CPC COOPERATIVE PATENT CLASSIFICATION

F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
(NOTE omitted)

WEAPONS; BLASTING

F42 AMMUNITION; BLASTING
(NOTES omitted)

F42B EXPLOSIVE CHARGES, e.g. FOR BLASTING, FIREWORKS, AMMUNITION
(explosive compositions C06B; fuzes F42C; blasting F42D)

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

F42B 5/14	covered by	F42B 12/40, A01K 11/00
F42B 19/10	covered by	F41G 7/24

1/00 **Explosive charges characterised by form or shape but not dependent on shape of container**

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)

1/024 . . provided with embedded bodies of inert material

1/028 . . characterised by the form of the liner

1/032 . . characterised by the material of the liner

1/036 . . Manufacturing processes therefor {(F42B 33/0214 - F42B 33/0292 take precedence)}

1/04 . Detonator charges not forming part of the fuze

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)

3/003 . {Liquid-oxygen cartridges}

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)}

3/02 . adapted to be united into assemblies

3/04 . for producing gas under pressure {(generators of inflation fluid especially adapted for vehicle air bags B60R 21/26)}

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}

3/06 . . with re-utilisable case

3/08 . with cavities in the charge, e.g. hollow-charge blasting cartridges

3/087 . Flexible or deformable blasting cartridges, e.g. bags or hoses {for slurries} (loaded cartridge bags F42B 5/38)

3/093 . . in mat or tape form

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.

3/103 . . Mounting initiator heads in initiators; Sealing-plugs

3/107 . . . Sealing-plugs characterised by the material used

3/11 . . characterised by the material used, e.g. for initiator case or electric leads (F42B 3/107 takes precedence)

3/113 . . activated by optical means, e.g. laser, flashlight

3/117 . . activated by friction

3/12 . . Bridge initiators {(F42B 3/103, F42B 3/11, F42B 3/195 take precedence; electric ignitors in propellant charges F42C 19/12)}

3/121 . . . {Initiators with incorporated integrated circuit}

3/122 . . . . {Programmable electronic delay initiators}

3/124 . . . {characterised by the configuration or material of the bridge (F42B 3/13 takes precedence)}

3/125 . . . {characterised by the configuration of the bridge initiator case (F42B 3/11 takes precedence)}

3/127 . . . . {the case having burst direction defining elements}

3/128 . . . {characterised by the composition of the pyrotechnic material}

3/13 . . . with semiconductive bridge

3/14 . . Spark initiators {(F42B 3/195 takes precedence)}

3/16 . . {Pyrotechnic} delay initiators (F42B 3/195 takes precedence; {programmable electronic delay initiators F42C 11/065})

3/18 . . Safety initiators resistant to premature firing by static electricity or stray currents

3/182 . . . having shunting means {(F42B 3/185 takes precedence; details of shunting devices H01R 13/7032)}

3/185 . . . having semi-conductive {means, e.g.} sealing plugs
3/188 . . . having radio-frequency filters {, e.g. containing ferrite cores or inductances (F42B 3/185 takes precedence)}
3/192 . . designed for neutralisation on contact with water
3/195 . . Manufacture
3/198 . . . of electric initiator heads {e.g., testing, machines}
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)
3/24 . Cartridge closures or seals (top closures for shotgun ammunition cartridges F42B 7/12)
3/26 . Arrangements for mounting initiators; Accessories therefor, e.g. tools
3/28 . Cartridge cases characterised by the material used, e.g. coatings (for initiator cases F42B 3/11)

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})

