

## F42B

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

#### Definition statement

*This place 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.

#### Relationships with other classification places

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

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

#### References

##### Limiting references

*This place does not cover:*

Chemical aspects of explosives, explosive compositions	<a href="#">C06B</a>
Fuzes	<a href="#">F42C</a>
Blasting	<a href="#">F42D</a>

#### Special rules of classification

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

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

#### Glossary of terms

*In this place, 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.

## F42B 1/00

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

#### Definition statement

*This place 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 [F42B 3/08](#); oil winning using shaped-charge perforators [E21B 43/116](#))

#### Definition statement

*This place 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.

#### References

##### Informative references

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

Blasting cartridges with cavities in the charge	<a href="#">F42B 3/08</a>
Warhead including a hollow charge	<a href="#">F42B 12/10</a>
Linear cutting with shaped charges	<a href="#">B26F 3/04</a>

Oil winning using shaped-charge perforators	<a href="#">E21B 43/116</a>
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## Glossary of terms

*In this place, 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

#### Limiting references

*This place does not cover:*

Detonation wave guides in blasting cartridges	<a href="#">F42B 1/024</a>
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## F42B 3/00

**Blasting cartridges, i.e. case and explosive (fuse cords, e.g. detonating fuse cords [C06C 5/00](#); chemical aspects of detonators, blasting caps or primers [C06C 7/00](#))**

### Definition statement

*This place 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

#### Limiting references

*This place does not cover:*

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

### F42B 3/04

for producing gas under pressure {(generators of inflation fluid especially adapted for vehicle air bags [B60R 21/26](#))}

#### References

##### *Informative references*

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

Gas generators for airbags	<a href="#">B60R 21/26</a>
Steam generators	<a href="#">F22B 1/18</a>

### F42B 3/08

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

#### References

##### *Informative references*

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

Details of hollow charges and hollow charges	<a href="#">F42B 1/02</a>
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### F42B 3/103

Mounting initiator heads in initiators; Sealing-plugs

#### Definition statement

*This place covers:*

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

#### References

##### *Limiting references*

*This place does not cover:*

Coating a bridgewire or other initiating element with primary ignition compound or substance	<a href="#">F42B 3/198</a>
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## F42B 3/195

### Manufacture

### References

#### 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	<a href="#">F42B 3/103</a>
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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 [G09F 13/46](#); {signalling by pyrotechnics in railway systems [B61L 5/20](#)})

### Definition statement

This place covers:

Includes all mechanical aspects of fireworks for amusement purposes.

### References

#### Informative references

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

Signalling by pyrotechnics in railway systems	<a href="#">B61L 5/20</a>
Signalling by explosives;	<a href="#">G08B</a>
Advertising by fireworks	<a href="#">G09F 13/46</a>

### Special rules of classification

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 {(supports for flares or torches [F42B 4/26](#))}

### Definition statement

This place covers:

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

### References

#### Informative references

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

Supports for flares or torches	<a href="#">F42B 4/26</a>
Packaging of ammunition	<a href="#">F42B 39/00</a>

## F42B 4/26

**Flares; Torches {(mines for practice or training containing flares or illuminating charges [F42B 8/28](#); projectiles of illuminating type [F42B 12/42](#))}**

### Definition statement

*This place 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.

### References

#### Informative references

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

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

## F42B 5/00

**Cartridge ammunition, e.g. separately-loaded propellant charges (shotgun ammunition [F42B 7/00](#); practice or training ammunition [F42B 8/00](#); missiles therefor [F42B 12/00](#), [F42B 14/00](#), [F42B 15/00](#))**

### Definition statement

*This place 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.

### References

#### Informative references

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

Caseless ammunition	<a href="#">F42B 5/182</a>
Shotgun ammunition	<a href="#">F42B 7/00</a>
Practice or training ammunition	<a href="#">F42B 8/00</a>
Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>

Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels	<a href="#">F42B 14/00</a>
Self-propelled projectiles or missiles, e.g. rockets; Guided missiles	<a href="#">F42B 15/00</a>

## Glossary of terms

*In this place, 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 following words/expressions are often used with the meaning indicated:*

"missile"	"projectile", "bullet", "grenade", "warhead", "shell", "slug".
"cartridge "	" round of ammunition " .

