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[Continued on next page]

(54) Title: COMPOSITE PREFORM HAVING A CONTROLLED FRACTION OF POROSITY IN AT LEAST ONE LAYER AND METHODS FOR MANUFACTURE AND USE

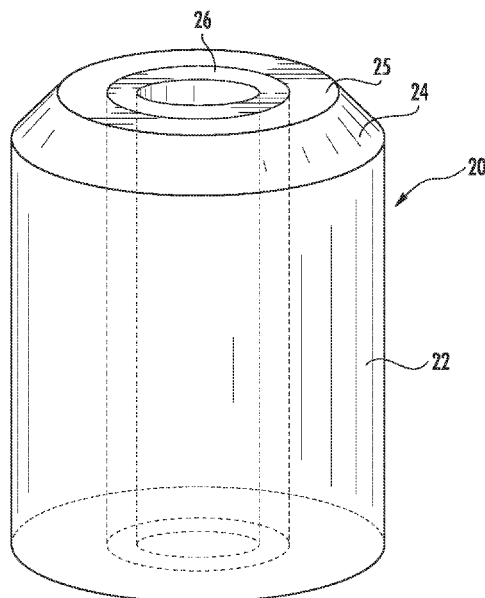


FIG. 1

(57) Abstract: The invention provides clad billet for hot working plastic deformation processes for the production of clad products, including, but not limited to, clad pipe and tubing by extrusion of a hollow, bicomponent composite billet having a fully dense structural component and a partially dense component of a specialty alloy at a fraction of porosity predetermined to provide a flow stress compatible with that of the structural component. The components are diffusion bonded to the predetermined fraction of porosity in the specialty component by application of heat and pressure over time, including by hot isostatically pressing the billet components. Computer modeling techniques can be used to determine processing conditions for obtaining flow stress compatibility.



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