

**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 ( <a href="#">C21C 7/06</a> , <a href="#">C21C 7/064</a> , <a href="#">C21C 7/068</a> take precedence)
C21C 7/076	.. Use of slags or fluxes as treating agents ( <a href="#">C21C 7/06</a> , <a href="#">C21C 7/064</a> , <a href="#">C21C 7/068</a> take precedence)
C21C 7/10	. Handling in a vacuum
<b>C21C 2100/00</b>	<b>Exhaust gas</b>
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
<b>C21C 2200/00</b>	<b>Recycling of waste material</b>
<b>C21C 2250/00</b>	<b>Specific additives ; Means for adding material different from burners or lances</b>
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
<b>C21C 2300/00</b>	<b>Process aspects</b>
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