

# CPC COOPERATIVE PATENT CLASSIFICATION

## F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

### LIGHTING; HEATING

**F27 FURNACES; KILNS; OVENS; RETORTS** (specially adapted for a purpose covered by a single other class and specifically mentioned in that class, [see the class in question](#), e.g. bakery ovens [A21B](#), glass melting furnaces [C03B](#), coke or gas-making apparatus [C10B](#), [C10I](#), apparatus for cracking hydrocarbons [C10G](#), blast furnaces [C21B](#), converters for making steel [C21C](#), furnaces for heat treatment of metal [C21D](#); furnaces for electroslag or arc remelting of metals [C22B 9/00](#); enamelling ovens [C23D](#); combustion apparatus [F23](#); electric heating [H05B](#))  
(NOTES omitted)

## **F27B FURNACES, KILNS, OVENS, OR RETORTS IN GENERAL; OPEN SINTERING OR LIKE APPARATUS**

### NOTE

Attention is drawn to the references and notes following the title of class [F27](#) and the note (par. III) following the Contents of Section [H](#).

### WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

|   |            |                              |
|---|------------|------------------------------|
| <a href="#">F27B 1/09</a>                               | covered by | <a href="#">F27B 1/08</a>    |
| <a href="#">F27B 5/05</a>                               | covered by | <a href="#">F27B 5/04</a>    |
| <a href="#">F27B 14/16</a> , <a href="#">F27B 14/18</a> | covered by | <a href="#">F27B 14/0806</a> |
| <a href="#">F27B 21/08</a> - <a href="#">F27B 21/14</a> | covered by | <a href="#">F27D</a>         |

|             |  |             |   |
|-------------|--|-------------|---|
| <b>1/00</b> | <b>Shaft or like vertical or substantially vertical furnaces</b> (for preheating, burning, calcining or cooling lime, magnesia or dolomite <a href="#">C04B 2/12</a> ) | <b>3/00</b> | <b>Hearth-type furnaces, e.g. of reverberatory type</b> ( <a href="#">F27B 9/00</a> , <a href="#">F27B 11/00</a> , <a href="#">F27B 13/00</a> , <a href="#">F27B 14/00</a> , <a href="#">F27B 15/00</a> , <a href="#">F27B 21/00</a> take precedence); <b>Tank furnaces</b> |
| 1/005       | . {wherein no smelting of the charge occurs, e.g. calcining or sintering furnaces}   | 3/002       | . {Siemens-Martin type furnaces}  |
| 1/02        | . with two or more shafts or chambers, e.g. multi-storey   | 3/005       | . . {Port construction}   |
| 1/025       | . . {with fore-hearth}   | 3/007       | . . . {Removable burner head}   |
| 1/04        | . . Combinations or arrangements of shafts   | 3/02        | . of single-chamber fixed-hearth type   |
| 1/06        | . of other than up-draught type  | 3/04        | . of multiple-hearth type; of multiple-chamber type; Combinations of hearth-type furnaces   |
| 1/08        | . heated otherwise than by solid fuel mixed with charge  | 3/045       | . . {Multiple chambers, e.g. one of which is used for charging}   |
| 1/10        | . Details, accessories, or equipment peculiar to furnaces of these types   | 3/06        | . with movable working chambers or hearths, e.g. tiltable{, oscillating or describing a composed movement}  |
| 1/12        | . . Shells or casings; Supports therefor   | 3/065       | . . {tiltable}  |
| 1/14        | . . . Arrangements of linings ( <a href="#">linings in general F27D 1/00</a> )   | 3/08        | . heated electrically, with or without any other source of heat   |
| 1/16        | . . Arrangements of tuyeres  | 3/085       | . . {Arc furnaces}  |
| 1/18        | . . Arrangements of dust collectors  | 3/10        | . Details, accessories, or equipment peculiar to hearth-type furnaces   |
| 1/20        | . . Arrangements of devices for charging   | 3/105       | . . {Slag chamber}  |
| 1/21        | . . Arrangements of devices for discharging  | 3/12        | . . Working chambers or casings; Supports therefor  |
| 1/22        | . . Arrangements of heat-exchange apparatus ( <a href="#">heat-exchangers in general F28C</a> , <a href="#">F28D</a> )   | 2003/125    | . . . {Hearths}   |
| 1/24        | . . Cooling arrangements   | 3/14        | . . . Arrangements of linings   |
| 1/26        | . . Arrangements of controlling devices  | 3/16        | . . . Walls; Roofs  |
| 1/28        | . . Arrangements of monitoring devices, of indicators, of alarm devices  | 2003/165    | . . . . {Roofs}   |
|             |  | 3/18        | . . Arrangements of devices for charging  |

