



- (51) International Patent Classification: Not classified
- (21) International Application Number: PCT/TR2014/000139
- (22) International Filing Date: 10 April 2014 (10.04.2014)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 2013/04282 10 April 2013 (10.04.2013) TR
- (72) Inventor; and
- (71) Applicant : YAPICIOĞLU, Umut [TR/TR]; Sağlık Mahallesi Bağlan Mevkii 9.Sokak, No:22 Çorlu, Tekirdağ (TR).
- (74) Agent: TIRYAKIOĞLU, Yavuz; İstek Patent ve Danışmanlık Hizmetleri Ltd. Şti., Kısıklı Alemdağ Caddesi No: 77/03, Çamlıca İstanbul (TR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,

HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) Title: HEAT TRANSFER DEVICE USED FOR HEATING ANY LIQUID AND AIR

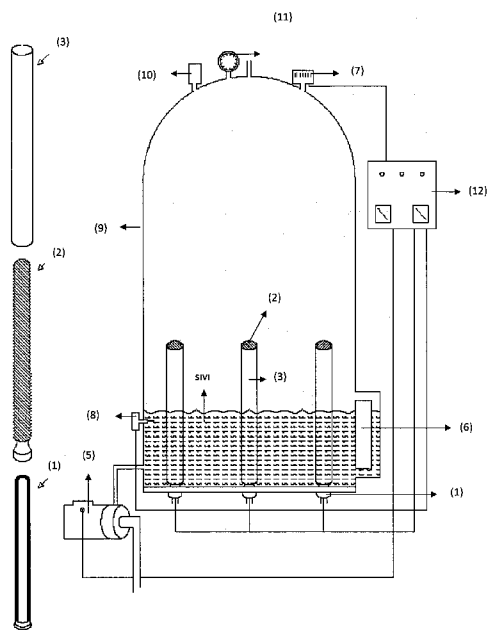


Figure.1.

(57) Abstract: The invention is a heat transfer device in the field of thermodynamics and; a heat transfer device used for heating all types of liquids and air formed by using threaded tubes in any field related to electric boiler, electric steam boiler, electrical boiler, bread baking ovens, electric tonnage water heating systems, heating systems running electric hot oil and so on; and using the production method generating steam from electricity, electricity from steam.

DESCRIPTION

HEAT TRANSFER DEVICE USED FOR HEATING ANY LIQUID AND AIR

Technical Field

The invention is a heat transfer device in the field of thermodynamics and; a heat transfer device used for heating all types of liquids and air formed by using threaded tubes in any field related to electric boiler, electric steam boiler, electrical boiler, bread baking ovens, electric tonnage water heating systems, heating systems running electric hot oil and so on; and using the production method generating steam from electricity, electricity from steam.

Background of the Art

Application no 2010/10464 is related to a system designed for use in residential and commercial buildings developed in order to provide systems such as especially the boiler, radiators, boilers and so on heated by consuming less energy current systems such as especially the boiler, radiators, boilers and so on, and characterized in that resistor is located in a dry place not contacting with water in hell which is the chamber where the fire is.

Improvements to the reference number 2010/10464 is the production of the tube situated on the resistor as grooved or corrugated and thus increasing the temperature of the fluid passing through grooved tube, to raise to the maximum level.

The amount of liquid passing through the grooved tube of the present invention have been reduced to a certain amount through the Groove and thereby heating rate and degree of said liquid in a minimum amount increases. In short, grooved tube heat increases transfer surface and the collision time of the liquid.

Heat transfer device of the invention differs from the counterpart in terms of operating logic. With its grooved tube, it heats fluid or air by breaking. Resistor transfers the heat lossless. Thus, it gives heat a minimum of 7 times more than their counterparts.

Description of the Invention:

The invention has two tubes one of which is grooved situated on the heated resistor to provide the desired energy to be obtained by evaporation the liquid rapidly heated up.

Detailed Explanation of the Invention:**Disclosure of Figures:**

Figure.1: The overall appearance of electric steam boiler, resistor, grooved tube and tube

Figure.2: The overall appearance of a steam boiler

Figure.3: The overall appearance of the grooved tube

Explanations related to parts shown in the figures:

- (1) Resistor
- (2) Grooved tube
- (2.a) Grooves duct
- (3) Tube
- (4) Flange
- (5) Pump
- (6) Level indicator
- (7) Pressure control device
- (8) Level control electrodes
- (9) The outer wall
- (10) Safety pressure scale
- (11) Manometer
- (12) Control panel

Resistor (1) in the present invention is mounted to the system where grooved tube (2) and tube (3) are telescopingly engaged. For this, firstly the tube (3) is allowed to expand by heating and the grooved tube (2) is passed through the expanded tube, it is allowed to be in upon the tube (3) cooled. Then resistor (1) is passed into grooved tube (2) and is rotatably attached.

