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)

WARNINGS
1. 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
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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 F21B 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 igniters 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])
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
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 8/20

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
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 13/00/06)

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 sabot; 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 sabot 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);

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 (having additional propulsion means for movement through air F42B 17/00); Sea mines having self-propulsion means (F42B 12/00 takes precedence; launching means F41E; 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

19/10 . . . remotely controlled, e.g. by sonic or radio control (control systems using wire F41G 7/32)

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
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]

33/002 . . 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]
Fitting or extracting primers in or from fuzes or charges (F42B 33/004 takes precedence)

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]
33/10 . 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])

Testing or checking of ammunition ([apparatus for measuring the energy of projectiles G01L 5/14])

35/00

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

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. meltalbe [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