Title (en)
HEAT EXCHANGER

Publication
EP 0131213 B1 19870826 (DE)

Application
EP 84107485 A 19840628

Priority
DE 3324330 A 19830706

Abstract (en)
[origin: US4799542A] A heat exchanger designed to cool a liquid such as water has a boiler with several upright heat-transfer tubes on whose inner surfaces the liquid descends in the form of a thin film while a refrigerant such as ammonia or a Freon rises within the boiler. To generate the thin films the liquid to be cooled is collected in a storage vessel above the boiler into which the heat-transfer tubes project. Each of these open-topped tubes contains an insert with a frustoconically diverging bottom part approaching the inner tube surface to within a fraction of a millimeter. The bottom part of the insert has an acute-angled peripheral edge insuring the detachment of the liquid from its surface. The several inserts are suspended from a vertically reciprocable piston rod forming part of a pneumatic jack whose alternate pressurization is controlled by a relay in response to two microswitches actuated by cams on the piston rod and to two level sensors ascertaining the liquid level in the storage vessel. A rise in the liquid level detected by the first sensor, due to a clogging of the annular gap by solids present in the liquid to be cooled, initiates such vertical reciprocation; if that fails to dislodge the accumulated solids, as determined by a further rise in liquid level detected by the second sensor, the inserts are fully extracted from their tubes so that also larger chunks can be swept away, causing the liquid volume to decrease to a normal amount.

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F28D 7/00

IPC 8 full level
F28D 3/04 (2006.01); **F28D 7/00** (2006.01)

CPC (source: EP US)
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Cited by
DE4228923A1; FR2626191A1; AU2005284678B2; US4799542A; US4848447A; WO2006029457A1

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