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(54) Title: HYDRODYNAMIC SPINNING OF POLYMER FIBER IN COAXIAL LAMINAR FLOWS

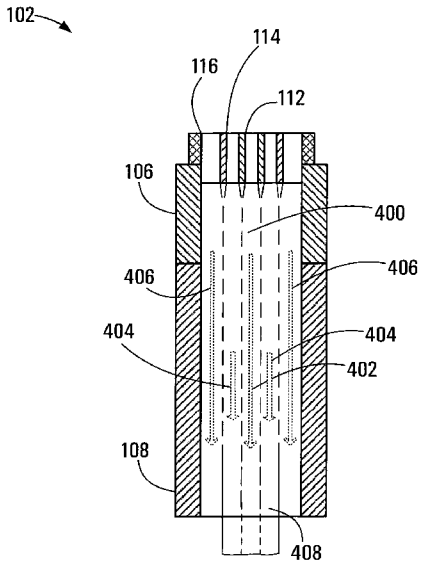


FIG. 4

(57) Abstract: A polymer fiber is formed by hydrodynamic spinning. Fluids are forced to flow through a conduit to form a laminar flow comprising three or more layers of generally coaxial fluid flows, at respective flow rates selected to define a cross-section of a tubular middle layer of the fluid flows. The middle layer comprises a cross-linkable polymer precursor. Another layer of the fluid flows comprise a cross-linking agent. The polymer precursor, cross-linking agent and fluids are selected to prevent substantial diffusion of the polymer precursor away from the middle layer, and to allow a portion of the cross-linking agent to diffuse from the another layer into the middle layer to facilitate cross-linking of the polymer precursor in the middle layer to form a tubular polymer layer in a polymer fiber. The polymer layer thus has a cross-section generally corresponding to the cross-section of the middle layer.

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