

Title (en)

Compound planetary gear apparatus for a motor vehicle starter motor.

Title (de)

Verbundumlaufgetriebevorrichtung für Anlasser eines Verbrennungsmotors.

Title (fr)

Appareil d'engrenages planétaires composés pour démarreur de moteur à combustion interne.

Publication

**EP 0582429 A1 19940209 (EN)**

Application

**EP 93305940 A 19930727**

Priority

US 92515592 A 19920806

Abstract (en)

An apparatus for transferring rotation from an armature shaft (12) of the starter motor of a vehicle to an output shaft (16) is disclosed. The apparatus comprises a pinion (20) mounted on the armature shaft (12), a relatively stationary ring gear (22), a plurality of planet shafts (24,26,28,30), and a plurality of planetary gear sets (32,34,36,38). Each of the planet shafts is connected to the output shaft (16) and is orbitable about the armature shaft (12). Each planetary gear set includes two planet gears (44,46) mounted on an associated planet shaft (28). One (44) of the planet gears engages the pinion (20) so that the rotation of the pinion (20) is transferred to the first planet gear (44). The other planet gear (46) is rotatable with the first planet gear (44), and engages the ring gear (22) so that the associated planet shaft (28) orbits the armature shaft (12) and imparts rotation to the output shaft (16) sufficient to crank the engine. <IMAGE>

IPC 1-7

**F02N 15/04**

IPC 8 full level

**F02N 15/02** (2006.01); **F02N 15/04** (2006.01)

CPC (source: EP)

**F02N 15/046** (2013.01)

Citation (search report)

- [X] GB 145527 A 19210407 - BOSCH ROBERT
- [AD] US 4573364 A 19860304 - GIVAN DAVID E [US]

Cited by

US5760485A; EP2067984A3; EP2048356A3; CN110043616A; US5953955A; US5857380A; EP2011999A3; CN102536577A; US8826878B2; WO9619662A1; US8091443B2

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

**EP 0582429 A1 19940209**; CA 2101606 A1 19940207; JP H06159205 A 19940607

DOCDB simple family (application)

**EP 93305940 A 19930727**; CA 2101606 A 19930729; JP 19493493 A 19930805