

ECLA EUROPEAN CLASSIFICATION

- F42C** **AMMUNITION FUZES** (blasting cartridge initiators [F42B3/10](#); chemical aspects [C06C](#)); **ARMING OR SAFETY MEANS THEREFOR** (filling fuzes [F42B33/02](#); fitting or extracting primers in or from fuzes [F42B33/04](#); containers for fuzes [F42B39/30](#))
- F42C1/00** **Impact fuzes, i.e. fuzes actuated only by ammunition impact**
- F42C1/02 . with firing-pin structurally combined with fuze
- F42C1/04 . . operating by inertia of members on impact
- F42C1/06 . . . for any direction of impact [N: electric contact parts [F42C19/06](#)]
- F42C1/08 . . with delayed action after ignition of fuze (time fuzes [F42C9/00](#)) [N: or after impact]
- F42C1/09 . . the fuze activating a propulsive charge for propelling the ammunition or the warhead into the air, e.g. in rebounding projectiles
- F42C1/10 . without firing-pin
- F42C1/12 . . with delayed action after ignition of fuze (time fuzes [F42C9/00](#))
- F42C1/14 . operating at a predetermined distance from ground or target by means of a protruding member
- F42C3/00** **Fuzes actuated by exposure to a liquid, e.g. seawater** ([F42C5/00](#) takes precedence; time fuzes [F42C9/00](#))
- F42C5/00** **Fuzes actuated by exposure to a predetermined ambient fluid pressure** [N: (Fluid-pressure-operated switches [H01H35/24](#))]
- F42C5/02 . barometric pressure
- F42C7/00** **Fuzes actuated by application of a predetermined mechanical force, e.g. tension, torsion, pressure** (by ammunition impact [F42C1/00](#), by exposure to a predetermined ambient fluid pressure [F42C5/00](#))
- F42C7/02 . 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 ([F42C7/12](#) takes precedence)
- F42C7/04 . . actuated by applying pressure on the ammunition head
- F42C7/06 . . . and comprising pneumatic or hydraulic retarding means
- F42C7/08 . . of release type, i.e. actuated by releasing pressure from the ammunition head
- F42C7/10 . . of antenna type
- F42C7/12 . 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 [F42C19/10](#))
- F42C9/00** **Time fuzes; Combined time and percussion or pressure-actuated fuzes; Fuzes for timed self-destruction of ammunition**

- F42C9/02 . the timing being caused by mechanical means
- F42C9/04 . . by spring motor [N: [F42C9/14B](#) takes precedence; housings for fuzes specially adapted for winding or setting [F42C19/02](#)]
- F42C9/04B . . . [N: the clockwork activating a security device, e.g. for unlocking the firing-pin]
- F42C9/04B2 [N: and the firing-pin being activated by impact]
- F42C9/04B4 [N: and the firing-pin being activated by a spring]
- F42C9/04B4B [N: and the activating spring being the spring of the clock-work mechanism]
- F42C9/04C . . . [N: Unlocking of clockwork mechanisms, e.g. by inertia or centrifugal forces; Means for disconnecting the clockwork mechanism from the setting mechanism]
- F42C9/06 . . by flow of fluent material, e.g. shot, fluids
- F42C9/08 . the timing being caused by chemical action, e.g. of acids [N: ([F42C9/14](#) takes precedence)] [C9608]
- F42C9/10 . the timing being caused by combustion [N: ([F42C9/14](#) takes precedence)]
- F42C9/12 . . with ring combustion elements
- F42C9/14 . Double fuzes; Multiple fuzes
- F42C9/14B . . [N: Impact fuze in combination with a clockwork time fuze]
- F42C9/14C . . [N: combined time and percussion fuzes in which the timing is caused by combustion]
- F42C9/14C2 . . . [N: with ring or spiral combustion elements]
- F42C9/14D . . [N: combined time and percussion fuzes in which the timing is caused by chemical reaction]
- F42C9/14F . . [N: Impact fuze in combination with electric time fuze]
- F42C9/14G . . [N: Proximity fuzes in combination with other fuzes]
- F42C9/16 . . for self-destruction of ammunition [N: ([F42C9/14B](#) to [F42C9/14G](#) take precedence)]
- F42C9/18 . . . 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
- F42C11/00** **Electric fuzes** ([N: in combination with other fuzes [F42C9/14](#)]; proximity fuzes [F42C13/00](#); [N: safety or arming effected by electric means [F42C15/40](#); electric contact parts for fuzes [F42C19/06](#)]; electric igniters [F42C19/12](#), [N: [F42B3/12](#) to [F42B3/18](#); optical initiators [F42B3/113](#)])
- F42C11/00B . [N: Electric circuits for fuzes characterised by the ammunition class or type ([F42C11/02](#) to [F42C11/06](#) take precedence; mechanical fuzes having electric igniters for hand grenades or marine warheads [F42C14/02B](#), [F42C14/04B](#))]
- F42C11/00B2 . . [N: Smart ammunition fuzes, i.e. having an integrated scanning, guiding and firing system]
- F42C11/00B4 . . [N: for hand grenades]
- F42C11/00B6 . . [N: for marine warheads, e.g. torpedoes, mines, depth charges]
- F42C11/00B8 . . [N: for fall bombs]
- F42C11/00B10 . . [N: for land mines]
- F42C11/00P . [N: Power generation in electric fuzes (F42C11/02, F42C11/04 and F42C15/295 take precedence)]