- 3/183 . . . {Charging of arc furnaces vertically through the roof, e.g. in three points}
- 3/186 . . . . {Charging in a vertical chamber adjacent to the melting chamber}
- 3/19 . . Arrangements of devices for discharging
- 3/20 . . Arrangements of heating devices
- 3/205 . . . {Burners}
- 3/22 . . Arrangements of air or gas supply devices
- 3/225 . . . {Oxygen blowing}
- 3/24 . . Cooling arrangements
- 3/26 . . Arrangements of heat-exchange apparatus
- 3/263 . . . {Regenerators}
- 3/266 . . . . {Exhaust gases reversing flow devices}
- 3/28 . . Arrangement of controlling, monitoring, alarm or the like devices
- 5/00 Muffle furnaces; Retort furnaces; Other furnaces in which the charge is held completely isolated (F27B 9/00 takes precedence)**
- 5/02 . . of multiple-chamber type
- 5/04 . . adapted for treating the charge in vacuum or special atmosphere
- 5/06 . . Details, accessories, or equipment peculiar to furnaces of these types
- 2005/062 . . {Cooling elements}
- 2005/064 . . . {disposed in the furnace, around the chamber, e.g. coils}
- 2005/066 . . . {disposed around the fan}
- 2005/068 . . . {for external cooling}
- 5/08 . . Arrangements of linings
- 5/10 . . Muffles
- 5/12 . . Arrangement of devices for charging
- 5/13 . . Arrangement of devices for discharging
- 5/14 . . Arrangements of heating devices
- 2005/143 . . . {Heating rods disposed in the chamber}
- 2005/146 . . . . {the heating rods being in the tubes which conduct the heating gases}
- 5/16 . . Arrangements of air or gas supply devices
- 2005/161 . . . {Gas inflow or outflow}
- 2005/162 . . . . {through closable or non-closable openings of the chamber walls}
- 2005/163 . . . . . {Controlled openings, e.g. orientable}
- 2005/164 . . . . {Air supply through a set of tubes with openings}
- 2005/165 . . . . . {Controlled tubes, e.g. orientable or with closable openings}
- 2005/166 . . . {Means to circulate the atmosphere}
- 2005/167 . . . . {the atmosphere being recirculated through the treatment chamber by a turbine}
- 2005/168 . . . . . {by more than one turbine}
- 2005/169 . . . . {the atmosphere being continuously renewed by exterior means}
- 5/18 . . Arrangement of controlling, monitoring, alarm or like devices
- 7/00 Rotary-drum furnaces, i.e. horizontal or slightly inclined**
- 2007/005 . . {for the treatment of slurries or wet materials}
- 7/02 . . of multiple-chamber or multiple-drum type
- 2007/022 . . {the drum having a non-uniform section along its length}
- 2007/025 . . {with different chambers, e.g. treatment zones}
- 2007/027 . . {with more than one drum}
- 7/04 . . with longitudinal divisions
- 2007/041 . . . {Longitudinal tubes}
- 2007/043 . . . {the partition being a cylinder, coaxial to the rotary drum, defining two chambers}
- 2007/045 . . . . {the charge going in one direction in one chamber, then after a turn coming back in the other direction in the other chamber}
- 2007/046 . . . {Radial partitions}
- 2007/048 . . . . {defining an helical chamber}
- 7/06 . . adapted for treating the charge in vacuum or special atmosphere
- 7/08 . . externally heated
- 7/10 . . internally heated, e.g. by means of passages in the wall
- 7/12 . . tiltable
- 7/14 . . with means for agitating or moving the charge
- 7/16 . . the means being fixed relatively to the drum, {e.g. composite means} (F27B 7/04 takes precedence)
- 7/161 . . . {the means comprising projections jutting out from the wall}
- 7/162 . . . . {the projections consisting of separate lifting elements, e.g. lifting shovels}
- 2007/163 . . . . . {using only a ring of lifting elements to lift the charge}
- 2007/165 . . . . . {forming a helical lifting projection}
- 7/166 . . . {the means comprising chains}
- 7/167 . . . {the means comprising partitions}
- 2007/168 . . . . {Annular partition}
- 7/18 . . the means being movable within the drum
- 7/20 . . Details, accessories, or equipment peculiar to rotary-drum furnaces
- 2007/2008 . . {Devices for reintroducing dust in the drum}
- 7/2016 . . {Arrangements of preheating devices for the charge}
- 7/2025 . . . {consisting of a single string of cyclones}
- 7/2033 . . . . {with means for precalcining the raw material}
- 7/2041 . . . {consisting of at least two strings of cyclones with two different admissions of raw material}
- 7/205 . . . . {with precalcining means on the string supplied with exhaust gases from the cooler}
- 7/2058 . . . . {with precalcining means on each string}
- 7/2066 . . . {comprising a band transporter}
- 7/2075 . . {Removing incrustations}
- 7/2083 . . {Arrangements for the melting of metals or the treatment of molten metals}
- 2007/2091 . . {Means for eliminating compounds from gases by condensation, e.g. alkali metals}
- 7/22 . . Rotary drums; Supports therefor
- 7/2206 . . . {Bearing rings}
- 2007/2213 . . . . {mounted floatingly on the drum}
- 2007/222 . . . . . {the mounting comprising radially resilient elements, e.g. springs}
- 2007/2226 . . . . . {the mounting comprising elements to maintain the ring between series of abutments}
- 2007/2233 . . . . {the ring being fixed to the drum, e.g. welded}
- 7/224 . . . {Discharge ends}
- 2007/2246 . . . {Support rollers}
- 2007/2253 . . . . {mounted movable, e.g. resiliently on the ground}

