

Title (en)  
IMPROVED RING DYE PROCESS AND MATERIAL PRODUCED THEREOF

Title (de)  
VERBESSERTES RINGFÄRBEVERFAHREN UND DARAUS HERGESTELLTES MATERIAL

Title (fr)  
PROCÉDÉ AMÉLIORÉ DE TEINTURE EN ANNEAU ET MATÉRIAU PRODUIT SELON CE PROCÉDÉ

Publication  
**EP 3700341 A4 20210818 (EN)**

Application  
**EP 19881954 A 20190619**

Priority  
• US 201862756853 P 20181107  
• US 201916371427 A 20190401  
• US 2019037985 W 20190619

Abstract (en)  
[origin: WO2020096650A1] A denim material formed of cotton yarn material formed of a rounded cross section material, where the cotton yarn material has an outside perimeter area which is between 10 and 35% of the total depth of the rounded cross section area. The outside perimeter has been cleaned by a chemical process, and an inside portion and the cotton yarn material is not cleaned and has its original waxes and impurities. The outside perimeter of the cotton yarn that is cleaned is dyed with a dye. That dye penetrates more into the cleaned area of between 10 and 35% of the total depth of the rounded cross section area. Conversely, the dye penetrates less in the inside area than it does in the cleaned area. That cotton yarn material is woven with other cotton yarn materials, wherein the yarn material has a yarn twist from about between 4.4 and 4.6 twists per inch for warp yarns and 4.9 to 5.1 twists per inch for with weft yarns.

IPC 8 full level  
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CPC (source: EP)  
**D06P 1/228** (2013.01); **D06P 3/6025** (2013.01); **D06P 5/12** (2013.01); **D06P 5/132** (2013.01); **D06P 5/153** (2013.01); **D06P 5/2005** (2013.01)

Citation (search report)  
• [A] US 2018160753 A1 20180614 - ST ONGE-SIMPSON SUSANNE [US], et al  
• [A] US 5330538 A 19940719 - TEAGUE EDWARD W [US], et al  
• See references of WO 2020096650A1

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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DOCDB simple family (publication)  
**WO 2020096650 A1 20200514**; CN 111417310 A 20200714; CN 111417310 B 20230421; EP 3700341 A1 20200902; EP 3700341 A4 20210818; MX 2020005702 A 20220325

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**US 2019037985 W 20190619**; CN 201980003922 A 20190619; EP 19881954 A 20190619; MX 2020005702 A 20190619