4/02 . in cartridge form, i.e. shell, propellant and primer
4/04 . Firecrackers
4/06 . Aerial display rockets (rockets in general F42B 15/00)
4/08 . . characterised by having vanes, wings, parachutes or balloons
4/10 . . characterised by having means to separate article or charge from casing without destroying the casing
4/12 . . . Parachute or flare separation
4/14 . . characterised by having plural successively-ignited charges
4/16 . Hand-thrown impact-exploded noise makers; {Other noise-makers generating noise via a pyrotechnic charge} (cap pistols F41C 3/06)
4/18 . Simulations, e.g. pine cone, house that is destroyed, warship, volcano
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)}
4/22 . characterised by having means to separate article or charge from casing without destroying the casing (in aerial display rockets F42B 4/10)
4/24 . characterised by having plural successively-ignited charges (in aerial display rockets F42B 4/14)
4/26 . Flares; Torches {(mines for practice or training containing flares or illuminating charges F42B 8/28; projectiles of illuminating type F42B 12/42)}
4/28 . . Parachute flares (F42B 4/12 takes precedence)
4/30 . Manufacture

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)

5/02 . Cartridges, i.e. cases with charge and missile
5/025 . . {characterised by the dimension of the case or the missile}
5/03 . . containing more than one missile
5/035 . . . {the cartridge or barrel assembly having a plurality of axially stacked projectiles each having a separate propellant charge}
5/045 . . of telescopic type (F42B 5/184 takes precedence)
5/05 . . for recoilless guns (recoilless guns using a counter-projectile to balance recoil F41A 1/10)
5/067 . . Mounting or locking missiles in cartridge cases (F42B 5/18 takes precedence)
5/073 . . . using an auxiliary locking element
5/08 . . modified for electric ignition
5/10 . . with self-propelled bullet
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}
5/145 . . for dispensing gases, vapours, powders, particles or chemically-reactive substances (from projectiles F42B 12/46)
5/15 . . . for creating a screening or decoy effect, e.g. using radar chaff or infra-red flares F42B 4/26
5/155 . . . . Smoke-pot projectors, e.g. arranged on vehicles
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})
5/18 . . Caseless ammunition; Cartridges having combustible cases
5/181 . . . {consisting of a combustible casing wall and a metal base; Connectors therefor}
5/182 . . . {Caseless cartridges characterised by their shape}
5/184 . . . telescopic
5/188 . . . Manufacturing processes therefor
5/192 . . . Cartridge cases characterised by the material {of the casing wall (cartridge bags F42B 5/38)}
5/196 . . . . Coatings
5/24 . . for cleaning; for cooling; for lubricating {; for wear reducing}
5/26 . Cartridge cases (F42B 5/18 takes precedence {; manufacturing of cartridge cases B21K 21/04})
5/28 . . of metal {, i.e. the cartridge-case tube is of metal}
5/285 . . . formed by assembling several elements
5/29 . . . . wound from sheets or strips
5/295 . . . coated
5/297 . . . . with plastics
5/30 . . of plastics {, i.e. the cartridge-case tube is of plastics}
5/307 . . . formed by assembling several elements
5/313 . . . . all elements made of plastics
5/32 . . for rim fire
5/34 . . with provision for varying the length
5/36 . . modified for housing an integral firing-cap
5/38 . Separately-loaded propellant charges, e.g. cartridge bags {(F42B 5/16, F42B 5/192 take precedence)}

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})

6/003 . {Darts}

6/006 . {Projectiles for electromagnetic or plasma guns}

6/02 . Arrows; Crossbow bolts; Harpoons for hand-held spring or air guns

6/04 . . Archery arrows (F42B 6/08, F41B 5/06, {F42B 12/362} take precedence)

6/06 . . . Tail ends, e.g. nocks, fletching

6/08 . . Arrow heads; Harpoon heads

6/10 . Air gun pellets {; Ammunition for air guns, e.g. propellant-gas containers}

7/00 **Shotgun ammunition**

7/02 . Cartridges, i.e. cases with propellant charge and missile

7/04 . . of pellet type

7/043 . . . {with shot-scattering means}

7/046 . . . {Pellets or shot therefor}

7/06 . . with cartridge case of plastics {(F42B 5/30 takes precedence)}

7/08 . . Wads, {i.e. projectile or shot carrying devices,} therefor

7/10 . . Ball or slug shotgun cartridges

7/12 . . Cartridge top closures, i.e. for the missile side (closures for blasting cartridges F42B 3/24)

