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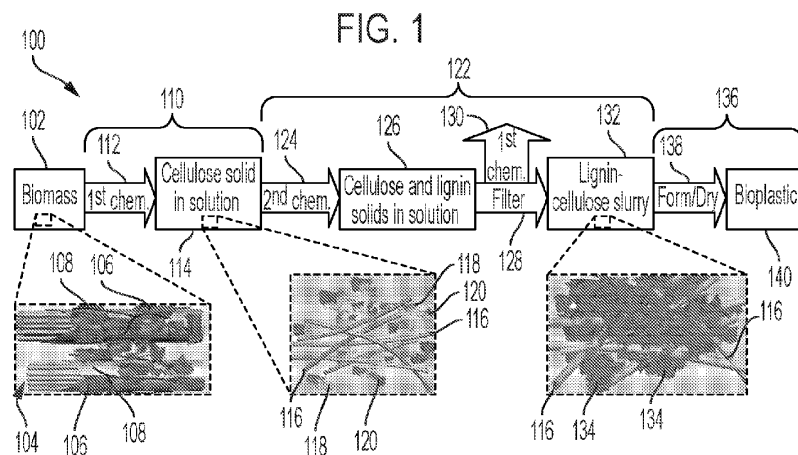
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(54) Title: LIGNOCELLULOSIC BIOPLASTICS AND COMPOSITES, AND METHODS FOR FORMING AND USE THEREOF



(57) Abstract: A solid lignocellulosic bioplastic can be formed from a biomass comprising an intertwined structure of lignin, hemicellulose, and cellulose. The lignin in the biomass can be dissolved such that the cellulose is fibrillated. After the lignin dissolution and cellulose fibrillation, the lignin can be regenerated *in situ*. The regenerated lignin can be deposited on and can form hydrogen bonds between the fibrillated cellulose, so as to form a slurry of lignin-cellulose solids in solution. The slurry can then be dried to form the bioplastic. In some embodiments, the lignin is dissolved by immersing the biomass in a first chemical. The lignin can then be regenerated *in situ* by addition of a second chemical to the first chemical.

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