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ABSTRACT

LOW FABRICATION COST, FINE PITCH AND HIGH RELIABILITY SOLDER BUMP

A barrier layer is deposited over a layer of passivation including in an opening to a contact pad created in the layer of passivation. A column of three layers of metal is formed overlying the barrier layer and aligned with the contact pad and having a diameter that is about equal to the surface of the contact pad. The three metal layers of the column comprise, in succession when proceeding from the layer that is in contact with the barrier layer, a layer of pillar metal, a layer of under bump metal and a layer of solder metal. The layer of pillar metal is reduced in diameter, the barrier layer is selectively removed from the surface of the layer of passivation after which reflowing of the solder metal completes the solder bump of the invention.

(FIGURE 5 IS SUGGESTED FOR PUBLICATION)



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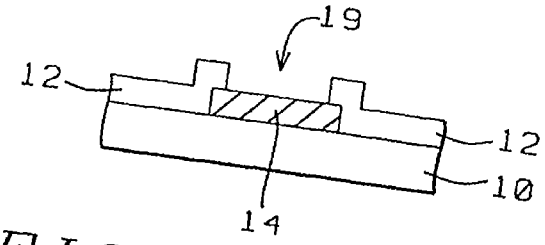


FIG. 1 – Prior Art

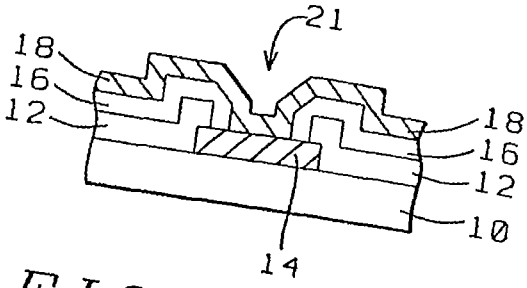


FIG. 2 – Prior Art

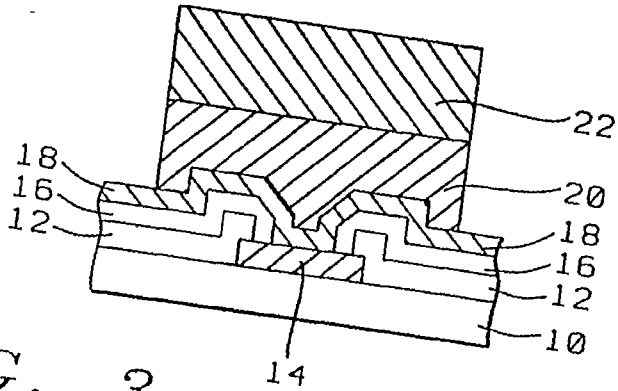


FIG. 3 – Prior Art

