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Pourdeyhimi et al.

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(54) **THREE-DIMENSIONAL DEEP MOLDED STRUCTURES WITH ENHANCED PROPERTIES**

(58) **Field of Classification Search** 428/156, 428/175, 178, 212, 374, 401; 442/328, 182
See application file for complete search history.

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(57) **ABSTRACT**

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A three-dimensional deep molded structure made from planar knits or wovens composed of homo-component, bicomponent or multi-component fibers having a fiber diameter of less than 100 microns and nonwovens composed of fibers or filaments of any size. Most suitably, nonwovens with a random fiber orientation distribution and a high degree of crimp with partially oriented fibers are preferred for use in forming the deep molded structure.

(51) **Int. Cl.**
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D02G 3/00 (2006.01)
D04H 3/06 (2006.01)

(52) **U.S. Cl.** **428/175; 428/374; 428/401; 442/328**

35 Claims, 9 Drawing Sheets

