

F42B

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

Definition statement

This subclass/group covers:

This subclass covers all mechanical and materials aspects of ammunition of all calibres, explosive charges, fireworks, non-firearm projectiles/missiles.

It also covers the aspects of manufacturing, destructions, dismantling, testing and packaging of ammunition.

It further covers accessories for use with ammunition not elsewhere classified.

The classification is generally only based on structural and functional aspects, irrespective of caliber scaling/sizing.

Relationship between large subject matter areas

[C06B](#): Chemical aspects of explosives, explosive compositions

[C06C](#): Chemical aspects of primers and detonators

References relevant to classification in this subclass

This subclass/group does not cover:

Chemical aspects of explosives, explosive compositions	C06B
Fuzes	F42C
Blasting	F42D

Special rules of classification within this subclass

The following IPC groups are not used in the CPC. Subject matter covered by these groups is classified in the following ECLA groups:

[F42B 5/14](#) covered by [F42B 12/40](#), [A01K 11/00](#)

[F42B 19/10](#) covered by [F41G 7/24](#)

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Primer	effects the first explosive step in the sequence of explosion
Percussion cap	means a primer which is struck to explode
Igniter	effects the first spark-producing or heat-producing step but may not be explosive
Firing-means or initiator (used respectively in the arts of weaponry and blasting)	means a device acting directly on the primer, which device may or may not form part of the fuze
Detonator or detonator charge	means a charge used to amplify the explosion of the primer
Fuze	means an assembly or mechanism which incorporates safety and arming means in order that the explosion can only take place under certain conditions; this assembly or mechanism determines also the moment (instantaneous or delayed) or the manner, e.g. impact, proximity, hydrostatic pressure, of the firing;
Ammunition	covers propulsive charge and projectile whether or not forming a single body, unless otherwise made clear
Projectile, missile or projectile or missile	means any body which is projected or propelled;
Guided missile	means projectile or missile which is guided during at least part of its trajectory;
Rocket	means projectile or missile which is self-propelled, during at least part of its trajectory, by a rocket engine, i.e. by a jet-propulsion engine carrying both fuel and oxidant therefor

Fuse or fuse cord	means a continuous train of explosive enclosed in a usually flexible cord or cable for setting-off an explosive charge in the art of blasting.
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F42B 1/00

Explosive charges characterised by form or shape but not dependent on shape of container

Definition statement

This subclass/group covers:

Configuration, shape, manufacturing processes of explosive charges per se.

Shaped charges forming explosively formed projectiles or jets.

F42B 1/02

Shaped or hollow charges (blasting cartridges with cavities in the charge F42B3/08; oil winning using shaped-charge perforators E21B43/116)

Definition statement

This subclass/group covers:

A hollow charge is a container filled with an explosive at least one side of the explosive having a concave hollow, which collapses upon detonation, the detonation of the explosive being initiated at the side opposite of the hollow. The hollow may be conical in shape to produce a jet or hemi-spherical to produce a projectile. The hollow is usually delimited by a liner.

A more generic shaped charge may have a convex active surface with an optional liner.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Linear cutting with shaped charges	B26F 3/04
Oil winning using shaped-charge perforators	E21B 43/116
Blasting cartridges with cavities in the charge	F42B 3/08

Warhead including a hollow charge	F42B 12/10
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Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Liner	thin metal layer, usually made of metal, disposed on the concave part of the hollow charge which is formed into a particle jet or an explosively formed projectile upon detonation of the charge
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Synonyms and Keywords

In patent documents, the following abbreviations are often used:

EFP	Explosively formed projectile
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F42B 1/024

provided with embedded bodies of inert material

References relevant to classification in this group

This subclass/group does not cover:

Detonation wave guides in blasting cartridges	F42B 1/024
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F42B 3/00

Blasting cartridges, i.e. case and explosive (fuse cords, e.g. detonating fuse cords C06C5/00; chemical aspects of detonators, blasting caps or primers C06C7/00)

Definition statement

This subclass/group covers:

Includes blasting cartridges per se, i.e. the assembly of an outer protecting

case containing a predefined amount of explosive, ready for the use in blasting operation. Usually the case has a provision for inserting or attaching an initiator or detonator.

Further includes initiators for the blasting cartridges and means for mounting the initiator to the blasting cartridge.

Also included are detonation wave guides in blasting cartridges and explosive bolts.

Also includes means for initiation or detonation.

Includes gas generators and explosive bolts.

