

CPC**COOPERATIVE PATENT CLASSIFICATION****C21C**

PROCESSING OF PIG-IRON, e.g. REFINING, MANUFACTURE OF WROUGHT-IRON OR STEEL; TREATMENT IN MOLTEN STATE OF FERROUS ALLOYS ([refining metals in general C22B 9/00](#))

C21C 1/00

Refining of pig-iron; Cast iron

C21C 1/02

. Dephosphorising or desulfurising

C21C 1/025

.. { [Agents used for dephosphorising or desulfurising](#) }

C21C 1/04

. Removing impurities other than carbon, phosphorus or sulfur

C21C 1/06

. Constructional features of mixers for pig-iron

C21C 1/08

. Manufacture of cast-iron

C21C 1/10

. Making spheroidal graphite cast-iron

C21C 1/105

.. { [Nodularising additive agents](#) }

C21C 3/00

Manufacture of wrought-iron or wrought-steel

C21C 5/00

Manufacture of carbon-steel, e.g. plain mild steel, medium carbon steel or cast steel { [or stainless steel](#) }

C21C 5/005

. { [Manufacture of stainless steel](#) }

C21C 5/02

. Crucible furnace process { ([C21C 5/005 takes precedence](#)) }

C21C 5/04

. Manufacture of hearth-furnace steel, e.g. Siemens-Martin steel { ([C21C 5/005 takes precedence](#)) }

C21C 5/06

.. Processes yielding slags of special composition

C21C 5/28

. Manufacture of steel in the converter { ([C21C 5/005 takes precedence](#)) }

C21C 5/285

.. { [Plants therefor](#) }

C21C 5/30

.. Regulating or controlling the blowing

C21C 5/305

... { [Afterburning](#) }

C21C 5/32

... Blowing from above ([C21C 5/35 takes precedence](#))

C21C 5/34

... Blowing through the bath ([C21C 5/35 takes precedence](#))

C21C 5/35

... Blowing from above and through the bath

C21C 5/36

.. Processes yielding slags of special composition

C21C 5/38

.. Removal of waste gases or dust

C21C 5/40

... Offtakes or separating apparatus for converter waste gases or dust

C21C 5/42

.. Constructional features of converters

C21C 5/44

... Refractory linings

C21C 5/441	....	{ Equipment used for making or repairing linings }
C21C 5/443	.....	{ Hot fettling; Flame gunning }
C21C 5/445	....	{ Lining or repairing the taphole }
C21C 5/46	...	Details or accessories
C21C 5/4606	....	{ Lances or injectors }
C21C 5/4613	.....	{ Refractory coated lances; Immersion lances }
C21C 5/462	.....	{ Means for handling, e.g. adjusting, changing, coupling }
C21C 5/4633	....	{ Supporting means }
C21C 5/464	.....	{ Trunnion bearings }
C21C 5/4646	....	{ Cooling arrangements }
C21C 5/4653	....	{ Tapholes; Opening or plugging thereof }
C21C 5/466	....	{ Charging device for converters }
C21C 5/4673	....	{ Measuring and sampling devices }
C21C 5/4686	....	{ Vehicles for supporting and transporting a converter vessel }
C21C 5/4693	....	{ Skull removal; Cleaning of the converter mouth }
C21C 5/48	....	Bottoms or tuyéres of converters
C21C 5/50	....	Tilting mechanisms for converters
C21C 5/52	.	Manufacture of steel in electric furnaces ({ C21C 5/005 takes precedence }; electric heating per se H05B)
C21C 5/5205	..	{ in a plasma heated furnace }
C21C 5/5211	..	{ in an alternating current (AC) electric arc furnace }
C21C 5/5217	...	{ equipped with burners or devices for injecting gas, i.e. oxygen, or pulverulent materials into the furnace }
C21C 5/5229	..	{ in a direct current (DC) electric arc furnace }
C21C 5/5241	..	{ in an inductively heated furnace }
C21C 5/5247	...	{ processing a moving metal stream while exposed to an electromagnetic field, e.g. in an electromagnetic counter current channel }
C21C 5/5252	..	{ in an electrically heated multi-chamber furnace, a combination of electric furnaces or an electric furnace arranged for associated working with a non electric furnace }
C21C 5/5264	..	{ Manufacture of alloyed steels including ferro-alloys }
C21C 5/527	..	{ Charging of the electric furnace }
C21C 5/5294	..	{ General arrangement or layout of the electric melt shop }
C21C 5/54	..	Processes yielding slags of special composition
C21C 5/56	.	Manufacture of steel by other methods (making liquid steel by direct processes C21B 13/00) { (C21C 5/005 takes precedence) }
C21C 5/562	..	{ starting from scrap }
C21C 5/565	...	{ Preheating of scrap (apparatus for preheating scrap in general F27D 13/002) }
C21C 5/567	..	{ operating in a continuous way }
C21C 7/00		Treating molten ferrous alloys, e.g. steel, not covered by groups C21C 1/00 to C21C 5/00 (treating molten metals during moulding B22D 1/00, B22D 27/00; remelting ferrous metals C22B)

