



[54] SWITCHING REGULATOR AND AMPLIFIER SYSTEM

4,742,311 5/1988 Van Der Zwart ..... 330/297  
4,752,747 6/1988 Botti et al. .... 330/297  
5,075,634 12/1991 French ..... 330/146

[75] Inventor: Robert E. Stengel, Ft. Lauderdale, Fla.

OTHER PUBLICATIONS

[73] Assignee: Motorola, Inc., Schaumburg, Ill.

Motorola Semiconductor—Master Selection Guide 1992 (Rev 5)—Cover pages, pp. 5.3–7.

[21] Appl. No.: 402,242

Primary Examiner—James B. Mullins

[22] Filed: Mar. 10, 1995

Attorney, Agent, or Firm—Barbara R. Doutré

Related U.S. Application Data

[57] ABSTRACT

[62] Division of Ser. No. 237,325, May 3, 1994, Pat. No. 5,422,317, which is a continuation of Ser. No. 269,944, Jun. 29, 1994, abandoned, which is a continuation of Ser. No. 974,017, Nov. 10, 1992, abandoned.

A voltage regulator (200) includes a controller (204) which selectively activates a plurality of switching means (208, 210, 214, and 212) in order to select between a first current loop in which an energy storage device is charged by an input supply and a second loop in which the energy storage device is coupled to the output terminal (242) of the regulator (200). The switching from the second current loop to the first is governed by the controller (204) determining that the loop current in the second loop has reached a predetermined level. A first switching audio amplifier (300) is disclosed which uses the voltage regulator (200) to provide a continuously variable output voltage (318) in order to provide for high quality amplification which is independent of the volume setting. A second audio amplifier (400) includes a converter (436) which provides discrete voltage levels to a full wave bridge in order to provide improved audio output.

[51] Int. Cl.<sup>6</sup> ..... G05F 1/613

[52] U.S. Cl. .... 323/223; 323/224; 323/285; 323/351

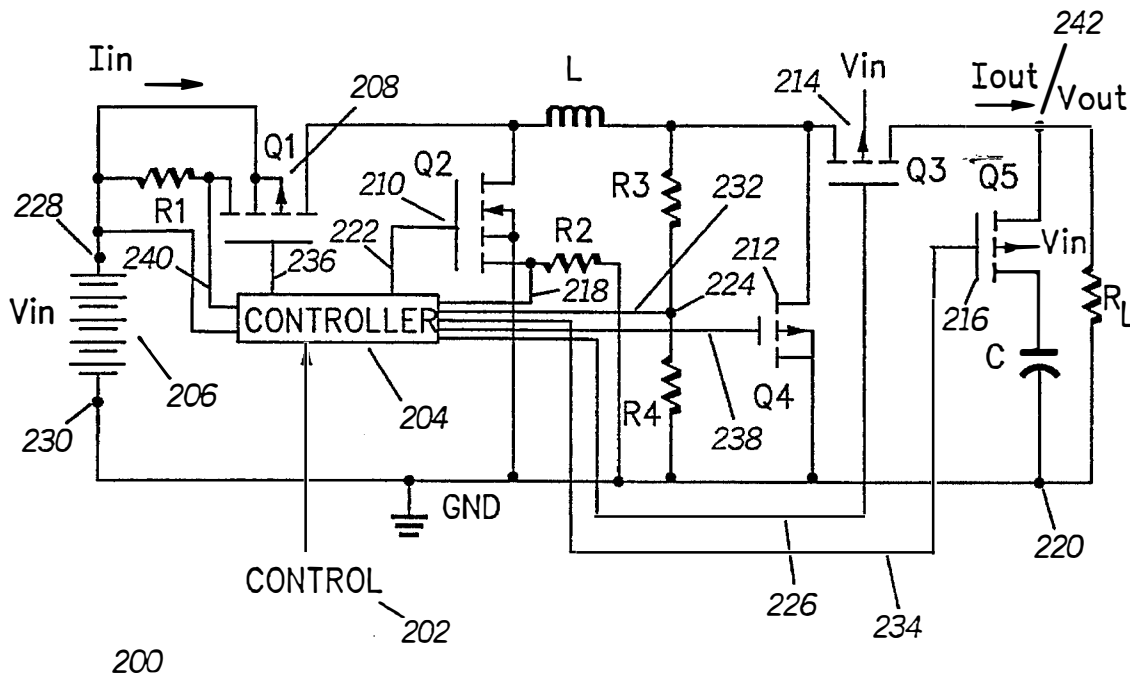
[58] Field of Search ..... 323/223, 224, 323/225, 282, 285, 299, 351