References relevant to classification in this group

This subclass/group does not cover:

Fuse cords, e.g. detonating fuse cords	C06C 5/00
Chemical aspects of detonators, blasting caps or primers	C06C 7/00
Detonation wave guides in hollow charges	F42B 1/024
Time fuzes	F42C 9/00
Relative timing of multiple charges	F42D 1/06
Electric time fuzes	F42C 11/06
Primers	F42C 19/08

F42B 3/04

for producing gas under pressure [N: (generators of inflation fluid especially adapted for vehicle air bags B60R21/26)]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Gas generators for airbags	B60R 21/26
Steam generators	F22B 1/18

F42B 3/08

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

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of hollow charges and hollow charges	F42B 1/02
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F42B 3/103

Mounting initiator heads in initiators; Sealing-plugs

Definition statement

This subclass/group covers:

Includes anchoring pins or electric lead wires in a sealing plug.

References relevant to classification in this group

This subclass/group does not cover:

Coating a bridgewire or other initiating element with primary ignition compound or substance	F42B 3/198
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F42B 3/195

Manufacture

Informative references

Attention is drawn to the following places, which may be of interest for search:

Anchoring pins or electric lead wires in a sealing plug	F42B 3/103
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F42B 4/00

Fireworks, i.e. pyrotechnic devices for amusement, display, illumination or signal purposes (signalling by explosives G08B; advertising by fireworks G09F13/46; [N: signalling by pyrotechnics in railway systems B61L5/20])

Definition statement

This subclass/group covers:

Includes all mechanical aspects of fireworks for amusement purposes.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Signalling by pyrotechnics in railway systems	B61L 5/20
Advertising by fireworks	G09F 13/46
Signalling by explosives;	G08B

Special rules of classification within this group

The only defence aspect in this main group is in the flares in [F42B 4/26](#) for signalling, illuminating and as leurres/decoys.

F42B 4/20

characterised by having holder or support other than casing, e.g. whirler or spike support [N: (supports for flares or torches F42B4/26)]

Definition statement

This subclass/group covers:

Includes containers for fireworks that serve as packaging for storage and transport and also serve as launch units.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Packaging of ammunition	F42B 39/00
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Supports for flares or torches	F42B 4/26
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F42B 4/26

Flares; Torches [N: (mines for practice or training containing flares or illuminating charges F42B8/28; projectiles of illuminating type F42B12/42)]

Definition statement

This subclass/group covers:

Flares for signalling, illuminating and as leurres/decoys.

Flares consisting of stacked platelets or disc shaped pellets use "platelets".

Flares consisting of elongated packages filled with slow burning chemical compositions with high electromagnetic spectrum output that burn down from one end as torches.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Projectiles of illuminating type	F42B 12/42
Incendiary projectile	F42B 12/44
Cargo projectiles spreading chaff or infrared emitters	F42B 12/70
Active targets	F41J 2/02
Mines for practice or training containing flares or illuminating charges	F42B 8/28

F42B 5/00

Cartridge ammunition, e.g. separately-loaded propellant charges(shotgun ammunition F42B7/00; practice or training ammunition F42B8/00; missiles therefor F42B12/00, F42B14/00, F42B15/00)

Definition statement

This subclass/group covers:

A cartridge is traditionally considered to be the combination of projectile, propellant, primer and cartridge case into a single unit. This subclass further includes caseless ammunitions, i.e. a unit comprising a formed propellant, primer and projectile without a case. This main group covers all the cartridge ammunitions except for the shotgun ammunitions, which are covered in [F42B 7/00](#).

Also comprises separately packaged propellant charges for artillery gun.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels	F42B 14/00
Self-propelled projectiles or missiles, e.g. rockets; Guided missiles	F42B 15/00
Caseless ammunition	F42B 5/182
Shotgun ammunition	F42B 7/00
Practice or training ammunition	F42B 8/00
Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Case	container for housing propellant charge, primer and missile
Cartridge	case containing propellant charge(s), primer(s) and missile(s); formed propellant with missile and primer

Synonyms and Keywords

In patent documents, the expression/word "missile" are often used with the meaning "projectile", "bullet", "grenade", "warhead", "shell", "slug".

In patent documents, the expression/word "cartridge " are often used with the meaning " round of ammunition ".

F42B 5/02

Cartridges, i.e. cases with charge and missile

Informative references

Attention is drawn to the following places, which may be of interest for search:

Caseless ammunition	F42B 5/182
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F42B 5/025

[N: characterised by the dimension of the case or the missile]

Definition statement

This subclass/group covers:

Includes identification markings on case or projectile.

