

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** . 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 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)
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**