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| 2007/226  | . . . . . {constituted of series of two rollers mounted on tiltable support along the drum}  | 9/00     | <b>Furnaces through which the charge is moved mechanically, e.g. of tunnel type (F27B 7/14 takes precedence); Similar furnaces in which the charge moves by gravity</b>  |
| 2007/2266 | . . . . . {the mounting allowing a movement of the rollers support in a horizontal plane}  | 9/02     | . of multiple-track type; of multiple-chamber type; Combinations of furnaces   |
| 2007/2273 | . . . . . {with arrangements, e.g. rollers, to maintain the drum against longitudinal movement}                                    | 9/021    | . . {having two or more parallel tracks}   |
| 2007/228  | . . . . . {comprising rollable bodies}   | 9/022    | . . . {With two tracks moving in opposite directions}  |
| 2007/2286 | . . . . . {supporting the drum directly, without the use of a bearing ring}  | 9/023    | . . . . . {with a U turn at one end}   |
| 2007/2293 | . . . {the furnace being suspended}  | 9/024    | . . . . . {with superimposed tracks}   |
| 7/24      | . . . Seals between rotary and stationary parts  | 9/025    | . . . {having two or more superimposed tracks (F27B 9/024 takes precedence)}   |
| 7/26      | . . Drives   | 2009/026 | . . {Two or more conveyors, e.g. mounted successively}   |
| 2007/261  | . . . {working with a ring embracing the drum}   | 2009/027 | . . . {working in parallel}  |
| 2007/262  | . . . . . {A gear ring combined with a dented wheel drive}   | 9/028    | . . {Multi-chamber type furnaces, (F27B 9/029 takes precedence)}   |
| 2007/263  | . . . . . {A gear ring combined with a ram drive}  | 9/029    | . . {Multicellular type furnaces constructed with add-on modules}  |
| 2007/265  | . . . . . {the ring being mounted floatingly}  | 9/04     | . adapted for treating the charge in vacuum or special atmosphere  |
| 2007/266  | . . . . . {the ring being a bearing ring}  | 9/042    | . . {Vacuum furnaces}  |
| 2007/267  | . . . . . {A gear ring combined with a chain drive}  | 9/045    | . . {Furnaces with controlled atmosphere}  |
| 2007/268  | . . . {Details of the motor or the pinions}  | 9/047    | . . . {the atmosphere consisting of protective gases}  |
| 7/28      | . . Arrangements of linings  | 9/06     | . heated without contact between combustion gases and charge; electrically heated  |
| 7/30      | . . Arrangements of partitions   | 9/061    | . . {with at least two longitudinal chambers carrying combustion gases, i.e. of the Dressler type}   |
| 7/32      | . . Arrangement of devices for charging  | 9/062    | . . {electrically heated}  |
| 7/3205    | . . . {Charging}   | 9/063    | . . . {Resistor heating, e.g. with resistors also emitting IR rays}  |
| 2007/3211 | . . . . . {at the open end of the drum}  | 9/065    | . . . . . {the resistance being transported by the conveyor}   |
| 2007/3217 | . . . . . {axially, optionally at some distance in the kiln}   | 9/066    | . . . {heated by lamps}  |