F42B 5/035

[N: the cartridge or barrel assembly having a plurality of axially stacked projectiles each having a separate propellant charge]

Definition statement

This subclass/group covers:

Roman candle type guns, e.g. Metal Storm type.

F42B 5/08

modified for electric ignition

Definition statement

This subclass/group covers:

Includes optical ignition.

F42B 5/16

characterised by composition or physical dimensions or form of propellant charge, [N: with or without projectile,] or powder (chemical composition C06B; [N: F42B5/24 takes precedence])

References relevant to classification in this group

This subclass/group does not cover:

Cartridges for cleaning; for cooling; for lubricating; for wear reducing	F42B 5/24
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Chemical composition	C06B
Caseless ammunition	F42B 5/182

F42B 5/38

Separately-loaded propellant charges, e.g. cartridge bags [N: (F42B5/16, F42B5/192 take precedence)]

References relevant to classification in this group

This subclass/group does not cover:

Cartridges characterised by composition or physical dimensions or form of propellant charge, with or without projectile, or powder	F42B 5/16
Cartridge cases characterised by the material of the casing wall	F42B 5/192

Informative references

Attention is drawn to the following places, which may be of interest for search:

Increment charges for mortar projectiles (horse - shoe)	F42B 30/12
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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 F42B12/54; projectiles or missiles incorporating springs as the projecting means F41B7/02; [N: Arrows or darts for dispensing materials, for producing chemical or physical reaction, or for signalling F42B12/362])

Definition statement

This subclass/group covers:

All projectiles or missiles which are not propelled from a firearm, i.e. not propelled by the combustion of a propellant in the cartridge chamber of a firearm's barrel, including darts, arrows, crossbow bolts, harpoons, fish spears, airgun pellets, paint balls, throwing stars or other non-standard-dart sharp throwing objects excluding knives and axes.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrows or darts for dispensing materials, for producing chemical or physical reaction, or for signalling	F42B 12/362
Projectiles for delivering hypodermic charges	F42B 12/54
Projectiles or missiles incorporating springs as the projecting means	F42B 7/02

F42B 6/003

[N: Darts]

Definition statement

This subclass/group covers:

Includes throwing stars or other non-standard-dart sharp throwing objects excluding knives and axes.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Throwing knives	F42B 15/00
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Synonyms and Keywords

In patent documents the following expressions/words "shuriken", "throwing star" and "ninja star" are often used as synonyms.

F42B 6/02

Arrows; Crossbow bolts; Harpoons for hand-held spring or air guns

Informative references

Attention is drawn to the following places, which may be of interest for search:

Fishing spears	A01K 81/04
Arrows or darts for dispensing materials or for producing chemical or physical reaction	F42B 12/362
Fletching jigs	F41B 5/1446

F42B 6/08

Arrow heads; Harpoon heads

Special rules of classification within this group

Includes suction cup or soft tip safety tips for arrows and darts.

F42B 7/00

Shotgun ammunition

Definition statement

This subclass/group covers:

All projectiles or missiles specially adapted to be fired from a smooth bore

shotgun barrel for shot pellets or from a rifled shotgun barrel for slugs. In literature a difference between birdshot and buckshot is made, however in the classification scheme these difference in shot dimension is not taken into account, i.e. bird- and buckshot will be both classified under [F42B 7/04](#).

Informative references

Attention is drawn to the following places, which may be of interest for search:

Materials for pellets	F42B 12/72
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F42B 8/00

Practice or training ammunition

Definition statement

This subclass/group covers:

Ammunition either devoid of - or with strongly reduced - propellant energy or warhead energy, in order to enable safe and cost-efficient weapon's training, i.e. including inert or dummy ammunition and reduced energy ammunition.

F42B 8/02

Cartridges [N: (F41A33/02, F42B7/12 take precedence)]

References relevant to classification in this group

This subclass/group does not cover:

Light- or radiation-emitting guns; Light- or radiation-sensitive guns; Cartridges carrying light emitting sources, e.g. laser	F41A 33/02
Cartridge top closures, i.e. for the missile side	F42B 7/12

Informative references

Attention is drawn to the following places, which may be of interest for search:

Range reducing means	F42B 10/48
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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 (F42B6/00 takes precedence)

Definition statement

This subclass/group covers:

Mechanical means for influencing, temporarily or constantly the aerodynamic properties of a projectile or missile or otherwise change its trajectory, i.e. the means physically influencing the projectile or missile to change behaviour. The influence being either the change of trajectory of the projectile or missile by intentional steering through remote control or on board control, the steering being effected with flight surfaces, thrust vector control or centre of gravity displacement. Alternatively the influence being the range increasing or the projectile or missile with aerodynamic means such as streamlined projectiles or lift inducing flight surfaces. Alternatively the influence could be the range reducing of the projectiles with aerodynamic spoilers or similar means. Alternatively the influence could be the fall retarding means, like parachutes or rotochutes, either with dropped warheads or in the final descent of the parabolic flight of a projectile.

