

# CPC COOPERATIVE PATENT CLASSIFICATION

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

### LIGHTING; HEATING

#### F28 HEAT EXCHANGE IN GENERAL (NOTES omitted)

#### F28C HEAT-EXCHANGE APPARATUS, NOT PROVIDED FOR IN ANOTHER SUBCLASS, IN WHICH THE HEAT-EXCHANGE MEDIA COME INTO DIRECT CONTACT WITHOUT CHEMICAL INTERACTION (safety devices in general [F16P](#); fluid heaters having heat generating means [F24H](#); with an intermediate heat-transfer medium coming into direct contact with heat-exchange media [F28D 15/00](#) - [F28D 19/00](#); details of heat-exchange apparatus of general application [F28F](#))

##### 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.

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| <b>1/00</b><br><br>1/003<br>2001/006<br><br>1/02<br>1/04<br>1/06<br>1/08<br><br>1/10<br>1/12<br>1/14<br>2001/145<br><br>1/16<br><br><b>3/00</b><br>3/005<br>3/02<br>3/04<br>3/06<br>3/08<br><br>3/10<br>3/12 | <b>Direct-contact trickle coolers, e.g. cooling towers</b><br>(building construction <a href="#">E04H 5/12</a> ; enclosed spaces cooled by trickle <a href="#">F25</a> ; components parts of trickle coolers <a href="#">F28F 25/00</a> ; {indirect-contact cooling towers <a href="#">F28B 1/06</a> })<br>. {comprising outlet ducts for exhaust gases}<br>. {Systems comprising cooling towers, e.g. for recooling a cooling medium (for condensers <a href="#">F28B 9/06</a> )}<br>. with counter-current only<br>. with cross-current only<br>. with both counter-current and cross-current<br>. Arrangements for recovering heat from exhaust steam<br>. Arrangements for suppressing noise<br>. Arrangements for preventing clogging by frost<br>. comprising also a non-direct contact heat exchange<br>. . {with arrangements of adjacent wet and dry passages}<br>. Arrangements for preventing condensation, precipitation or mist formation, outside the cooler ( <a href="#">F28C 1/14</a> takes precedence)<br><br><b>Other direct-contact heat-exchange apparatus</b><br>. {one heat-exchange medium being a solid ( <a href="#">F28C 3/10</a> takes precedence)}<br>. the heat-exchange media both being gases or vapours<br>. the heat-exchange media both being liquids<br>. the heat-exchange media being a liquid and a gas or vapour (temperatures for cooling steam <a href="#">F22</a> )<br>. . with change of state, e.g. absorption, evaporation, condensation (generating steam under pressure <a href="#">F22</a> )<br>. one heat-exchange medium at least being a fluent solid, e.g. a particulate material<br>. . the heat-exchange medium being a particulate material and a gas, vapour, or liquid | 3/14 . . . the particulate material moving by gravity, e.g. down a tube<br>3/16 . . . the particulate material forming a bed, e.g. fluidised, on vibratory sieves<br>3/18 . . . the particulate material being contained in rotating drums |
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