

FIG. 1

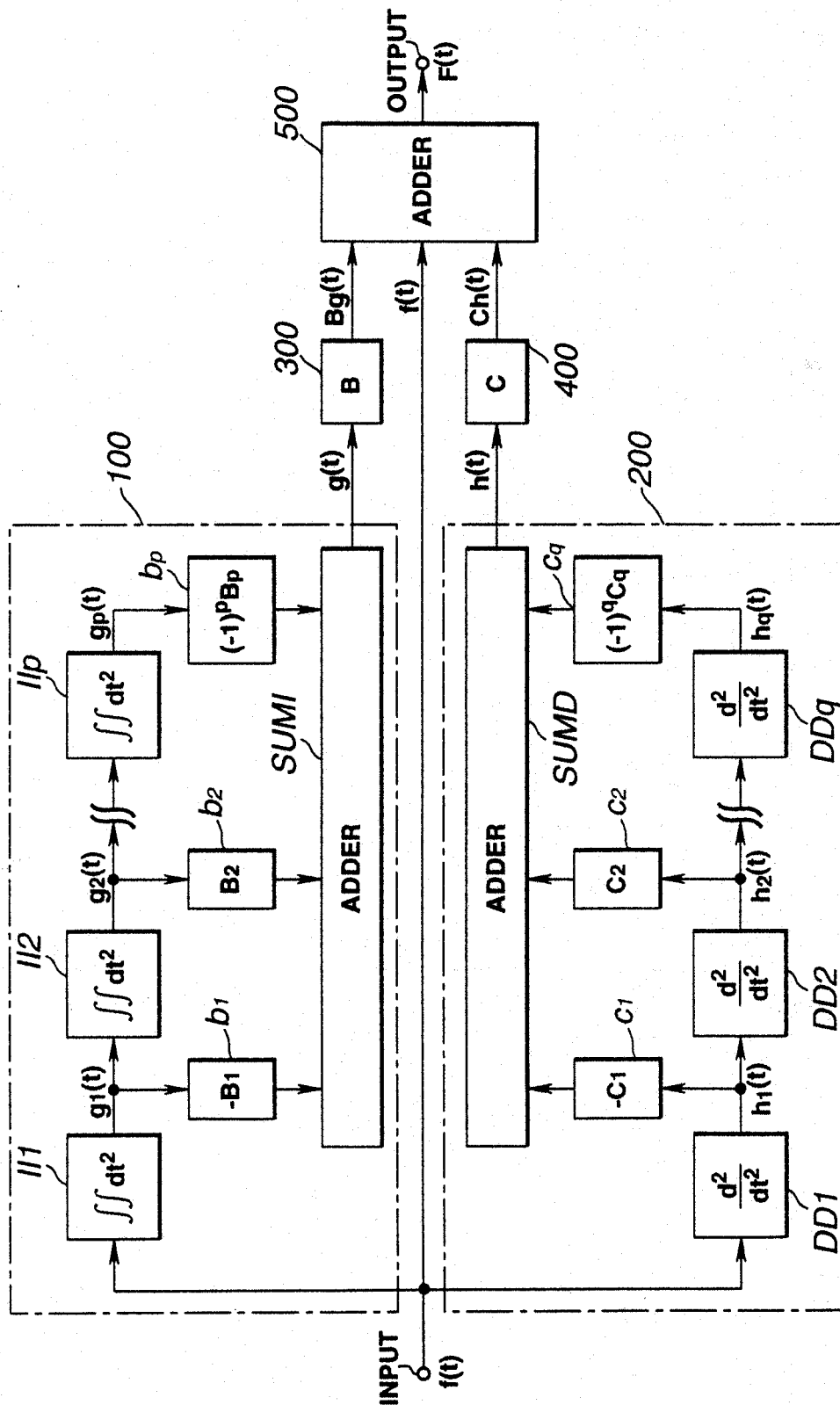


FIG.2

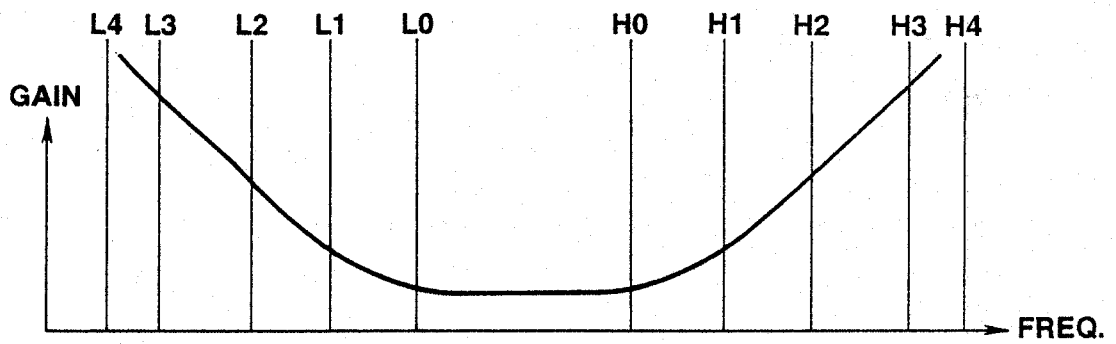


FIG.3

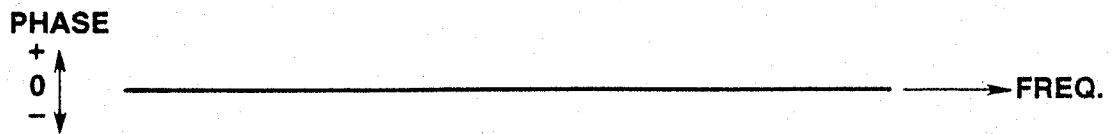


FIG.4

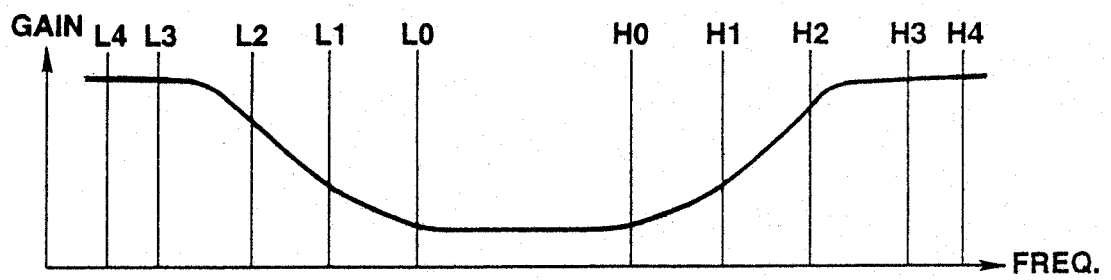


FIG.5