References relevant to classification in this group

This subclass/group does not cover:

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	F42B 6/00
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Special rules of classification within this group

The electronic or logic control of the mechanical influencing means of this main group is covered in the groups [F41G 7/00](#).

F42B 10/26

using spin (F42B10/04, F42B10/12, F42B10/14, F42B10/24, F42B14/02 take precedence)

References relevant to classification in this group

This subclass/group does not cover:

Means for imparting spin to the rocket before launching	F41F 3/048
Driving bands; Rotating bands	F42B 14/02
Stabilising arrangements using fixed fins	F42B 10/04
Stabilising arrangements using fins spread or deployed after launch, e.g. after leaving the barrel	F42B 10/14
Projectiles of cannellured type with inclined grooves	F42B 10/24
Stabilising arrangements using fins longitudinally-slidable with respect to the projectile or missile	F42B 10/12

F42B 10/46

Streamlined nose cones; Windshields; Radomes [N: (F42B12/105 takes precedence)]

References relevant to classification in this group

This subclass/group does not cover:

Protruding target distance or stand-off members therefor, e.g. slidably mounted	F42B 12/105
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Protection against overheating or radiation, e.g. heat shields	F42B 15/34
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F42B 12/00

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material (F42B6/00, F42B10/00, F42B14/00 take precedence; for practice or training F42B8/12, F42B8/28; self-propulsion or guidance aspects F42B15/00)

Definition statement

This subclass/group covers:

The warheads of self-propelled missiles and rockets as well as projectiles which are not self propelled ([F42B 15/00](#)) are classified according to two major aspects, i.e. their intended effect ([F42B 12/02-F42B 12/72](#)) and the material of the projectile ([F42B 12/74-F42B 12/82](#)). In this whole main group, the ammunition is classified according to functional features.

References relevant to classification in this group

This subclass/group does not cover:

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	F42B 6/00
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 10/00
Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels	F42B 14/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Projectiles or missiles for practice or training	F42B 8/12
Land or marine mines for practice or training; Depth charges for practice or	F42B 8/28

training	
Self-propelled projectiles or missiles, e.g. rockets; Guided missiles	F42B 15/00

Special rules of classification within this group

In this main group classification is performed disregarding parameters such as calibres, weight and dimensions.

In case of multi-role, multiple purpose, multi-aspect or multiple warhead ammunition, classification in more than one group may be necessary.

F42B 12/365

[N: Projectiles transmitting information to a remote location using optical or electronic means (F42B12/385 takes precedence)]

References relevant to classification in this group

This subclass/group does not cover:

Tracer projectiles emitting an electromagnetic radiation, e.g. laser beam or infra-red emission	F42B 12/382
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Missiles or projectiles for carrying measurement instruments	F42B 15/08
Projectiles with sensors, antennas or target trackers	F42B 30/006

F42B 12/38

of tracer type

Definition statement

This subclass/group covers:

Tracer projectiles by means of radiation caused by pyrotechnical compositions.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tracing by optical, electronic or optronic means	F42B 12/382
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F42B 12/40

of target-marking, i.e. impact-indicating type (F42B12/48, [N: F42B12/50] take precedence)

Definition statement

This subclass/group covers:

Includes marking with paint, e.g. paintball or with smoke or similar liquid or powdery substances.

References relevant to classification in this group

This subclass/group does not cover:

Smoke producing projectiles	F42B 12/48
Projectiles for dispensing gases, vapours, powders or chemically-reactive substances by dispersion	F42B 12/50

Informative references

Attention is drawn to the following places, which may be of interest for search:

Separately kept chemo-luminescent chemicals mixed upon bursting, e. g. on impact	C09K 11/00
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F42B 12/42

of illuminating type, e.g. carrying flares

Definition statement

This subclass/group covers:
Includes flash-bang hand grenades.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Flares for signalling	F42B 4/26
Parachute flares	F42B 4/28

Special rules of classification within this group

Double classify flash-bangs hand grenades in [F42B 27/00](#).

