CLAIMS

What is claimed is:

1. A device comprising:

a rotational axis;

a vent port;

a siphon having a crest positioned radially outwards of either the vent port or any portion of a channel connected to the vent port with respect to the rotational axis; and

a ballast chamber having a first outlet connected to the vent port and a second outlet connected to an inlet of the siphon,

wherein the first outlet of the ballast chamber is positioned radially inwards of the second outlet of the ballast chamber and radially outwards of the crest of the siphon with respect to the rotational axis, thereby dividing the ballast chamber into an unvented ballast portion radially inwards of the first outlet and a vented portion radially outwards of the first outlet, and

wherein the second outlet of the ballast chamber is formed at or adjacent to a radially outermost location of the ballast chamber.

2. The device of claim 1, further comprising:

a first channel connecting the first outlet of the ballast chamber to the vent port.

3. The device of claim 1, further comprising:

an upstream chamber connected to the ballast chamber.

4. The device of claim 3, wherein the ballast chamber comprises an inlet at the unvented ballast portion, and the upstream chamber is connected to the inlet at the unvented ballast portion of the ballast chamber.

5. The device of claim 3, wherein:

the upstream chamber comprises an outlet connected to the ballast chamber; and

optionally, the crest of the siphon and the vent port are radially inwards of the outlet of the upstream chamber.

6. The device of claim 5, wherein the outlet of the upstream chamber is formed at a radially outermost location of the upstream chamber.

7. The device of claim 3, further comprising:

a U-channel connecting the ballast chamber to the upstream chamber.

8. The device of claim 7, wherein a volume inside the ballast chamber in an inwards position of the first outlet is larger than a volume needed for overcoming the crest of the siphon.

9. The device of claim 1, further comprising:

a downstream chamber connected to an outlet of the siphon.

10. The device of claim 9, wherein the downstream chamber is positioned radially outwards of the second outlet.

11. A method of using the device of claim 1, comprising:

loading a fluid by rotating the device at a speed that causes the fluid to fill the ballast chamber and the siphon, thereby forming a first meniscus inside of the ballast chamber that is radially inwards of the first outlet and a second meniscus inside of the siphon that is radially outwards of the crest of the siphon.

12. A method of using the device of claim 3, comprising:

decreasing a rotation speed or increasing a rotation speed to empty the upstream chamber.

13. The method of claim 12, wherein the upstream chamber is completely emptied.