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	F23C 10/28
Condition reponsive controls for regulating combustion in domestic stoves with open fires for solid fuel	F24B 1/187

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	F23G 5/50

Informative references

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

Control systems for gas turbine plants	F02C 9/00

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

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	F23N 1/04
Regulating fuel supply conjointly with draft	F23N 1/06
Regulating fuel supply conjointly with another medium, e.g. boiler water	F23N 1/08
Regulating fuel supply conjointly with another medium, e.g. boiler water, and air supply or draught	F23N 1/10

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	F23N 1/00

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	F23N 3/02
Regulating air supply or draught by operation of single valves or dampers by temperature sensitive elements	F23N 3/04
Regulating air supply or draught by conjoint operation of two or more valves or dampers	F23N 3/06
Regulating air supply or draught by power-assisted systems	F23N 3/08

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	F23N 3/08

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	F23N 1/00
Regulating air supply or draught	F23N 3/00

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

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	F02P 17/12
Analysing gases by investigating the ionisation by using heat	G01N 27/626

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	F23N 2227/32

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	F23N 5/00