

CPC**COOPERATIVE PATENT CLASSIFICATION****F22G****SUPERHEATING OF STEAM** (steam separating arrangements in boilers [F22B 37/26](#))**Guidance heading:****F22G 1/00****Steam superheating characterised by heating method** (exothermal chemical reactions not involving a supply of free oxygen gas, apparatus or devices for using the heat therefrom [F24J](#))**F22G 1/005**

- . {the heat being supplied by steam }

F22G 1/02

- . with heat supply by hot flue gases from the furnace of the steam boiler

F22G 1/04

- . . by diverting flow or hot flue gases to separate superheaters operating in reheating cycle, e.g. for reheating steam between a high-pressure turbine stage and an intermediate turbine stage

F22G 1/06

- . with heat supply predominantly by radiation

F22G 1/08

- . . from heated brickwork or the like

F22G 1/10

- . with provision for superheating by throttling

F22G 1/12

- . by mixing steam with furnace gases or other combustion products

F22G 1/14

- . using heat generated by chemical reactions

F22G 1/16

- . by using a separate heat source independent from heat supply of the steam boiler, e.g. by electricity, by auxiliary combustion of fuel oil

F22G 1/165

- . . {by electricity (steam generation in boilers heated electrically, in general, [F22B 1/28](#)) }

F22G 3/00**Steam superheaters characterised by constructional features; Details of component parts thereof** (general aspects of enclosed heat-exchangers [F28D](#))**F22G 3/001**

- . {Steam tube arrangements not dependent of location (characterised by location [F22G 7/00](#)) }

F22G 3/002

- . . {with helical steam tubes }

F22G 3/003

- . {Superheater drain arrangements }

F22G 3/004

- . {Steam tubes with steam flowing in opposite directions in one pipe, e.g. Field tubes ([F22G 3/005](#) takes precedence) }

F22G 3/005

- . {Annular steam tubes, i.e. the steam being heated between concentric tubes with the heating fluid flowing in inner and around outer tube }

F22G 3/006

- . {Steam superheaters with heating tubes ([F22G 3/005](#) takes precedence) }

- F22G 3/007 . {Headers; Collectors, e.g. for mixing }
- F22G 3/008 . {Protection of superheater elements, e.g. cooling superheater tubes during starting-up periods, water tube screens }
- F22G 3/009 . {Connecting or sealing of superheater or reheater tubes with collectors or distributors }
- F22G 5/00** **Controlling superheat temperature** (control systems for steam boilers [F22B](#) ; regulating or controlling in general [G05](#))
- F22G 5/02 . Applications of combustion-control devices, e.g. tangential-firing burners, tilting burners
- F22G 5/04 . by regulating flue gas flow, e.g. by proportioning or diverting
- F22G 5/06 . by recirculating flue gases
- F22G 5/08 . . preventing furnace gas backflow through recirculating fan
- F22G 5/10 . by displacing superheater sections
- F22G 5/12 . by attenuating the superheated steam, e.g. by injected water sprays ([spray mixers B01F 5/18](#))
- F22G 5/123 . . {Water injection apparatus }
- F22G 5/126 . . . {in combination with steam-pressure reducing valves }
- F22G 5/14 . . by live steam
- F22G 5/16 . by indirectly cooling or heating the superheated steam in auxiliary enclosed heat-exchanger
- F22G 5/18 . by by-passing steam around superheater sections
- F22G 5/20 . by combined controlling procedures
- F22G 7/00** **Steam superheaters characterised by location, arrangement, or disposition**
- F22G 7/005 . {for locomotive boilers ([F22G 7/065](#), [F22G 7/105](#) take precedence) }
- F22G 7/02 . in fire tubes
- F22G 7/04 . in jackets around fire tubes
- F22G 7/06 . in furnace tubes
- F22G 7/065 . . {for locomotive boilers }
- F22G 7/08 . in fire-boxes
- F22G 7/10 . in smoke-boxes
- F22G 7/105 . . {for locomotive boilers }
- F22G 7/12 . in flues

F22G 7/14

- in water-tube boilers, e.g. between banks of water tubes

F22G 7/145

- { of inclined type, i.e. the water-tube sets being inclined with respect to the horizontal plane }