

Petitioner's Demonstratives

**PTAB Hearing for
IPR2016-01264 and IPR2016-01249**

***Inter Partes* Review of U.S. Pat. No. 6,538,324**

August 7, 2017

The '324 Patent Claims Are Unpatentable

- Two-Layer Diffusion Barriers
- Disputed Issues
- Claim Construction
- *Zhang* in view of *Ding*
- *Ding* in view of *Zhang*

'324 Patent's Recognition of Prior Art

diffusion barrier structures were known in the art. *Id.*, 7:51-52. With reference to FIG. 2, the patent explains it was also known in the prior art that a diffusion barrier containing a crystalline film could provide good adhesion to a copper wiring layer, although it exhibited a “low barrier characteristic of preventing copper diffusion.”

Pet. Paper 2 (01264), 2

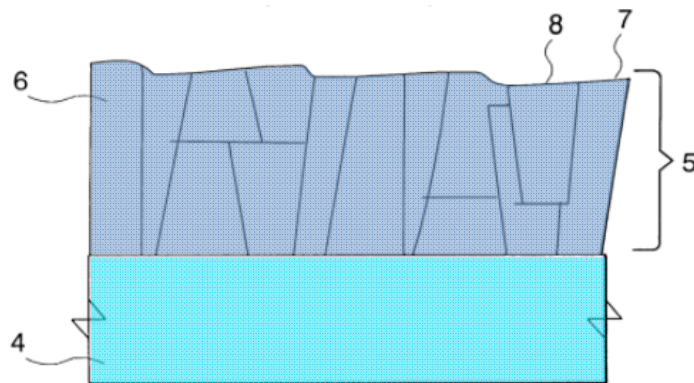


FIG. 2
(Prior Art)

See e.g., Pet. Paper 2 (01249), at 2; Pet. Paper 2 (01264), at 2

'324 Patent's Recognition of Prior Art

Id., 3:1-4, 3:14-19. FIG. 3 of the '324 patent shows it was known in the prior art that amorphous (non-crystalline) films provide a good barrier to copper diffusion, but they do not adhere well to copper. *Id.*, 3:21-33; FIG. 3.

Pet. Paper 2 (01264), 2-3

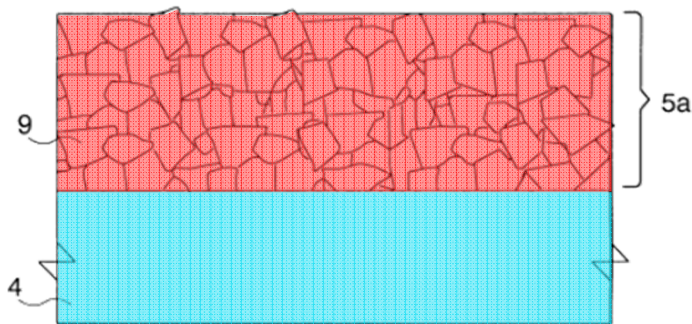


FIG. 3
(Prior Art)

See e.g., Pet. Paper 2 (01249), at 2-3; Pet. Paper 2 (01264), at 2

Zhang's Two-Layer Barrier Film Structure

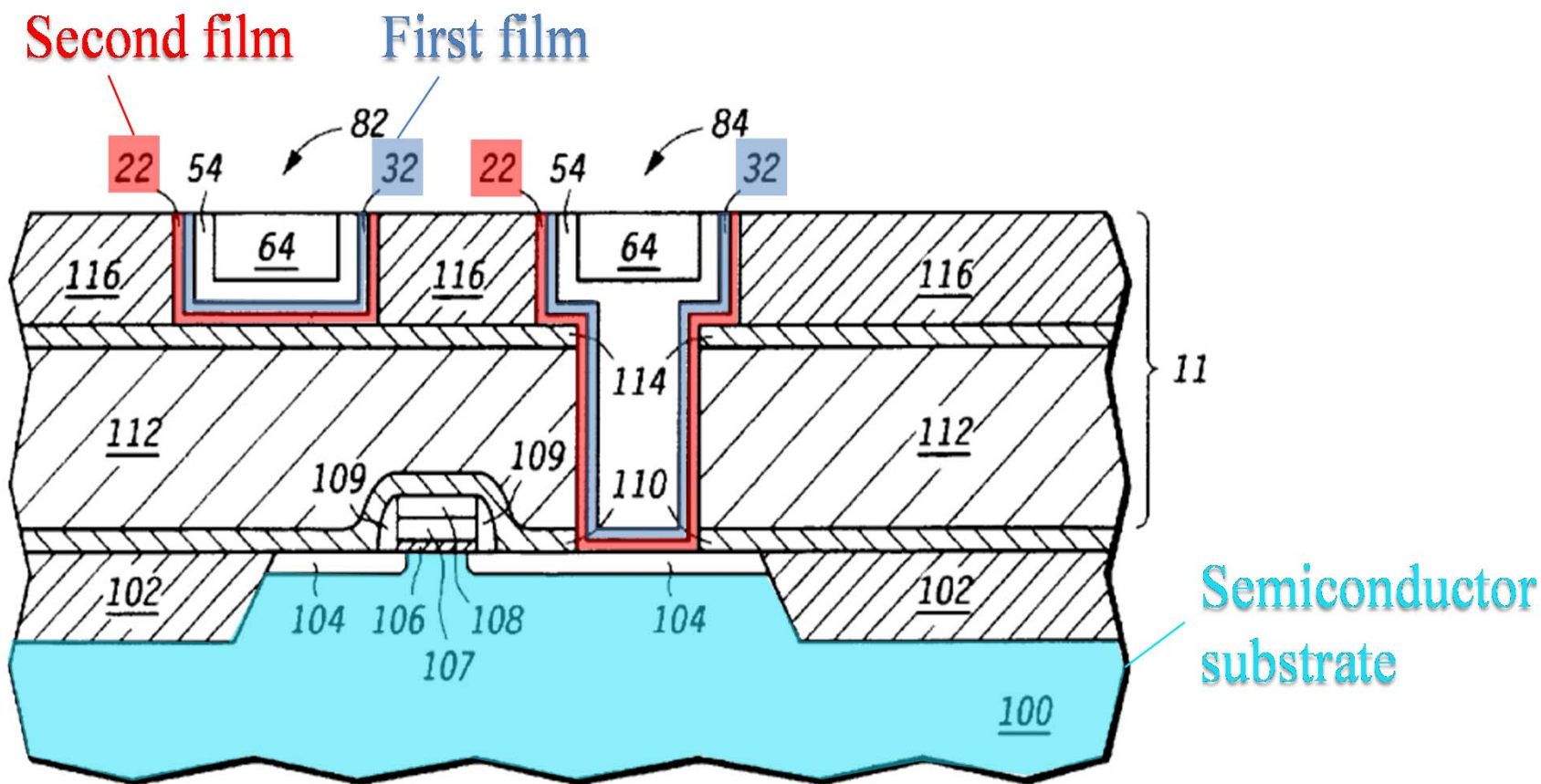


FIG. 8

See e.g., Pet. Paper 2 (01249), at 4; Pet. Paper 2 (01264), at 10

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