Title (en)

Method and apparatus for longitudinally compressing web material.

Title (de)

Verfahren und Vorrichtung zum longitudinalen Zusammendrücken von Bahnen.

Title (fr)

Procédé et appareil de compression longitudinale de matériaux en bandes.

Publication

EP 0047397 A1 19820317 (EN)

Application

EP 81106096 A 19810804

Priority

US 17542880 A 19800805

Abstract (en)

Longitudinal compressive treatment of web materials by features, that perform in concert. For driving a web longitudinally a stationary low friction member (20) pressed down upon a driven roll (12) provides multiple lines of pressure-concentration against the driven roll. These lines can provide a positive web drive over varying conditions, can isolate the final point of drive from supply tension, and can establish a relatively tensionless state in the web before final drive and longitudinal compressive treatment. When webs undergo longitudinal compression while confined under a continuation of the stationary low friction surface, minute steps in the stationary surface define a succession of slightly enlarging treatment cavities that stabilize the treatment under differing conditions. For retarding the web a flat, fluid-expansible envelope, overlying a stationary retarding surface, acts through a mediating member to regulate downward pressure between retarding surface and web. A spring sheet member having a decoupling hinge notch formed in its upper surface between feeding and retarding regions can decouple downward pressures in these regions, while providing smooth transition geometry between the regions. Mechanical work energy provided by the longitudinal compressive treatment under regulated treatment conditions provides heat that enables drying of treated paper and, in the case of treated thermoplastic webs, can cause permanent setting of the longitudinal treatment effects as they are produced in the web. In the case of a web that comprises thermoplastic fibers, permanent setting of a compressively bloomed state of the fibers is achieved by prewarming the web below the softening temperature of its thermoplastic fibers, controlling the web drive speed to exceed a critical level, e.g. about 15 yards per minute, longitudinally compressing the web using a stationary retarding surface that applies a drag force to the web, the longitudinal compression step imparting heat to the fibers through conversion of work energy, and chilling the web following the longitudinal compressive treatment. Special patterns in the web, and regulated degrees of strechiness are provided by special periodic variations in the retarding surfaces across the running width of the web.

IPC 1-7

D06C 21/00

IPC 8 full level

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CPC (source: EP)

B31F 1/12 (2013.01); **D06C 21/00** (2013.01)

Citation (search report)

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