## F42B 5/02

**Cartridges, i.e. cases with charge and missile**

### References

#### *Informative references*

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

Caseless ammunition	<a href="#">F42B 5/182</a>
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## F42B 5/025

**{characterised by the dimension of the case or the missile}**

### Definition statement

*This place covers:*

Includes identification markings on case or projectile.

## F42B 5/035

**{the cartridge or barrel assembly having a plurality of axially stacked projectiles each having a separate propellant charge}**

### Definition statement

*This place covers:*

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

**F42B 5/08****modified for electric ignition****Definition statement***This place covers:*

Includes optical ignition.

**F42B 5/16****characterised by composition or physical dimensions or form of propellant charge, {with or without projectile,} or powder (chemical composition [C06B](#); {[F42B 5/24](#) takes precedence})****References****Limiting references***This place does not cover:*

Cartridges for cleaning; for cooling; for lubricating; for wear reducing	<a href="#">F42B 5/24</a>
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**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Caseless ammunition	<a href="#">F42B 5/182</a>
Chemical composition	<a href="#">C06B</a>

**F42B 5/38****Separately-loaded propellant charges, e.g. cartridge bags {([F42B 5/16](#), [F42B 5/192](#) take precedence)}****References****Limiting references***This place does not cover:*

Cartridges characterised by composition or physical dimensions or form of propellant charge, with or without projectile, or powder	<a href="#">F42B 5/16</a>
Cartridge cases characterised by the material of the casing wall	<a href="#">F42B 5/192</a>

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

Increment charges for mortar projectiles (horse - shoe)	<a href="#">F42B 30/12</a>
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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 [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](#)})

### Definition statement

*This place 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.

### References

#### Informative references

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

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

## F42B 6/003

{Darts}

### Definition statement

*This place covers:*

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

### References

#### Informative references

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

Throwing knives	<a href="#">F42B 15/00</a>
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### Synonyms and Keywords

*In patent documents, the following words/expressions are often used as synonyms:*

- "shuriken", "throwing star" and "ninja star"

## F42B 6/02

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

#### References

##### *Informative references*

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

Arrows or darts for dispensing materials or for producing chemical or physical reaction	<a href="#">F42B 12/362</a>
Fishing spears	<a href="#">A01K 81/04</a>
Fletching jigs	<a href="#">F41B 5/1446</a>

## F42B 6/08

### Arrow heads; Harpoon heads

#### Special rules of classification

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

## F42B 7/00

### Shotgun ammunition

#### Definition statement

*This place 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](#).

#### References

##### *Informative references*

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

Materials for pellets	<a href="#">F42B 12/72</a>
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## F42B 8/00

### Practice or training ammunition

#### Definition statement

*This place 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** {([F41A 33/02](#), [F42B 7/12](#) take precedence)}**References****Limiting references***This place does not cover:*

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

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

Range reducing means	<a href="#">F42B 10/48</a>
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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** ([F42B 6/00](#) takes precedence)**Definition statement***This place 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****Limiting references***This place 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	<a href="#">F42B 6/00</a>
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**Special rules of classification**

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 ([F42B 10/04](#), [F42B 10/12](#), [F42B 10/14](#), [F42B 10/24](#), [F42B 14/02](#) take precedence)

### References

#### Limiting references

*This place does not cover:*

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

## F42B 10/46

Streamlined nose cones; Windshields; Radomes {([F42B 12/105](#) takes precedence)}

### References

#### Limiting references

*This place does not cover:*

Protruding target distance or stand-off members therefor, e.g. slidably mounted	<a href="#">F42B 12/105</a>
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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	<a href="#">F42B 15/34</a>
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## F42B 12/00

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material ([F42B 6/00](#), [F42B 10/00](#), [F42B 14/00](#) take precedence; for practice or training [F42B 8/12](#), [F42B 8/28](#); self-propulsion or guidance aspects [F42B 15/00](#))

### Definition statement

*This place 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

### Limiting references

*This place 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	<a href="#">F42B 6/00</a>
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	<a href="#">F42B 10/00</a>
Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels	<a href="#">F42B 14/00</a>

### Informative references

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

Projectiles or missiles for practice or training	<a href="#">F42B 8/12</a>
Land or marine mines for practice or training; Depth charges for practice or training	<a href="#">F42B 8/28</a>
Self-propelled projectiles or missiles, e.g. rockets; Guided missiles	<a href="#">F42B 15/00</a>

