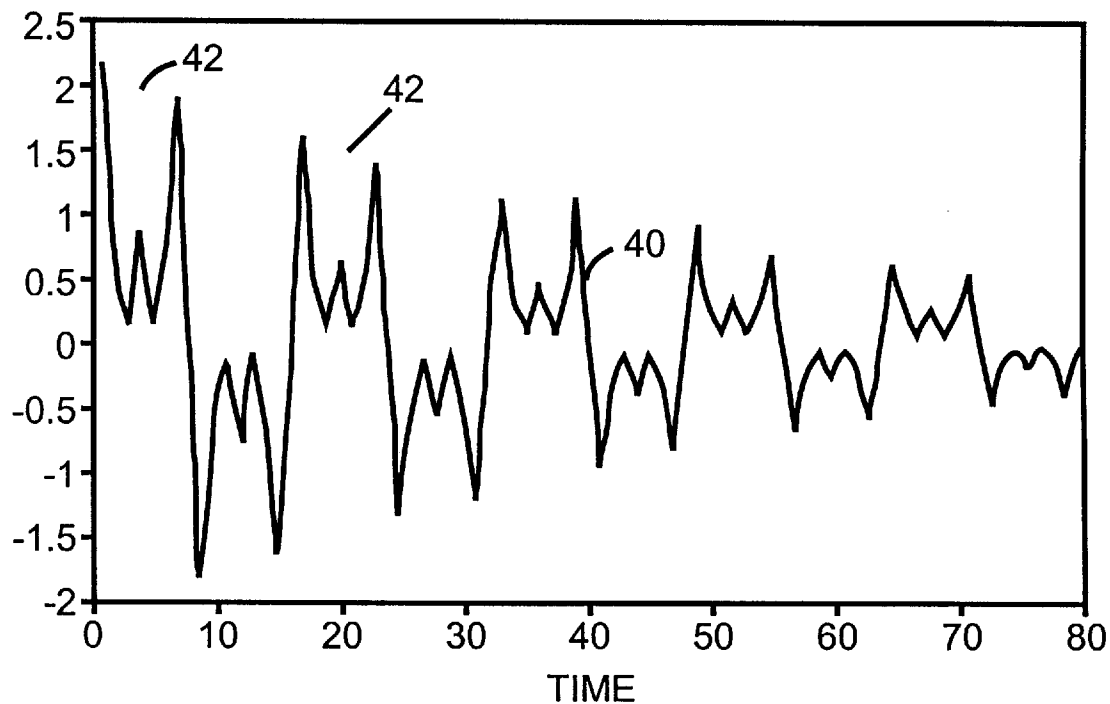


FIG. 4

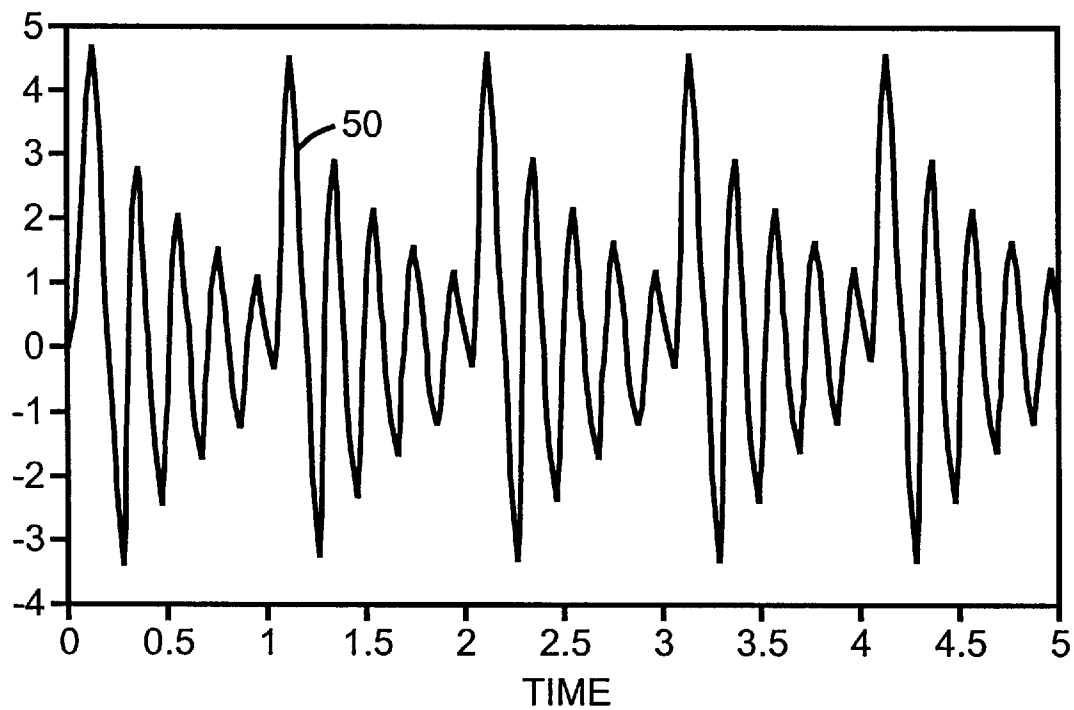


FIG. 5

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