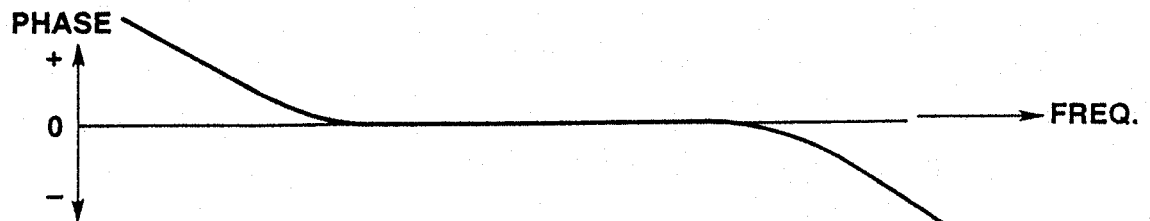


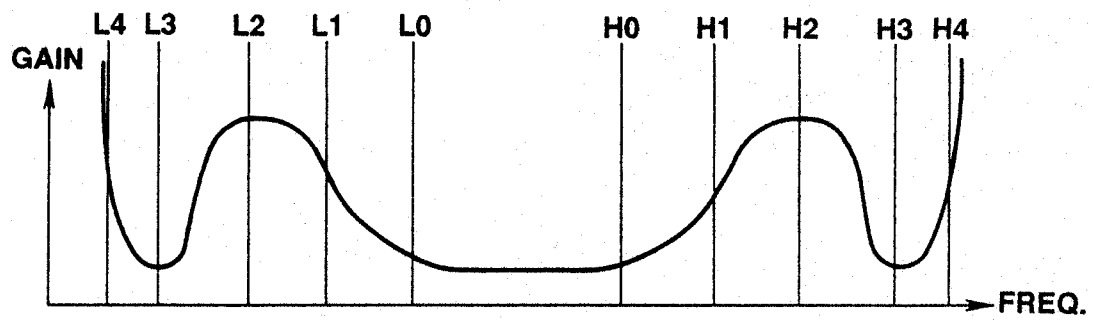
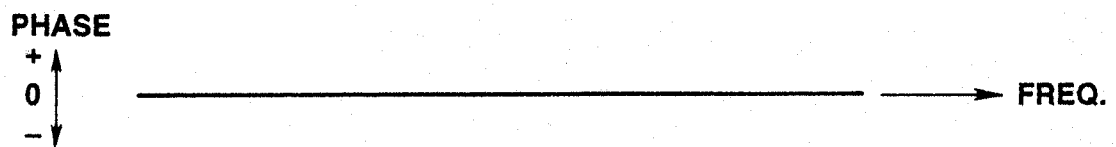
FIG.6**FIG.7**

FIG.8

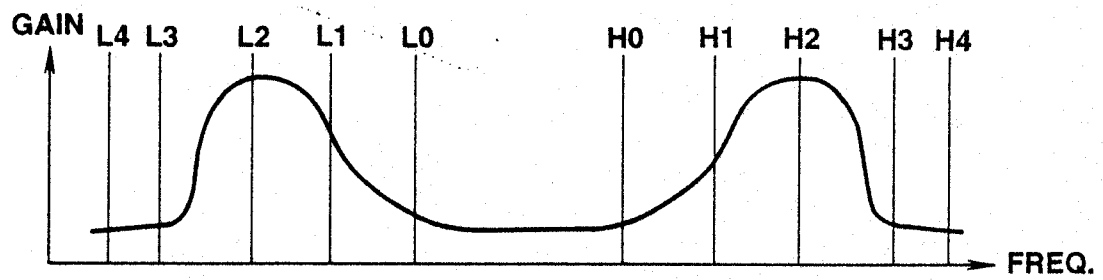
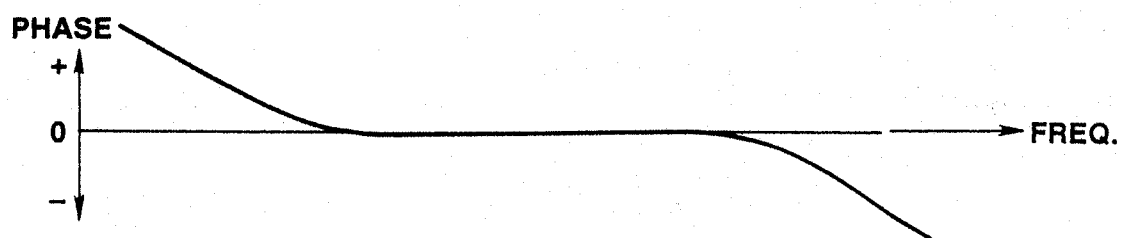


FIG.9



The diagram illustrates a multi-bit digital-to-analog converter (DAC) circuit. It features an **INPUT** terminal on the left and an **OUTPUT** terminal on the right. The circuit is organized into several functional blocks:

