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(54) Title: WORDLINE CONTACT FORMATION FOR NAND DEVICE

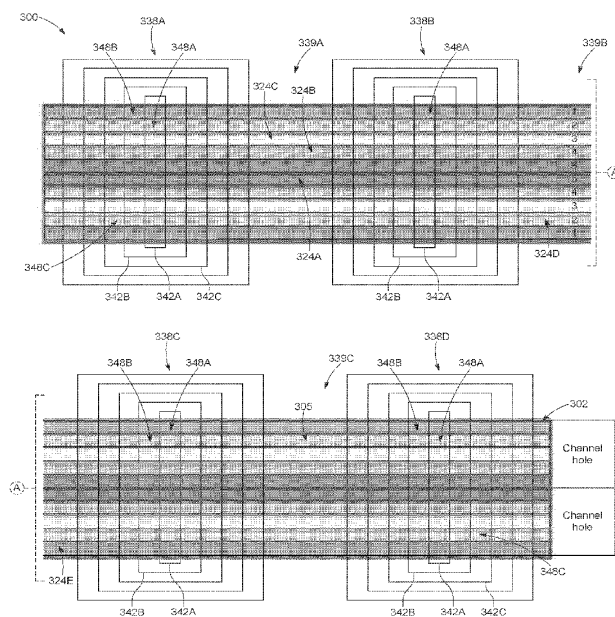


FIG. 3A

(57) Abstract: Disclosed are approaches for wordline contact formation for 3D NAND devices. Methods may include providing a film stack of alternating first layers and second layers, forming a first lithography mask over the film stack, and performing a first series of alternating lithography and etch processes to form an array of contact opening pairs in the film stack, wherein an opening through the first lithography mask is expanded in a first direction following each etch process, and wherein a depth of the array of contact opening pairs varies in the first direction. The method may further include forming a second lithography mask over the film stack, and performing a second series of alternating lithography and etch processes, wherein an opening through the second lithography mask is expanded in a second direction following each etch process, and wherein the depth of the array of contact opening pairs varies in the second direction.

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