- F42C11/02 . with piezo-crystal
- F42C11/04 . with current induction
- F42C11/06 . with time delay by electric circuitry
- F42C11/06B . . [N: Programmable electronic delay initiators in projectiles] [C0402]
- F42C13/00** **Proximity fuzes; Fuzes for remote detonation** [N: ([F42C9/14G](#) takes precedence; [constructional details F42C19/00](#); [mounting of antennas F42B30/00C](#))] [C0402]
- F42C13/00B . [N: operated by variations in electrostatic field]
- F42C13/00P . [N: for non-guided, spinning, braked or gravity-driven weapons, e.g. parachute-braked sub-munitions] [N9702]
- F42C13/02 . operated by intensity of light or similar radiation
- F42C13/02A . . [N: using active distance measurement]
- F42C13/02R . . [N: Remotely actuated projectile fuzes operated by optical transmission links]
- F42C13/04 . operated by radio waves
- F42C13/04C . . [N: based on distance determination by coded radar techniques]
- F42C13/04F . . [N: using transmission of F.M. waves]
- F42C13/04R . . [N: Remotely actuated projectile fuzes operated by radio transmission links]
- F42C13/06 . operated by sound waves
- F42C13/08 . operated by variations in magnetic field
- F42C14/00** [N: Mechanical] **fuzes characterised by the ammunition class or type** ([F42C1/00](#), [N: [F42C7/00](#), [F42C9/00](#), [F42C11/00B](#)], [F42C13/00](#), [F42C15/00](#) take precedence)
- F42C14/02 . for hand grenades
- F42C14/02B . . [N: having electric igniters]
- F42C14/04 . for torpedoes, marine mines or depth charges ([influenced marine mines F42B22/04](#))
- F42C14/04B . . [N: having electric igniters]
- F42C14/06 . for fall bombs
- F42C14/08 . for land mines
- F42C15/00** **Arming-means in fuzes; Safety means for preventing premature detonation of fuzes or charges**
- F42C15/00B . Combination-type safety mechanisms i.e. two or more safeties are moved in a predetermined sequence to each other
- F42C15/16 . wherein the firing pin is displaced out of the action line for safety ([F42C15/40](#) takes precedence)

- F42C15/18 . wherein a carrier for an element of the pyrotechnic or explosive train is moved ([F42C15/40](#) takes precedence)
- F42C15/184 . . using a slidable carrier
- F42C15/188 . . using a rotatable carrier
- F42C15/192 . . . rotatable in a plane which is parallel to the longitudinal axis of the projectile
- F42C15/196 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

- F42C15/20 . wherein a securing-pin or latch is removed to arm the fuze, e.g. removed from the firing-pin ([N: [F42C9/04B](#) and] [F42C15/40](#) take precedence)
- F42C15/21 . . using spring action ([F42C15/32](#) takes precedence)
- F42C15/22 . . using centrifugal force ([F42C15/23](#) takes precedence)
- F42C15/23 . . by unwinding a flexible ribbon or tape