- Block 10:** A series of N current sources, labeled $11-1$ through $11-N$, connected in parallel. Each current source $11-k$ is implemented with a PMOS transistor $12-k$ and a resistor 13 . The gates of these transistors are connected to a common input line, and their sources are connected to a common output line.
- Block 20:** A series of N current sources, labeled $21-1$ through $21-N$, connected in parallel. Each current source $21-k$ is implemented with an NMOS transistor $22-k$ and a resistor 23 . The gates of these transistors are connected to a common input line, and their sources are connected to a common output line.
- Block 30:** A series of N current sources, labeled 31 through 32 , connected in parallel. Each current source 31 is implemented with a PMOS transistor 32 and a resistor 33 . The gates of these transistors are connected to a common input line, and their sources are connected to a common output line.
- Block 40:** A series of N current sources, labeled 41 through 42 , connected in parallel. Each current source 41 is implemented with a PMOS transistor 42 and a resistor 43 . The gates of these transistors are connected to a common input line, and their sources are connected to a common output line.
- Block 50:** A series of N current sources, labeled 51 through 52 , connected in parallel. Each current source 51 is implemented with a PMOS transistor 52 and a resistor 53 . The gates of these transistors are connected to a common input line, and their sources are connected to a common output line.

The circuit is designed to convert a digital input into an analog output by summing the currents from the various current sources. The input and output lines are connected to the gates and sources of the transistors, respectively, to facilitate the conversion process.

