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Balakrishnan et al.

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- (54) **METHOD AND APPARATUS FOR MAINTAINING A CONSTANT LOAD CURRENT WITH LINE VOLTAGE IN A SWITCH MODE POWER SUPPLY**
- (75) Inventors: **Balu Balakrishnan**, Saratoga, CA (US);
Alex B. Djenguerian, Saratoga, CA (US); **Kent Wong**, Fremont, CA (US);
David Michael Hugh Matthews, Sunnyvale, CA (US)
- (73) Assignee: **Power Integrations, Inc.**, San Jose, CA (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 47 days.
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Related U.S. Application Data

- (63) Continuation of application No. 10/253,307, filed on Sep. 23, 2002, now Pat. No. 6,781,357.
- (60) Provisional application No. 60/325,642, filed on Sep. 27, 2001.
- (51) **Int. Cl.**
H02M 3/335 (2006.01)
- (52) **U.S. Cl.** **363/21.7; 363/49**
- (58) **Field of Classification Search** **363/21.1, 363/21.12, 97, 21.4, 56, 49; 323/288, 222, 323/284, 282**

See application file for complete search history.

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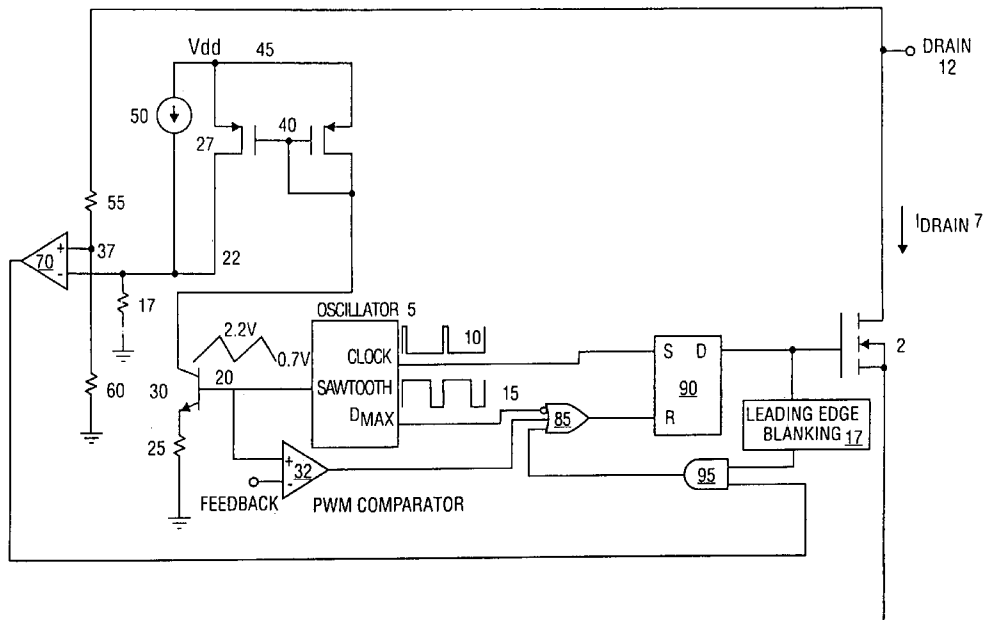
Primary Examiner—Rajnikant B. Patel

(74) *Attorney, Agent, or Firm*—Blakely Sokoloff Taylor & Zafman LLP

(57) **ABSTRACT**

A power supply including a regulation circuit that maintains an approximately constant load current with line voltage. In one embodiment, a regulation circuit includes a semiconductor switch and current sense circuitry to sense the current in the semiconductor switch. The current sense circuitry has a current limit threshold. The regulation circuit current limit threshold is varied from a first level to a second level during the time when the semiconductor switch is on. One embodiment of the regulation circuit is used in a power supply having an output characteristic having an approximately constant output voltage below an output current threshold and an approximately constant output current below an output voltage threshold.

