

CPC**COOPERATIVE PATENT CLASSIFICATION****F42B**

EXPLOSIVE CHARGES, e.g. FOR BLASTING, FIREWORKS, AMMUNITION (explosive compositions [C06B](#); fuzes [F42C](#); blasting [F42D](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[F42B 5/14](#) covered by [F42B 12/40](#), [A01K 11/00](#)
[F42B 19/10](#) " " [F41G 7/24](#)

F42B 1/00

Explosive charges characterised by form or shape but not dependent on shape of container

- F42B 1/02
 - . Shaped or hollow charges (blasting cartridges with cavities in the charge [F42B 3/08](#); oil winning using shaped-charge perforators [E21B 43/116](#))
- F42B 1/024
 - .. provided with embedded bodies of inert material
- F42B 1/028
 - .. characterised by the form of the liner
- F42B 1/032
 - .. characterised by the material of the liner
- F42B 1/036
 - .. Manufacturing processes therefor {([F42B 33/0214](#) to [F42B 33/0292](#) take precedence)}
- F42B 1/04
 - . Detonator charges not forming part of the fuze

F42B 3/00

Blasting cartridges, i.e. case and explosive (fuse cords, e.g. detonating fuse cords [C06C 5/00](#); chemical aspects of detonators, blasting caps or primers [C06C 7/00](#))

- F42B 3/003
 - . {Liquid-oxygen cartridges}
- F42B 3/006
 - . {Explosive bolts; Explosive actuators (explosive valves [F16K 13/06](#); explosive cutting [B23D 15/145](#); explosive switches [H01H 39/00](#); pyrotechnical actuators [F15B 15/19](#))}
- F42B 3/02
 - . adapted to be united into assemblies
- F42B 3/04
 - . for producing gas under pressure {(generators of inflation fluid especially adapted for vehicle air bags [B60R 21/26](#))}
- F42B 3/045
 - .. {Hybrid systems with previously pressurised gas using blasting to increase the pressure, e.g. causing the gas to be released from its sealed container}
- F42B 3/06
 - .. with re-utilisable case
- F42B 3/08
 - . with cavities in the charge, e.g. hollow-charge blasting cartridges
- F42B 3/087
 - . Flexible or deformable blasting cartridges e.g. bags or hoses {for slurries} (loaded cartridge bags [F42B 5/38](#))
- F42B 3/093
 - .. in mat or tape form
- F42B 3/10
 - . Initiators therefor (percussion fuzes [F42C 7/00](#); percussion caps [F42C 19/10](#); electric primers [F42C 19/12](#))

NOTE

Group [F42B 3/18](#) takes precedence over groups [F42B 3/103](#) to [F42B 3/16](#).

- F42B 3/103 . . Mounting initiator heads in initiators; Sealing-plugs
- F42B 3/107 . . . Sealing-plugs characterised by the material used
- F42B 3/11 . . characterised by the material used, e.g. for initiator case or electric leads
([F42B 3/107](#) takes precedence)
- F42B 3/113 . . activated by optical means, e.g. laser, flash-light
- F42B 3/117 . . activated by friction
- F42B 3/12 . . Bridge initiators {([F42B 3/103](#), [F42B 3/11](#), [F42B 3/195](#) take precedence; electric
ignitors in propellant charges [F42C 19/12](#))}
- F42B 3/121 . . . {Initiators with incorporated integrated circuit}
- F42B 3/122 . . . {Programmable electronic delay initiators}
- F42B 3/124 . . . { characterised by the configuration or material of the bridge ([F42B 3/13](#) takes
precedence)}
- F42B 3/125 . . . { characterised by the configuration of the bridge initiator case ([F42B 3/11](#) takes
precedence)}
- F42B 3/127 . . . { the case having burst direction defining elements}
- F42B 3/128 . . . { characterised by the composition of the pyrotechnic material}
- F42B 3/13 . . . with semiconductive bridge
- F42B 3/14 . . Spark initiators ([F42B 3/195](#) takes precedence)
- F42B 3/16 . . {Pyrotechnic} delay initiators ([F42B 3/195](#) takes precedence; {programmable
electronic delay initiators [F42C 11/065](#)})
- F42B 3/18 . . Safety initiators resistant to premature firing by static electricity or stray currents
- F42B 3/182 . . . having shunting means {([F42B 3/185](#) takes precedence; details of shunting
devices [H01R 13/7032](#))}
- F42B 3/185 . . . having semi-conductive {means, e.g.} sealing plugs
- F42B 3/188 . . . having radio-frequency filters, {e.g. containing ferrite cores or inductances
([F42B 3/185](#) takes precedence)}
- F42B 3/192 . . designed for neutralisation on contact with water
- F42B 3/195 . . Manufacture
- F42B 3/198 . . . of electric initiator heads {e.g., testing, machines}
- F42B 3/22 . Elements for controlling or guiding the detonation wave, e.g. tubes (using inert bodies
embedded in shaped or hollow charges [F42B 1/024](#))
- F42B 3/24 . Cartridge closures or seals (top closures for shotgun ammunition cartridges
[F42B 7/12](#))
- F42B 3/26 . Arrangements for mounting initiators; Accessories therefor, e.g. tools
- F42B 3/28 . Cartridge cases characterised by the material used, e.g. coatings (for initiator cases
[F42B 3/11](#))
- F42B 4/00** **Fireworks, i.e. pyrotechnic devices for amusement, display, illumination or
signal purposes** (signalling by explosives [G08B](#); advertising by fireworks [G09F 13/46](#);
{signalling by pyrotechnics in railway systems [B61L 5/20](#)})
- F42B 4/02 . in cartridge form, i.e. shell, propellant and primer
- F42B 4/04 . Firecrackers
- F42B 4/06 . Aerial display rockets (rockets in general [F42B 15/00](#))
- F42B 4/08 . . characterised by having vanes, wings, parachutes or balloons

