

## F23G

### CREMATION FURNACES; CONSUMING WASTE PRODUCTS BY COMBUSTION

#### Definition statement

*This place covers:*

Methods or apparatus specially adapted for combustion of the following substances:

- Human corpses or amputated body parts
- Animal carcasses or their discarded body parts
- Fuels, e.g. waste fuels, presenting particular fuel-related environmental problems requiring specially adapted methods or apparatus for combustion, for example toxic, infectious, explosive, radioactive or corrosive fuels
- Waste having a special physical form requiring specially adapted methods or apparatus for combustion, for example packaged waste, rubber tyres or discarded cars
- Low-grade fuels presenting particular problems of combustion requiring specially adapted methods or apparatus for combustion, for example fuels containing high amounts of water or non-combustible substances, green biomass, contaminated oil, or gas of low heating value
- Fuels that vary considerably in composition or form and therefore require specially adapted methods or apparatus for combustion
- Household, municipal, or similar waste that is solely or primarily burned for the purpose of its destruction

#### Relationships with other classification places

Relationship with general function-oriented places in class [F23](#)

This subclass is to be seen as an application place in relation to the function-oriented aspects covered by [F23B](#), Combustion apparatus using only solid fuel, and [F23C](#), Combustion apparatus using fluent fuel).

Classification is made in [F23B](#) or [F23C](#) if the method or apparatus is

- of general interest for combustion of different types of solid or fluent fuel, for example not specially adapted for a particular fuel, or
- specially adapted for fuels other than those provided for in this subclass, for example "normal" commercial fuels, such as oil, natural gas, coal, firewood, wood chips, wood pellets or straw.

If methods or apparatus covered by this subclass are also of general interest for combustion of "normal" commercial fuels classification should also be made in other subclasses of [F23](#). The decision on whether an apparatus is specially adapted or not is sometimes not easy to decide. In doubtful situations classification should therefore always be made in both this subclass and other subclasses of [F23](#).

Relationship between this subclass and detail subclasses of class [F23](#)

Subclasses [F23D](#) and [F23H - F23Q](#) are to be seen as general detail places in relation to this subclass. Classification of details of apparatus in this subclass should be restricted to inventions that are clearly specially adapted for methods or apparatus that are covered by the subclass. If a detail of an apparatus is specifically covered in a group of [F23D](#) or [F23H - F23Q](#), classification should be made in that group and not in this subclass.

Relationship between this subclass and other application places

Combustion is often used for purpose of heating or performing different operations. This subclass is therefore related to many places providing for uses of heat. In many of these fields the combustion apparatus can be considered a detail of a bigger entity. A non-exhaustive list of examples of such classes or subclasses will be found under the heading "Informative references".

Relationship between this subclass and places for gasification or destructive distillation

- [C10B](#) covers destructive distillation of carbonaceous material for production of gas, coke, tar or similar matter.
- [C10J](#) covers production of combustible gases containing carbon monoxide from solid carbonaceous fuels.

Classification is made in these places if the combustible substances produced, e.g. gas or coke, are burned in an apparatus separate from the gasification or distillation apparatus.

Classification is made in this subclass if complete combustion takes place in the same apparatus as the gasification, for example in different parts of the same combustion chamber or in an afterburner immediately connected to a primary combustion chamber.

Relationship between this subclass and class [B09](#)

- [B09B](#) covers disposal of solid waste
- [B09C](#) covers reclamation of contaminated soil

These subclasses only cover matter that is not completely covered by this subclass. Examples of such matter are processes that include a combustion step in combination with other steps that together form a process for disposal of waste or reclamation of contaminated soil.

## References

### Limiting references

*This place does not cover:*

Disposal of solid waste	<a href="#">B09B</a>
Reclamation of contaminated soil	<a href="#">B09C</a>
Gas turbine plants	<a href="#">F02C</a>
Generating steam	<a href="#">F22B</a>
Generating combustion products of high temperature or high pressure	<a href="#">F23R</a>
Domestic stoves or ranges for local heating or cooking	<a href="#">F24B</a> , <a href="#">F24C</a>
Apparatus for heat treatment of materials or articles	<a href="#">F27B</a>

### Informative references

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

Chemical means for combating harmful chemical agents or for making them harmless	<a href="#">A62D 3/00</a>
Chemical or biological purification of waste gases	<a href="#">B01D 53/34</a>
Chemical or physical processes or apparatus in general	<a href="#">B01J</a>
Gathering of domestic or like refuse	<a href="#">B65F</a>
Treatment of water, waste water, sewage or sludge	<a href="#">C02F</a>
Destructive distillation of carbonaceous material for production of gas, coke, tar or similar matter	<a href="#">C10B</a>
Production of combustible gases containing carbon monoxide from solid carbonaceous fuels	<a href="#">C10J</a>
Fuels, treatment of fuels	<a href="#">C10L</a>
Regeneration of pulp liquors by combustion	<a href="#">D21C 11/12</a>
Combustion of "normal" commercial fuels	<a href="#">F23B</a> , <a href="#">F23C</a>