8/00 **Practice or training ammunition**

8/02 . Cartridges {(F41A 33/02, F42B 7/12 take precedence)}

8/04 . . Blank cartridges, i.e. primed cartridges without projectile but containing an explosive or combustible powder charge

8/06 . . . for cap-firing pistols

8/08 . . Dummy cartridges, i.e. inert cartridges containing neither primer nor explosive or combustible powder charge

8/10 . . with sub-calibre adaptor

8/12 . Projectiles or missiles (F42B 10/48, F42B 12/36, F42B 19/36 take precedence)

8/14 . . disintegrating in flight or upon impact

NOTE

Group F42B 8/14 takes precedence over groups F42B 8/18 - F42B 8/26

8/16 . . . containing an inert filler in powder or granular form

8/18 . . Rifle grenades

8/20 . . Mortar grenades

8/22 . . Fall bombs

8/24 . . Rockets

8/26 . . Hand grenades

8/28 . Land or marine mines; Depth charges

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)

10/02 . Stabilising arrangements

10/025 . . {using giratory or oscillating masses for stabilising projectile trajectory}

10/04 . . using fixed fins (F42B 10/22 takes precedence)

10/06 . . . Tail fins

10/08 . . . . Flechette-type projectiles

10/10 . . . . the fins being formed in the barrel by deformation or the projectile body

10/12 . . using fins longitudinally-slidable with respect to the projectile or missile

10/14 . . using fins spread or deployed after launch, e.g. after leaving the barrel

10/143 . . . {Lattice or grid fins}

10/146 . . . {Fabric fins, i.e. fins comprising at least one spar and a fin cover made of flexible sheet material}

10/16 . . . Wrap-around fins

10/18 . . . using a longitudinally slidable support member

10/20 . . . deployed by combustion gas pressure, or by pneumatic or hydraulic forces

10/22 . . Projectiles of cannelured type

10/24 . . . with inclined grooves

10/26 . . using spin (F42B 10/04, F42B 10/12, F42B 10/14, F42B 10/24, F42B 14/02 take precedence)

10/28 . . . induced by gas action

10/30 . . . . using rocket motor nozzles

10/32 . Range-reducing or range-increasing arrangements; Fall-retarding means

10/34 . . Tubular projectiles

10/36 . . . Ring-foil projectiles

10/38 . . Range-increasing arrangements (F42B 10/34, F42B 14/06 {and F42B 15/105} take precedence)

10/40 . . . with combustion of a slow-burning charge, e.g. fumers, base-bleed projectiles

10/42 . . . Streamlined projectiles

10/44 . . . . Boat-tails specially adapted for drag reduction

10/46 . . . . Streamlined nose cones; Windshields; Radomes {(F42B 12/105 takes precedence)}

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)

10/50 . . . Brake flaps {, e.g. inflatable}

10/52 . . . Nose cones

10/54 . . . Spin braking means

10/56 . . . of parachute {or paraglider} type

10/58 . . . of rotochute type

10/60 . Steering arrangements (F42B 19/01 takes precedence)

10/62 . . Steering by movement of flight surfaces

10/64 . . . of fins

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})

10/661 . . . {using several transversally acting rocket motors, each motor containing an individual propellant charge, e.g. solid charge}

10/663 . . . {using a plurality of transversally acting auxiliary nozzles, which are opened or closed by valves}

10/665 . . . {characterised by using a nozzle provided with at least a deflector mounted within the nozzle}

10/666 . . . {characterised by using a nozzle rotatable about an axis transverse to the axis of the projectile}

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}

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)

12/02 . characterised by the warhead or the intended effect

12/04 . . of armour-piercing type

12/06 . . . with hard or heavy core; Kinetic energy penetrators (F42B 12/16, F42B 12/74 take precedence)

12/08 . . . with armour-piercing caps; with armoured cupola

12/10 . . . with shaped or hollow charge (shaped or hollow charges per se F42B 1/02 {; mines having hollow charges F42B 23/04})

