

Title (en)
Engine starter.

Title (de)
Anlasser für Verbrennungsmotor.

Title (fr)
Démarreur de moteur à combustion interne.

Publication
EP 0244521 A1 19871111 (EN)

Application
EP 86303445 A 19860507

Priority
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• JP 23631784 A 19841108

Abstract (en)
An engine starter has a plunger electromagnetically actuated by holding and attracting coils (3a,3b) to move a pinion toward a ring gear on the engine and also move a first movable contact (9) on the plunger towards first and second stationary contacts (11a,11b) to be electrically connected together by the first movable contact (9) to electrically energize a starter motor (13a). A relay (25) is provided and has normally open contacts (25a) electrically connected in series to a power source (23) and the connection between the holding and the attracting coils (3a,3b) and a relay coil (25b) connected in series to a starter switch (24) and a temperature sensor (4) formed by a normally closed switch having a third stationary contact (4b) connected to the relay coil (25b) and a bimetallic element (4c) carrying a second movable contact (4g) grounded through the bimetallic element. The temperature sensor (4) is disposed to detect the temperature of one of the holding and attracting coils (3a,3b) and arranged such that, when the temperature is raised to a predetermined level, the bimetallic element (4) snaps to separate the second movable contact (4g) from the third stationary contact (4b) whereby the electrical supply (23) to the holding and attracting coils (3a,3b) is interrupted to interrupt the electrical supply to the starter motor. (13a).

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Citation (search report)
• [A] DE 8223614 U1 19850509
• [A] GB 2068661 A 19810812 - BOSCH GMBH ROBERT
• [A] AU 41213 B
• [A] PATENTS ABSTRACTS OF JAPAN, vol. 9, no. 100 (M-376)[1823], 2nd May 1985; & JP-A-59 224 464 (NIPPON DENSO K.K.) 17-12-1984

Cited by
AU627851B2; EP0537754A1; DE102015207986A1; CN104806411A; US7650865B2; DE102015224278A1; CN108603480A; DE102018109263A1; WO2012019866A1; WO9100960A1

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