



# Cooking Heat Management: Cook's Case

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**Abstract:** This paper is regarding a new cooking heat management system called the Cook's Case. During summers and in all major parts of the year, the environment of a household kitchen or any other kitchen (cooking area) is very hot as compared to the rest of the house/ any area. This is because when we cook food the steam coming from the food being prepared mixes into our environment before the chimney could suck it out. This steam increases the temperature of the cooking area very much. This heat is very unbearable and makes it very difficult for cooks to prepare food. Also, because the cooking stoves are all exposed, we cannot use fans or ACs as it would disturb the cooking process. But with the help of this casing, we can cook food easily while using fans and ACs without disturbing the food. Also, as the steam or vapours won't leave the casing due to the area being enclosed before the chimney can suck them out. This will prevent the heating up of the environment to unbearable conditions.

**Keywords:** Nozzle Mechanism, Batteries, ports, Solid Work Drawings, Thermodynamics, Silica.

## **Introduction:**

So, this invention/model is related to the cooking field, this is a casing meant to put up a heat storing surrounding a gas stove. It is basically a glass chamber with proper passage for hot air and proper ventilation for oxygen which helps in cooking. No other external accessories are added in this. Air Vents are placed at the bottom and the chimney is at the top through a transparent glass/plastic material. so, this case catches all cooking area heat and restricts it into that only which means that the heat of food being prepared is prevented from being mixed into the environment and increases its temperature. Chimneys are present in different households or many other cooking areas with the purpose of sucking and throwing out the hot gasses and vapours originating from the food being prepared. We added many things like storage cubes, hooks, bowls, clock, mirror and silica gel to make this case extraordinary than before. There are hooks to hang something, a clock for alarm purposes, and a mirror on the upper side to reflect light and make the room more brighter place for cooking. We also added an adsorbent that is silica gel which adsorbs all harmful particles of air which is coming out with smoke during cooking. There is a bowl shaped like a pit in the storage cubes which helps the maker to store spices, sugar, and salt. In this invention, the gas stove is placed slightly lower than the upper layer of case so that the hot air or warmth which generate while cooking kept inside the cooking chamber which is placed below the stove and after this the hot air lift up and go to the passage which is a detachable portion and then further it goes in chimney and then mixed with atmospheric air. This whole process of controlling the hot air path keeps the cooking area cool. The food being prepared in any kitchen causes only lots of heating so a modified casing (transparent Container) which provides sufficient ventilation and a proper supply of fresh air to the food to keep its effervescence good and also providing a shield to the cook from the heat when he or she is directly not involved in any process. The purpose is simple,

- Casing provides shielding from the heat of the food.
- Chimney sucks out the air easily and maintains the flow of air within the chamber.

- Vents provide the chamber with fresh air which enters the casing due to the suction created by the chimney inside the casing.
- Lids present on the top are meant to provide access to the food being cooked so that the chef/cook can perform his/her normal course of actions of adding salts, ingredients and mix them and then close the lid so that the food may get cooked up peacefully.
- The casing also shields the food being prepared from the activities of the outside world.
- The heat within the chamber would act as a microwave system and improve the efficiency of the cooking fuel (cylinder/LPG etc....).
- Another model which would work without the presence of a chimney is under reviewing processes.

### **Usage of the Model and the problems it solves:**

The objective of this machine is to reduce the heat in the cooking environment during cooking and possibly utilize it for other purposes and then dispose of it in a simple and smart manner.