As in all boilers, in order for the liquid to come to the level of level control electrode (8), level control electrode (8) issues a command to control panel (12), so the liquid pump (5) is activated and fills the liquid and keeps at the level of level control electrode (8). When level control electrode (8) detects the liquid, liquid pump (5) stops and resistor (1) is activated and begins to heat up.

When the liquid comes to a certain level, level control electrode (8) issues a command to the resistor (1) and turns off the liquid pump (5). When liquid level is lowered, it turns off the resistor and by a command to fluid pump (5); it raises the fluid level again.

In the heat transfer device of the invention, the liquid between the grooved tube (2) and the tube (3) located on the resistor (1) begins to boil rapidly and become heated liquid moves upwards and the liquid expands and goes rapidly from grooved resistor (2) and the tube (3). The tube (3) heats the liquid in outer wall (9) and prepares the steam and raises the steam degree. Meanwhile, from the liquid level indicator (6), the liquid level can be seen.

Through the groove ducts (2.a) located on grooved tube (2), it provides the liquid flowing through it pass through the open channels with a certain pitches by being fragmented and not as a mass. Thus, better performance can be obtained from the liquid which is more heated. As water passes being thin, contact surfaces of the water does not cool down and heat is transferred to water.

The system stops at the desired pressure after the pressure control device (7) to senses the desired pressure and a control panel (12) detect and turn off resistor (1). When passed a certain pressure, it is activated again. Safety pressure scale

(10) provides pressure control and prevents the explosion of the boiler. It turns off the resistor (1) at required bar.

When the heat transfer device of the invention used for heating all types of liquids and air is grown as pieces, as ascending liquid heats tube (3), water between the outer wall (9) the tube (3) transfers heat loss to transfer.

The part separating the area where cold water is located in the water reservoir and providing recirculating operation is flange (4). The flange (4) can be fitted to the end of the tubes (3). Thus, the liquid passes from grooved tube (2) to the other side by heating up.

We can achieve greater performance as circulating liquid is not cooled when we subject fluid flow and pressure entering the system in fluid heating systems to high circulation with the present invention.

Steam can be produced with the steam control system of the heat transfer device of the invention, hot water or hot oil can be produced at desired degree by heat control system. In addition, constant water or the water in circulation can be heated.

In the heat transfer device of the invention, dry heating elements are used, liquid in no contact with resistor (1) is opposing to the melting and explosion of high temperature resistor (1). Invented product runs up resistor (1) lifetime.

Heat efficiency is high as groove ducts (2.a) are much on grooved tube (2). When the liquid passage thickness of the groove reduces, heating rate increases and the heat transfer rate increases. At the same time, by reducing the groove pitches (size between each rounds), performance can be increased.

In terms of safety, the number of level control electrode (8), safety pressure scale (10) and manometer (11) may be reproduced, in the event of failure of one, to use the other.

Heat transfer in the present invention may be reproduced in minimum or maximum depending on the number of devices.

If the number of grooves channel (2.a) on grooved tube (2) increases, grooved tube (2) lengthens, the number of heat transfer devices increases, grooves channel (2.a) becomes thinner, 80/20 (Sweden wire) wires wrapped on the porcelain, it changes the performance of liquid level.

The heat derived from resistor in the existing technology is 1200° C, depending on the development of resistor, heat transfer device of the invention will be improved.

As the fluid and resistor do not touch each other in our invention, resistor works with dry system, watts and amoj is set according to heated space, even if the system remains anhydrous, resistor does not melt or fire. Quality resistors can be used for 10 years.

The heat value obtained depending on the length of resistor (1), the grooved tube (2) and the tube (3) can be changed in the present invention.

This application is additional patent application of 2010/10464 numbered application, the scope of protection is claims herein in addition to the claims of the previous one, is not limited to those described above for purposes of illustration. It is clear that a person skilled in the art can reveal the novelty set forth in the invention by using similar embodiments and / or can apply this embodiment to other areas similar to those used in the art. Thus, such embodiments are obviously to be deprived of innovation criteria.

