

Product Description Sheet

“Bringing the power of the sun into your kitchen”



June 25, 2019

Model: STS 270i

PATENTS 9,644,864 10,247,447

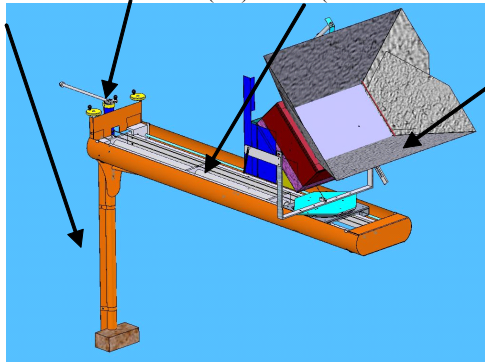
Additional patent pending

A solar thermal cooking appliance for the modern kitchen

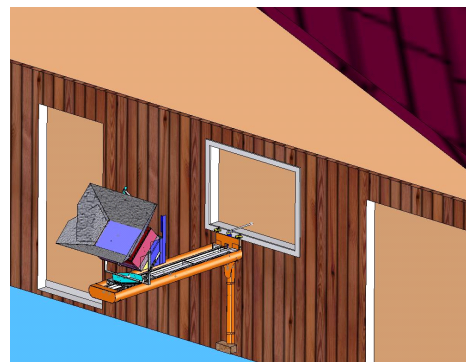
General Description:

- New “Concentrated Solar Power” (CSP) “Solar Thermal System” (STS) kitchen cooking appliance technology
- Uses direct passive solar sunlight, free energy, as a power source for cooking
- Operates fully from inside the building without leaving the kitchen cooking area; user friendly
- **Solar Z**® STS appliance is automated and mechanized for remote universal control of a solar cooking chamber to position and operate for solar cooking
- Extends out and manipulates into the solar environment significantly for optimum solar radiation collection
- Provides a fully complete, cohesive, seamless, integrated kitchen appliance system for solar cooking
- Has user friendly interface for solar cooking in all functions, processes, & methods
- Attaches to an exterior wall at a kitchen or building opening with minimal to no building modifications
- Mainstreams usage of solar cooking creating more impact for energy saving; practical, and efficient

Wall Mount / Controls (4X) / EPS (Extended Positioning System) / Box Solar Oven



Solar Z Unit



Solar Z Installed

Advantages:

- **Solar Cook without leaving your modern kitchen, start to finish**
- **Save energy & money** benefiting from a mainstream solar cooking technology appliance in your kitchen
- **Eliminate the problems & hassles of solar thermal cooking** when using current products in the market which limit use, convenience, and practicality
- **Solar cook as easily as a conventional appliance does** within your kitchen
- **Solar cook using standard cookware and standard food volumes**
- **Find & adjust to solar radiation no matter what the changes** in seasons, times, shadows, with ease, right within the modern kitchen
- **Eliminate walking and carrying food around in the home** to various portable product locations
- **Eliminate lifting, moving, and carrying a solar oven to different locations** as required with the current solar cooking technology
- **Accommodates different building locations & directions from inside the kitchen**
- **Space saving appliance does not clutter the modern kitchen** because the appliance is outside
- **SOLAR Z**® accommodates and expands to multistory living and building applications not possible before with current product designs (more in future announcements)

Design Features & Specifications:

- 1) **Solar Z[©]** STS is designed to provide radiation exposure & operate in:
 - A) A minimum cook time exposure of 4 hours per day or half day
 - B) A minimum 3 cardinal directions
- 2) Large enough for Standard contemporary cooking utensils and processes:
 - A) Cookware materials (glass, Pyrex, stainless steel, iron, aluminum, aluminum /w Teflon, etc.)
 - B) Volumes and sizes:
 - Two 9 inch diameter pots side by side
 - Eight inch high pots
 - C) Weight:
 - Maximum weight capacity of 25 lbs of food load
- 3) No food spillage in any step of the complete process
- 4) Operator ease of use and user friendly in all process steps
- 5) The **Solar Z[©]** system design is universal enough to accommodate:
 - Various building design applications *single & multiple stories*
 - Different building structure *types & designs*
 - Different building *cardinal directional positions*
 - Different *seasonal changes*
 - Different *geographic locations*
 - Position around extraneous *object shadows* from trees, bushes, structural objects
- 6) Installation without any or minimal changes to the building structure
- 7) Adaptable low-cost installation
- 8) All the cooking process steps performed inside the kitchen by the **Solar Z[©]**:

Integrates all cooking process steps into one complete, cohesive, seamless, systematic operation

