

[54] **SHIELDED ELECTRONIC COMPONENT ASSEMBLY AND METHOD FOR MAKING THE SAME**

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[51] Int. Cl.<sup>6</sup> ..... **H05K 1/00**

[52] U.S. Cl. .... **174/35 MS; 174/35 R; 361/816; 361/818; 257/655; 257/660**

[58] **Field of Search** ..... **174/35 R, 260, 174/35 MS; 361/816, 818; 257/655, 660, 728, 659**

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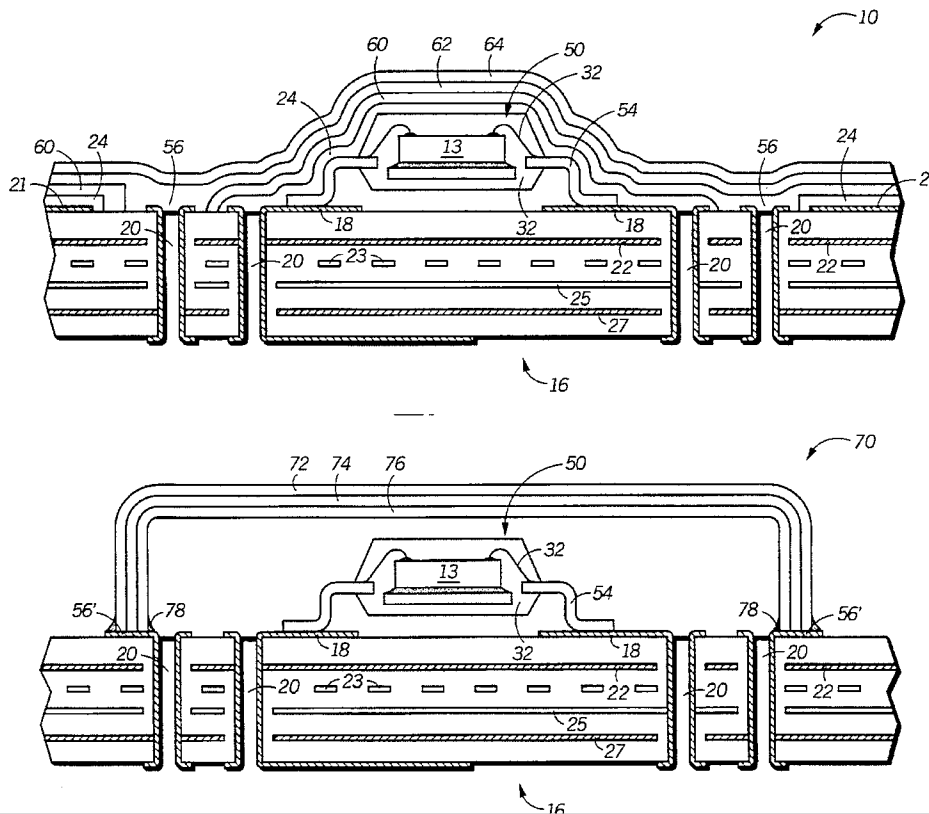
*Primary Examiner*—Laura Thomas

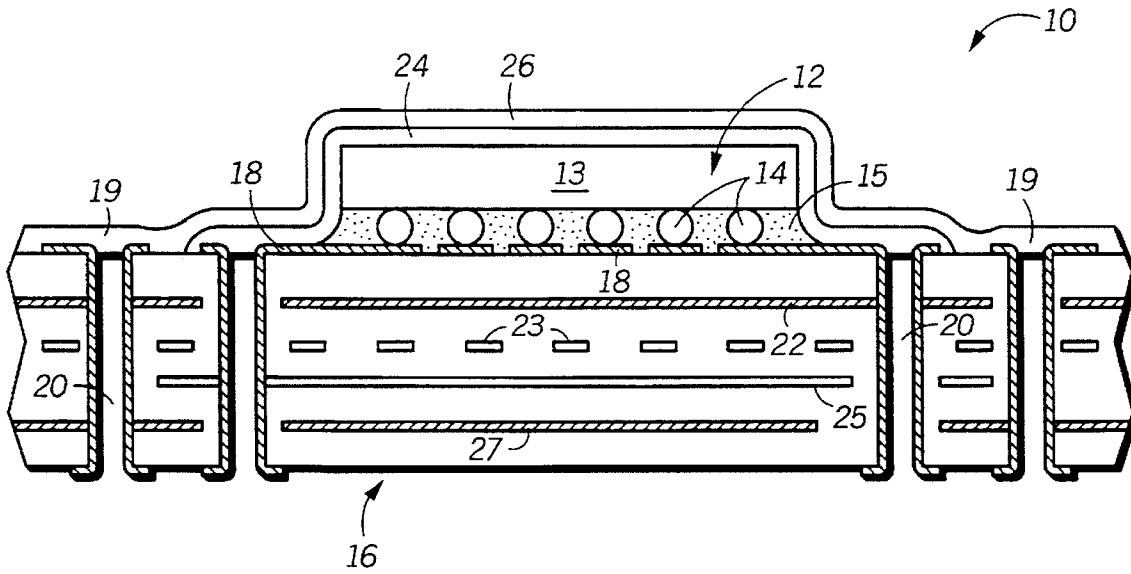
*Attorney, Agent, or Firm*—Patricia S. Goddard