## Special rules of classification

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

**{Projectiles transmitting information to a remote location using optical or electronic means ([F42B 12/385](#) takes precedence)}**

## References

### Limiting references

*This place does not cover:*

Tracer projectiles emitting an electromagnetic radiation, e.g. laser beam or infrared emission	<a href="#">F42B 12/382</a>
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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	<a href="#">F42B 15/08</a>
Projectiles with sensors, antennas or target trackers	<a href="#">F42B 30/006</a>

**F42B 12/38****of tracer type****Definition statement**

*This place covers:*

Tracer projectiles by means of radiation caused by pyrotechnical compositions.

**References****Informative references**

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

Tracing by optical, electronic or optronic means	<a href="#">F42B 12/382</a>
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**F42B 12/40****of target-marking, i.e. impact-indicating type ([F42B 12/48](#), {[F42B 12/50](#)} take precedence)****Definition statement**

*This place covers:*

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

**References****Limiting references**

*This place does not cover:*

Smoke producing projectiles	<a href="#">F42B 12/48</a>
Projectiles for dispensing gases, vapours, powders or chemically-reactive substances by dispersion	<a href="#">F42B 12/50</a>

**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	<a href="#">C09K 11/00</a>
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**F42B 12/42****of illuminating type, e.g. carrying flares****Definition statement**

*This place covers:*

Includes flash-bang hand grenades.

## References

### Informative references

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

Flares for signalling	<a href="#">F42B 4/26</a>
Parachute flares	<a href="#">F42B 4/28</a>

### Special rules of classification

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

## F42B 12/44

of incendiary type ([F42B 12/46](#) takes precedence)

## References

### Limiting references

This place does not cover:

Projectiles for dispensing gases, vapours, powders or chemically-reactive substances	<a href="#">F42B 12/46</a>
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### Informative references

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

Flares	<a href="#">F42B 4/26</a>
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## F42B 12/52

Fuel-air explosive devices

### Definition statement

This place 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 {(ballistically deployed systems for restraining persons or animals [F41H 13/0006](#))}

## References

### Informative references

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

Aerial barrages	<a href="#">F41H 11/04</a>
Ballistically deployed restraining systems	<a href="#">F41H 13/0006</a>

## F42B 12/68

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

### References

#### Limiting references

*This place does not cover:*

Chain shot projectiles	<a href="#">F42B 12/66</a>
Harpoons	<a href="#">F42B 30/14</a>
Mine-clearing snakes	<a href="#">F41H 11/14</a>

#### 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	<a href="#">F42B 15/04</a>
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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 place 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** ([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](#))

### Definition statement

*This place 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.



Definition statement

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

### Limiting references

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

### Informative references

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

Projectiles or missiles for practice or training	<a href="#">F42B 8/12</a>
Cosmonautic vehicles	<b>B46G</b>
Jet-propulsion plants	<a href="#">F02K</a>

## Special rules of classification

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**

## References

### Informative references

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

Umbilical connections for rockets	<a href="#">F41F 3/055</a>
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**F42B 15/08**

for carrying measuring instruments; {Arrangements for mounting sensitive cargo within a projectile} (adaptations for meteorology [G01W 1/08](#)); {Arrangements for acoustic sensitive cargo within a projectile}

**References****Informative references**

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

Projectiles for transmitting signals to a remote location	<a href="#">F42B 12/365</a>
Projectiles with antennas and sensors	<a href="#">F42B 30/006</a>
Adaptations for meteorology	<a href="#">G01W 1/08</a>

**F42B 15/34**

Protection against overheating or radiation, e.g. heat shields; Additional cooling arrangements {(thermal protection fitted in or to cosmonautic vehicles [B64G 1/58](#))}

**References****Informative references**

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

Windshields & radomes	<a href="#">F42B 10/46</a>
Thermal protection fitted in or to cosmonautic vehicles	<a href="#">B64G 1/58</a>

**F42B 15/36**

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

**References****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	<a href="#">B64G 1/64</a>
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**F42B 17/00**

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

**Definition statement**

*This place covers:*

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

## References

### Limiting references

*This place does not cover:*

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>
Marine torpedoes	<a href="#">F42B 19/00</a>

### Special rules of classification

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

If relevant, documents containing details relating to the underwater trajectory should also be classified in any of the subgroups [F42B 19/005](#) (nose caps etc.), [F42B 19/01](#), [F42B 19/04](#), [F42B 19/06](#), [F42B 19/08](#), [F42B 19/10](#) (steering control aspects).

