We Claim:

1. A transport refrigeration unit for conditioning air within a refrigerated cargo box for housing perishable goods during transport, comprising:

a refrigerant heat rejection heat exchanger and a fan operatively associated with the heat exchanger, the refrigerant heat rejection heat exchanger including a wraparound finned tube coil extending along a periphery radially outboard of the fan, the wraparound finned tube coil having a plurality of heat exchange tube loops and a plurality of plate fins mounted to the plurality of heat exchange tube loops, each heat exchange tube loop formed by a plurality of linear tube segments connected by tube bends, each linear tube segment extending longitudinally at an inclination angle with respect to vertical of at least 20 degrees.

2. The transport refrigeration unit as recited in claim 1 wherein each linear tube segment extends longitudinally at an inclination angle in the range from at least 20 degrees to 90 degrees.

3. The transport refrigeration unit as recited in claim 1 wherein the plurality of plate fins comprises a plurality of plates having a wavy configuration.

4. The transport refrigeration unit as recited in claim 3 wherein the plurality of plate fins include heat transfer enhancements.

5. The transport refrigeration unit as recited in claim 1 wherein each heat exchange tube loop has a generally square-like configuration.

6. The transport refrigeration unit as recited in claim 1 wherein each heat exchange tube loop has a generally rhombus-like configuration.

7. The transport refrigeration unit as recited in claim 1 wherein each heat exchange tube loop has a generally hexagon-like configuration.

8. The transport refrigeration unit as recited in claim 1 wherein the refrigerant unit operates in a subcritical cycle and the refrigerant heat rejection heat exchanger operates as a condenser.

9. The transport refrigeration unit as recited in claim 1 wherein the refrigerant unit operates in a transcritical cycle and the refrigerant heat rejection heat exchanger operates as a gas cooler.

10. The transport refrigeration unit as recited in claim 1 wherein the refrigerant heat rejection heat exchanger comprises more than one refrigerant heat rejection heat exchangers.

11. The transport refrigeration unit as recited in claim 1 wherein the more than one heat rejection heat exchangers include condenser/gas cooler and intercooler.

12. The transport refrigeration unit as recited in claim 1 wherein the more than one heat rejection heat exchangers include condenser/gas cooler and radiator.

13. A refrigeration unit for conditioning air comprising:

a refrigerant heat rejection heat exchanger and a fan operatively associated with the heat exchanger, the refrigerant heat rejection heat exchanger including a wraparound finned tube coil extending along a periphery radially outboard of the fan, the wraparound finned tube coil having a plurality of heat exchange tube loops and a plurality of plate fins mounted to the plurality of heat exchange tube loops, each heat exchange tube loop formed as a non-linear tube loop.

14. The transport refrigeration unit as recited in claim 13 wherein each heat exchange loop has a generally circular configuration.

15. The transport refrigeration unit as recited in claim 13 wherein each heat exchange loop has a generally oval configuration.

16. A refrigerant heat rejection heat exchanger comprising a wraparound finned tube coil adapted to extend along a periphery radially outboard of a fan operatively associated with the heat exchanger, the wraparound finned tube coil having a plurality of heat exchange tube loops and a plurality of plate fins mounted to the plurality of heat exchange tube loops, each heat exchange tube loop formed by a plurality of linear tube segments connected by tube bends, each linear tube segment extending longitudinally at an inclination angle with respect to vertical of at least 20 degrees.

We claim:

1. A transport refrigeration unit (20) for conditioning air within a refrigerated cargo box (10) for housing perishable goods during transport, comprising:

a refrigerant heat rejection heat exchanger (30) and a fan (28) operatively associated with the heat exchanger (30), the refrigerant heat rejection heat exchanger (30) including a wraparound finned tube coil (32) extending along a periphery radially outboard of the fan (28), the wraparound finned tube coil (32) having a plurality of heat exchange tube loops (34) and a plurality of plate fins (40) mounted to the plurality of heat exchange tube loops (34), each heat exchange tube loop (34) formed by a plurality of linear tube segments (36) connected by tube bends (38), each linear tube segment (36) extending longitudinally at an inclination angle (θ) with respect to vertical of at least 20 degrees.

2. The transport refrigeration unit (20) as recited in claim 1 wherein each linear tube segment (36) extends longitudinally at an inclination angle (θ) in the range from at least 20 degrees to 90 degrees.

3. The transport refrigeration unit (20) as recited in claim 1 wherein the plurality of plate fins (40) comprises a plurality of plates having a wavy configuration.

4. The transport refrigeration unit (20) as recited in claim 3 wherein the plurality of plate fins (40) include heat transfer enhancements.

5. The transport refrigeration unit (20) as recited in claim 1 wherein each heat exchange tube loop (34) has a generally square-like configuration.

6. The transport refrigeration unit (20) as recited in claim 1 wherein each heat exchange tube loop (34) has a generally rhombus-like configuration.

7. The transport refrigeration unit (20) as recited in claim 1 wherein each heat exchange tube loop has a generally hexagon-like configuration.

8. The transport refrigeration unit (20) as recited in claim 1 wherein the refrigerant unit (20) operates in a subcritical cycle and the refrigerant heat rejection heat exchanger (30) operates as a condenser.

9. The transport refrigeration unit (20) as recited in claim 1 wherein the refrigerant unit (20) operates in a transcritical cycle and the refrigerant heat rejection heat exchanger (30) operates as a gas cooler.

10. The transport refrigeration unit (20) as recited in claim 1 wherein the refrigerant heat rejection heat exchanger (30) comprises more than one refrigerant heat rejection heat exchangers (30).

11. The transport refrigeration unit (20) as recited in claim 1 wherein the more than one heat rejection heat exchangers (30) include condenser/gas cooler and intercooler.

12. The transport refrigeration unit (20) as recited in claim 1 wherein the more than one heat rejection heat exchangers (30) include condenser/gas cooler and radiator.