

Title (en)
LIGHT SENSOR YARN

Title (de)
LICHTSENSORGARN

Title (fr)
FIL DÉTECTEUR DE LUMIÈRE

Publication
EP 3301210 A2 20180404 (DE)

Application
EP 17172464 A 20150320

Priority
• DE 102014103978 A 20140324
• EP 15712110 A 20150320
• EP 2015055985 W 20150320

Abstract (en)
[origin: WO2015144597A2] The invention relates to a sensor yarn (10) having a thread core (11), around which a first conductor (12) and a second conductor (13) are helically wound. The two conductors (12, 13) are electrically insulated from each other and from the thread core (11). The two conductors (12, 13) form a capacitive component (15) together with the thread core (11). In the case of a first sensor yarn (10a), the capacitance (C1) per unit of length changes in the direction of extent (E) of the sensor yarn. This can be accomplished by a change in the winding geometry of the first conductor (12) or of the second conductor (13) or by a change of the relative permittivity (ϵ) of the sensor yarn (10). A second sensor yarn (10b) has photosensitive material (30), and therefore a length change can be caused by incident light (L). As a result of a length change or other deformation of the sensor yarn (10a, 10b), the total capacitance (CG) of the sensor yarn (10a, 10b) in question changes, which can be determined by means of an evaluating unit (17).

Abstract (de)
Die Erfindung betrifft ein Sensorgarn (10b) mit einem Fadenkern (11), um das schraubenförmig ein erster Leiter (12) sowie ein zweiter Leiter (13) gewickelt sind. Die beiden Leiter (12, 13) sind gegeneinander und gegenüber dem Fadenkern (11) elektrisch isoliert. Die beiden Leiter (12, 13) bilden mit dem Fadenkern (11) ein kapazitives Bauelement (15). Das Sensorgarn (10b) weist photosensitives Material (30) auf, so dass durch einfallendes Licht (L) eine Längenänderung bewirkt werden kann. Eine Längenänderung bzw. eine andere Verformung des Sensorgarns (10b) führt dazu, dass sich die Gesamtkapazität (CG) des Sensorgarns (10b) ändert, was durch eine Auswerteeinheit (17) ermittelt werden kann.

IPC 8 full level
D02G 3/36 (2006.01); **D02G 3/44** (2006.01)

CPC (source: CN EP KR US)
D02G 3/12 (2013.01 - KR US); **D02G 3/36** (2013.01 - CN KR); **D02G 3/441** (2013.01 - CN EP KR US); **D03D 1/0076** (2013.01 - CN EP KR US); **D03D 1/0088** (2013.01 - CN EP KR US); **D03D 15/00** (2013.01 - CN EP US); **D03D 15/25** (2021.01 - CN EP KR US); **D03D 15/283** (2021.01 - CN EP KR US); **D03D 15/41** (2021.01 - CN EP KR US); **D03D 15/547** (2021.01 - CN EP KR US); **D04B 1/123** (2013.01 - CN EP KR US); **D04B 1/14** (2013.01 - CN EP KR US); **D02G 3/36** (2013.01 - EP US); **D10B 2401/18** (2013.01 - CN EP KR US); **D10B 2403/0243** (2013.01 - CN KR); **D10B 2403/02431** (2013.01 - EP KR US)

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

DOCDB simple family (publication)
DE 102014103978 A1 20150924; CN 106661780 A 20170510; CN 106661780 B 20191025; EP 3122923 A2 20170201; EP 3122923 B1 20181010; EP 3301210 A2 20180404; EP 3301210 A3 20180530; EP 3301210 B1 20190515; JP 2017510731 A 20170413; JP 2019203237 A 20191128; JP 6592502 B2 20191016; JP 6723418 B2 20200715; KR 102314909 B1 20211021; KR 20160136402 A 20161129; TR 201816444 T4 20181121; TR 201908701 T4 20190722; US 10487423 B2 20191126; US 2017107647 A1 20170420; WO 2015144597 A2 20151001; WO 2015144597 A3 20160121

DOCDB simple family (application)
DE 102014103978 A 20140324; CN 201580016000 A 20150320; EP 15712110 A 20150320; EP 17172464 A 20150320; EP 2015055985 W 20150320; JP 2017501483 A 20150320; JP 2019128150 A 20190710; KR 20167029441 A 20150320; TR 201816444 T 20150320; TR 201908701 T 20150320; US 201515128854 A 20150320