- F42B 4/10
 - .. characterised by having means to separate article or charge from casing without destroying the casing
- F42B 4/12
 - ... Parachute or flare separation
- F42B 4/14
 - .. characterised by having plural successively-ignited charges
- F42B 4/16
 - . Hand-thrown impact-exploded noise makers; {Other noise-makers generating noise via a pyrotechnic charge} (cap pistols [F41C 3/06](#))
- F42B 4/18
 - . Simulations, e.g. pine cone, house that is destroyed, warship, volcano
- F42B 4/20
 - . characterised by having holder or support other than casing, e.g. whirler or spike support {(supports for flares or torches [F42B 4/26](#))}
- F42B 4/22
 - . characterised by having means to separate article or charge from casing without destroying the casing (in aerial display rockets [F42B 4/10](#))
- F42B 4/24
 - . characterised by having plural successively-ignited charges (in aerial display rockets [F42B 4/14](#))
- F42B 4/26
 - . Flares; Torches {(mines for practice or training containing flares or illuminating charges [F42B 8/28](#); projectiles of illuminating type [F42B 12/42](#))}
- F42B 4/28
 - .. Parachute flares ([F42B 4/12](#) takes precedence)
- F42B 4/30
 - . Manufacture
- F42B 5/00**
 - Cartridge ammunition, e.g. separately-loaded propellant charges**(shotgun ammunition [F42B 7/00](#); practice or training ammunition [F42B 8/00](#); missiles therefor [F42B 12/00](#), [F42B 14/00](#), [F42B 15/00](#))
- F42B 5/02
 - . Cartridges, i.e. cases with charge and missile
- F42B 5/025
 - .. {characterised by the dimension of the case or the missile}
- F42B 5/03
 - .. containing more than one missile
- F42B 5/035
 - ... {the cartridge or barrel assembly having a plurality of axially stacked projectiles each having a separate propellant charge}
- F42B 5/045
 - .. of telescopic type ([F42B 5/184](#) takes precedence)
- F42B 5/05
 - .. for recoilless guns (recoilless guns using a counter-projectile to balance recoil [F41A 1/10](#))
- F42B 5/067
 - .. Mounting or locking missiles in cartridge cases ([F42B 5/18](#) takes precedence)
- F42B 5/073
 - ... using an auxiliary locking element
- F42B 5/08
 - .. modified for electric ignition
- F42B 5/10
 - .. with self-propelled bullet
- F42B 5/105
 - ... {propelled by two propulsive charges, the rearwardly situated one being separated from the rest of the projectile during flight or in the barrel; Projectiles with self-ejecting cartridge cases}
- F42B 5/145
 - .. for dispensing gases, vapours, powders, particles or chemically-reactive substances (from projectiles [F42B 12/46](#))
- F42B 5/15
 - ... for creating a screening or decoy effect, e.g. using radar chaff or infra-red flares [F42B 4/26](#)
- F42B 5/155
 - Smoke-pot projectors, e.g. arranged on vehicles
- F42B 5/16
 - .. characterised by composition or physical dimensions or form of propellant charge, {with or without projectile,} or powder (chemical composition [C06B](#); {[F42B 5/24](#) takes precedence})
- F42B 5/18
 - .. Caseless ammunition; Cartridges having combustible cases

