

## FLUID HANDLING DEVICE WITH DIRECTIONALLY-BIASED WETTING SURFACE

### ABSTRACT

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A fluid handling device with an anisotropic wetting surface including a substrate with a multiplicity of asymmetric substantially uniformly shaped asperities thereon. Each asperity has a first asperity rise angle and a second asperity rise angle relative to the substrate. The asperities are structured to present a desired retentive force ratio  
10  $(f_1/f_2)$  greater or less than unity caused by asymmetry between the first asperity rise angle and the second asperity rise angle according to the formula:  $f_3/f_2 = \sin(\omega_3 + 1/2\Delta\theta_{;0})/\sin(\omega_2 + 1/2\Delta\theta_{;0})$ .

FIG. 13C