

Title (en)

Method of cooling the shaft of a high pressure steam turbine

Title (de)

Verfahren zur Kühlung einer Welle in einem Hochdruck-Expansionsabschnitt einer Dampfturbine

Title (fr)

Procédé de refroidissement pour l'arbre d'une turbine à vapeur à haute pression

Publication

EP 1154123 A1 20011114 (DE)

Application

EP 00109911 A 20000510

Priority

EP 00109911 A 20000510

Abstract (en)

The high pressure expansion section (11) of a steam turbine (10) has a rotatably located shaft (13) enclosed in a housing. It is provided with an inflow for feed of fresh steam (m1) at a specific temperature and pressure from a steam producer (15). A further feed for cool steam (m2) is provided, which is taken from the steam producer and has a lower temperature and a higher pressure than the fresh steam. The feed issues into a ring groove in the housing encompassing the shaft. The shaft is formed as a piston in the area of the further feed, which compensates forces, which act in an axial direction on the blades of the shaft. The inflows for the fresh steam and the further feed for the cool steam are arranged closely next to each other.

Abstract (de)

Die vorliegende Erfindung betrifft ein Verfahren zur Kühlung einer Welle (13) in einem Hochdruck-Expansionsabschnitt (11) einer Dampfturbine (10). Zur Erzeugung von Frischdampf (m1) mit einer Temperatur (T1) und einem Druck (p1) ist ein Dampferzeuger (15) vorgesehen. Erfindungsgemäß wird dem Dampferzeuger (15) zur Kühlung der Welle (13) Kühleampf (m2) entnommen, dessen Temperatur (T2) kleiner und dessen Druck (p2) größer ist als die des Frischdampfs (m1). Bei einem erfindungsgemäßen Hochdruck-Expansionsabschnitt (11) ist eine Zuführung (42) für den Kühleampf (m2) vorgesehen. <IMAGE>

IPC 1-7

F01D 5/08; **F01D 25/26**

IPC 8 full level

F01D 5/08 (2006.01); **F01D 25/12** (2006.01); **F01D 25/26** (2006.01); **F01K 13/00** (2006.01)

CPC (source: EP)

F01D 5/084 (2013.01); **F01D 25/12** (2013.01); **F01K 13/006** (2013.01)

Citation (applicant)

- DE 19701020 A1 19980723 - SIEMENS AG [DE]
- DE 6809708 U 19730308 - SIEMENS AG [DE]
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Citation (search report)

- [X] PATENT ABSTRACTS OF JAPAN vol. 008, no. 047 (M - 280) 2 March 1984 (1984-03-02)
- [X] PATENT ABSTRACTS OF JAPAN vol. 1998, no. 04 31 March 1998 (1998-03-31)
- [X] PATENT ABSTRACTS OF JAPAN vol. 007, no. 221 (M - 246) 30 September 1983 (1983-09-30)
- [X] PATENT ABSTRACTS OF JAPAN vol. 004, no. 037 (M - 004) 27 March 1980 (1980-03-27)

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