

22. The device as recited in claim 21 wherein third layer of said device is contiguous to and in thermal contact with third layer of said second device.

23. A device for directly converting electrical energy to pump thermal energy comprising:

- a. a first layer comprising a first plurality of microcircuit modules, each of said microcircuit modules having at least one nonlinear circuit for converting D.C. electric power to electric voltage fluctuations;
 - b. a second layer contiguous to said first layer comprising a plurality of second microcircuit modules equal in number to said first microcircuit modules, one each of said second microcircuit modules electrically coupled to one each of said first microcircuit modules, and one each of said second microcircuit modules having a circuit element for electrically coupling the voltage fluctuations across a thermal barrier; and,
 - c. a third layer comprising an equal plural number of third microcircuit modules as each of said first and second layers, said third layer being contiguous to said second layer, one each of said third microcircuit modules being electrically coupled to one each of said second microcircuit modules, said third layer being also separated from said first layer by said thermal barrier, each of said third microcircuit modules having at least one circuit element for converting electric voltage fluctuations into thermal energy,
- whereby electrical energy is supplied to said first layer and heat energy is abstracted by said first layer from an external source and whereby said device operates as a heat pump.

24. A device for directly converting thermal energy to electric energy comprising:

- a. at least one first means for directly converting thermal energy into A.C. electric voltage fluctuations said first means exposed to thermal energy from an external source,
- b. at least one equal number of second means as said first means for converting said electric voltage fluctuations to D.C. electric output power; and,
- c. at least an equal number of third means as each of said first or second means, said third means electrically coupling one each of said first means to one each of said second means, said third means being disposed within a thermal barrier said thermal barrier separating said first and second means.

25. A device as recited in claim 24 wherein said first means is a diode.

26. A device as recited in claim 24 wherein said first means is a resistor.

27. A device as recited in claim 24 wherein said thermal barrier is glass.

28. A device as recited in claim 24 wherein said thermal barrier is a vacuum chamber having a vacuum therein.

29. A device for directly converting electrical energy to pump thermal energy comprising:

- a. at least one first means for directly converting D.C. current into A.C. voltage fluctuations said first means exposed to thermal energy from an external source and said first means supplied with input D.C. power from an external source.
- b. at least one equal number of second means as said first means for converting said electric voltage fluctuations to thermal energy at a higher temperature than thermal energy from said external source,

- c. at least an equal number of third means as each of said first or second means, said third means electrically coupling one each of said first means to one each of said second means, said third means being disposed within a thermal barrier said thermal barrier separating said first and second means.

30. A device for directly converting thermal energy to electric energy comprising:

- a. a first stage directly converting thermal energy to electrical energy comprising:
 1. at least one first means for directly converting thermal energy into A.C. electric voltage fluctuations said first means exposed to thermal energy from external source,
 2. at least one equal number of second means as said first means for converting said electric voltage fluctuations to D.C. electric output power; and,
 3. at least an equal number of third means as each of said first or second means, said third means electrically coupling one each of said first means to one each of said second means, said third means being disposed within a thermal barrier said thermal barrier separating said first and second means.

b. A second stage for directly converting electrical energy to pump thermal energy comprising:

1. at least one first means for directly converting D.C. current into A.C. voltage fluctuations wherein said first means of said second stage is exposed to input thermal energy from said second means of said first stage and wherein said first means of said second stage is supplied with input D.C. power from power source external to said second stage and wherein said input D.C. power to said second stage is less than said output D.C. power from said first stage,
 2. at least one equal number of second means as said first means of second stage for converting said electrical voltage fluctuations to thermal energy at a higher temperature than said input thermal energy from said second means of said second stage,
 3. at least an equal number of third means as each of said first or second means, said third means electrically coupling one each of said first means to one each of said second means, said third means being disposed within a thermal barrier said thermal barrier separating said first and second means,
- whereby second stage lowers temperature of second means of first stage of the direct power conversion device.

31. A device for directly converting electrical energy to pump thermal energy comprising:

- a. a first stage directly converting thermal energy to electrical energy comprising:
 1. at least one first means for directly converting thermal energy into A.C. electric voltage fluctuations said first means exposed to thermal energy from external source,
 2. at least one equal number of second means as said first means for converting said electric voltage fluctuations to D.C. electric output power; and,
 3. at least an equal number of third means as each of said first or second means, said third means electrically coupling one each of said first means