water supply line **77** of hot water heater **72**. The device **10** according to one embodiment of such a system features a rotor **12** having a diameter of 8 inches. A heat exchanger inlet solenoid valve **80** controls flow of water from device **10** to heat exchanger **74**, while a heat exchanger exhaust solenoid valve **82** controls flow of water from heat exchanger **74** to return line **76**. A third solenoid valve, a heat exchanger by-pass solenoid valve **84**, when open, allows water to flow directly from device **10** to return line **76**, bypassing heat exchanger **74**. Heat exchanger valves **80** and **82** may be connected to the normally closed side of a ten amp or other appropriate relay **78**, and the by-pass valve **84** is connected to the normally open side of the relay. The relay is then connected to the air conditioning side of the home heating thermostat, so that the by-pass valve **84** is open and the heat exchanger valves **80** and **82** are closed when the home owner enables the air conditioning and turns off the heat. A contactor **86** is connected to the thermostat in the hot water heater and the home heating thermostat so that actuation of either thermostat enables contactor **8** to actuate the motor driving device **10**. (In gas water heaters, the temperature switch may be included in the line to replace the normal thermalcouple.)

The hot water heater **72** is turned off and used as a reservoir in this system to contain water heated by device **10**. The device **10** is operated to heat the water to approximately 180°-190° F., so that water returning to hot water heater **72** reservoir directly via return line **76** is at approximately that temperature, while water returning via heat exchanger **74**, which experiences approximately 40° temperature loss, returns to the reservoir at approximately 150° F. Cutoff valves **88** allow the device **10** and heat exchanger **74** to be isolated when desired for maintenance and repair.

The foregoing is provided for purposes of illustration and explanation of preferred embodiments of the present invention. Modifications may be made to the disclosed embodiments without departing from the scope or spirit of the invention.

What is claimed is:

1. Apparatus for converting energy, comprising:

(a) a shaft for connection to a motive means;

(b) a cylindrical rotor rigidly connected to the shaft, the cylindrical surface of the rotor featuring a plurality of bores whose depth exceeds their diameter;

(c) a pair of seals, each attached to the shaft on opposite sides of the rotor;

(d) a housing bell surrounding the cylindrical surface and one end surface of the rotor, the housing bell generally C-shaped in axial cross section, having an interior surface which conforms closely with the cylindrical and end surfaces of the rotor, and having an axial bore sufficient in diameter to accommodate the shaft and one of the seals with additional space for fluid flow;

(e) a disc shaped housing plate connected to the housing bell in sealing relationship to complete a housing surrounding the rotor, having an interior surface conforming closely with the end surface of the rotor, and having an axial bore sufficient in diameter to accommodate the shaft and one of the seals with additional space for fluid flow;

(f) a first bearing plate connected to the housing bell, featuring a bore adapted in size to accommodate the shaft, a seated O-ring against which one of the seals abuts, a bearing for supporting the shaft, and a hollowed portion adapted in size to accommodate the shaft and one of the seals with additional space for fluid flow;

(g) a second bearing plate connected to the endplate, featuring a bore adapted in size to accommodate the shaft, a seated 0-ring against which one of the seals abuts, a bearing for supporting the shaft, and a hollowed portion adapted in size to accommodate the shaft and one of the seals with additional space for fluid flow;

(h) at least one inlet port to allow flow of fluid into the apparatus; and

(i) at least one exit port formed in the housing to allow exhaust of fluid which has been heated by the rotating shaft and rotor acting in concert with the stationary housing and bearing plates.

2. The apparatus of claim **1** in which the bores are oriented radially in the rotor.

3. The apparatus of claim **1** including one inlet port, which inlet port penetrates the housing.

4. The apparatus of claim **1** including one inlet port, which inlet port penetrates a bearing plate.

5. The apparatus of claim **1** including one exhaust port.

6. The apparatus of claim **1** in which the housing comprises an interior surface which includes no irregularities.

7. The apparatus of claim **1** in which the housing comprises an interior surface which includes irregularities.

8. Apparatus for converting energy, comprising:

(a) a shaft for connection to a motive means;

(b) a cylindrical rotor rigidly connected to the shaft, the cylindrical surface of the rotor featuring a plurality of bores whose depth exceeds their diameter;

(c) a pair of seals, each attached to the shaft on opposite sides of the rotor;

(d) a pair of housing bells, each surrounding a portion of the cylindrical surface and one end surface of the rotor the housing bells generally C-shaped in axial cross section, having an interior surface which conforms closely with the cylindrical and end surfaces of the rotor, and having an axial bore sufficient in diameter to accommodate the shaft and one of the seals with additional space for fluid flow;

(e) a pair of bearing plates, each connected to one of the housing bells, each featuring a bore adapted in size to accommodate the shaft, a seated O-ring against which one of the seals abuts, a bearing for supporting the shaft, and a hollowed portion adapted in size to accommodate the shaft and one of the seals with additional space for fluid flow;

(f) at least one inlet port to allow flow of fluid into the apparatus; and

(g) at least one exit port formed in the housing to allow exhaust of fluid which has been heated by the rotating shaft and rotor acting in concert with the stationary housing and bearing plates.

9. The apparatus of claim **8** in which the bores are oriented radially in the rotor.

10. The apparatus of claim **8** including one inlet port, which inlet port penetrates the housing.

11. The apparatus of claim **8** including one inlet port, which inlet port penetrates a bearing plate.

12. The apparatus of claim **8** including one exhaust port.

13. The apparatus of claim **8** in which the housing comprises an interior surface which includes no irregularities.

14. The apparatus of claim **8** in which the housing comprises an interior surface which includes irregularities.

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