

CPC**COOPERATIVE PATENT CLASSIFICATION****F42C**

AMMUNITION FUZES (blasting cartridge initiators [F42B 3/10](#); chemical aspects [C06C](#)); **ARMING OR SAFETY MEANS THEREFOR** (filling fuzes [F42B 33/02](#); fitting or extracting primers in or from fuzes [F42B 33/04](#); containers for fuzes [F42B 39/30](#))

F42C 1/00

Impact fuzes, i.e. fuzes actuated only by ammunition impact

F42C 1/02

- . with firing-pin structurally combined with fuze

F42C 1/04

- . . operating by inertia of members on impact

F42C 1/06

- . . . for any direction of impact {[electric contact parts F42C 19/06](#)}

F42C 1/08

- . . with delayed action after ignition of fuze ([time fuzes F42C 9/00](#)){[or after impact](#)}

F42C 1/09

- . . the fuze activating a propulsive charge for propelling the ammunition or the warhead into the air, e.g. in rebounding projectiles

F42C 1/10

- . without firing-pin

F42C 1/12

- . . with delayed action after ignition of fuze ([time fuzes F42C 9/00](#))

F42C 1/14

- . operating at a predetermined distance from ground or target by means of a protruding member

F42C 3/00

Fuzes actuated by exposure to a liquid, e.g. seawater ([F42C 5/00](#) takes precedence; [time fuzes F42C 9/00](#))

F42C 5/00

Fuzes actuated by exposure to a predetermined ambient fluid pressure {(Fluid-pressure-operated switches [H01H 35/24](#))}

F42C 5/02

- . barometric pressure

F42C 7/00

Fuzes actuated by application of a predetermined mechanical force, e.g. tension, torsion, pressure (by ammunition impact [F42C 1/00](#), by exposure to a predetermined ambient fluid pressure [F42C 5/00](#))

F42C 7/02

- . Contact fuzes, i.e. fuzes actuated by mechanical contact between a stationary ammunition, e.g. a land mine, and a moving target, e.g. a person ([F42C 7/12](#) takes precedence)

F42C 7/04

- . . actuated by applying pressure on the ammunition head

F42C 7/06

- . . . and comprising pneumatic or hydraulic retarding means

F42C 7/08

- . . of release type, i.e. actuated by releasing pressure from the ammunition head

F42C 7/10

- . . of antenna type

F42C 7/12

- . Percussion fuzes of the double-action type, i.e. fuzes cocked and fired in a single movement, e.g. by pulling an incorporated percussion pin or hammer ([percussion caps F42C 19/10](#))

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| F42C 9/00 | Time fuzes; Combined time and percussion or pressure-actuated fuzes; Fuzes for timed self-destruction of ammunition |
| F42C 9/02 | . the timing being caused by mechanical means |
| F42C 9/04 | .. by spring motor { F42C 9/141 takes precedence; housings for fuzes specially adapted for winding or setting F42C 19/02 } |
| F42C 9/041 | ... {the clockwork activating a security device, e.g. for unlocking the firing-pin} |
| F42C 9/043 | {and the firing-pin being activated by impact} |
| F42C 9/045 | {and the firing-pin being activated by a spring} |
| F42C 9/046 | {and the activating spring being the spring of the clock-work mechanism} |
| F42C 9/048 | ... {Unlocking of clockwork mechanisms, e.g. by inertia or centrifugal forces; Means for disconnecting the clockwork mechanism from the setting mechanism} |
| F42C 9/06 | .. by flow of fluent material, e.g. shot, fluids |
| F42C 9/08 | . the timing being caused by chemical action, e.g. of acids {(F42C 9/14 takes precedence)} |
| F42C 9/10 | . the timing being caused by combustion {(F42C 9/14 takes precedence)} |
| F42C 9/12 | .. with ring combustion elements |
| F42C 9/14 | . Double fuzes; Multiple fuzes |
| F42C 9/141 | .. {Impact fuze in combination with a clockwork time fuze} |
| F42C 9/142 | .. {combined time and percussion fuzes in which the timing is caused by combustion} |
| F42C 9/144 | ... {with ring or spiral combustion elements} |
| F42C 9/145 | .. {combined time and percussion fuzes in which the timing is caused by chemical reaction} |
| F42C 9/147 | .. {Impact fuze in combination with electric time fuze} |
| F42C 9/148 | .. {Proximity fuzes in combination with other fuzes} |
| F42C 9/16 | .. for self-destruction of ammunition {(F42C 9/141 to F42C 9/148 take precedence)} |
| F42C 9/18 | ... when the spin rate falls below a predetermined limit, e.g. a spring force being stronger than the locking action of a centrifugally-operated lock |
| F42C 11/00 | Electric fuzes ({in combination with other fuzes F42C 9/14 }; proximity fuzes F42C 13/00 ; {safety or arming effected by electric means F42C 15/40 ; electric contact parts for fuzes F42C 19/06 ; electric igniters F42C 19/12 , { F42B 3/12 to F42B 3/18 ; optical initiators F42B 3/113 }) |
| F42C 11/001 | . {Electric circuits for fuzes characterised by the ammunition class or type (F42C 11/02 to F42C 11/06 take precedence; mechanical fuzes having electric igniters for hand grenades or marine warheads F42C 14/025 , F42C 14/045)} |
| F42C 11/002 | .. {Smart ammunition fuzes, i.e. having an integrated scanning, guiding and firing system} |
| F42C 11/003 | .. {for hand grenades} |