FIG.11

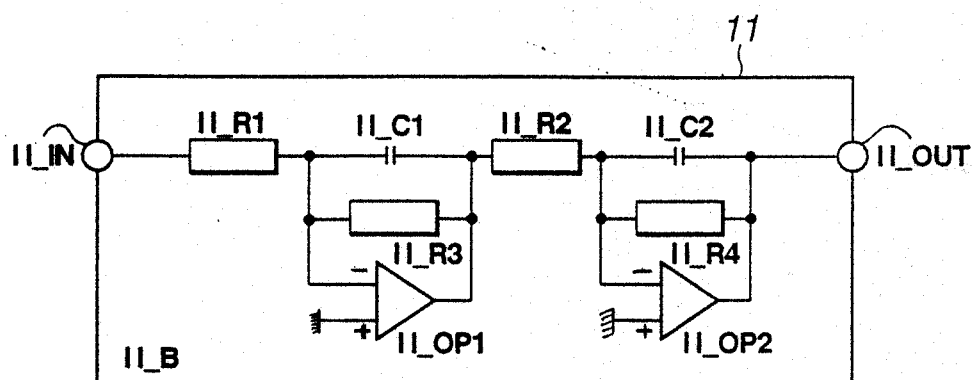


FIG.12

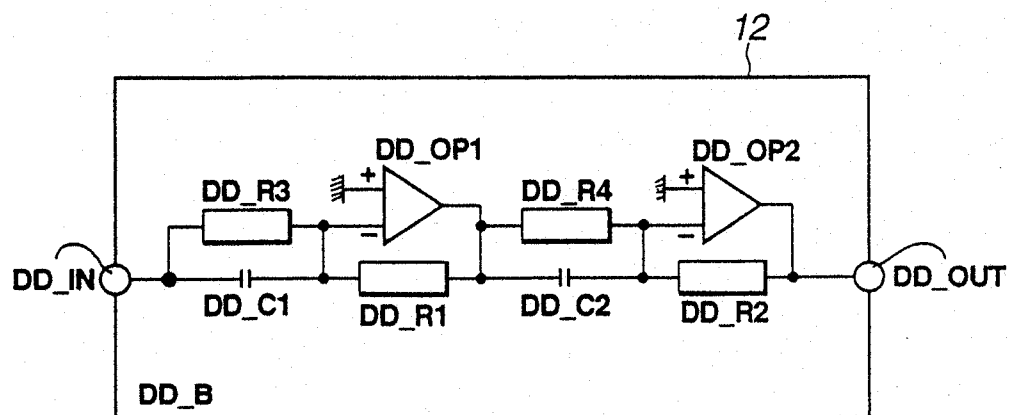


FIG.13

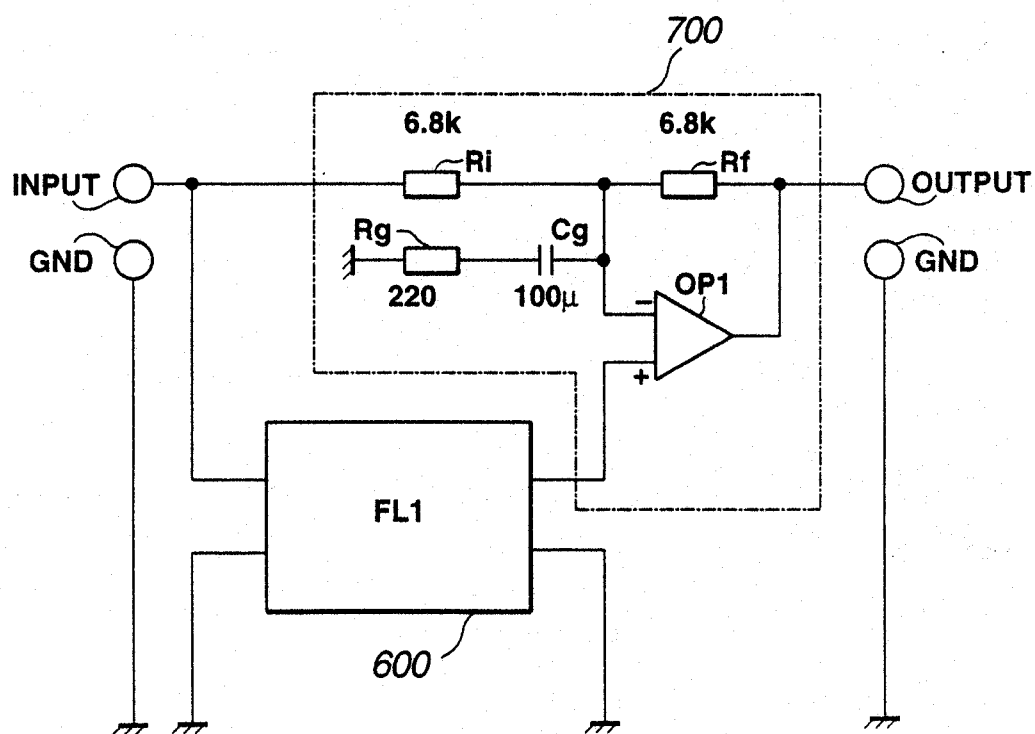