Grates, cleaning or raking of grates	<a href="#">F23H</a>
Removal or treatment of combustion products, e.g. flue gases or combustion residues, e.g. ash	<a href="#">F23J</a>
Feeding fuel	<a href="#">F23K</a>
Supplying air or other non-combustible liquids or gases, e.g. water or steam	<a href="#">F23L</a>
Constructional details of combustion chambers, not otherwise provided for	<a href="#">F23M</a>
Regulating or controlling combustion	<a href="#">F23N</a>
Ignition	<a href="#">F23Q</a>

### Special rules of classification

In this subclass methods are classified in the groups that cover the apparatus used.

When classifying in this subclass, add codes [F23G 2200/00-F23G 2209/30](#) and [F23G 2900/00001-F23G 2900/70601](#).

### Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

Air	a mixture of gases containing free oxygen and able to promote or support combustion
Primary air	air supplied to the burning fuel in order to liberate combustible gases
Secondary air	air supplied to the combustible gases liberated by the primary air in order to complete their combustion. The expression "secondary air" covers "tertiary air" etc.
Burner	a device by which fluid fuel or solid fuel suspended in air is passed to a combustion space where it burns to produce a self-supporting flame. A burner includes means for feeding air that are arranged in immediate connection with a fuel feeding conduit, for example concentric with it.
Combustion	the direct combination of oxygen gas, e.g. in air, and a burnable substance
Combustion chamber	a chamber in which fuel is burned to establish a self-supporting fire or flame and which surrounds that fire or flame
Combustion zone	the part of a combustion apparatus where the reaction takes place between air and fuel
Fuel	any combustible material that can be burned, regardless of whether the main purpose of burning it is for releasing energy therefrom or for disposing of it or rendering it less harmful
Waste	an undesired material that can be consumed by combustion for the primary purpose of disposing of it or rendering it less harmful, and not solely for releasing energy therefrom

## Synonyms and Keywords

In patent documents, the following abbreviations are often used:

CFB	Circulating fluidised bed
EHC	Electrically heated catalyst
FBN	Fuel-bound nitrogen
HC	Hydrocarbons
NOx	Nitrous oxides
PFBC	Pressurised fluidised bed combustion
SOx	Sulfur oxides
UHC	Unburned hydrocarbons

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

"boiler"	"combustion apparatus".
"burner"	"combustion apparatus".

## F23G 5/00

Incineration of waste (of specific waste [F23G 7/00](#)); Incinerator constructions; Details, accessories or control therefor

### References

#### Limiting references

This place does not cover:

Incineration of specific or industrial waste	<a href="#">F23G 7/00</a>
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## F23G 5/002

{characterised by their grates ([F23G 5/05](#) takes precedence)}

### Definition statement

This place covers:

This subgroup is supposed to be used in those cases where the type of combustion grate is the focus of the invention, other components of the incinerator being just schematically described.

### References

#### Limiting references

This place does not cover:

Incinerators characterised by their drying grates	<a href="#">F23G 5/05</a>
Details of combustion grates for solid fuels in general	<a href="#">F23H</a>

### Special rules of classification

When classifying in this subgroup, add codes [F23G 2203/10-F23G 2203/107](#) if appropriate.

**F23G 5/006****{General arrangement of incineration plant, e.g. flow sheets}****Definition statement***This place covers:*

This subgroup is supposed to be used in all cases where the entire plant is described or just sketched, even though those components of the plant which are not part of the invention are already well known and described in general terms only.

**Special rules of classification**

Double classification normally applies in this subgroup.

When classifying in this subgroup, add also the relevant Indexing Codes from the range [F23J 2215/00](#) -[F23J 2219/80](#) for all the components of the fumes purification section, even if they are not part of the invention.

**F23G 5/027****pyrolysing or gasifying stage (pyrolysis of sludge [C02F 11/00](#); destructive distillation of carbonaceous materials [C10B 53/00](#))****References****Informative references**

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

Pyrolysis of sludge	<a href="#">C02F 11/00</a>
Destructive distillation of carbonaceous materials	<a href="#">C10B 53/00</a>

**Special rules of classification**

When classifying in this subgroup, add codes [F23G 2201/30](#)-[F23G 2201/40](#) if appropriate.

