

# United States Patent [19]

Jerby

### [54] LIQUID HEATING IN INTERACTION REGION OF MICROWAVE GENERATOR

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[56] References Cited

### U.S. PATENT DOCUMENTS

2,978,562 4/19	961 Fox	219/688
3,812,315 5/19	74 Martin	219/688
3,980,855 9/19	76 Boudouris et al.	219/687
5,300,743 4/19	94 Park	

### FOREIGN PATENT DOCUMENTS

0 351 300 1/1990 European Pat. Off. ..... 219/688

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### [57] ABSTRACT

A microwave heater (22) which uses electromagnetic radiation for heating liquid flowing from a liquid source to a liquid receiver. The microwave heater (22) includes a microwave generator having an interaction region (28) within which the electromagnetic radiation is generated. At least a portion of a conduit (30) which has an inlet (32) connected to the liquid source and an outlet (34) connected to the liquid receiver is deployed within the interaction region (28). The liquid flows through the conduit (30) acting as a dielectric load of the microwave generator so as to be heated by the electromagnetic radiation.

### 19 Claims, 4 Drawing Sheets