- F42B 5/181 . . . { consisting of a combustible casing wall and a metal base; Connectors therefor}
- F42B 5/182 . . . { Caseless cartridges characterised by their shape}
- F42B 5/184 . . . telescopic
- F42B 5/188 . . . Manufacturing processes therefor
- F42B 5/192 . . . Cartridge cases characterised by the material { of the casing wall (cartridge bags [F42B 5/38](#))}
- F42B 5/196 Coatings
- F42B 5/24 . . . for cleaning; for cooling; for lubricating; {for wear reducing}
- F42B 5/26 . . Cartridge cases ([F42B 5/18](#) takes precedence; {manufacturing of cartridge cases [B21K 21/04](#)})
- F42B 5/28 . . . of metal {i.e. the cartridge-case tube is of metal}
- F42B 5/285 . . . formed by assembling several elements
- F42B 5/29 wound from sheets or strips
- F42B 5/295 . . . coated
- F42B 5/297 with plastics
- F42B 5/30 . . . of plastics {i.e. the cartridge-case tube is of plastics}
- F42B 5/307 . . . formed by assembling several elements
- F42B 5/313 all elements made of plastics
- F42B 5/32 . . . for rim fire
- F42B 5/34 . . . with provision for varying the length
- F42B 5/36 . . . modified for housing an integral firing-cap
- F42B 5/38 . . Separately-loaded propellant charges, e.g. cartridge bags {([F42B 5/16](#), [F42B 5/192](#) take precedence)}

- F42B 6/00** **Projectiles or missiles specially adapted for projection without use of explosive or combustible propellant charge, e.g. for blow guns, bows or crossbows, hand-held spring or air guns (for delivering hypodermic charges [F42B 12/54](#); projectiles or missiles incorporating springs as the projecting means [F41B 7/02](#); {Arrows or darts for dispensing materials, for producing chemical or physical reaction, or for signalling [F42B 12/362](#)})**
- F42B 6/003 . . {Darts}
- F42B 6/006 . . {Projectiles for electromagnetic or plasma guns}
- F42B 6/02 . . Arrows; Crossbow bolts; Harpoons for hand-held spring or air guns
- F42B 6/04 . . . Archery arrows ([F42B 6/08](#), [F41B 5/06](#), {[F42B 12/362](#)} take precedence)
- F42B 6/06 . . . Tail ends, e.g. nocks, fletching
- F42B 6/08 . . . Arrow heads; Harpoon heads
- F42B 6/10 . . Air gun pellets; {Ammunition for air guns, e.g. propellant-gas containers}

- F42B 7/00** **Shotgun ammunition**
- F42B 7/02 . . Cartridges, i.e. cases with propellant charge and missile
- F42B 7/04 . . . of pellet type
- F42B 7/043 . . . {with shot-scattering means}
- F42B 7/046 . . . {Pellets or shot therefor}

- F42B 7/06 . . . with cartridge case of plastics {[F42B 5/30](#) takes precedence}
- F42B 7/08 . . . Wads, {i.e. projectile or shot carrying devices,} therefor
- F42B 7/10 . . . Ball or slug shotgun cartridges
- F42B 7/12 . . . Cartridge top closures, i.e. for the missile side (closures for blasting cartridges [F42B 3/24](#))

F42B 8/00**Practice or training ammunition**

- F42B 8/02 . Cartridges {([F41A 33/02](#), [F42B 7/12](#) take precedence)}
- F42B 8/04 . . . Blank cartridges, i.e. primed cartridges without projectile but containing an explosive or combustible powder charge
 - F42B 8/06 for cap-firing pistols
- F42B 8/08 . . . Dummy cartridges, i.e. inert cartridges containing neither primer nor explosive or combustible powder charge
- F42B 8/10 . . . with sub-calibre adaptor
- F42B 8/12 . Projectiles or missiles ([F42B 10/48](#), [F42B 12/36](#), [F42B 19/36](#) take precedence)
- F42B 8/14 . . . disintegrating in flight or upon impact

NOTE

Group [F42B 8/14](#) takes precedence over groups [F42B 8/18](#) to [F42B 8/26](#)

- F42B 8/16 containing an inert filler in powder or granular form
- F42B 8/18 . . . Rifle grenades
- F42B 8/20 . . . Mortar grenades
- F42B 8/22 . . . Fall bombs
- F42B 8/24 . . . Rockets
- F42B 8/26 . . . Hand grenades
- F42B 8/28 . . . Land or marine mines; Depth charges

F42B 10/00**Means for influencing, e.g. improving, the aerodynamic properties of projectiles or missiles; Arrangements on projectiles or missiles for stabilising, steering, range-reducing, range-increasing or fall-retarding ([F42B 6/00](#) takes precedence)**

- F42B 10/02 . Stabilising arrangements
- F42B 10/025 . . . {using giratory or oscillating masses for stabilising projectile trajectory}
- F42B 10/04 . . . using fixed fins ([F42B 10/22](#) takes precedence)
- F42B 10/06 Tail fins
 - F42B 10/08 Flechette-type projectiles
 - F42B 10/10 the fins being formed in the barrel by deformation or the projectile body
- F42B 10/12 . . . using fins longitudinally-slidable with respect to the projectile or missile
- F42B 10/14 . . . using fins spread or deployed after launch, e.g. after leaving the barrel
- F42B 10/143 { Lattice or grid fins}
- F42B 10/146 { Fabric fins, i.e. fins comprising at least one spar and a fin cover made of flexible sheet material}
- F42B 10/16 Wrap-around fins