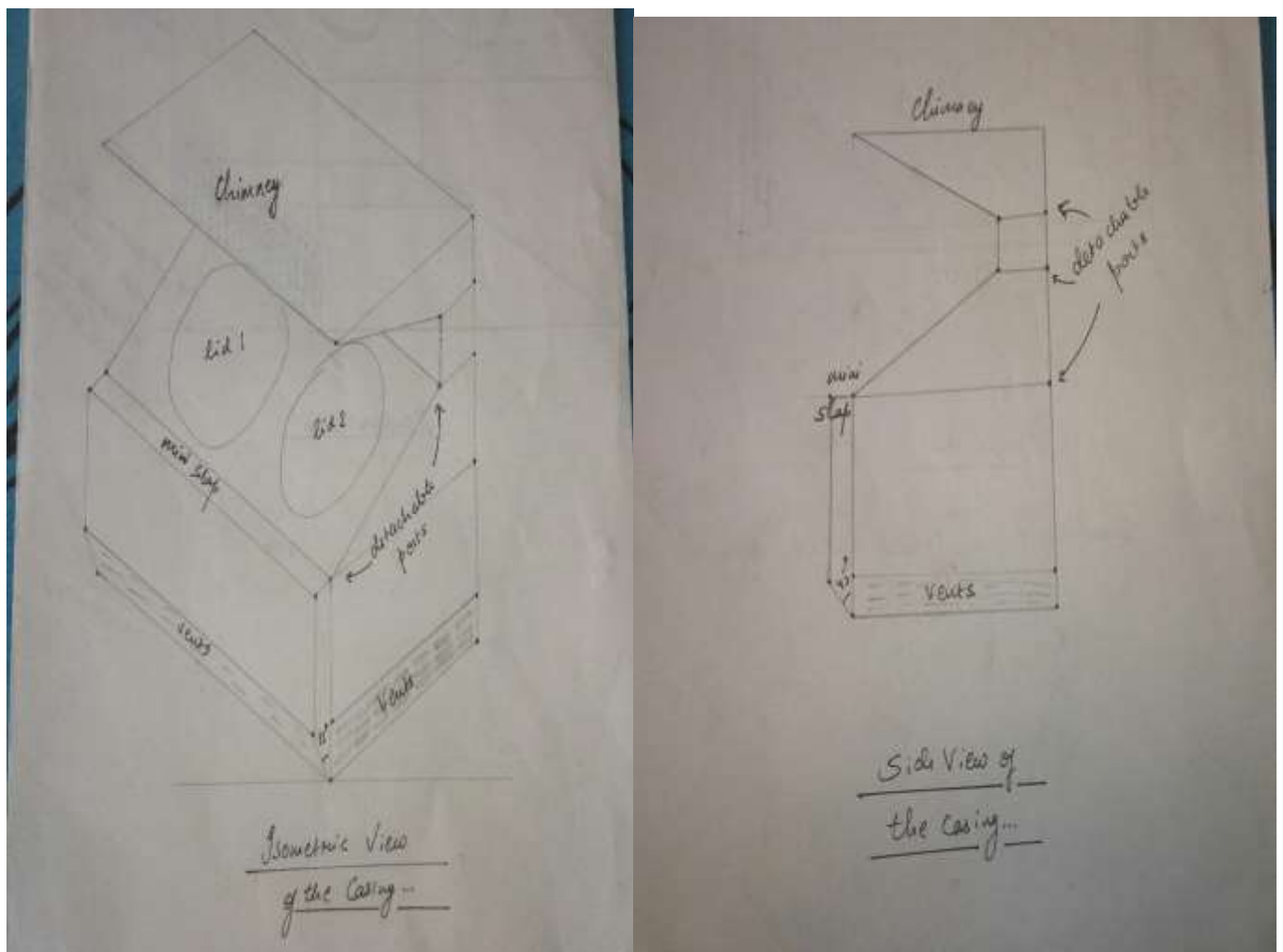
The novel Feature is the Casing of the cooking area by the model. Venting areas which provide circulation of air within the casing. And the mechanism of the nozzle which improves the working of the chimney and improves circulation within the casing. A mini storage cubes/shelf is also provided in the front so as to place things temporarily etc.

We must attach this casing from the storage cubes on the bottom to the chimney on the top. Then we can cook food by removing the lid on the top and then we can leave the lid closed while the food is being prepared. The heat generated within the casing will in turn increase the efficiency of the cylinder and prepare the food quicker than normal.

1. We might not feel the heat of food being prepared as much as we used to feel before.
2. We can use fans or ACs in the kitchen now while cooking food which we couldn't earlier.
3. The efficiency of the cylinder (fuel) increases due the indirect behavior of the casing as a microwave (heat container).
4. Due to the casing covering the cooking area, external activities will not affect the preparing food. And we can conduct our other activities without any problem and tension.
5. The main problem which this model is solving is that we may not need to work in the kitchen and suffer from the unbearable heat which we feel while cooking food as through this invention we can use fans, ACs, etc.... without any disturbance to the food being cooked as well as it will also prevent heat released from the cooking food to escape the containment and heat up the whole kitchen or any other cooking areas.