CLAIMS

1. The invention is a heat transfer method used in heating any fluid and air; and characterized in consisting of processing steps;
 - the expansion of tube (3) by heating
 - passing the grooved tube (2) into the expanded tube,
 - as tube (3) is cool down, grooved tube (2) is remained in it,
 - passing the resistor (1) into the grooved tube (2).
2. The invention is a heat transfer method used in heating any fluid and air claimed in Claim 1 and characterized in having the groove channel (2.a) grooved tube (2) allowing the heated liquid with the help of resistor (1) to raise up and access to maximum heat by passing through at a minimum amount.
3. The invention is a heat transfer method used in heating any fluid and air claimed in Claim 1 and characterized in having flange (4) converting water into steam and increasing the heat of the steam in the medium and separating areas where cold water is heated and the heated water.

1/3

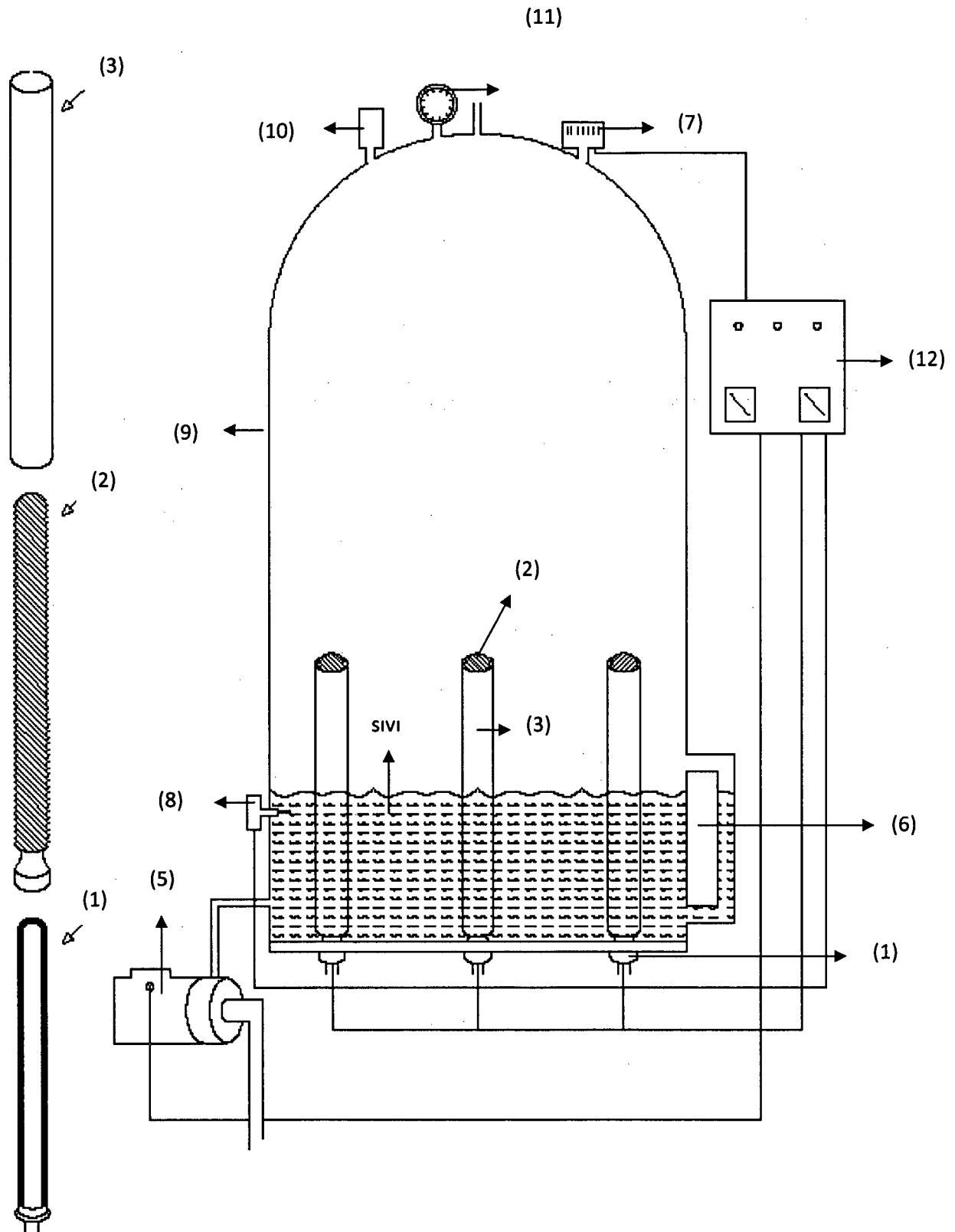


Figure.1.

