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United States Patent [19]**Fisher et al.**[11] **Patent Number:** **6,140,911**[45] **Date of Patent:** **Oct. 31, 2000**[54] **POWER TRANSFER APPARATUS FOR CONCURRENTLY TRANSMITTING DATA AND POWER OVER DATA WIRES**[75] Inventors: **David A. Fisher**, Menlo Park;
Lawrence M. Burns, Mountain View;
Stephen E. Muther, Palo Alto, all of Calif.[73] Assignee: **3Com Corporation**, Santa Clara, Calif.[21] Appl. No.: **09/416,067**[22] Filed: **Oct. 12, 1999****Related U.S. Application Data**

[63] Continuation of application No. 08/865,016, May 29, 1997, Pat. No. 5,994,998.

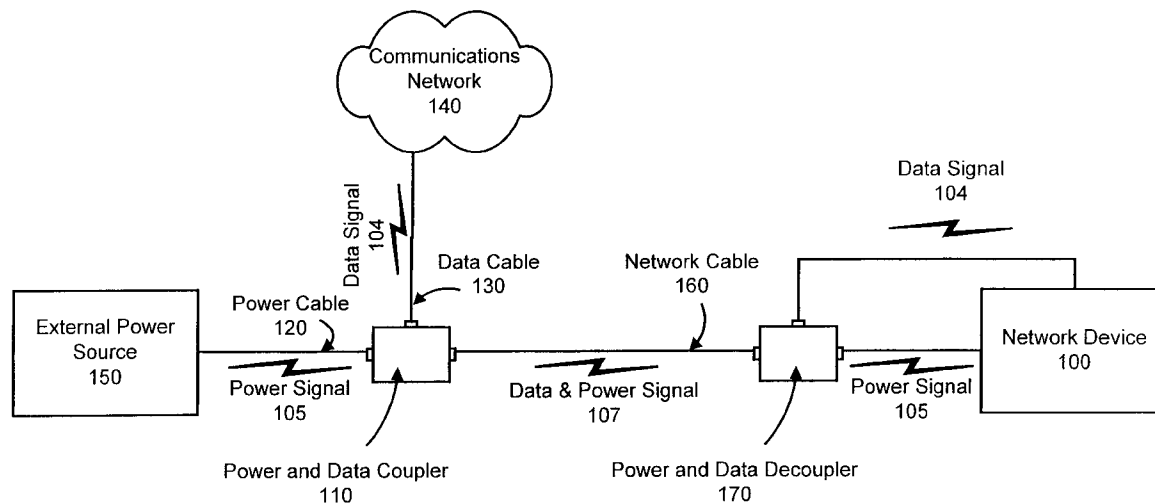
[51] **Int. Cl.**⁷ **H04B 1/00**; G08C 19/00[52] **U.S. Cl.** **340/310.01**; 340/310.02;
340/310.08; 340/825.72; 375/257; 375/259;
455/3.1; 455/3.3[58] **Field of Search** 340/310.01, 310.02,
340/310.08, 825.72; 455/3.1, 3.3; 370/487,
