

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