12/105 . . . . {Protruding target distance or stand-off members therefor, e.g. slidably mounted (fuze aspects F42C 1/14)}

12/12 . . . . rotatably mounted with respect to missile housing

12/14 . . . . the symmetry axis of the hollow charge forming an angle with the longitudinal axis of the projectile

12/16 . . . . in combination with an additional projectile or charge, acting successively on the target {(see also F42B 12/625)}

12/18 . . . . . Hollow charges in tandem arrangement

12/20 . . of high-explosive type (F42B 12/44 takes precedence)

12/201 . . . {characterised by target class}

12/202 . . . . {for attacking land area or area targets, e.g. airburst}

12/204 . . . . {for attacking structures, e.g. specific buildings or fortifications, ships or vehicles}

12/205 . . . . {for attacking aerial targets}

12/207 . . . {characterised by the explosive material or the construction of the high explosive warhead, e.g. insensitive ammunition}

12/208 . . . {characterised by a plurality of charges within a single high explosive warhead}

12/22 . . . with fragmentation-hull construction

12/24 . . . . with grooves, recesses or other wall weakenings {(F42B 12/26, F42B 12/28 take precedence)}

12/26 . . . . the projectile wall being formed by a spirally-wound element

12/28 . . . . the projectile wall being built from annular elements

12/30 . . . . Continuous-rod warheads

12/32 . . . . the hull or case comprising a plurality of discrete bodies, e.g. steel balls, embedded therein {or disposed around the explosive charge}

12/34 . . expanding before or on impact, i.e. of dumdum or mushroom type

12/36 . . for dispensing materials; for producing chemical or physical reaction; for signalling {; for transmitting information}

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)}

12/365 . . . {Projectiles transmitting information to a remote location using optical or electronic means (F42B 12/385 takes precedence)}

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)}

12/38 . . . of tracer type

12/382 . . . . {emitting an electromagnetic radiation, e.g. laser beam or infra-red emission}

12/385 . . . . . {Arrow or dart carrying a radio transmitter for signalling}

12/387 . . . . {Passive tracers, e.g. using a reflector mounted on the projectile}

12/40 . . . of target-marking, i.e. impact-indicating type (F42B 12/48, {F42B 12/50} take precedence)

12/42 . . . of illuminating type, e.g. carrying flares

12/44 . . . of incendiary type (F42B 12/46 takes precedence)

12/46 . . . for dispensing gases, vapours, powders or chemically-reactive substances (F42B 12/70 takes precedence)

12/48 . . . . smoke-producing {, e.g. infrared clouds}

12/50 . . . . by dispersion

12/52 . . . . . Fuel-air explosive devices

12/54 . . . . by implantation, e.g. hypodermic projectiles

12/56 . . . for dispensing discrete solid bodies (F42B 12/70 takes precedence)

12/58 . . . . Cluster or cargo ammunition, i.e. projectiles containing one or more submissiles (F42B 12/32 takes precedence)

12/60 . . . . . the submissiles being ejected radially

12/62 . . . . . the submissiles being ejected parallel to the longitudinal axis of the projectile

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)}

12/64 . . . . . the submissiles being of shot- or flechette-type

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)}

12/68 . . . . Line-carrying missiles, e.g. for life-saving (harpoons F42B 30/14 {, mine-clearing snakes F41H 11/14})

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)

12/72 . characterised by the material (heat treatment for explosive shells C21D 9/16)

12/74 . . of the core or solid body

12/745 . . . {the core being made of plastics; Compounds or blends of plastics and other materials, e.g. fillers}

12/76 . . of the casing

12/78 . . . of jackets for smallarm bullets {; Jacketed bullets or projectiles}

12/80 . . . Coatings

12/82 . . . . reducing friction

14/00 Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels

14/02 . Driving bands; Rotating bands (F42B 14/04 takes precedence)

14/04 . Lubrication means in missiles (coatings for reducing friction F42B 12/82)

14/06 . Sub-calibre projectiles having sabots; Sabots therefor

14/061 . . {Sabots for long rod fin stabilised kinetic energy projectiles, i.e. multisegment sabots attached midway on the projectile}