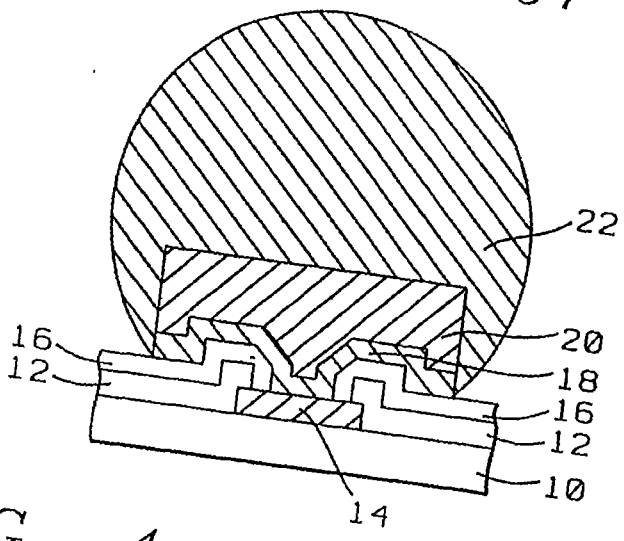


FIG. 4 – Prior Art

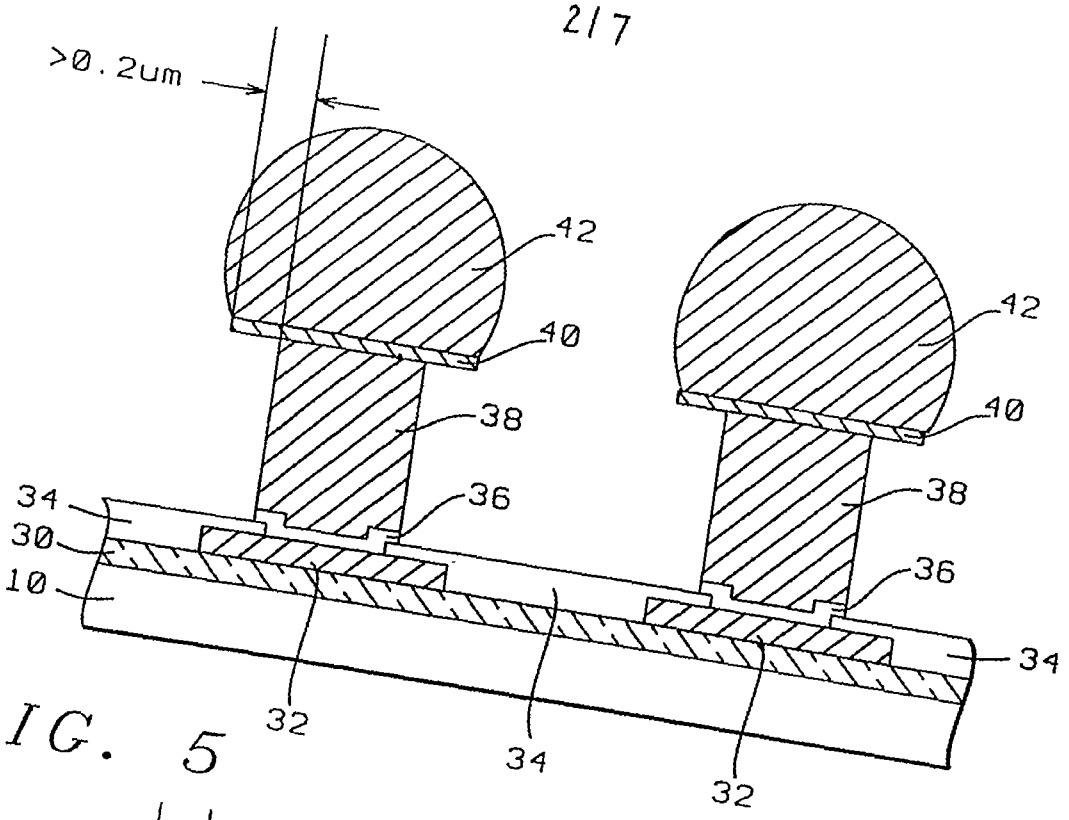

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FIG. 5

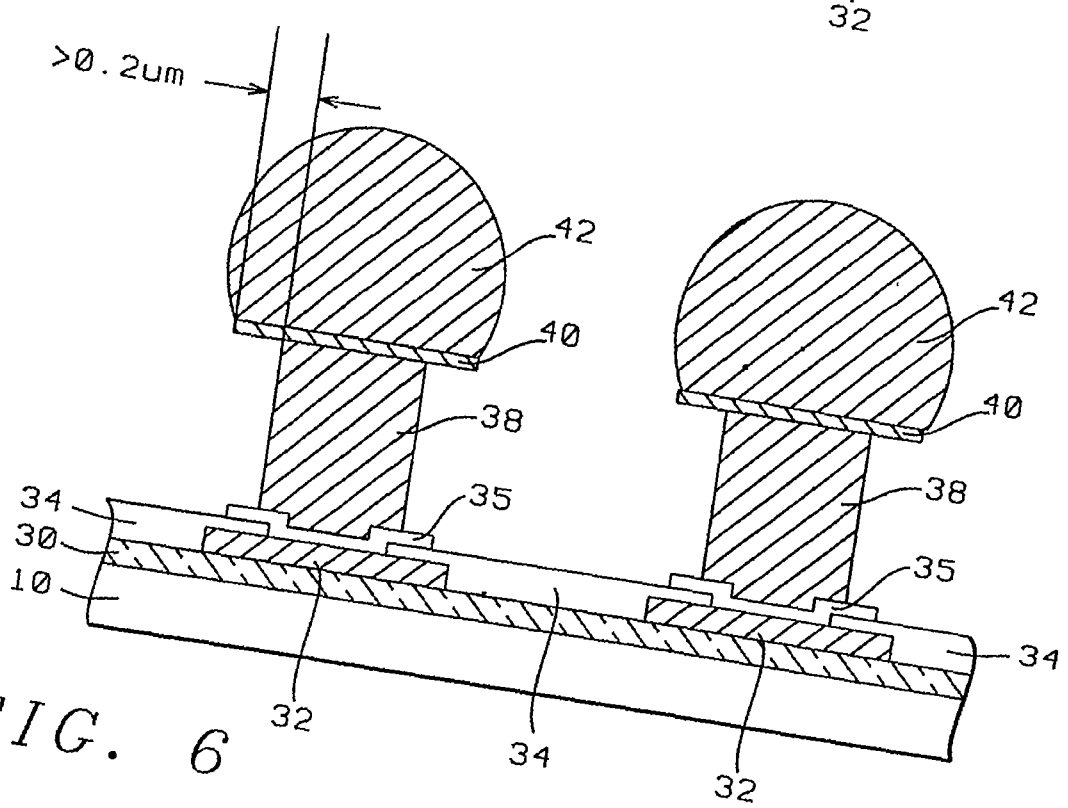

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FIG. 6

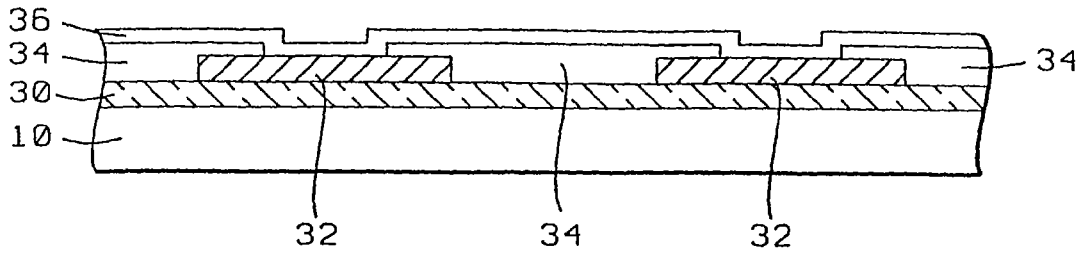


