

CPC COOPERATIVE PATENT CLASSIFICATION

F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

LIGHTING; HEATING

F22 STEAM GENERATION (NOTE omitted)

F22G SUPERHEATING OF STEAM

1/00 Steam superheating characterised by heating method

- 1/005 . {the heat being supplied by steam}
- 1/02 . with heat supply by hot flue gases from the furnace of the steam boiler
- 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
- 1/06 . with heat supply predominantly by radiation
- 1/08 . . from heated brickwork or the like
- 1/10 . with provision for superheating by throttling
- 1/12 . by mixing steam with furnace gases or other combustion products
- 1/14 . using heat generated by chemical reactions
- 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
- 1/165 . . {by electricity}

3/00 Steam superheaters characterised by constructional features; Details or component parts thereof

- 3/001 . {Steam tube arrangements not dependent of location}
- 3/002 . . {with helical steam tubes}
- 3/003 . {Superheater drain arrangements}
- 3/004 . {Steam tubes with steam flowing in opposite directions in one pipe, e.g. Field tubes ([F22G 3/005 takes precedence](#))}
- 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}
- 3/006 . {Steam superheaters with heating tubes ([F22G 3/005 takes precedence](#))}
- 3/007 . {Headers; Collectors, e.g. for mixing}
- 3/008 . {Protection of superheater elements, e.g. cooling superheater tubes during starting-up periods, water tube screens}
- 3/009 . {Connecting or sealing of superheater or reheater tubes with collectors or distributors}

5/00 Controlling superheat temperature

- 5/02 . Applications of combustion-control devices, e.g. tangential-firing burners, tilting burners
- 5/04 . by regulating flue gas flow, e.g. by proportioning or diverting
- 5/06 . by recirculating flue gases

- 5/08 . . preventing furnace gas backflow through recirculating fan
- 5/10 . by displacing superheater sections
- 5/12 . by attenuating the superheated steam, e.g. by injected water sprays
- 5/123 . . {Water injection apparatus}
- 5/126 . . . {in combination with steam-pressure reducing valves}
- 5/14 . . by live steam
- 5/16 . by indirectly cooling or heating the superheated steam in auxiliary enclosed heat-exchanger
- 5/18 . by by-passing steam around superheater sections
- 5/20 . by combined controlling procedures

7/00 Steam superheaters characterised by location, arrangement, or disposition

- 7/005 . {for locomotive boilers ([F22G 7/065](#), [F22G 7/105 take precedence](#))}
- 7/02 . in fire tubes
- 7/04 . in jackets around fire tubes
- 7/06 . in furnace tubes
- 7/065 . . {for locomotive boilers}
- 7/08 . in fire-boxes
- 7/10 . in smoke-boxes
- 7/105 . . {for locomotive boilers}
- 7/12 . in flues
- 7/14 . in water-tube boilers, e.g. between banks of water tubes
- 7/145 . . {of inclined type, i.e. the water-tube sets being inclined with respect to the horizontal plane}