F42B 12/44

of incendiary type (F42B12/46 takes precedence)

References relevant to classification in this group

This subclass/group does not cover:

Projectiles for dispensing gases, vapours, powders or chemically-reactive substances	F42B 12/46
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Flares	F42B 4/26
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F42B 12/52

Fuel-air explosive devices

Definition statement

This subclass/group covers:

Thermobaric warheads, i.e. destruction through synergetic effect of excessive heat, pressure.

F42B 12/66

Chain-shot, i.e. the submissiles being interconnected by chains or the like; [N: (Ballistically deployed systems for restraining persons or animals F41H13/0006)]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Aerial barrages	F41H 11/04
Ballistically deployed restraining systems	F41H 13/0006

F42B 12/68

Line-carrying missiles, e.g. for life-saving (harpoons F42B30/14, [N: mine-clearing snakes F41H11/14])

References relevant to classification in this group

This subclass/group does not cover:

Mine-clearing snakes	F41H 11/14
Chain shot projectiles	F42B 12/66
Harpoons	F42B 30/14

Informative references

Attention is drawn to the following places, which may be of interest for search:

Deploying of guidance wire or (optical) fibres from wire guided missile	F42B 15/04
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F42B 14/00

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

Definition statement

This subclass/group covers:

Includes the means for guiding the projectiles with nominal calibre inside the barrel with one or more malleable driving bands around the periphery of the projectile.

Also includes obturators for sealing the projectile so that no propellant gas leaks around the projectile.

Further includes coatings on projectiles with provisions for lubricating, i.e. reducing the friction between the barrel and the projectile.

Also includes all the sub-calibre projectiles, in particular the means for guiding them inside the normal calibre barrel, such as obturator plates and sabots.

F42B 15/00

Self-propelled projectiles or missiles, e.g. rockets; Guided missiles (F42B10/00, F42B12/00, F42B14/00 take precedence: for practice or training F42B8/12: rocket torpedoes F42B17/00; marine torpedoes F42B19/00; cosmonautic vehicles B64G; jet-propulsion plants F02K)

Definition statement

This subclass/group covers:

This main group covers all the missiles and projectiles with their own propulsion system and/or guidance system. The rockets and missiles must have at least part of their trajectory in the air.

These self-propelled missiles main group is structured according to the following aspects:

Mechanical and integrated arrangements for guidance or control mounted on the missile.

Their application without warhead (measurement instruments carriers)

The medium they are designed for (air or water and air).

Functional features such as heat shields/cooling arrangements and multi-stage rocket connectors and/or disconnectors.

References relevant to classification in this group

This subclass/group does not cover:

Electronic or logic guidance and control of missiles	F41G 7/00
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 10/00
Stabilising of missiles	F42B 10/02
Steering of missiles	F42B 10/66
Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels	F42B 14/00
Rocket torpedo	F42B 17/00
Marine torpedoes	F42B 19/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cosmonautic vehicles	B46G
Jet-propulsion plants	F02K
Projectiles or missiles for practice or training	F42B 8/12

Special rules of classification within this group

The only exception of missiles and projectiles with their own propulsion system and/or guidance system not covered in this main group are the rocket torpedoes, which are covered in [F42B 17/00](#).

F42B 15/04

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

Informative references

Attention is drawn to the following places, which may be of interest for search:

Umbilical connections for rockets	F41F 3/055
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F42B 15/08

for carrying measuring instruments; [N: Arrangements for mounting sensitive cargo within a projectile] (adaptations for meteorology G01W1/08); [N: Arrangements for acoustic sensitive cargo within a projectile]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Projectiles for transmitting signals to a remote location	F42B 12/365
Projectiles with antennas and sensors	F42B 30/006
Adaptations for meteorology	G01W 1/08

F42B 15/34

Protection against overheating or radiation, e.g. heat shields; Additional cooling arrangements [N: (thermal protection fitted in or to cosmonautic vehicles B64G1/58)] [C0403]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Thermal protection fitted in or to cosmonautic vehicles	B64G 1/58
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Windshields & radomes	F42B 10/46
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F42B 15/36

**Means for interconnecting rocket-motor and body section;
Multi-stage connectors; Disconnecting means**

Informative references

Attention is drawn to the following places, which may be of interest for search:

Systems for coupling or separating cosmonautic vehicles or parts	B64G 1/64
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F42B 17/00

Rocket torpedoes, i.e. missiles provided with separate propulsion means for movement through air and through water (F42B12/00 takes precedence)

Definition statement

This subclass/group covers:

A rocket torpedo is a special case of a self-propelled projectile or missile.