**F23G 5/10****electric****Special rules of classification**

When classifying in this subgroup, add codes [F23G 2204/201](#)-[F23G 2204/204](#) if appropriate.

**F23G 5/12****using gaseous or liquid fuel ([F23G 5/14](#) takes precedence)****References****Limiting references***This place does not cover:*

Incinerators with provisions for secondary combustion	<a href="#">F23G 5/14</a>
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**F23G 5/36**

having a conical combustion chamber, e.g. "teepee" incinerators ([F23G 5/22](#) takes precedence)

**References****Limiting references**

*This place does not cover:*

Incinerators with rotating or oscillating conically shaped drums	<a href="#">F23G 5/22</a>
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**F23G 5/444**

{for solid waste ([F23G 5/448](#) takes precedence)}

**References****Limiting references**

*This place does not cover:*

Incinerators to which the waste is fed in containers or the like	<a href="#">F23G 5/448</a>
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**Special rules of classification**

When classifying in this subgroup, add codes [F23G 2205/10-F23G 2205/20](#) if appropriate.

**F23G 5/446**

{for liquid waste ([F23G 5/448](#) takes precedence)}

**References****Limiting references**

*This place does not cover:*

Incinerators to which the waste is fed in containers or the like	<a href="#">F23G 5/448</a>
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**F23G 5/50****Control or safety arrangements****Special rules of classification**

When classifying in this subgroup, add codes [F23G 2207/10-F23G 2207/60](#) if appropriate.

If some features are relevant, but codes [F23G 2207/10-F23G 2207/60](#) does not provide proper entries, classification in [F23N](#) and/or [F23N](#) is to be considered. In this case code [F23N 2241/18](#) is mandatory.

## F23G 7/00

Incinerators or other apparatus for consuming industrial waste, e.g. chemicals (incinerator closets [A47K 11/02](#); oxidation of sludge [C02F 11/06](#); burners in general, burner details [F23D](#); incinerating radioactive waste [G21F 9/00](#))

### References

#### Limiting references

*This place does not cover:*

Incinerator closets	<a href="#">A47K 11/023</a>
Oxidation of sludge	<a href="#">C02F 11/06</a>
Incinerating liquid radioactive waste	<a href="#">G21F 9/14</a>
Incinerating solid radioactive waste	<a href="#">G21F 9/32</a>

#### Informative references

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

Burners in general, burner details	<a href="#">F23D</a>
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### Special rules of classification

When classifying in this subclass, add codes [F23G 2209/10-F23G 2209/30](#) if appropriate.

## F23G 7/001

{for sludges or waste products from water treatment installations ([F23G 5/008](#) takes precedence)}

### References

#### Limiting references

*This place does not cover:*

Incinerators specially adapted for burning two or more kinds, e.g. liquid and solid, of waste being fed through separate inlets	<a href="#">F23G 5/008</a>
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## F23G 7/008

{for liquid waste (waste oil [F23G 7/05](#), waste liquors [F23G 7/04](#), sludges [F23G 7/001](#))}

### References

#### Limiting references

*This place does not cover:*

Incinerators specially adapted for burning sludge	<a href="#">F23G 7/001</a>
Incinerators specially adapted for burning waste liquors	<a href="#">F23G 7/04</a>
Incinerators specially adapted for burning waste oils	<a href="#">F23G 7/05</a>

## F23G 7/06

of waste gases or noxious gases, e.g. exhaust gases (exhaust apparatus for engines with means for rendering the exhaust innocuous, e.g. by thermal or catalytic conversion, [F01N 3/08](#); combustion of uncombusted material from primary combustion within apparatus for combustion of solid or fluent fuel [F23B](#), {of non combusted material from primary combustion of solid fuels [F23B 5/00](#); of gases produced by primary combustion of solid fuels [F23B 90/04](#)}, [F23C](#))

### References

#### Limiting references

*This place does not cover:*

Exhaust apparatus for engines with means for rendering the exhaust innocuous, e.g. by thermal or catalytic conversion	<a href="#">F01N 3/08</a>
Combustion of uncombusted material from primary combustion within apparatus for combustion of solid or fluent fuel	<a href="#">F23B</a> , <a href="#">F23C</a>
Of non combusted material from primary combustion of solid fuels	<a href="#">F23B 5/00</a>
Burning gases produced by the primary combustion of solid fuels	<a href="#">F23B 90/04</a>
Of gases produced by primary combustion of solid fuels	<a href="#">F23B 90/04</a>

#### Informative references

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

Exhaust apparatus for machines, engines in general or internal combustion engines	<a href="#">F01N</a>
Burning non combusted material from primary combustion of solid fuel	<a href="#">F23B 5/00</a>