| 2007/3223 | . . . . . {the charging device being movable axially, e.g. reciprocable}   | 9/067    | . . . {heated by induction}  |
| 2007/3229 | . . . . . {via a centrifugal device}   | 9/068    | . . {heated by radiant tubes, the tube being heated by a hot medium, e.g. hot gases}   |
| 2007/3235 | . . . . . {the introducing device comprising a spray or a lance}   | 9/08     | . . heated through chamber walls   |
| 2007/3241 | . . . . . {in the flame of the burner}   | 9/082    | . . . {Muffle furnaces}  |
| 2007/3247 | . . . . . {through a lateral opening in the drum}  | 9/084    | . . . . . {the muffle being fixed and in a single piece}   |
| 2007/3252 | . . . . . {with lifting scoops attached to the drum}   | 9/086    | . . . . . {with two or more fixed muffles}   |
| 2007/3258 | . . . . . {at the open end of the drum}  | 9/088    | . . . . . {Series of separate muffles conveyed through the furnace}  |
| 2007/3264 | . . . . . {using special discharge means located around the discharge end, e.g. lifting scoops or a transversal annular partition} | 9/10     | . . heated by hot air or gas   |
| 2007/327  | . . . . . {centrifugally through lateral openings in the drum}   | 9/12     | . with special arrangements for preheating or cooling the charge   |
| 2007/3276 | . . . . . {with a collector means extending longitudinally into the drum}  | 2009/122 | . . {Preheating}   |
| 2007/3282 | . . . {Details}  | 2009/124 | . . {Cooling}  |
| 2007/3288 | . . . . . {Sieves or grading means}  | 2009/126 | . . . {involving the circulation of cooling gases, e.g. air}   |
| 2007/3294 | . . . . . {Means to fluidise the charge in the air}  | 2009/128 | . . . . . {the gases being further utilised as oxidants in the burners}  |
| 7/33      | . . Arrangement of devices for discharging   | 9/14     | . characterised by the path of the charge during treatment; characterised by the means by which the charge is moved during treatment (F27B 9/28 takes precedence; travelling or movable supports or containers for the charge F27D 3/12) |
| 7/34      | . . Arrangements of heating devices  | 9/142    | . . {the charge moving along a vertical axis}  |
| 7/36      | . . Arrangements of air or gas supply devices  | 9/145    | . . {the charge moving along a serpentine path}  |
| 7/362     | . . . {Introducing gas into the drum axially or through the wall}  | 9/147    | . . {the charge moving on an inclined floor}   |
| 2007/365  | . . . . . {longitudinally}   | 9/16     | . . the charge moving in a circular or arcuate path  |
| 2007/367  | . . . . . {transversally through the wall of the drum}   |          |  |
| 7/38      | . . Arrangements of cooling devices  |          |  |
| 7/383     | . . . {Cooling devices for the charge}   |          |  |
| 7/386     | . . . . . {Rotary-drum cooler}   |          |  |
| 7/40      | . . . Planetary coolers  |          |  |
| 7/42      | . . Arrangement of controlling, monitoring, alarm or like devices  |          |  |

