



Inventors

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Self-Ejecting Ice Cube Tray

AzTE Case #M14-193P

Background

Ice makers are commonly found in household refrigerators, food service industries, and restaurants and bars. The automatic ice makers within standard freezers typically use a timer-operated solenoid valve to fill the tray with the appropriate amount of water. Once the water has frozen the timer activates a heating element that melts a thin layer of the ice cubes' surface to release them from the mold. A rotating arm then scoops the ice out of the mold and the cycle repeats. However, while icemakers are convenient, they increase the energy consumption of household refrigerators by 12-20%. This results in higher electrical utility bills for consumers and adds to global carbon emissions.

Invention Description

Researchers at ASU have invented an icemaker with a self-ejecting ice cube tray. A compressible diaphragm at the bottom of the tray mold pops the cube free under increasing pressure of the expanding ice. The tray is double sided, and swivels so that an empty mold flips up as gravity dumps the ice due to unbalance from the ejecting force. A float ball controls the electrical switch so that only the solenoid valve uses power. This design eliminates the need for the rotating arm as well as the heating element, and the self-ejecting mechanism makes ice cube release easier for manual trays. A free standing model is also available, which siphons water from an insulated tank and needs no electrical components.

Intellectual Property

Status:

Pending

Potential Applications

- Automatic Ice Makers
- Ice Cube Trays

Contact

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Benefits and Advantages

- **Economical** – Saves power which in turn lowers electrical utility costs.
- **Environmental** – Less energy consumption reduces carbon emissions.
- **Practical**
 - Self-ejecting mechanism makes ice cube release easier.
 - Also available in a powerless stand-alone model.