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Kuennen et al.

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(54) **INDUCTIVELY COUPLED BALLAST CIRCUIT**

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(75) Inventors: **Roy W. Kuennen**, Caledonia, MI (US); **Scott A. Mollema**, Grand Rapids, MI (US); **David W. Baarman**, Fennville, MI (US); **Ronald C. Markham**, Grand Rapids, MI (US); **Dennis J. Denen**, Westerville, OH (US)

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(73) Assignee: **Access Business Group International LLC**, Ada, MI (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 156 days.

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Related U.S. Application Data

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(63) Continuation-in-part of application No. 10/175,095, filed on Jun. 18, 2002, now Pat. No. 6,673,250, which is a continuation-in-part of application No. 09/592,194, filed on Jun. 12, 2000, now Pat. No. 6,436,299.

(74) *Attorney, Agent, or Firm*—Warner Norcross & Judd LLP

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(57) **ABSTRACT**

(51) **Int. Cl.**⁷ **H05B 37/02**

A ballast circuit is disclosed for inductively providing power to a load. The ballast circuit includes an oscillator, a driver, a switching circuit, a resonant tank circuit and a current sensing circuit. The current sensing circuit provides a current feedback signal to the oscillator that is representative of the current in the resonant tank circuit. The current feedback signal drives the frequency of the ballast circuit causing the ballast circuit to seek resonance. The ballast circuit preferably includes a current limit circuit that is inductively coupled to the resonant tank circuit. The current limit circuit disables the ballast circuit when the current in the ballast circuit exceeds a predetermined threshold or falls outside a predetermined range.

(52) **U.S. Cl.** **315/224; 315/276; 315/283; 315/291**

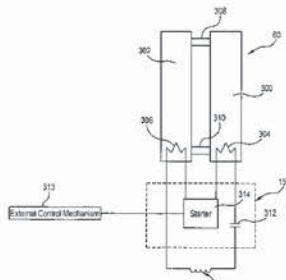
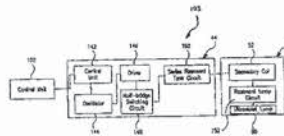
(58) **Field of Search** 315/209 R, 219–220, 315/224–225, 244, 291, 302, 307, DIG. 7, 57, 62, 248, 276, 283

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59 Claims, 15 Drawing Sheets



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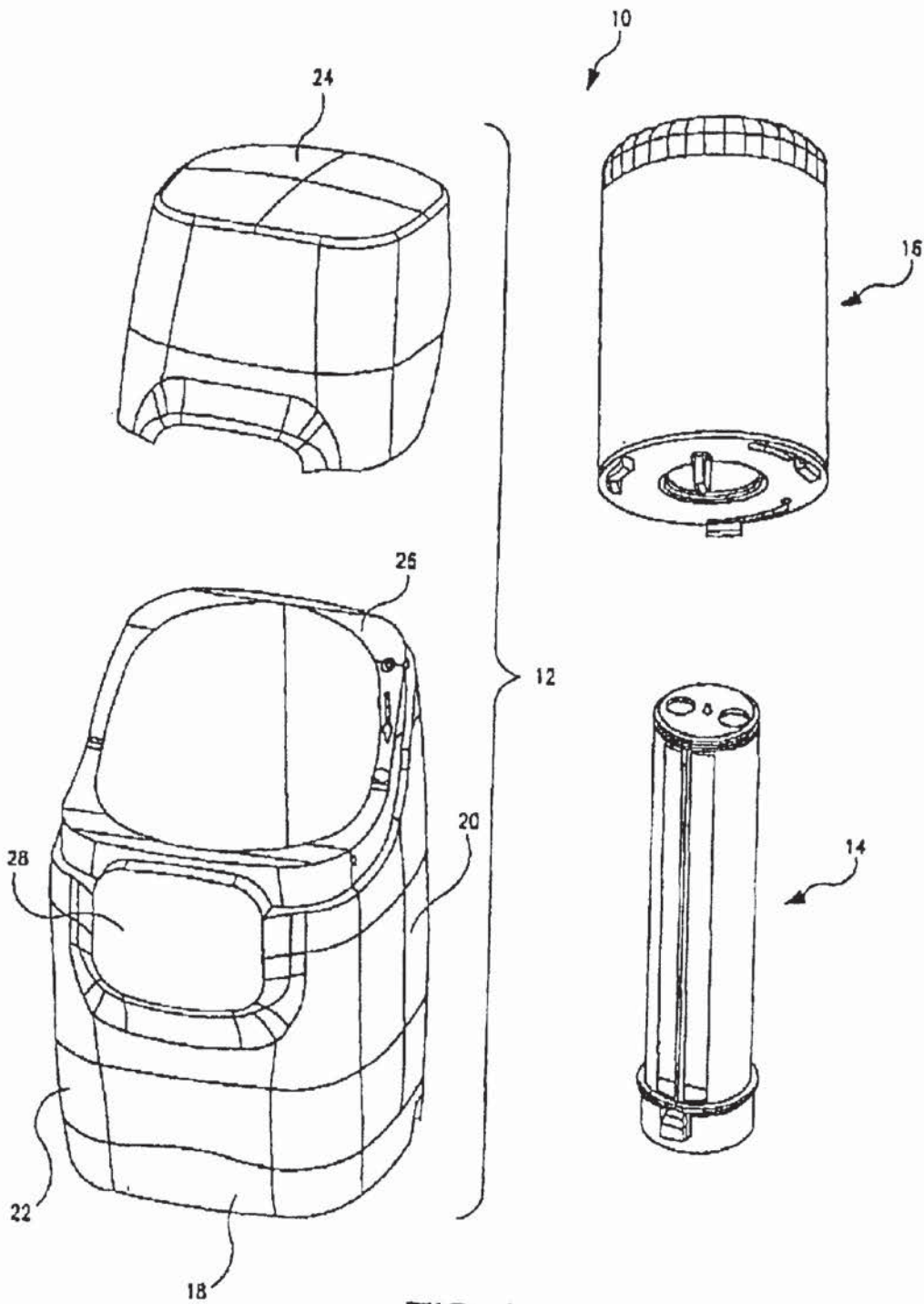


