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(54) **MULTI-LAYER, SELF-ALIGNED VERTICAL COMBDRIVE ELECTROSTATIC ACTUATORS AND FABRICATION METHODS**

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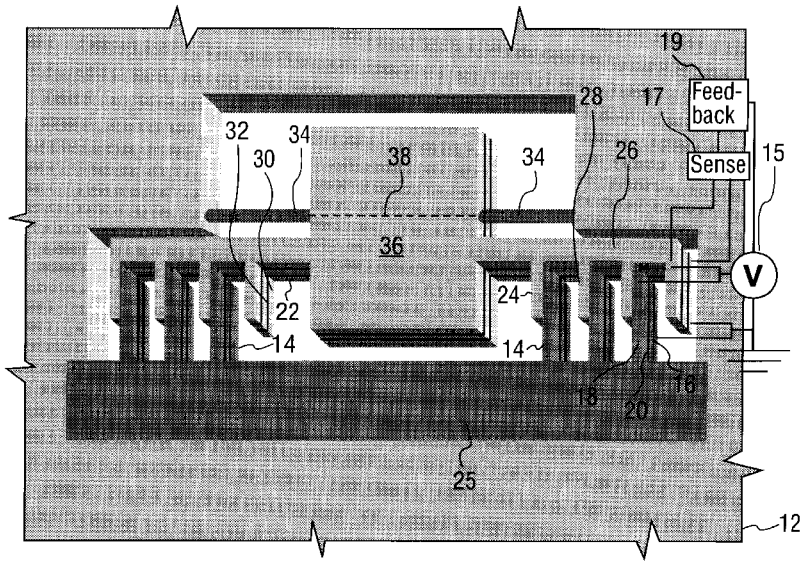
(57) **ABSTRACT**

A method of fabricating multi-layer vertical comb-drive actuator that includes a first comb structure having a plurality of first comb fingers and a second comb structure having a plurality of second comb fingers, wherein the first and second comb fingers are substantially interdigitated. The present invention includes masking and etching of a structure that contains these multiple layers, wherein the first and second comb fingers are simultaneously fabricated. The first and second comb fingers may include two or more stacked conductive layers electrically isolated from each other by an insulating layer or an air gap. Alternatively, either the first or second comb fingers may include only one conductive layer.

17 Claims, 12 Drawing Sheets