14/062 . . . {characterised by contact surfaces between projectile and sabot}

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}

14/065 . . {Sabots carrying several projectiles}

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}

14/068 . . {Sabots characterised by the material (F42B 14/067 takes precedence)}

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)

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)

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])

15/04 . . using wire, e.g. for guiding ground-to-ground rockets

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}

15/10 . Missiles having a trajectory only in the air

15/105 . . {Air torpedoes, e.g. projectiles with or without propulsion, provided with supporting air foil surfaces}

15/12 . . Intercontinental ballistic missiles (F42B 15/01 takes precedence)

15/20 . Missiles having a trajectory beginning below water surface (having additional propulsion means for movement through water F42B 17/00)

15/22 . Missiles having a trajectory finishing below water surface (having additional propulsion means for movement through water F42B 17/00)

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)}

15/36 . Means for interconnecting rocket-motor and body section; Multi-stage connectors; Disconnecting means

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)}

17/00 Rocket torpedoes, i.e. missiles provided with separate propulsion means for movement through air and through water (F42B 12/00 takes precedence)

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)

19/005 . {Nose caps for torpedoes; Coupling torpedo-case parts together}

19/01 . Steering control

19/04 . . Depth control

19/06 . . Directional control

19/08 . . with means for preventing rolling or pitching

19/12 . Propulsion specially adapted for torpedoes (having additional propulsion means for movement through air F42B 17/00; marine propulsion in general B63H)

19/125 . . {Torpedoes provided with drag-reducing means (projectiles with drag-reducing means F42B 10/38)}

19/14 . . by compressed-gas motors

19/16 . . . of cylinder type

19/18 . . . of turbine type

19/20 . . . characterised by the composition of propulsive gas; Manufacture or heating thereof in torpedoes

19/22 . . by internal-combustion engines
19/24 . . by electric motors
19/26 . . by jet propulsion
19/28 . . with means for avoiding visible wake
19/30 . . with timing control of propulsion
19/36 . adapted to be used for exercise purposes, e.g. indicating position or course
19/38 . . with means for causing torpedoes to surface at end of run
19/40 . . . by expelling liquid ballast
19/42 . . . by releasing solid ballast
19/44 . . . by enlarging displacement
19/46 . adapted to be launched from aircraft

21/00 **Depth charges** (F42B 12/00 takes precedence; for practice or training F42B 8/28; laying aspects B63G)

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)
22/02 . Contact mines {, e.g. antenne-type mines} (contact fuzes F42C 7/02)
22/04 . Influenced mines, e.g. by magnetic or acoustic effect
22/06 . Ground mines
22/08 . Drifting mines (with propulsion means F42B 19/00)
22/10 . Moored mines
22/12 . . at a fixed depth setting
22/14 . . at a variable depth setting
22/16 . . . using mechanical means, e.g. plummet and float
22/18 . . . using hydrostatic means
22/20 . . . using magnetic or acoustic depth-control means
22/22 . having self-contained sinking means
22/24 . Arrangement of mines in fields or barriers (net barriers for harbour defence F41H 11/05)
22/42 . with anti-sweeping means, e.g. electrical
22/44 . adapted to be launched from aircraft

23/00 **Land mines {; Land torpedoes}** (F42B 12/00 takes precedence; for practice or training F42B 8/28)
23/005 . {Selfpropelled land mines}
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)}
23/08 . . non-metallic
23/10 . anti-personnel
23/14 . . non-metallic
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)
23/24 . Details

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})

27/00 **Hand grenades** (F42B 12/00 takes precedence; for practice or training F42B 8/12)
27/08 . with handle

29/00 **Noiseless, smokeless, or flashless missiles launched by their own explosive propellant**