### **Detailed Description:**

In many movies and discovery shows we see that scientists perform many experiments in an enclosed glass chamber in which all the chemical reactions no matter how hot or poisonous they are occur without any outside disturbances also without harming the scientists doing them. Now those scientist wear gloves and all sorts of safety equipment and conduct experiments in a air tight system, BUT the food being prepared in any kitchen is not poisonous and that dangerous so a modified casing (transparent Container) which provides proper ventilation and supply of fresh air to the food to keep its effervescence good and also providing a shield to the cook from the heat when he or she is directly not involved in any process.



As you can see in the drawing there are few important parts and their functions are as follows,

**Vents** at the bottom are a major part of its functioning. They provide the chamber with fresh air which enter the casing due to the suction created by the chimney inside the casing. Without the vents the casing won't be left with adequate air because of the suction of the chimney continuing without any fresh air supply. Food while cooking needs fresh air supply constantly which the vents fulfil. They are present at the bottom so that they fulfil their purpose without failing the purpose of the chamber. Hot air is lighter and lifts above so it won't escape from the vents as they are at the bottom of the casing.

**Chimneys** are another major part of this invention (currently) as these are ones which will mechanically create the circulation of air in and out of the cooking area with the help of the vents. Food starts heating up releasing hot gasses which are then sucked into the chimney, now this suction of air inside the chimney leave the chamber with a vacuum of air which is filled with the fresh air supplied by the vents.

**The casing** either made up of glass or plastic prevents the disturbance of outside world from reaching the food being prepared as well as prevents the heat of the food being prepared to leave into the environment and heat it up.

**Things** like mini storage cubes, detachable ports are provided for the comfort of the chef/cook. Mini storage cubes can be used to keep stuff temporarily and Detachable ports can be used to dismantle the whole casing for packing up or washing or cleaning up, etc.



- Chimney and Gas stove are NOT parts of this model.
- The model is used with Chimney and Gas stove.
- The model is made up of microwave quality glass.
- Ports :
  - Detachable ports
  - Roller ports. (Hinges)
- Dimensions :
  - AB = 22 inches
  - CD = 3 inches
  - CE = 25 inches
  - FG = CD
  - FH = CE
  - EB = 3 inches
  - HE = 9 inches
  - JN = 8 inches
  - LJ = 4 inches
  - NL = 6 inches
  - KI = LJ
  - BN = 30 inches
  - NP = 2 inches | OP ≈ 18 inches
- The whole model is disassemble able with the helps of detachable ports "•".

**Chimney**  
(sucking hot air)

Heat travels in upward direction

Cool air flows in due to suction created by the chimney.

Venting area

LE ⇒ Mirror to facilitate

- There are 8 hooks 2 inches apart on the outside of the casing to hang utensils and other things. (They are on both sides)
- There are bowls (separate) between the stop junction FG of the given case to store spices and other things like sugar and salt right near the cooking plates.
  - ⇒ The bowls have a closing lid and are themselves detachable and washable.
  - There is also a digital battery operated clock with stop watch which helps in keeping the track of time.
  - ⇒ also having a stop watch is necessary for some time sensitive dishes. The watch is separate and has no effect on the working of the casing itself.
- There is a mirror between the ports LE which helps in improving lighting conditions with the box. The light source can be within the chimney or from outside also.
- Silica Gel foam :**
  - Each box is (3x3) inches.
  - Box with Silica Gel foam to collect CO<sub>2</sub> out of the air.
  - Empty boxes to relieve extra pressure and provide unrestricted air flow.

50 inches

18 inches

Outer Glass lining for holding purpose.

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There are 8 hooks 2 inches apart on the outer side of the casing to hang utensils and other things. They are on both sides. There are bowls (separate) between the storage cubes portion of the given case to store spices and other things like sugar and salt right near the cooking place. There is also a digital battery-operated clock with stopwatch which helps in keeping the track of time. Also having a stopwatch is necessary for some time sensitive dishes. The watch being separate has no effect on the working of the casing itself. There is a mirror between the ports LE which helps in improving lighting conditions with the box. The light source can be within the chimney or from outside also. Silica gel is placed to adsorb carbon particles from the smoke and keep the wall as it is and stop it from becoming black. Each 3\*3 inches box. There is a dark part square box which have silica gel and empty or white boxes to relieve extra pressure and provide unrestricted flow.