- F42B 10/18 . . . using a longitudinally slidable support member
- F42B 10/20 . . . deployed by combustion gas pressure, or by pneumatic or hydraulic forces
- F42B 10/22 . . Projectiles of cannellured type
- F42B 10/24 . . . with inclined grooves
- F42B 10/26 . . using spin ([F42B 10/04](#), [F42B 10/12](#), [F42B 10/14](#), [F42B 10/24](#), [F42B 14/02](#) take precedence)
- F42B 10/28 . . . induced by gas action
- F42B 10/30 using rocket motor nozzles
- F42B 10/32 . Range-reducing or range-increasing arrangements; Fall-retarding means
- F42B 10/34 . . Tubular projectiles
- F42B 10/36 . . . Ring-foil projectiles
- F42B 10/38 . . Range-increasing arrangements ([F42B 10/34](#), [F42B 14/06](#) {and [F42B 15/105](#)} take precedence)
- F42B 10/40 . . . with combustion of a slow-burning charge, e.g. fumers, base-bleed projectiles
- F42B 10/42 . . . Streamlined projectiles
- F42B 10/44 Boat-tails specially adapted for drag reduction
- F42B 10/46 Streamlined nose cones; Windshields; Radomes {([F42B 12/105](#) takes precedence)}
- F42B 10/48 . . Range-reducing, destabilising or braking arrangements, {e.g. impact-braking arrangements}; Fall-retarding means, {e.g. balloons, rockets for braking or fall-retarding} ([F42B 10/34](#) takes precedence)
- F42B 10/50 . . . Brake flaps, {e.g. inflatable}
- F42B 10/52 . . . Nose cones
- F42B 10/54 . . . Spin braking means
- F42B 10/56 . . . of parachute {or paraglider} type
- F42B 10/58 . . . of rotochute type
- F42B 10/60 . Steering arrangements ([F42B 19/01](#) takes precedence)
- F42B 10/62 . . Steering by movement of flight surfaces
- F42B 10/64 . . . of fins
- F42B 10/66 . . Steering by varying intensity or direction of thrust (thrust vector control of rocket engine plants [F02K 9/80](#); {guiding or controlling apparatus using jets adapted for cosmonautic vehicles [B64G 1/26](#)})
- F42B 10/661 . . . {using several transversally acting rocket motors, each motor containing an individual propellant charge, e.g. solid charge}
- F42B 10/663 . . . {using a plurality of transversally acting auxiliary nozzles, which are opened or closed by valves}
- F42B 10/665 . . . {characterised by using a nozzle provided with at least a deflector mounted within the nozzle}
- F42B 10/666 . . . {characterised by using a nozzle rotatable about an axis transverse to the axis of the projectile}
- F42B 10/668 . . . {Injection of a fluid, e.g. a propellant, into the gas shear in a nozzle or in the boundary layer at the outer surface of a missile, e.g. to create a shock wave in a supersonic flow}

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| F42B 12/00 | Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material (F42B 6/00 , F42B 10/00 , F42B 14/00 take precedence; for practice or training F42B 8/12 , F42B 8/28 ; self-propulsion or guidance aspects F42B 15/00) |
| F42B 12/02 | . characterised by the warhead or the intended effect |
| F42B 12/04 | .. of armour-piercing type |
| F42B 12/06 | ... with hard or heavy core; Kinetic energy penetrators (F42B 12/16 , F42B 12/74 take precedence) |
| F42B 12/08 | ... with armour-piercing caps; with armoured cupola |
| F42B 12/10 | ... with shaped or hollow charge (shaped or hollow charges per se F42B 1/02 ; {mines having hollow charges F42B 23/04 }) |
| F42B 12/105 | {Protruding target distance or stand-off members therefor, e.g. slidably mounted (fuze aspects F42C 1/14)} |
| F42B 12/12 | rotatably mounted with respect to missile housing |
| F42B 12/14 | the symmetry axis of the hollow charge forming an angle with the longitudinal axis of the projectile |
| F42B 12/16 | in combination with an additional projectile or charge, acting successively on the target {(see also F42B 12/625)} |
| F42B 12/18 | Hollow charges in tandem arrangement |
| F42B 12/20 | .. of high-explosive type (F42B 12/44 takes precedence) |
| F42B 12/201 | ... { characterised by target class} |
| F42B 12/202 | { for attacking land area or area targets, e.g. airburst} |
| F42B 12/204 | { for attacking structures, e.g. specific buildings or fortifications, ships or vehicles} |
| F42B 12/205 | { for attacking aerial targets} |
| F42B 12/207 | ... { characterised by the explosive material or the construction of the high explosive warhead, e.g. insensitive ammunition} |
| F42B 12/208 | ... { characterised by a plurality of charges within a single high explosive warhead} |
| F42B 12/22 | ... with fragmentation-hull construction |
| F42B 12/24 | with grooves, recesses or other wall weakenings { F42B 12/26 , F42B 12/28 take precedence} |
| F42B 12/26 | the projectile wall being formed by a spirally-wound element |
| F42B 12/28 | the projectile wall being built from annular elements |
| F42B 12/30 | Continuous-rod warheads |
| F42B 12/32 | the hull or case comprising a plurality of discrete bodies, e.g. steel balls, embedded therein {or disposed around the explosive charge} |
| F42B 12/34 | .. expanding before or on impact, i.e. of dum dum or mushroom type |
| F42B 12/36 | .. for dispensing materials; for producing chemical or physical reaction; for signalling; {for transmitting information} |
| F42B 12/362 | ... {Arrows or darts (F42B 12/38 takes precedence, having means for implantation, e.g. hypodermic projectiles F42B 12/54 ; arrows or darts in general F42B 6/00)} |
| F42B 12/365 | ... {Projectiles transmitting information to a remote location using optical or electronic means (F42B 12/385 takes precedence)} |