## F42B 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 [F41F](#); locating by use of radio or other waves [G01S](#); automatic control of course [G05D 1/00](#); firing directors or calculators [G06G](#))**

### Definition statement

*This place 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

### Limiting references

*This place does not cover:*

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>
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### Informative references

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

Rocket torpedoes	<a href="#">F42B 17/00</a>
Launching means	<a href="#">F41F</a>
Torpedo launchers	<a href="#">F41F 3/08</a>
Fuzes for torpedoes	<a href="#">F42C 14/04</a>
Locating by use of radio or other waves	<a href="#">G01S</a>
Automatic control of course	<a href="#">G05D 1/00</a>
Firing directors or calculators	<a href="#">G06G</a>

## Special rules of classification

References [F42B 17/00](#); [F41F](#), [G01S](#), [G05D 1/00](#) and [G06G](#) are non-limiting in the main group [F42B 19/00](#). CPC will be updated/corrected once this inconsistency is resolved.

## F42B 19/10

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

## References

### Informative references

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

Control systems using wire	<a href="#">F41G 7/32</a>
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## Special rules of classification

Looping references between [F42B 19/10](#) and [F41G 7/00](#) have been identified. Until this inconsistency is resolved, the current classification practice in CPC is as follows:

- If a marine torpedo-related document discloses aspects of remote control by wire, then it should be classified in [F41G 7/32](#)
- If it contains also aspects of remote control other than by wire, then it should be classified also in [F42B 19/10](#) to account for those aspects.
- Reference [F41G 7/32](#) is currently defined as non-limiting in the subgroup [F42B 19/10](#).

## F42B 21/00

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

## Definition statement

*This place 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

### Limiting references

*This place does not cover:*

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>
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### Informative references

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

Depth charges for practice or training	<a href="#">F42B 8/28</a>
Laying aspects	<a href="#">B63G</a>
Fuzes for depth charges	<a href="#">F42C 14/04</a>

## F42B 22/00

**Marine mines, e.g. launched by surface vessels or submarines (F42B 12/00 takes precedence; for practice or training F42B 8/28; mine laying or sweeping B63G)**

### Definition statement

*This place 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

#### Limiting references

*This place does not cover:*

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>
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#### Informative references

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

Marine mines for practice and training	<a href="#">F42B 8/28</a>
Marine mine laying or sweeping	<a href="#">B63G</a>
Fuzes for marine mines	<a href="#">F42C 14/04</a>
Remote controlled mine fields	<a href="#">F42C 15/42</a>

### Synonyms and Keywords

*In patent documents, the following words/expressions are often used as synonyms:*

- " Marine mine " and " naval mine "

## F42B 23/00

**Land mines {; Land torpedoes} (F42B 12/00 takes precedence; for practice or training F42B 8/28)**

### Definition statement

*This place 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

### Limiting references

*This place does not cover:*

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>
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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	<a href="#">F42B 8/28</a>
Ballistically deployed restraining systems	<a href="#">F41H 13/0006</a>
Fuzes for mines	<a href="#">F42C 14/08</a>

## Special rules of classification

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 ([F42B 10/00](#), [F42B 12/00](#) take precedence; for practice or training [F42B 8/12](#) ; gliding type bombs [F42B 15/105](#))**

### Definition statement

*This place covers:*

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

## References

### Limiting references

*This place 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	<a href="#">F42B 10/00</a>
Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>

### Informative references

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

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

## F42B 27/00

**Hand grenades ([F42B 12/00](#) takes precedence; for practice or training [F42B 8/12](#))**

### Definition statement

*This place 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

#### Limiting references

*This place does not cover:*

Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>
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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	<a href="#">F42B 8/12</a>
Fuzes for hand grenades	<a href="#">F42C 14/02</a>

### Special rules of classification

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**

### References

#### Informative references

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

Telescopic cartridges	<a href="#">F42B 5/045</a>
Telescopic caseless cartridges	<a href="#">F42B 5/184</a>

