"A complex system that does not work is invariably found to have evolved from a simpler system that worked just fine."
- John Gall

Unless you harvest comb honey, you should have a bit of cappings wax left over from extracting. Add to that the random bits of burr comb that you remove here and there and you can accumulate a nice pile of wax. You probably don't have enough to make a life-sized statue of St. Ambrose, the patron saint of beekeepers, bees and candle makers. But you should have plenty for a few candles and needle waxers.

There are many ways to prepare raw wax. It melts around 145° F and is easy to strain when liquid. Many people melt it on the stove using a double boiler. But the flash point (the temperature when it spontaneously bursts into flames) is only 400° F, lower than the recommended temperature for baking curly fries in the oven, so please be careful around stoves and open flames. A solar wax melter is a much safer and more eco-friendly way to melt raw wax, plus it allows you to add another cool gadget to your garage or shed.

Bee supply catalogs offer wonderful solar wax melters that, according to the advertising, effortlessly transform waste wax into blocks of clean product. These can cost several hundred dollars. They are easy to use and professional-looking, but they lack an essential factor: *pizzazz*. As you'll see from the descriptions below, my custom-made version is not only a bit more high-tech than what the commercial outlets offer, it also has the visual zing that makes it a year-round conversation piece.

One of the main components of my wax melter is the heat retention chamber, which is made of a very durable space-age, lightweight

Saint Ambrose, patron of beekeepers, bees and candle makers.

material. It looks a whole lot like an extra-large Styrofoam ice chest that my parents abandoned at my house one summer. It is finished in a nicked and stained façade, a key feature that keeps it from being retrieved by its rightful owners.

A double-paned storm window, left over from a house I once lived in that had double-paned storm windows, serves as the solar radiation collection and concentration device. It lies on top of the heat retention chamber.

The liquid wax collection receptacle is a large, beat-up old pot that I got free at a yard sale. The vendor didn't want it around any longer; it was bad for business.

An important feature is the filter superstructure (a scrap piece of wire screen bent into a dome shape). This fits on the lip of, and extends a short distance into, the liquid wax collection receptacle. Disposable filter media (paper towels) are placed over the filter super-structure. The best filter media for wax-melting are paper towels that are lousy for their

Components of my solar wax melter

original purpose. We don't want them to be absorbent; instead we want the melted wax to easily pass through.

Another vital piece of equipment is a disposable, ready-form wax cooling repository. These look a lot like empty paper orange juice cartons. Paper milk cartons work just as well. They come in a variety of handy sizes.

Along with the ready-form wax cooling repository, you'll need a slow-release heat dispersion blanket (SRHDB), aka an old towel. Wax blocks crack if cooled too quickly. Lack of cracks are critical for your ultimate product but aren't really a big deal for your bulk wax blocks, which you are going to remelt as needed. Even so, crack-free blocks do look a lot more beautiful and professional.

The final essential piece of equipment is the sun. Old Sol must be in a highly cooperative mood for all of this to work properly. July and August days are ideal. Don't attempt to use this device in February.

Here is how my solar melter is assembled and operated:

The heat retention chamber (Styrofoam chest) is placed on the exterior solar radiation collection platform (my back deck).

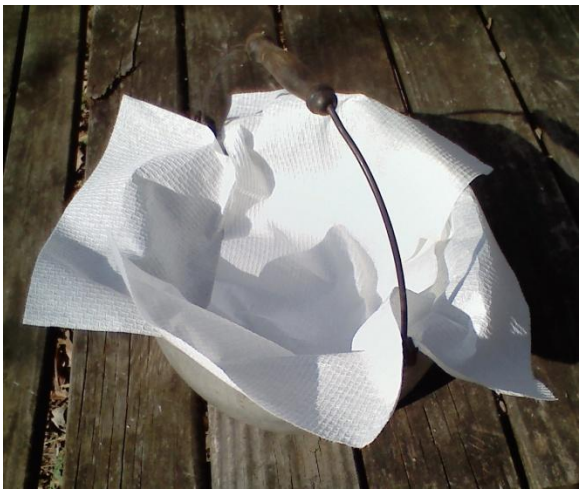
The liquid wax collection receptacle (old pot) goes inside it.

The filter superstructure (old piece of concave screen) fits inside the wax collection receptacle with plenty of space underneath for the wax to drain.

A layer of disposable filter media (paper towels) is pressed into the filter superstructure so that it completely covers the interior from one side to the other. The filter media isn't wide enough for a single strip to cover the entire interior surface, so a second layer is added cross-wise to the first. All of the exposed screen is now covered.

Wax from cappings and burr comb are loaded into the filter superstructure.

The solar radiation collection/concentration



Filter and bucket ready for filling with raw wax.

Above: The working melter

Below: Slum gum left on the filter

device (old window pane) goes over the top of the heat retention chamber.

Switch on the sun and wait for several hours, days or weeks depending on whether you've been a good boy/girl or not. Eventually the pile of wax will be gone, replaced by a brown gooey mess on the filter media. The technical term for this mess is "slum gum". It is made of pollen, propolis, bee cocoons (if you've included brood comb) and lots of other stuff we won't mention because we don't have any clue what it is. I've been told that this glop is good

The final product

for baiting mouse traps, but my mice are unswayed in their conviction that peanut butter is tops. (I've read that rats, just like people, have distinct and pronounced food preferences by geographical region, so your mice may have a different opinion about slum gum. But I digress.)

The absence of wax on the filter media is the signal marking the presence of wax in the liquid wax collection receptacle.

Remove the solar radiation collection/ concentration device. Remove the filter superstructure.

Pour the hot liquid wax into a disposable, ready-form wax cooling repository (orange juice carton). There will be brown crud stratified at the bottom of the liquid; pour carefully to avoid mixing it with the clear wax.

Wrap the repository with your slow-release heat dispersion blanket (old towel).

Wait patiently. After several hours you will have a block ready to be handled. Peel the paper from around the wax block. Trim off any wax on the bottom that is full of glop – save this

for reprocessing the next time you send wax through the solar melter.

Examine the result. If it still has flecks of who-knows-what in it or if it just looks a little dingy, process the wax again. The more times it is filtered and the longer it stays in the sun, the whiter it will get.

A larger version of a solar melter is needed to handle whole frames of comb but the basic technology is the same. Note that old, dark brood comb doesn't contain a whole lot of wax; it is mostly old cocoons and propolis. But you may as well get as much value out of it as you can by extracting what wax is there.

If you like the concept of a DIY solar wax melter, do not attempt to copy mine exactly. Mine is drawn from someone else's general idea with my own tweaks. An object such is this is part functional, part art. Create your own with the same unique flair that you'll use to craft the wax you get from it!

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