F23L

AIR SUPPLY; DRAUGHT-INDUCING; SUPPLYING NON-COMBUSTIBLE LIQUID OR GAS (air-supply arrangements for fluent fuels F23C; dampers and throat restrictors for open fire-places F24; air inlet valves for open fire fronts F24)

Definition statement

This place covers:

Supply of air or non-combustible gases or liquids to combustion apparatus in general, for example:

- Blast-producing apparatus before the fire, for example fans or induction apparatus;
- Passages or nozzles for delivering air to combustion chambers;
- Methods or devices for supplying steam or oxygen to the fire;
- Methods or devices for heating of combustion air before supply to the combustion chamber, for example by heat exchange with flue gases;
- Special adaptations of valves or dampers for controlling combustion air supply or flue gas draught in combustion apparatus in general;
- Methods or devices for inducing draught in combustion apparatus, for example exhaust fans or exhaust induction apparatus;
- Tops for chimneys or ventilation shafts;
- Terminals for flues.

Relationships with other classification places

Combustion apparatus

This subclass is the general place for methods and apparatus for supply of air to combustion apparatus.

The incorporation of air supply means as an integrated part of an entire combustion apparatus, for example the disposition of primary and secondary air ports in relation to other components, is classified in the place for the combustion apparatus as a whole, in F23B, F23C or F23G.

Air supply means that are arranged in immediate connection with the fuel-feeding conduit of a burner (for example concentric with it) are considered to be part of the burner, and are thus classified in F23D. Other means for feeding air that are specially adapted for combustion of liquid fuel, gaseous fuel or pulverised fuel suspended in air are classified in F23C 7/00 or F23C 10/20.

Blast-producing, draught-inducing

This subclass is an application-oriented place for the arrangement of fans, inductors or other pumps in combustion apparatus for the purpose of inducing blast or draught. The integration of such devices in systems for control of combustion, for example together with sensors and actuators, is covered by F23N.

Fans and other pumps per se are classified in class F04, for examples see the section "Informative references" below.

Valves and dampers

This subclass is an application-oriented place for valves and dampers that are specially adapted for controlling air supply or draught of combustion apparatus. The integration of such devices in systems for control of combustion, for example together with sensors and actuators, is covered by F23N.

Valves or dampers that are specially adapted for controlling air supply or draught of domestic stoves are classified in F24B or F24C, for examples see the section "References relevant to classification in this subclass" below.

Valves and dampers in general are classified in F16K.

Heating of combustion air

This subclass is an application-oriented place for the heat exchange apparatus that is specially adapted for use in combustion apparatus for the purpose of heating combustion air. Heat exchangers in general are classified in class F28, for examples see the section "Informative references" below.

References

Limiting references

This place does not cover:

Returning flue gases to the combustion chamber of combustion apparatus for solid fuel	F23B 80/02
Returning flue gases to the combustion chamber of combustion apparatus for liquid or gaseous fuel or pulverised solid fuel suspended in air	F23C 9/00
Grates for combustion apparatus	F23H
Supplying chemicals to fires	F23J 7/00
Firebridges for delivery of air or steam to combustion apparatus	F23M 3/04
Cooling of casings, lining or walls of combustion chambers	F23M 5/08
Doors specially adapted for combustion chambers	F23M 7/00
Baffles or deflectors in air inlets of combustion chambers	F23M 9/02
Baffles or deflectors for air or combustion products with air-supply passages	F23M 9/04

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:

Steam generators	F22B
Air supply specially adapted for combustion apparatus for liquid, gaseous or pulverised fuel	F23C 7/00
Supply of fluidisation air for fluidised bed combustion apparatus	F23C 10/20
Burners	F23D
Burners where spraying of liquid fuel is induced by a gaseous medium	F23D 11/10
Gas burners specially adapted for use with means for pressurising the combustion air	F23D 14/34
Systems for regulating or controlling combustion	F23N
Regulating or controlling air supply or draft	F23N 3/00
Air inlet arrangements for combustion chambers for generating combustion products of high pressure or high velocity, e.g. for gas turbine combustion chambers	F23R 3/04
Draught control dampers for solid fuel stoves with open fires	F24B 1/189
Air supply in solid fuel stoves with open fires	F24B 1/19
Hoods for solid fuel stoves with open fires	F24B 1/195
Combustion-air or flue gas circulation in or around solid fuel stoves	F24B 5/00

Stoves for combustion of gaseous or liquid fuels, or for two or more different fuels	F24C
Fluid heaters, e.g. water or air heaters for central heating	F24H

Informative references

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

Positive displacement air pumps in general	F04B
Fans in general	F04D
Jet pumps in general	F04F 5/00
Valves in general	F16K
Methods or apparatus for combustion using solid fuel	F23B
Methods or apparatus for combustion using fluid fuel	F23C
Domestic stoves or ranges for solid fuels	F24B
Air humidification	F24F 6/00
Air flow control members for ventilation or air conditioning	F24F 13/08
Heat exchangers in general	F28C, F28D, F28F

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 subclass, add also codes F23L 2900/00001-F23L 2900/15044 .

Codes F23L 2700/001-F23L 2700/002 are not used.

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

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
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

F23L 1/00

Passages or apertures for delivering primary air for combustion

Definition statement

This place covers:

Passages or apertures for delivering primary air for combustion.

F23L 3/00

Arrangements of valves or dampers before the fire

Definition statement

This place covers:

Arrangements of valves or dampers before the fire.

F23L 5/00

Blast-producing apparatus before the fire

Definition statement

This place covers:

Blast-producing apparatus before the fire.

References

Informative references

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

Arrangements of fans or blowers per se	F04

F23L 7/00

Supplying non-combustible liquids or gases, other than air, to the fire, e.g. oxygen, steam

Definition statement

This place covers:

Supplying non-combustible liquids or gases, other than air, to the fire, e.g. oxygen, steam.

F23L 9/00

Passages or apertures for delivering secondary air for completing combustion of fuel

Definition statement

This place covers:

Passages or apertures for delivering secondary air for completing combustion of fuel.

F23L 11/00

Arrangements of valves or dampers after the fire

Definition statement

This place covers:

Arrangements of valves or dampers after the fire.

F23L 13/00

Construction of valves or dampers for controlling air supply or draught (in general F16K)

Definition statement

This place covers:

Construction of valves or dampers for controlling air supply or draught.

References

Informative references

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

Valves in general	F16K

F23L 13/02

pivoted about a single axis but having not other movement (formed as linked slats each pivoted about an axis F23L 13/08)

References

Limiting references

This place does not cover:

Valves formed as linked slats each pivoted about an axis	F23L 13/08

F23L 15/00

Heating of air supplied for combustion

Definition statement

This place covers:

Heating of air supplied for combustion.

F23L 17/00

Inducing draught

Definition statement

This place covers:

Inducing draught.

F23L 99/00

Subject matter not provided for in other groups of this subclass

Definition statement

This place covers:

Subject matter not provided for in other groups of this subclass.