

Title (en)

VEHICLE STARTER AND SPLINE ASSEMBLY THEREOF

Title (de)

FAHRZEUGANLASSER UND VERZAHNUNGSAUFGABE DAFÜR

Title (fr)

DÉMARREUR DE VÉHICULE AUTOMOBILE ET ENSEMBLE DE CANNELURES DE CELUI-CI

Publication

**EP 2812563 A4 20160217 (EN)**

Application

**EP 13746729 A 20130206**

Priority

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- CN 2013071443 W 20130206

Abstract (en)

[origin: WO2013117158A1] A spline assembly (5) for a vehicle starter, has two spline parts (20,30) each provided with spline teeth (32) with spline slots (22) formed therebetween. The spline teeth (32) of one spline part (30) are matched with the spline slots (22) of another spline part (20) so that the two spline parts (20,30) are axially slid opposite to each other. Top lands (36) of the spline teeth (32) of one spline part (30) are ground wholly in a single grinding process so that the radius of addendum circle of one spline part (30) is smaller than the radius of dedendum circle of another spline part (20) by 0.02 to 0.15 mm. The spline assembly (5) has high torque transfer ability and simple structure.

IPC 8 full level

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CPC (source: EP)

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Citation (search report)

- [IAY] WO 2005121581 A1 20051222 - GROB ERNST FA [CH], et al
- [IY] DE 3635916 C1 19880324 - VOITH GMBH J M
- [IY] US 2007104535 A1 20070510 - VALOVICK BRIAN [US]
- [YA] US 2006144177 A1 20060706 - ANDOH KAZUHIRO [JP]
- [YA] EP 0494681 A1 19920715 - MITSUBISHI ELECTRIC CORP [JP]
- [YA] EP 2172645 A2 20100407 - BOSCH GMBH ROBERT [DE]
- See references of WO 2013117158A1

Cited by

CN113958688A

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