FIG.14

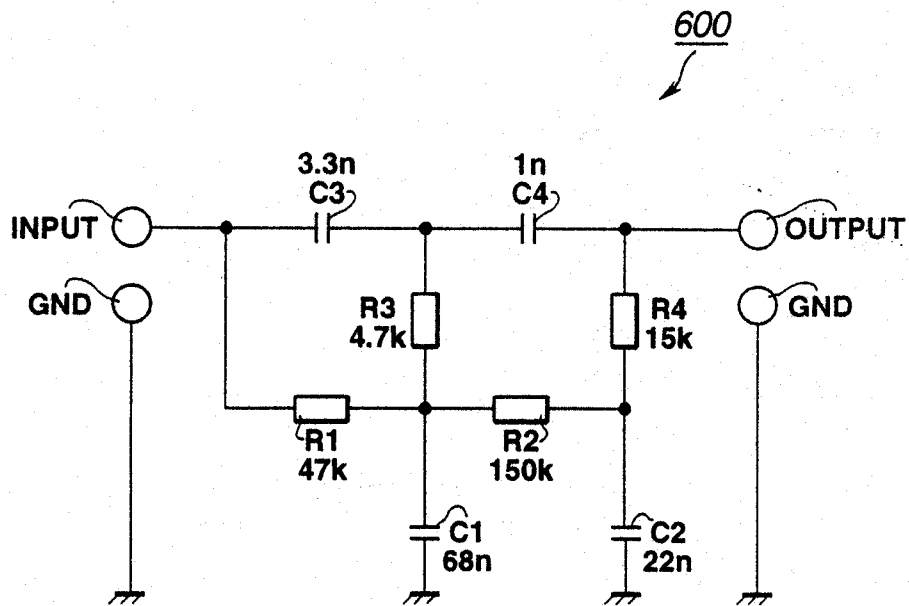


FIG.15

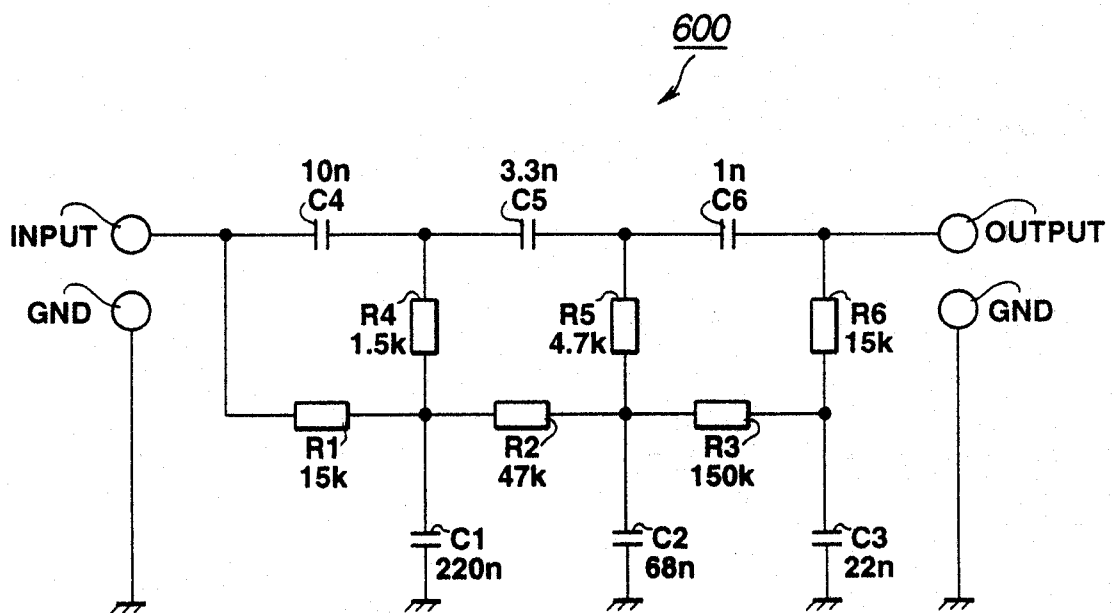


FIG.16