FIG. 7

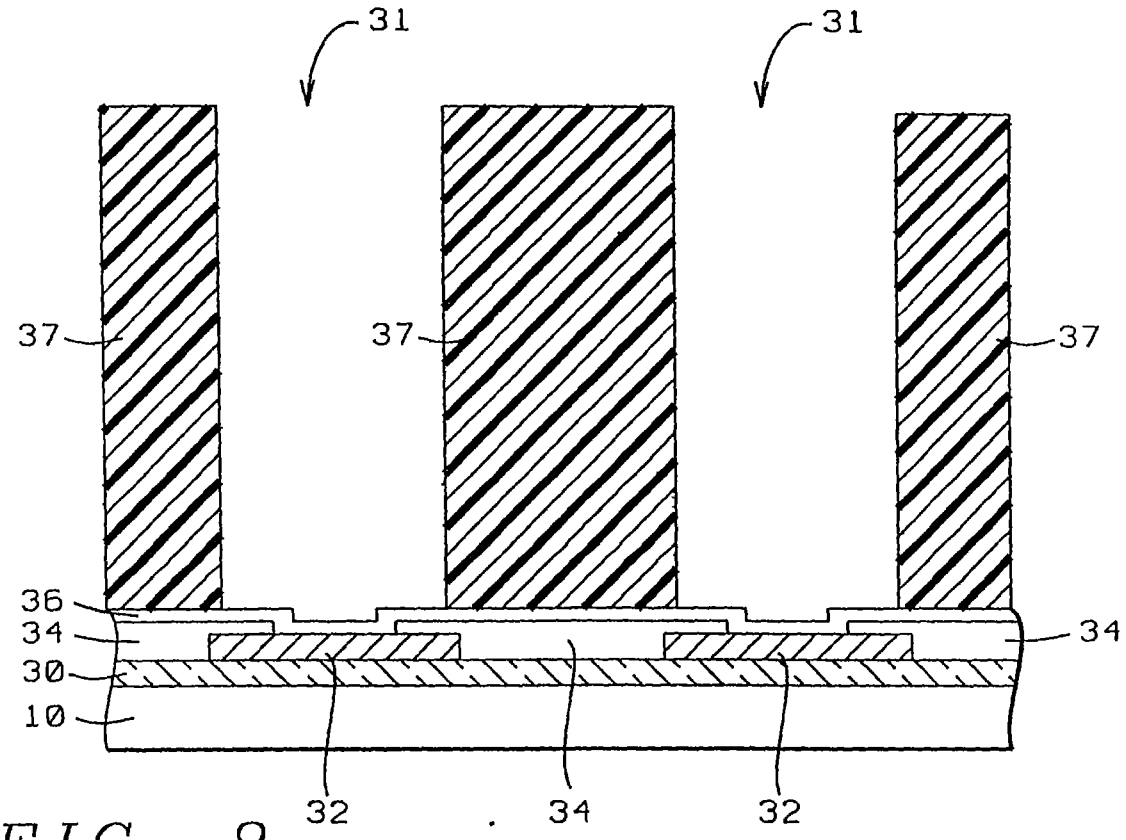


FIG. 8

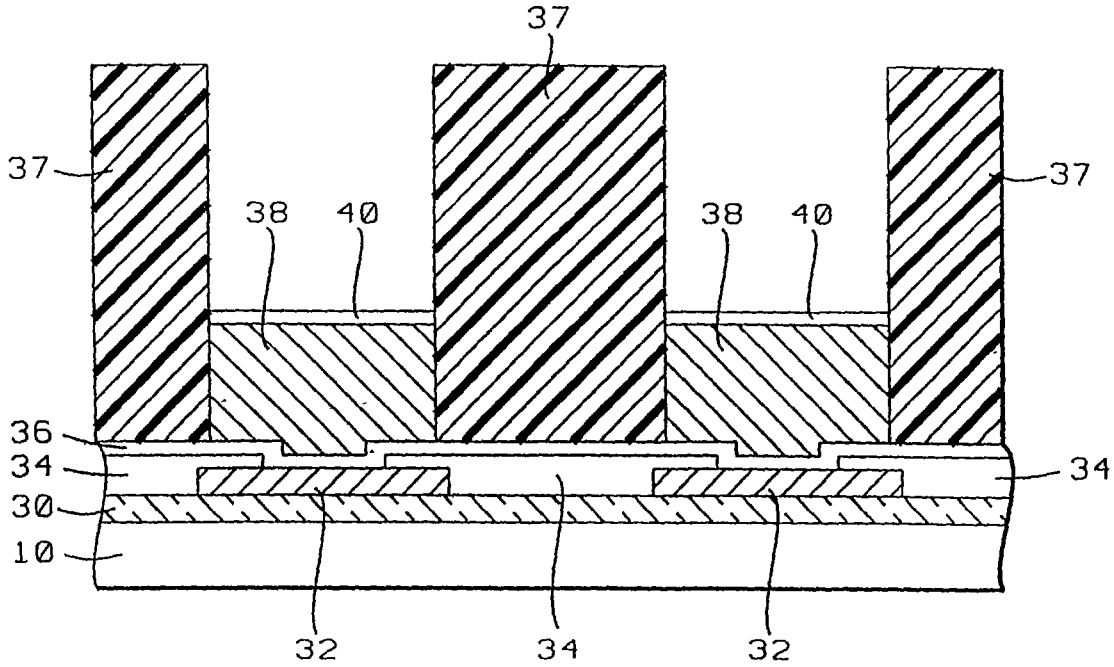

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FIG. 9

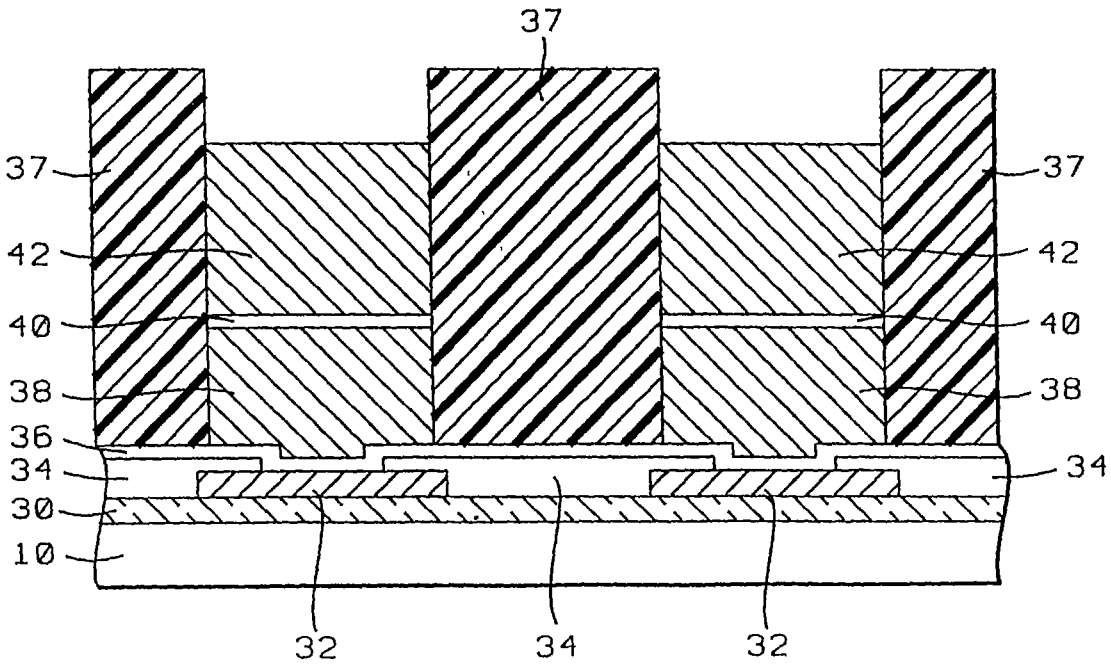

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FIG. 10

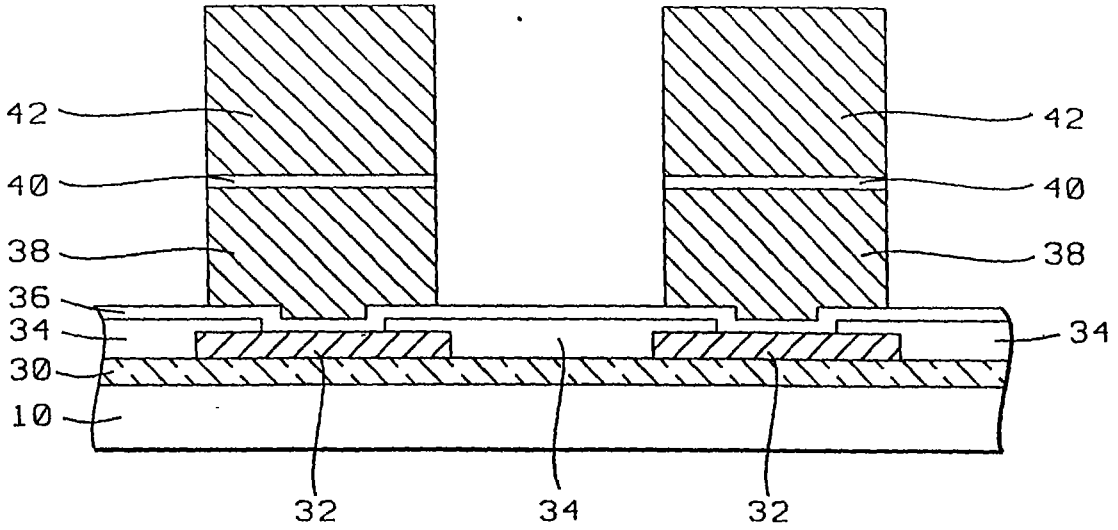

