CLAIMS:

~~1. A temperature control system for a liquid, comprising two sets of temperature~~ control elements oppositely disposed to one another, each of said sets comprising one or more temperature control elements, the two sets define between them a temperature control zone; a conduit system within the temperature control zone defines a liquid flow path that is configured to have one or more first segments in proximity to and in heat-conducting association with one of the two sets of said elements and one or more second segments in proximity to and in heat-conducting association with the other of the two sets of said elements.

2. The temperature control system for regulating temperature of a liquid as it flows through the system, comprising:

a first set of one or more temperature control elements oppositely disposed to a second set of one or more temperature control elements, said first and second sets defining between them a temperature control zone;

a conduit system defining a liquid flow path within the temperature control zone, the liquid flow path being configured so as to have one or more first segments in proximity to and in heat-conducting association with said first set and one or more second segments in proximity to and in heat-conducting association with said second set.

3. The system of claim 1 or 2, wherein the conduit system defines a single flow path through the temperature control zone leading from a liquid inflow to a liquid outflow.

4. The system of claim 1 or 2, wherein the conduit system defines two or more flow paths linking the inflow and outflow.

5. The system of any one of claims 1-4, wherein the flow path has a serpentine geometry.

6. The system of any one of claims 1-5, wherein the conduit system is configured such that the flow path has alternating first and second segments.

7. The system of claim 6, wherein the temperature control elements are ~~thermoelectric cooling elements.~~

~~8. The system of claim 7, wherein the thermoelectric cooling elements are planar~~ Peltier elements with opposite cold and hot faces, the cold faces of the elements lining the temperature control zone.

9. The system of claim 7 or 8, comprising a first set of one or more Peltier elements disposed at one side of the temperature control zone and a second set of one or more Peltier element disposed at an opposite side of the temperature control zone.

10. The system of any one of claims 1-9, comprising a heat-exchange chamber defined between a first heat-conducting wall disposed in heat conducting association with the first set of temperature control elements, a second heat conducting wall disposed in heat conducting association with the second set of temperature control elements and side walls; liquid inlet and liquid outlet; an arrangement of channels formed within the chamber defining one or more continuous flow paths leading from the inlet to the outlet, a first group of one or more of said channels are adjacent to and in heat-conducting association with said first wall and a second group of one or more of said channels are adjacent to and in heat-conducting association with said second wall.

11. The system of claim 10, wherein the channels are formed by dividing panels disposed within the chambers.

12. The system of claim 10 or 11, wherein at least some of channels of the first group are alternatively arranged along the flow path with channels of the second group.

13. The system of any one of claims 10-12, wherein the heat conducting walls are essentially parallel to one another.

14. The system of claim 13, wherein the heat-exchange chamber comprises a main divider panel disposed in between the two heat-conducting walls and extending essentially parallel thereto to divide the chamber into a first compartment adjacent the first wall and a second compartment adjacent the second wall; each of the compartments being divided by auxiliary panels extending from the main divider panel to the heat conducting walls and defining substantially U-shaped channel segments with two ends; there being opening formed in the main dividing panels to link ends of U-shaped channel segments in the first compartment with ends of a U-shaped channel segments in the second compartment to thereby form a flow path of the U-shaped channel segments from the inlet to the outlet.

15. The system of claim 14, wherein the main divider panel, the auxiliary divider ~~panels and the side walls are made from a single block of material.~~

~~16. The system of any one of claims 1-9, comprising a first group and a second~~ group of tubular conduit segments made of a heat conducting material, each with a rectangular cross-section and extending through the temperature control zone, the segments of the first group being proximal to and in heat-conducting association with temperature control elements of the first set and the second group being proximal to and in heat-conducting association with temperature control elements of the second set.

17. The system of claim 16, wherein said conduit segments are made of metal.

18. The system of claim 16 or 17, wherein the flow path comprises alternating segments of the first and the second groups.

19. The system of claim 18, wherein ends of the tubular segments are fitted into connector elements that define within them flow paths that link said segments.

20. The system of any one of claims 10-19, wherein said temperature control elements are thermoelectric elements.

21. The system of claim 20, wherein said temperature control elements are Peltier elements.

22. The system of claim 20 or 21, wherein the thermoelectric elements are associated with a heat sink arrangement for transport and dissipation of heat generated by said elements.