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| F42B 12/367 | ... | {Projectiles fragmenting upon impact without the use of explosives, the fragments creating a wounding or lethal effect (practice or training projectiles disintegrating upon impact F42B 8/14 ; projectiles of high-explosive type with fragmentation-hull construction F42B 12/22)} |
| F42B 12/38 | ... | of tracer type |
| F42B 12/382 | .... | {emitting an electromagnetic radiation, e.g. laser beam or infra-red emission} |
| F42B 12/385 | ..... | {Arrow or dart carrying a radio transmitter for signalling} |
| F42B 12/387 | .... | {Passive tracers, e.g. using a reflector mounted on the projectile} |
| F42B 12/40 | ... | of target-marking, i.e. impact-indicating type (F42B 12/48 , F42B 12/50 take precedence) |
| F42B 12/42 | ... | of illuminating type, e.g. carrying flares |
| F42B 12/44 | ... | of incendiary type (F42B 12/46 takes precedence) |
| F42B 12/46 | ... | for dispensing gases, vapours, powders or chemically-reactive substances (F42B 12/70 takes precedence) |
| F42B 12/48 | .... | smoke-producing, {e.g. infrared clouds} |
| F42B 12/50 | .... | by dispersion |
| F42B 12/52 | ..... | Fuel-air explosive devices |
| F42B 12/54 | .... | by implantation, e.g. hypodermic projectiles |
| F42B 12/56 | ... | for dispensing discrete solid bodies (F42B 12/70 takes precedence) |
| F42B 12/58 | .... | Cluster or cargo ammunition, i.e. projectiles containing one or more submissiles (F42B 12/32 takes precedence) |
| F42B 12/60 | ..... | the submissiles being ejected radially |
| F42B 12/62 | ..... | the submissiles being ejected parallel to the longitudinal axis of the projectile |
| F42B 12/625 | ..... | {a single submissile arranged in a carrier missile for being launched or accelerated coaxially; Coaxial tandem arrangement of missiles which are active in the target one after the other (with shaped or hollow charges F42B 12/16)} |
| F42B 12/64 | ..... | the submissiles being of shot- or flechette-type |
| F42B 12/66 | ..... | Chain-shot, i.e. the submissiles being interconnected by chains or the like; {(Ballistically deployed systems for restraining persons or animals F41H 13/0006)} |
| F42B 12/68 | .... | Line-carrying missiles, e.g. for life-saving (harpoons F42B 30/14 , {mine-clearing snakes F41H 11/14 }) |
| F42B 12/70 | .... | for dispensing radar chaff or infra-red material (radar-reflector targets, active targets transmitting infra-red radiation F41J 2/00 ; radar-reflecting surfaces H01Q 15/14) |
| F42B 12/72 | . | characterised by the material (heat treatment for explosive shells C21D 9/16) |
| F42B 12/74 | .. | of the core or solid body |
| F42B 12/745 | ... | {the core being made of plastics; Compounds or blends of plastics and other materials, e.g. fillers} |
| F42B 12/76 | .. | of the casing |
| F42B 12/78 | ... | of jackets for smallarm bullets; {Jacketed bullets or projectiles} |
| F42B 12/80 | ... | Coatings |
| F42B 12/82 | .... | reducing friction |

