

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 cannelured 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}

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)}
- 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 arrangements [F42B 10/60](#)}; aircraft flight control [B64C](#); guidance systems other than those installed aboard [F41G 7/00](#), [F41G 9/00](#); locating by use of radio or other waves [G01S](#); flight control in general [G05D 1/00](#); computer aspects [G06J](#))
- 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](#))}

- 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Contact mines {e.g. antenne-type mines} (contact fuzes F42C 7/02)
F42B 22/04	<ul style="list-style-type: none"> Influenced mines, e.g. by magnetic or acoustic effect
F42B 22/06	<ul style="list-style-type: none"> Ground mines
F42B 22/08	<ul style="list-style-type: none"> Drifting mines (with propulsion means F42B 19/00)
F42B 22/10	<ul style="list-style-type: none"> Moored mines
F42B 22/12	<ul style="list-style-type: none"> <ul style="list-style-type: none"> at a fixed depth setting
F42B 22/14	<ul style="list-style-type: none"> <ul style="list-style-type: none"> at a variable depth setting
F42B 22/16	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> using mechanical means, e.g. plummet and float
F42B 22/18	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> using hydrostatic means
F42B 22/20	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> using magnetic or acoustic depth-control means
F42B 22/22	<ul style="list-style-type: none"> having self-contained sinking means
F42B 22/24	<ul style="list-style-type: none"> Arrangement of mines in fields or barriers (net barriers for harbour defence F41H 11/05)
F42B 22/42	<ul style="list-style-type: none"> with anti-sweeping means, e.g. electrical
F42B 22/44	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> {Selfpropelled land mines}
F42B 23/04	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> <ul style="list-style-type: none"> non-metallic
F42B 23/10	<ul style="list-style-type: none"> anti-personnel
F42B 23/14	<ul style="list-style-type: none"> <ul style="list-style-type: none"> non-metallic
F42B 23/16	<ul style="list-style-type: none"> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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](#))

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)}
- 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**