References relevant to classification in this group

This subclass/group does not cover:

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
Marine torpedoes	F42B 19/00

Special rules of classification within this group

Guidance aspects and specific structural aspects need to be classified in [F42B 15/00](#) if applicable.

F42B 19/00

Marine torpedoes, e.g. launched by surface vessels or submarines; Sea mines having self-propulsion means (F42B12/00 takes precedence; launching means F41F; locating by use of radio or other waves G01S; automatic control of course G05D1/00; firing directors or calculators G06G)

Definition statement

This subclass/group covers:

All aspects relating to torpedo, i.e. self-propelled and/or guided missile with a trajectory mainly under water, they may be launched from surface vessels or aircraft, however their auto-propulsion system is designed for underwater use.

References relevant to classification in this group

This subclass/group does not cover:

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
Rocket torpedos	F42B 17/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Launching means	F41F
Torpedo launchers	F41F 3/08
Fuzes for torpedoes	F42C 14/04
Locating by use of radio or other waves	G01S
Automatic control of course	G05D 1/00
Firing directors or calculators	G06G

F42B 21/00

Depth charges (F42B12/00 takes precedence; for practice or

training F42B8/28; laying aspects B63G)

Definition statement

This subclass/group covers:

Anti-submarine warfare (ASW) weapon intended to destroy or cripple a target submarine by the shock of exploding near it. Most use explosives and a fuze set to go off at a preselected depth in the ocean. Depth charges can be dropped by either surface ships, patrol aircraft, or from helicopters.

References relevant to classification in this group

This subclass/group does not cover:

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Laying aspects	B63G
Depth charges for practice or training	F42B 8/28
Fuzes for depth charges	F42C 14/04

F42B 22/00

Marine mines, e.g. launched by surface vessels or submarines (F42B12/00 takes precedence; for practice or training F42B8/28; mine laying or sweeping B63G)

Definition statement

This subclass/group covers:

A marine mine is a self-contained explosive device placed in water to destroy surface ships or submarines. Mines are deployed from ships, submarines and aircraft and usually left unattended until they are triggered by the approach of, or contact with, an enemy vessel. Marine mines can be used offensively—to hamper enemy shipping movements or lock vessels into a harbour; or defensively—to protect friendly vessels and create "safe" zones.

The main group is organised according to the functionality or the mine, the

deployments aspects, tactical aspects and detail structural features.

References relevant to classification in this group

This subclass/group does not cover:

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Marine mine laying or sweeping	B63G
Marine mines for practice and training	F42B 8/28
Remote controlled mine fields	F42C 15/42
Fuzes for marine mines	F42C 14/04

Synonyms and Keywords

In patent documents the following expressions/words " Marine mine " and " naval mine" are often used as synonyms.

F42B 23/00

Land mines; [N: Land torpedoes] (F42B12/00 takes precedence; for practice or training F42B8/28)

Definition statement

This subclass/group covers:

A land mine is a self-contained explosive device placed on the ground or buried under the ground with the intention to destroy ground vehicles or harm infantrymen. Mines are deployed manually according to a very detailed planned pattern or scattered from minelaying vehicles of cargo ammunitions and usually left unattended until they are triggered by the approach of, or contact with, a vehicle or a person.

References relevant to classification in this group

This subclass/group does not cover:

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Land mines for practice and training	F42B 8/28
Fuzes for mines	F42C 14/08
Ballistically deployed restraining systems	F41H 13/0006

Special rules of classification within this group

Since the entry into force of the Ottawa Treaty internationally banning land mines, the amount of new patent applications aimed at anti-personnel mines is negligible and the groups [F42B 23/10](#) and lower are stagnant. However non-lethal anti-personnel devices for perimeter restrictions using electrical stun technology, repellants or electromagnetic fields are classified in [F42B 23/10](#) for their tactical similarity.

F42B 25/00

Fall bombs (F42B10/00, F42B12/00 take precedence; for practice or training F42B8/12; [N: gliding type bombs F42B15/105])

Definition statement

This subclass/group covers:

A conventional aircraft-delivered bomb that does not contain a guidance system and hence, simply follows a gravitationally imposed ballistic trajectory.

References relevant to classification in this group

This subclass/group does not cover:

Means for influencing, e.g. improving, the aerodynamic properties of projectiles or missiles; Arrangements on projectiles or missiles for	F42B 10/00
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stabilising, steering, range-reducing, range-increasing or fall-retarding	
Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Bombs for practice and training	F42B 8/12
Air torpedoes, e.g. projectiles with or without propulsion, provided with supporting air foil surfaces, gliding bombs	F42B 15/105

F42B 27/00

Hand grenades (F42B12/00 takes precedence; for practice or training F42B8/12)

Definition statement

This subclass/group covers:

A conventional hand grenade is an explosive device with an explosive charge, an enclosing casing and a initiator arrangement, adapted to be thrown by hand. Traditionally the grenade has timing means to delay detonation until the grenade is sufficiently remote from the person throwing it. Embodiments with impact fuzes or the like are exceptions. Furthermore the casing of the grenade can be designed so as to create splinters upon detonation.

