

## F23N

**REGULATING OR CONTROLLING COMBUSTION** (control devices specially adapted for combustion apparatus in which combustion takes place in a fluidised bed of fuel or other particles [F23C 10/28](#); condition responsive controls for regulating combustion in domestic stoves with open fires for solid fuel [F24B 1/187](#))

### Definition statement

*This place covers:*

Means and methods for regulating or controlling combustion, including details of the accessories and components for carrying out said controls such as for example fuel valves, detectors, sensors, timers independently of the type of the fuel which is burned.

Safety controls.

Pneumatic, electronic, electrical or hydraulic circuits used for controlling or regulating combustion.

### References

#### Limiting references

*This place does not cover:*

Control devices specially adapted for fluidised-bed combustion apparatus	<a href="#">F23C 10/28</a>
Condition responsive controls for regulating combustion in domestic stoves with open fires for solid fuel	<a href="#">F24B 1/187</a>

#### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Control devices specially adapted for incinerators	<a href="#">F23G 5/50</a>
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#### Informative references

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

Control systems for gas turbine plants	<a href="#">F02C 9/00</a>
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### Special rules of classification

In this subclass, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

When classifying in this subgroup, add the Indexing Codes [F23N 1/00](#) - [F23N 2241/22](#) and [F23N 2900/00](#) - [F23N 2900/05181](#).

### 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
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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 term "secondary air" covers "tertiary air" etc.
Ash	means any solid combustion residues, for example remaining in the fuel bed or suspended in the flue gases
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
Combustion	means 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 the apparatus where the reaction takes place between air and fuel
Flue gases	any gaseous products of combustion
Grate	a perforated surface, e.g. a grid, which supports or delimits a bed of burning fuel and serves to supply primary air
Firebridge	a low wall separating the fuel bed from adjacent flue gas passages in apparatus for combustion of solid fuel, for example in reverberatory furnaces or fire-tube boilers

## Synonyms and Keywords

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

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

## F23N 1/00

### Regulating fuel supply

#### Definition statement

*This place covers:*

Regulating fuel supply.

#### References

##### Informative references

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

Regulating fuel supply conjointly with air supply and draft	<a href="#">F23N 1/04</a>
Regulating fuel supply conjointly with draft	<a href="#">F23N 1/06</a>
Regulating fuel supply conjointly with another medium, e.g. boiler water	<a href="#">F23N 1/08</a>
Regulating fuel supply conjointly with another medium, e.g. boiler water, and air supply or draught	<a href="#">F23N 1/10</a>

**F23N 3/00****Regulating air supply or draught (conjointly with fuel supply [F23N 1/00](#))****Definition statement***This place covers:*

Regulating air supply or draught.

**References****Limiting references***This place does not cover:*

Regulating air supply conjointly with fuel supply	<a href="#">F23N 1/00</a>
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**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Regulating draught by direct pressure operation of single valves or dampers	<a href="#">F23N 3/02</a>
Regulating air supply or draught by operation of single valves or dampers by temperature sensitive elements	<a href="#">F23N 3/04</a>
Regulating air supply or draught by conjoint operation of two or more valves or dampers	<a href="#">F23N 3/06</a>
Regulating air supply or draught by power-assisted systems	<a href="#">F23N 3/08</a>

**F23N 3/06****by conjoint operation of two or more valves or dampers (by power-assisted systems [F23N 3/08](#))****References****Limiting references***This place does not cover:*

Regulating air supply or draught by power-assisted systems	<a href="#">F23N 3/08</a>
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**F23N 5/00****Systems for controlling combustion (regulating fuel supply [F23N 1/00](#), regulating air supply or draught [F23N 3/00](#))****Definition statement***This place covers:*

Systems for controlling combustion.

## References

### Limiting references

*This place does not cover:*

Regulating fuel supply	<a href="#">F23N 1/00</a>
Regulating air supply or draught	<a href="#">F23N 3/00</a>

### Informative references

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

Controlling combustion using devices responsive to thermal changes or to thermal expansion of a medium	<a href="#">F23N 5/02</a>
Systems for controlling combustion using devices responsive to thermal changes or to thermal expansion of a medium, in particular using bimetallic elements	<a href="#">F23N 5/04</a>
Systems for controlling combustion using devices responsive to thermal changes or to thermal expansion of a medium, in particular using bellows or diaphragms	<a href="#">F23N 5/06</a>
Systems for controlling combustion using devices responsive to thermal changes or to thermal expansion of a medium, in particular using light-sensitive elements	<a href="#">F23N 5/08</a>
Systems for controlling combustion using devices responsive to thermal changes or to thermal expansion of a medium, in particular using thermocouples	<a href="#">F23N 5/10</a>
Systems for controlling combustion using devices responsive to thermal changes or to thermal expansion of a medium, in particular using ionisation-sensitive elements, i.e. flame rods	<a href="#">F23N 5/12</a>
Systems for controlling combustion using devices responsive to thermal changes or to thermal expansion of a medium, in particular using thermo-sensitive resistors	<a href="#">F23N 5/14</a>
Controlling combustion using detectors sensitive to rate of flow of air or fuel	<a href="#">F23N 5/18</a>
Controlling combustion with a time program acting through electrical means, e.g. using time-delay relays	<a href="#">F23N 5/20</a>
Controlling combustion with a time program acting through mechanical means, e.g. using cams	<a href="#">F23N 5/22</a>
Preventing development of abnormal or undesired conditions, i.e. safety arrangements	<a href="#">F23N 5/24</a>
Details relating to combustion controls	<a href="#">F23N 5/26</a>
Testing of other ignition means, e.g. flame	<a href="#">F02P 17/12</a>
Analysing gases by investigating the ionisation by using heat	<a href="#">G01N 27/626</a>

**F23N 5/12****using ionisation-sensitive elements, i.e. flame rods****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Testing of other ignition means, e.g. flame	<a href="#">F02P 17/12</a>
Analysing gases by investigating the ionisation by using heat	<a href="#">G01N 27/626</a>

**F23N 2227/22****Pilot burners****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Ignition circuits therefor	<a href="#">F23N 2227/32</a>
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**F23N 2237/00****Controlling****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Systems for controlling combustion	<a href="#">F23N 5/00</a>
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