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(54) Title: IMPROVED EFFICIENCY FALLING FILM HEAT EXCHANGER

(57) Abstract: Provided is an improved falling-film heat exchanger that maximizes the amount of feed stream contacting the heat exchange surface of the heat exchange tubes. The falling-film heat exchanger includes two important features: a spray member (60) and a tube insert (70) for directing feed stream to the tube wall.

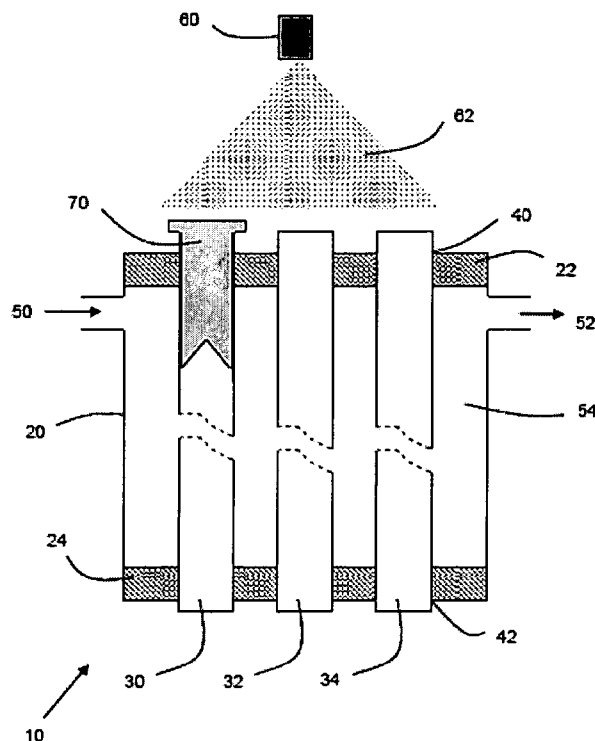


FIG. 1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, 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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A. CLASSIFICATION OF SUBJECT MATTER
 INV. F28D3/02 F28D3/04

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 F28D

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)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 870 999 A (SANYO ELECTRIC CO [JP]) 14 October 1998 (1998-10-14) column 9, line 31 - line 42; figures 2,5 -----	1,8-10, 16-18
X	JP 60 232494 A (HITACHI ZOSEN CBI KK) 19 November 1985 (1985-11-19) figures 3-5 -----	1-3,11
X	FR 623 653 A (GUGGENHEIM BROTHERS) 28 June 1927 (1927-06-28) figure 2 -----	1,4,11, 14
X	FR 2 443 881 A (SNAM PROGETTI [IT]) 11 July 1980 (1980-07-11) figures 1,2 -----	1,3,4,12



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INTERNATIONAL SEARCH REPORT

Information on patent family members

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