

F23J

REMOVAL OR TREATMENT OF COMBUSTION PRODUCTS OR COMBUSTION RESIDUES {(from fluidised-bed combustion apparatus [F23C 10/24](#)); **FLUES** (precipitating dust from flue gases [B01D](#); composition of fuel [C10](#); combustion apparatus for consuming smoke or fumes, e.g. exhaust gases, [F23G 7/06](#))

Definition statement

This place covers:

- All details of devices for removing or treating products or fumes originating from a combustion apparatus, including all relevant accessories and peripheral devices such as for example exhaust gas pipes, cooling arrangements, ash removal systems, arrangements for supplying chemicals to fumes, independently from the type of solid fuel which is burned;
- Arrangements for supplying chemicals to fires;
- Cleaning of surface tubes, flame tubes or surfaces which are contaminated by combustion products or residues.

References

Limiting references

This place does not cover:

Precipitating dust from flue gases	B01D
Removal or treatment of exhaust gas from internal combustion engines	F01N
Removal of materials from fluidised beds	F23C 10/24
From fluidised-bed combustion apparatus	F23C 10/24
Combustion apparatus for burning smoke or fumes, e.g. exhaust gases	F23G 7/06
Removing cooking fumes from domestic stoves or ranges	F24C 15/20
Cleaning of surfaces of boiler, heat exchangers or heat transfer conduit contaminated by other than combustion products or residues	F28G

Informative references

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

Separating particles or dust from gases	B01D 46/00
Chemical or biological purification of waste gases, e.g. engine exhaust gases, smoke, fumes, flue gases	B01D 53/00
Cleaning pipes in general	B08B 9/02
Removing fumes other than combustion fumes from the area where they are produced, in general	B08B 15/00
Composition of fuels	C10
Protection against fire for buildings	E04B 1/94
Chimneys as part of a building	E04F 17/02
Industrial chimney-stacks, i.e. free-standing chimneys	E04H 12/28
Fume conduits of furnaces, kilns, ovens, or retorts	F27D 17/002

Special rules of classification

When classifying in this subclass, add codes [F23J 2211/00-F23J 2219/80](#) and [F23J 2900/01001-F23J 2900/15081](#).

Codes [F23J 2700/001-F23J 2700/003](#) 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
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

Synonyms and Keywords

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

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

F23J 1/00

Removing ash, clinker, or slag from combustion chamber {(arrangements for collecting bottom ash and flyash [F23J 3/06](#); removing flyash from flue gas [F23J 15/022](#))}

References

Limiting references

This place does not cover:

Arrangements for collecting bottom ash and fly ash	F23J 3/06
--	---------------------------

Removing solid particulate material, e.g. fly ash, from flue gases	F23J 15/022
Cleaning devices which form part of the combustion grate	F23H 15/00

F23J 3/00

Removing solid {deposited} residues from passages or chambers beyond the fire, e.g. from flues by soot blowers {(soot blowers per se [F28G 1/16](#))}

References

Limiting references

This place does not cover:

Soot blowers per se	F28G 1/16
---------------------	---------------------------

F23J 7/00

Arrangement of devices for supplying chemicals to fire (supplying chemicals to fire [C10L](#); {to fumes [F23J 15/003](#)})

References

Limiting references

This place does not cover:

Arrangement of devices for treating smoke or fumes for supplying chemicals to fumes	F23J 15/003
Use of additives to fuels or fires for particular purposes	C10L 10/00

F23J 11/00

Devices for conducting smoke or fumes, e.g. flues ({removing fumes other than combustion fumes from the area where they are produced, in general [B08B 15/00](#)}; heat insulation therefor [E04B 1/94](#); chimneys [E04H 12/28](#); removing cooking fumes from domestic stoves or ranges [F24C 15/20](#); {fume conduits of furnaces, kilns, ovens, or retorts [F27D 17/002](#)})

References

Limiting references

This place does not cover:

Removing fumes other than combustion fumes from the area where they are produced, in general	B08B 15/00
Heat insulation therefor	E04B 1/94
Chimneys	E04H 12/28
Removing cooking fumes from domestic stoves or ranges	F24C 15/20
Fume conduits of furnaces, kilns, ovens, or retorts	F27D 17/002

F23J 13/00

Fittings for chimneys or flues (staying, stiffening [E04H](#); means for facilitating climbing [E06C](#); draught-inducing apparatus associated with chimneys or flues [F23L](#))

References**Limiting references**

This place does not cover:

Staying, stiffening	E04H
means for facilitating climbing	E06C
Draught-inducing apparatus associated with chimneys or flues	F23L
Draught-inducing apparatus associated with chimneys or flues	F23L 17/00

Informative references

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

Staying, stiffening	E04H
Means for facilitating climbing	E06C

F23J 15/00

Arrangement of devices for treating smoke or fumes (treating smoke or fumes, see the relevant class for the treatment, e.g. [B01D 53/00](#))

References**Limiting references**

This place does not cover:

Traps for solid deposits	F23J 3/04
Supplying chemicals to fire	F23J 7/00
Reating smoke or fumes, see the relevant class for the treatment, e.g.	B01D 53/00

Informative references

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

Chemical or biological purification of waste gases, e.g. engine exhaust gases, smoke, fumes, flue gases	B01D 53/00
---	----------------------------

F23J 15/04

using washing fluids {(scrubbers for removing solids only [F23J 15/022](#)}

References

Limiting references

This place does not cover:

Scrubbers for removing solids only	F23J 15/022
------------------------------------	-----------------------------