

Title (en)

Freeze protected, air-cooled, vacuum steam condenser.

Title (de)

Luftgekühlter Dampfkondensator mit Vakuum und Schutz gegen Vereisung.

Title (fr)

Aéro-condenseur de vapeur à vide, avec protection contre le gel.

Publication

EP 0369298 A1 19900523 (EN)

Application

EP 89120617 A 19891107

Priority

US 27065688 A 19881114

Abstract (en)

An improved steam power system comprising a turbine (14) for converting steam energy into mechanical energy upon expansion of steam therein, a boiler (12) for generating steam to be fed to the turbine (14), and a conduit arrangement coupling the boiler to the turbine input and then coupling the turbine (14) exhaust to the boiler through steam condensing mechanisms (22), the condensing mechanisms (22) including a plurality of U-shaped tubes (67, 68) through which the expanded steam flows and is condensed; front header means (36, 38) at the input ends of the tubes located in the cooler ambient air exposed regions of the tubes for receiving exhaust steam from the turbine (14); rear header means (37, 39) at the output ends of the tubes located in the warmer unexposed regions of the tubes for receiving condensate and non-condensable gasses; and means in the rear headers (37, 39) to remove non-condensable gasses from the rear headers (37, 39), the tubes being designed and constructed to protect the tubes from freezing for lack of steam by employing a tube arrangement that flows steam from the input headers not only for its exposed single row condensing duty but for a second row as well, the second row being located in the heated and protected unexposed center of the tube bundles thus insuring an additional supply of steam from the inner rows for the exposed tubes in the top and bottom faces of the bundles which require the most protection.

IPC 1-7

F28B 1/06

IPC 8 full level

F01K 9/00 (2006.01); **F28B 1/06** (2006.01); **F28B 9/00** (2006.01); **F28B 9/10** (2006.01)

CPC (source: EP)

F28B 1/06 (2013.01); **F28B 9/005** (2013.01); **F28B 9/10** (2013.01); **F28B 2001/065** (2013.01)

Citation (search report)

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Designated contracting state (EPC)

BE DE ES FR GB IT

DOCDB simple family (publication)

EP 0369298 A1 19900523; JP H02252906 A 19901011; ZA 898684 B 19910327

DOCDB simple family (application)

EP 89120617 A 19891107; JP 29598689 A 19891114; ZA 898684 A 19891114