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| 9/18      | . . . under the action of scrapers or pushers   | 2009/3022 | . . . . {with arrangements to maintain oxidising reducing or neutral zones}   |
| 9/185     | . . . . {multiple hearth type furnaces}   | 2009/3027 | . . . {Use of registers, partitions}  |
| 9/20      | . . the charge moving in a substantially straight path {tunnel furnace}   | 2009/3033 | . . . {Fumes circulating in the same direction as the charge}   |
| 9/201     | . . . {walking beam furnace}  | 2009/3038 | . . . {Fumes or gases alternatively changing their longitudinal direction}  |
| 9/202     | . . . . {Conveyor mechanisms therefor}  | 9/3044    | . . {Furnace regenerators}  |
| 9/203     | . . . . . {having ramps (F27B 9/206 takes precedence)}  | 2009/305  | . . {Particular conformation of the furnace}  |
| 9/205     | . . . . . {having excentrics or lever arms (F27B 9/206 takes precedence)}   | 2009/3055 | . . . {Non-uniform section through the length of the furnace}   |
| 9/206     | . . . . . {consisting of a single central beam}   | 2009/3061 | . . . {Furnaces with longitudinal grooves}  |
| 9/207     | . . . . . {consisting of two or more conveyors}   | 2009/3066 | . . {Cooling the under-structure of the kiln, e.g. under the cars}  |
| 9/208     | . . . . {the workpieces being rotated during their advance}   | 2009/3072 | . . {Balancing the pressure between the upper part and the lower part of the kiln, above and under the track}   |
| 9/22      | . . . {on rails, e.g.} under the action of scrapers or pushers (F27B 9/26 takes precedence)                           | 9/3077    | . . {Arrangements for treating electronic components, e.g. semiconductors}  |
| 9/222     | . . . . {the path comprising a section specially adapted for effecting equalisation of the temperature of the charge} | 2009/3083 | . . {Arrangements to handle skid marks}   |
| 9/225     | . . . . {the charge being subjected to an additional manipulation along the path}                                     | 2009/3088 | . . {Drying arrangements}   |
| 9/227     | . . . . {with rotation of the charge (F27B 9/147 takes precedence)}   | 2009/3094 | . . {Means to store a part of the charge in the furnace}  |
| 9/24      | . . . being carried by a conveyor {(transport by conveyors in general B65G)}  | 9/32      | . . Casings   |
| 9/2407    | . . . . {the conveyor being constituted by rollers (roller hearth furnace)}   | 9/34      | . . . Arrangements of linings   |
| 9/2415    | . . . . . {the charge rotating about an axis transversal to the axis of advancement of the charge}                    | 9/36      | . . Arrangements of heating devices   |
| 9/2423    | . . . . . {the charge rotating about an axis parallel to the axis of advancement of the charge}                       | 2009/3607 | . . . {Heaters located above the track of the charge}   |
| 9/243     | . . . . {Endless-strand conveyor}   | 2009/3615 | . . . . {Burner in the ceiling directed vertically downwards}   |
| 2009/2438 | . . . . . {with means to transfer the heat from the outcoming band to the incoming band}                              | 2009/3623 | . . . {Heaters located under the track}   |
| 2009/2446 | . . . . . {with means to control the tension of the band}   | 2009/363  | . . . . {Burners in the hearth directed towards the ceiling}  |
| 9/2453    | . . . . {Vibrating conveyor (shaker hearth furnace)}  | 2009/3638 | . . . {Heaters located above and under the track}   |
| 9/2461    | . . . . {the charge being suspended from the conveyor}  | 2009/3646 | . . . {Heating the ceiling or the walls for a reverberatory effect}   |
| 9/2469    | . . . . {the conveyor being constituted by rollable bodies}   | 2009/3653 | . . . {Preheated fuel}  |
| 9/2476    | . . . . {the conveyor being constituted by air cushion}   | 2009/3661 | . . . . {preheated with the exhaust gases}  |
| 2009/2484 | . . . . {the conveyor being a helical device}   | 2009/3669 | . . . . {preheated with the gases of the cooling zone}  |
| 2009/2492 | . . . . {the conveyor being constituted by series of little rams or ratchets, moving the charge along}                | 2009/3676 | . . . . {preheated with the gases of the preheating zone}   |
| 9/26      | . . . on or in trucks, sleds, or containers   | 2009/3684 | . . . {Combustion within a combustion chamber with outlets in the kiln chamber}   |
| 9/262     | . . . . {on or in trucks}   | 2009/3692 | . . . {The charge containing combustible materials}   |
| 2009/264  | . . . . . {the truck carrying a partition}  | 9/38      | . . Arrangements of devices for charging  |
| 2009/266  | . . . . . {the truck having conducts for guiding the oven atmosphere}   | 2009/382  | . . . {Charging}  |
| 2009/268  | . . . . . {through the structure of the car and through the charge}   | 2009/384  | . . . {Discharging}   |
| 9/28      | . for treating continuous lengths of work   | 2009/386  | . . . {Lateral intake or outtake}   |
| 9/30      | . Details, accessories, or equipment peculiar to furnaces of these types  | 2009/388  | . . . . {Centrally in the lateral wall}   |
| 9/3005    | . . {arrangements for circulating gases}  | 9/39      | . . Arrangements of devices for discharging   |
| 9/3011    | . . . {arrangements for circulating gases transversally}  | 9/40      | . . Arrangements of controlling or monitoring devices   |
| 2009/3016 | . . . . {with arrangements to circulate gases through the charge}   | 11/00     | <b>Bell-type furnaces (for treating metal strips or wire C21D 9/663)</b>  |
|           |   | 13/00     | <b>Furnaces with both stationary charge and progression of heating, e.g. of ring type, of type in which segmental kiln moves over stationary charge</b> |
|           |   | 13/02     | . of multiple-chamber type with permanent partitions; Combinations of furnaces  |
|           |   | 13/04     | . of single-chamber type with temporary partitions  |
|           |   | 13/06     | . Details, accessories, or equipment peculiar to furnaces of this type  |