[56] References Cited

U.S. PATENT DOCUMENTS

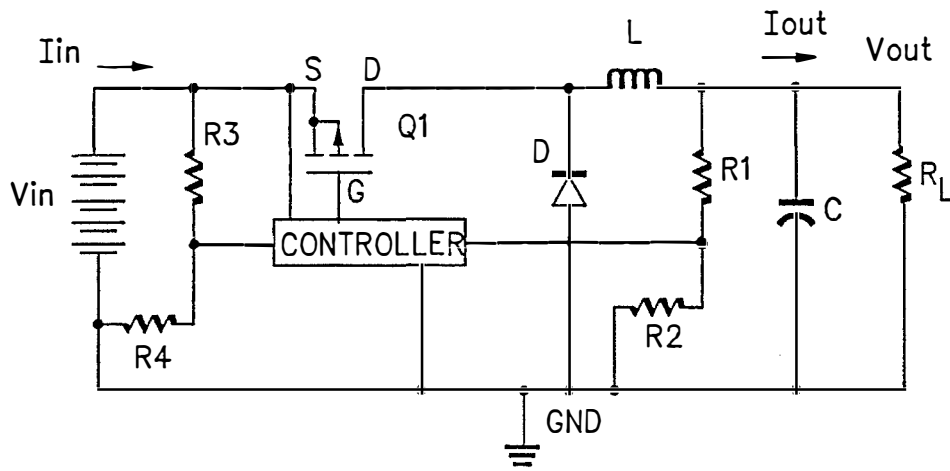
3,531,712 9/1970 Cecchini ..... 323/224  
3,829,788 8/1974 Ford ..... 330/10  
4,016,501 4/1977 Jasinski et al. .  
4,586,002 4/1986 Carver .  
4,717,889 1/1988 Engelmann ..... 330/297

7 Claims, 5 Drawing Sheets



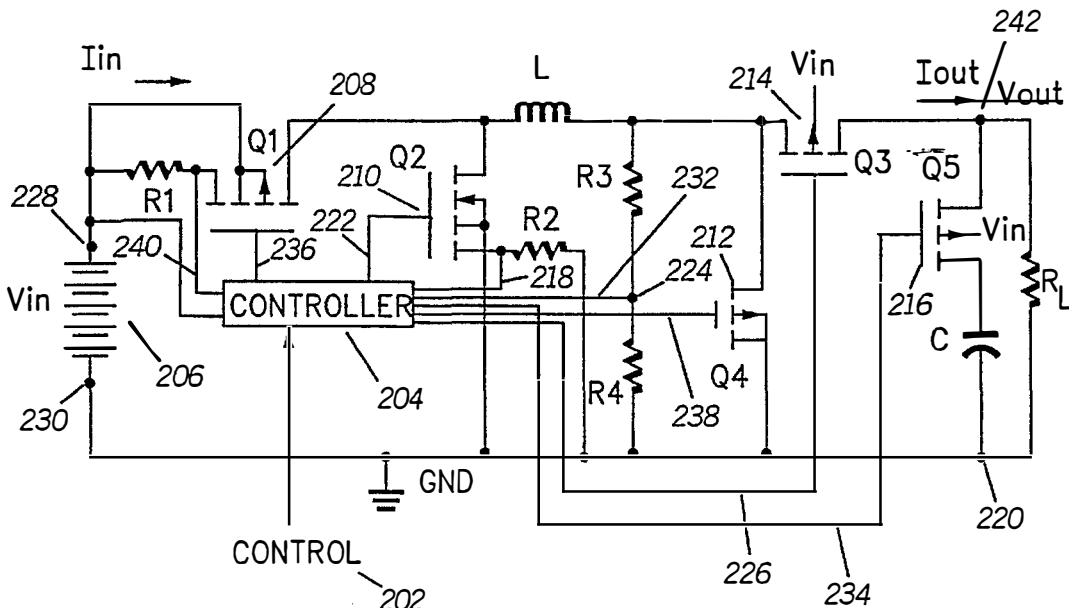
**FIG. 1**

(PRIOR ART)