 - a. Retrieve **Solar Z[©]** STS from storage for use
 - b. Load box solar oven with prepared food stuffs
 - c. Deploy & position box solar oven chamber out away from building structure for Solar radiation retrieval with 4 degrees of freedom remote controls
 - d. Adjust & align solar oven perpendicular to sun rays (Solar Altitude & Azimuth)
 - e. View alignment changes in any oven position for constant remote monitoring & adjustment
 - f. View oven temperature changes (Remote Monitoring)
 - g. Make periodic alignment & adjustment changes to oven position as the sun changes arc position in time (Automatic & Manual capability)
 - h. Retrieve box solar oven from deployment back to kitchen
 - i. Unload cooked food stuffs
 - j. Restore **Solar Z[©]** appliance back into storage location & position for future use
- 9) Robust durable STS product design for an outdoor environment of:
 - Breezes or wind
 - UV radiation of materials
 - Moisture & rain mechanism protection, serviceability
- 10) Robust product durability & maintenance serviceability:
 - Component wear & longevity maximized by design & materials
 - Maintenance & repair infrequent & simple, low cost serviceability

Specifics

Requirements, Specifications, Design Goals

Extended Positioning System:

- 1) Wall Mount System:
 - Minimal to no building modifications to install
 - No screws or bolts driven into wall to attach unit to wall (except multistory units)
 - Beam pivot center axis close to wall plane: 1.5 inches or less
 - Top Saddle stud mount attachment not to exceed component vector force of $F_x = 100$ lbs max when tested at 80lbs at full extension (Max loading capability of system in operation)
- 2) Extended Positioning System structural extension assembly:
 - Beam reach (extension) perpendicular from building wall plane to translate box solar oven assembly minimum of 6.0ft (up to 8.0 ft development)
 - Beam to pivot 180 degrees polar adjustment (90 deg left / right)
- 3) Remote control devices & mechanisms:
 - Four degrees of freedom:
 1. Linear track translation of box solar oven assembly
 2. Beam pivot polar adjustment 180 degree sweep (90 degree CW / CCW)
 3. Solar altitude positioning 90 degrees sweep vertical to horizontal
 4. Azimuth positioning sweep 360 degrees (180degree CW / CCW)
 - All mechanisms have *infinite position* continuous adjustment capability (not indexed)
 - Designed to accommodate full automation for solar sun tracking & positioning (GPS & servo motors positioning & sun tracking)

Box Solar Oven Assembly:

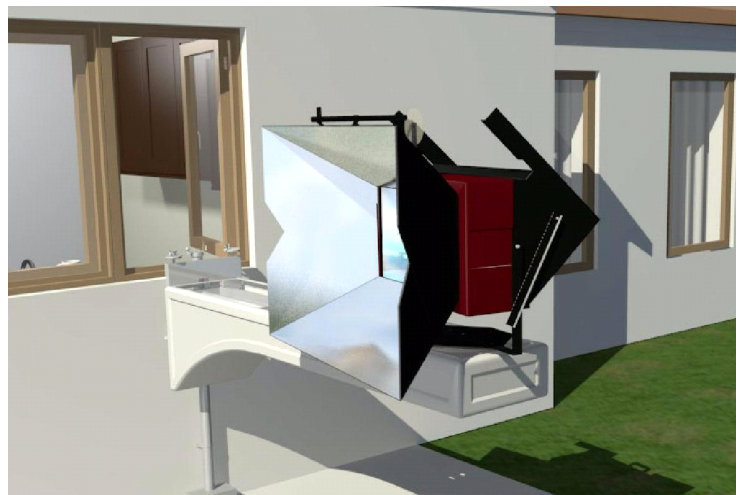
- 1) Box solar oven window is rectangular in shape with the longitude being in the horizontal direction (efficient for radiation collection azimuth sweep angle optimization)
- 2) Oven rack large and strong enough for:
 - Two 9 inch diameter pots side by side
 - Eight 8 inch high pots (and/or double stack)
 - Hold a maximum weight of 25 lbs food load
- 3) Average max temperature minimum of 270 degrees F optimum sunny day performance
- 4) Box solar oven assembly 35 lbs weight total (empty)

System Unit Storage:

