

Title (en)
Safety mechanism for spinning projectile fuzes.

Title (de)
Vorrichtung zum Sichern von Drallgeschosszündern.

Title (fr)
Dispositif de sécurité pour fusée de projectile giratoire.

Publication
EP 0117373 A1 19840905 (FR)

Application
EP 83402314 A 19831201

Priority
FR 8220466 A 19821207

Abstract (en)
1. Safety device for a spinning projectile, which possesses, inside the body (1) of the projectile having a specific spin axis (25), a member (4) movable between two positions relative to the body (1) and locking means comprising : a finger (8) mounted slidably in the body (1) along the spin axis (25) of the latter and interacting with the movable member (4) to immobilize the latter relative to the body (1) in a first of the said positions or to release this member (4) in respect of a movement towards its second position, a latch (13) at least partially in the form of a sleeve, arranged round an axial shaft (15) of the body (1), the said latch (13) being designed to open under the action of centrifugal force beyond a value of the spinning speed below the maximum value of the latter, at least one elastic spiral band (14) having such a mass, form, rigidity and prestress that it is wound round the latch (13) and grips it so as to be connected frictionally to it, when at rest, characterized in that : in a specific direction (27) parallel to the spin axis (25), the finger (8) abuts against a counterpart (12) of the body (1) via a central zone of a washer (11) centred on the spin axis (25) and having an outer periphery (47) projecting relative to the counterpart (12), the latch (13) is freely rotatable about the spin axis (25) relative to the body (1) and, with an axial play compatible with this relative freedom of rotation, in the said specific direction (27) abuts against a zone (10) of the finger (8) and in the opposite direction against a central zone (48) of a bearing face (21) of the body (1) having a concavity centred on the spin axis (25), so that the latch (13) ensures bracing between the said central zone (48) of this bearing face (21) and this zone (10) of the finger (8), itself abutting against the counterpart (12) of the body (1) via the central zone of the washer (11), the form of the said bearing face (21) of the body (1) being such that a centrifugal opening of the latch (13) causes, because the latch (13) bears respectively against a peripheral zone of the washer (11) and against the face (21), a displacement of this peripheral zone (47) of the washer (11) relative to the counterpart (12) in the specific direction (27), thus causing as a result of a lever effect a movement of the finger (8) relative to the body (1) in the opposite direction, the mass, form, rigidity and prestress of the elastic spiral band (14) are also such that it remains wound round the latch (13) and grips it so as to be connected frictionally to it, as long as the latter, becoming fast to the body (1) as a result of inertia during the acceleration of the projectile in the firing tube, undergoes joint spinning with the body (1) at a speed increasing from zero to the said maximum value, and that its outer turn tends to come loose under the action of the centrifugal force at a value slightly below or equal to this maximum value, lay itself against an inner peripheral face (23) of the body (1) and become connected frictionally to the latter, in such a way that, when the projectile emerges from the firing tube, there occurs a centrifugal unwinding of the elastic spiral band (14), with the release of the latch (13) in respect of its centrifugal opening, followed by the centrifugal opening.

Abstract (fr)
Ce dispositif comporte un verrou (13) enserrant un arbre axial (15) du corps de fusée (1) du projectile, et lui-même enserré par une bande spirale élastique (14) apte à s'ouvrir sous l'action de la force centrifuge; le verrou (13) est lui-même apte à s'ouvrir sous l'action de cette force centrifuge lorsque la bande spirale (14) l'a libéré; lors de cette ouverture, le verrou (13) provoque le basculement d'une rondelle (11) de préférence élastique qui provoque elle-même une translation axiale d'un doigt axial (8) libérant un organe mobile (4) tel qu'un rotor gyroscopique interposé dans la chaîne pyrotechnique de la fusée. Application aux projectiles giratoires.

IPC 1-7
F42C 15/22

IPC 8 full level
F42C 15/22 (2006.01)

CPC (source: EP)
F42C 15/22 (2013.01)

Citation (search report)
• US 3489089 A 19700113 - KAISER PAUL, et al
• DE 1926640 A1 19701126 - DIEHL FA
• FR 2293688 A1 19760702 - RHEINMETALL GMBH [DE], et al
• US 1563418 A 19251201 - ARTHUR ADELMAN
• FR 2233593 A1 19750110 - DIEHL [DE], et al
• US 3076410 A 19630205 - WILLIAM GUERNE

Designated contracting state (EPC)
AT BE CH DE GB IT LI LU NL SE

DOCDB simple family (publication)
EP 0117373 A1 19840905; EP 0117373 B1 19870304; AT E25769 T1 19870315; DE 3370073 D1 19870409; FR 2537265 A1 19840608; FR 2537265 B1 19850524

DOCDB simple family (application)
EP 83402314 A 19831201; AT 83402314 T 19831201; DE 3370073 T 19831201; FR 8220466 A 19821207