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(54) Title: A METHOD AND SYSTEM FOR THE APPLICATION OF CHEMICAL COMPOUNDS TO NATURAL FIBERS AND
TREATED FIBERS OBTAINED THEREFROM

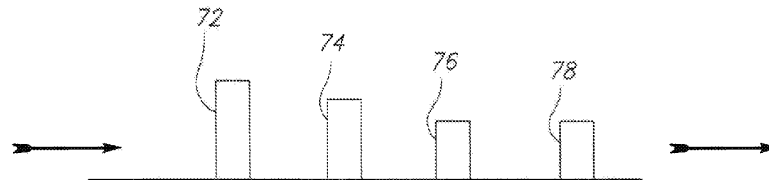


FIG. 2B

(57) Abstract: There is provided an impregnated natural fiber including a cuticle and an interior lumen, the cuticle circumscribing the interior lumen; and insoluble particulates possessing a preselected property embedded in the fiber. The particulates comprise at least 0.1-30 wt.% of the impregnated fiber and the particulates are embedded on the cuticle and within the lumen of the fiber. The fiber has an increased strength, microneaire value and rate of water absorption. Also provided is a system for surface treating cellulose sliver fibers. The system includes a vessel containing a moist paste which comprises at least one particulate material possessing one or more preselected desired properties, a thickening agent and water. The paste from the vessel is dispensed directly onto sliver fiber ribbon(s). A bore sonotrode generates ultrasonic waves which embed the particulate material(s) in the sliver fibers.

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