Claims

1. A mobile storage apparatus comprising:

a cabinet comprising:

an insulated, closable storage chamber adapted to accommodate one or more objects in a temperature controlled environment;

a system for changing a temperature level of said storage chamber when the system is connected to a power supply; and

a storage chamber liner, wherein said storage chamber liner is formed from thin, thermally conductive sheet-form material arranged within the chamber adjacent one or more sides of the chamber, but spaced from said one or more sides such that said liner divides a volume of said storage chamber into a main central volume for accommodating one or more objects in a temperature controlled environment and a minor peripheral volume for receiving one or more thermally conductive passive temperature control devices whereby, when the power supply to the system is stopped, the one or more thermally conductive passive temperature control devices control the temperature of the storage chamber by reducing a rate of temperature change within the main central volume of the storage chamber.

2. The mobile storage apparatus of claim 1, wherein: the mobile storage apparatus comprises a mobile refrigeration apparatus; the storage chamber comprises a refrigeration chamber; the temperature changing system comprises a refrigeration system for reducing a temperature level of said refrigeration chamber when the refrigeration system is powered by a power supply; the storage chamber liner comprises a refrigeration chamber liner; and the one or more thermally conductive passive temperature control devices comprise one or more thermally conductive passive cooling devices to control the temperature level of the refrigeration chamber by reducing a rate of temperature rise within the main central volume of the refrigeration chamber when the power supply to the refrigeration system is stopped.

3. The mobile storage apparatus of claim 1, wherein: the mobile storage apparatus comprises a mobile warming apparatus; the storage chamber comprises a warming chamber;

the temperature changing system comprises a heating system for raising a temperature level of said warming chamber when the heating system is powered by a power supply; the storage chamber liner comprises a warming chamber liner; and the one or more thermally conductive passive temperature control devices comprise one or more thermally conductive passive heating devices to control the temperature level of the warming chamber by reducing a rate of temperature fall within the main central volume of the warming chamber when the power supply to the heating system is stopped.

4. The mobile storage apparatus of claim 2, wherein the refrigeration system comprises one of: a refrigeration system forming an integral part of the mobile storage apparatus; a detachable refrigeration system for the mobile storage apparatus; or a stand-alone refrigeration system for the mobile storage apparatus.

5. The mobile storage apparatus of claim 3, wherein the heating system comprises one of: a heating system forming an integral part of the mobile storage apparatus; a detachable heating system for the mobile storage apparatus; or a stand-alone heating system for the mobile storage apparatus.

6. The mobile storage apparatus of any one of the preceding claims, wherein the liner is formed of a meshed or non-meshed steel, stainless steel or aluminium sheet-form material.

7. The mobile storage apparatus of any one of the preceding claims, wherein the storage chamber has an upper opening closable by an insulated lid and the liner is arranged around all vertical sides of said chamber.

8. The mobile storage apparatus of claim 7, wherein the liner includes a bottom sheet-form wall spaced above a floor of the chamber to provide a part of the minor peripheral volume for receiving one or more thermally conductive passive temperature control devices between said bottom sheet-form wall and the floor of the chamber.

9. The mobile storage apparatus of claim 8, wherein the liner includes a top sheet-form wall attached to an underside of the lid to provide a part of the minor peripheral volume for receiving one or more thermally conductive passive temperature control devices between said top sheet-form wall and the underside of the lid.

10. The mobile storage apparatus of any one of the preceding claims, wherein the liner is manually removable from and manually insertable into the storage chamber or the liner is fixedly attached within the storage chamber.

11. The mobile storage apparatus of any one of the preceding claims, wherein the power supply comprises a mains AC power supply.

12. The mobile storage apparatus of any one of the preceding claims, wherein the one or more thermally conductive passive temperature control devices comprise one or more blocks.

13. The mobile storage apparatus of claim 12, wherein each of the one or more blocks comprises a solid block of thermally conductive material or a liquid filled block.

14. The mobile storage apparatus of any one of claims 12 to 13, wherein at least some of the one or more thermally conductive passive temperature control devices are manually removable from the minor peripheral volume in the storage chamber.

15. The mobile storage apparatus of any one of the preceding claims, wherein a ratio of the main central volume to the minor peripheral volume of the storage chamber is in the range from 4:1 to 10:1, optionally in the range from 5:1 to 8:1 and preferably in the range from 5.8:1 to 7.2:1.

16. The mobile storage apparatus of any one of the preceding claims, wherein the volume of the storage chamber is in the range from 100 to 200 litres, optionally in the range from 140 to 170 litres, and preferably in the range from 150 to 160 litres.

17. A method of preparing a mobile storage apparatus, the method comprising:

providing a cabinet having an insulated, closable storage chamber; and

arranging a chamber liner in said insulated, closable storage chamber of said mobile storage apparatus, said chamber liner being formed from thin, thermally conductive sheet-form material, the method including arranging said liner within the chamber adjacent one or more sides of the chamber, but spaced from said one or more sides such that said liner divides a volume of said storage chamber into a main central volume for accommodating one or more objects in a temperature controlled environment and a minor peripheral volume for receiving one or more thermally conductive passive temperature control devices;

providing a system for changing a temperature level of the refrigeration chamber when said system is powered by a power supply;

whereby, when the power supply to the temperature changing system is stopped, the one or more thermally conductive passive temperature control devices reduce a rate of temperature change within the main central volume of the storage chamber.

18. A method of storing objects in a storage chamber of a mobile storage apparatus, the method comprising:

providing a mobile storage apparatus according to any one of claims 1 to 16; and;

placing objects to be maintained in a temperature controlled environment within the main central volume of the storage chamber.

19. A mobile refrigeration apparatus comprising:

a cabinet comprising:

an insulated, refrigeration chamber adapted to accommodate one or more objects;

a refrigeration system for cooling said refrigeration chamber when the refrigeration system is connected to be powered by a power supply; and

a thermally conductive refrigeration chamber liner, wherein said refrigeration chamber liner is arranged within the chamber adjacent one or more sides of the chamber, but spaced from said one or more sides such that said liner divides a volume of said refrigeration chamber into a main central volume for accommodating one or

more objects and a minor peripheral volume for receiving one or more thermally conductive passive cooling devices whereby, when the power supply to the refrigeration system is stopped, the one or more thermally conductive passive cooling devices reduce or slow a rate of temperature rise within the main central volume of the refrigeration chamber.

20. A mobile refrigeration apparatus comprising:

a cabinet comprising:

an insulated, closable refrigeration chamber adapted to accommodate one or more objects in a cooled refrigerated environment, said cabinet being connectable to a refrigeration system for reducing a temperature of said refrigeration chamber; and

a refrigeration chamber liner, wherein said refrigeration chamber liner is formed from thin, thermally conductive sheet-form material arranged within the chamber adjacent one or more sides of the chamber, but spaced from said one or more sides such that said liner divides a volume of said refrigeration chamber into a main central volume for accommodating one or more objects in a cool refrigerated environment and a minor peripheral volume for receiving one or more thermally conductive passive cooling devices whereby, when the refrigeration system is disconnected from the cabinet, the one or more thermally conductive passive cooling devices reduce a rate of temperature rise within at least the main central volume of the refrigeration chamber.