

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### METALLURGY

#### C21 METALLURGY OF IRON

#### 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](#))

##### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<b>1/00</b>	<b>Refining of pig-iron; Cast iron</b>	5/445	. . . . {Lining or repairing the taphole}
1/02	. Dephosphorising or desulfurising	2005/446	. . . . {Dry linings}
1/025	. . {Agents used for dephosphorising or desulfurising}	2005/448	. . . . {Lining wear indicators}
1/04	. Removing impurities other than carbon, phosphorus or sulfur	5/46	. . . Details or accessories
1/06	. Constructional features of mixers for pig-iron	5/4606	. . . . {Lances or injectors}
1/08	. Manufacture of cast-iron	5/4613	. . . . {Refractory coated lances; Immersion lances}
1/10	. Making spheroidal graphite cast-iron	5/462	. . . . {Means for handling, e.g. adjusting, changing, coupling}
1/105	. . {Nodularising additive agents}	2005/4626	. . . . {Means for cooling, e.g. by gases, fluids or liquids}
<b>3/00</b>	<b>Manufacture of wrought-iron or wrought-steel</b>	5/4633	. . . . {Supporting means}
<b>5/00</b>	<b>Manufacture of carbon-steel, e.g. plain mild steel, medium carbon steel or cast steel {or stainless steel}</b>	5/464	. . . . {Trunnion bearings}
5/005	. {Manufacture of stainless steel}	5/4646	. . . . {Cooling arrangements}
5/02	. Crucible furnace process {(C21C 5/005 takes precedence)}	5/4653	. . . . {Tapholes; Opening or plugging thereof}
5/04	. Manufacture of hearth-furnace steel, e.g. Siemens-Martin steel {(C21C 5/005 takes precedence)}	5/466	. . . . {Charging device for converters}
5/06	. . Processes yielding slags of special composition	2005/4666	. . . . {for charging with organic contaminated scrap}
5/28	. Manufacture of steel in the converter {(C21C 5/005 takes precedence)}	5/4673	. . . . {Measuring and sampling devices}
5/285	. . {Plants therefor}	2005/468	. . . . {Means for determining the weight of the converter}
5/30	. . Regulating or controlling the blowing	5/4686	. . . . {Vehicles for supporting and transporting a converter vessel}
5/305	. . . {Afterburning}	5/4693	. . . . {Skull removal; Cleaning of the converter mouth}
5/32	. . . Blowing from above (C21C 5/35 takes precedence)	5/48	. . . . Bottoms or tuyères of converters
5/34	. . . Blowing through the bath (C21C 5/35 takes precedence)	5/50	. . . . Tilting mechanisms for converters
5/35	. . . Blowing from above and through the bath	5/52	. Manufacture of steel in electric furnaces ((C21C 5/005 takes precedence); electric heating per se H05B)
5/36	. . Processes yielding slags of special composition	5/5205	. . {in a plasma heated furnace}
2005/363	. . . {Slag cements}	5/5211	. . {in an alternating current [AC] electric arc furnace}
2005/366	. . . {Foam slags}	5/5217	. . . {equipped with burners or devices for injecting gas, i.e. oxygen, or pulverulent materials into the furnace}
5/38	. . Removal of waste gases or dust	2005/5223	. . . {with post-combustion}
5/40	. . . Offtakes or separating apparatus for converter waste gases or dust	5/5229	. . {in a direct current [DC] electric arc furnace}
5/42	. . Constructional features of converters	2005/5235	. . . {with bottom electrodes}
5/44	. . . Refractory linings	5/5241	. . {in an inductively heated furnace}
5/441	. . . . {Equipment used for making or repairing linings}		
5/443	. . . . . {Hot fettling; Flame gunning}		

5/5247	. . . {processing a moving metal stream while exposed to an electromagnetic field, e.g. in an electromagnetic counter current channel}	<b>2100/00</b>	<b>Exhaust gas</b>
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}	2100/02	. Treatment of the exhaust gas
2005/5258	. . {with crater formed by down-melting of scrap or charge through electrode or lance}	2100/04	. Recirculation of the exhaust gas
5/5264	. . {Manufacture of alloyed steels including ferro-alloys}	2100/06	. Energy from waste gas used in other processes
5/527	. . {Charging of the electric furnace}	<b>2200/00</b>	<b>Recycling of waste material</b>
2005/5276	. . . {with liquid or solid rest, e.g. pool, "sumpf"}	<b>2250/00</b>	<b>Specific additives; Means for adding material different from burners or lances</b>
2005/5282	. . . {with organic contaminated scrap}	2250/02	. Hot oxygen
2005/5288	. . {Measuring or sampling devices}	2250/04	. Liquid gas
5/5294	. . {General arrangement or layout of the electric melt shop}	2250/042	. . Liquid oxygen
5/54	. . Processes yielding slags of special composition	2250/06	. Hollow electrode
5/56	. Manufacture of steel by other methods ( <a href="#">making liquid steel by direct processes C21B 13/00</a> ; <a href="#">C21C 5/005 takes precedence</a> )	2250/08	. Porous plug
5/562	. . {starting from scrap}	<b>2300/00</b>	<b>Process aspects</b>
5/565	. . . {Preheating of scrap ( <a href="#">apparatus for preheating scrap in general F27D 13/002</a> )}	2300/02	. Foam creation
5/567	. . {operating in a continuous way}	2300/04	. Avoiding foam formation
<b>7/00</b>	<b>Treating molten ferrous alloys, e.g. steel, not covered by groups <a href="#">C21C 1/00</a> - <a href="#">C21C 5/00</a> (<a href="#">treating molten metals during moulding B22D 1/00, B22D 27/00</a>; <a href="#">remelting ferrous metals C22B</a>)</b>	2300/06	. Modeling of the process, e.g. for control purposes; CII
7/0006	. {Adding metallic additives}	2300/08	. Particular sequence of the process steps
2007/0012	. . {Lead}		
2007/0018	. . {Boron}		
7/0025	. {Adding carbon material}		
2007/0031	. . {being plastics, organic compounds, polymers}		
7/0037	. {by injecting powdered material}		
7/0043	. . {into the falling stream of molten metal}		
7/005	. {using exothermic reaction compositions}		
7/0056	. {using cored wires}		
2007/0062	. . {with introduction of alloying or treating agents under a compacted form different from a wire, e.g. briquette, pellet}		
7/0068	. {by introducing material into a current of streaming metal}		
7/0075	. {Treating in a ladle furnace, e.g. up-/reheating of molten steel within the ladle}		
7/0081	. {Treating and handling under pressure}		
7/0087	. {Treatment of slags covering the steel bath, e.g. for separating slag from the molten metal}		
2007/0093	. {Duplex process; Two stage processes}		
7/04	. Removing impurities by adding a treating agent		
7/06	. . Deoxidising, e.g. killing		
7/064	. . Dephosphorising; Desulfurising		
7/0645	. . . {Agents used for dephosphorising or desulfurising}		
7/068	. . Decarburising		
7/0685	. . . {of stainless steel}		
7/072	. . Treatment with gases ( <a href="#">C21C 7/06</a> , <a href="#">C21C 7/064</a> , <a href="#">C21C 7/068 take precedence</a> )		
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 take precedence</a> )		
7/10	. Handling in a vacuum		