- 13/08 . . Casings
- 13/10 . . . Arrangements of linings
- 13/12 . . Arrangements of heating devices
- 13/14 . . Arrangement of controlling, monitoring, alarm or like devices
- 14/00 Crucible or pot furnaces**
- 2014/002 . {Smelting process, e.g. sequences to melt a specific material}
- 2014/004 . . {Process involving a smelting step, e.g. vaporisation}
- 2014/006 . . {involving a salt bath or help metal bath}
- 2014/008 . {Continuous casting}
- 14/02 . with tilting or rocking arrangements ([F27B 14/04 takes precedence](#))
- 14/04 . adapted for treating the charge in vacuum or special atmosphere
- 2014/045 . . {Vacuum}
- 14/06 . heated electrically, e.g. induction crucible furnaces with or without any other source of heat ([F27B 14/04 takes precedence](#))
- 14/061 . . {Induction furnaces}
- 14/063 . . . {Skull melting type}
- 14/065 . . . {Channel type}
- 2014/066 . . . {Construction of the induction furnace}
- 2014/068 . . {with the use of an electrode producing a current in the melt}
- 14/08 . Details peculiar to crucible or pot furnaces
- 14/0806 . . {Charging or discharging devices}
- 2014/0812 . . . {Continuously charging}
- 2014/0818 . . . {Discharging}
- 2014/0825 . . {Crucible or pot support}
- 2014/0831 . . . {Support or means for the transport of crucibles}
- 2014/0837 . . {Cooling arrangements}
- 2014/0843 . . {Lining or casing}
- 2014/085 . . {Preheating of the charge}
- 2014/0856 . . . {Preheating of the crucible}
- 2014/0862 . . {Flux guides}
- 2014/0868 . . {Magnetic shields}
- 2014/0875 . . {Two zones or chambers, e.g. one used for charging}
- 2014/0881 . . {Two or more crucibles}
- 2014/0887 . . {Movement of the melt}
- 2014/0893 . . {Heat-conductive material disposed on the surface of the melt}
- 14/10 . . Crucibles
- 2014/102 . . . {Form of the crucibles}
- 2014/104 . . . {Crucible linings}
- 2014/106 . . . {Ladles}
- 2014/108 . . . {Cold crucibles (transparent to electromagnetic radiations)}
- 14/12 . . . Covers therefor
- 14/14 . . Arrangements of heating devices
- 14/143 . . . {Heating of the crucible by convection of combustion gases}
- 2014/146 . . . {Recuperation of lost heat, e.g. regenerators}
- 14/20 . . Arrangement of controlling, monitoring, alarm or like devices