The explosive charge is meant to cause blast (offensive grenade) and/or spread fragments (defensive grenades).

This main group also includes non-lethal hand grenades or hand grenades with reduced lethality, such as flash-bang or stun grenades.

Finally smoke/gas/incendiary/illuminating grenades specially adapted to be thrown by hand are included in this main group.

References relevant to classification in this group

This subclass/group does not cover:

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Hand grenades for practice and training	F42B 8/12
Fuzes for hand grenades	F42C 14/02

Special rules of classification within this group

Smoke/gas/incendiary/illuminating/flash-bang grenades specially adapted to be thrown by hand must be double classified in [F42B 12/00](#) or [F41H 13/00](#) for their functional and intended effect features.

F42B 29/00

Noiseless, smokeless, or flashless missiles launched by their own explosive propellant

Informative references

Attention is drawn to the following places, which may be of interest for search:

Telescopic cartridges	F42B 5/045
Telescopic caseless cartridges	F42B 5/184

Special rules of classification within this group

Cartridged ammunition with means for retaining the residues of their propellant after its consumption in a sealed chamber or compartment to avoid any audible or visible indication of a shot being fired except for the launched projectile.

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 (F42B10/00, F42B12/00, F42B14/00 take precedence)

Definition statement

This subclass/group covers:

In this main group ammunition is mainly classified according to the launcher the ammunition is made to be launched from, i.e. bullets (for smallarms), grenades for launching from a rifle or specifically made for ordnance like mortars (larger calibre guns) and pyrotechnically launched (not hand held) harpoons.

Further this main group has two detail entries for structural details not covered anywhere else, i.e. closures or base plates of projectiles and sensor mounts on projectiles.

References relevant to classification in this group

This subclass/group does not cover:

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 10/00
Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	F42B 12/00
Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels	F42B 14/00

Special rules of classification within this group

Ammunition specially adapted for a specific launcher not listed in this main group need to be classified in the main group [F42B 30/00](#).

In general, documents classified in the groups according to the launchers, i.e. [F42B 30/02-F42B 30/14](#), should be double classified in [F42B 5/00-F42B 29/00](#) according to the structural or functional features, e.g. materials for the projectile body or jackets [F42B 12/72](#).

F42B 30/006

[N: Mounting of sensors, antennas or target trackers on projectiles]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Projectiles transmitting information to a remote location using optical or electronic means	F42B 12/365
Arrows transmitting information to a remote location	F42B 12/385
Missiles carrying instruments	F42B 15/08

F42B 30/06

Bullet traps or bullet decelerators therefor

Informative references

Attention is drawn to the following places, which may be of interest for search:

Attachments for guns for firing blank cartridges	F41A 21/26
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F42B 33/00

Manufacture or ammunition: Dismantling or ammunition; Apparatus therefor (F42B5/188 takes precedence; manufacturing processes for hollow charges F42B1/036: manufacture of blasing cartridge initiators F42B3/195)

Definition statement

This subclass/group covers:

Processes and devices for initial manufacturing of an ammunition as well as processes and devices for reconditioning/reusing ammunition or parts of ammunitions.

Also includes processes and devices for dismantling or controlled destruction of unused ammunition.

References relevant to classification in this group

This subclass/group does not cover:

Manufacturing processes for hollow charges	F42B 1/036
Manufacture of blasting cartridge initiators	F42B 3/195
Manufacturing processes for caseless ammunition	F42B 5/188

F42B 33/06

Dismantling fuzes, cartridges, projectiles, missiles, rockets or bombs ([N: F42B33/004 and] F42B33/04 take precedence; [N: elimination of undesirable components of explosives C06B21/0091])

Definition statement

This subclass/group covers:

This group includes the dismantling of ammunition with the aim of avoiding the triggering of a catastrophic detonation, e.g. by chemical bath, deep freezing, incinerator, laser cutting of the mantle.

