

Title (en)  
HEAT EXCHANGERS

Publication  
**EP 0213792 A3 19881012 (EN)**

Application  
**EP 86306048 A 19860805**

Priority  
GB 8519942 A 19850808

Abstract (en)  
[origin: EP0213792A2] A heat exchanger, for use especially but not exclusively in a gas-fired appliance, is of unitary construction and comprising a water inlet manifold (11) and a water outlet manifold (12) interconnected in water flow communicating relationship by at least one externally-finned heat exchange tube (13). A preferred heat exchanger consists of three parallel externally-finned heat exchanger tubes integral with the end manifolds. With such a unitary heat exchange structure it will be manifest that during installation and servicing, save for water pipe connections to the manifolds and a drain plug, there are no sealing requirements and consequently there are no possible leakage paths from the heat exchanger per se. The heat exchanger is preferably but not exclusively formed of cast-iron and is preferably but not exclusively formed using a green sand moulding process with the fins (15) disposed as closely together as is possible within the limitations of the moulding process. The fins are preferably of radiussed configuration and also of converging configuration both transversely and axially of the respective heat exchanger tube to facilitate the moulding process. Turbulence-creating means (17) is provided between at least some of the adjacent fins of the or each heat exchange tube to ensure re-mixing of combustion products of different temperature in the region of the heat exchange tube to improve the heat transfer qualities of the heat exchanger.

IPC 1-7  
**F24H 1/40**; **F24H 1/12**; **F28F 1/28**; **F24H 9/00**

IPC 8 full level  
**F24H 1/40** (2006.01); **F24H 9/00** (2006.01); **F28F 1/26** (2006.01)

CPC (source: EP)  
**F24H 1/40** (2013.01); **F24H 9/0026** (2013.01); **F28F 1/02** (2013.01); **F28F 1/26** (2013.01); **F28F 13/12** (2013.01)

Citation (search report)  
• [X] GB 864277 A 19610329 - GLOW WORM BOILERS LTD  
• [X] DE 2036012 A1 19720127  
• [A] GB 1123437 A 19680814 - ERNEST LESLIE HOVEY  
• [A] DE 2448790 B2 19770120  
• [A] DE 2245357 C2 19830203

Cited by  
CN104061683A; EP0823599A3; EP3537085A1; EP0823599A2; WO2005064259A1

Designated contracting state (EPC)  
AT BE CH DE FR IT LI LU NL SE

DOCDB simple family (publication)  
**EP 0213792 A2 19870311**; **EP 0213792 A3 19881012**; GB 2180045 A 19870318; GB 2180045 B 19890906; GB 8519942 D0 19850918; GB 8619112 D0 19860917

DOCDB simple family (application)  
**EP 86306048 A 19860805**; GB 8519942 A 19850808; GB 8619112 A 19860805