

Title (en)  
HEAT EXCHANGER

Publication  
**EP 0401590 B1 19921028 (DE)**

Application  
**EP 90109706 A 19900522**

Priority  
DE 8906837 U 19890603

Abstract (en)  
[origin: EP0401590A1] In a heat exchanger for motor vehicles, which essentially comprises a multiplicity of parallel tubes and gills (2) extending transversely thereto, as well as a base and water box, there being arranged on the sides of the gill-tube block that are formed by the gill ends (19) lateral parts made of plastic, which serve for fastening and stiffening, and have a U-shaped cross-section, and on whose limbs (9) laterally overlapping the gills (2) there are provided at a distance from one another safety projections (10) which engage in gaps between the gills (2), and the ends (19) of the gills (2) bearing in each case against the base of the lateral parts which have a U-shaped cross-section, it is proposed for the purpose of simplifying installation and achieving a stable construction that the side parts are composed from two L-strips (7) forming in each case one of the limbs (9) and one part base (8), that the safety projections (10) end at a distance in front of the adjoining base part (8) and thus form a receiving slot (20), that the ends (19) of the gills (2) are bent by approximately 90 DEG , and that the corner regions of these bent ends (19) are received in the receiving slots (20) of the side parts. <IMAGE>

IPC 1-7  
**F28F 9/00**

IPC 8 full level  
**F28D 1/053** (2006.01); **F28F 1/32** (2006.01); **F28F 9/00** (2006.01)

CPC (source: EP)  
**F28D 1/05316** (2013.01); **F28F 1/32** (2013.01); **F28F 9/001** (2013.01); **F28F 9/002** (2013.01); **F28F 2275/085** (2013.01)

Cited by  
US5715889A; CN100437012C; DE19526286A1; DE19605909A1; DE19605909B4; CN100430682C; KR100731204B1; US7383692B2; WO2005015109A1; US7766286B2; US8282049B2

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