CLAIMS

1. A vapor plug, comprising:

a vapor plug cover that is configured to cover an opening of a dewar;

a neck formed from a plurality of disks and a plurality of sheets, wherein the neck has a thermocouple channel; and

a fastener that connects the plurality of disks, the plurality of sheets and the vapor plug cover.

2. The vapor plug of claim 1, wherein the plurality of sheets form a plurality of protrusions that extend outward from the neck, wherein the plurality of protrusions are configured to obstruct gas or liquid that escapes the dewar and reduces evaporation of the gas or liquid within the dewar.

3. The vapor plug of claim 2, wherein each protrusion of the plurality of protrusions is a fin.

4. ~~The vapor plug of claim 1,~~ A vapor plug, comprising:

a vapor plug cover that is configured to cover an opening of a dewar;

a neck formed from a plurality of disks and a plurality of sheets; and

a fastener that connects the plurality of disks, the plurality of sheets and the vapor plug cover,

wherein each disk of the plurality of disks has a top surface and a bottom surface, wherein the top surface has a dimple and the bottom surface has a cavity, wherein a shape of the dimple corresponds with a shape of the cavity.

5. The vapor plug of claim 4, wherein the plurality of disks include a first disk and a second disk, wherein the dimple of the first disk interlocks with the cavity of the second disk.

6. The vapor plug of claim 1, wherein the vapor plug cover has a recess that is configured to receive the fastener, wherein the fastener has a pin that is configured to be inserted into the recess of the vapor plug cover and through an opening in each disk of the plurality of disks and in each sheet of the plurality of sheets to connect the plurality of disks and the plurality of sheets with the vapor plug cover.

7. The vapor plug of claim 6, wherein the fastener has a push nut and a plate, wherein the plate is positioned at an end of the neck and opposite the vapor plug cover, wherein the plurality of disks and the plurality of sheets are positioned between the vapor plug cover and the plate, wherein a head of the pin is configured to push against the push nut and plate to hold the plurality of disks and the plurality of sheets in between the plate and the vapor plug cover.

~~8. The vapor plug of claim 1, wherein the neck has a thermocouple channel.~~

~~9~~8. The vapor plug of claim ~~8~~1, wherein each disk of the plurality of disks has a channel, wherein the channel of each disk is aligned with the channel of the other disks of the plurality of disks to form a thermocouple channel when the plurality of disks form the neck.

~~10~~9. The vapor plug of claim 1, wherein each disk of the plurality of disks and each sheet of the plurality of sheets has a central cylindrical opening that is configured to receive the fastener to connect the plurality of disks and the plurality of sheets with the vapor plug cover.

~~11~~10. The vapor plug of claim 1, wherein the plurality of disks are made from a polystyrene material, wherein the plurality of sheets are formed from Tyvek.

~~12~~11. A cryogenic storage or transport system, comprising:

a dewar having an inner vessel and an outer vessel; and

a vapor plug positioned within the inner vessel of the dewar such that there is a gap between the vapor plug and the inner vessel, the vapor plug having:

a vapor plug cover that is configured to cover an opening of the dewar;

a neck formed from a plurality of disks and a plurality of sheets, the neck having a thermocouple channel; and

a fastener that connects the plurality of disks, the plurality of sheets and the vapor plug cover.

~~13~~12. The system of claim ~~12~~11, wherein the neck is cylindrically shaped and the plurality of disks and the plurality of sheets are cylindrically shaped, wherein an outer diameter of each sheet of the plurality of sheets is greater than an outer diameter of each disk of the plurality of disks to form a plurality of protrusions within the inner vessel of the dewar.

~~14~~13. The system of claim ~~13~~12, wherein the fastener is inserted through a central opening in each disk and a central opening in each sheet and into a recess of the vapor plug cover to interconnect each disk, each sheet and the vapor plug cover.

~~15~~14. The system of claim ~~13~~12, wherein the fastener includes a push nut and a central pin, wherein the central pin is inserted in an opening in each disk of the plurality of disks and an opening in each sheet of the plurality of sheets, wherein the plurality of disks and the plurality of sheets are positioned between a plate and the vapor plug cover, wherein the central pin is inserted into the push nut and the plate to hold the plurality of sheets and the plurality of disks in between the plate and the vapor plug cover.

~~16~~15. A vapor plug, comprising:

a vapor plug cover configured to cover an opening of a dewar;

a plurality of disks;

a plurality of sheets, each sheet of the plurality of sheets being sandwiched in between two disks of the plurality of disks; and

a fastener that is configured to connect the vapor plug, the plurality of disks and the plurality of sheets, and

wherein the plurality of disks include a first disk and a second disk, wherein a dimple of the first disk interlocks with a recess of the second disk.

~~17~~16. The vapor plug of claim ~~16~~15, wherein each sheet of the plurality of sheets forms a fin that protrudes away from the plurality of disks and is configured to reduce evaporation of gases within the dewar.

~~18~~17. The vapor plug of claim ~~16~~15, wherein the plurality of disks are formed from a polystyrene material.

~~19~~18. The vapor plug of claim ~~16~~15, wherein the vapor plug cover has a recess that is configured to receive the fastener, wherein the fastener has a central pin that is configured to be inserted into the recess of the vapor plug cover and through an opening in each disk of the plurality of disks and in each sheet of the plurality of sheets to connect the plurality of disks and the plurality of sheets with the vapor plug cover.

~~20. The vapor plug of claim 16, wherein the plurality of disks include a first disk and a second disk, wherein a dimple of the first disk interlocks with a recess of the second disk.~~