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- (81) 指定国 (除另有指明, 要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, ML, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW。
- (84) 指定国 (除另有指明, 要求每一种可提供的地区保护): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), 叙 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), 欧洲 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)。

[见续页]

(54) Title: SYSTEM FOR HEATING HEAT-TRANSFER OIL USING BOILER FLUE GAS WASTE HEAT

(54) 发明名称: 用锅炉烟气余热加热导热油的系统

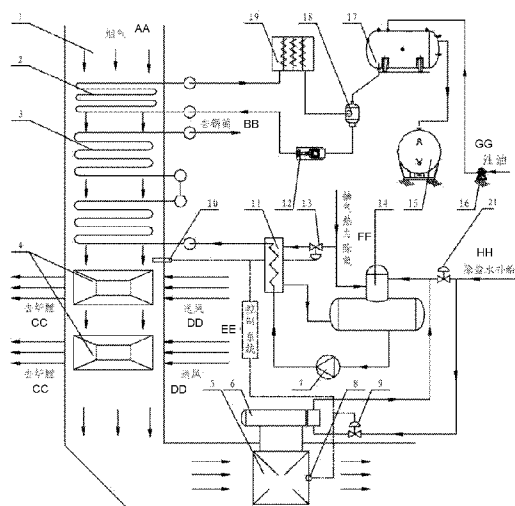


图1 /Fig.1

AA FLUE GAS  
 BB TO THE DRUM  
 CC TO THE FURNACE  
 DD AIR SUPPLY  
 EE CONTROL SYSTEM  
 FF AIR SUCTION THERMAL DE-OXIDATION  
 GG OIL INJECTION  
 HH DESALINATED WATER SUPPLY

(57) Abstract: A system for heating heat-transfer oil using boiler flue gas waste heat, comprising an economizer (3) and an air pre-heater (4) disposed in the flue (1) according to the direction of the smoke flow; and further comprises a heat-transfer oil heater (2) disposed in front of the economizer (3) in the flue (1), the heat-transfer oil heater (2) is connected to a heat-using device (19) through a circulation pipe, and a circulation pump (12) is disposed on the circulation pipe. The system for heating heat-transfer oil using boiler flue gas waste heat of the present invention, exploits flue gas waste heat, reduces the exhaust gas temperature of the boiler, utilizes recycled heat to heat a heat carrier, and can be used in numerous industries.

(57) 摘要: 一种用锅炉烟气余热加热导热油的系统, 包括按烟气流经方向设在烟道 (1) 内的省煤器 (3) 和空预器 (4), 还包括导热油加热器 (2), 设在烟道 (1) 内省煤器 (3) 的前方, 导热油加热器 (2) 通过循环管与用热设备 (19) 相连, 循环管上设有循环泵 (12)。用锅炉烟气余热加热导热油的系统充分利用了烟气余热, 降低锅炉排烟温度的同时, 将其回收的热量加热热载体, 可应用于许多行业。



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- 包括国际检索报告(条约第 21 条(3))。

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CN20 11/080030

## A. CLASSIFICATION OF SUBJECT MATTER

F24H 7/00 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: F24H, F22D, F01K, C02F, F27D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT, CNKI, WPI, EPODOC (boiler, furnace, smoke, waste, heat, recycle, recovery, conduction, oil, channel, economizer, preheater)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	CN 200952825 Y (SICHUAN DONGFANG BOILER IND BO) 26 September 2007 (26.09.2007) description, page 3, lines 5-16 and figure 1	1, 8 2 3-7, 9
Y A	CN 201715544 U (XIONQ Yadong) 19 January 2011 (19.01.2011) description, paragraphs 12-14 and figures 1, 2	2 1-9
A A	CN 1800062 A (SHANGHAI JINZHOU ENVIRONMENTAL ENG CO LTD) 12 July 2006 (12.07.2006) the whole document CN 201050944 Y (ZHONGYE JINGCHENG ENG TECHNOLOGY CO LTD) 23 April 2008 (23.04.2008) the whole document	1-9 1-9
A A	RU 2185569 C I (UNIV ULYAN TECH) 20 July 2002 (20.07.2002) the whole document WO 0206726 A I (KULLENDORFF A) 24 January 2002 (24.01.2002) the whole document	1-9 1-9

Further documents are listed in the continuation of Box C.       See patent family annex.

