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 tuyéres 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