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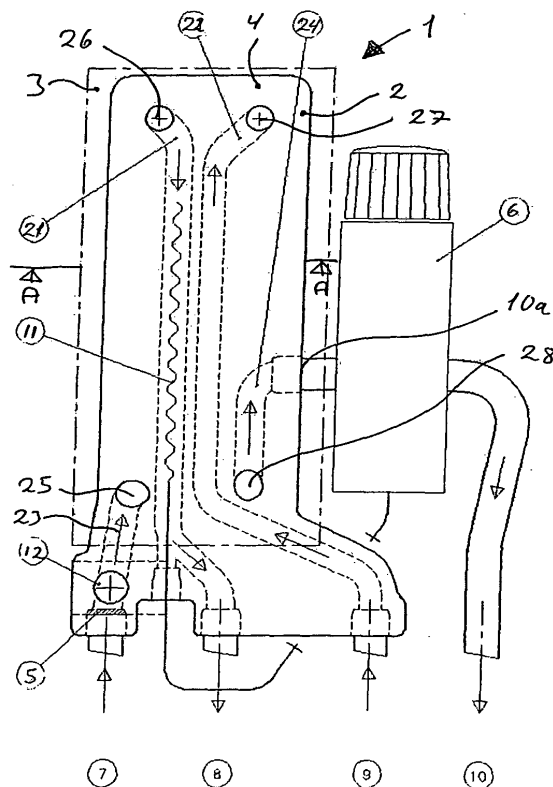
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(54) **A coupling element for a heat exchanger**

(57) The invention relates to a plate water heater (1) comprising a coupling element (3) and a plurality of heat exchanger plates combined to form a plate stack (2a) and configured in such a manner that, between adjoining heat exchanger plates, separate flow passages are formed for conveyance of a heat-emitting liquid and a heat-absorbing liquid, respectively, said coupling element (3) comprising flow channels (21, 22, 23, 24) for conveyance of liquid between the flow passages and the couplings (7, 8, 9, 10), and regulator means (6) for regulating the liquid flow in the heat-emitting liquid. Thereby it is accomplished that there will always be hot liquid in the flow channel for heat-emitting liquid (the primary circuit) immediately the need arises for liquid to be heated in the secondary circuit. This need for hot water will be particularly pronounced in cases where the plate water heater is used for heating utility water.



*Fig 2a*



## EUROPEAN SEARCH REPORT

Application Number  
EP 04 38 8051

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D,X	WO 99/54665 A (SUNDSVALL EN AB [SE]; ULLBERG SOEREN [SE]) 28 October 1999 (1999-10-28) * page 22; figure 4c *	1,8	INV. F28F9/26 F28F9/04 F28D7/00
E	EP 1 559 980 A (MODINE MFG CO [US]) 3 August 2005 (2005-08-03) * abstract; figure 5 *	1-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			F28F F28D F24D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 5 November 2009	Examiner Martínez Rico, Celia
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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The members are as contained in the European Patent Office EDP file on  
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05-11-2009

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9954665	A	28-10-1999	AT 377736 T	15-11-2007
			AU 4178499 A	08-11-1999
			DE 69937490 T2	04-09-2008
			DK 1080329 T3	25-03-2008
			EP 1080329 A1	07-03-2001
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EP 1559980	A	03-08-2005	DE 102004004975 A1	18-08-2005
			US 2005205236 A1	22-09-2005
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