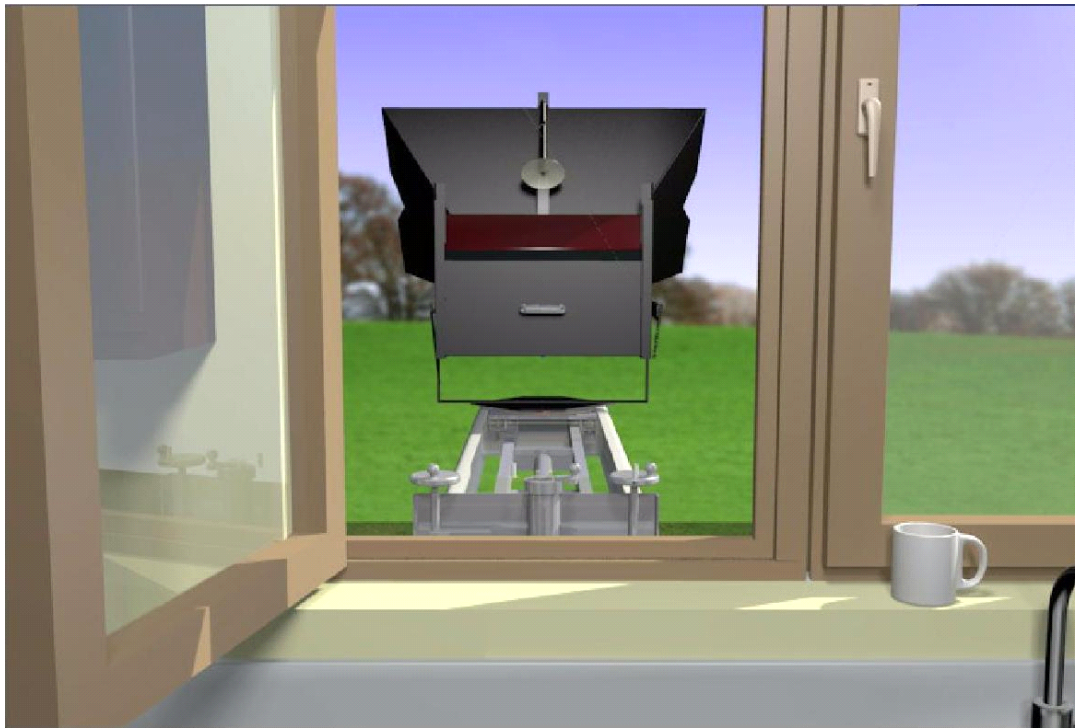
- 1) Shelter storage containment access with remote controls from kitchen
- 2) Protected from environmental conditions when not in use



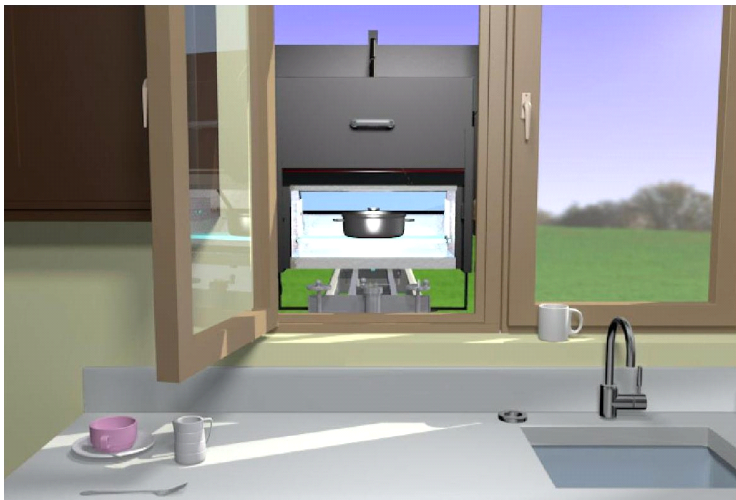
Solar Z Storage



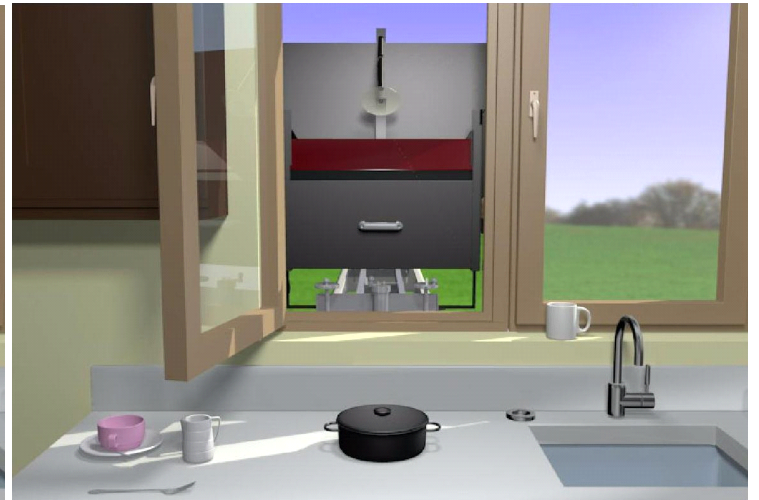
Solar Z Retrieval



Operator View



Open / Unload



Unloaded



Bake to Nature!

Watch for more roll out details in the future

The ultimate in solar cooking

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