- 15/00 Fluidised-bed furnaces; Other furnaces using or treating finely-divided materials in dispersion** ([apparatus in general for carrying out chemical or physical processes in a fluidised bed reactor B01J 8/24 - B01J 8/44](#))
- 15/003 . {Cyclones or chain of cyclones}
- 15/006 . {Equipment for treating dispersed material falling under gravity with ascending gases}
- 15/02 . Details, accessories, or equipment peculiar to furnaces of these types
- 15/04 . . Casings; Supports therefor
- 15/06 . . . Arrangements of linings
- 15/08 . . Arrangements of devices for charging
- 15/09 . . Arrangements of devices for discharging
- 15/10 . . Arrangements of air or gas supply devices
- 15/12 . . Arrangements of dust collectors
- 15/14 . . Arrangements of heating devices
- 15/16 . . Arrangements of cooling devices
- 15/18 . . Arrangements of controlling devices
- 15/20 . . Arrangements of monitoring devices, of indicators, of alarm devices
- 17/00 Furnaces of a kind not covered by any preceding group (structural combinations of furnaces [F27B 19/02](#))**
- 17/0008 . {Open field furnace for burning bricks}
- 17/0016 . {Chamber type furnaces}
- 17/0025 . . {Especially adapted for treating semiconductor wafers}
- 17/0033 . . {the floor of the furnaces consisting of the support carrying the charge, e.g. car type furnaces}
- 17/0041 . . {specially adapted for burning bricks or pottery ([F27B 17/0033 takes precedence](#))}
- 17/005 . . . {with cylindrical chambers}
- 17/0058 . . . . {with superposed cylindrical chambers}
- 17/0066 . . . {arrangement of the charge, e.g. bricks}
- 17/0075 . . . {Heating devices therefor}
- 17/0083 . . {with means for circulating the atmosphere}
- 2017/0091 . . {Series of chambers, e.g. associated in their use}
- 17/02 . specially designed for laboratory use
- 17/025 . . {for dental workpieces}
- 19/00 Combinations of furnaces of kinds not covered by a single preceding main group**
- 19/02 . combined in one structure
- 19/04 . arranged for associated working
- 21/00 Open or uncovered sintering apparatus; Other heat-treatment apparatus of like construction**
- 21/02 . Sintering grates or tables
- 21/04 . Sintering pots or sintering pans
- 21/06 . Endless-strand sintering machines