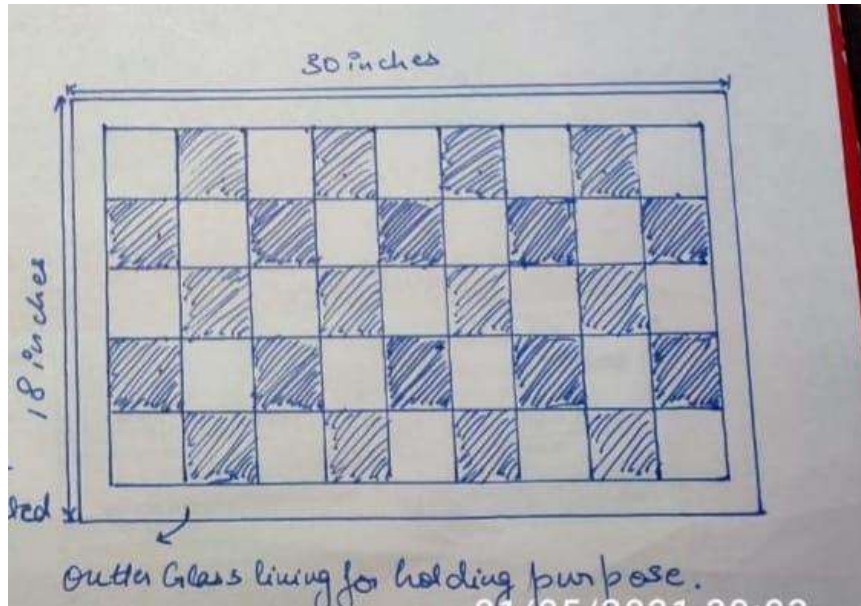
