Title (en)

Soft roll and process for making such a roll

Title (de)

Elastische Walze und Verfahren zum Herstellen einer solchen

Title (fr)

Rouleau élastique et procédé de fabrication d' un tel rouleau

Publication

EP 1063351 A3 20011114 (DE)

Application

EP 00107312 A 20000404

Priority

DE 19928753 A 19990623

Abstract (en)

[origin: EP1063351A2] The elastic roller, especially for polishing the surface of a paper web at a calender, has a hard metal core (1) covered by an elastic matrix material to form an elastic cladding layer (2). The cladding layer (2) is keyed to the core against rotation, but can slide axially along it. The elastic cladding (2) is in a press fit on the roller core (1), without play. A barrier layer is between the elastic cladding (2) and the roller core (1), especially to reduce friction between the cladding (2) and the core (1). The thermal coefficient of expansion of the elastic cladding layer (2) is higher than that of the roller core (1). The surface of the roller core (1) has elements (10) to prevent rotation and act as guides, working with counter elements (8,9) at the covering elastic layer (2), so that the cladding (2) is keyed to the core (1) against rotation, but can slide along the core (1). The counter elements (8,9) at the elastic cladding (2) are longitudinal guides which ride on bolts (10) at the core (1). One or more fiber layers are embedded in the matrix material, especially at least partly as fiber bundles (3) at an angle to the core (1) surface, in an intersecting pattern. The elastic cladding layer (2) has an outer functional layer and an inner bonding layer at the core (1). The fiber content of the bonding layer is higher than in the functional layer and/or the fiber content at the radially outer zone of the bonding layer is equal to the fiber content in the radially inner zone of the functional layer. The fiber content of the roller cladding layer (2) varies from the interior outwards and especially decreases and/or the fiber content in the outermost zone of the cladding (2) is generally zero and/or the fibers in the fiber layer are of glass and/or carbon. The matrix material is a plastics, especially a heat-setting or thermoplastic material and/or the matrix is a combination of resin and a hardener. An Independent claim is included where the elastic roller cladding is shrunk on to the roller core and/or a barrier layer is fitted around the core before the elastic cladding is applied, especially to reduce friction between the cladding and the core. Preferred Features: To form the cladding layer, a number of fibers are wound around the roller core, pref. in a number of layers over each other to form a cylindrical wound body. The fibers are as one or more fiber bundles and/or rovings and/or webs, where each roving is composed of a number of neighboring fibers of the same type and/or the fibers are cladded with the matrix material before winding especially through a matrix bath. Or the fibers are dry while they are wound around the roller core into a cylindrical wound body, to be treated with the matrix material during or after winding so that they are pref. wholly embedded in the matrix and/or the fibers are wound at an angle around the roller core with intersections between them in layers and/or the fibers are of glass and/or carbon.

IPC 1-7

D21G 1/02

IPC 8 full level

D21G 1/02 (2006.01)

CPC (source: EP US)

D21G 1/0233 (2013.01 - EP US)

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- [A] DE 3832999 A1 19900405 - ROTTMANN HERBERT [DE]
- [A] GB 968938 A 19640909 - KUESTERS EDUARD
- [A] US 4551894 A 19851112 - BEUCKER ALBERT W [US]

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