

**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 ( <a href="#">C21C 5/005</a> takes precedence); electric heating per se <a href="#">H05B</a> )
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