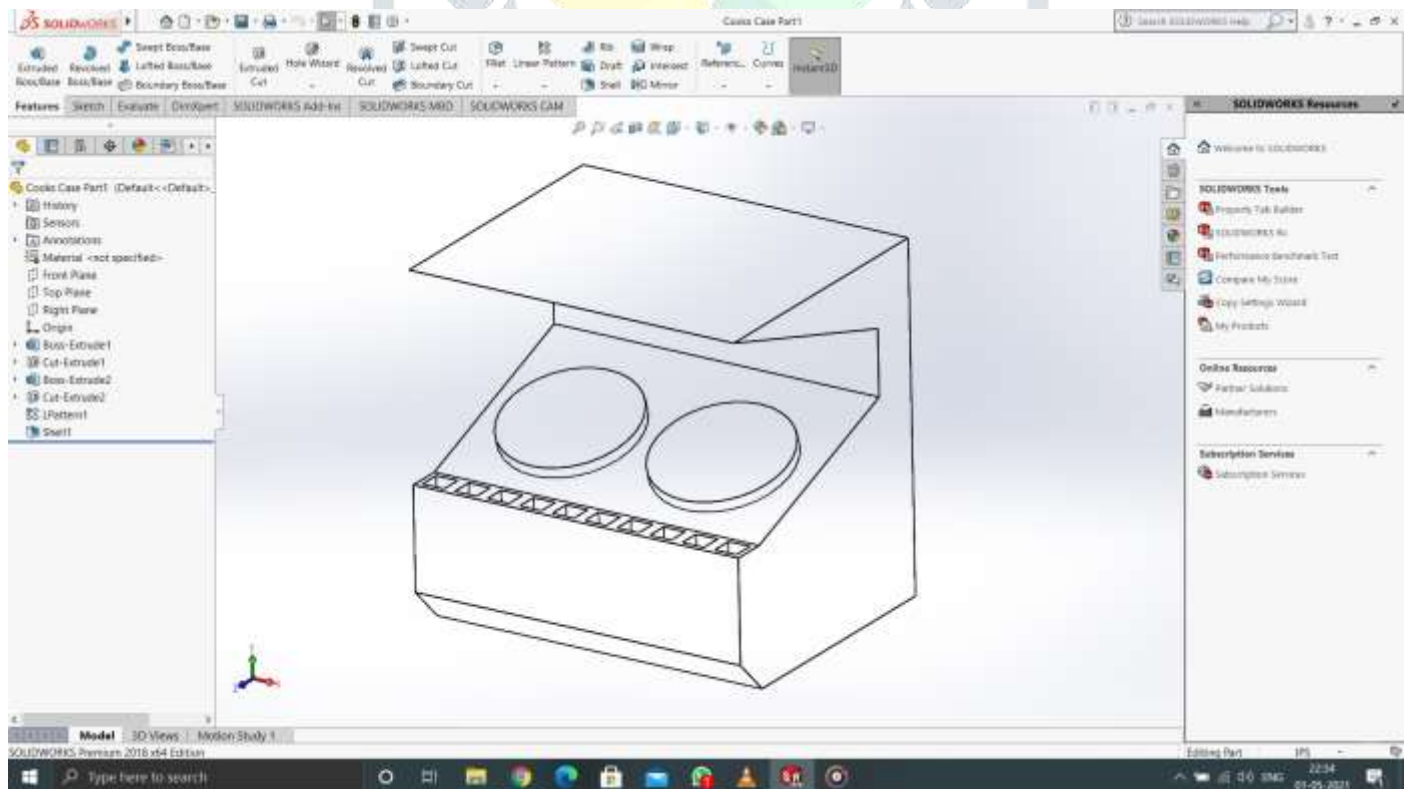
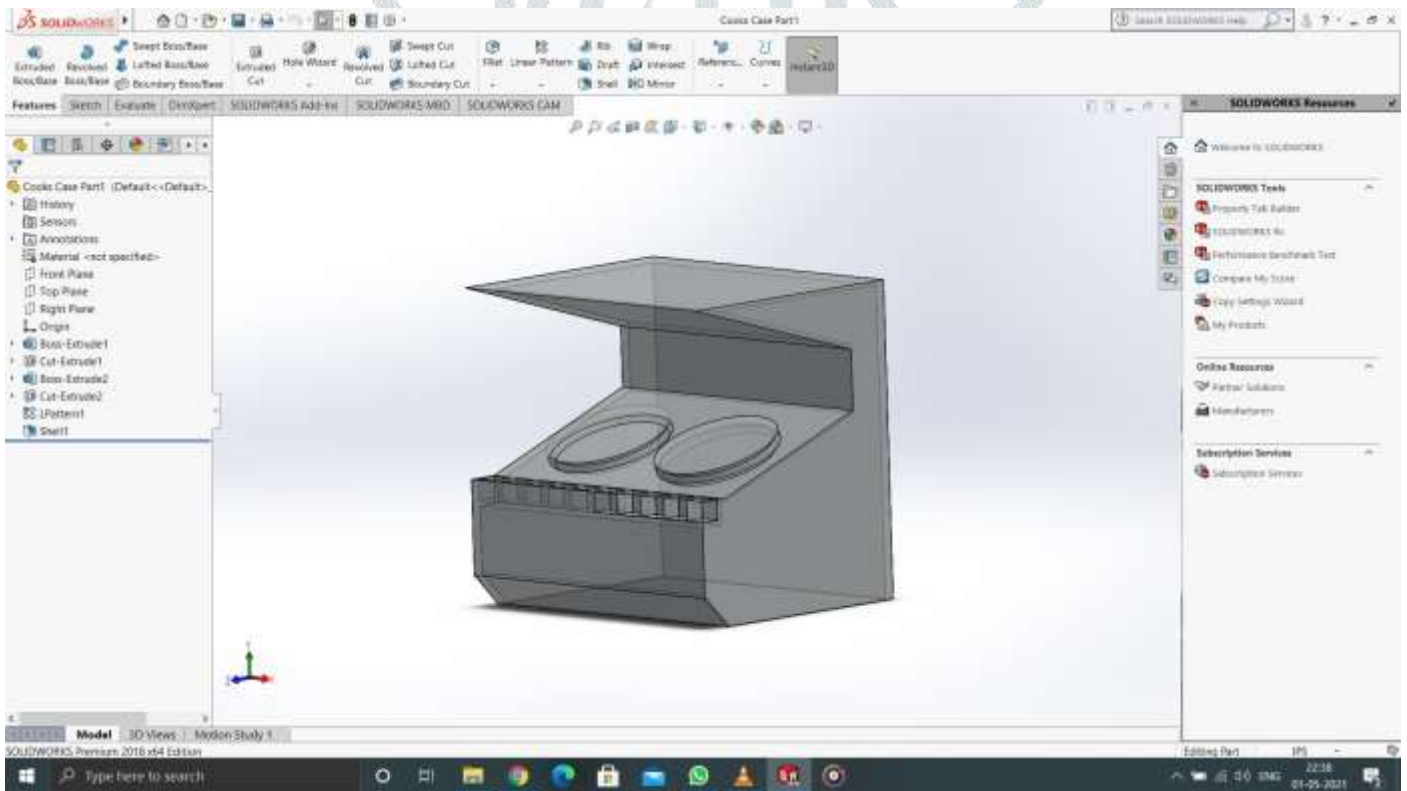