490, 419, 442; 375/257, 259; 307/126,
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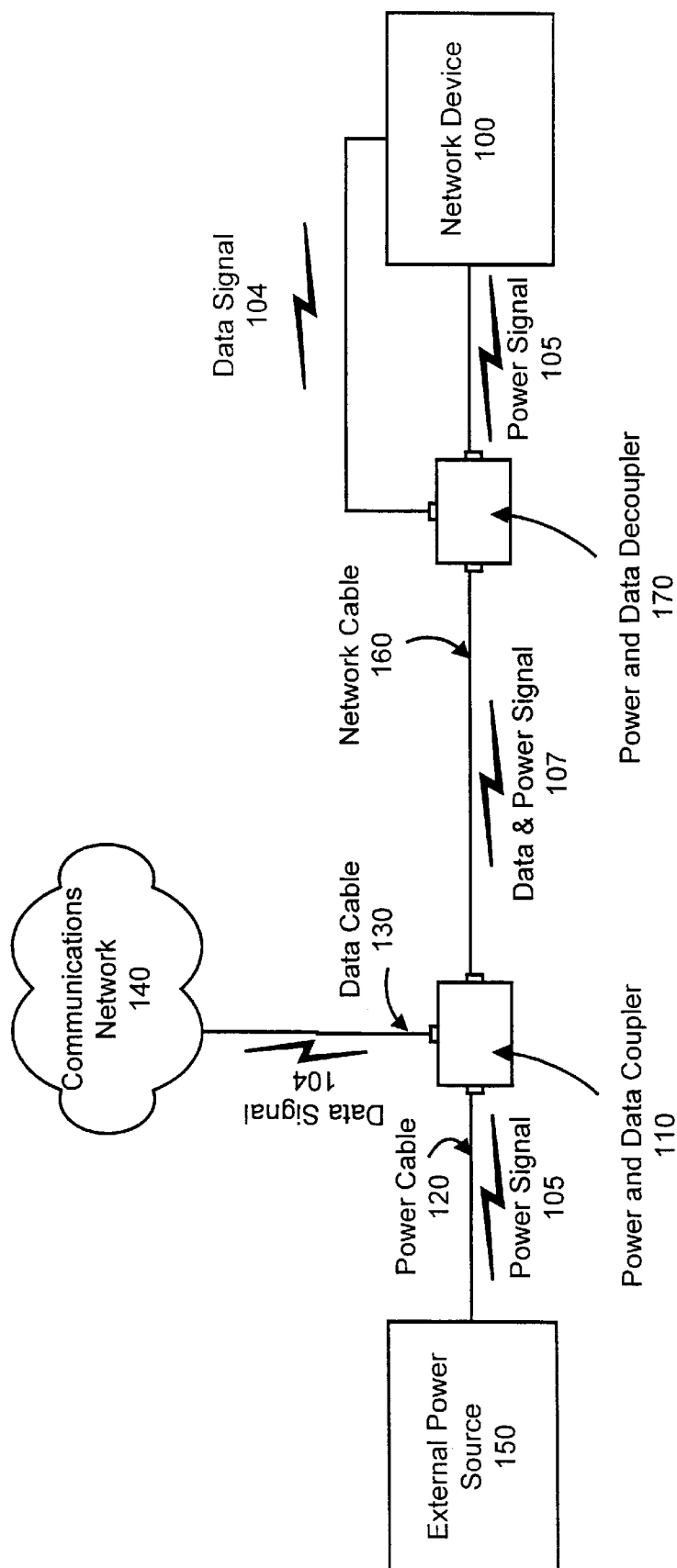
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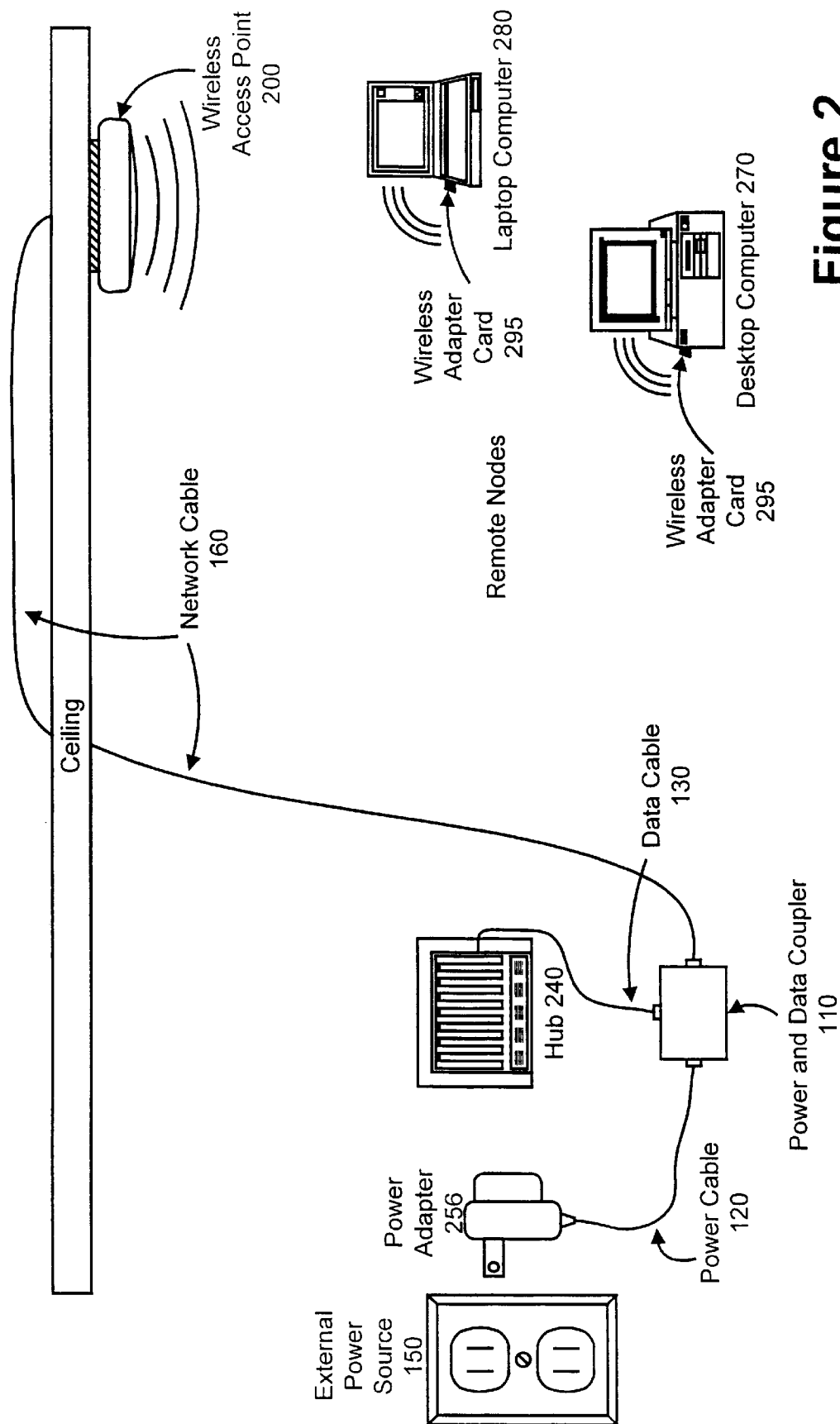
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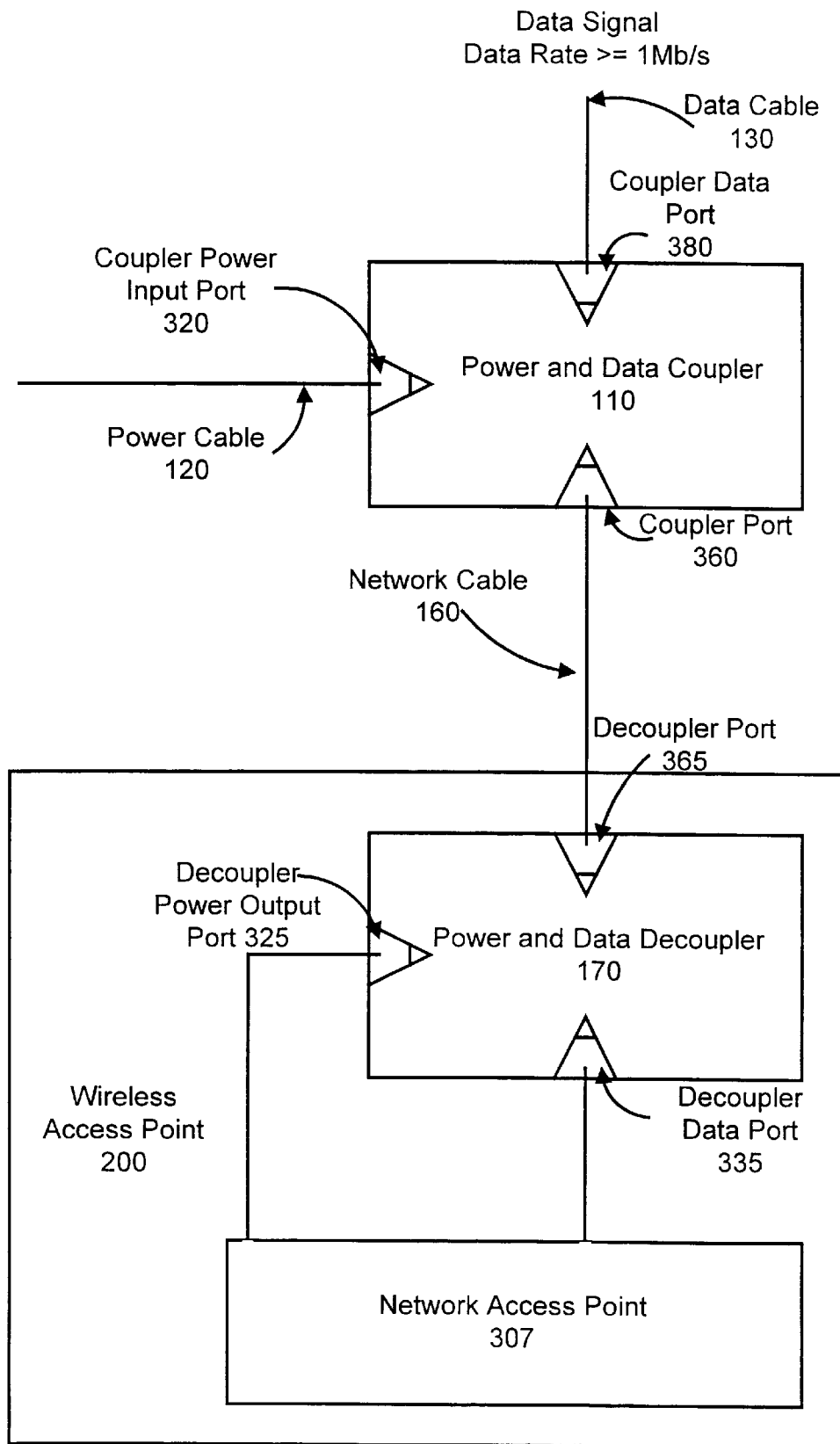
Primary Examiner—Donnie L. Crosland*Attorney, Agent, or Firm*—Wilson Sonsini Goodrich & Rosati[57] **ABSTRACT**

