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 - 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 - 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 - 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 misile, 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 dumdum 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 remving 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 G06])

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 . 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

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 pratice 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)
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 therof; 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 - 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