

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2022/246211 A1

(43) International Publication Date
24 November 2022 (24.11.2022)

(51) International Patent Classification:

D03D 1/00 (2006.01) *D03D 15/56* (2021.01)
D03D 15/513 (2021.01) *A41D 31/08* (2019.01)

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

(21) International Application Number:

PCT/US2022/030273

Published:

— with international search report (Art. 21(3))

(22) International Filing Date:

20 May 2022 (20.05.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/191,485 21 May 2021 (21.05.2021) US

(71) Applicant: **SOUTHERN MILLS, INC.** [US/US]; 6501
Mall Boulevard, P.O. Box 289, Union City, Georgia 30291
(US).

(72) Inventors: **DUFTY, Elijah**; 6501 Mall Boulevard, P.O.
Box 289, Union City, Georgia 30291 (US). **SELF, Robert**;
6501 Mall Boulevard, P.O. Box 289, Union City, Georgia
30291 (US). **LATON, Michael A.**; 6501 Mall Boulevard,
P.O. Box 289, Union City, Georgia 30291 (US). **HILTON,
Kevin**; 6501 Mall Boulevard, P.O. Box 289, Union City,
Georgia 30291 (US).

(74) Agent: **DOYLE, Kristin Johnson**; Kilpatrick Townsend &
Stockton LLP, Suite 2800, 1100 Peachtree Street NE, 22nd
Floor - IP Docketing, Atlanta, Georgia 30309 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH,
KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA,
MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU,
RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: FLAME RESISTANT FABRICS FORMED WITH STRETCHABLE YARNS

(57) Abstract: Flame resistant fabrics formed with a combination of body yarns and stretch yarns that exhibit excellent physical and thermal properties. The body yarns are formed at least in part with flame resistant materials. The stretch yarns are corespun yarns having an elastic core surrounded by a fiber sheath formed at least in part with flame resistant materials. The fiber sheath protects the elastic core from direct exposure to heat and flame that would otherwise cause the core to degrade or melt.

WO 2022/246211 A1