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)
30/003 . {Closures or baseplates therefor (closures for blasting cartridges F42B 3/24, for shotgun cartridges F42B 7/12)}
30/006 . {Mounting of sensors, antennas or target trackers on projectiles}
30/02 . Bullets
30/04 . Rifle grenades
30/06 . . Bullet traps or bullet decelerators therefor
30/08 . Ordnance projectiles or missiles, e.g. shells
30/10 . . Mortar projectiles
30/12 . . . with provision for additional propulsive charges, or for varying the length
30/14 . Harpoons (for hand-held spring or air guns F42B 6/02)

33/00 **Manufacture of ammunition; Dismantling of ammunition; Apparatus therefor** (F42B 5/188 takes precedence; manufacturing processes for hollow charges F42B 1/036; manufacture of blasting cartridge initiators F42B 3/195)
33/001 . {Devices or processes for assembling ammunition, cartridges or cartridge elements from parts}
33/002 . {Orienting or guiding means for cartridges or cartridge parts during the manufacturing or packaging process; Feeding cartridge elements to automatic machines}
33/004 . {Cartridge loaders of the rotatable-turret type}
33/005 . {Crimping cartridge cases on projectiles}
33/007 . {Making cavities in an explosive or propulsive charge}
33/008 . {Cutting explosive or propulsive charges}
33/02 . Filling cartridges, missiles, or fuzes; Inserting propellant or explosive charges {(F42B 33/004 takes precedence)}
33/0207 . . {Processes for loading or filling propulsive or explosive charges in containers}
33/0214 . . {by casting (F42B 33/004 takes precedence)}
33/0221 . . . {by centrifugal casting}
33/0228 . . . {Funnel arrangements therefor}
33/0235 . . . {Heating of casting equipment or explosive charge containers during the loading process}
33/0242 . . . {by pressure casting}
33/025 . . {by compacting (F42B 33/004 takes precedence)}
33/0257 . . . {by vibration compacting}
33/0264 . . {by using screw-type feeders (F42B 33/004 takes precedence)}
33/0271 . . . {for extruding blasting cartridges}
33/0278 . . {Safety arrangements therefor (F42B 33/004 takes precedence)}
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)}
33/0292 . . . {by volumetric measurement, i.e. the volume of the material being determined before filling}
33/04 . Fitting or extracting primers in or from fuzes or charges {(F42B 33/004 takes precedence)}

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})

33/062 . . {by high-pressure water jet means}

33/065 . . {by laser means}

33/067 . . {by combustion (incineration apparatuses or processes for used articles F23G 7/003)}

33/10 . Reconditioning used cartridge cases {(F42B 33/004 takes precedence)}

33/12 . Crimping shotgun cartridges {(F42B 33/004 takes precedence)}

33/14 . Surface treatment of cartridges or cartridge cases {(F42B 33/004 takes precedence)}

35/00 Testing or checking of ammunition {(apparatus for measuring the energy of projectiles G01L 5/14)}

35/02 . Gauging, sorting, trimming or shortening cartridges or missiles

39/00 Packaging or storage of ammunition or explosive charges; Safety features thereof; Cartridge belts or bags

39/002 . {Cartridge containers provided with cartridge-dispensing means}

39/005 . {Protection for driving bands}

39/007 . {Packaging or storage of arrows or darts (quivers for arrows F41B 5/06)}

39/02 . Cartridge bags; Bandoleers

39/08 . Cartridge belts

39/082 . . {for caseless ammunition}

39/085 . . {for blank cartridges}

39/087 . . {Feed belts manufactured from fabric or plastics material}

39/10 . . Machines for charging or for extracting cartridges from feed belts

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})

39/16 . . Fire-extinguishing

39/18 . . Heat shields; Thermal insulation

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)}

39/22 . Locking of ammunition in transport containers

39/24 . Shock-absorbing arrangements in packages {, e.g. for shock waves}

39/26 . Packages or containers for a plurality of ammunition, e.g. cartridges (F42B 39/14 - F42B 39/24, F42B 39/28 take precedence)

39/28 . Ammunition racks, e.g. in vehicles

39/30 . Containers for detonators or fuzes (F42B 39/14, F42B 39/20 take precedence)

99/00 Subject matter not provided for in other groups of this subclass