[57] **ABSTRACT**

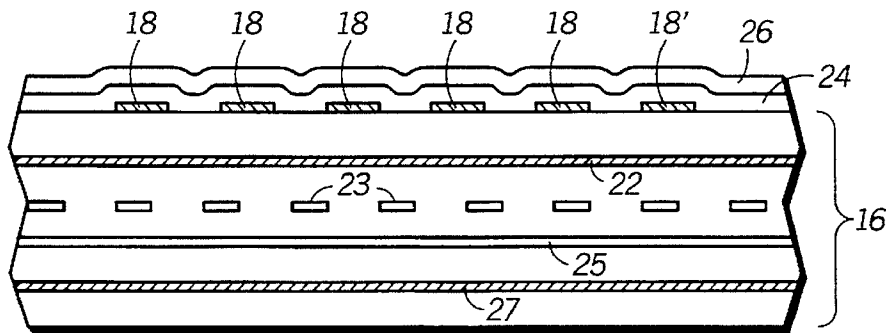
Electronic components are shielded from electromagnetic interference (EMI) by one or more conformal layers filled with selected filler particulars for attenuate specific EMI frequencies or a general range of frequencies. Shielding is accomplished through the use of a single general purpose shielding layer, or through a series of shielding layers for protecting more specific EMI frequencies. In a multilayer embodiment, a semiconductor device (50) is mounted on a printed circuit board substrate (16) as a portion of an electronic component assembly (10). A conformal insulating coating (24) is applied over the device to provide electrical insulation of signal paths (e.g. leads 54 and conductive traces 18) from subsequently deposited conductive shielding layers. One or more shielding layers (60, 62, and 64) are deposited, and are in electrical contact with a ground ring (56). In a preferred embodiment, the ground connections for the shield layers are separate from those used for power distribution within the devices.