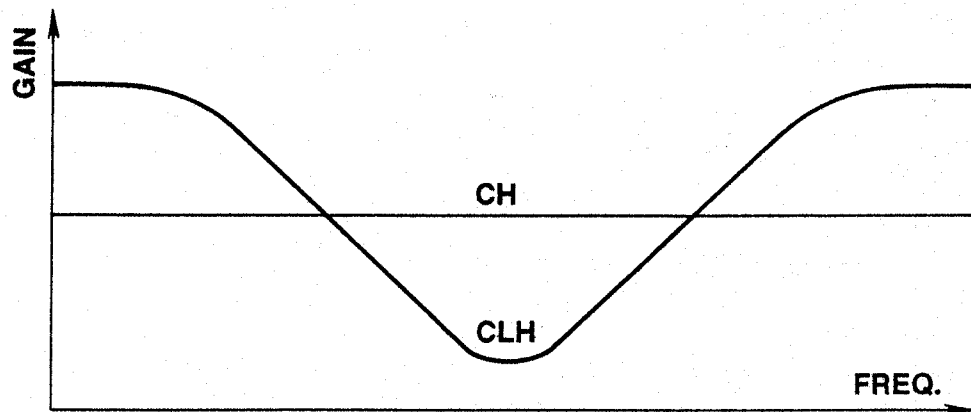


FIG.17

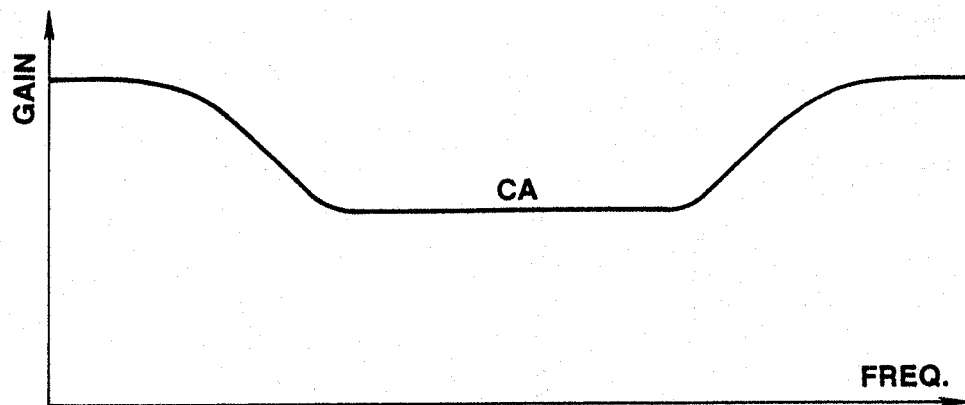


FIG.18

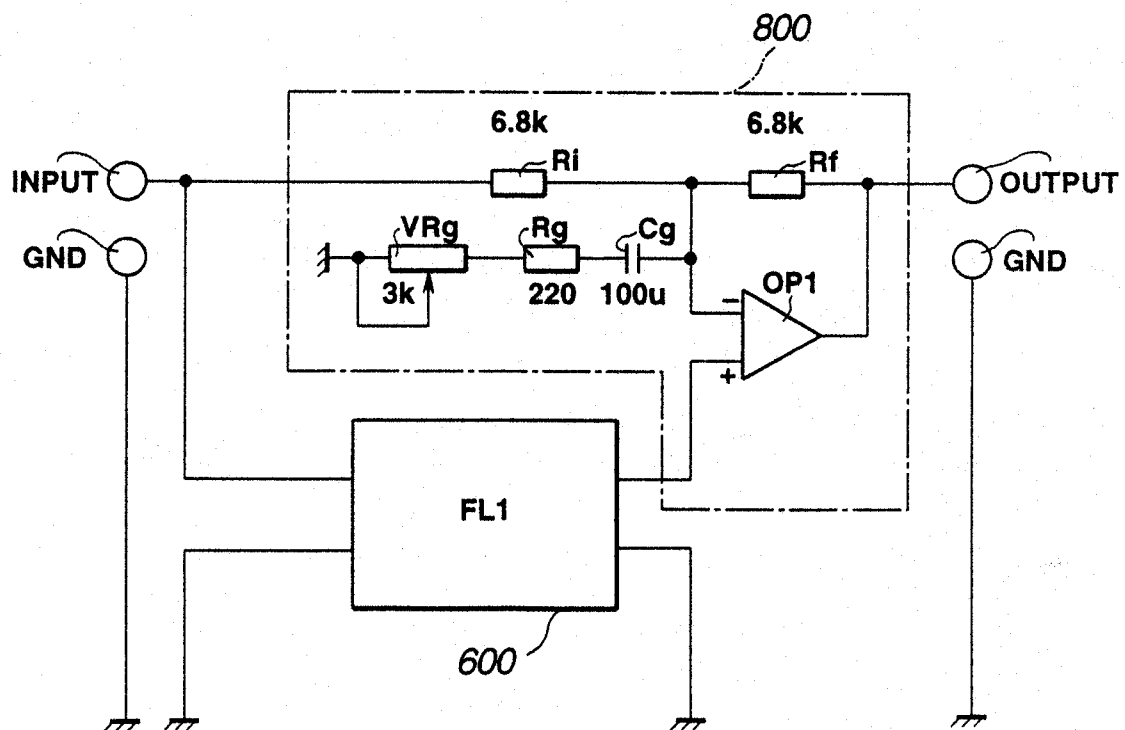


FIG.19

