

ECLA**EUROPEAN CLASSIFICATION****F23B****METHODS OR APPARATUS FOR COMBUSTION USING ONLY SOLID**

FUEL (for combustion of fuels that are solid at room temperatures, but burned in melted form, e.g. candle wax, [C11C5/00](#), F23C, F23D ; using solid fuel suspended in air F23C, F23D 1/00 ; using solid fuel suspended in liquids F23C, [F23D11/00](#); using solid fuel and fluent fuel simultaneously or alternately F23C, F23D 17/00; [N: burning of low grade fuel F23G; grates F23H; feeding solid fuel to combustion apparatus F23K; combustion chambers, not otherwise provided for F23M; domestic apparatus F24; central heating boilers F24D; package boilers F24H])

Note

This subclass is only concerned with the combustion of lump fuel, or of pulverulent or granulated fuel if no use is made of its fluent nature.

Guide heading:**IPC7 groups****F23B1/00****[N: IPC7] Combustion apparatus using only lump fuel**

F23B1/02

- [N: IPC7] for indirect heating of a medium in a vessel, e.g. for boiling water([steam generationF22](#))

F23B1/04

- [N: IPC7] External furnaces, i.e. with furnace in front of the vessel

F23B1/06

- [N: IPC7] for heating water-tube boilers, e.g. Tenbrink flue furnaces

F23B1/08

- [N: IPC7] Internal furnaces, i.e. with furnaces inside the vessel

F23B1/10

- [N: IPC7] for heating locomotive boilers

F23B1/12

- [N: IPC7] with a plurality of combustion chambers

F23B1/16

- [N: IPC7] the combustion apparatus being modified according to the form of grate or other fuel support[N: for incinerators[F23G5/00B](#)]

F23B1/16B

- [N: using roller grate] [N0003]

F23B1/18

- [N: IPC7] using inclined grate

F23B1/20

- [N: IPC7] using step-type grate

F23B1/22

- [N: IPC7] using travelling grate

F23B1/24

- [N: IPC7] using rotating grate

F23B1/26

- [N: IPC7] using imperforate fuel supports

F23B1/28

- [N: IPC7] using ridge-type grate, e.g. for combustion of peat, sawdust, or pulverulent fuel[N: (combustion of peat, sawdust[F23G7/10](#))]

F23B1/30

- [N: IPC7] characterised by the form of combustion chamber

F23B1/32

- [N: IPC7] rotating

F23B1/34

- [N: IPC7] annular

F23B1/36

- [N: IPC7] shaft-type

F23B1/38

- [N: IPC7] for combustion of peat, sawdust, or pulverulent fuel on a grate or other fuel support[N: (combustion of peat, sawdust[F23G7/10](#))]

F23B3/00**[N: IPC7] Combustion apparatus which is portable or removable with respect to the**

boiler or other apparatus which is heated

- F23B5/00** [N: IPC7] **Combustion apparatus with arrangements for burning uncombusted material from primary combustion** [N: (combustion apparatus characterised by the combination of two or more combustion chambers [F23C6/00](#); the primary combustion being pulverulent fuel [F23B9/00B](#))]
- F23B5/02** . [N: IPC7] in main combustion chamber
- F23B5/02B** . . [N: recirculating uncombusted solids to combustion chamber] [N0003]
- F23B5/04** . [N: IPC7] in separate combustion chamber; on separate grate
- F23B7/00** [N: IPC7] **Combustion techniques; Other solid-fuel combustion apparatus**
- F23B7/00B** . [N: characterised by gas flow arrangements] [N0003]
- F23B7/00B1** . . [N: with downdraught through fuel bed and grate] [N0003]
- F23B7/00B3** . . [N: with fluegas recirculation to combustion chamber] [N0003]
- F23B10/00** [N: IPC2012.01] **Combustion apparatus characterised by the combination of two or more combustion chambers** [N1108]
- F23B10/02** . including separate secondary combustion chambers [N1108]
- [N: **WARNING** [N1108]
Group [F23B10/02](#) is not complete pending a reorganisation. See also groups [F23B10/00](#)]
- F23B20/00** **Combustion apparatus specially adapted for portability or transportability** [N0502]
- F23B30/00** **Combustion apparatus with driven means for agitating the burning fuel; Combustion apparatus with driven means for advancing the burning fuel through the combustion chamber** [N0502]
- F23B30/02** . with movable, e.g. vibratable, fuel-supporting surfaces; with fuel-supporting surfaces that have movable parts [N0502]
- F23B30/04** . . with fuel-supporting surfaces that are rotatable around a horizontal or inclined axis and support the fuel on their inside, e.g. cylindrical grates [N0502]
- F23B30/06** . . with fuel supporting surfaces that are specially adapted for advancing fuel through the combustion zone [N0502]
- F23B30/08** . . . with fuel-supporting surfaces that move through the combustion zone, e.g. with chain grates [N0502]
- F23B30/10** . . . with fuel-supporting surfaces having fuel advancing elements that are movable, but remain essentially in the same place, e.g. with rollers or reciprocating grate bars [N0502]
- F23B40/00** **Combustion apparatus with driven means for feeding fuel into the combustion chamber** [N0502]