2/3

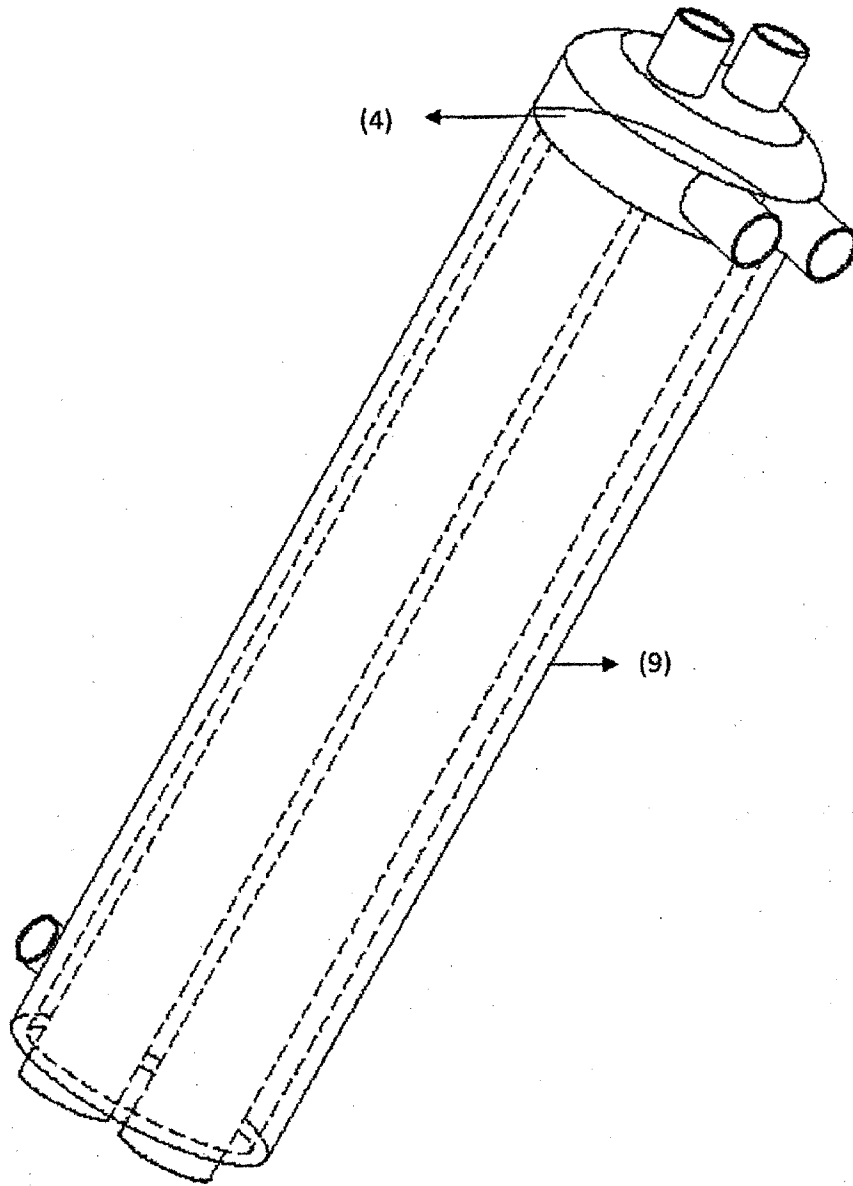


Figure.2.

3/3

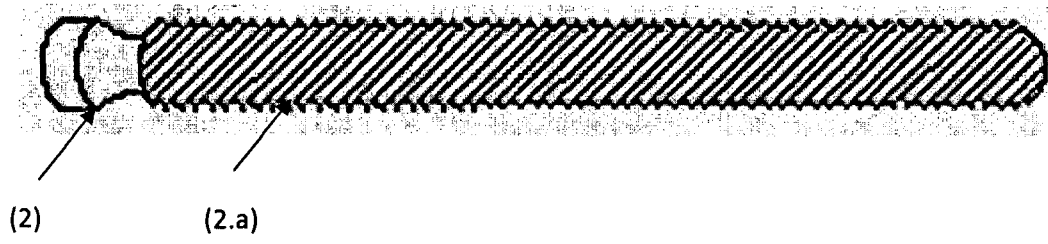


Figure.3.