

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
 - ... for cap-firing pistols
- 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
 - Flechette-type projectiles
 - the fins being formed in the barrel by deformation or the projectile body
- F42B 10/10 ... the fins being formed in the barrel by deformation or the projectile body
- F42B 10/12 .. using fins longitudinally-slidable with respect to the projectile or missile
- F42B 10/14 .. using fins spread or deployed after launch, e.g. after leaving the barrel
- F42B 10/143 ... { Lattice or grid fins}
- F42B 10/146 ... { Fabric fins, i.e. fins comprising at least one spar and a fin cover made of flexible sheet material}
- F42B 10/16 ... Wrap-around fins

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

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 arrangementsF42B 10/60 }; aircraft flight controlB64C ; guidance systems other than those installed aboardF41G 7/00,F41G 9/00 ; locating by use of radio or other wavesG01S ; flight control in generalG05D 1/00 ; computer aspectsG06J)
F42B 15/04	.. using wire, e.g. for guiding ground-to-ground rockets
F42B 15/08	. for carrying measuring instruments; { Arrangements for mounting sensitive cargo within a projectile }{ adaptations for meteorology G01W 1/08 }; { Arrangements for acoustic sensitive cargo within a projectile }
F42B 15/10	. Missiles having a trajectory only in the air
F42B 15/105	.. { Air torpedoes, e.g. projectiles with or without propulsion, provided with supporting air foil surfaces }
F42B 15/12	.. Intercontinental ballistic missiles (F42B 15/01 takes precedence)
F42B 15/20	. Missiles having a trajectory beginning below water surface (having additional propulsion means for movement through water F42B 17/00)
F42B 15/22	. Missiles having a trajectory finishing below water surface (having additional propulsion means for movement through water F42B 17/00)
F42B 15/34	. Protection against overheating or radiation, e.g. heat shields; Additional cooling arrangements {(thermal protection fitted in or to cosmonautic vehicles B64G 1/58)}
F42B 15/36	. Means for interconnecting rocket-motor and body section; Multi-stage connectors; Disconnecting means
F42B 15/38	.. Ring-shaped explosive elements for the separation of rocket parts { systems for coupling or separating cosmonautic vehicles or parts thereof B64G 1/64 }

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