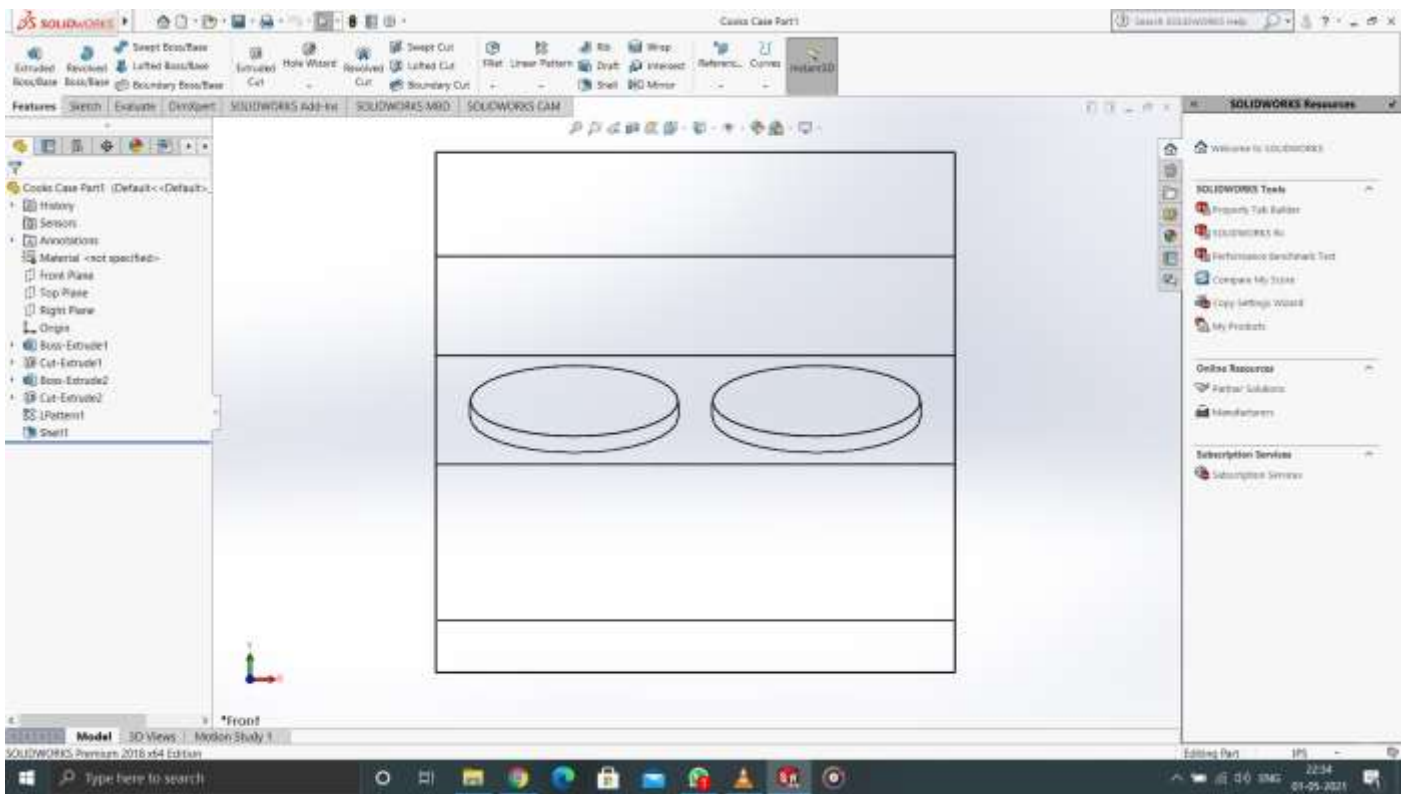


