

CPC**COOPERATIVE PATENT CLASSIFICATION****F22G****SUPERHEATING OF STEAM** ([steam separating arrangements in boilers F22B 37/26](#))**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 attemperating 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 }