

## F42C

**AMMUNITION FUZES (blasting cartridge initiators [F42B 3/10](#); chemical aspects [C06C](#)); ARMING OR SAFETY MEANS THEREFOR (filling fuzes [F42B 33/02](#); fitting or extracting primers in or from fuzes [F42B 33/04](#); containers for fuzes [F42B 39/30](#))**

### Definition statement

*This place covers:*

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.

### References

#### Limiting references

*This place does not cover:*

Chemical aspects of detonating or priming devices	<a href="#">C06C</a>
Fuses or fuse cords, i. e. a continuous train of explosive enclosed in a usually flexible cord or cable for setting-off an explosive charge in the art of blasting	<a href="#">C06C 5/00</a>
Blasting cartridge initiators	<a href="#">F42B 3/10</a>
Filling fuzes	<a href="#">F42B 33/02</a>
Fitting or extracting primers in or from fuzes	<a href="#">F42B 33/04</a>
Containers for fuzes	<a href="#">F42B 39/30</a>

### Special rules of classification

Main groups [F42C 1/00-F42C 9/00](#) and [F42C 13/00](#) are organised according to physical effects causing initiation of the fuze (function).

Main groups [F42C 11/00](#), [F42C 15/00](#) and [F42C 19/00](#) are organised according to structural features of the fuze (structure).

Main group [F42C 14/00](#) is organised according to the ammunition type the fuze is intended to be used for (application).

Whenever applicable documents should be classified according to all three aspects, function, structure and application.

Double fuzes or multiple fuzes in combination with time fuzes, always classify in [F42C 9/14](#) and lower.

## F42C 1/00

### Impact fuzes, i.e. fuzes actuated only by ammunition impact

#### Definition statement

*This place covers:*

Fuzes wherein the impact of the fuze onto the target activates a firing pin which then triggers immediate or delayed detonation of the warhead.

Fuzes without a firing pin wherein the impact of the fuze onto the target is detected by a sensor which in turn generates an output triggering immediate or delayed detonation of the warhead.

## References

### Limiting references

*This place does not cover:*

Double action percussion fuze	<a href="#">F42C 7/12</a>
Protruding stand-off member for hollow charges	<a href="#">F42B 12/105</a>

## Special rules of classification

If the electric or electronic aspects of the sensor or delay circuit are essential to the invention, the documents needs to be classified in [F42C 11/00](#) as well.

## F42C 1/14

**operating at a predetermined distance from ground or target by means of a protruding member**

## References

### Limiting references

*This place does not cover:*

Protruding stand-off member for hollow charges	<a href="#">F42B 12/105</a>
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## F42C 3/00

**Fuzes actuated by exposure to a liquid, e.g. seawater ([F42C 5/00](#) takes precedence; time fuzes [F42C 9/00](#))**

## Definition statement

*This place covers:*

Fuzes activated by sensors detecting liquid exposure to liquid, e.g. components swelling or disintegrating when contacted by a liquid, in practice sea, lake or river water.

## References

### Limiting references

*This place does not cover:*

Protruding stand-off member for hollow charges	<a href="#">F42C 5/00</a>
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### Informative references

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

Time fuzes	<a href="#">F42C 9/00</a>
Initiator for blasting cartridge neutralised by contact with water	<a href="#">F42B 3/192</a>

## F42C 5/00

**Fuzes actuated by exposure to a predetermined ambient fluid pressure {(fluid-pressure-operated switches [H01H 35/24](#))}**

### Definition statement

*This place covers:*

Fuzes that initiate if the water pressure rises above a certain level which is applicable in depth charges.

Also includes fuzes triggered when a threshold of gas pressure is reached, e.g. though a gas generating capsule or by sympathetic detonation of a nearby explosive charge.

Also includes fuzes actuated when the pressure value goes below a predefined threshold, e.g. detonation only possible at a certain altitude.