100

**FIG. 2**



200

FIG. 3

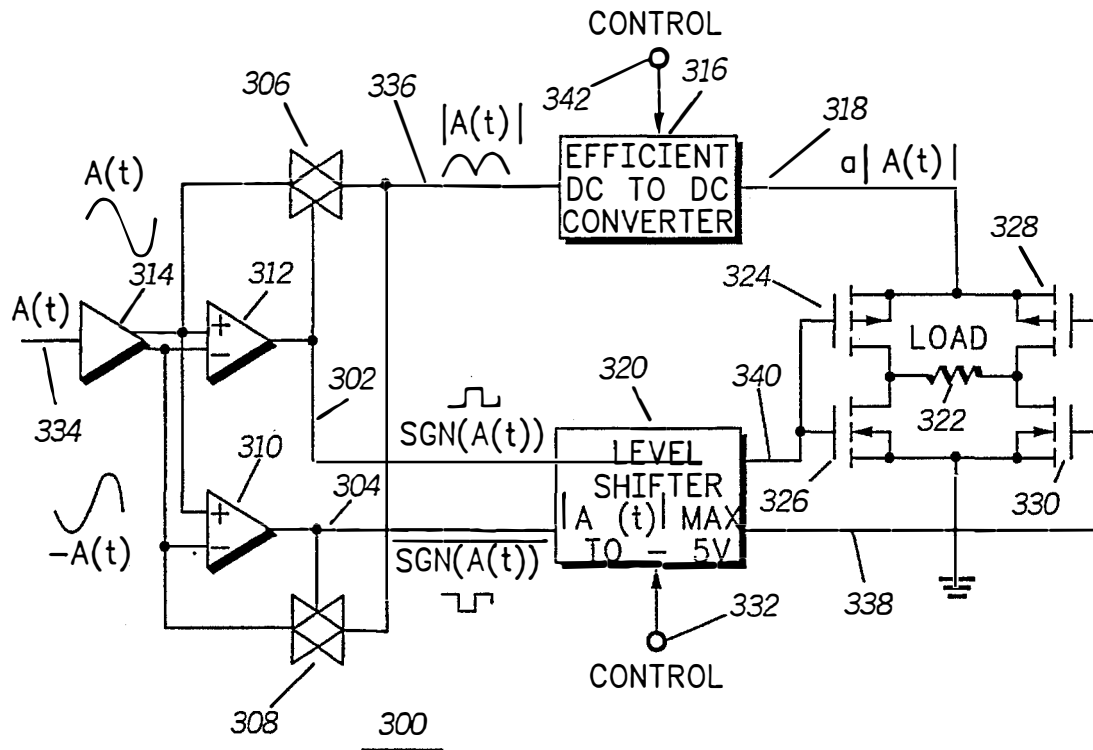


FIG. 4

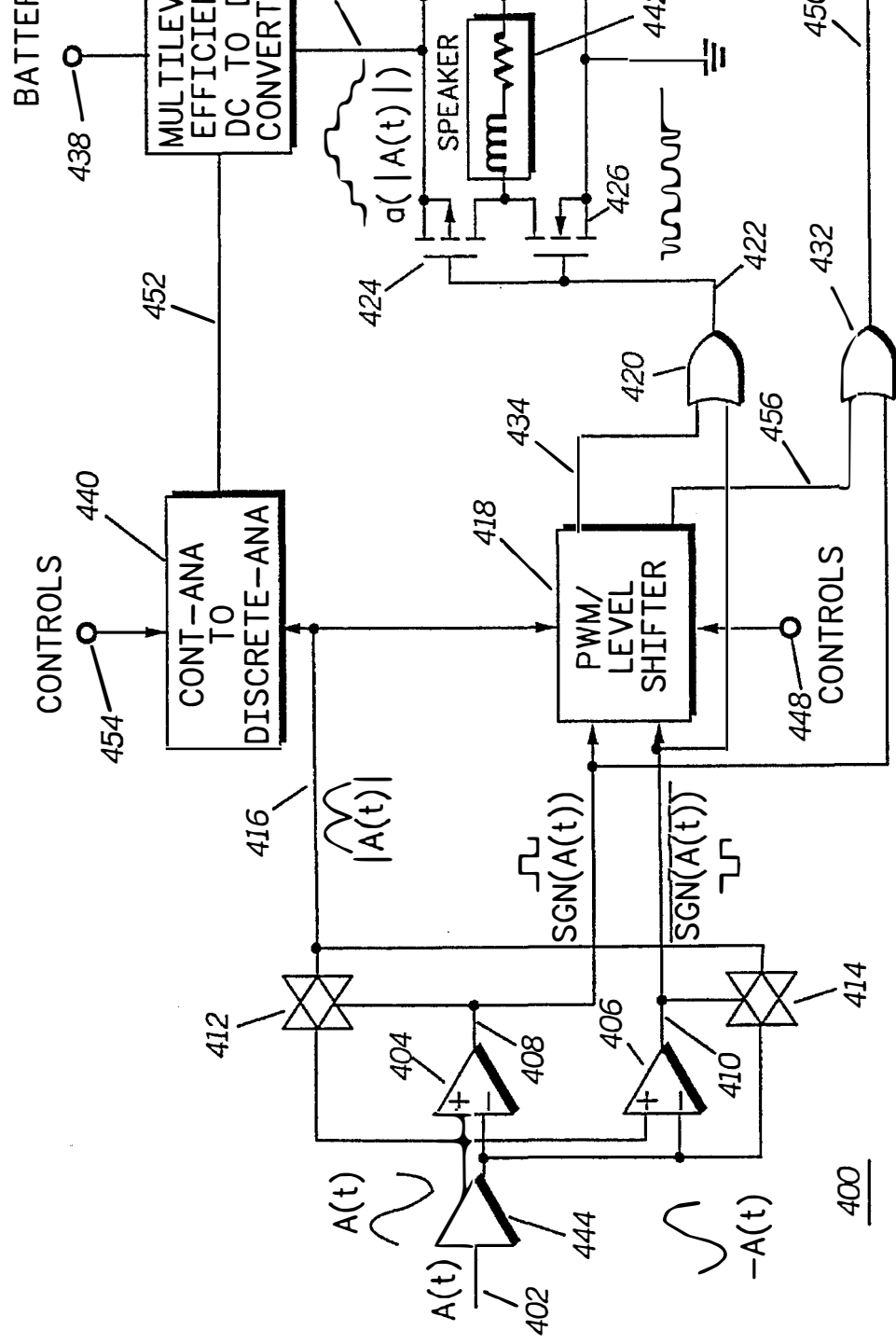