- F23B40/02 . the fuel being fed by scattering over the fuel-supporting surface [N0502]
- F23B40/04 . the fuel being fed from below through an opening in the fuel-supporting surface [N0502]
- F23B40/06 . the fuel being fed along the fuel-supporting surface [N0502]
- F23B40/08 . . into pot- or through-shaped grates [N0502]

- F23B50/00** **Combustion apparatus in which the fuel is fed into or through the combustion zone by gravity, e.g. from a fuel storage situated above the combustion zone [N0502]**
- F23B50/02 . the fuel forming a column, stack or thick layer with the combustion zone at its bottom [N0502]
- F23B50/04 . . the movement of combustion air and flue gases being substantially transverse to the movement of the fuel [N0502]
- F23B50/06 . . the fuel gases being removed downwards through one or more openings in the fuel-supporting surface [N0502]
- F23B50/08 . . with fuel-deflecting bodies forming free combustion spaces inside the fuel layer [N0502]
- F23B50/10 . . with the combustion zone at the bottom of fuel-filled conduits ending at the surface of a fuel bed [N0502]
- F23B50/12 . the fuel being fed to the combustion zone by free fall or by sliding along inclined surfaces, e.g. from a conveyer terminating above the fuel bed [N0502]

- F23B60/00** **Combustion apparatus in which the fuel burns essentially without moving [N0502]**
- F23B60/02 . with combustion air supplied through a grate [N0502]

- F23B70/00** **Combustion apparatus characterised by means returning solid combustion residues to the combustion chamber [N0502]**

- F23B80/00** **Combustion apparatus characterised by means creating a distinct flow path for flue gases or for non-combusted gases given off by the fuel [N0502]**
- F23B80/02 . by means for returning flue gases to the combustion chamber or to the combustion zone [N0502]
- F23B80/04 . by means for guiding the flow of flue gases, e.g. baffles [N0502]

- F23B90/00** **Combustion methods not related to a particular type of apparatus [N1108]**
- [N: **Note** [N1108]
Groups [F23B90/00](#) - [F23B90/08](#) correspond to IPC2012.01
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- [N: **WARNING** [N1108]
Groups [F23B90/00](#) to [F23B90/08](#) are not complete pending a reorganisation. See also

groups [F23B1/00](#) to [F23B7/00B3](#)
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- [F23B90/02](#) . Start-up techniques [\[N1108\]](#)
- [F23B90/04](#) . including secondary combustion (in separate combustion chambers [F23B10/02](#))
[\[N1108\]](#)
- [F23B90/06](#) . . the primary combustion being a gasification or pyrolysis in a reductive atmosphere
[\[N1108\]](#)
- [F23B90/08](#) . . in the presence of catalytic material [\[N1108\]](#)
- [F23B99/00](#)** **Subject matter not provided for in other groups of this subclass** [\[N0502\]](#)