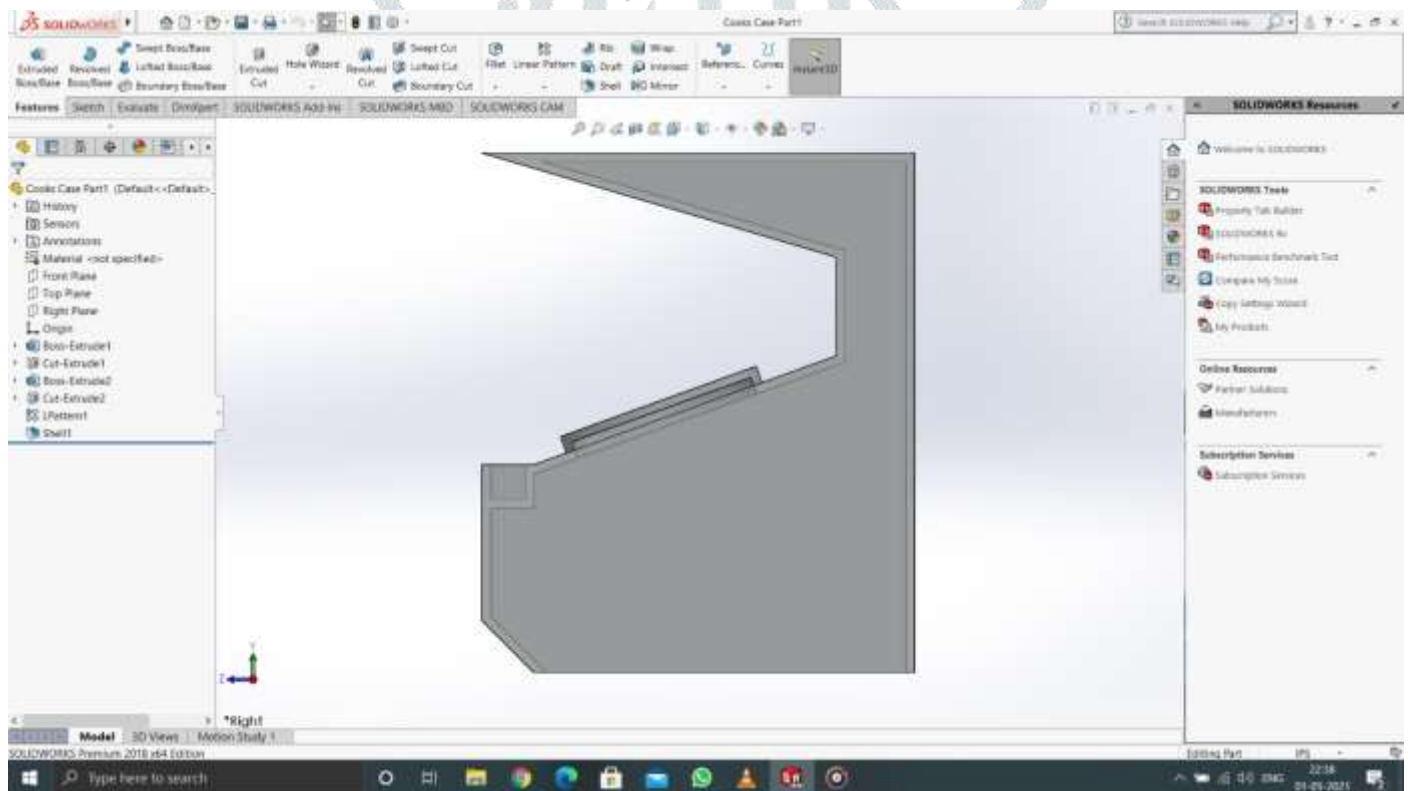
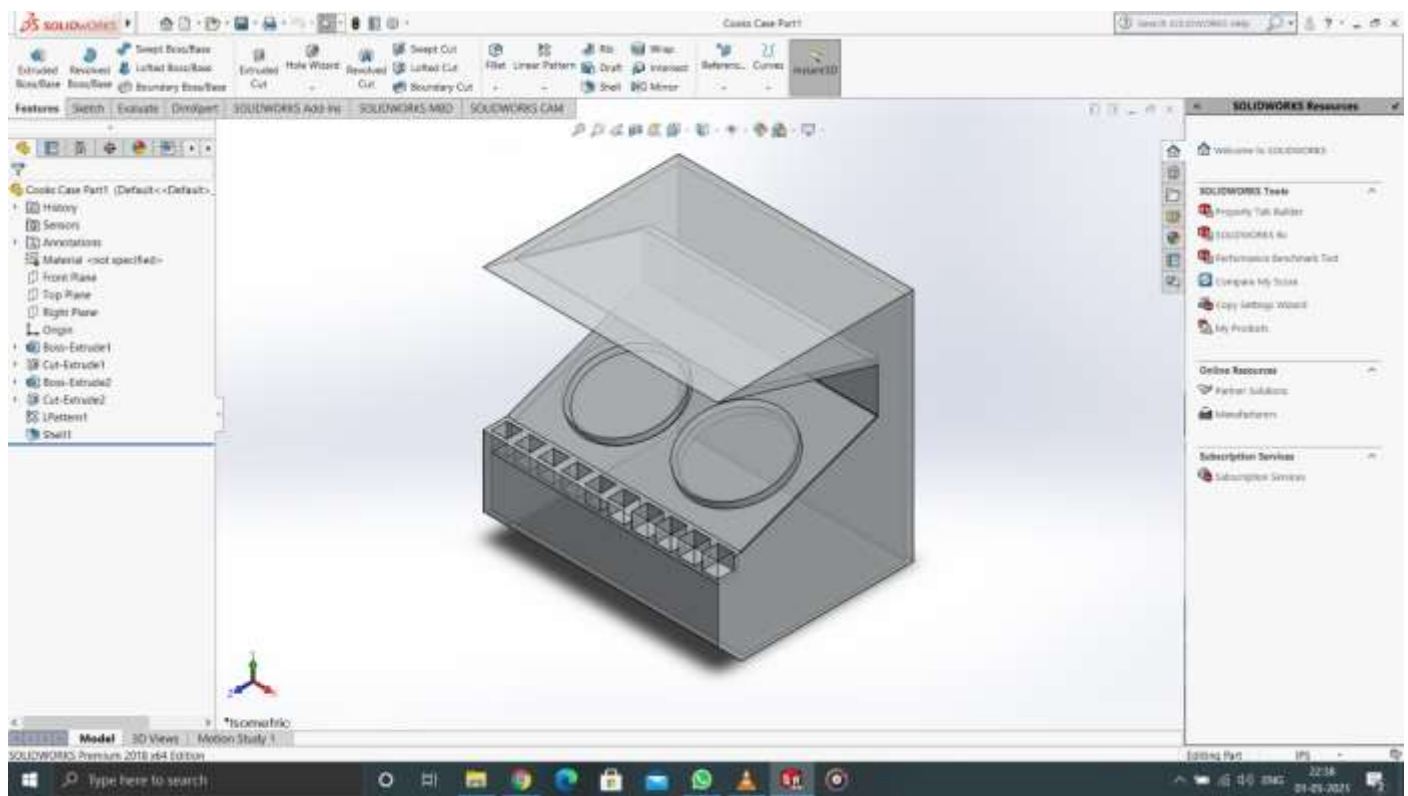
Fig:- silica gel column

### Drawings of the Model:









## Conclusion:

Cook's Case provides an effective and more convenient way for a person to cook meals. It shields the user from excessive heat by enclosing the food in a chamber while making it possible for the person to use Air Conditioning or fans to keep their surroundings cool without affecting or slowing down the process of making food. It also adds to the convenience of the user by providing additional benefits like storage cubes to keep stuff and hooks to store or hang utensils while cooking. The case also contains a battery powered clock and stopwatch to keep track of time. Detachable ports allow the case to be disassembled for cleaning or transportation purposes. While cooking, due to the insulation from surroundings, it helps cook the food faster due to the additional heat inside. The vents allow for fresh air to enter the case from below while hot air

escapes from the top using the chimney keeping the air circulating. The chimney also has silica gel to absorb carbon particles from smoke and stop the wall from becoming black. Due to many advantages, Cook's Case can benefit both commercial and personal consumers, saving their time and providing more convenience while cooking.

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