COOPERATIVE PATENT CLASSIFICATION

MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

LIGHTING; HEATING

STEAM GENERATION

SUPERHEATING OF STEAM (steam separating arrangements in boilers F22B 37/26)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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 F24V 3/00)
   1/005 . [the heat being supplied by steam]
   1/01 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 scaling 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. 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 attempering 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]