FIG. 1

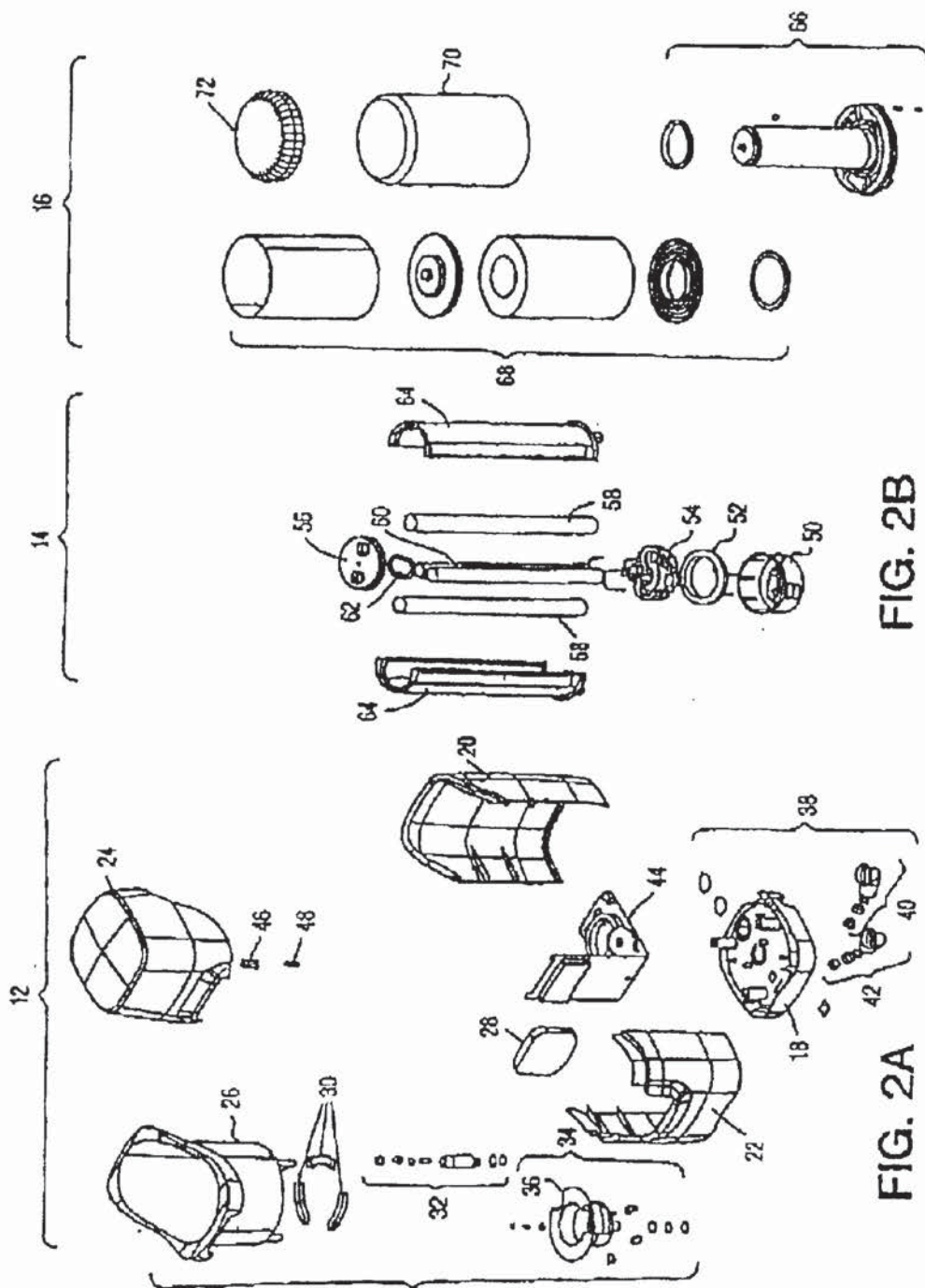


FIG. 2C

FIG. 2B

FIG. 2A

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