United States Patent [19]

Laug

[11] **Patent Number: 4,965,529**

[45] **Date of Patent: Oct. 23, 1990**

[54] **HIGH CURRENT, VERY WIDE BAND TRANSCONDUCTANCE AMPLIFIER**

[75] Inventor: **Owen B. Laug**, Barnesville, Md.

[73] Assignee: **The United States of America as represented by the Secretary of Commerce**, Washington, D.C.

[21] Appl. No.: **410,387**

[22] Filed: **Sep. 21, 1989**

[51] **Int. Cl.**[5] **H03F 3/45**

[52] **U.S. Cl.** **330/255**; 330/257

[58] **Field of Search** 330/255, 257, 275, 295

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,390,848	6/1983	Blauschild	330/151
4,528,515	7/1985	Gross	330/254
4,555,672	11/1985	Segal	330/255
4,580,106	4/1986	Vittoz	330/261
4,689,607	8/1987	Robinson	330/257 X
4,723,110	2/1988	Voorman	330/252
4,797,629	1/1989	Wildlar	330/258
4,823,092	4/1989	Pennock	330/253

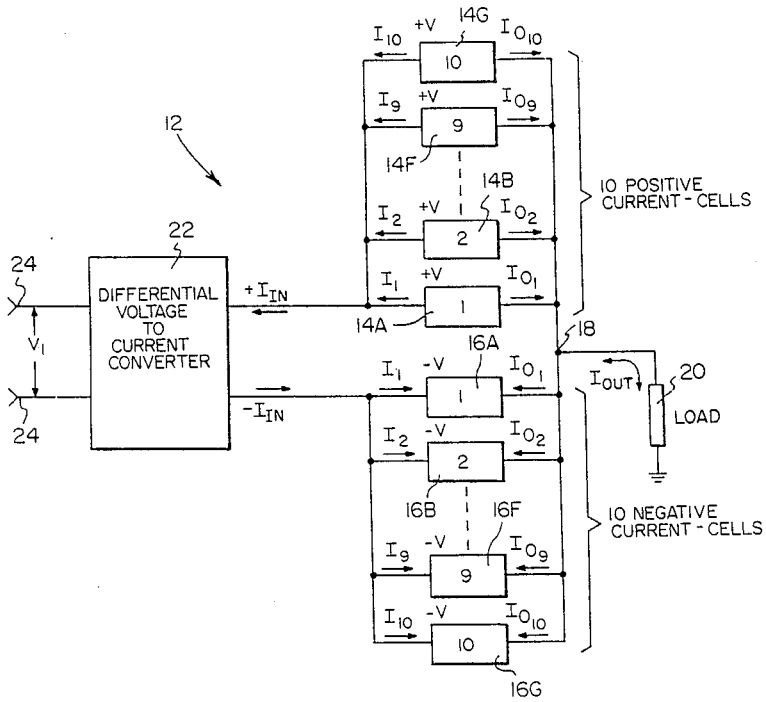
OTHER PUBLICATIONS

Feldman, "Anti-Negative Feedback for Hi-Fi Amplifiers", *Radio-Electronics*, vol. 52, No. 3, Mar. 1981, pp. 52-54.

Primary Examiner—James B. Mullins

Attorney, Agent, or Firm—Thomas Zack; Alvin J. Englert; Frank J. Kowalski

[57] **ABSTRACT**

A high-current, very-wide-band transconductance amplifier includes a differential voltage to current converter and a plurality of complementary unipolar current mirror cells. The differential voltage to current converter isolates the input voltage terminal from the common side of the output load current terminal. A plurality of positive current mirror cells are connected in parallel and a plurality of negative current mirror cells are connected in parallel to avoid the need for a single low resistance current sensing resistor and the fabrication problems inherent in such resistors.

14 Claims, 3 Drawing Sheets