F28G

CLEANING OF INTERNAL OR EXTERNAL SURFACES OF HEAT-EXCHANGE OR HEAT-TRANSFER CONDUITS, e.g. WATER TUBES OR 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)

Definition statement
This place covers:
Apparatus and methods for removing deposits from surfaces in contact with heat-exchange media.

References

Limiting references
This place does not cover:

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<td>F28F 19/00</td>
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F28G 1/00

Non-rotary, e.g. reciprocated, appliances (F28G 3/00 takes precedence)

Definition statement
This place covers:
Cleaning devices comprising a non-rotary cleaning element, e.g. arranged for linear motion or for back and forth movement.

References

Informative references
Attention is drawn to the following places, which may be of interest for search:

| Cleaning the internal surfaces of tubes by the mechanical action of a moving fluid, e.g. by flushing | B08B 9/032 |

|
The cleaning devices being moved along the pipes by a fluid and conforming to, or being conformable to substantially the same cross-section of the pipes | B08B 9/055
---|---
Pigs or moles, i.e. devices movable in a pipe or conduit with or without self-contained propulsion means | F16L 55/26
Soot-blowers for cleaning furnaces | F23J 3/00

### F28G 3/00

**Rotary appliances**

**Definition statement**

This place covers:
Cleaning devices comprising rotatable cleaning elements, e.g. arranged for turning arount at least one axis; Cleaning devices comprising movable cleaning elements, wherein the movement is a combination of a non-rotary movement and a rotary movement.

### F28G 5/00

**Cleaning by distortion (by vibration F28G 7/00)**

**Definition statement**

This place covers:
Cleaning devices performing a cleaning action by deforming the heat exchange surfaces.

**References**

**Limiting references**

This place does not cover:
Cleaning by vibration | F28G 7/00

### F28G 7/00

**Cleaning by vibration (or pressure waves)**

**Definition statement**

This place covers:
Cleaning devices performing a cleaning action by producing vibrations on the heat exchange surfaces, e.g. by using knocking devices, or by using pressure pulses, or by producing detonations or explosions.

**References**

**Limiting references**

This place does not cover:
Cleaning by distortion | F28G 5/00
**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Method and apparatus for producing mechanical vibrations | B06B 1/00 |
| Cleaning by distortion, beating, or vibration of the surface to be cleaned | B08B 7/02 |

**F28G 9/00**

Cleaning by flushing or washing, e.g. with chemical solvents (appliances using jets of fluid for removing debris [F28G 1/16, F28G 3/16])

**Definition statement**

This place covers:

Cleaning devices performing a cleaning action by contacting the heat exchange surfaces with a solvent and/or by flowing a washing fluid through the heat exchange conduits.

**References**

**Limiting references**

This place does not cover:

Cleaning by using appliances using jets of fluids for removing debris [F28G 1/16, F28G 3/16]

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Cleaning tubes by the mechanical action of a moving fluid, e.g. by flushing | B08B 9/032 |
| Treatment of water with complexing chemicals or other solubilising agents for softening, scale prevention or scale removal, e.g. adding sequestering agents | C02F 5/08 |
| Cleaning metal pipes by chemical methods | C23G 3/04 |
| Devices for preventing or removing corrosion, slime or scale from water heaters | F24H19/00 |

**F28G 11/00**

Cleaning by combustion, e.g. using squibs, using travelling burners ([F28G 7/005 takes precedence])

**Definition statement**

This place covers:

Cleaning devices, performing a cleaning action by contacting the heat exchange surfaces with flames or high temperature fumes for burning the deposits.
References

**Limiting references**

*This place does not cover:*

| Cleaning by detonations                        | F28G 7/00 |
| Cleaning by increasing temperature of heat exchange surfaces | F28G 13/00 |

**F28G 13/00**

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

**Definition statement**

*This place covers:*

Other cleaning devices or processes, e.g. cleaning by laser, cleaning by oxidation, cleaning by action of bubbles

**F28G 15/00**

Details (measuring thickness of deposit G01B)

**Definition statement**

*This place covers:*

Details of cleaning devices, e.g. control arrangements.

**References**

**Limiting references**

*This place does not cover:*

| Measuring thickness of deposits                  | G01B    |