

Title (en)
Starter device

Title (de)
Anlassvorrichtung

Title (fr)
Dispositif de démarrage

Publication
EP 0499955 B1 19960131 (EN)

Application
EP 92102307 A 19920212

Priority
JP 1383191 U 19910218

Abstract (en)
[origin: EP0499955A1] The invention relates to a starter device comprising: a planetary speed reduction gear (15) in which planet gears (16) revolve to reduce a rotation speed of the armature shaft (5) of an electric motor; a carrier (44) supporting the planet gears (16) and to which rotation of the armature shaft (5) is transmitted through the planetary speed reduction gear (15); an output shaft (43) in which the front portion is smaller in diameter than the rear portion, the output shaft (43) being engaged with the front end portion of the carrier (44) so that rotation is transmitted to the output shaft (43) through the carrier (44); a C-shaped snap ring (45) fitted in the output shaft (43) at the rear end to hold the rear end of the carrier (44); a E-shaped snap ring (46) fitted in the output shaft (43) ahead of the C-shaped snap ring (45) to hold the front end of the carrier (44); a clutch outer (48) which is coupled to the middle portion of the output shaft (43) through helical spline gears (48a) formed thereon so that rotation of the output shaft (43) is transmitted thereto; a clutch inner (49) in which the rear end portion thereof is coupled through a plurality of rollers (50) to the clutch outer (48), thus forming an over-running clutch (47) to transmit rotation in one direction; a bearing (51) fitted in a front bracket (42) of the electric motor to support the middle portion of the clutch inner (49); and a pinion (52) mounted on the front end portion of the clutch inner (49). The clutch inner (49) has a middle portion smaller in diameter, and a front end portion is smaller in diameter than the middle portion. <IMAGE>

IPC 1-7
F02N 15/06; **F02N 15/04**

IPC 8 full level
F02N 15/02 (2006.01); **F02N 15/04** (2006.01); **F02N 15/06** (2006.01)

CPC (source: EP)
F02N 15/046 (2013.01); **F02N 15/063** (2013.01); **F02N 15/023** (2013.01)

Cited by
US8371259B2; US7040184B2; WO2008052822A1; US6931953B2

Designated contracting state (EPC)
DE FR GB IT

DOCDB simple family (publication)
EP 0499955 A1 19920826; **EP 0499955 B1 19960131**; DE 69207927 D1 19960314; DE 69207927 T2 19960711; HK 1003797 A1 19981106; JP H04104164 U 19920908

DOCDB simple family (application)
EP 92102307 A 19920212; DE 69207927 T 19920212; HK 98102837 A 19980403; JP 1383191 U 19910218