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FIG. 11

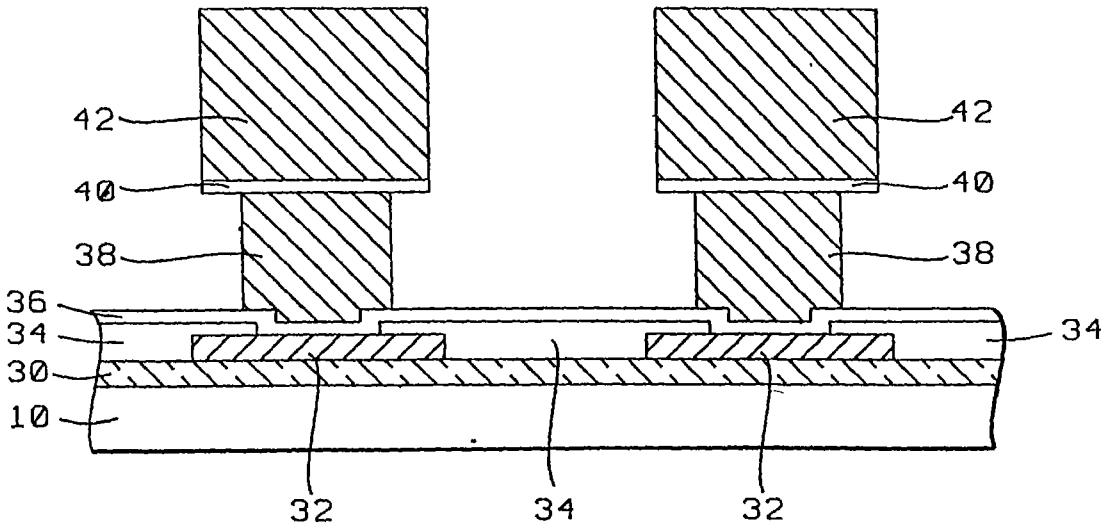

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FIG. 12

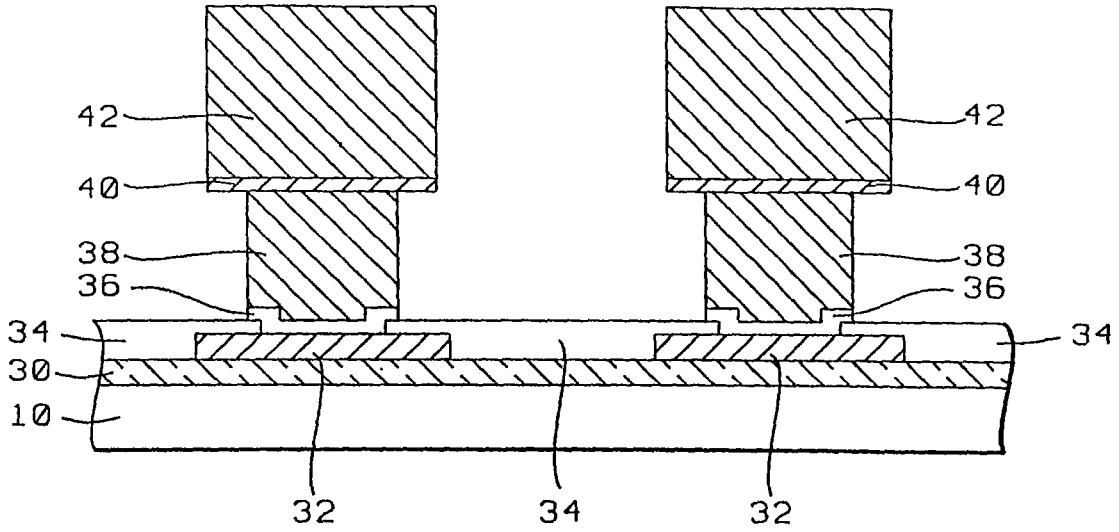

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FIG. 13