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p>
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Name and mailing address of the ISA  
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN201 1/080030

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 102183086 A (SHANGHAI FUBO ENVIRONMENTAL PROTECTION) 14 September 2011 (14.09.2011) the whole document	1-9
PX	CN 201852277 U (WANG, Haibo) 01 June 2011 (01.06.2011) the whole document	1, 2

INTERNATIONAL SEARCH REPORT  
Information on patent family members

International application No.  
PCT/CN20 11/080030

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 200952825 Y	26.09.2007	None	
CN 201715544 U	19.01 .2011	None	
CN 1800062 A	12.07.2006	CN 10035 1188 C	
CN 201050944 Y	23.04.2008	None	
RU 2185569 C I	20.07.2002	None	
W O 0206726 A I	24.01.2002	SE 0002695 A	15.01.2002
		SE 0002695 L	15.01.2002
		A U 6646701 A	30.01 .2002
		SE 516637 C2	05.02.2002
		EP 1301744 A I	16.04.2003
CN 102183086 A	14.09.2011	None	
CN 201852277 U	0 1.06.2011	None	

A. 主题的分类  
F24H7/00 (2006.01) ;  
按照国际专利分类(IPC) 或者同时按照国家分类和 IPC 两种分类

B. 检索领域  
检索的最低限度文献(标明分类系统和分类号)  
IPC: F24H, F22D, F01K, C02F, F27D

包含在检索领域中的除最低限度文献以外的检索文献  
在国际检索时查阅的电子数据库(数据库的名称, 和使用的检索词 (如使用))  
CNPAT, CNKI (锅炉, 烟气, 余热, 回收, 导热油, 烟道, 省煤器, 预热器)  
WPI, EPODOC (boiler, furnace, smoke, waste, heat, recycle, recovery, conduction, oil, channel, economizer, preheater)

C. 相关文件

类型*	引用文件, 必要时, 指明相关段落	相关的权利要求
X	CN 200952825 Y (四川东方锅炉工业锅炉集团有限公司) 26.9 月 2007 (26.09.2007)	1, 8
Y	说明书第 3 页第 5 行一第 16 行, 附图 1	2
A		3-7, 9
Y	CN 201715544 U (熊亚东) 19.1 月 2011 (19.01.2011) 说明书第 12 段一第 14 段, 附图 1、2	2
A	CN 1800062 A (上海金州环境工程有限公司) 12.7 月 2006 (12.07.2006) 全文	1- 9
A	CN 201050944 Y (中冶京诚工程技术有限公司) 23.4 月 2008 (23.04.2008) 全文	1-9
A	RU 2185569 C1 (UNIV ULYAN TECH) 20.7 月 2002 (20.07.2002) 全文	1-9
A	WO 0206726 A1 (KULLENDORFF A) 24.1 月 2002 (24.01.2002) 全文	1- 9
PX	CN 102183086 A (上海伏波环保设备有限公司) 14.9 月 2011 (14.09.2011) 全文	1- 9
PX	CN 201852277 U (王海波) 01.6 月 2011 (01.06.2011) 全文	1、2

其余文件在 C 栏的续页中列出。  见同族专利附件。

* 引用文件的具体类型:	"T" 在申请日或优先权日之后公布, 与申请不相抵触, 但为了理解发明之理论或原理的在后文件
"A" 认为不特别相关的表示了现有技术一般状态的文件	"X" 特别相关的文件, 单独考虑该文件, 认定要求保护的发明不是新颖的或不具有创造性
"E" 在国际申请日的 3/4 后公布的在先申请或专利	"Y" 特别相关的文件, 当该文件与另一篇或者多篇该类文件结合并且这种结合对于本领域技术人员为显而易见时, 要求保护的发明不具有创造性
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"P" 公布日先于国际申请日但迟于所要求的优先权日的文件	

国际检索实际完成的日期 27.10 月 2011 (27.10.2011)	国际检索报告邮寄日期 17.11 月 2011 (17.11.2011)
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ISA/CN 的名称和邮寄地址: 中华人民共和国国家知识产权局 中国北京市海淀区蓟门桥西土城路 6 号 100088 传真号: (86-10)62019451	授权官员 孙焯 电话号码: (86-10) 62084688
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国际检索报告

关于同族专利的信息

国际申请号

PCT/CN201 1/080030

检索报告中引用的 专利文件	公布日期	同族专利	公布日期
CN 200952825 Y	26.09.2007	无	
CN 201715544 U	19.01.201 1	无	
CN 1800062 A	12.07.2006	CN 10035 1188 C	28. 11.2007
CN 201050944 Y	23.04.2008	无	
RU 2185569 C I	20.07.2002	无	
WO 0206726 A I	24.01.2002	SE 0002695 A	15.01.2002
		SE 0002695 L	15.01.2002
		AU 6646701 A	30.01.2002
		SE 5 16637 C2	05.02.2002
		EP 1301744 A I	16.04.2003
CN 102183086 A	14.09.201 1	无	
CN 201852277 U	01.06.201 1	无	