23. The system of claim 22, wherein the heat sink arrangement comprises a closed-circuit heat transport conduit system containing a coolant fluid fitted between a heat absorption module that is in a heat-transfer association with the one or more thermoelectric elements and a heat dissipation module.

24. A device for dispensing a temperature-controlled liquid, comprising a liquid cooling system of any one of claims 1-23.

25. The device of claim 24, herein the liquid is a beverage.

~~**26.** The device of claim 25, wherein the liquid is drinking water.~~

The claims defining the invention are as follows:

1. A temperature control system for regulating temperature of a liquid as it flows through the system, comprising:

a first set of one or more temperature control elements oppositely disposed to a second set of one or more temperature control elements, said first and second sets defining between them a temperature control zone;

a conduit system defining a single flow path through the temperature control zone leading from a liquid inflow to a liquid outflow, the liquid flow path being configured such that the flow path has alternating first and second segments, one or more first segments being in proximity to and in heat-conducting association with said first set, and one or more second segments being in proximity to and in heat-conducting association with said second set.

2. The system of claim 1, wherein the conduit system defines two or more flow paths linking the inflow and outflow.

3. The system of claim 1 or 2, wherein the flow path has a serpentine geometry.

4. The system of any one of claims 1-3, wherein the temperature control elements are thermoelectric cooling elements.

5. The system of claim 4, wherein the thermoelectric cooling elements are planar Peltier elements with opposite cold and hot faces, the cold faces of the elements lining the temperature control zone.

6. The system of any one of claims 1-5, comprising a heat-exchange chamber defined between a first heat-conducting wall disposed in heat conducting association with the first set of temperature control elements, a second heat conducting wall disposed in heat conducting association with the second set of temperature control elements and side walls; liquid inlet and liquid outlet; an arrangement of channels formed within the chamber defining one or more continuous flow paths leading from the inlet to the outlet, a first group of one or more of said channels are adjacent to and in heat-conducting association with said first wall and a second group of one or more of said channels are adjacent to and in heat-conducting association with said second wall.

7. The system of claim 6, wherein the channels are formed by dividing panels disposed within the chambers.

8. The system of claim 6 or 7, wherein at least some of the channels of the first group are alternatively arranged along the flow path with channels of the second group.

9. The system of any one of claims 6-8, wherein the heat conducting walls are essentially parallel to one another.

10. The system of claim 6, wherein the heat-exchange chamber comprises a main divider panel disposed in between the two heat-conducting walls and extending essentially parallel thereto to divide the chamber into a first compartment adjacent the first wall and a second compartment adjacent the second wall; each of the compartments being divided by auxiliary panels extending from the main divider panel to the heat conducting walls and defining substantially U-shaped channel segments with two ends; there being opening formed in the main dividing panels to link ends of U-shaped channel segments in the first compartment with ends of a U-shaped channel segments in the second compartment to thereby form a flow path of the U-shaped channel segments from the inlet to the outlet.

11. The system of claim 10, wherein the main divider panel, the auxiliary divider panels and the side walls are made from a single block of material.

12. The system of any one of claims 1-5, comprising a first group and a second group of tubular conduit segments made of a heat conducting material, each with a rectangular cross-section and extending through the temperature control zone, the segments of the first group being proximal to and in heat-conducting association with temperature control elements of the first set and the second group being proximal to and in heat-conducting association with temperature control elements of the second set.

13. The system of claim 12, wherein said conduit segments are made of metal.

14. The system of claim 12 or 13, wherein the flow path comprises alternating segments of the first and the second groups.

15. The system of claim 14, wherein ends of the tubular segments are fitted into connector elements that define within them flow paths that link said segments.

16. The system of any one of claims 6-15, wherein said temperature control elements are thermoelectric elements.

17. The system of claim 16, wherein said temperature control elements are Peltier elements.

18. The system of claim 16 or 17, wherein the thermoelectric elements are associated with a heat sink arrangement for transport and dissipation of heat generated by said

elements.

19. The system of claim 18, wherein the heat sink arrangement comprises a closed-circuit heat transport conduit system containing a coolant fluid fitted between a heat absorption module that is in a heat-transfer association with the one or more thermoelectric elements and a heat dissipation module.

20. A device for dispensing a temperature-controlled liquid, comprising a liquid cooling system of any one of claims 1-19.

21. The device of claim 20, herein the liquid is a beverage.

22. The device of claim 21, wherein the liquid is drinking water.

23. A temperature control system for regulating temperature of a liquid substantially as hereinbefore described with reference to the accompanying Figures.