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(54) Title: PROCESS OF EXPEDITING ACTIVATION OF HEAT-EXPANDABLE ADHESIVES/COATINGS USED IN MAKING PACKAGING SUBSTRATES

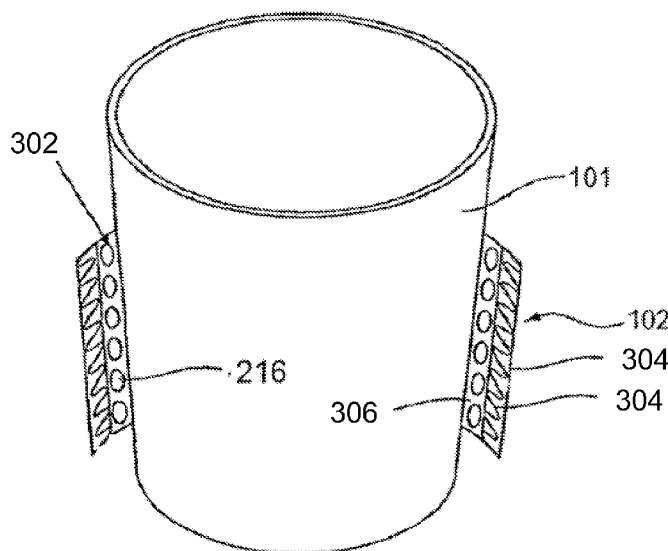


FIG. 3

(57) Abstract: A method for manufacturing a multilayer sheet material includes, at some point during passage of the sheet material through a machine system, heating the multilayer sheet material with a microwave heater to expand a heat-expandable adhesive or coating applied to or within the multilayer sheet material. Various types of multilayer substrates may be created depending on the steps used and the application of the heat-expandable adhesive or coating. Additionally, a monolayer sheet may be coated with a pattern of heat-expandable coating before passage of the monolayer sheet through the machine system that heats the monolayer sheet to expand the heat-expandable coating applied to the monolayer sheet. The microwave heater used by the machine system may be a planar type and have a plurality of microwave guides surrounding a space through which the sheet material(s) pass. The microwave heater may be operable at multiple frequencies.

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