- F42B 14/00** **Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels**
- F42B 14/02 . Driving bands; Rotating bands ([F42B 14/04](#) takes precedence)
- F42B 14/04 . Lubrication means in missiles ([coatings for reducing friction F42B 12/82](#))
- F42B 14/06 . Sub-calibre projectiles having sabots; Sabots therefor
- F42B 14/061 .. {Sabots for long rod fin stabilised kinetic energy projectiles, i.e. multisegment sabots attached midway on the projectile}
- F42B 14/062 ... { characterised by contact surfaces between projectile and sabot}
- F42B 14/064 .. {Sabots enclosing the rear end of a kinetic energy projectile, i.e. having a closed disk shaped obturator base and petals extending forward from said base}
- F42B 14/065 .. { Sabots carrying several projectiles}
- F42B 14/067 .. { Sealing aspects in sabots, e.g. sealing between individual segments of the sabots or sealing between the outer surface of the sabot and the inner surface of the barrel}
- F42B 14/068 .. { Sabots characterised by the material ([F42B 14/067](#) takes precedence)}
- F42B 14/08 .. Sabots filled with propulsive charges; Removing sabots by combustion of pyrotechnic elements or by propulsive-gas pressure ([arrangements on barrels for removing sabots from projectiles F41A 21/46](#))
- F42B 15/00** **Self-propelled projectiles or missiles, e.g. rockets; Guided missiles ([F42B 10/00](#), [F42B 12/00](#), [F42B 14/00](#) take precedence: for practice or training [F42B 8/12](#); rocket torpedoes [F42B 17/00](#); marine torpedoes [F42B 19/00](#); cosmonautic vehicles [B64G](#); jet-propulsion plants [F02K](#))**
- F42B 15/01 . Arrangements thereon for guidance or control({[steering arrangementsF42B 10/60](#)}; [aircraft flight controlB64C](#); [guidance systems other than those installed aboardF41G 7/00,F41G 9/00](#); [locating by use of radio or other wavesG01S](#); [flight control in generalG05D 1/00](#); [computer aspectsG06J](#))
- F42B 15/04 .. using wire, e.g. for guiding ground-to-ground rockets
- F42B 15/08 . for carrying measuring instruments; {[Arrangements for mounting sensitive cargo within a projectile](#)} ([adaptations for meteorology G01W 1/08](#)); {[Arrangements for acoustic sensitive cargo within a projectile](#)}
- F42B 15/10 . Missiles having a trajectory only in the air
- F42B 15/105 .. {[Air torpedoes, e.g. projectiles with or without propulsion, provided with supporting air foil surfaces](#)}
- F42B 15/12 .. Intercontinental ballistic missiles ([F42B 15/01](#) takes precedence)
- F42B 15/20 . Missiles having a trajectory beginning below water surface ([having additional propulsion means for movement through water F42B 17/00](#))
- F42B 15/22 . Missiles having a trajectory finishing below water surface ([having additional propulsion means for movement through water F42B 17/00](#))
- F42B 15/34 . Protection against overheating or radiation, e.g. heat shields; Additional cooling arrangements {([thermal protection fitted in or to cosmonautic vehicles B64G 1/58](#))}
- F42B 15/36 . Means for interconnecting rocket-motor and body section; Multi-stage connectors; Disconnecting means
- F42B 15/38 .. Ring-shaped explosive elements for the separation of rocket parts {[systems for coupling or separating cosmonautic vehicles or parts thereof B64G 1/64](#)}

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| F42B 17/00 | Rocket torpedoes, i.e. missiles provided with separate propulsion means for movement through air and through water (F42B 12/00 takes precedence) |
| F42B 19/00 | Marine torpedoes, e.g. launched by surface vessels or submarines; Sea mines having self-propulsion means (F42B 12/00 takes precedence; launching means F41F ; locating by use of radio or other waves G01S ; automatic control of course G05D 1/00 ; firing directors or calculators G06G) |
| F42B 19/005 | . {Nose caps for torpedoes; Coupling torpedo-case parts together} |
| F42B 19/01 | . Steering control |
| F42B 19/04 | .. Depth control |
| F42B 19/06 | .. Directional control |
| F42B 19/08 | .. with means for preventing rolling or pitching |
| F42B 19/12 | . Propulsion specially adapted for torpedoes (having additional propulsion means for movement through air F42B 17/00 ; marine propulsion in general B63H) |
| F42B 19/125 | .. {Torpedoes provided with drag-reducing means (projectiles with drag-reducing means F42B 10/38)} |
| F42B 19/14 | .. by compressed-gas motors |
| F42B 19/16 | ... of cylinder type |
| F42B 19/18 | ... of turbine type |
| F42B 19/20 | ... characterised by the composition of propulsive gas; Manufacture or heating thereof in torpedoes |
| F42B 19/22 | .. by internal-combustion engines |
| F42B 19/24 | .. by electric motors |
| F42B 19/26 | .. by jet propulsion |
| F42B 19/28 | .. with means for avoiding visible wake |
| F42B 19/30 | .. with timing control of propulsion |
| F42B 19/36 | . adapted to be used for exercise purposes, e.g. indicating position or course |
| F42B 19/38 | .. with means for causing torpedoes to surface at end of run |
| F42B 19/40 | ... by expelling liquid ballast |
| F42B 19/42 | ... by releasing solid ballast |
| F42B 19/44 | ... by enlarging displacement |
| F42B 19/46 | . adapted to be launched from aircraft |
| F42B 21/00 | Depth charges (F42B 12/00 takes precedence; for practice or training F42B 8/28 ; laying aspects B63G) |
| F42B 22/00 | Marine mines, e.g. launched by surface vessels or submarines (F42B 12/00 takes precedence; for practice or training F42B 8/28 ; mine laying or sweeping B63G) |
| F42B 22/02 | . Contact mines {e.g. antenne-type mines } (contact fuzes F42C 7/02) |
| F42B 22/04 | . Influenced mines, e.g. by magnetic or acoustic effect |
| F42B 22/06 | . Ground mines |
| F42B 22/08 | . Drifting mines (with propulsion means F42B 19/00) |
| F42B 22/10 | . Moored mines |

