

Title (en)
A METHOD OF SUPPLYING STEAM PISTON ENGINES WITH ULTRA-SUPERCRITICAL STEAM AND A STEAM INJECTOR FOR SUPPLYING STEAM PISTON ENGINES WITH ULTRA-SUPERCRITICAL STEAM

Title (de)
VERFAHREN ZUR VERSORGUNG VON DAMPFKOLBENMASCHINEN MIT ULTRA-ÜBERKRITISCHEM DAMPF UND DAMPFINJEKTOR ZUR VERSORGUNG VON DAMPFKOLBENMASCHINEN MIT ULTRA-ÜBERKRITISCHEM DAMPF

Title (fr)
PROCÉDÉ ET INJECTEUR DE VAPEUR PERMETTANT DE FOURNIR DE LA VAPEUR ULTRA-SUPERCRITIQUE À DES MOTEURS À PISTON À VAPEUR

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Application
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PL 42629518 A 20180710

Abstract (en)
The object of invention is a method of supplying steam piston engines with ultra-supercritical steam and a steam injector to effect the method. Steam is supplied via an electromagnetic steam injector with a high operating frequency and comprising the needle 3 tipped with a taper 12, where the position of the needle, dependent on the upward or downward motion, changes the annular cross-section of the gap between the seat of the inlet opening 15 of the head 14 and the taper 12 of the needle 3, where the needle 3 is operated with electromagnetic force by the solenoid 10, which in turn is operated by the driver 9 controlled by the control computer 8 according to the data output of the transducers 7, which relay the changes in the load of the steam piston engine related to the rotational speed of the crankshaft of the steam piston engine which is 25 Hz or higher, resulting in the adjustment, in real time, of the water (the steam of) dose according to the steam piston engine load.

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F01K 7/32 (2006.01); **F01K 21/02** (2006.01)

CPC (source: EP)
F01K 7/32 (2013.01); **F01K 21/02** (2013.01)

Citation (applicant)

- CN 101892930 A 20101124 - BOSCH GMBH ROBERT
- JP S60184913 A 19850920 - KOMATSU MFG CO LTD
- DE 102007046316 A1 20090402 - BOSCH GMBH ROBERT [DE]
- US 2008093477 A1 20080424 - MICZYK ANDRZEJ [PL]
- EP 1277014 A1 20030122 - PETRICK & WOLF ENERGIETECHNIK [DE]
- PL 220363 B1 20151030 - WEŁNOWSKI JANUSZ ITP [PL]

Citation (search report)

- [XDA] PL 220363 B1 20151030 - WEŁNOWSKI JANUSZ ITP [PL]
- [XDA] US 2008093477 A1 20080424 - MICZYK ANDRZEJ [PL]
- [A] WO 2012123713 A2 20120920 - BHP GENERATION LTD [GB], et al
- [A] EP 2484918 A1 20120808 - TLV CO LTD [JP]
- [A] EP 2397658 A1 20111221 - SIEMENS AG [DE]
- [A] DE 102013001407 A1 20140731 - ADOMEIT H [DE]
- [A] DE 102015105878 B3 20160623 - NEXUS GMBH [DE]

Cited by
EP4245969A1; WO2023174816A1

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