- C21C 7/0006 . { Adding metallic additives }
- C21C 7/0025 . { Adding carbon material }
- C21C 7/0037 . { by injecting powdered material }
- C21C 7/0043 . . { into the falling stream of molten metal }
- C21C 7/005 . { using exothermic reaction compositions }
- C21C 7/0056 . { using cored wires }
- C21C 7/0068 . { by introducing material into a current of streaming metal }
- C21C 7/0075 . { Treating in a ladle furnace, e.g. up-/reheating of molten steel within the ladle }
- C21C 7/0081 . { Treating and handling under pressure }
- C21C 7/0087 . { Treatment of slags covering the steel bath, e.g. for separating slag from the molten metal }
- C21C 7/04 . Removing impurities by adding a treating agent
- C21C 7/06 . . Deoxidising, e.g. killing
- C21C 7/064 . . Dephosphorising; Desulfurising
- C21C 7/0645 . . . { Agents used for dephosphorising or desulfurising }
- C21C 7/068 . . Decarburising
- C21C 7/0685 . . . { of stainless steel }
- C21C 7/072 . . Treatment with gases ([C21C 7/06](#), [C21C 7/064](#), [C21C 7/068](#) take precedence)
- C21C 7/076 . . Use of slags or fluxes as treating agents ([C21C 7/06](#), [C21C 7/064](#), [C21C 7/068](#) take precedence)
- C21C 7/10 . Handling in a vacuum
- C21C 2005/00** **Manufacture of carbon-steel, e.g. plain mild steel, medium carbon steel or cast steel { or stainless steel }**
- C21C 2005/28 . Manufacture of steel in the converter { ([C21C 5/005](#) takes precedence) }
- C21C 2005/36 . . Processes yielding slags of special composition
- C21C 2005/363 . . . Slag cements
- C21C 2005/366 . . . Foam slags
- C21C 2005/42 . . Constructional features of converters
- C21C 2005/44 . . . Refractory linings
- C21C 2005/445 { Lining or repairing the taphole }
- C21C 2005/446 Dry linings
- C21C 2005/448 Lining wear indicators
- C21C 2005/46 . . Details or accessories
- C21C 2005/4606 . . . { Lances or injectors }

C21C 2005/4626	.....	Means for cooling, e.g. by gases, fluids or liquids
C21C 2005/466	....	{ Charging device for converters }
C21C 2005/4666	.....	for charging with organic contaminated scrap
C21C 2005/4673	....	{ Measuring and sampling devices }
C21C 2005/468	.....	Means for determining the weight of the converter
C21C 2005/52	.	Manufacture of steel in electric furnaces ({ C21C 5/005 takes precedence }; electric heating per se H05B)
C21C 2005/5211	..	{ in an alternating current (AC) electric arc furnace }
C21C 2005/5223	...	with post-combustion
C21C 2005/5229	..	{ in a direct current (DC) electric arc furnace }
C21C 2005/5235	...	with bottom electrodes
C21C 2005/5258	..	with crater formed by down-melting of scrap or charge through electrode or lance
C21C 2005/527	..	{ Charging of the electric furnace }
C21C 2005/5276	...	with liquid or solid rest, e.g. pool, "sumpf"
C21C 2005/5282	...	with organic contaminated scrap
C21C 2005/5288	..	Measuring or sampling devices
C21C 2007/00		Treating molten ferrous alloys, e.g. steel, not covered by groups C21C 1/00 to C21C 5/00 (treating molten metals during moulding B22D 1/00, B22D 27/00; remelting ferrous metals C22B)
C21C 2007/0006	.	{ Adding metallic additives }
C21C 2007/0012	..	Lead
C21C 2007/0018	..	Boron
C21C 2007/0025	.	{ Adding carbon material }
C21C 2007/0031	..	being plastics, organic compounds, polymers
C21C 2007/0056	.	{ using cored wires }
C21C 2007/0062	..	with introduction of alloying or treating agents under a compacted form different from a wire, e.g. briquette, pellet
C21C 2007/0093	.	Duplex process; Two stage processes
C21C 2100/00		Exhaust gas
C21C 2100/02	.	Treatment of the exhaust gas
C21C 2100/04	.	Recirculation of the exhaust gas
C21C 2100/06	.	Energy from waste gas used in other processes
C21C 2200/00		Recycling of waste material
C21C 2250/00		Specific additives ; Means for adding material different from burners or lances

- C21C 2250/02 . Hot oxygen
- C21C 2250/04 . Liquid gas
- C21C 2250/042 . . Liquid oxygen
- C21C 2250/06 . Hollow electrode
- C21C 2250/08 . Porous plug
- C21C 2300/00 Process aspects**
- C21C 2300/02 . Foam creation
- C21C 2300/04 . Avoiding foam formation
- C21C 2300/06 . Modeling of the process , e.g. for control purposes ; CII
- C21C 2300/08 . Particular sequence of the process steps