Electrical supply current, sufficient to power a wireless access point, is transmitted concurrently with a network data signal across a transmission line. A power and data coupler couples the network data signal and the power signal, received through a data input and a power input respectively, and transmits the coupled signal, to a distance of three meters or more, over the transmission line to a power and data decoupler. The power and data decoupler separates the power signal from the network data signal and supplies those signals to a power output port and a data output port, respectively, for use by a wireless access node. The power signal may be modulated at a low frequency relative to the frequency of the data signal, and the network data signal has a data transmission rate of one megabit/second or higher.

10 Claims, 5 Drawing Sheets

**Figure 1**

**Figure 2**

**Figure 3**

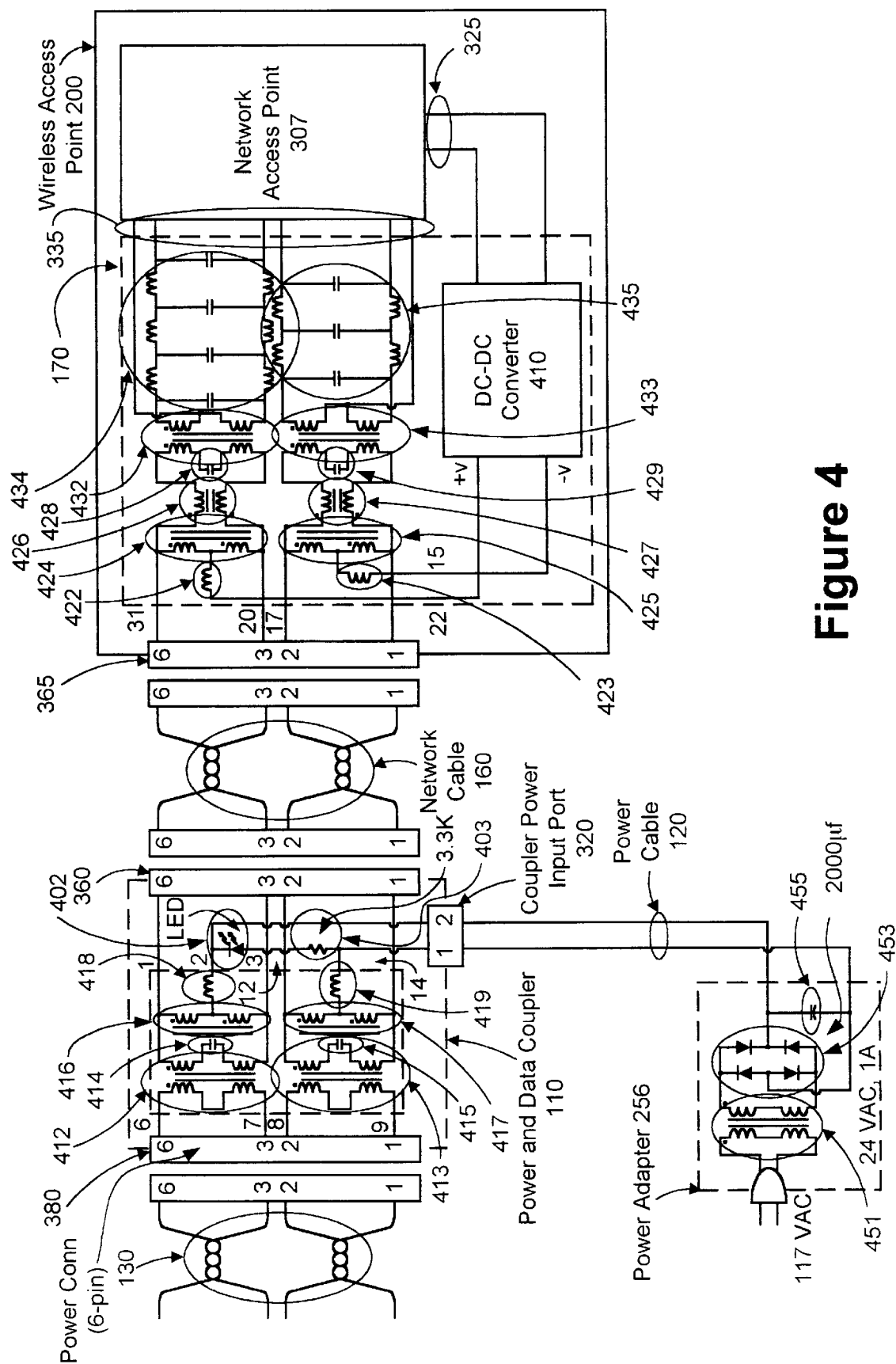


Figure 4

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