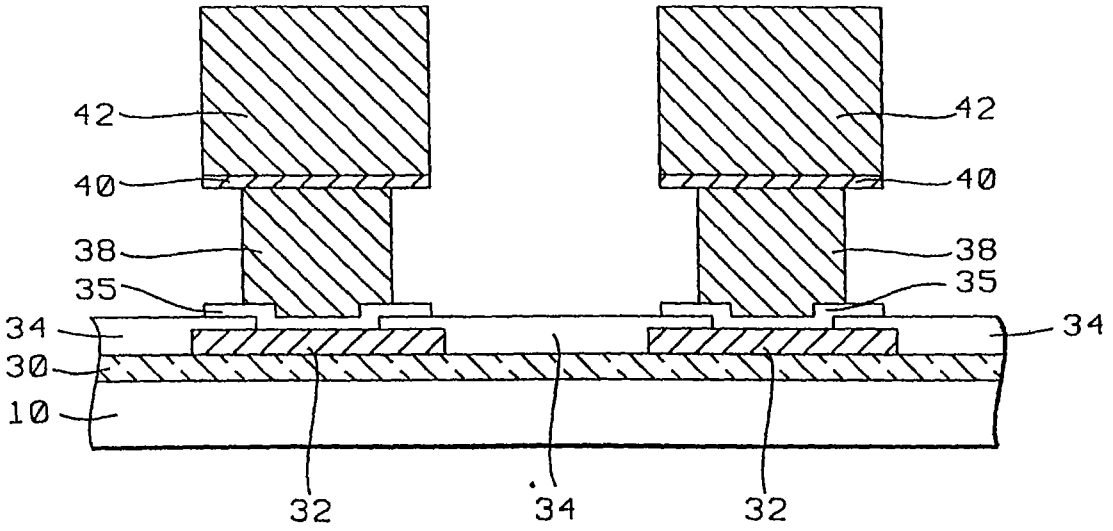

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FIG. 14

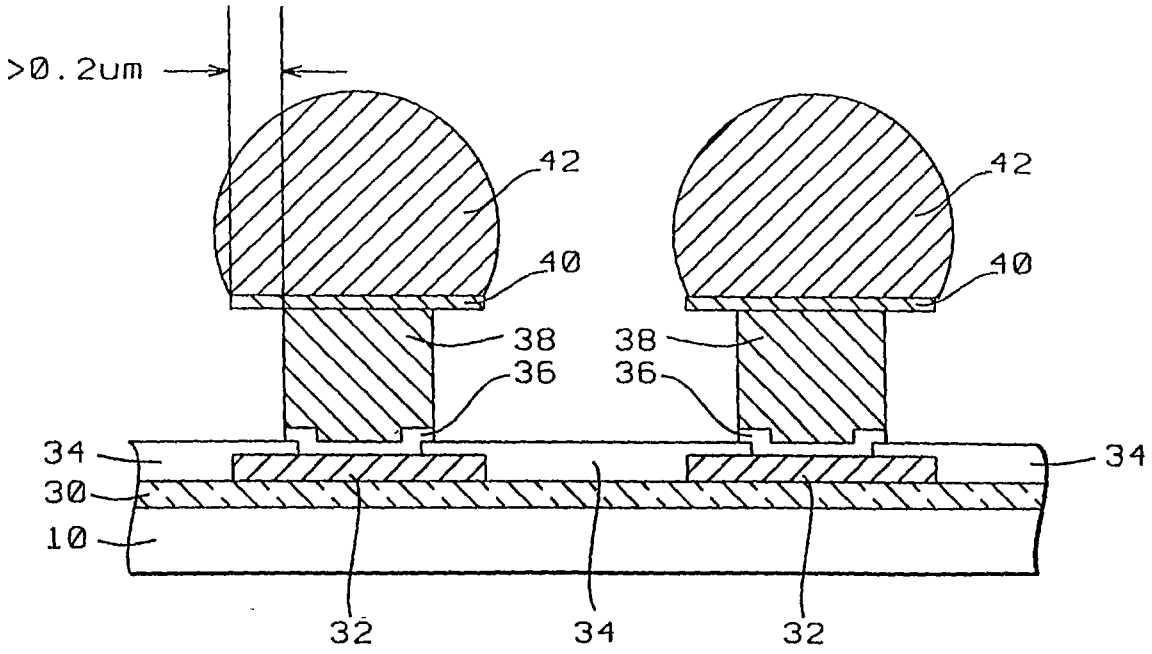

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FIG. 15

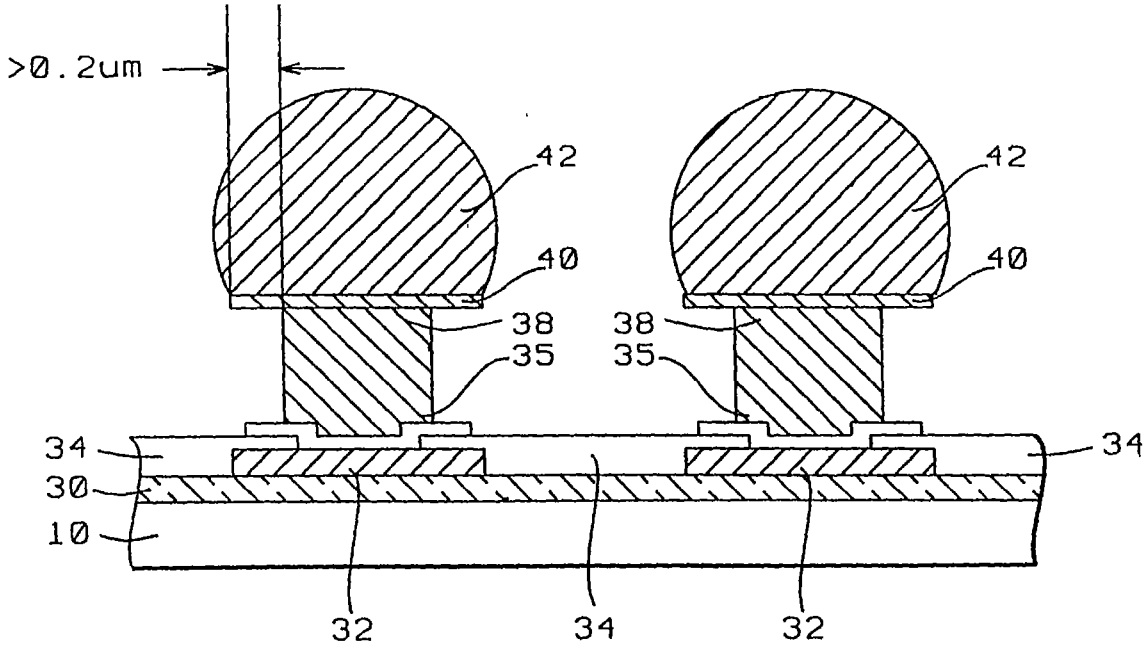

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FIG. 16