

Title (en)  
Shaft structure of automatic umbrella

Title (de)  
Wellenstruktur eines automatischen Regenschirms

Title (fr)  
Structure de tige de parapluie automatique

Publication  
**EP 2572602 A1 20130327 (EN)**

Application  
**EP 11182677 A 20110926**

Priority  
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Abstract (en)  
The present invention provides a structure of shaft of automatic umbrella, which includes a shaft assembly (30) including a second section (32) having a top end fixed to an internal plug (35). An inner tube (34) is fixed at a top end thereof to the internal plug (35) and receives therein an operation tube (36) having a bottom coupled to an operation plug (38). The inner tube (34) receives in a top portion thereof a pulley (37) around which an operation cable (39) wraps. An end of the operation cable (39) is fixed to a bullet-like member (50) and an opposite end fixed to the operation plug (38). To open the umbrella, a push button (22) is depressed and an expansion spring (60) pushes upward the second section (32) so that the runner cable (42) and the operation cable (39) drive a runner (40) and a third shaft section (33) upward to completely open the umbrella.

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Citation (applicant)  
US 6684893 B2 20040203 - KUO SHIH-SHIN [TW]

Citation (search report)  
• [A] US 6112755 A 20000905 - LIN CHUNG-KUANG [TW], et al  
• [A] US 5505222 A 19960409 - LIN CHUNG-KUANG [TW], et al

Cited by  
CN110193148A; CN109008118A

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