

Title (en)  
HEATING APPARATUS

Title (de)  
HEIZGERÄT

Title (fr)  
APPAREIL DE CHAUFFAGE DE LIQUIDES

Publication  
**EP 0654138 B1 19961204 (EN)**

Application  
**EP 93918026 A 19930813**

Priority  
• GB 9301728 W 19930813  
• GB 9217176 A 19920813

Abstract (en)  
[origin: WO9404876A1] A method of heating a liquid which comprises providing a mandrel (12) within a heating element (14) having at least one surface, and passing the liquid down the mandrel in the form of a thin film (22) in such a manner that it does not contact the heating surface (14). This may be carried out in apparatus which comprises a heating element (14) within which is located a mandrel (12), not in contact with the element, a source of liquid (18), and means (20) for allowing the liquid from the source to flow over the mandrel (12) in the form of a thin film (22). The mandrel (12) will normally be maintained in a vertical orientation and the source of liquid (18) may be at the top thereof. The liquid is allowed to run as a film (22) down the surface of the mandrel (12). The mandrel (12) is surrounded by the hot surface of the heating element (14) and heat passes principally by radiant heat across the gap (16) between the hot surface of the heating element (14) to the liquid passing down the mandrel (12). Thus there is no direct contact between the liquid to be heated and any heated surface of the heating element (14). The mandrel (12) itself will normally not be heated and, indeed, it may be made from materials having good corrosion and release properties but a thermal conductivity so poor that they would not normally be used in heat exchanger manufacture. It need not be made from metal, and may, for example, be made from materials such as ceramics or glass, optionally with release coatings of, for instance, PTFE.

IPC 1-7  
**F24H 1/14**

IPC 8 full level  
**F24H 1/14** (2006.01)

CPC (source: EP)  
**F24H 1/142** (2013.01)

Designated contracting state (EPC)  
BE DE ES FR GB IT NL SE

DOCDB simple family (publication)  
**WO 9404876 A1 19940303**; AU 4726293 A 19940315; CA 2142291 A1 19940303; DE 69306395 D1 19970116; DE 69306395 T2 19970710; EP 0654138 A1 19950524; EP 0654138 B1 19961204; ES 2094559 T3 19970116; GB 9217176 D0 19920923; JP H08500895 A 19960130

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**GB 9301728 W 19930813**; AU 4726293 A 19930813; CA 2142291 A 19930813; DE 69306395 T 19930813; EP 93918026 A 19930813; ES 93918026 T 19930813; GB 9217176 A 19920813; JP 50602394 A 19930813