## Special rules of classification

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 ([F42B 10/00](#), [F42B 12/00](#), [F42B 14/00](#) take precedence)**

### Definition statement

*This place 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

#### Limiting references

*This place 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	<a href="#">F42B 10/00</a>
Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material	<a href="#">F42B 12/00</a>
Projectiles or missiles characterised by arrangements for guiding or sealing them inside barrels, or for lubricating or cleaning barrels	<a href="#">F42B 14/00</a>

## Special rules of classification

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

**{Mounting of sensors, antennas or target trackers on projectiles}**

### References

#### 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	<a href="#">F42B 12/365</a>
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Arrows transmitting information to a remote location	<a href="#">F42B 12/385</a>
Missiles carrying instruments	<a href="#">F42B 15/08</a>

## F42B 30/06

### Bullet traps or bullet decelerators therefor

#### References

##### *Informative references*

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

Attachments for guns for firing blank cartridges	<a href="#">F41A 21/26</a>
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## F42B 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](#))

#### Definition statement

*This place 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

##### *Limiting references*

*This place does not cover:*

Manufacturing processes for hollow charges	<a href="#">F42B 1/036</a>
Manufacture of blasting cartridge initiators	<a href="#">F42B 3/195</a>
Manufacturing processes for caseless ammunition	<a href="#">F42B 5/188</a>

## F42B 33/06

**Dismantling fuzes, cartridges, projectiles, missiles, rockets or bombs** ({[F42B 33/004](#) and} [F42B 33/04](#) take precedence; {elimination of undesirable components of explosives [C06B 21/0091](#)})

#### Definition statement

*This place 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

### Limiting references

*This place does not cover:*

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

### Informative references

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

Elimination of undesirable components of explosives	<a href="#">C06B 21/0091</a>
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## F42B 33/067

**{by combustion (incineration apparatuses or processes for used articles [F23G 7/003](#))}**

### Definition statement

*This place 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

### Limiting references

*This place does not cover:*

Rendering explosive charges harmless, destroying ammunition (by exploding within a safety container)	<a href="#">F42D 5/04</a>
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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	<a href="#">F23G 7/003</a>
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## F42B 35/00

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

### Definition statement

*This place covers:*

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

## Definition statement

It further includes processes and devices for the forensic testing of smallarms 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.

## References

### Informative references

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

Apparatus for measuring the energy of projectiles	<a href="#">G01L 5/14</a>
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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 place 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

### Limiting references

*This place does not cover:*

Holder for fireworks	<a href="#">F42B 4/20</a>
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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	<a href="#">F41F 3/042</a>
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## F42B 39/02

### Cartridge bags; Bandoleers

#### Definition statement

*This place 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.

## References

### 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	<a href="#">F41C 23/22</a>
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## F42B 39/08

### Cartridge belts

#### Definition statement

*This place 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).

#### References

##### 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	<a href="#">F42B 39/02</a>
Feeding of belted ammunition	<a href="#">F41A 9/29</a>

## F42B 39/14

**Explosion or fire protection arrangements on packages or ammunition ([F42B 39/20](#) {and [F42B 39/24](#)} take precedence; {wall or panel structure of fireproof safes or storage containers [E05G 1/024](#)})**

#### Definition statement

*This place covers:*

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

#### References

##### Limiting references

*This place 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	<a href="#">F42B 39/20</a>
Shock-absorbing arrangements in packages	<a href="#">F42B 39/24</a>

##### 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	<a href="#">E05G 1/024</a>
Safety devices, e. g. to prevent accidental ignition (for rocket engine plants)	<a href="#">F02K 9/38</a>

## F42B 39/20

**Packages or ammunition having valves for pressure-equalising; Packages or ammunition having plugs for pressure release, e.g. meltable {; Blow-out panels; Venting arrangements (ventilating arrangements on packages formed from foldable or erectable blanks [B65D 5/4295](#); packages with pressure-relief valves incorporated in a container wall [B65D 77/225](#))}**

### Definition statement

*This place 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.

### References

#### *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	<a href="#">B65D 5/4295</a>
Packages with pressure-relief valves incorporated in a container wall	<a href="#">B65D 77/225</a>
Arrangement for preventing, or minimising the effect of, excessive or insufficient pressure (blow-out panels) with weakened parts	<a href="#">B65D 90/36</a>