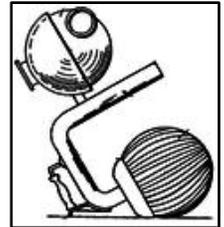


How the Icyball Refrigerator Worked

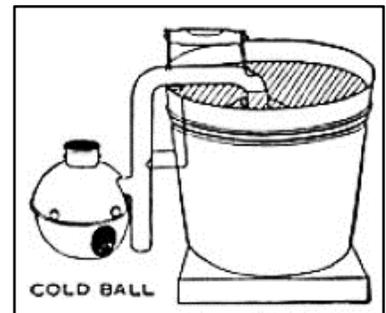
Crosley's *Icyball Refrigerator* is an example of a gas-absorption refrigerator as can be found today in recreational vehicles or campervans.

The closed system weighed 35-39 pounds and contained a mixture of ammonia (the refrigerant) and water (the absorber). The Icyball was recharged by removing it from the cold box and standing it on end to drain the remaining liquid ammonia back into the hot ball, as shown to the right. The smooth surfaced ball was then placed into a bucket of water while the hot side was heated for 90 minutes using a premeasured amount of kerosene (one cup) in a kerosene heater.



That heat boiled the ammonia to a pressure of 250 psi, pushing the ammonia gas to the smooth ball side, now resting in the bucket of water where it condensed into a liquid. Water remained in the hot ball because ammonia has a lower boiling point than water.

When the icy ball was fully charged with liquid ammonia a small whistle was activated in the steam dome. The smooth ball was then turned around placing the hot ball into the bucket of cool water. After a few minutes the hot ball cooled causing the system pressure to drop, which caused the liquid ammonia in the smooth ball to evaporate.



This evaporation process caused cooling and the outside surface of the ball began to freeze. The unit was then carried indoors and placed inside the refrigerator. Often the unit rests in a stabilizing tray filled with antifreeze and water to help maintain an even temperature. Shown right is



a left-handed version of the Icyball with the stabilization pan to its left-hand side. This process was repeated daily.

The connecting tube from the cold ball to the warm ball runs to the lower part of the warm ball, allowing ammonia vapor to bubble through the water speeding absorption and to assist stirring the solution to better move heat to the finned walls.

Note the cold ball has an opening to hold an ice cube tray.