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| F42B 22/12 | .. at a fixed depth setting |
| F42B 22/14 | .. at a variable depth setting |
| F42B 22/16 | ... using mechanical means, e.g. plummet and float |
| F42B 22/18 | ... using hydrostatic means |
| F42B 22/20 | ... using magnetic or acoustic depth-control means |
| F42B 22/22 | . having self-contained sinking means |
| F42B 22/24 | . Arrangement of mines in fields or barriers (net barriers for harbour defence F41H 11/05) |
| F42B 22/42 | . with anti-sweeping means, e.g. electrical |
| F42B 22/44 | . adapted to be launched from aircraft |
| F42B 23/00 | Land mines; {Land torpedoes} (F42B 12/00 takes precedence; for practice or training F42B 8/28) |
| F42B 23/005 | . {Selfpropelled land mines} |
| F42B 23/04 | . anti-vehicle {, e.g. anti-aircraft or anti tank (hollow charges per se F42B 1/02 ; artillery projectiles having hollow charges F42B 12/10)} |
| F42B 23/08 | .. non-metallic |
| F42B 23/10 | . anti-personnel |
| F42B 23/14 | .. non-metallic |
| F42B 23/16 | .. of missile type, i.e. {all kinds of mines launched} for detonation after ejection from ground (fuzes for initiating mine ejection F42C 1/09) |
| F42B 23/24 | . Details |
| F42B 25/00 | Fall bombs (F42B 10/00 , F42B 12/00 take precedence; for practice or training F42B 8/12 ; {gliding type bombs F42B 15/105 }) |
| F42B 27/00 | Hand grenades (F42B 12/00 takes precedence; for practice or training F42B 8/12) |
| F42B 27/08 | . with handle |
| F42B 29/00 | Noiseless, smokeless, or flashless missiles launched by their own explosive propellant |
| F42B 30/00 | Projectiles or missiles, not otherwise provided for, characterised by the ammunition class or type, e.g. by the launching apparatus or weapon used (F42B 10/00 , F42B 12/00 , F42B 14/00 take precedence) |
| F42B 30/003 | . {Closures or baseplates therefor (closures for blasting cartridges F42B 3/24 , for shotgun cartridges F42B 7/12)} |
| F42B 30/006 | . {Mounting of sensors, antennas or target trackers on projectiles} |
| F42B 30/02 | . Bullets |
| F42B 30/04 | . Rifle grenades |
| F42B 30/06 | .. Bullet traps or bullet decelerators therefor |
| F42B 30/08 | . Ordnance projectiles or missiles, e.g. shells |
| F42B 30/10 | .. Mortar projectiles |
| F42B 30/12 | ... with provision for additional propulsive charges, or for varying the length |
| F42B 30/14 | . Harpoons (for hand-held spring or air guns F42B 6/02) |

