

**CPC****COOPERATIVE PATENT CLASSIFICATION****F23K**

**FEEDING FUEL TO COMBUSTION APPARATUS** (fuel feeders specially adapted for fluidised-bed combustion apparatus [F23C 10/22](#); regulating or controlling combustion [F23N](#))

**F23K 1/00**

**Preparation of lump or pulverulent fuel in readiness for delivery to combustion apparatus** (filtration [B01D](#); mixing [B01F](#); pulverising [B02C](#); drying [F26B](#))

[F23K 1/02](#)

- . Mixing solid fuel with a liquid, e.g. preparing slurries

[F23K 1/04](#)

- . Heating fuel prior to delivery to combustion apparatus

**F23K 3/00**

**Feeding or distributing of lump or pulverulent fuel to combustion apparatus** (conveying in general [B65G](#))

[F23K 3/02](#)

- . Pneumatic feeding arrangements, i.e. by air blast

[F23K 3/04](#)

- . for locomotive boiler furnaces

[F23K 3/06](#)

- . for shaft-type furnaces

[F23K 3/08](#)

- . for furnaces having movable grate bars

[F23K 3/10](#)

- . Under-feed arrangements

[F23K 3/12](#)

- .. feeding by piston

[F23K 3/14](#)

- .. feeding by screw

[F23K 3/16](#)

- . Over-feed arrangements

[F23K 3/18](#)

- .. Spreader stokers

[F23K 3/20](#)

- ... with moving hoppers

[F23K 3/22](#)

- . Controlling thickness of fuel bed

**F23K 5/00**

**Feeding or distributing other fuel to combustion apparatus**

[F23K 5/002](#)

- . {Gaseous fuel}

[F23K 5/005](#)

- .. {from a central source to a plurality of burners}

[F23K 5/007](#)

- .. {Details}

[F23K 5/02](#)

- . Liquid fuel

[F23K 5/04](#)

- .. Feeding or distributing systems using pumps ([F23K 5/06](#) takes precedence)

[F23K 5/06](#)

- .. from a central source to a plurality of burners

[F23K 5/08](#)

- .. Preparation of fuel

F23K 5/10	...	Mixing with other fluids
F23K 5/12	....	Preparing emulsions (spraying an emulsion of water and fuel into the combustion space of burners <a href="#">F23D 11/16</a> )
F23K 5/14	..	Details thereof
F23K 5/142	...	{Fuel pumps (pumps in general <a href="#">F04</a> )}
F23K 5/145	....	{combined with fans}
F23K 5/147	...	{Valves}
F23K 5/16	...	Safety devices ( <a href="#">F23K 5/18</a> takes precedence; safety arrangements for combustion chambers <a href="#">F23M 11/00</a> )
F23K 5/18	...	Cleaning or purging devices, e.g. filters
F23K 5/20	...	Preheating devices (in burners using a direct spraying action of liquid droplets or vaporised liquid into the combustion space <a href="#">F23D 11/44</a> )
F23K 5/22	...	Vaporising devices (in burners using a direct spraying action of liquid droplets or vaporised liquid into the combustion space <a href="#">F23D 11/44</a> )

## **F23K 2200/00      Pretreatment and supply of solid fuel**

### **F23K 2201/00      Pretreatment of solid fuel**

F23K 2201/10	.	Pulverizing
F23K 2201/1003	..	Processes to make pulverulent fuels
F23K 2201/1006	..	Mills adapted for use with furnaces
F23K 2201/101	..	to a specific particle size
F23K 2201/103	..	with hot gas supply
F23K 2201/20	.	Drying
F23K 2201/30	.	Separating
F23K 2201/50	.	Blending
F23K 2201/501	..	with other fuels or combustible waste
F23K 2201/503	..	with non-combustible liquids to prepare slurries
F23K 2201/505	..	with additives

### **F23K 2203/00      Feeding arrangements**

F23K 2203/002	.	Feeding devices for steam boilers, e.g. in locomotives
F23K 2203/004	.	Feeding devices with reciprocating members
F23K 2203/006	.	Fuel distribution and transport systems for pulverulent fuel
F23K 2203/008	.	Feeding devices for pulverulent fuel

- F23K 2203/10 . Supply line fittings
- F23K 2203/101 .. Wear protection devices
- F23K 2203/102 .. Flashback safety, e.g. inertizing devices
- F23K 2203/103 .. Storage devices
- F23K 2203/104 .. Metering devices
- F23K 2203/105 .. Flow splitting devices to feed a plurality of burners

- F23K 2203/20 . Feeding/conveying devices
- F23K 2203/201 .. using pneumatic means
- F23K 2203/202 .. using screws
- F23K 2203/203 .. using pistons or rams

#### **F23K 2300/00 Pretreatment and supply of liquid fuel**

- F23K 2301/10 . Pretreatment
- F23K 2301/101 .. Application of magnetism or electricity
- F23K 2301/103 .. Mixing with other fluids

- F23K 2301/20 . Supply line arrangements
- F23K 2301/201 .. Pumps
- F23K 2301/202 .. Filtering
- F23K 2301/203 .. Purging
- F23K 2301/204 .. Preheating
- F23K 2301/205 .. Vaporising
- F23K 2301/206 .. Control devices

#### **F23K 2400/00 Pretreatment and supply of gaseous fuel**

- F23K 2401/10 . Pretreatment
- F23K 2401/20 . Supply line arrangements
- F23K 2401/201 .. Control devices

#### **F23K 2900/00 Special features of, or arrangements for fuel supplies**

- F23K 2900/00001 . Treating the fuel, either liquid or gaseous, with sound waves to enhance fuel properties
- F23K 2900/00002 . Treating the fuel, either liquid or gaseous, with far-infrared radiations (FIR) to enhance fuel properties
- F23K 2900/01001 . Cleaning solid fuel before combustion to achieve reduced emissions

- F23K 2900/01002 . Treating solid fuel with electromagnetic fields before combustion
- F23K 2900/01003 . Pulverizing solid fuel in vacuum or a reduced pressure environment
- F23K 2900/01041 . Heating by using exhaust gas heat
- F23K 2900/03001 . Airlock sections in solid fuel supply lines
- F23K 2900/05001 . Control or safety devices in gaseous or liquid fuel supply lines
- F23K 2900/05002 . Valves for gaseous fuel supply lines
- F23K 2900/05003 . Non-continuous fluid fuel supply
- F23K 2900/05004 . Mixing two or more fluid fuels
- F23K 2900/05081 . Treating the fuel with catalyst to enhance combustion
- F23K 2900/05082 . Removing gaseous substances from liquid fuel line, e.g. oxygen
- F23K 2900/05083 . Separating watery fractions from liquid fuel
- F23K 2900/05084 . Creating a combustible foam of liquid fuels and air
- F23K 2900/05141 . Control or safety devices in liquid fuel supply line
- F23K 2900/05142 . Special materials for liquid fuel supply lines