

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 2005/363

... {[Slag cements](#)}

C21C 2005/366

... {[Foam slags](#)}

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 2005/446	.....	{Dry linings }
C21C 2005/448	....	{Lining wear indicators }
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 2005/4626	.....	{Means for cooling, e.g. by gases, fluids or liquids }
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 2005/4666	.....	{for charging with organic contaminated scrap }
C21C 5/4673	....	{Measuring and sampling devices}
C21C 2005/468	.....	{Means for determining the weight of the converter }
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 tuyères 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 2005/5223	...	{with post-combustion }
C21C 5/5229	..	{in a direct current (DC) electric arc furnace}
C21C 2005/5235	...	{with bottom electrodes }
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 2005/5258 . . {with crater formed by down-melting of scrap or charge through electrode or lance }
- C21C 5/5264 . . {Manufacture of alloyed steels including ferro-alloys}
- C21C 5/527 . . {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 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 2007/0012 . . {Lead }
- C21C 2007/0018 . . {Boron }

- C21C 7/0025 . . {Adding carbon material}
- C21C 2007/0031 . . {being plastics, organic compounds, polymers }

- 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 2007/0062 . . {with introduction of alloying or treating agents under a compacted form different from a wire, e.g. briquette, pellet }

- 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 2007/0093 . . {Duplex process; Two stage processes }

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 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