

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 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 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