

Title (en)  
MULTI-FOLDED FULL-AUTOMATIC OPENING-CLOSING UMBRELLA

Title (de)  
MEHRFACH GEFALTETER SCHIRM MIT VOLLAUTOMATISCHER ÖFFNUNG UND SCHLIESSUNG

Title (fr)  
PARAPLUIE À OUVERTURE/FERMETURE ENTIÈREMENT AUTOMATIQUE À PLIS MULTIPLES

Publication  
**EP 2727490 A4 20150729 (DE)**

Application  
**EP 11869125 A 20110701**

Priority  
CN 2011076747 W 20110701

Abstract (en)  
[origin: GB2501218A] A multi-folded full-automatic opening-closing umbrella comprises a frame (A), cloth, a middle rod set (B), an upper nest (C), a lower nest (D), a handle (G), an umbrella opening/closing transformation ratio mechanism (E) disposed in the middle rod set (B), and an umbrella opening/closing driving mechanism (F) disposed in the handle (G) and the middle rod set (B). The middle rod set (B) is provided with at least three sleeves, which are respectively an outer sleeve (B1), a middle sleeve (B2) and an inner sleeve (B3) from the top down. The umbrella opening/closing transformation ratio mechanism (E) comprises a lower nest pull rope (E1), a middle sleeve pull rope (E2) and an inner sleeve pull rope (E3). One end of the lower nest pull rope (E1) is fixed on a middle sleeve plug (3) of the middle sleeve (B2), and the other end thereof is fixed with the lower nest (C). One end of the middle sleeve pull rope (E2) is fixed on an upper end of the inner sleeve (B3), and the other end thereof is fixed on the top of the outer sleeve (B1). One end of the inner sleeve pull rope (E3) is fixed on the upper end of the inner sleeve (B3), and the other end thereof is fixed on a lower end of the outer sleeve (B1). The umbrella opening/closing driving mechanism (F) comprises driving members (6, 7, 8) connected to the middle sleeve plug (3) and a power source (9) for propelling the driving members (6, 7, 8) to move up and down relative to the inner sleeve (B3). The power source (9) is controlled by a button (G2) on the handle (G). The umbrella opening/closing driving mechanism (F) drives the middle sleeve (B2) of the middle rod set (B) to move up and down relative to the inner sleeve (B3), and linkage opening/closing functions of the sleeves (B1, B2, B3) of the middle rod set (B) and the cloth are realized at the same time.

IPC 8 full level  
**A45B 25/14** (2006.01); **A45B 19/04** (2006.01); **A45B 19/10** (2006.01); **A45B 25/16** (2006.01)

CPC (source: EP GB US)  
**A45B 19/04** (2013.01 - EP GB US); **A45B 19/10** (2013.01 - EP GB US); **A45B 25/14** (2013.01 - GB); **A45B 25/143** (2013.01 - EP US); **A45B 25/16** (2013.01 - GB); **A45B 25/165** (2013.01 - EP US)

Citation (search report)  
• [A] CN 101961164 A 20110202 - SHUMIN ZHANG  
• See references of WO 2013003992A1

Cited by  
EP3015017A1

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)  
**GB 201314904 D0 20131002**; **GB 2501218 A 20131016**; CA 2827788 A1 20130110; CA 2827788 C 20150825; DK 2727490 T3 20160627; EP 2727490 A1 20140507; EP 2727490 A4 20150729; EP 2727490 B1 20160316; JP 3193189 U 20140925; KR 101541667 B1 20150806; KR 20140068226 A 20140605; PL 2727490 T3 20160729; RU 152329 U1 20150520; US 2014182641 A1 20140703; US 8757184 B1 20140624; WO 2013003992 A1 20130110

DOCDB simple family (application)  
**GB 201314904 A 20110701**; CA 2827788 A 20110701; CN 2011076747 W 20110701; DK 11869125 T 20110701; EP 11869125 A 20110701; JP 2014600025 U 20110701; KR 20147010981 A 20110701; PL 11869125 T 20110701; RU 2013139187 U 20110701; US 201114000581 A 20110701