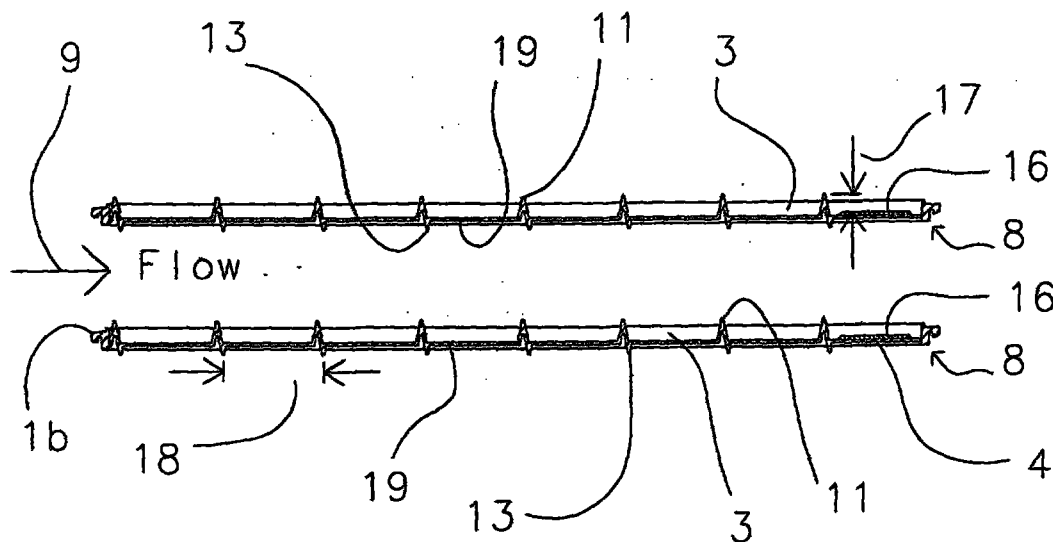




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(54) Title: **HEAT-TRANSFER ENHANCING FEATURES FOR SEMICONDUCTOR CARRIERS AND DEVICES**

(57) Abstract

Convective heat transfer enhancement features are formed in trays for carrying and thermally conditioning semiconductor devices or on integrated circuit chip packages. Upward extending ribs, perpendicular to a fluid flow, are formed in the trays and/or packages for increasing the mixing of the fluid flow near the devices under test, thereby enhancing convective heat transfer to or from the devices. Downward extending ribs are also formed in the trays and/or packages. The upward and downward extending ribs formed in the trays are in a staggered relationship for facilitating the stacking of trays. Alternatively, a surface roughness is applied to the trays and/or packages. The surface roughness applied to the packages is such that sufficient smooth regions remain on the packages for allowing pick-and-place machines to handle the packages.