- F42C 11/005 . . {for marine warheads, e.g. torpedoes, mines, depth charges}
- F42C 11/006 . . {for fall bombs}
- F42C 11/007 . . {for land mines}
- F42C 11/008 . { Power generation in electric fuzes ([F42C 11/02](#), [F42C 11/04](#) and [F42C 15/295](#) take precedence)}
- F42C 11/02 . with piezo-crystal
- F42C 11/04 . with current induction
- F42C 11/06 . with time delay by electric circuitry
- F42C 11/065 . . {Programmable electronic delay initiators in projectiles}
- F42C 13/00** **Proximity fuzes; Fuzes for remote detonation** {([F42C 9/148](#) takes precedence; constructional details [F42C 19/00](#); mounting of antennas [F42B 30/006](#))}
- F42C 13/003 . {operated by variations in electrostatic field}
- F42C 13/006 . {for non-guided, spinning, braked or gravity-driven weapons, e.g. parachute-braked sub-munitions}
- F42C 13/02 . operated by intensity of light or similar radiation
- F42C 13/023 . . {using active distance measurement}
- F42C 13/026 . . {Remotely actuated projectile fuzes operated by optical transmission links}
- F42C 13/04 . operated by radio waves
- F42C 13/042 . . {based on distance determination by coded radar techniques}
- F42C 13/045 . . {using transmission of F.M. waves}
- F42C 13/047 . . {Remotely actuated projectile fuzes operated by radio transmission links}
- F42C 13/06 . operated by sound waves
- F42C 13/08 . operated by variations in magnetic field
- F42C 14/00** {Mechanical} fuzes characterised by the ammunition class or type ([F42C 1/00](#), [F42C 7/00](#), [F42C 9/00](#), [F42C 11/001](#), [F42C 13/00](#), [F42C 15/00](#) take precedence)
- F42C 14/02 . for hand grenades
- F42C 14/025 . . {having electric igniters}
- F42C 14/04 . for torpedoes, marine mines or depth charges (influenced marine mines [F42B 22/04](#))
- F42C 14/045 . . {having electric igniters}
- F42C 14/06 . for fall bombs

- F42C 14/08 . for land mines
- F42C 15/00 Arming-means in fuzes; Safety means for preventing premature detonation of fuzes or charges**
- F42C 15/005 . Combination-type safety mechanisms i.e. two or more safeties are moved in a predetermined sequence to each other
- F42C 15/16 . wherein the firing pin is displaced out of the action line for safety ([F42C 15/40 takes precedence](#))
- F42C 15/18 . wherein a carrier for an element of the pyrotechnic or explosive train is moved ([F42C 15/40 takes precedence](#))
- F42C 15/184 . . using a slidable carrier
- F42C 15/188 . . using a rotatable carrier
- F42C 15/192 . . . rotatable in a plane which is parallel to the longitudinal axis of the projectile
- F42C 15/196 by the action of centrifugal or inertia forces on the carrier body, e.g. the carrier having eccentrically mounted weights or eccentric centre of gravity
- F42C 15/20 . wherein a securing-pin or latch is removed to arm the fuze, e.g. removed from the firing-pin ([F42C 9/041](#) and [F42C 15/40 take precedence](#))
- F42C 15/21 . . using spring action ([F42C 15/32 takes precedence](#))
- F42C 15/22 . . using centrifugal force ([F42C 15/23 takes precedence](#))
- F42C 15/23 . . by unwinding a flexible ribbon or tape
- F42C 15/24 . wherein the safety or arming action is effected by inertia means ([F42C 15/196](#), [F42C 15/20 take precedence](#))
- F42C 15/26 . . using centrifugal force
- F42C 15/28 . operated by flow of fluent material, e.g. shot, fluids ([F42C 15/26 takes precedence](#))
- F42C 15/285 . . stored within the fuze housing
- F42C 15/29 . . operated by fluidic oscillators; operated by dynamic fluid pressure, e.g. ram-air operated
- F42C 15/295 . . operated by a turbine or a propeller; Mounting means therefor
- F42C 15/30 . . of propellant gases, i.e. derived from propulsive charge or rocket motor
- F42C 15/31 . . generated by the combustion of a pyrotechnic or explosive charge within the fuze
- F42C 15/32 . operated by change of fluid pressure ([F42C 5/00](#), [F42C 15/29 take precedence](#))
- F42C 15/33 . . by breaking a vacuum or pressure container
- F42C 15/34 . wherein the safety or arming action is effected by a blocking-member in the pyrotechnic or explosive train between primer and main charge ([F42C 15/18](#), [F42C 15/40 take precedence](#))
- F42C 15/36 . wherein arming is effected by combustion or fusion of an element; [Arming methods using temperature gradients](#) ([F42C 15/31 takes precedence](#))