25 Claims, 5 Drawing Sheets



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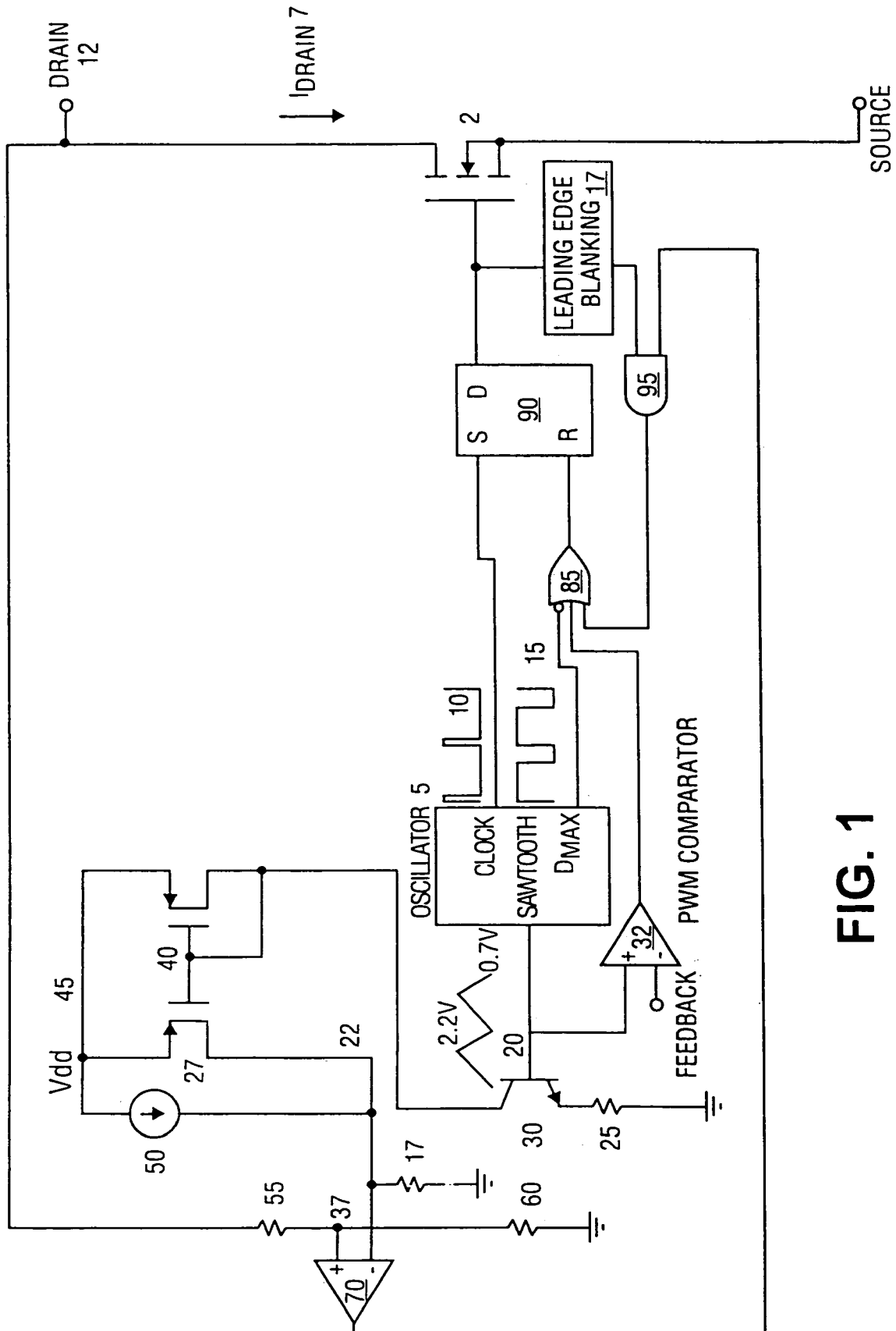


