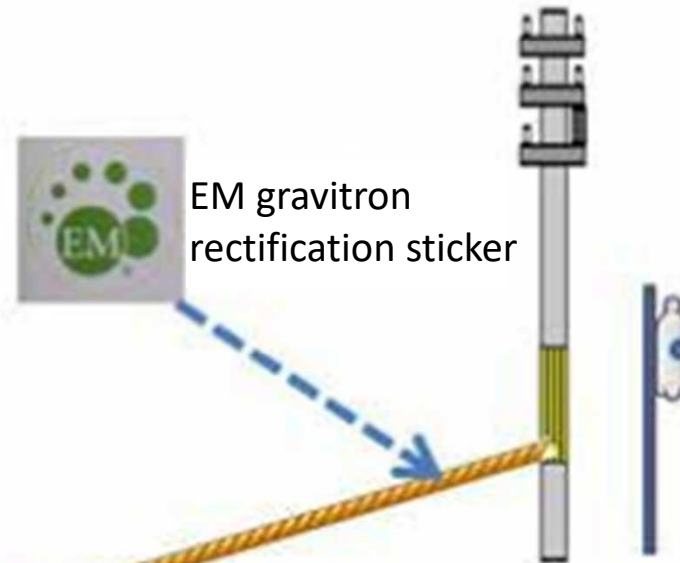


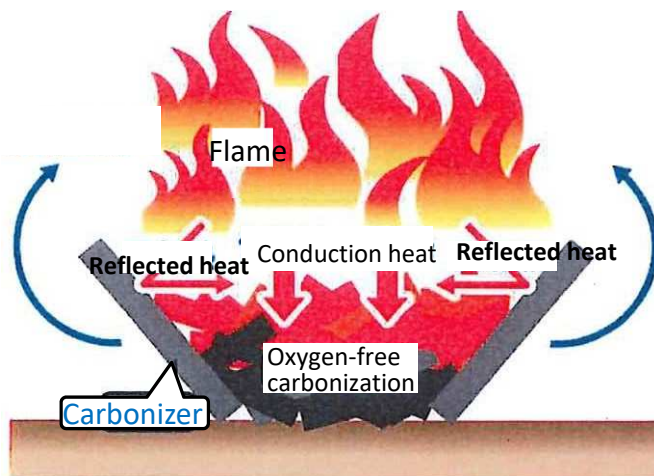
EM gravitron rectification sticker installation image on the “Smokeless Carbonizer”



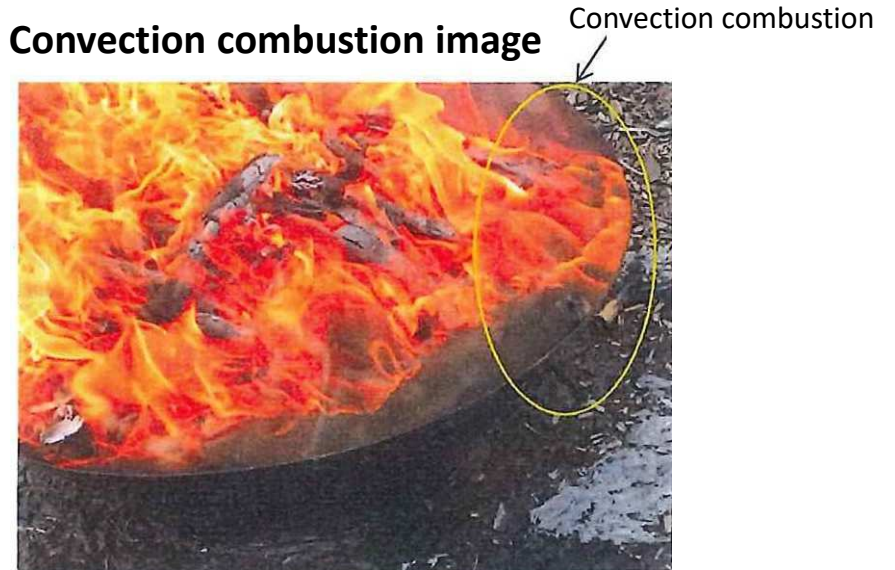
- ① Hang an S-shaped hook etc. (use an extended wire hanger), or iron hook (30 -40 cm) on the Carbonizer
- ② Connect a mini rope to the end of the hook and guide the rope to the electric pole and the place where the electricity of the house passes, let it run to a plastic bottle as the *Hado* source and tie it.(For details, read #108in this series.)
- ③ Stick the rectifying sticker at a spot close to the utility pole and wrap it from the top with plastic tape, etc.

Highly efficient and smokeless! Patented convection combustion structure

Convection combustion illustration



Convection combustion image



The unique shape derived from combustion tests over many years brings in air as if it swirls around the edges and causes convective combustion to discharge CO₂ smoothly by burning. Therefore, the unburned gas (smoke) which tries to go out is drawn in again and there is less smoke as it re-burns, and it can burn a large amount of carbon in a short time by high-temperature combustion, to which is added the reflective heat of the stainless steel.

In this method, if the EM gravitron rectifying element is set as shown in the above figure, you can obtain higher efficiency (smokeless effect) and good quality charcoal and rectified ash.

“Smokeless Carbonizer” active in various fields

The last word in bamboo grove maintenance

Erosion damage from neglected bamboo forests is a nationwide problem. The “Smokeless Carbonizer” can perform resource conversion of bamboo by bamboo forest maintenance, and is the last word in bamboo forest maintenance. The large amount of charcoal produced is valuable and can be sold, making possible sustainable bamboo grove maintenance.

