## CPC COOPERATIVE PATENT CLASSIFICATION

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

### **LIGHTING**; **HEATING**

#### F22 STEAM GENERATION

(NOTE omitted)

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

#### WARNING

tube screens}

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	3/009	• {Connecting or sealing of superheater or reheater
	method (exothermal chemical reactions not involving		tubes with collectors or distributors}
	a supply of free oxygen gas, apparatus or devices for using the heat therefrom <u>F24V 30/00</u> )	5/00	Controlling superheat temperature (control systems
1/005	• {the heat being supplied by steam}		for steam boilers <u>F22B</u> ; regulating or controlling in
1/003	<ul> <li>with heat supply by hot flue gases from the furnace</li> </ul>		general <u>G05</u> )
1/02	of the steam boiler	5/02	<ul> <li>Applications of combustion-control devices, e.g.</li> </ul>
1/04	<ul> <li>by diverting flow or hot flue gases to separate</li> </ul>		tangential-firing burners, tilting burners
1/0-1	superheaters operating in reheating cycle, e.g. for	5/04	• by regulating flue gas flow, e.g. by proportioning or
	reheating steam between a high-pressure turbine		diverting
	stage and an intermediate turbine stage	5/06	<ul> <li>by recirculating flue gases</li> </ul>
1/06	with heat supply predominantly by radiation	5/08	preventing furnace gas backflow through
1/08	from heated brickwork or the like	_,,_	recirculating fan
1/10	<ul> <li>with provision for superheating by throttling</li> </ul>	5/10	<ul> <li>by displacing superheater sections</li> </ul>
1/12	<ul> <li>by mixing steam with furnace gases or other</li> </ul>	5/12	• by attemperating the superheated steam, e.g. by
	combustion products	5/100	injected water sprays (spray mixers <u>B01F 25/70</u> )
1/14	<ul> <li>using heat generated by chemical reactions</li> </ul>	5/123	• • {Water injection apparatus}
1/16	<ul> <li>by using a separate heat source independent from</li> </ul>	5/126	• • • {in combination with steam-pressure reducing
	heat supply of the steam boiler, e.g. by electricity,	5/1/	valves } by live steam
	by auxiliary combustion of fuel oil	5/14	
1/165	• • {by electricity (steam generation in boilers heated	5/16	<ul> <li>by indirectly cooling or heating the superheated steam in auxiliary enclosed heat-exchanger</li> </ul>
	electrically, in general, <u>F22B 1/28</u> )}	5/18	<ul> <li>by by-passing steam around superheater sections</li> </ul>
3/00	Steam superheaters characterised by	5/20	<ul> <li>by by-passing steam around superneater sections</li> <li>by combined controlling procedures</li> </ul>
2,00	constructional features; Details of component	3/20	• by combined controlling procedures
	parts thereof (general aspects of enclosed heat-	7/00	Steam superheaters characterised by location,
	exchangers F28D)		arrangement, or disposition
3/001	• {Steam tube arrangements not dependent of location	7/005	• {for locomotive boilers ( <u>F22G 7/065</u> , <u>F22G 7/105</u>
	(characterised by location <u>F22G 7/00</u> )}		take precedence)}
3/002	• • {with helical steam tubes}	7/02	• in fire tubes
3/003	• {Superheater drain arrangements}	7/04	<ul> <li>in jackets around fire tubes</li> </ul>
3/004	• {Steam tubes with steam flowing in opposite	7/06	• in furnace tubes
	directions in one pipe, e.g. Field tubes (F22G 3/005	7/065	• • {for locomotive boilers}
	takes precedence)}	7/08	• in fire-boxes
3/005	• {Annular steam tubes, i.e. the steam being heated	7/10	• in smoke-boxes
	between concentric tubes with the heating fluid	7/105	• • {for locomotive boilers}
	flowing in inner and around outer tube}	7/12	• in flues
3/006	• {Steam superheaters with heating tubes	7/14	• in water-tube boilers, e.g. between banks of water
2/007	(F22G 3/005 takes precedence)}		tubes
3/007	• {Headers; Collectors, e.g. for mixing}	7/145	• • {of inclined type, i.e. the water-tube sets being
3/008	• {Protection of superheater elements, e.g. cooling		inclined with respect to the horizontal plane}
	superheater tubes during starting-up periods, water		

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