

Title (en)

Fast electromagnetic trip unit for electrical switching devices.

Title (de)

Elektromagnetischer Schnellauslöser für elektrische Schaltgeräte.

Title (fr)

Déclencheur rapide électromagnétique pour appareils de commutation électriques.

Publication

EP 0442311 B1 19950510 (DE)

Application

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Priority

DE 4004359 A 19900213

Abstract (en)

[origin: EP0442311A2] Fast electromagnetic trip units having impact armature plungers and an electrical trip coil, through whose winding a load current flows, have a relatively large-volume permanent magnet which holds the impact armature plunger, which consists of a ferromagnetic material, in the stressed position against the influence of a storage compression spring. As a result of the high retention force of the permanent magnet, the behaviour of the spring characteristic of the storage compression spring is influenced unfavourably on stressing of the trip unit. The fast trip unit is thus constructed such that, on stressing of the trip unit, on the one hand a favourable behaviour of the spring characteristic is produced and, on the other hand, a high retention force is produced with a minimal magnet volume. This is achieved by a magnet core (4) in the form of a tubular sleeve consisting of a ferromagnetic material projecting from the lower pole plate (5) of the magnet housing (3) and passing coaxially through the trip coil (2) over its entire length, the impact armature plunger (6) consisting of a non-magnetic material and the permanent magnet (8) being arranged on the impact armature plunger (6) above the trip coil (2), with an air gap (20) opposite the wall of the housing (3), such that, when the fast trip unit is in the stressed state, the magnetic circuit (22) from the permanent magnet (8) is closed via the magnetic core (4), the lower pole plate (5) and a lower part (3a) of the housing (3) surrounding the trip coil (2), while, in the unstressed or tripped state, the magnetic circuit (22a) is short-circuited between the permanent magnet (8) and an upper, narrower housing projection (15). As a result of such a design, the assembly of the quick trip unit can also be considerably simplified and hence made more cost-effectively. <IMAGE>

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IPC 8 full level

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CPC (source: EP)

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Cited by

WO2011043808A1; CN102612728A; CN112017919A; EP0841669A1; EP1137032A3; JP2016051708A; GB2260445A; GB2260445B; US6424244B1; US8581682B2

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