References relevant to classification in this group

This subclass/group does not cover:

Cartridge loaders of the rotatable-turret type	F42B 33/004
Fitting or extracting primers in or from fuzes or charges	F42B 33/04
Rendering explosive charges harmless, destroying ammunition (by exploding within a safety container)	F42D 5/04

Informative references

Attention is drawn to the following places, which may be of interest for search:

Elimination of undesirable components of explosives	C06B 21/0091
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F42B 33/067

[N: by combustion (incineration apparatuses or processes for used articles F23G7/003)]

Definition statement

This subclass/group covers:

This class includes destruction of ammunition by combustion in the sense of incineration, i.e. no pressure confinement chambers or detonators are used. The aim is the deflagration at low pressure of the explosive to be destroyed.

Incineration in fluidised bed reactors.

References relevant to classification in this group

This subclass/group does not cover:

Rendering explosive charges harmless, destroying ammunition (by exploding within a safety container)	F42D 5/04
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Incineration apparatuses or processes for used articles	F23G 7/003
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F42B 35/00

Testing or checking of ammunition [N: (apparatus for measuring the energy of projectiles G01L5/14)]

Definition statement

This subclass/group covers:

It includes the testing and checking of ammunition before the use, i.e during manufacturing, during storage or just prior to launch/deployment.

It further includes processes and devices for the forensic testing of small arms ammunition after an incident or crime.

Also includes firing test batches in specialised testing devices equipped with measuring instruments and/or high speed cameras; specialised testing devices therefore.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for measuring the energy of projectiles	G01L 5/14
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F42B 39/00

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

Definition statement

This subclass/group covers:

Packaging of ammunition, e.g. cartridges, projectiles, warheads, rocket engines, fuzes, primers, self-contained propellants, detonators or explosives for safe storage and transport (in vehicle or worn on body).

References relevant to classification in this group

This subclass/group does not cover:

Holder for fireworks	F42B 4/20
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Launching apparatus also used as a transport container for rockets	F41F 3/042
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F42B 39/02

Cartridge bags; Bandoleers

Definition statement

This subclass/group covers:

Belt or webbing worn ammunition pouches or magazine pouches or speedloader holsters.

Holders for extra ammunition mounted on the outside of a gun or gunstock.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Holders for extra ammunition mounted on the inside of a gun or gunstock	F41C 23/22
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F42B 39/08

Cartridge belts

Definition statement

This subclass/group covers:

Means facilitating the feeding of ammunition to automatic firearms, i.e. cartridges carried by a textile band or by carrier units each holding one cartridge, the carrier units being sequentially connected to each other by connecting elements or connected to each other by belt links, each belt link holding one cartridge and embracing the previous or subsequent cartridge.

Includes solid inflexible metal strips or racks acting similar to belts (Hotchkiss type or Japanese Model 01 (1941) or Japanese Type 92 HMG).

Informative references

Attention is drawn to the following places, which may be of interest for search:

Bandoleers and waist belts for carrying separate cartridges or magazines including speed loaders or clips	F42B 39/02
Feeding of belted ammunition	F41A 9/29

F42B 39/14

Explosion or fire protection arrangements on packages or ammunition (F42B39/20 [N: and F42B39/24] take precedence; [N: wall or panel structure of fireproof safes or storage containers E05G1/024]) [C0403]

Definition statement

This subclass/group covers:

Arrangements for reducing damage effects from the outside environment, e.g. fire, on the ammunition.

References relevant to classification in this group

This subclass/group does not cover:

Packages or ammunition having valves for pressure-equalising; Packages or ammunition having plugs for pressure release, e.g. meltable; Blow-out panels; Venting arrangements	F42B 39/20
Shock-absorbing arrangements in packages	F42B 39/24

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wall or panel structure of fireproof safes or storage containers	E05G 1/024
Safety devices, e. g. to prevent accidental ignition (for rocket engine plants)	F02K 9/38

F42B 39/20

Packages or ammunition having valves for pressure-equalising; Packages or ammunition having plugs for pressure release, e.g. meltable [N: Blow-out panels; Venting arrangements (ventilating arrangements on packages formed from foldable or erectable blanks B65D5/4295; packages with pressure-relief valves incorporated in a

container wall B65D77/225)]

Definition statement

This subclass/group covers:

Venting arrangements including pyrotechnic cutting arrangements

Arrangements for reducing damage to the outside environment caused by unintended activation of the ammunition itself, e.g. pressure or heat build up.

Informative references

Attention is drawn to the following places, which may be of interest for search:

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
Arrangement for preventing, or minimising the effect of, excessive or insufficient pressure (blow-out panels) with weakened parts	B65D 90/36

F42B 99/00

Subject matter not provided for in other groups of this subclass