EXHIBIT N



US005874686A

United States Patent [19]

Ghias et al.

[11] Patent Number: 5,874,686

[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

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Primary Examiner—William M. Shoop, Jr.

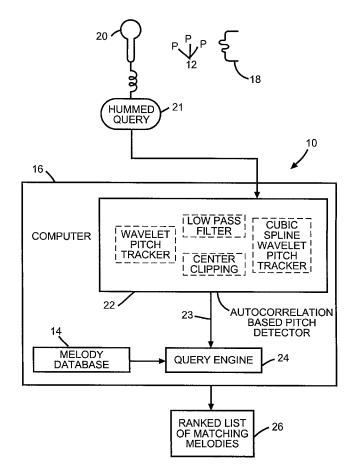
Assistant Examiner—Jeffrey W. Donels

Attorney, Agent, or Firm—Hodgson, Russ, Andrews, Woods
& Goodyear LLP

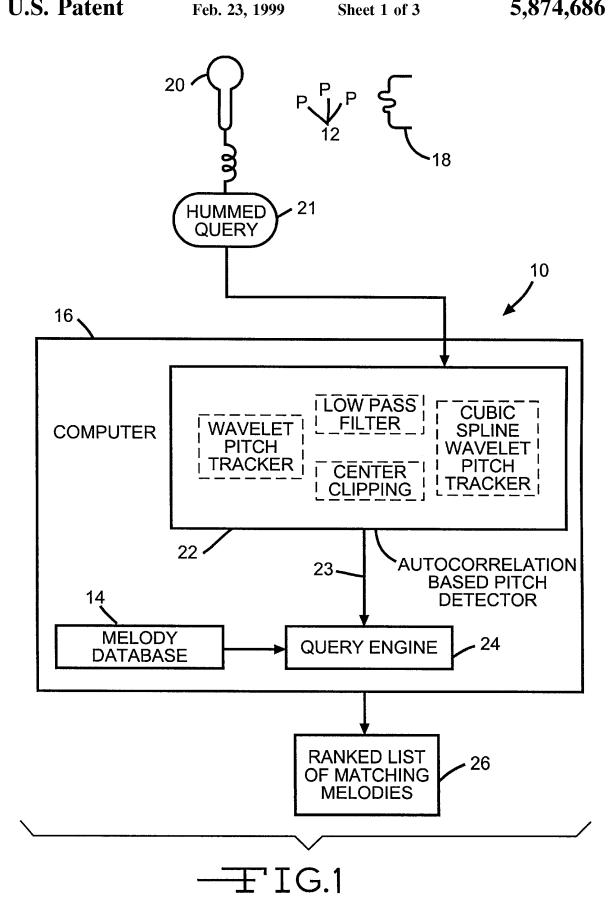
[57] ABSTRACT

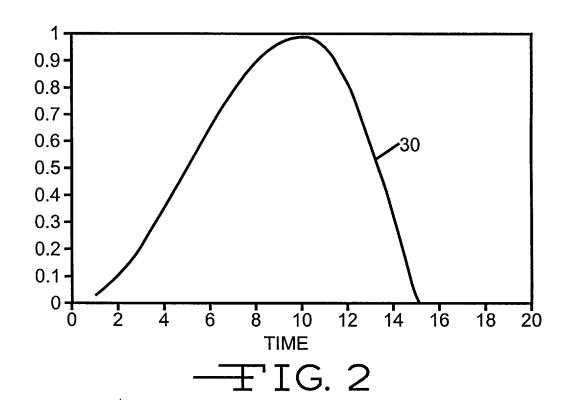
Apparatus and method for easily, efficiently, and accurately searching melodies. A melody is inputted to a computer and converted into a form of a sequence of digitized representations of relative pitch differences between successive notes thereof. A melody database is searched for at least one sequence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

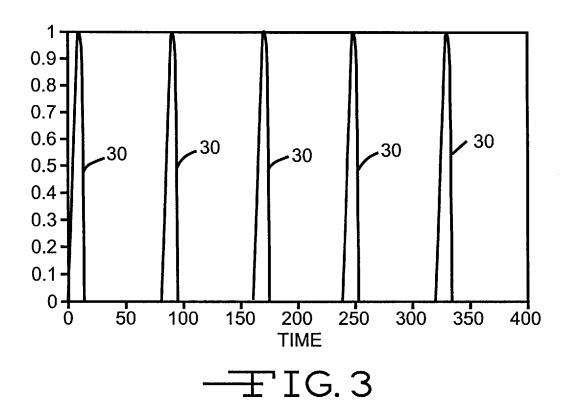
16 Claims, 3 Drawing Sheets



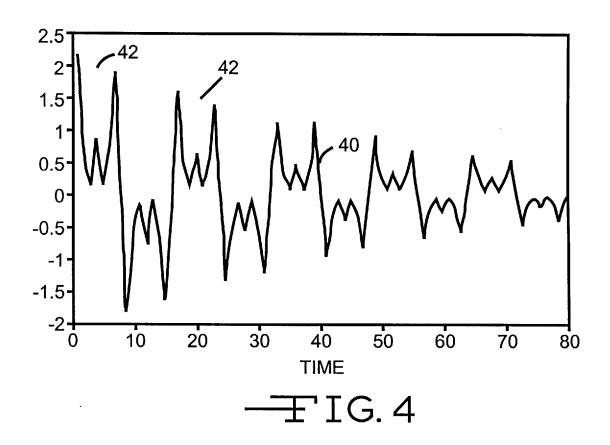


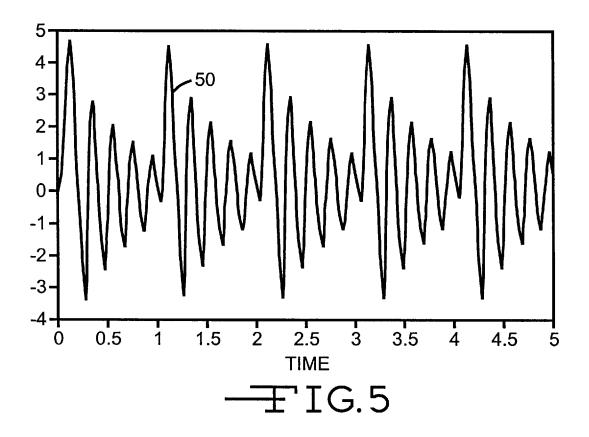














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