

Title (en)
Water-cooled cyclone separator.

Title (de)
Wassergekühlter Zyklonabscheider.

Title (fr)
Séparateur cyclone à refroidissement par eau.

Publication
EP 0543564 A1 19930526 (EN)

Application
EP 92310317 A 19921112

Priority
US 79751091 A 19911121

Abstract (en)
A cyclone separator formed by a plurality of parallel tubes (14) and a plurality of fins (16). Each tube (14) is configured in a multitude of segments. One segment of the tubes forms a cylindrical section (6), one segment is bent inwardly to form a roof section, and one segment is bent inwardly to form a conically-shaped hopper section (8). As the circumference and diameter of the hopper section (8) decreases from top to bottom, at least a portion of the tubes are configured, either by being extracted or swaged, to accommodate the decreasing circumference and diameter, which results in an increase in the heat recovery of the water-cooled heat transfer tubes without the need for an intermediate ring header. <IMAGE>

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IPC 8 full level
B04C 5/08 (2006.01); **B04C 5/20** (2006.01); **F22B 37/14** (2006.01); **F28D 7/00** (2006.01)

CPC (source: EP KR)
B04B 5/00 (2013.01 - KR); **B04C 5/20** (2013.01 - EP); **F22B 37/146** (2013.01 - EP); **F28D 7/0041** (2013.01 - EP); **F28D 7/005** (2013.01 - EP)

Citation (search report)
• [Y] EP 0135664 A2 19850403 - SULZER AG [CH]
• [YD] US 4944250 A 19900731 - SESHAMANI VENKATRAMAN [US]
• [A] DE 739376 C 19430923 - RHEINMETALL BORSIG AG
• [A] BE 531648 A
• [A] FR 725554 A 19320513 - STIRLING BOILER CO LTD
• [AD] US 4746337 A 19880524 - MAGOL BYRAM J [US], et al

Cited by
KR100974432B1; EP1533565A1; AU2004291619B2; WO2005050089A1; US6560658B2; US7516719B2

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