### References

#### Informative references

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

Initiator for blasting cartridge neutralised by contact with water	<a href="#">F42B 3/192</a>
Depth charges	<a href="#">F42B 21/00</a>
Fluid-pressure-operated switches	<a href="#">H01H 35/24</a>

## F42C 7/00

**Fuzes actuated by application of a predetermined mechanical force, e.g. tension, torsion, pressure (by ammunition impact [F42C 1/00](#), by exposure to a predetermined ambient fluid pressure [F42C 5/00](#))**

### Definition statement

*This place covers:*

The fuse is actuated by application of a mechanical force, i.e. the forceful relative displacement of two components of the fuze relative to each other. Basically a mechanical switch triggering a detonation.

### References

#### Limiting references

*This place does not cover:*

Impact fuzes, i.e. fuzes actuated only by ammunition impact	<a href="#">F42C 1/00</a>
Fuzes actuated by exposure to a predetermined ambient fluid pressure	<a href="#">F42C 5/00</a>

#### Informative references

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

Arming of fuzes	<a href="#">F42C 15/00</a>
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## F42C 7/12

**Percussion fuzes of the double-action type, i.e. fuzes cocked and fired in a single movement, e.g. by pulling an incorporated percussion pin or hammer (percussion caps [F42C 19/10](#))**

### Definition statement

*This place covers:*

The percussion is initiated by a spring loaded percussion pin after the relative displacement of the two components of the fuze.

### References

#### Limiting references

*This place does not cover:*

Impact fuzes	<a href="#">F42C 1/00</a>
Percussion caps	<a href="#">F42C 19/10</a>

## F42C 9/00

**Time fuzes; Combined time and percussion or pressure-actuated fuzes; Fuzes for timed self-destruction of ammunition**

### Definition statement

*This place covers:*

Non-electronic fuzes causing detonation of the ammunition after a predetermined time from the initiation of the fuze itself, i.e. the timing is not caused by an electric or electronic circuitry.

Timing can be caused by clockwork or a burning pyrotechnic unit.

### References

#### Limiting references

*This place does not cover:*

Electric time fuzes, the time delay being caused by electric circuitry	<a href="#">F42C 11/06</a>
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## F42C 11/00

**Electric fuzes ({in combination with other fuzes [F42C 9/14](#)}; proximity fuzes [F42C 13/00](#); {safety or arming effected by electric means [F42C 15/40](#); electric contact parts for fuzes [F42C 19/06](#)}; electric igniters [F42C 19/12](#), {[F42B 3/12](#) - [F42B 3/18](#); optical initiators [F42B 3/113](#)})**

### Definition statement

*This place covers:*

Fuzes characterised by the electric or electronic circuitry, which is usually triggered or controlled by one of the fuze sensor mechanisms covered in [F42C 1/00](#) - [F42C 9/18](#) or [F42C 13/00](#). Generation of electricity therefore.

## References

### Limiting references

*This place does not cover:*

Proximity fuzes	<a href="#">F42C 13/00</a>
Safety or arming effected by electric means	<a href="#">F42C 15/40</a>
Electric contact parts for fuzes	<a href="#">F42C 19/06</a>
Electric primers, the initial explosive component in the pyrotechnic or explosive train is electrically initiated	<a href="#">F42C 19/12</a>
Bridge initiators	<a href="#">F42B 3/12</a>
Spark initiators	<a href="#">F42B 3/14</a>
Pyrotechnic delay initiators	<a href="#">F42B 3/16</a>
Safety initiators resistant to premature firing by static electricity or stray currents	<a href="#">F42B 3/18</a>

### Informative references

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

Time fuzes in combination with other fuzes	<a href="#">F42C 9/14</a>
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## F42C 13/00

**Proximity fuzes; Fuzes for remote detonation** {([F42C 9/148](#) takes precedence; constructional details [F42C 19/00](#); mounting of antennas [F42B 30/006](#))}

### Definition statement

*This place covers:*

Fuzes wherein detonation is initiated after an electronic circuitry including a non-contact (e.g. electrostatic, electrodynamic, optical, field sensitive, acoustic or magnetic) proximity sensor has determined that the proximity of the target is sufficient for optimised effect of the warhead.