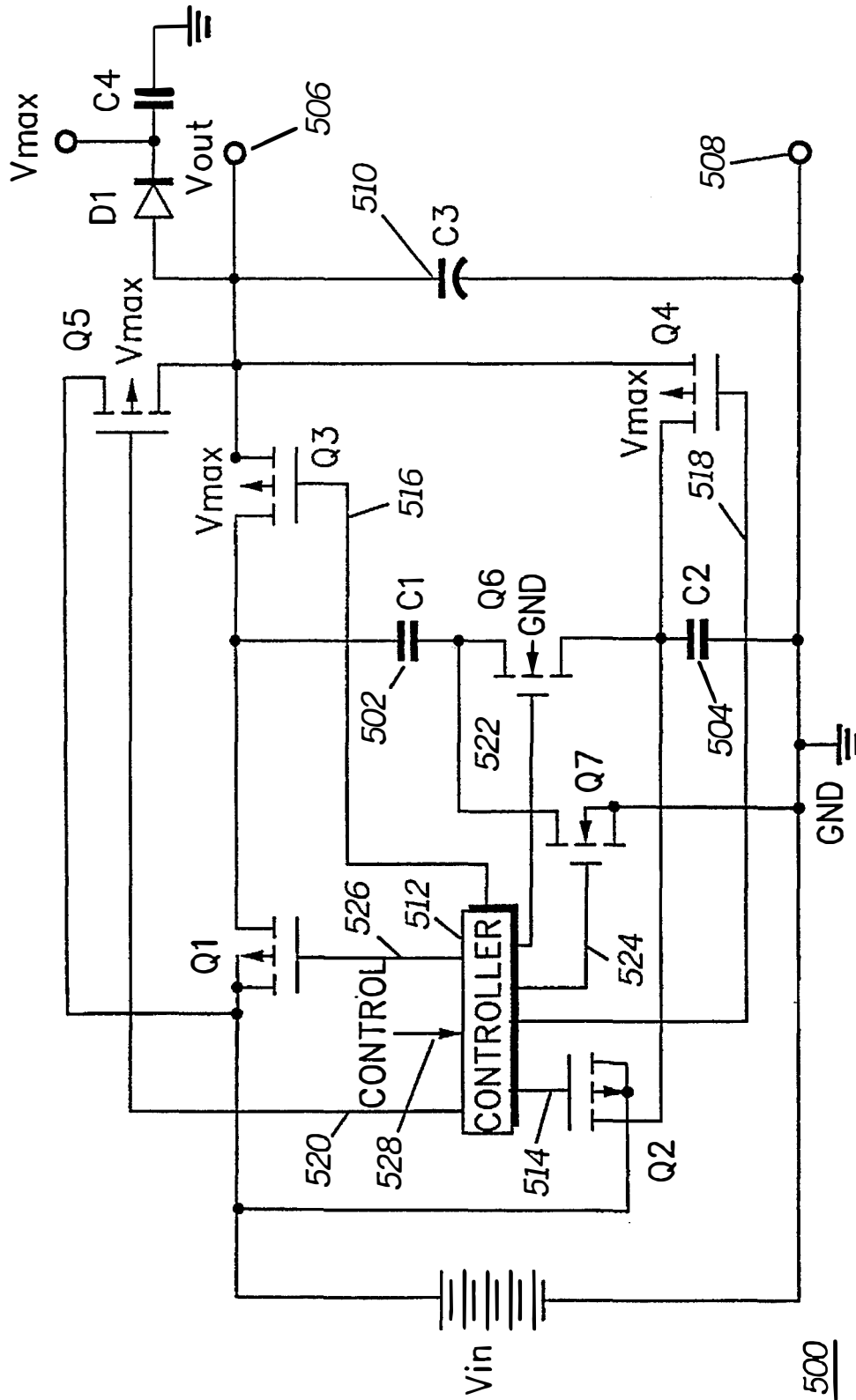


FIG. 5



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.