

F27D

DETAILS OR ACCESSORIES OF FURNACES, KILNS, OVENS, OR RETORTS, IN SO FAR AS THEY ARE OF KINDS OCCURRING IN MORE THAN ONE KIND OF FURNACE (combustion apparatus [F23](#))

Definition statement

This place covers:

Details, accessories of furnaces, kilns or ovens in general, not for specific furnaces, kilns or ovens

Relationships with other classification places

The details or accessories for specific furnaces, kilns or ovens are classified in [F27B](#) subgroups

Special rules of classification

Indexing Codes should be used as additional information or in case an CPC symbol is given and more detailed Indexing Codes are existing, these more detailed Indexing Codes should also be given.

F27D 1/00

Casings; Linings; Walls; Roofs (refractory materials [C04B](#); firebridges for combustion chambers [F23M 3/00](#))

References

Informative references

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

Linings for casting-melt holding vessels	B22D 41/02
Clay-wares and shaped ceramic products	C04B 33/00 , C04B 35/00
Walls, e.g. partitions, for buildings	E04B 2/12
Protection of pipes or pipe fittings; thermal insulation in general	F16L 58/00 , F16L 59/00
Shape of bricks or blocks used in combustion chambers	F23M 5/02

F27D 1/0033

{Linings or walls comprising heat shields, e.g. heat shields (shields protecting the charge [F27D 5/00](#))}

References

Informative references

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

Shields protecting the charge	F27D 5/00
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F27D 1/02**Crowns; Roofs****References****Informative references**

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

Crowns and roofs in combustion chambers	F23M 5/06
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F27D 1/10**Monolithic linings; Supports therefor****References****Informative references**

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

Supports for linings	F27D 1/14
Heat-exchange apparatus	F28D 1/00 - F28D 21/00

F27D 1/14**Supports for linings ([F27D 1/10](#) takes precedence)****References****Limiting references**

This place does not cover:

Supports for monolithic linings	F27D 1/10
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F27D 1/16**Making or repairing linings {increasing the durability of linings or breaking away linings}****References****Informative references**

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

Equipment used for making or repairing linings, e.g. by flame gunning	C21C 5/441 , C21C 5/443
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F27D 3/00

Charging; Discharging; Manipulation of charge (moving charge through a furnace [F27B 9/14](#))

References**Informative references**

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

Charging of the electric furnace	C21C 5/527
Moving charge through furnace	F27B 9/14

F27D 3/0024

{of metallic workpieces}

References**Informative references**

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

Charging, discharging and manipulation of charges in heat treatment furnaces, e.g. with rolls	C21D 9/0012 , C21D 9/0018
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F27D 3/026

{transport or conveyor rolls for furnaces; roller rails (conveyor rolls in general [B65G](#))}

References**Informative references**

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

Rollers in rolling mills	B21B 39/00
Rolls in continuous casting	B22D 11/1287
Conveyor rolls in general	B65G 39/02 , B65G 13/00 , B65G 13/02 , B65G 13/04
Roller conveyors for transporting glass sheets	C03B 35/16

F27D 3/08

Screw feeders; Screw dischargers

References**Informative references**

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

Screw conveyors in general processes	B01J 8/0045
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Screw conveyors in general	B65G 65/46 , B65G 33/18 , B65G 53/48
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F27D 3/15

Tapping equipment; Equipment for removing {or retaining} slag

References

Informative references

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

Closure equipment in casting melt-holding vessels	B22D 41/14 , B22D 41/16 , B22D 41/22 , B22D 41/44
Tap-holes and repairing top-holes in steel making converters	C21C 5/4653 , C21C 5/445

F27D 3/1527

{Taphole forming equipment, e.g. boring machines, piercing tools}

References

Informative references

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

Opening or sealing the tap-hole of blast furnaces	C21B 7/12
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F27D 3/16

Introducing a fluid jet or current into the charge {(porous elements for gas flushing of molten metals [B22D 1/005](#))}

References

Informative references

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

Injection assemblies for treating melt in ladles or runners before casting	B22D 1/005
Injection of gases into liquid metals in ladles	B22D 1/005
Devices for accelerating or decelerating flow of the materials	B65G 53/58
Tuyeres for blast furnaces	C21B 7/16
Bottoms or tuyeres for converters	C21C 5/48
Burners or injectors for injecting pulverulent materials into the furnace	C21C 5/5217
Treating molten ferrous alloy by injecting powdered material	C21C 7/0037

F27D 3/18**Charging particulate material using a fluid carrier****References****Informative references**

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

Lances or injectors for steel production in converters	C21C 5/4606
Burners or injectors for injecting gas	C21C 5/5217

F27D 5/00**Supports, screens, or the like for the charge within the furnace (travelling or movable supports [F27D 3/12](#))****References****Informative references**

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

Travelling or movable supports	F27D 3/12
Setting, e.g. drying, dehydrating or firing ceramic articles	B28B 11/243
Supports, baskets, containers or covers for heat treatment	C21D 9/0025
Details of grates for burning waste materials	F23H 17/00 - F23H 17/12
Elements for supporting goods to be dried	F26B 25/185

F27D 5/0031**{Treatment baskets for ceramic articles (for metallic articles [C21D 9/0025](#))}****References****Informative references**

