

## SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

### F28 HEAT EXCHANGE IN GENERAL

**F28G CLEANING OF INTERNAL OR EXTERNAL SURFACES OF HEAT-EXCHANGE OR HEAT-TRANSFER CONDUITS, e.g. WATER TUBES OF BOILERS** (cleaning pipes or tubes in general B08B 9/02; devices or arrangements for removing water, minerals, or sludge from boilers while the boiler is in operation, or which remain in position while the boiler is in operation, or are specifically adapted to boilers without any other utility F22B 37/48; removal or treatment of combustion products or combustion residues F23J; removing ice from heat-exchange apparatus F28F 17/00)

#### Subclass index

APPLIANCES FOR CLEANING: NON-ROTARY; ROTARY; OTHERS; DETAILS.....1/00, 3/00, 13/00, 15/00  
 CLEANING PROCESSES BY: DISTORTION; VIBRATION; FLUSHING OR WASHING;  
 COMBUSTION; OTHERS.....5/00, 7/00, 9/00, 11/00, 13/00  
 COMBINATION OF PROCESSES.....13/00

<b>1/00</b>	<b>Non-rotary, e.g. reciprocated, appliances</b> (F28G 3/00 takes precedence)	3/16	• using jets of fluid for removing debris
1/02	• having brushes (brushes A46B)	<b>5/00</b>	<b>Cleaning by distortion</b> (by vibration F28G 7/00)
1/04	• having articulated tools, e.g. assembled in chain manner	<b>7/00</b>	<b>Cleaning by vibration</b>
1/06	• having coiled wire tools, i.e. basket type	<b>9/00</b>	<b>Cleaning by flushing or washing, e.g. with chemical solvents</b> (appliances using jets of fluid for removing debris F28G 1/16, F28G 3/16)
1/08	• having scrapers, hammers, or cutters, e.g. rigidly mounted	<b>11/00</b>	<b>Cleaning by combustion processes, e.g. using squibs, using travelling burners</b>
1/10	• • resiliently mounted	<b>13/00</b>	<b>Appliances or processes not covered by groups F28G 1/00-F28G 11/00; Combinations of appliances or processes covered by groups F28G 1/00-F28G 11/00</b>
1/12	• Fluid-propelled scrapers, bullets, or like solid bodies		
1/14	• Pull-through rods		
1/16	• using jets of fluid for removing debris (F28G 1/12 takes precedence)		
<b>3/00</b>	<b>Rotary appliances</b>		
3/02	• having abrasive tools	<b>15/00</b>	<b>Details</b> (measuring thickness of deposit G01B)
3/04	• having brushes (brushes A46B)	15/02	• Supports for cleaning appliances, e.g. frames
3/06	• having articulated tools, e.g. assembled in chain manner	15/04	• Feeding or driving arrangements, e.g. power operation
3/08	• having coiled wire tools, i.e. basket type	15/06	• • Automatic reversing devices
3/10	• having scrapers, hammers, or cutters, e.g. rigidly mounted	15/08	• Locating position of cleaning appliances within conduits
3/12	• • resiliently mounted	15/10	• Masks for delimiting area to be cleaned
3/14	• • thrown into working position by centrifugal force		