As effective utilization of pruned branches of fruit tree farmers

The disposal of pruned branches of fruit trees is serious and of great concern to farmers. Carbonize pruning branches with the “Smokeless Carbonizer” and reuse this as soil-improving charcoal in orchards, thereby increasing crop yield, improving the taste, and further reducing the amount of pesticides and fertilizers, realizing an ideal cycle.

As effective utilization of forest residue generated in forestry

The forest residue produced in forestry decays and generates CO₂ equivalent to combustion even in the course of decay. By making charcoal with the “Smokeless Carbonizer”, CO₂ can be permanently fixed in the form of carbon, raising the seedling retention rate in tree planting, and it is also effective in preventing pine wilting and oak tree wilting.

For disposal and utilization of agricultural residue

It is also effective for disposal of agricultural residue. In recent years approved incineration of agricultural residue has created a problem with smoke pollution. By using the “Smokeless Carbonizer,” dry agricultural residue can be disposed of without generating smoke and a small amount of charcoal can be produced.

For maintenance of household gardens and for doing barbecues

Cleaning up the pruned branches of garden trees is also very difficult. By using this “Smokeless Carbonizer”, you can not only make soil-improving charcoal for your home garden or garden trees, but you can also enjoy having a barbecue using the charcoal.



How to use:

① Main carbonaceous material



The main carbonaceous materials are dead bamboo, dead branches such as pruned branches, dry agricultural residues and so on. Since it takes time for carbonization if the dead branches are too thick, 5 cm or less is the optimum size. Bamboo can be thick as long as it is dry.

② Preparation



Place the "Smokeless Carbonizer" in a wide-open spot where there is no danger of fire. (It is best to place it directly on the soil.) If air enters from the bottom, the ashing will proceed from the bottom so screw it in so there are no gaps. If gaps occur, seal these up with soil.

③ Ignition



Use corrugated cardboard etc. as an ignition agent, and once lit throw in easily combustible material. A little smoke will occur when the Carbonizer is ignited, and the temperature inside the Carbonizer is still low. Gradually increase the intensity of the fire. When intense flames appear, it will be smokeless.

④ Carbonization starts



When flames are sufficiently intense, continue to add carbonaceous materials. When raw coal material is introduced, or a large amount of carbonaceous material is input at once, the temperature inside the Carbonizer will decrease and smoke will be generated.

⑤ Carbonizing



By burning vigorously, the carbonaceous materials stacked on the bottom becomes oxygen-deficient and steamed, and carbonization is promoted. When the container is full, stop putting in charcoal material. When combustion is intense, there will be little if any smoke.

⑥ Final stage of carbonization



Wait until the flames disappear. Where flames are still coming out, the material is not yet fully carbonized. As the ashing progresses from the top, remove the carbonaceous material from which the flame has gone out. Finally, stir the material; carbonization is complete if there are no flames from carbonaceous material.

⑦ Extinguish the fire



Extinguish the fire. When using charcoal for soil improvement and water purification, simply extinguish with water. Otherwise transfer it to a container such as drum can, cover it and extinguish it, or cover the whole Carbonizer with a lid and extinguish the fire. Extinguish with water until no steam appears; when extinguishing by depriving it of oxygen, leave it alone for a day and it will be completely extinguished when the whole device becomes cold.

⑧ Generation complete



Completion of burned charcoal (Bolus charcoal, Biochar). Because it is charcoal, which makes it easy to catch fire, please be careful with subsequent handling. Do not put it in a flammable bag or store it near flammable objects.

1. If you want to obtain a large amount of rectified ash, smoke will not come out if you put in fallen leaves, dry weeds and combustible waste, each wrapped separately in newspaper.
2. At this stage, use a 1:5 dilution activated EM solution cultured in seawater, instead of water. Since the "Smokeless Carbonizer" is stainless steel, it will not rust even if activated EM solution cultured in seawater is sprayed.
3. The rectified ash that accumulates at the bottom can also be used as a highly functional mineral material.

Charcoal making is neither open field burning nor incinerating!

① **Charcoal making is recognized as an exception to regulations about open field burning.**

In the ordinances pertaining to environmental conservation, many local governments have specified charcoal as an exception to the regulation of open field burning. However, some municipalities have established clear guidelines from the standpoint of fire prevention. Though permitted, producing smoke that significantly impacts the neighboring environment is not permitted. From this point of view, the “Smokeless Carbonizer” is particular about being smokeless.

② **Charcoal making is not incineration, but a production (recycling) of valuable material.**

Unlike incineration, which is aimed at reducing the amount of unneeded things, charcoal making is an excellent production activity that produces something of value. The purpose itself is clearly different.

③ **It greatly helps in waste reduction.**

Pruned branches from fruit tree farmers and other pruned tree branches of trees are incinerated at many waste collection centers. Waste is reduced by generating charcoal, and as a result, the operation costs and the costs involved in maintaining these facilities can be reduced.

④ **Charcoal making is a decisive factor in reducing greenhouse gases.**

Leftover wood material releases a large amount of CO₂ even in the process of microbial degradation. By converting it into charcoal, you can permanently fix CO₂ in the form of carbon. In other words, producing charcoal and using it as a soil conditioner directly leads to CO₂ reduction. (Carbon Minus Project by Professor Shibata, Ritsumeikan University)

⑤ **Recommended by the Ministry of Agriculture, Forestry and Fisheries Minister’s Secretariat Global Environmental Protection Office**

On March 14, 2013 I visited the Ministry of Agriculture, Forestry and Fisheries. The Global Environment Countermeasure Department shared their view that the “Smokeless Carbonizer” is a very effective means from the viewpoint of environmental measures, and is not the same as “open field burning.”