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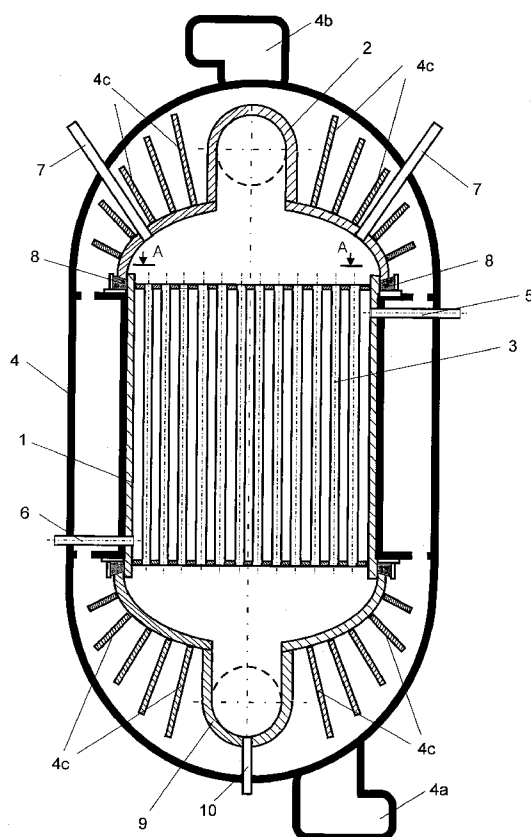
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[Continued on next page]

(54) Title: COMBINED CONDENSING HEAT EXCHANGER



(57) Abstract: The innovation object is combined condensing heat exchanger that simultaneously serves for pre-heating entering air with combustion plants as also for transferring the temperature of flue-gases to heating medium that enables lowering the temperature of flue-gases at the exit of combustion plant into the chimney. Combined condensing heat exchanger after the invention solves the set technical problem with installation of condensing tube exchanger (3) in the shape of more tubes, installed in parallel, which have in cross-section round or ellipse shape into the flue tube, where in the assembly of condensing heat exchanger after the invention, high-pressure cleaning is enabled with installation of high-pressure cleaning nozzles (7), the exterior housing (4) and fins (4c) on covers (2, 9) enable successful pre-heating of entering air on its way to the fireplace.



NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. F28D7/00 F28D7/16

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)
F28D F28F F28G

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 245 582 A (KRUPP KOPPERS GMBH [DE]) 19 November 1987 (1987-11-19) figure 2 column 2, line 45 - line 53 column 3, line 47 - column 4, line 12	1-3
X	GB 2 065 861 A (AERCO INT INC) 1 July 1981 (1981-07-01)	1
A	the whole document	2, 3
A	JP 2000 018882 A (ORION MACHINERY CO LTD) 18 January 2000 (2000-01-18) abstract; figure 1	3
A	GB 331 140 A (UNITED WATER SOFTENERS LTD; HUBERT GEORGE MARIGNY) 26 June 1930 (1930-06-26) the whole document	1

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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- * & * document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0245582	A	19-11-1987	DE 3615877 A1 GR 3000328 T3 TR 23654 A US 4807698 A ZA 8700835 A	12-11-1987 07-06-1991 29-05-1990 28-02-1989 30-07-1987
GB 2065861	A	01-07-1981	NONE	
JP 2000018882	A	18-01-2000	JP 3286599 B2	27-05-2002
GB 331140	A	26-06-1930	NONE	