## References

### Limiting references

*This place does not cover:*

Proximity sensor by contacting of a protruding member	<a href="#">F42C 1/14</a>
Proximity fuzes in combination with other fuzes	<a href="#">F42C 9/148</a>

### Informative references

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

Constructional details of fuzes	<a href="#">F42C 19/00</a>
Mounting of antennas on projectiles	<a href="#">F42B 30/006</a>

## F42C 14/00

**{Mechanical} fuzes characterised by the ammunition class or type ([F42C 1/00](#), [F42C 7/00](#), [F42C 9/00](#), [F42C 11/001](#)), [F42C 13/00](#), [F42C 15/00](#) take precedence)**

### Definition statement

*This place covers:*

This main group is organised as an application group, i.e. non electric fuzes characterised by the ammunition they are designed for.

If a fuze is characterised by a features relating to a special adaptation for the use with a particular ammunition not listed in the sub-groups, classify in main group.

### References

#### Limiting references

*This place does not cover:*

Impact fuzes, i.e. fuzes actuated only by ammunition impact	<a href="#">F42C 1/00</a>
Fuzes actuated by application of a predetermined mechanical force, e.g. tension, torsion, pressure	<a href="#">F42C 7/00</a>
Time fuzes; Combined time and percussion or pressure-actuated fuzes; Fuzes for timed self-destruction of ammunition	<a href="#">F42C 9/00</a>
Electric circuits for fuzes characterised by the ammunition class or type	<a href="#">F42C 11/001</a>
Proximity fuzes; Fuzes for remote detonation	<a href="#">F42C 13/00</a>
Arming-means in fuzes; Safety means for preventing premature detonation of fuzes or charges	<a href="#">F42C 15/00</a>

### Special rules of classification

This main group being an application (intended use) entry, the documents should be double classified according to their structural and functional features in [F42C 1/00](#) - [F42C 9/18](#) or [F42C 13/00](#).

## F42C 15/00

### Arming-means in fuzes; Safety means for preventing premature detonation of fuzes or charges

#### Definition statement

*This place covers:*

Mechanisms or electric circuits keeping a fuze in a safe state until certain predefined conditions, usually launch and/or flight conditions, are met and causing automatic transition the fuze into the armed state as soon as all conditions are met.

## F42C 15/18

wherein a carrier for an element of the pyrotechnic or explosive train is moved ([F42C 15/40](#) takes precedence)

### References

#### Limiting references

*This place does not cover:*

Movable blocking member in the pyrotechnic or explosive train	<a href="#">F42C 15/34</a>
Safety or arming means wherein the safety or arming action is effected electrically	<a href="#">F42C 15/40</a>

## F42C 15/34

wherein the safety or arming action is effected by a blocking-member in the pyrotechnic or explosive train between primer and main charge ([F42C 15/18](#), [F42C 15/40](#) take precedence)

### References

#### Limiting references

*This place does not cover:*

Safety or arming means wherein a carrier for an element of the pyrotechnic or explosive train is moved	<a href="#">F42C 15/18</a>
Safety or arming means wherein the safety or arming action is effected electrically	<a href="#">F42C 15/40</a>

## F42C 15/44

Arrangements for disarming, or for rendering harmless, fuzes after arming, e.g. after launch

### References

#### Informative references

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

Fuzes for the self destruction of ammunition	<a href="#">F42C 9/16</a>
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## F42C 17/00

### Fuze-setting apparatus

#### Definition statement

*This place covers:*

Apparatus for setting the fuzes of a projectile or missile. The apparatus can either be a robotic device or classical manual device for manipulating a mechanically settable fuze, or a data interface for setting electric/electronic fuzes.

## F42C 19/00

### Details of fuzes (except [F42C 15/00](#))

#### Definition statement

*This place covers:*

Structural details possibly pertinent to all types of fuzes, such as the body and the caps. Further includes details of electrical components pertinent to electric fuzes only.

Includes the primers, i.e. the initial explosive component in the pyrotechnic or explosive train.

#### Synonyms and Keywords

*In patent documents, the following words/expressions are often used with the meaning indicated:*

"primer"	"effects the first explosive step in the sequence of explosion"
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## F42C 21/00

### Checking fuzes; Testing fuzes

#### Definition statement

*This place covers:*

Devices and methods for checking and testing fuzes during manufacturing or just prior to launch or deployment.