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| F42B 33/00 | Manufacture or ammunition: Dismantling or ammunition; Apparatus therefor (F42B 5/188 takes precedence; manufacturing processes for hollow charges F42B 1/036 : manufacture of blasing cartridge initiators F42B 3/195) |
| F42B 33/001 | . {Devices or processes for assembling ammunition, cartridges or cartridge elements from parts} |
| F42B 33/002 | . {Orienting or guiding means for cartridges or cartridge parts during the manufacturing or packaging process; Feeding cartridge elements to automatic machines} |
| F42B 33/004 | . {Cartridge loaders of the rotatable-turret type} |
| F42B 33/005 | . {Crimping cartridge cases on projectiles} |
| F42B 33/007 | . {Making cavities in an explosive or propulsive charge} |
| F42B 33/008 | . {Cutting explosive or propulsive charges} |
| F42B 33/02 | . Filling cartridges, missiles, or fuzes; Inserting propellant or explosive charges {(F42B 33/004 takes precedence)} |
| F42B 33/0207 | .. {Processes for loading or filling propulsive or explosive charges in containers} |
| F42B 33/0214 | .. {by casting (F42B 33/004 takes precedence)} |
| F42B 33/0221 | ... {by centrifugal casting} |
| F42B 33/0228 | ... {Funnel arrangements therefor} |
| F42B 33/0235 | ... {Heating of casting equipment or explosive charge containers during the loading process} |
| F42B 33/0242 | ... {by pressure casting} |
| F42B 33/025 | .. {by compacting (F42B 33/004 takes precedence)} |
| F42B 33/0257 | ... {by vibration compacting} |
| F42B 33/0264 | .. {by using screw-type feeders (F42B 33/004 takes precedence)} |
| F42B 33/0271 | ... {for extruding blasting cartridges} |
| F42B 33/0278 | .. {Safety arrangements therefor (F42B 33/004 takes precedence)} |
| F42B 33/0285 | .. {Measuring explosive-charge levels in containers or cartridge cases; Methods or devices for controlling the quantity of material fed or filled (F42B 33/004 takes precedence; controlling the quantity of material fed in packaging B65B 3/26)} |
| F42B 33/0292 | ... {by volumetric measurement, i.e. the volume of the material being determined before filling} |
| F42B 33/04 | . Fitting or extracting primers in or from fuzes or charges {(F42B 33/004 takes precedence)} |
| F42B 33/06 | . Dismantling fuzes, cartridges, projectiles, missiles, rockets or bombs {(F42B 33/004 and} F42B 33/04 take precedence; {elimination of undesirable components of explosives C06B 21/0091)} |
| F42B 33/062 | .. {by high-pressure water jet means} |
| F42B 33/065 | .. {by laser means} |
| F42B 33/067 | .. {by combustion (incineration apparatuses or processes for used articles F23G 7/003)} |
| F42B 33/10 | . Reconditioning used cartridge cases {(F42B 33/004 takes precedence)} |
| F42B 33/12 | . Crimping shotgun cartridges {(F42B 33/004 takes precedence)} |
| F42B 33/14 | . Surface treatment of cartridges or cartridge cases {(F42B 33/004 takes precedence)} |

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| F42B 35/00 | Testing or checking of ammunition {(apparatus for measuring the energy of projectiles G01L 5/14)} |
| F42B 35/02 | . Gauging, sorting, trimming or shortening cartridges or missiles |
| F42B 39/00 | Packaging or storage of ammunition or explosive charges; Safety features thereof; Cartridge belts or bags |
| F42B 39/002 | . {Cartridge containers provided with cartridge-dispensing means} |
| F42B 39/005 | . {Protection for driving bands} |
| F42B 39/007 | . {Packaging or storage of arrows or darts (quivers for arrows F41B 5/06)} |
| F42B 39/02 | . Cartridge bags; Bandoleers |
| F42B 39/08 | . Cartridge belts |
| F42B 39/082 | .. {for caseless ammunition} |
| F42B 39/085 | .. {for blank cartridges} |
| F42B 39/087 | .. {Feed belts manufactured from fabric or plastics material} |
| F42B 39/10 | .. Machines for charging or for extracting cartridges from feed belts |
| F42B 39/14 | . Explosion or fire protection arrangements on packages or ammunition (F42B 39/20 {and F42B 39/24} take precedence; {wall or panel structure of fireproof safes or storage containers E05G 1/024}) |
| F42B 39/16 | .. Fire-extinguishing |
| F42B 39/18 | .. Heat shields; Thermal insulation |
| F42B 39/20 | . Packages or ammunition having valves for pressure-equalising; Packages or ammunition having plugs for pressure release, e.g. meltable {Blow-out panels; Venting arrangements (ventilating arrangements on packages formed from foldable or erectable blanks B65D 5/4295; packages with pressure-relief valves incorporated in a container wall B65D 77/225)} |
| F42B 39/22 | . Locking of ammunition in transport containers |
| F42B 39/24 | . Shock-absorbing arrangements in packages, {e.g. for shock waves} |
| F42B 39/26 | . Packages or containers for a plurality of ammunition, e.g. cartridges (F42B 39/14 to F42B 39/24, F42B 39/28 take precedence) |
| F42B 39/28 | . Ammunition racks, e.g. in vehicles |
| F42B 39/30 | . Containers for detonators or fuzes (F42B 39/14, F42B 39/20 take precedence) |
| F42B 99/00 | Subject matter not provided for in other groups of this subclass |