FIG. 1

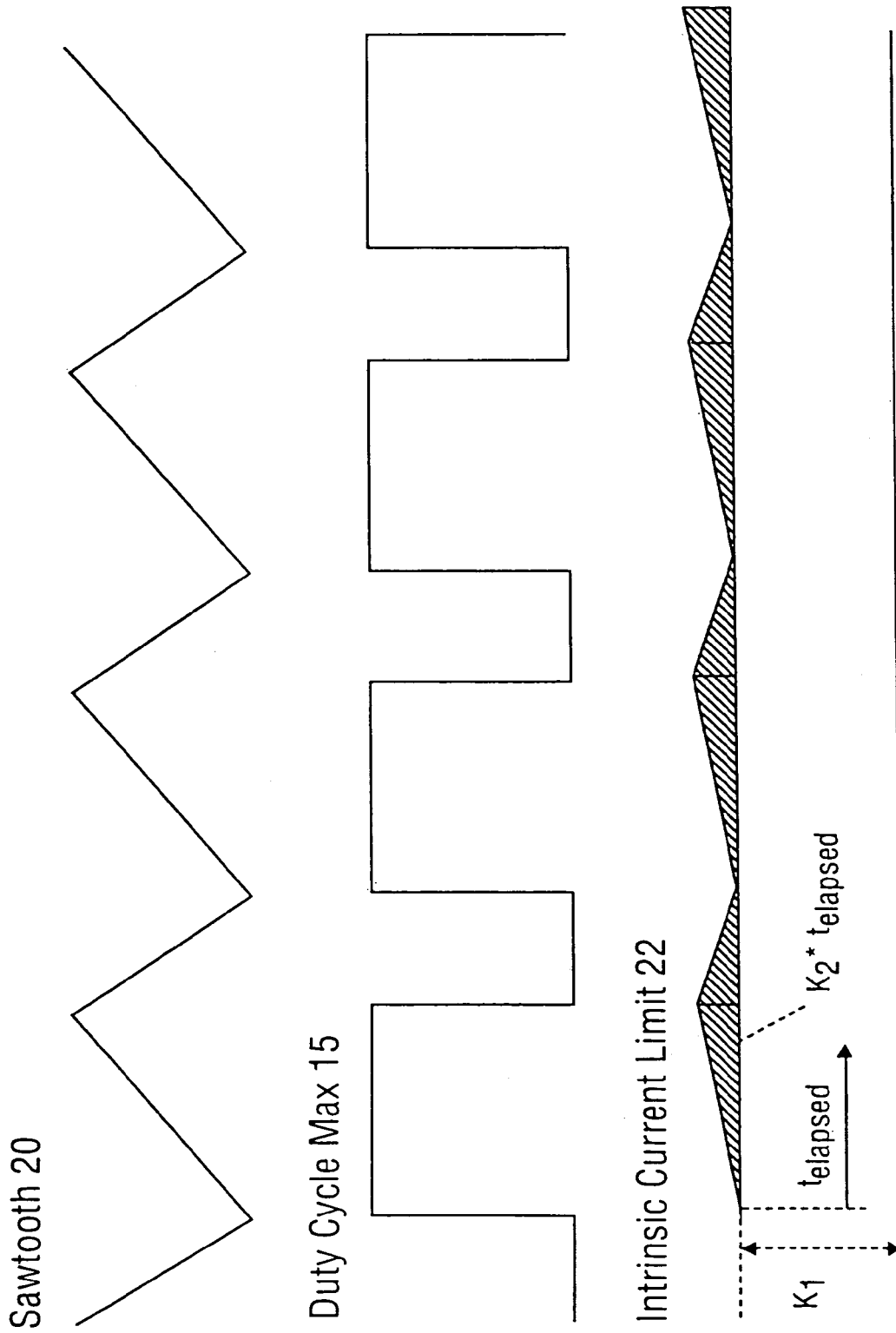


FIG. 2

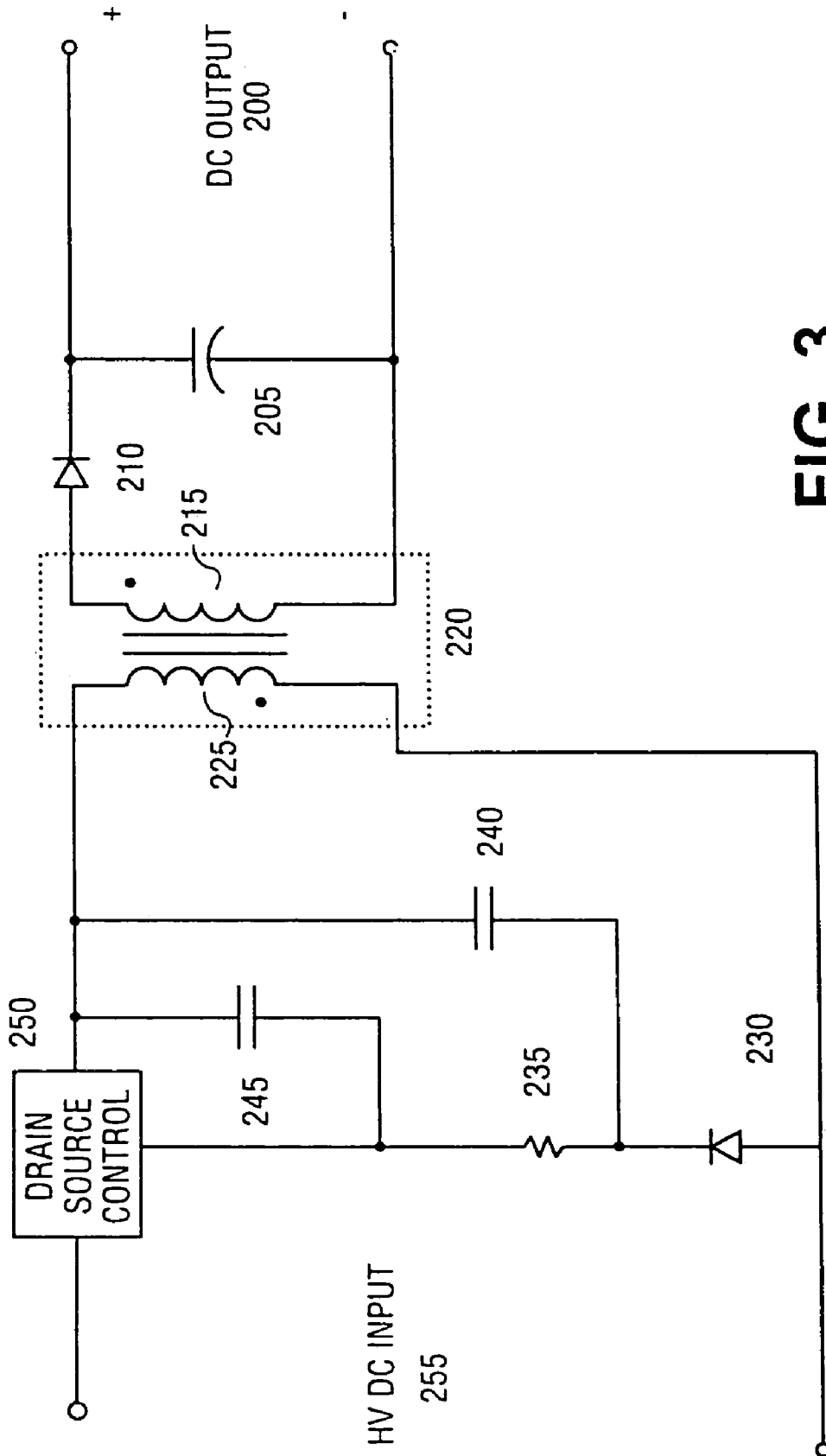


FIG. 3

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