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Selivanov

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(54) **METHOD FOR HEATING A LIQUID AND A DEVICE FOR ACCOMPLISHING THE SAME**

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Related U.S. Application Data

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(51) **Int. Cl.**[7] **F24C 9/00**
(52) **U.S. Cl.** **126/247**; 122/26
(58) **Field of Search** 126/247; 122/26; 165/84, 88, 105; 426/241, 231, 237, 238, 522, 234; 99/451

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(57) **ABSTRACT**

Disclosed are a method and apparatus for heating a liquid using mechanical vibrations. The liquid is introduced into a cavity **(1)** in a rotating wheel **(2)** and expelled into an annular chamber **(4)** formed by the wheel and the stator **(7)**, passes through a series of outlet apertures **(8)** and is removed. For this process, the following empirical relationships are preferred: R=1.1614 K/mm; ΔR=1.1614 B/mm; and n=3.8396 $K^{-1.5}\times10^6$ revs./min, R being the radius of the peripheral cylindrical surface of the wheel, ΔR being the radial dimension of the annular chamber, n the rotation frequency of the wheel, K the number of outlet apertures in the wheel. B is an integer in the rang of 1–K/5.

A method and an apparatus for heating a liquid /FIG. 1/ by means of the effects of mechanical vibrations that includes the introduction of the liquid into a cavity /**1**/ in a revolving rotating wheel /**2**/, the expulsion of the liquid into an annular chamber /**4**/ that is formed by the rotating wheel and the stator /**7**/, the passage of the liquid through a series of outlet apertures /**8**/, and the subsequent removal of the liquid. In this process, the following empirical relationships are preferred:

R = 1.1614	K	/mm/,
ΔR = 1.1614	B	/mm/ and
n = 3.8396	$K^{-1.5} \times 10^6$	revs./min, where

R—is the radius of the peripheral cylindrical surface of the rotating wheel,

ΔR—is the radial dimension of the annular chamber,

n—is the rotation frequency of the wheel,

K—is the number of outlet apertures in the rotating wheel, and

B—is an integer in the range of 1–K/5.

12 Claims, 3 Drawing Sheets