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(54) Title: IMPROVED METHOD AND APPARATUS FOR SEQUENTIALLY STRETCHING ZERO STRAIN STRETCH LAMINATE WEB TO IMPART ELASTICITY THERETO WITHOUT RUPTURING THE WEB

(57) Abstract

An improved method and apparatus for incrementally stretching "zero strain" stretch laminate webs to impart elasticity thereto in the direction of stretching, at least up to the point of initial stretching. The "zero strain" stretch laminate material (1) is formed of at least two plies (4a, 5, 6) of material which are either intermittently or substantially continuously secured to one another along at least a portion of their coextensive surfaces while in a substantially untensioned ("zero strain") condition. One of the plies (4a) is stretchable and elastomeric, while the second ply (5, 6) is elongatable, but not necessarily elastomeric. The second ply will, upon stretching of the laminate, be at least to a degree permanently elongated so that, upon release of the applied tensile forces, it will not return to its original undistorted configuration. This results in z-direction bulking of the laminate web when the applied tension is released as well as subsequent elastic extensibility in the direction of initial stretching, at least up to the point of initial stretching. In a particularly preferred embodiment of the present invention, the mechanical stretching operation is carried out by passing said laminate web between multiple pairs of meshing corrugated rolls (21, 25, 27), each pair of rolls exhibiting a greater degree of meshing than the preceding pair, to sequentially stretch said web in stages. Sequentially stretching the web in the foregoing manner minimizes damage to the web.

