

Title (en)

Mechanical device to improve the transfer of heat and to prevent clogging of heat exchangers.

Title (de)

Mechanische Vorrichtung zur Verbesserung des Wärmetausches, sowie zur Verhinderung der Verschmutzung von Wärmetauschern.

Title (fr)

Dispositif mécanique destinés à améliorer les transferts thermiques et à prévenir l'encrassement des échangeurs de chaleur.

Publication

EP 0174254 A1 19860312 (FR)

Application

EP 85401696 A 19850829

Priority

FR 8413518 A 19840831

Abstract (en)

1. A heat exchanger comprising a plurality of tubes (1) in which a fluid circulates and in at least one of which is disposed a movable element formed by a metal coil in the form of a solenoid, at least one end of which is held in position by a coupling system such that said movable element can be caused to rotate by the fluid so as to prevent said tube from becoming clogged and to improve heat transfer, said exchanger being characterised in that said movable element (2) in the form of a solenoid is rigid and non-deformable so that it can be caused to rotate without coming into contact with the inner wall of said tube (1) during its movement, while said coupling system comprises an outer fastening means to said exchanger tube and a mechanical connection (4) enabling said movable element to rotate freely on its own axis, about the axis of said exchanger tube.

Abstract (fr)

L'invention concerne un dispositif mécanique destiné à être placé à l'intérieur d'un tube d'échangeur thermique (1), en vue de prévenir son encrassement et d'améliorer les transferts thermiques, ce dispositif comprenant au moins un élément mobile (2) et au moins un système d'accrochage (3, 4, 5) de cet élément mobile. Ledit élément mobile (2) est un enroulement métallique de forme solénoïde indéformable, suffisamment rigide pour prévenir le raclage des parois du tube (1) et qui peut être mis en rotation permanente par le fluide circulant dans ledit tube d'échangeur (1), tandis que ledit système d'accrochage comprend un moyen de fixation (3, 5) et une liaison mécanique (4) permettant la libre rotation dudit élément mobile sur lui-même, autour de l'axe dudit tube d'échangeur.

IPC 1-7

F28F 13/12; **F28F 19/00**; **F28G 3/08**

IPC 8 full level

B08B 9/04 (2006.01); **F28F 13/12** (2006.01); **F28F 19/00** (2006.01); **F28F 21/08** (2006.01); **F28G 3/08** (2006.01)

CPC (source: EP)

B08B 9/045 (2013.01); **F28F 13/125** (2013.01); **F28F 19/00** (2013.01); **F28F 21/08** (2013.01); **F28G 3/08** (2013.01); **F28D 2021/0059** (2013.01)

Citation (search report)

- [A] US 3648754 A 19720314 - SEPHTON HUGO H
- [AD] US 4174750 A 19791120 - NICHOLS BILLY M [US]
- [AD] GB 2073357 A 19811014 - ELF FRANCE
- [AD] GB 2030672 A 19800410 - TOYO ENGINEERING CORP, et al
- [A] DE 3303019 A1 19840802 - CZICHON PAUL
- [A] FR 2244149 A1 19750411 - FERODO SA [FR]
- [A] GB 347904 A 19310507 - VILHELM MICKELSEN, et al
- [A] BETRIEBSTECHNIK, vol. 23, no. 6, juin 1983, page 6, Gräfeling, DE; "Denkbar einfache Lösung"

Cited by

EP3719435A1; FR3094764A1; CN108636177A; FR2975754A1; EP0282406A1; FR2612267A1; US4848446A; EP1227292A3; FR2890162A1; JP2009506296A; JP4842321B2; US8225848B2; WO2007026066A1; WO9427106A1; EP1227292A2; FR2820197A1

Designated contracting state (EPC)

AT BE CH DE FR GB IT LI LU NL

DOCDB simple family (publication)

EP 0174254 A1 19860312; **EP 0174254 B1 19881109**; AT E38558 T1 19881115; DE 3566158 D1 19881215; FR 2569829 A1 19860307; FR 2569829 B1 19890616

DOCDB simple family (application)

EP 85401696 A 19850829; AT 85401696 T 19850829; DE 3566158 T 19850829; FR 8413518 A 19840831