- F42C 15/38 . wherein arming is effected by chemical action ([F42C 3/00 takes precedence](#))
- F42C 15/40 . wherein the safety or arming action is effected electrically
- F42C 15/42 . . from a remote location, e.g. for controlled mines or mine fields
- F42C 15/44 . Arrangements for disarming, or for rendering harmless, fuzes after arming, e.g. after launch
- F42C 17/00 Fuze-setting apparatus**
- F42C 17/02 . Fuze-setting keys
- F42C 17/04 . for electric fuzes
- F42C 19/00 Details of fuzes (except [F42C 15/00](#))**
- F42C 19/02 . Fuze bodies; Fuze housings
- F42C 19/04 . Protective caps
- F42C 19/06 . Electric contact parts specially adapted for use with electric fuzes { switches operated by change of speed [H01H 35/06](#); switches operated by change of acceleration, e.g. shock or vibration, inertia switches [H01H 35/14](#); fluid-pressure-operated switches [H01H 35/24](#)}
- F42C 19/07 . . Nose-contacts for projectiles or missiles
- F42C 19/08 . Primers ([initiators for blasting cartridges F42B 3/10](#); [ignition means for rocket engine plants F02K 9/95](#)); Detonators
- F42C 19/0803 . . { characterised by the combination of per se known chemical composition in the priming substance}
- F42C 19/0807 . . { characterised by the particular configuration of the transmission channels from the priming energy source to the charge to be ignited, e. g. multiple channels, nozzles, diaphragms or filters}
- F42C 19/0811 . . { characterised by the generation of a plasma for initiating the charge to be ignited}
- F42C 19/0815 . . { Intermediate ignition capsules, i.e. self-contained primary pyrotechnic module transmitting the initial firing signal to the secondary explosive, e.g. using electric, radio frequency, optical or percussion signals to the secondary explosive ([initiators for blasting cartridges or air bags F42B 3/10](#))}
- F42C 19/0819 . . { Primers or igniters for the initiation of rocket motors, i.e. pyrotechnical aspects thereof}
- F42C 19/0823 . . { Primers or igniters for the initiation or the propellant charge in a cartridge ammunition ([primers for caseless ammunition F42C 19/085](#))}
- F42C 19/0826 . . . { comprising an elongated perforated tube, i.e. flame tube, for the transmission of the initial energy to the propellant charge, e.g. used for artillery shells and kinetic energy penetrators}
- F42C 19/083 . . . { characterised by the shape and configuration of the base element embedded in the cartridge bottom, e.g. the housing for the squib or percussion cap}

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| F42C 19/0834 | ... | { Arrangements of a multiplicity of primers or detonators dispersed within a propellant charge for increased efficiency} |
| F42C 19/0838 | .. | { Primers or igniters for the initiation or the explosive charge in a warhead (F42C 19/095 takes precedence)} |
| F42C 19/0842 | ... | { Arrangements of a multiplicity of primers or detonators, dispersed within a warhead, for multiple mode selection} |
| F42C 19/0846 | ... | { Arrangements of a multiplicity of primers or detonators, dispersed within a warhead, for increased efficiency} |
| F42C 19/085 | .. | Primers for caseless ammunition |
| F42C 19/09 | .. | Primers or detonators containing a hollow charge |
| F42C 19/095 | .. | Arrangements of a multiplicity of primers or detonators, dispersed around a warhead, one of the primers or detonators being selected for directional detonation effects |
| F42C 19/10 | .. | Percussion caps |
| F42C 19/12 | .. | electric |
| F42C 19/14 | ... | operable also in the percussion mode |
| F42C 21/00 | | Checking fuzes; Testing fuzes |
| F42C 99/00 | | Subject matter not provided for in other groups of this subclass |