

# CPC COOPERATIVE PATENT CLASSIFICATION

## F22G SUPERHEATING OF STEAM (steam separating arrangements in boilers [F22B 37/26](#))

- 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](#))
  - 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 (steam generation in boilers heated electrically, in general, [F22B 1/28](#))}
- 3/00** **Steam superheaters characterised by constructional features; Details of component parts thereof** (general aspects of enclosed heat-exchangers [F28D](#))
  - 3/001 . {Steam tube arrangements not dependent of location (characterised by location [F22G 7/00](#))}
  - 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** (control systems for steam boilers [F22B](#); regulating or controlling in general [G05](#))
  - 5/02 . Applications of combustion-control devices, e.g. tangetial-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 attemperating the superheated steam, e.g. by injected water sprays (spray mixers [B01F 5/18](#))
  - 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}