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

Treatment baskets for metallic articles	C21D 9/0025
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F27D 5/0062**{Shields for the charge (shields for the lining [F27D 1/0033](#))}****References****Informative references**

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

Shields for the lining	F27D 1/0033
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F27D 7/00**Forming, maintaining, or circulating atmospheres in heating chambers****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

General devices for heat treatment with forced gas circulation; under reduced pressure or vacuum	C21C1/74 , C21D 1/767 , C21D 1/773
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F27D 11/00**Arrangement of elements for electric heating in or on furnaces (electric heating per se [H05B](#))****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Electric heating in general	H05B 3/00 , H05B 7/00
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F27D 11/02**Ohmic resistance heating****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Ohmic resistance heating in general and specially adapted for furnaces	H05B 3/00 , H05B 3/62 , H05B 3/64
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F27D 11/10**Disposition of electrodes (automatic control of temperature [G05D 23/00](#); electric discharge apparatus [H01T](#); arrangements for feeding or guiding electrodes [H05B 7/10](#); automatic control of power by positioning of electrodes [H05B 7/144](#))****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Control of temperature	G05D
Arrangements of feeding or guiding electrodes	H05B 7/10
Automatic control of power by positioning of electrodes	H05B 7/144

F27D 13/002**{Preheating scrap (preheating of scrap for steel making [C21C 5/565](#))}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Preheating of scrap for steel production	C21C 5/565
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F27D 15/0213**{comprising a cooling grate}****Definition statement***This place covers:*

Cooling of discharged material comprising a cooling grate.

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

Conveyors in general comprising a cyclically-moving	B65G 25/00
Heat-exchange apparatus, whereby particulate material forming a bed, e.g. fluidised, on vibratory sieves	F28C 3/16

F27D 17/001**{Extraction of waste gases, collection of fumes and hoods used therefor (in general [B08B 15/00](#))}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Preventing escape of dirt or fumes from the area where they are produced	B08B 15/00
Removal of waste gases or dust coming from steel making converters	C21C 5/38 - C21C 5/40

F27D 17/003**{of waste gases emanating from an electric arc furnace}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Working up flue dust	C22B 7/02
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F27D 19/00**Arrangements of controlling devices****References****Informative references**

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

Arrangement of controlling devices in shaft furnaces	F27B 1/26
Arrangement of controlling devices in hearth type furnaces	F27B 3/28
Arrangement of controlling devices in muffle furnaces	F27B 5/18
Arrangement of controlling devices in rotary drum furnaces	F27B 7/42
Arrangement of controlling devices in tunnel furnaces	F27B 9/40
Arrangement of controlling devices in ring type furnaces	F27B 13/14
Arrangement of controlling devices in crucible or pot furnaces	F27B 14/20
Arrangement of controlling devices in fluidized bed furnaces	F27B 15/18

F27D 21/00**Arrangements of monitoring devices; Arrangements of safety devices****References****Informative references**

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

Test rods or other checking devices in blast furnaces	C21B 7/24
Measuring and sampling devices in steel making converters	C21C 5/4673 , C21C 2005/5288
Arrangement of monitoring devices in shaft furnaces	F27B 1/28
Arrangement of monitoring devices in hearth type furnaces	F27B 3/28
Arrangement of monitoring devices in muffle furnaces	F27B 5/18
Arrangement of monitoring devices in rotary drum furnaces	F27B 7/42
Arrangement of monitoring devices in tunnel furnaces	F27B 9/40
Arrangement of monitoring devices in ring type furnaces	F27B 13/14
Arrangement of monitoring devices in crucible or pot furnaces	F27B 14/20
Arrangement of monitoring devices in fluidized bed furnaces	F27B 15/18
Measuring temperature and heat quantity in general	G01K 1/00 - G01K 19/00

F27D 25/001

{comprising breaking tools, e.g. hammers, drills, scrapers (breaking away linings [F27D 1/1694](#); boring machines for forming tapholes [F27D 3/1527](#))}

Definition statement

This place covers:

Devices for removing incrustations, e.g. slag, metal deposits, dust, comprising breaking tools like hammers, drills, scrapers;

References**Informative references**

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

Breaking away linings	F27D 1/1694
Boring machines for forming tap-holes	F27D 3/1527

F27D 27/00

Stirring devices for molten material ([F27D 3/14](#) takes precedence)

References**Informative references**

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

Mixers in general	B01F 13/00 , B01F 13/08 , B01F 13/0809
Refining metals including stirring	C22B 9/05 , C22B 9/055 , C22B 21/06 , C22B 21/064 , C22B 21/066
Electrodynamics pumps	H02K 44/02 , H02K 44/04 , H02K 44/06

F27D 99/00

Subject matter not provided for in other groups of this subclass

Definition statement

This place covers:

Details or accessories not covered by any preceding group

F27D 99/0006**{Electric heating elements or system}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Electric heating in general	H05B 1/00 - H05B 7/225
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F27D 99/0033**{using burners (manufacture of steel in an electric arc furnace equipped with burners [C21C 5/5217](#))}****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Burners for combustion of gas in general	F27D14/00 - F27D14/84
Burners used for glass melting	C03B 5/2353
Manufacture of steel in electric arc furnaces equipped with burners	C21C 5/5217
Burners in combustion in general	F23D 17/00 - F23D 17/007