- F42C15/24 . wherein the safety or arming action is effected by inertia means ([F42C15/196](#), [F42C15/20](#) take precedence)
- F42C15/26 . . using centrifugal force

- F42C15/28 . operated by flow of fluent material, e.g. shot, fluids ([F42C15/26](#) takes precedence)
- F42C15/285 . . stored within the fuze housing
- F42C15/29 . . operated by fluidic oscillators; operated by dynamic fluid pressure, e.g. ram-air operated
- F42C15/295 . . operated by a turbine or a propeller; Mounting means therefor
- F42C15/30 . . of propellant gases, i.e. derived from propulsive charge or rocket motor
- F42C15/31 . . generated by the combustion of a pyrotechnic or explosive charge within the fuze

- F42C15/32 . operated by change of fluid pressure ([F42C5/00](#), [F42C15/29](#) take precedence)
- F42C15/33 . . by breaking a vacuum or pressure container

- F42C15/34 . wherein the safety or arming action is effected by a blocking-member in the pyrotechnic or explosive train between primer and main charge ([F42C15/18](#), [F42C15/40](#) take precedence)

- F42C15/36 . wherein arming is effected by combustion or fusion of an element; [N: [Arming methods using temperature gradients](#)] ([F42C15/31](#) takes precedence)

- F42C15/38 . wherein arming is effected by chemical action ([F42C3/00](#) takes precedence)

- F42C15/40 . wherein the safety or arming action is effected electrically
- F42C15/42 . . from a remote location, e.g. for controlled mines or mine fields

- F42C15/44 . Arrangements for disarming, or for rendering harmless, fuzes after arming, e.g. after launch

- F42C17/00 Fuze-setting apparatus**

- F42C17/02 . Fuze-setting keys

- F42C17/04 . for electric fuzes

F42C19/00	Details of fuzes (except F42C15/00)
F42C19/02	. Fuze bodies; Fuze housings
F42C19/04	. Protective caps
F42C19/06	. Electric contact parts specially adapted for use with electric fuzes [N: switches operated by change of speed H01H35/06 ; switches operated by change of acceleration, e.g. shock or vibration, inertia switches H01H35/14 ; fluid-pressure-operated switches H01H35/24] [C0908]
F42C19/07	. . Nose-contacts for projectiles or missiles
F42C19/08	. Primers (initiators for blasting cartridges F42B3/10 ; ignition means for rocket engine plants F02K9/95); Detonators
F42C19/08B	. . [N: characterised by the combination of per se known chemical composition in the priming substance] [N1003]
F42C19/08C	. . [N: 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] [N1003]
F42C19/08D	. . [N: characterised by the generation of a plasma for initiating the charge to be ignited] [N1003]
F42C19/08F	. . [N: 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 F42B3/10)] [N1003]
F42C19/08G	. . [N: Primers or igniters for the initiation of rocket motors, i.e. pyrotechnical aspects thereof] [N1003]
F42C19/08H	. . [N: Primers or igniters for the initiation or the propellant charge in a cartridge ammunition (primers for caseless ammunition F42C19/085)] [N1003]
F42C19/08H2	. . . [N: 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] [N1003]
F42C19/08H4	. . . [N: 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] [N1003]
F42C19/08H6	. . . [N: Arrangements of a multiplicity of primers or detonators dispersed within a propellant charge for increased efficiency] [N1003]
F42C19/08K	. . [N: Primers or igniters for the initiation or the explosive charge in a warhead (F42C19/095 takes precedence)] [N1003]
F42C19/08K2	. . . [N: Arrangements of a multiplicity of primers or detonators, dispersed within a warhead, for multiple mode selection] [N1003]
F42C19/08K4	. . . [N: Arrangements of a multiplicity of primers or detonators, dispersed within a warhead, for increased efficiency] [N1003]
F42C19/085	. . Primers for caseless ammunition
F42C19/09	. . Primers or detonators containing a hollow charge
F42C19/095	. . Arrangements of a multiplicity of primers or detonators, dispersed around a warhead, one of the primers or detonators being selected for directional detonation effects
F42C19/10	. . Percussion caps

F42C19/12

. . . electric

F42C19/14

. . . operable also in the percussion mode

F42C21/00

Checking fuzes; Testing fuzes

F42C99/00

Subject matter not provided for in other groups of this subclass [N0704]