**27 Claims, 7 Drawing Sheets**



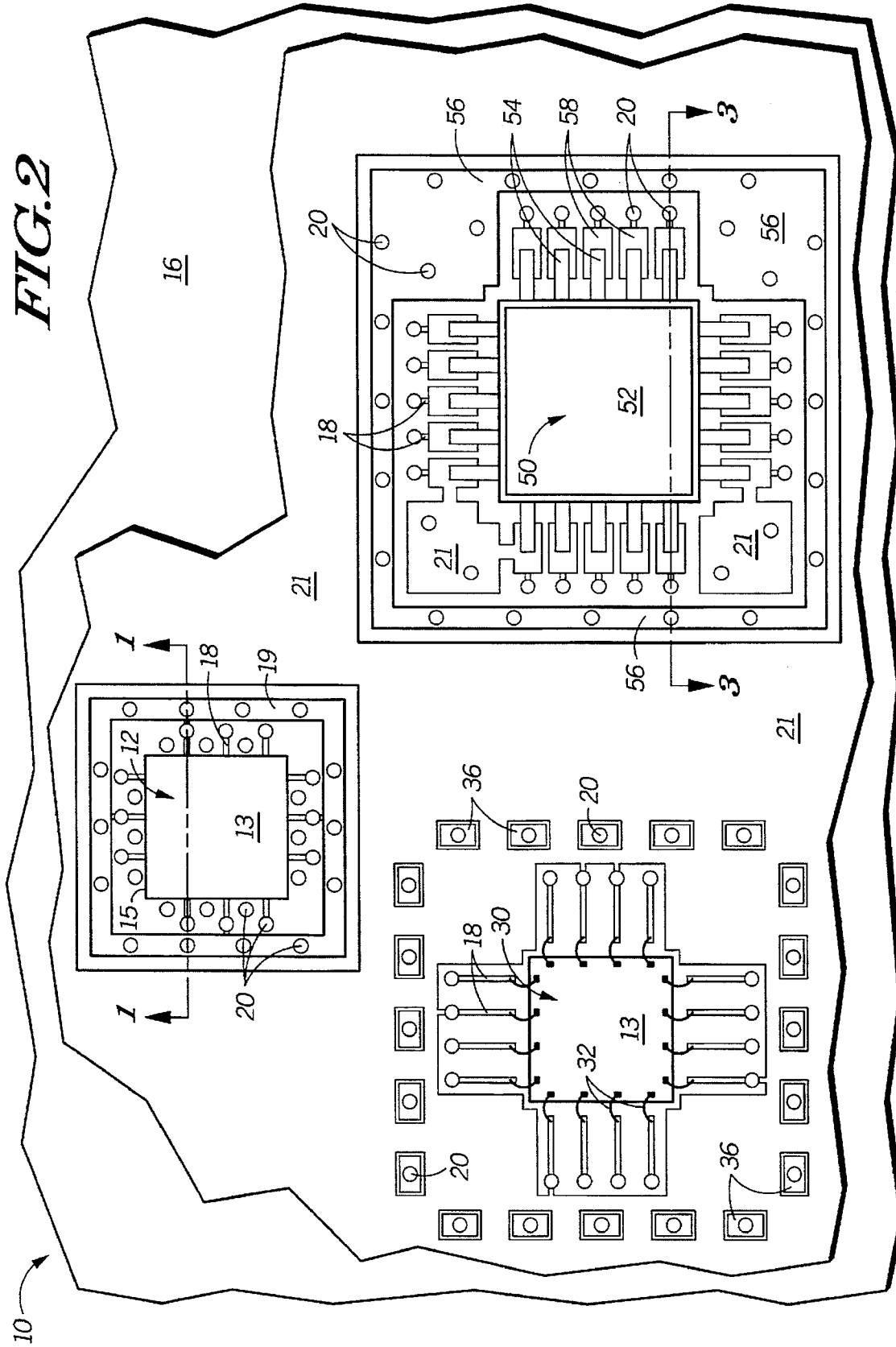


**FIG. 1**



**FIG. 4**

FIG. 2



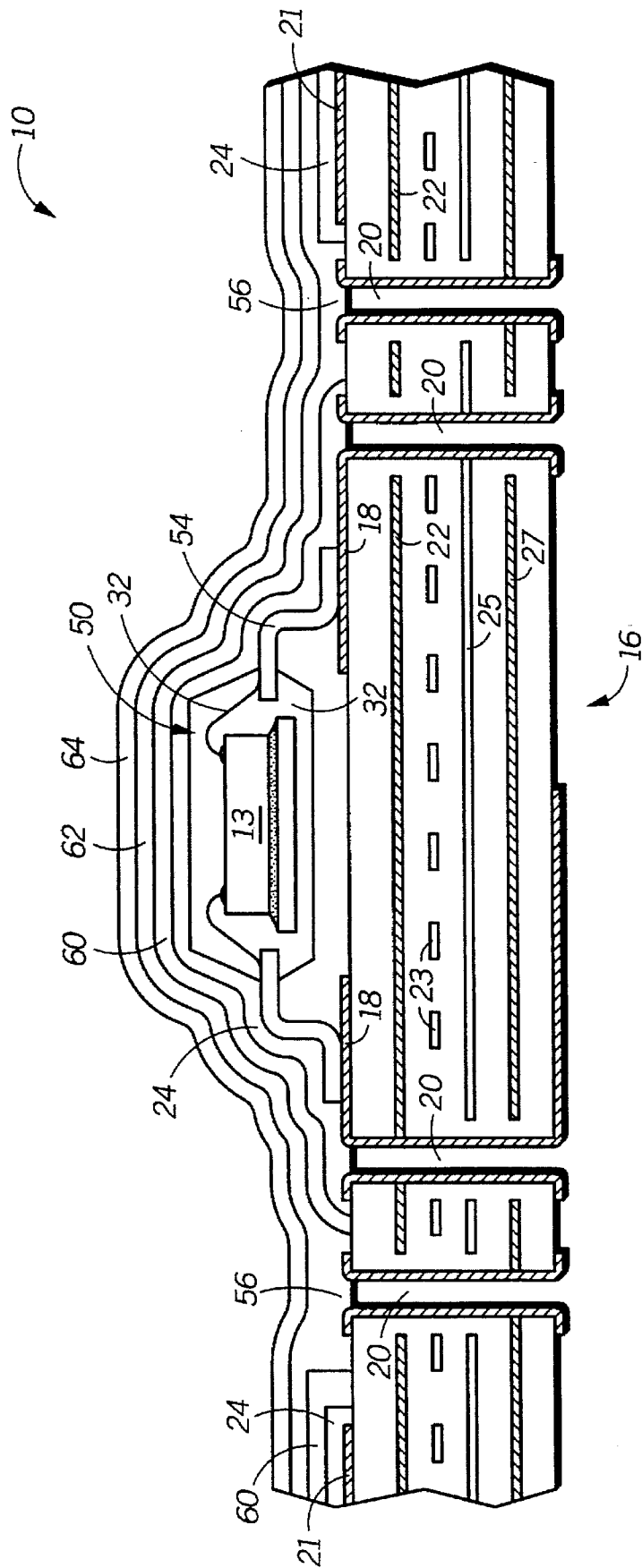


FIG. 3



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