

## SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

### F42 AMMUNITION; BLASTING

**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) [5]

#### Subclass index

##### FUZE-OPERATING PRINCIPLES

Impact.....	1/00
Liquid contact.....	3/00
Fluid pressure.....	5/00
Mechanical force.....	7/00
Non-electric time fuzes.....	9/00
Electric fuzes.....	11/00
Proximity fuzes.....	13/00
Combination fuzes.....	9/00
FUZES CHARACTERISED BY THE TYPE OF AMMUNITION.....	14/00
ARMING OR SAFETY MEANS.....	15/00
FUZE-SETTING.....	17/00
OTHER DETAILS.....	19/00
CHECKING, TESTING.....	21/00
SUBJECT MATTER NOT PROVIDED FOR IN OTHER GROUPS OF THIS SUBCLASS.....	99/00

#### **1/00 Impact fuzes, i.e. fuzes actuated only by ammunition impact**

- 1/02 • with firing pin structurally combined with fuze
- 1/04 • • operating by inertia of members on impact
- 1/06 • • • for any direction of impact
- 1/08 • • with delayed action after ignition of fuze (time fuzes F42C 9/00)
- 1/09 • • the fuze activating a propulsive charge for propelling the ammunition or the warhead into the air, e.g. in rebounding projectiles [5]
- 1/10 • without firing pin
- 1/12 • • with delayed action after ignition of fuze (time fuzes F42C 9/00)
- 1/14 • operating at a predetermined distance from ground or target by means of a protruding member

#### **3/00 Fuzes actuated by exposure to a liquid, e.g. sea-water (F42C 5/00 takes precedence; time fuzes F42C 9/00)**

#### **5/00 Fuzes actuated by exposure to a predetermined ambient fluid pressure**

- 5/02 • barometric pressure

#### **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)**

- 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)

- 7/04 • • actuated by applying pressure on the ammunition head [5]

- 7/06 • • • and comprising pneumatic or hydraulic retarding means [5]

- 7/08 • • of release type, i.e. actuated by releasing pressure from the ammunition head [5]

- 7/10 • • of antenna type [5]

- 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) [5]

#### **9/00 Time fuzes; Combined time- and percussion- or pressure-actuated fuzes; Fuzes for timed self-destruction of ammunition**

- 9/02 • the timing being caused by mechanical means

- 9/04 • • by spring motor

- 9/06 • • by flow of fluent material, e.g. shot, fluids

- 9/08 • the timing being caused by chemical action, e.g. of acids

- 9/10 • the timing being caused by combustion

- 9/12 • • with ring combustion elements

- 9/14 • Double fuzes; Multiple fuzes

- 9/16 • • for self-destruction of ammunition

- 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 [5]

#### **11/00 Electric fuzes (proximity fuzes F42C 13/00; electric igniters F42C 19/12)**

## F42C

- 11/02 • with piezo-crystal
- 11/04 • with current induction
- 11/06 • with time delay by electric circuitry

### 13/00 Proximity fuzes; Fuzes for remote detonation

- 13/02 • operated by intensity of light or similar radiation
- 13/04 • operated by radio waves
- 13/06 • operated by sound waves
- 13/08 • operated by variations in magnetic field

### 14/00 Fuzes characterised by the ammunition class or type (F42C 1/00, F42C 13/00, F42C 15/00 take precedence) [5]

- 14/02 • for hand grenades [5]
- 14/04 • for torpedoes, marine mines or depth charges (influenced marine mines F42B 22/04) [5]
- 14/06 • for fall bombs [5]
- 14/08 • for land mines [5]

### 15/00 Arming-means in fuzes; Safety means for preventing premature detonation of fuzes or charges

- 15/16 • wherein the firing pin is displaced out of the action line for safety (F42C 15/40 takes precedence)
- 15/18 • wherein a carrier for an element of the pyrotechnic or explosive train is moved (F42C 15/40 takes precedence) [5]
  - 15/184 • • using a slidable carrier [5]
  - 15/188 • • using a rotatable carrier [5]
  - 15/192 • • • rotatable in a plane which is parallel to the longitudinal axis of the projectile [5]
  - 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 [5]
- 15/20 • wherein a securing-pin or latch is removed to arm the fuze, e.g. removed from the firing pin (F42C 15/40 takes precedence)
- 15/21 • • using spring action (F42C 15/23 takes precedence) [5]
- 15/22 • • using centrifugal force (F42C 15/23 takes precedence)
- 15/23 • • by unwinding a flexible ribbon or tape [5]
- 15/24 • wherein the safety or arming action is effected by inertia means (F42C 15/196, F42C 15/20 take precedence)
- 15/26 • • using centrifugal force
- 15/28 • operated by flow of fluent material, e.g. shot, fluids (F42C 15/26 takes precedence)
- 15/285 • • stored within the fuze housing [5]
- 15/29 • • operated by fluidic oscillators; operated by dynamic fluid pressure, e.g. ram-air operated [5]

- 15/295 • • operated by a turbine or a propeller; Mounting means therefor [5]
- 15/30 • • of propellant gases, i.e. derived from propulsive charge or rocket motor
- 15/31 • • generated by the combustion of a pyrotechnic or explosive charge within the fuze [5]
- 15/32 • operated by change of fluid pressure (F42C 5/00, F42C 15/29 take precedence)
- 15/33 • • by breaking a vacuum or pressure container [5]
- 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)
- 15/36 • wherein arming is effected by combustion or fusion of an element (F42C 15/31 takes precedence)
- 15/38 • wherein arming is effected by chemical action (F42C 3/00 takes precedence)
- 15/40 • wherein the safety or arming action is effected electrically
- 15/42 • • from a remote location, e.g. for controlled mines or mine fields [5]
- 15/44 • Arrangements for disarming, or for rendering harmless, fuzes after arming, e.g. after launch [5]

### 17/00 Fuze-setting apparatus

- 17/02 • Fuze-setting keys
- 17/04 • for electric fuzes [5]

### 19/00 Details of fuzes (arming means, safety means for preventing premature detonation F42C 15/00)

- 19/02 • Fuze bodies; Fuze housings
- 19/04 • Protective caps
- 19/06 • Electric contact parts specially adapted for use with electric fuzes
- 19/07 • • Nose-contacts for projectiles or missiles [5]
- 19/08 • Primers (initiators for blasting cartridges F42B 3/10); Detonators
- 19/085 • • Primers for caseless ammunition [5]
- 19/09 • • Primers or detonators containing a hollow charge [5]
- 19/095 • • Arrangement of a multiplicity of primers or detonators, dispersed around a warhead, one of the primers or detonators being selected for directional detonation effects [5]
- 19/10 • • Percussion caps
- 19/12 • • electric
- 19/14 • • • operable also in the percussion mode [5]

### 21/00 Checking fuzes; Testing fuzes

### 99/00 Subject matter not provided for in other groups of this subclass [2006.01]